

Appendices

Appendices A–G



Appendix A: Laws, Ordinances, Regulations, Policies, and Plans (LORPPs)

Appendix A: Laws, Ordinances, Regulations, Policies and Plans

The table below describes the federal, state, and local laws, ordinances, regulations, policies and plans (LORPPs) applicable to this project. Local documents were reviewed for each of the counties and boroughs within the geographic analysis area and each local municipality located within the 853-foot DSM viewshed area. The various jurisdictions, authorities, and objectives are presented below.

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

Jurisdiction	Authority	Objectives
BOEM	Clean Air Act of 1970	This Act authorized the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The States were directed to develop State implementation plans (SIPs), which consist of emission reduction strategies, with the goal of achieving the NAAQS by the legislated date. BOEM has jurisdiction over OCS air emissions in the Gulf of Mexico west of 87.5 degrees West longitude (off the coasts of Texas, Louisiana, Mississippi, and Alabama). BOEM also has jurisdiction over OCS air emissions within the Chukchi and Beaufort Seas in Alaska according to the Consolidated Appropriations Act of 2012. In all other OCS areas, the EPA has jurisdiction, as mandated by Section 328 of the CAA.
BOEM	Coastal Zone Management Act (CZMA) (1972)	The U.S. Congress recognized the growth in the coastal zone by passing the CZMA, which is administered by NOAA. The goal is to “preserve, protect, develop, and where possible, to restore or enhance the resources of the nation’s coastal zone.” Authorized by the CZMA in 1972, the Coastal Zone Management Program (CZMP) was established as a voluntary partnership between the federal government and U.S. coastal and Great Lakes states and territories.
BOEM	National Historic Preservation Act 1966	This Act establishes a preservation program and a system of protections, which encourage both the identification and protection of historic resources. As part of this program, historic districts and individual properties are either listed or eligible for listing on the National Register of Historic Places (NRHP) or National Historic Landmarks (NHL).
BOEM	Inflation Reduction Act of 2022	This Act offers funding, programs, and incentives to accelerate the transition to a clean energy economy and will likely drive significant deployment of new clean electricity resources. The Act incentives reduce renewable energy costs for organizations, businesses, nonprofits, educational institutions, and state, local, and tribal organizations. Taking advantage of Inflation Reduction Act incentives, such as tax credits, is key to lowering greenhouse gas emission footprints and accelerating the clean energy transition.
BOEM	Information Guidelines for a Renewable Energy Construction and Operations Plan (COP). Version 4.0. (2020)	BOEM’s guidelines indicate that the visual resource assessment should apply appropriate viewshed mapping, photographic simulations, and field inventory techniques to determine the visibility of the proposed project to scenic viewpoints.
BOEM	Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf of the United States (2021)	This OCS Study provides the methodology for assessing the seascape, landscape, and visual impacts of offshore wind within a particular study area. Developers are to use this guidance in preparation as part of a Construction and Operations Plan (COP) for their lease development. This assessment is to be reviewed by BOEM.

Jurisdiction	Authority	Objectives
State of New York		
New York State (NYS) Department of State (DOS)	New York State Coastal Management Program and Final Environmental Impact Statement (NYSDOC 2017)	<p>Policy 24: Prevent impairment of scenic resources of statewide significance.</p> <p>Policy 25: Protect, restore, or enhance natural and man-made resources which are not identified as being of statewide significance, but which contribute to the overall scenic quality of the coastal area.</p>
NYS Department of Environmental Conservation (DEC)	NYSDEC Policy DEP-00-2: Assessing and Mitigating Visual and Aesthetic Impacts	The purpose of this policy is to guide the evaluation of visual impacts for proposed projects as they relate to scenic and aesthetic resources of statewide significance.
NYS DOS	Long Island Sound Coastal Management Program (1999)	<p>Policy 3: Enhance visual quality and protect scenic resources throughout Long Island Sound.</p> <p>The LIS CMP provides a recommendation to protect scenic resources within the Long Island Sound coastal region by having the NYSDOS and local government undertake a comprehensive scenic resources evaluation of the Long Island Sound Coastal area and prepare appropriate area designations. This would include scenic areas of statewide significance (SASS). Another recommendation is to identify, preserve, and provide access to regionally important vistas. The DOS proposed to evaluate scenic land and water vistas as part of the SASS Program (Executive Law, Article 42 and 19 NYCRR Part 602.5c). The DOS will also work with LWRPs to identify locations for protection and enhancement of visual access.</p>
South Shore Estuary Reserve	Long Island South Shore Estuary Reserve Comprehensive Management Plan 2022	<p>The Long Island South Shore Estuary Reserve CMP is the result of The Long Island South Shore Estuary Reserve Act passed in 1993 creating the Long Island South Shore Estuary Reserve (Reserve). The Act also implemented the Long Island South Shore Estuary Reserve Act Council (Council) whose task was to design a CMP to protect the reserve and its inhabitants. This CMP emphasizes the importance of the Long Island South Shore Estuary Ecosystem and outlines actions necessary to preserve, protect, and enhance the natural, recreational, economic, aesthetic, and educational resources that the reserve provides. The Plan discusses various components such as:</p> <ul style="list-style-type: none"> • Action 2.3.8: Reduce negative environmental consequences of duck sludge and other legacy pollutants through removal and/or restoration. The restoration of former duck farms represents an important opportunity to...improve aesthetic and environmental conditions for nearby neighborhoods and provide County residents with the opportunity to access these waterways for recreational and educational purposes. • Action 4.3.4: Increase end-of-street parks and parking access to the shoreline. Implement projects that create parks at the end of streets and in vacant lots, provide public parking access, and provide benefits such as improved aesthetics and public access. Parks that utilize green infrastructure best management practices can also contribute to water quality improvement.

Jurisdiction	Authority	Objectives
New York City		
New York City Planning (NYCP)	New York City Waterfront Revitalization Program (WRP) (2016)	<p>The WRP establishes the City's policies for waterfront planning, preservation, and development projects to ensure consistency over the long term. The goal of the WRP is to maximize the benefits derived from economic development, environmental conservation, and public use of the waterfront, while minimizing any potential conflicts among these objectives (NYCP 2016). The WRP includes policies that are intended to protect and enhance scenic resources:</p> <ul style="list-style-type: none"> • Policy Nine: Protect scenic resources that contribute to the visual quality of the New York City coastal area. • Policy 9.1: Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront. • Policy 9.2: Protect and enhance scenic values associated with natural resources.
New York City Department of City Planning	New York City Comprehensive Waterfront Plan (2021)	<p>This Plan, updated every 10 years, puts forth new strategies for an equitable, resilient and healthy waterfront in the face of climate change.</p> <p>Goal 1: Expand public access to the waterfront with an emphasis on equity by bridging access gaps in historically underserved areas and supporting growing waterfront communities. An important part of this goal is visual access. Clear, unobstructed sightlines down to the waterfront expands connectivity. Visual corridors typically overlap with streets and other upland connections to guide people safely to the water. Where physical access to the water cannot be achieved immediately, visual connectivity can provide communities with an opportunity to see and engage with their waterfronts and form a meaningful connection.</p>
Suffolk County		
Suffolk County	Suffolk County Comprehensive Master Plan 2035	<p>The vision of the 2035 Plan is captured by three themes: Revitalize, Rebuild and Reclaim (i.e., revitalize the economy, rebuild the downtowns and infrastructure, and reclaim the quality of the groundwater, surface water and terrestrial resources).</p> <p>The Plan discusses the importance of the rural water setting of Suffolk County that attracts visitors who enjoy bathing beaches, fishing, boating and other water sports as well as hiking, bicycling, adventure tourism, and other outdoor recreation or simply viewing the scenery and historic hamlets.</p>
Babylon, Town of	2020-2024 Consolidated Plan & 2020 Annual Action Plan (2020)	No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Brookhaven, Town of	Local Waterfront Revitalization Program (LWRP; anticipated completion date of August 2023)	The LWRP will provide strategies and identify projects that improve public access, establish connections between downtown and the waterfront, modify local codes and ordinances to remove barriers to sustainable development, and incorporate sea level rise projections and resiliency measures into community planning.

Jurisdiction	Authority	Objectives
Islip, Town of	None identified	The Town of Islip is in the process of creating a Comprehensive Plan.
Southampton, Town of	Town of Southampton Coastal Resources & Water Protection Plan (2016)	The Plan describes the community's scenic resources as follows: "Southampton's unique scenic quality and sense of place is derived from the interplay of rural farmland, areas of undeveloped open space, water frontage (bay, ocean) and the hamlet centers. This rural character graces the Town with significant natural and historic resources. It is this quality that maintains the Town's vitality as a resort, second home and visitor attraction, as well as an attractive place to live and work." The Plan presents the different visual resources found within the town, including natural environments, built environments, historic vistas, and recognized areas of high scenic quality.
Nassau County		
Nassau County	Nassau County Master Plan (2010)	The Nassau County Master plan's goals are centered around the framework that helps shape the jobs, places, an infrastructure Economic development is to be enhanced by strengthening downtowns, revitalizing underutilized commercial properties, and redeveloping brownfields to preserve the quality of life for residents by protecting environmental, scenic, and historic resources. Within the Master Plan, sections are dedicated to the importance of historic and cultural assets, along with the sustainable land use development and waterfront and coastal zones. As the Plan addresses the variety of historic, cultural, and scenic resources in addition to the environmental resources Nassau County has to offer.
Long Beach City	Comprehensive Plan 2022-2023 (draft)	The 2023 Comprehensive Plan outlines the City's values, visions, and goals for the next 15 years. One of the City's goals is to enhance the physical attributes of all commercial districts and areas. This includes improving aesthetics in streetscapes and commercial areas. Increasing public access to the waterfront is an important aspect to the Plan, along with the ability for beaches and dunes for the southern waterfront to provide resiliency, environmental, social, and economic benefits. However, no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Hempstead, Town of	Energy and Sustainability Master Plan	The implementation of a "green grounds" policy would promote greener and more cost-effective maintenance and operations strategies. This is important as the demand for high quality public-use landscapes has increased. The "green grounds" policy would not compromise the visual landscape quality. There is no town master plan or specifics discussed in the Plan referenced about the preservation of scenic views.

Jurisdiction	Authority	Objectives
Oyster Bay, Town of	Town of Oyster Bay: Open Space Preservation Plan (South Shore Estuary Reserve Workplan Implementation) (2010)	Scenic value is identified in the Open Space Preservation Plan as an important factor in identifying open space and resource protection.
State of New Jersey		
New Jersey Coastal Management Program	Section 309 Assessment and Strategy (2021–2025)	Section 309 Enhancement Objective: Attain increased opportunities for public access, considering current and future public access needs, to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.
New Jersey Department of Environmental Protection	Green Acres Program (2023)	The mission of this program is “to achieve, in partnership with others, a system of interconnected open spaces, the protection of which will preserve and enhance New Jersey’s natural environment and its historic, scenic, and recreational resources for public use and enjoyment.”
State Historic Preservation Office	New Jersey State Register of Historic Places	The geographic analysis area contains additional historic resources that the state has determined are worthy of preservation, but which have either not been determined eligible for inclusion or have not been evaluated for listing in the National Register of Historic Places.
Atlantic County, NJ		
Atlantic County	Atlantic County, New Jersey Master Plan (2018); Atlantic County, New Jersey Open Space and Recreation Plan (2018)	The Master Plan includes a goal to preserve and protect resources, environmentally sensitive areas, particularly watersheds, recharge areas, threatened and endangered species habitat, scenic view sheds, and other valuable features. The Pine Barrens Byway is located partially within the county and includes a variety of historic and scenic sites. There are no specific objectives to preserve and protect scenic views from within the community or the ocean/beach areas. The Open Space and Recreation Plan defines open space as consisting of “diverse environments such as forests, fields, meadows, lakes, ponds, beaches, rivers, streams, historic sites and structures, scenic views and corridors, athletic fields, gardens, orchards, farmland, and vacant lots”. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Absecon, City of	2016 Reexamination Report (2017)	The need to develop and implement programs and regulatory controls to protect scenic resources is identified in the reexamination report, specifically pertaining to residential structures along the Shore Road Corridor and adjacent streets. The plan introduces recommendations for historic preservation. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.

Jurisdiction	Authority	Objectives
Atlantic City	Atlantic City Master Plan (2008); Master Plan Reexamination Report (2016)	An objective under the open space and recreation section is to preserve and protect open space areas that have scenic views and/or important historical, cultural significance and exceptional ecological value. Gardner's Basin Maritime Park is identified as being the most scenic park in the city as it sits by the water's edge. The Conservation Element section describes tidal marshes to provide grand scenic views of the city's urban skyline due to the flat landscape character. Although areas are identified as being scenic, no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views. The reexamination report does provide specifications.
Brigantine, City of	2016 Master Plan Re-examination Report (2016)	An objective identified from the previous planning documents includes an intent to "implement programs and regulatory controls designed to protect the scenic resources of the community." Zoning controls such as building height restrictions and setbacks have previously been implemented. There is public concern for access to scenic resources due to the development of the waterfront. There is a need to promote and preserve access to the Bay and Atlantic Ocean. A general goal to promote a desirable visual environment through creative development techniques and good civic design and arrangements is in the 2016 General Goals and Objectives Statement section. Provisions are made in subsequent sections to respond to this objective and improve the visual environment through changes to building setbacks, height restrictions, and similar measures. However, no additional measures are proposed to protect or enhance visual access and protecting scenic corridors.
Egg Harbor Township	Egg Harbor Township Master Plan (2002); Master Plan Reexamination Report (2017)	The plan wants to provide resource protection by enhancing the natural, cultural and scenic resources of the Great Egg Harbor River (GEHR) and its watershed. The GEHR and its tributaries are described as a scenic resource with many scenic landscapes including lakes, streams, pristine forest areas, and cedar/hardwood swamps. The Pinelands Comprehensive Management Plan designates the lower and middle portions of the river and its tributaries as scenic corridors of "special significance" within the Pinelands. It identifies the need to incorporate resource protection measures and proposes the creation of a River Conservation (RC) overlay zoning district and the establishment of a land use plan that protects river resources. Recommendations for this zoning district include minimizing the visual impacts of development as seen from the river. The 2017 Reexamination Report has shown no progress in implementing the proposed RC zone overlay and is still a recommendation.
Galloway Township	Master Plan Reexamination Report (2020)	An objective identified from the previous planning documents is to preserve and protect open space areas having scenic views and/or important historical, cultural, or agricultural significance. Another identified objective is to maintain continuous networks of open spaces along streams, scenic areas, and critical environmental areas. However, no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.

Jurisdiction	Authority	Objectives
Linwood City	City of Linwood Master Plan (2002); Master Plan Reexamination Report (2018)	The City of Linwood's goals include preserving the city's historic, scenic, and recreational assets. However, there is no specific mention of the preservation of outward views from within the community, nor ocean/beach views. However, no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Longport Borough	Municipal Public Access Plan (2020)	This plan lays out the visions for providing access to tidal waters and shorelines. There is no mention of visual or scenic resources, however the importance for public water access is important in this borough. The plan claims to remain consistent with the borough's Comprehensive Master Plan prepared by John Holland in February of 1976, however, this plan is not found online.
Margate City	2016 Comprehensive Master Plan Update (2017)	This Master Plan is in place to address the city's increased seasonal population by developing plans and strategies for the city to adapt and thrive in the future. One goal is to promote a desirable visual environment through creative development techniques and good civic design and arrangement. A second objective mentioned in the Plan is to establish within the Land Use Plan and Land Development Ordinance, as appropriate, specific Architectural design standards to promote a desirable visual environment and ensure the continued visual integrity of both the commercial and residential sections of the City. A goal set forth around waters includes minimizing pollutants in stormwater runoff from new and existing development to restore, enhance and maintain the chemical, physical and biological integrity of the waters of the state, protect public health, safeguard fish and aquatic life and scenic and ecological values, enhance the domestic, municipal, recreational, industrial, and other uses of water.
Pleasantville City	Pleasantville Master Plan Reexamination (2015)	An objective of this plan is to create a conservation zone along the City's eastern boundary where the bay and marine tidal marsh so that development may be un-permittable. However, no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Port Republic City	None identified	N/A
Ventnor City	2016 Master Plan Reexamination (2016)	No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.

Jurisdiction	Authority	Objectives
Burlington County, NJ		
Burlington County	Parks and Open Space Master Plan (2002)	An objective of this plan is to identify and preserve areas of significant scenic beauty. This includes roads that provide visual or physical access to extraordinary scenic, cultural, recreational, or natural features. These areas will be submitted to the NJDOT for designation in accordance with the New Jersey Scenic Byways Program. The plan recommends that the county should work with appropriate staff and outside agencies to identify, map, and develop viewsheds and areas of significant beauty. As a part of the county's goal to advance the county's culture, character, and heritage through development of the county park system, the county plans to erect interpretative signs to promote historic viewsheds. No specific objectives are included within the Plan for protecting or improving beach/waterfront views.
Bass River Township	None identified	N/A
Cape May County, NJ		
Cape May County	Cape May County Open Space and Recreation Plan (2007); Comprehensive Plan (2022)	One goal of the Cape May County Open Space and Recreation Plan is to protect and preserve natural and scenic resources. However, there are no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views. The Comprehensive Plan also does not include objectives for protecting or improving scenic views, nor beach/waterfront views.
Ocean City	City of Ocean City Master Plan (1988); Ocean City Open Space & Recreation Plan (2014); Master Plan Reexamination Report (2019); Conservation Plan Element, Environmental Resources and Recreation Inventory (2009)	An objective of the Ocean City Master Plan is to promote a desirable visual environment through creative development techniques with respect to environmental assets and constraints of the overall city and of individual development sites. Another objective is to encourage the preservation and restoration of historically significant buildings and sites within the city. There are development provisions for structures in the waterfront neighborhoods of the city to preserve waterfront views. The Ocean City Open Space and Recreation Plan includes a conservation goal to preserve and maintain the ecological, historical, visual, recreational and scenic resources of the city. The Plan includes guidelines to acquire sites of special scenic value that should be protected to preserve or enhance the character of the community. The goal of the Conservation Plan Element, Environmental Resources and Recreation Inventory is to preserve and maintain the ecological, historic, visual, recreational and scenic resources of the city. However, there are no objectives for protecting or improving scenic views, nor beach/waterfront views. There are also no additional objectives in terms of scenic resources in the Master plan Reexamination Report.

Jurisdiction	Authority	Objectives
Monmouth County, NJ		
Monmouth County	The Monmouth County Master Plan (2016); 2018 Master Plan Reexamination (2018)	<p>This Plan's objectives are to help guide efforts and actions that contribute to a strong, stable, and sustainable prosperity through redevelopment, revitalization, and rediscovery. Relevant objectives of the plan include:</p> <ul style="list-style-type: none"> • Protect, conserve, and enhance the county's significant, diverse, natural, and scenic resources utilizing sound ecological protection and restoration measures. • Support investment in the preservation of cultural, historic, and scenic resources located in priority growth areas and locations. • Support retention, preservation, restoration, and improvement of our cultural, historic, and scenic resources that define a community's distinct character. <p>The reexamination plan does not mention any changes to the goals pertaining to scenic resources.</p>
Allenhurst Borough	Master Plan Reexamination Report (2018)	The Plan references the Coastal Metropolitan Planning Area, which the Borough falls within. One of the objectives of this reference is to encourage the reclamation of environmentally damaged sites and mitigate future negative impacts, particularly to waterfronts, beaches, scenic vistas, and habitats. It also references the State Development and Redevelopment Plan (SDRP) goals, one of which is to preserve and enhance areas with historic, cultural, scenic, open space and recreation value.
Asbury Park City	Master Plan & Master Plan Reexamination Report (2017)	The plan provides improvement to the lakes in the city that would enhance the public's enjoyment through aesthetic and environmentally healthy improvements of the water and surrounding areas. However, no specific provisions for protecting or enhancing the outward views from within the community, nor beach/ocean views are included.
Avon-by-the-Sea Borough	Municipal Public Access Plan (2017)	The plan identifies the boardwalk as an important public access point that provides visual and physical access to the oceanfront. There are five locations along Shark River that are limited to visual access only due to safety concerns.
Belmar Borough	Master Plan Reexamination Report & Update (2016)	One of the four goals is Preservation and Enhancement of Critical State Resources - Ensure that strategies for growth include preservation of the State's critical natural, agricultural, scenic, recreation, and historic resources, recognizing the roles they play in sustaining and improving the quality of life for New Jersey residents and attracting economic growth.

Jurisdiction	Authority	Objectives
Bradley Beach Borough	Master Plan Reexamination Report (2018); Recreation, Open Space, and Conservation Element of the Bradley Beach Borough Master Plan; Municipal Public Access Plan (2019)	The Master Plan Reexamination Report addresses land development issues and provides recommendations where necessary. The Recreation, Open Space, and Conservation Plan objective is to provide an inventory of the Borough's existing recreation, open space, and observation facilities and establish goals and objectives to guide enhancement, preservation, and development of these facilities. The Municipal Public Access Plan includes the enhancement of public access to tidal waters and shorelines for recreation, navigation, commerce, and fishing. Recreation activities in this borough include swimming, sunbathing, fishing, surfing, sport diving, bird watching, walking, and boating along the tidal shores. No specific objectives are included within the three plans for protecting or improving scenic views, nor beach/waterfront views.
Deal Borough	Municipal Public Access Plan (2017)	This Plan not only identifies physical beach access areas in the borough, but visual access of the beach and ocean for those who choose not to physically access the beaches. Three points of visual access are identified.
Highlands Borough	2016 Master Plan Reexamination Report and Master Plan Amendments (2016)	This Plan recognizes the importance of aesthetics in terms of new building and landscape design, streetscapes, and neighborhoods. The land use plan elements include open space preservation and living shorelines, among other things. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Loch Arbour Village	Municipal Public Access Plan (2017)	The Village is responsible for providing public access to the tidal waters. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Long Branch City	2020 Master Plan Reexamination (2020); Municipal Public Access Plan (2017)	Some goals in the master plan include promoting aesthetically pleasing development that recognizes the character of the traditional New Jersey shore towns, preserving the City's natural resources and historically and architecturally significant districts and structures. In the Municipal Public Access Plan, the city supports the reconstruction of the historic Long Branch Pier as a multi-purpose facility. This pier will be open for public use and includes a fishing area, a garden, a children's play area, visual access, and close proximity to beach and boardwalk access points. 27 public access locations are identified as having visual access. Between these two plans, no specific objectives are included for protecting or improving scenic views, nor beach/waterfront views.
Manasquan Borough	Master Plan Re-examination (2017)	In terms of development, this plan encourages the development of both active and passive recreation for residents and visitors while maintaining the sensitivity to environmental and cultural resources. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.

Jurisdiction	Authority	Objectives
Middletown Township	Master Plan Reexamination Report & Amended Housing Master Plan Element and Open Space, Recreation and Conservation Master Plan Element	Discusses the approached to site design that promotes preservation of significant resources, including scenic corridors, historic roadways, architecturally and historically significant structures, and open space. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Monmouth Beach Borough	Municipal Public Access Plan (2017); Master Plan Reexamination Report and Plan Amendment (2017)	The Plan identifies 13 publicly accessible areas that are for visual purposes only of the water. The Plan is consistent with Goal #2 of the Monmouth County Comprehensive Master Plan, including to protect, conserve, and enhance the county's significant, diverse, natural, and scenic resources utilizing sound ecological protection and restoration measures. One of the Report goals is to promote aesthetically pleasing human scale development that recognizes the character of traditional New Jersey shore towns. No specific objectives are included within the Plan or the Report for protecting or improving scenic views, nor beach/waterfront views.
Neptune Township	The Township of Neptune Comprehensive Master Plan (2011)	The plan provides a framework for development and preservation of the township throughout its scenic, historic, and natural areas. The Plan provides goals and recommendations for future development while preserving natural and historic resources. This includes promoting aesthetics in terms of commercial and industrial areas, future utility installations, and the visual quality of scenic corridors. The Fletcher Lake and Wesley Lake corridors will be evaluated for potential designation as scenic corridors and consider adopting appropriate design standards and guidelines for development along designated corridors. However, no specific objectives are included for protecting or improving beach/waterfront views.
Sea Bright Borough	2017 Sea Bright Borough Master Plan (2017)	Importance in conserving the beach and river waterfronts for the value of providing both scenic vistas and recreational opportunities. A policy of the borough includes promoting visual environment through creative development techniques and good civic design and arrangement.
Sea Girt Borough	Master Plan Reexamination Report (2018)	The Plan states the Coastal Area Facilities Review Act policies, including the reclamation of environmentally damaged sites and mitigate future negative impacts, particularly to waterfronts, beaches, scenic vistas, and habitats. The Plan discusses the need for a historic preservation plan. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Spring Lake Borough	Master Plan (2010)	Some of the goals presented in the master plan include maintaining historic resources and natural beauty of the Borough, enhancing conservation, recreational, and open spaces. No specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.

Jurisdiction	Authority	Objectives
Ocean County, NJ		
Ocean County	2011 Comprehensive Master Plan (2011); Open Space, Parks & Recreation Plan (2020)	The Comprehensive Master Plan and the Open Space, Parks, and Recreation Plan include no objectives for protecting or improving scenic views, nor beach/waterfront views.
Barnegat Light Borough	Barnegat Light Borough Master Plan Reexamination (2018)	One goals of the Municipal Public Access Plan (attached to the Master Plan) is to maintain and continue to promote a visually pleasing aesthetic along the waterfront areas. The plan identifies four public access points that are used for visual access only.
Barnegat Township	2011 Barnegat Township Master Plan (2011)	Historic preservation is valuable to the community. By protecting aesthetically attractive architectural elements and utilizing existing infrastructure, historic preservation is essential. Significant sites are often those that already provide the town with open space, recreation, and scenic vistas. Referencing the State Development and Redevelopment Plan, the borough will preserve and enhance historic, cultural, scenic, open space and recreational value. However, no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Bay Head Borough	Municipal Public Access Plan (2020); Master Plan Reexamination Report and Update (2021)	22 public access points were identified as having visual access to the water in the Municipal Public Access Plan. There are no specific objectives are included within the Master Plan for protecting or improving scenic views, nor beach/waterfront views.
Beach Haven Borough	Beach Haven Borough Comprehensive Master Plan (2018)	A goal of the Comprehensive Master Plan is to maintain and continue to promote a visually pleasing aesthetic along the waterfront areas. However, there are no specific objectives included for protecting or improving scenic views, nor beach/waterfront views.
Berkeley Township	Berkeley Township Comprehensive Master Plan (1997); General Reexamination of the Master Plan (2019); Environmental Resources Inventory (2012)	The Township Master Plan, the Reexamination Report, and the Township Environmental Resources Inventory include no specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Brick Township	Master Plan Reexamination Report (2018); Mater Plan: Part 2 – Land Use Element	In the Land Use Element of the Master Plan, there is recognition of the special attraction and scenic value placed on the residential uses of a barrier island location and the over-water views it provides. However, no specific provisions for protecting or enhancing the outward views from within the community, nor beach/ocean views are included. The Master Plan Reexamination Report (2018) includes no specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Eagleswood Township	None Identified	N/A

Jurisdiction	Authority	Objectives
Harvey Cedars Borough	Municipal Public Access Plan (2017)	A goal within the Municipal Public Access Plan is to maintain and continue to promote a visually pleasing aesthetic along waterfront areas. 21 publicly accessible areas are listed as having visual access to the waterfront.
Lacey Township	Master Plan (1991); Lacey Township Master Plan Update – Revised Land Use Element (2016); Master Plan Reexamination Report (2018)	The Township Master Plan includes a townscape objective that states that all elements that could be obtrusive to the boating public should be reviewed and specifically addressed through view studies or simulations prior to receiving approvals. The Township Reexamination Report and Revised Land Use Element include no specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Lavallette Borough	Master Plan Reexamination (2006); Master Plan for the New Millennium (1999)	The reexamination of the Master Plan encourages the preservation and maintenance of Lavallette’s historic sites. The original Master Plan encourages the importance of aesthetic streetscapes, commercial land uses, and historical and cultural qualities. However, neither plan includes specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Little Egg Harbor Township	Reexamination Report and Master Plan Amendment (2015)	The Township Master Plan includes a goal to promote a desirable visual environment through conservation and preservation of valuable natural features. However, the Plan does not include specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Long Beach Township	Comprehensive Master Plan Update (2017)	The Comprehensive Master Plan does not include specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Mantoloking Borough	2017 Master Plan Re-Examination Report (2017)	The Plan does not include specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Ocean Township	2023 Master Plan (2023); 2019 Master Plan Reexamination Report (2019)	One of the Ocean Township 2023 Master Plan’s purposes is “to promote a desirable visual environment through creative development techniques and good civic design and arrangement”. The Reexamination Report includes no specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Point Pleasant Beach Borough	2021 Reexamination & Master Plan Amendment	A plan objective to strive to foster an aesthetically pleasing downtown commercial district for the ease and safety of pedestrians. This includes protecting and enhancing the historic maritime character of the borough by maintaining appropriate scales of development intensity of use, and architectural style. However, it does not include specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Seaside Heights Borough	Master Plan Reexamination Report (2022); Vision Plan (2009)	The vision plan recognized the need for increased access to the bay front. However, neither plan includes objectives for protecting or improving scenic views, nor beach/waterfront views.

Jurisdiction	Authority	Objectives
Seaside Park Borough	2008 Seaside Park Master Plan (2008)	Although a goal of the Master Plan is to encourage desirable visual design of new and upgraded businesses, it does not include specific provisions for protecting or enhancing the outward views from within the community, nor beach/ocean views. Standards for preservation of historic structures are included.
Ship Bottom Borough	2021 Master Plan Reexamination Report (2021)	The Report prioritize the value of public access to the waterfront and the importance of a sustainable shoreline void of erosion. However, it does not include specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Stafford Township	2017 Master Plan: Land Use Element (2017)	The Land Use Element of the master plan include no specific objectives for protecting or improving scenic views, nor beach/waterfront views.
Surf City Borough	Comprehensive Master Plan Re-examination (2019)	The re-examination highlights the need to prioritize the value of public access to the waterfront and the importance of a sustainable shoreline void of erosion, especially being a barrier island community. The municipal Public Access Plan, attached to the re-examination, works to maintain and promote visually pleasing aesthetic waterfront areas. However, neither plan includes specific objectives are included within the Plan for protecting or improving scenic views, nor beach/waterfront views.
Toms River Township	Natural Resources Inventory (2016); Township of Toms River Master Plan (2017)	No specific objectives are included within the Natural Resources Inventory or the Master Plan for protecting or improving scenic views, nor beach/waterfront views.
Tuckerton Borough	Master Plan (2002)	An objective in the master plan is to preserve and protect the distinctive physical and historic character of the Borough, preserve maritime heritage by recognizing the ties to Tuckerton Creek, Little Egg Harbor, and the Atlantic Ocean. Within the Conservation Plan Element, the protection of scenic visual corridors is valued as an important contribution to the quality of life for residents and should be protected from inappropriate development. These visual corridors are the view of Lake Pohatcong from Route 9, the view of Long Beach Island and Little Egg Harbor from the Tuckerton Cover area and views of Tuckerton Creek.

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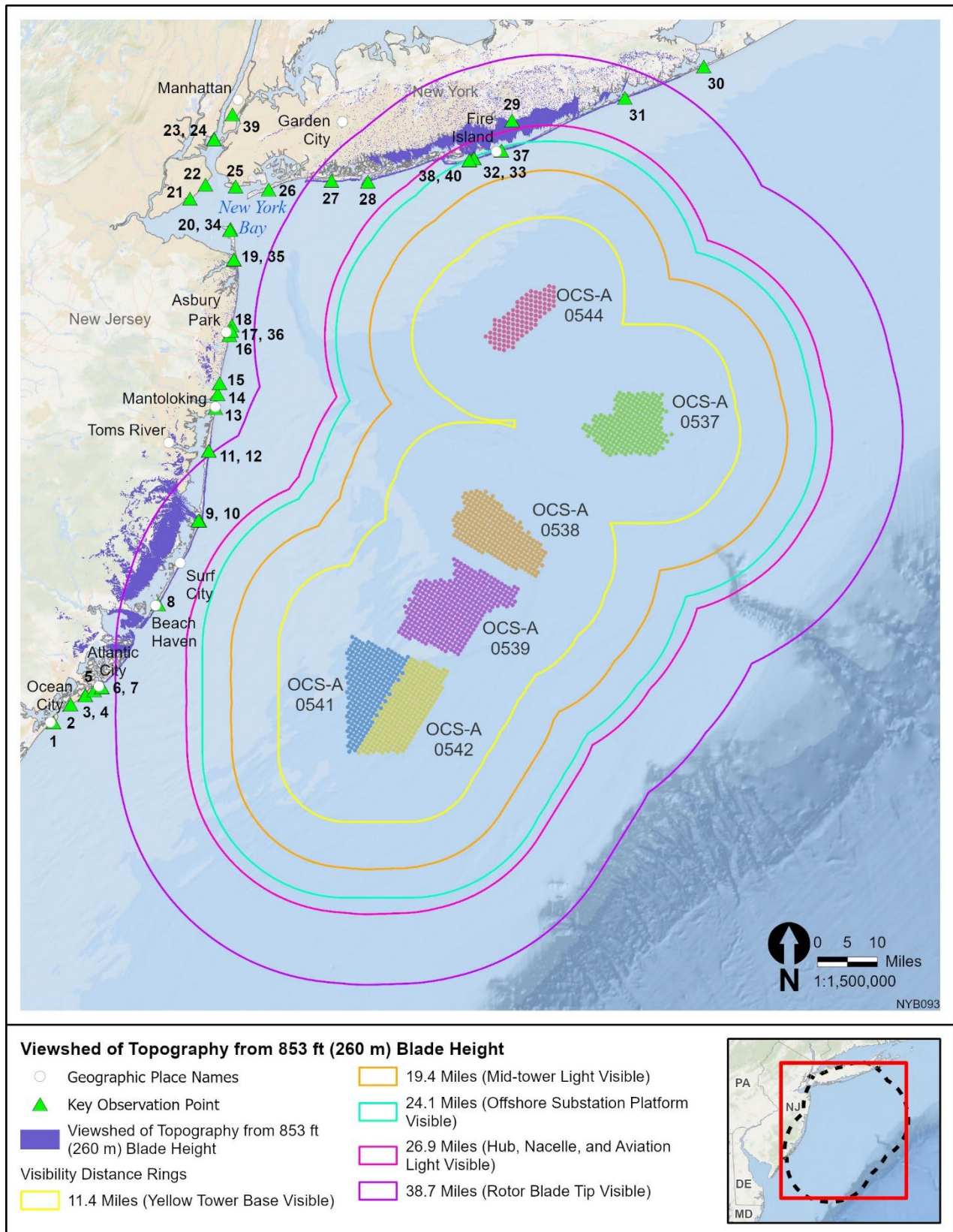
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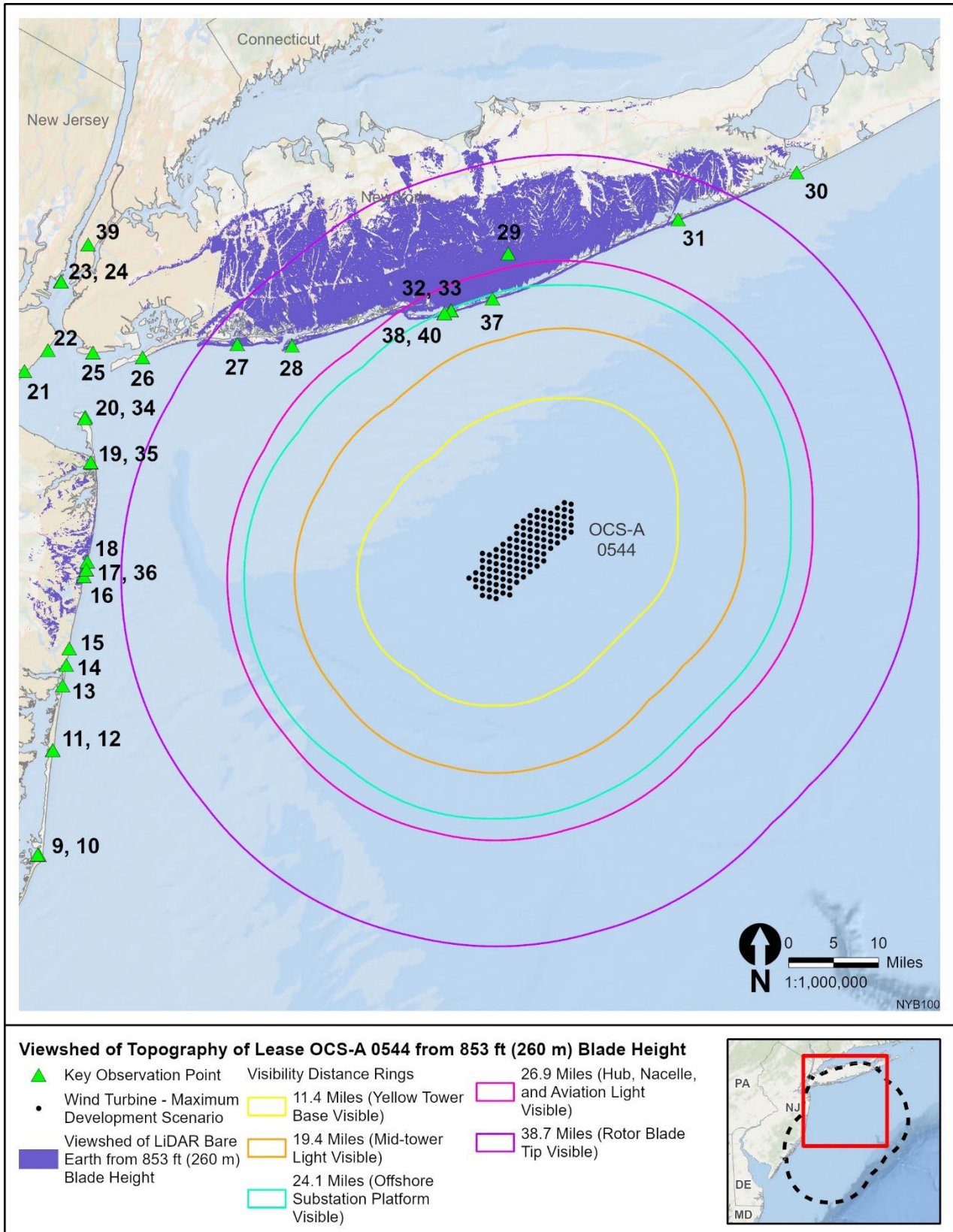
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Appendix B: ZTV Figures

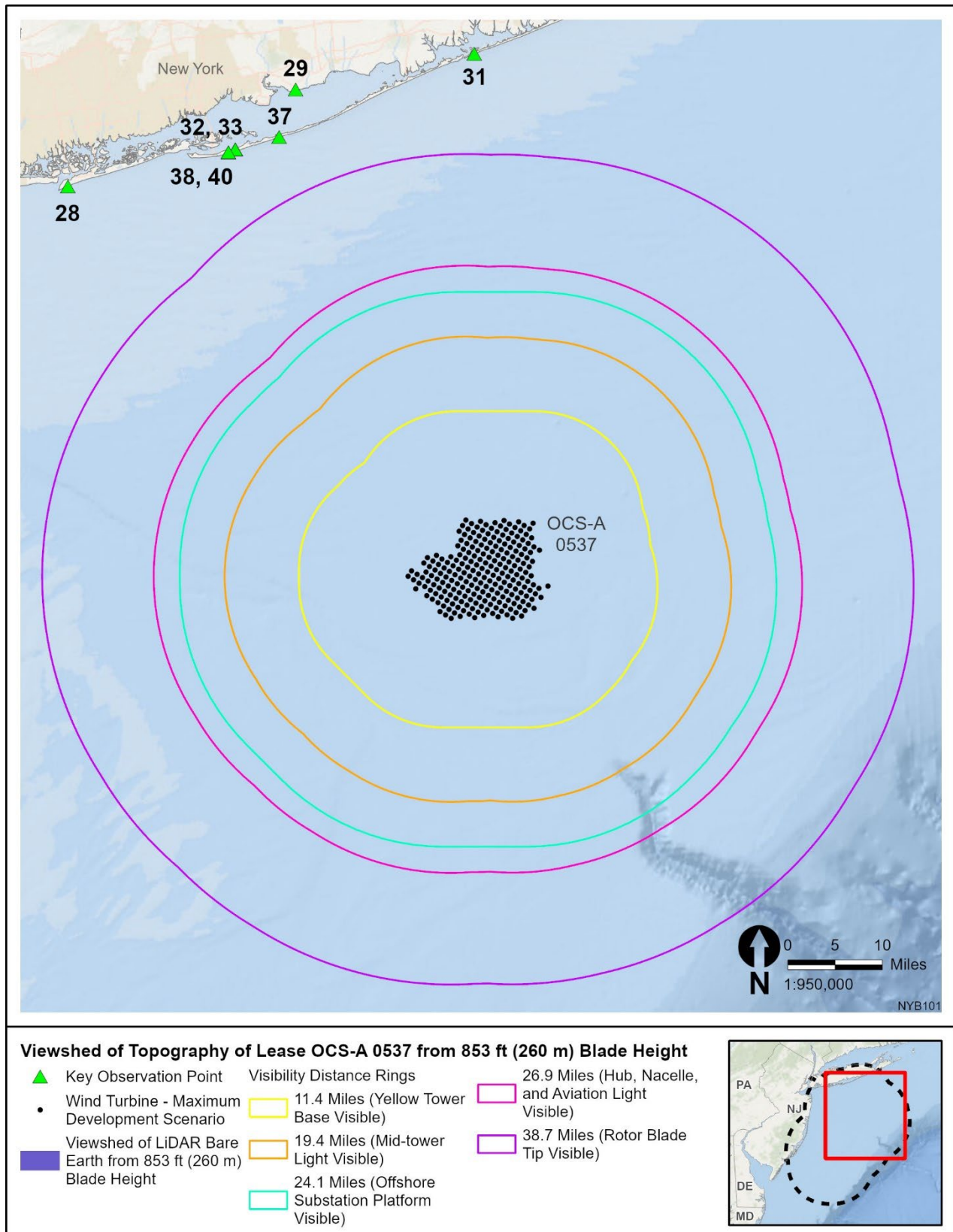
Viewshed of Topography from 853 ft (260 m) Blade Height



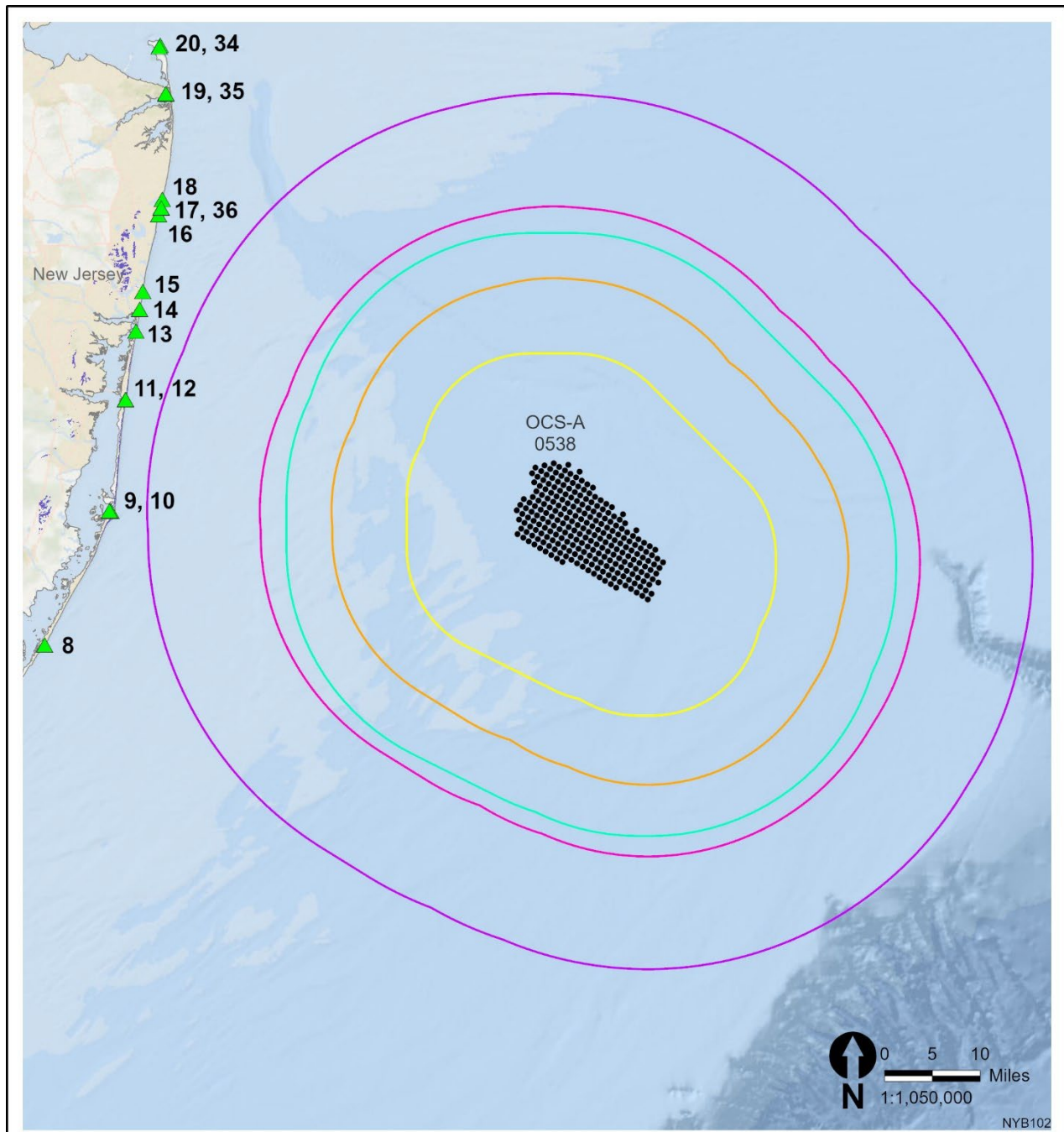
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Viewshed of Topography of Lease OCS-A 0537 from 853 ft (260 m) Blade Height

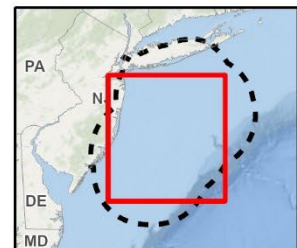


Viewshed of Topography of Lease OCS-A 0538 from 853 ft (260 m) Blade Height

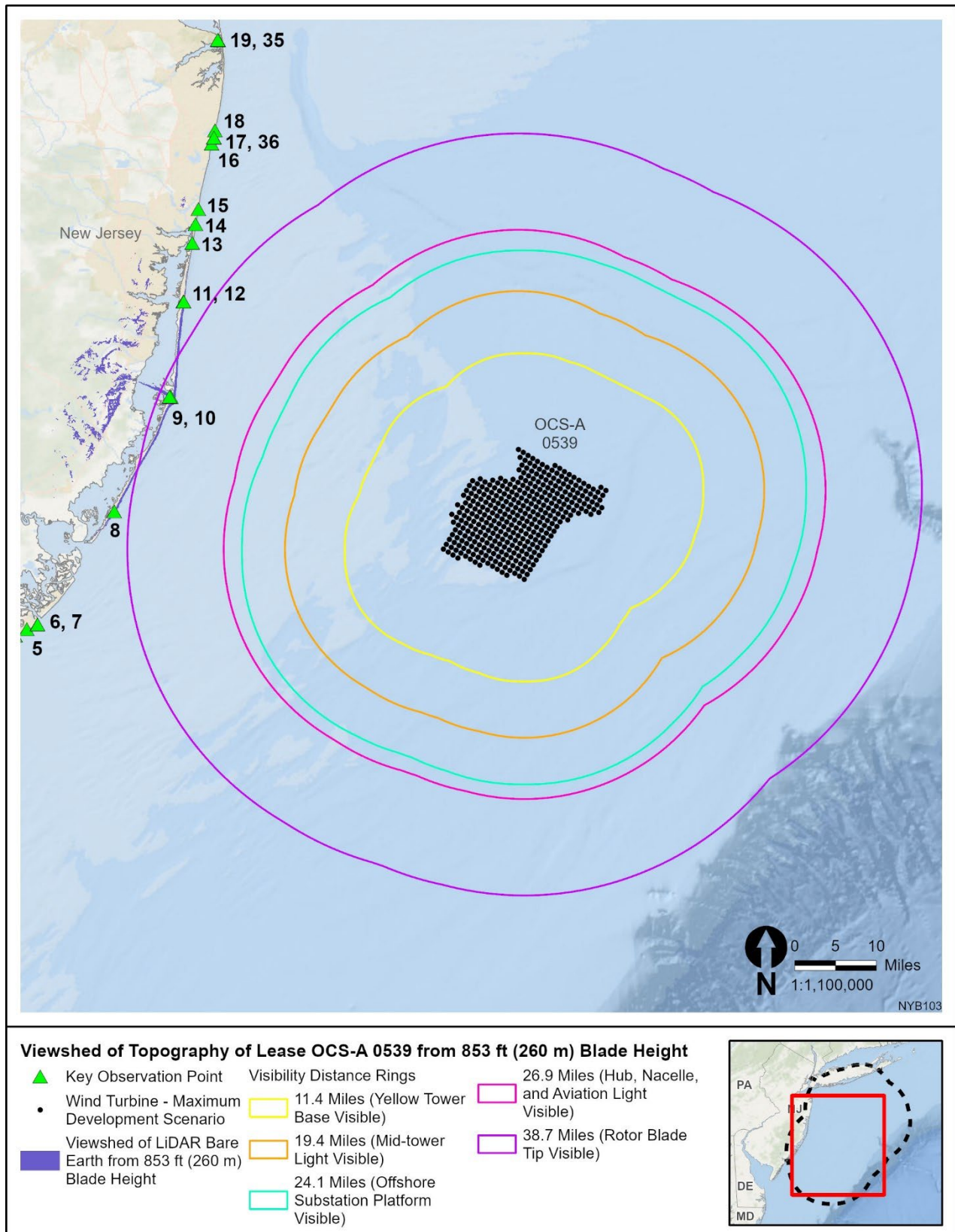


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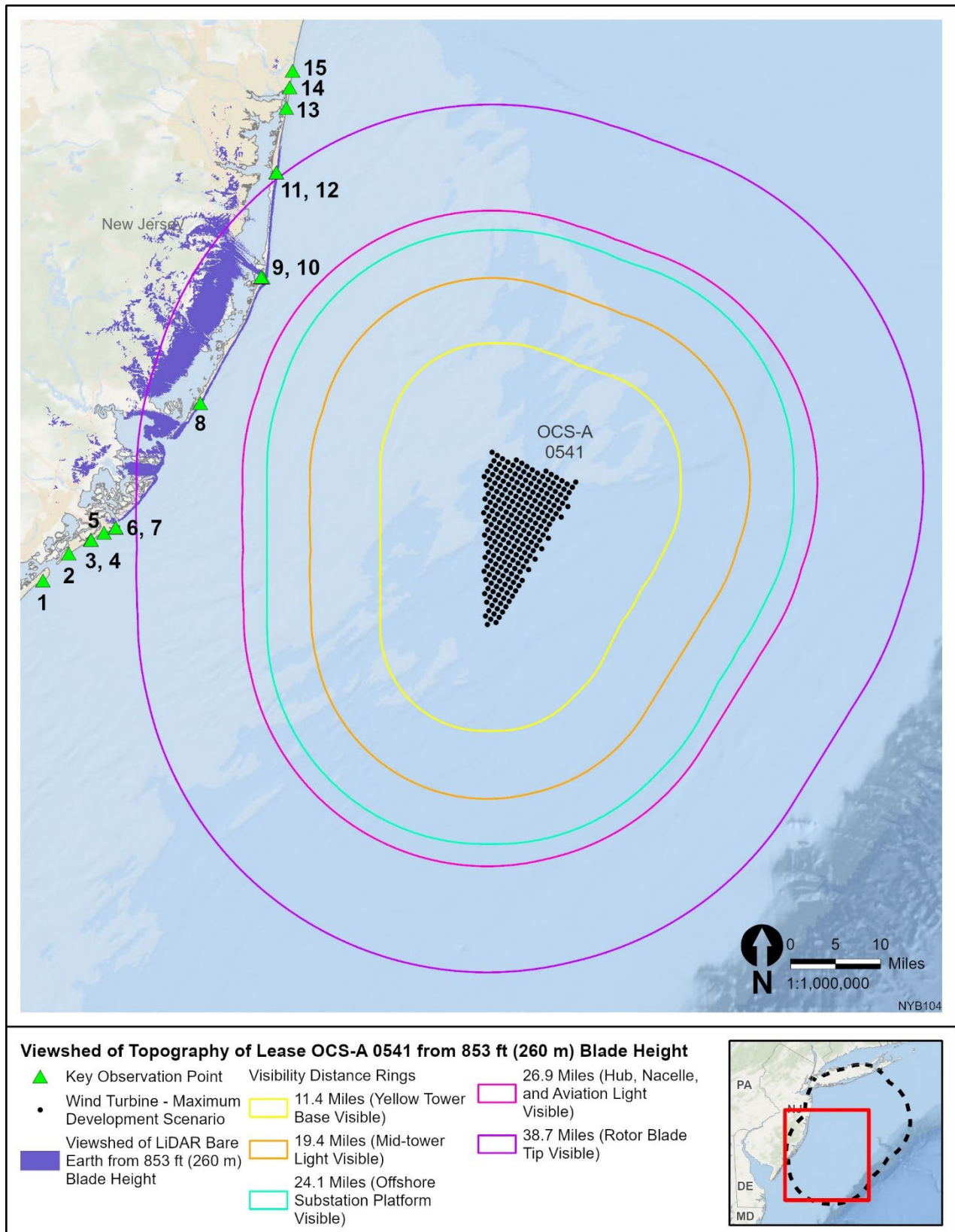
- | | | |
|---|---|---|
| ▲ Key Observation Point | Visibility Distance Rings | 26.9 Miles (Hub, Nacelle, and Aviation Light Visible) |
| • Wind Turbine - Maximum Development Scenario | 11.4 Miles (Yellow Tower Base Visible) | 38.7 Miles (Rotor Blade Tip Visible) |
| Viewshed of LiDAR Bare Earth from 853 ft (260 m) Blade Height | 19.4 Miles (Mid-tower Light Visible) | |
| | 24.1 Miles (Offshore Substation Platform Visible) | |



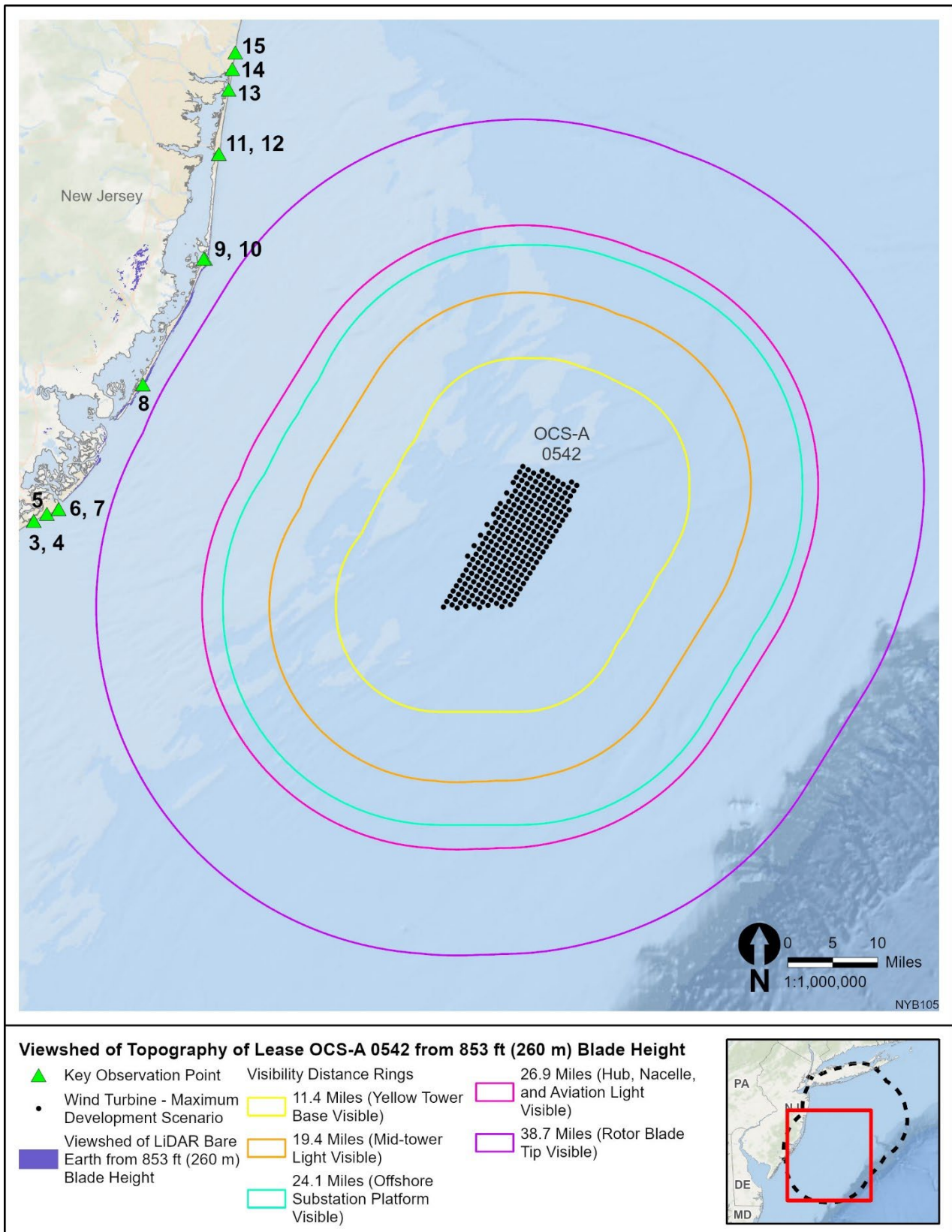
Viewshed of Topography of Lease OCS-A 0539 from 853 ft (260 m) Blade Height



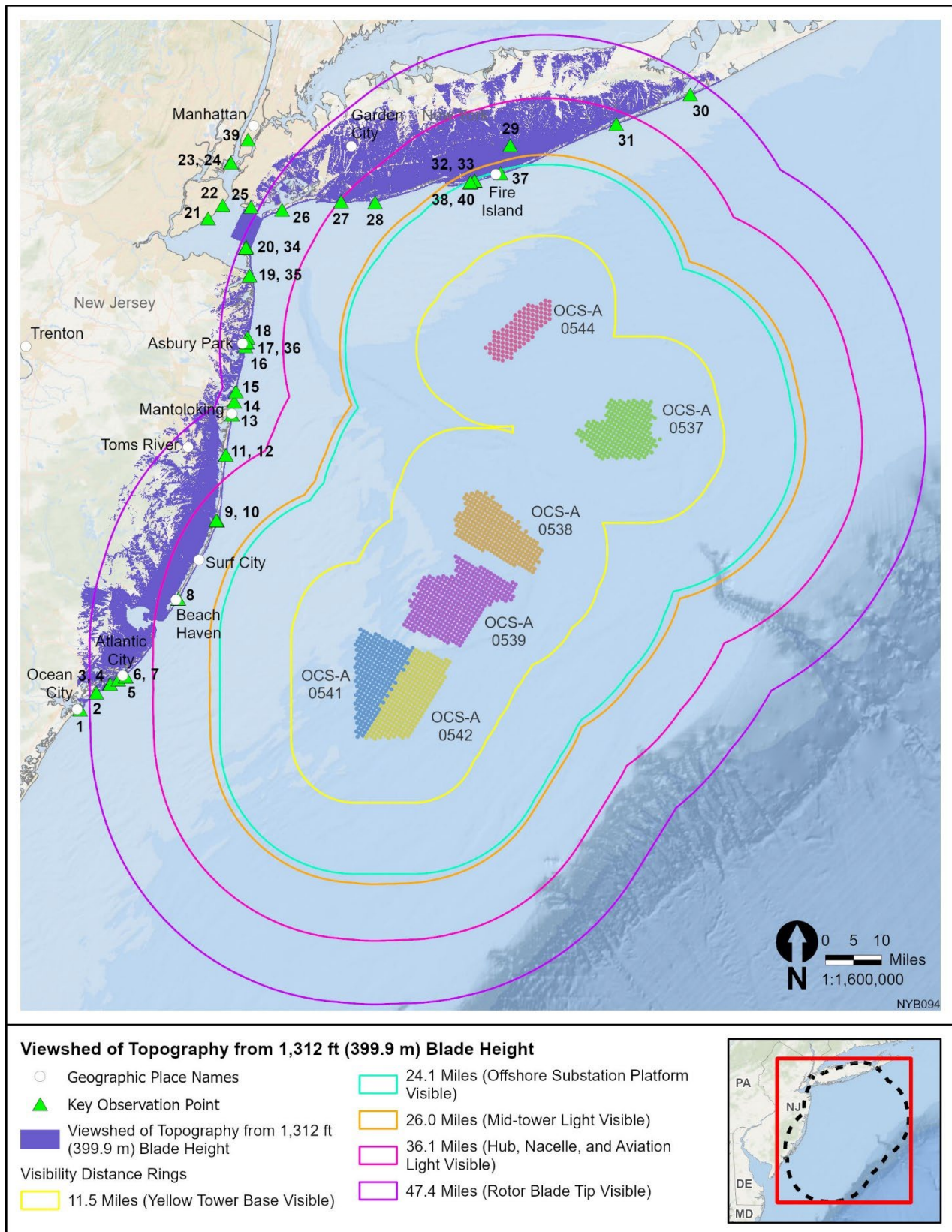
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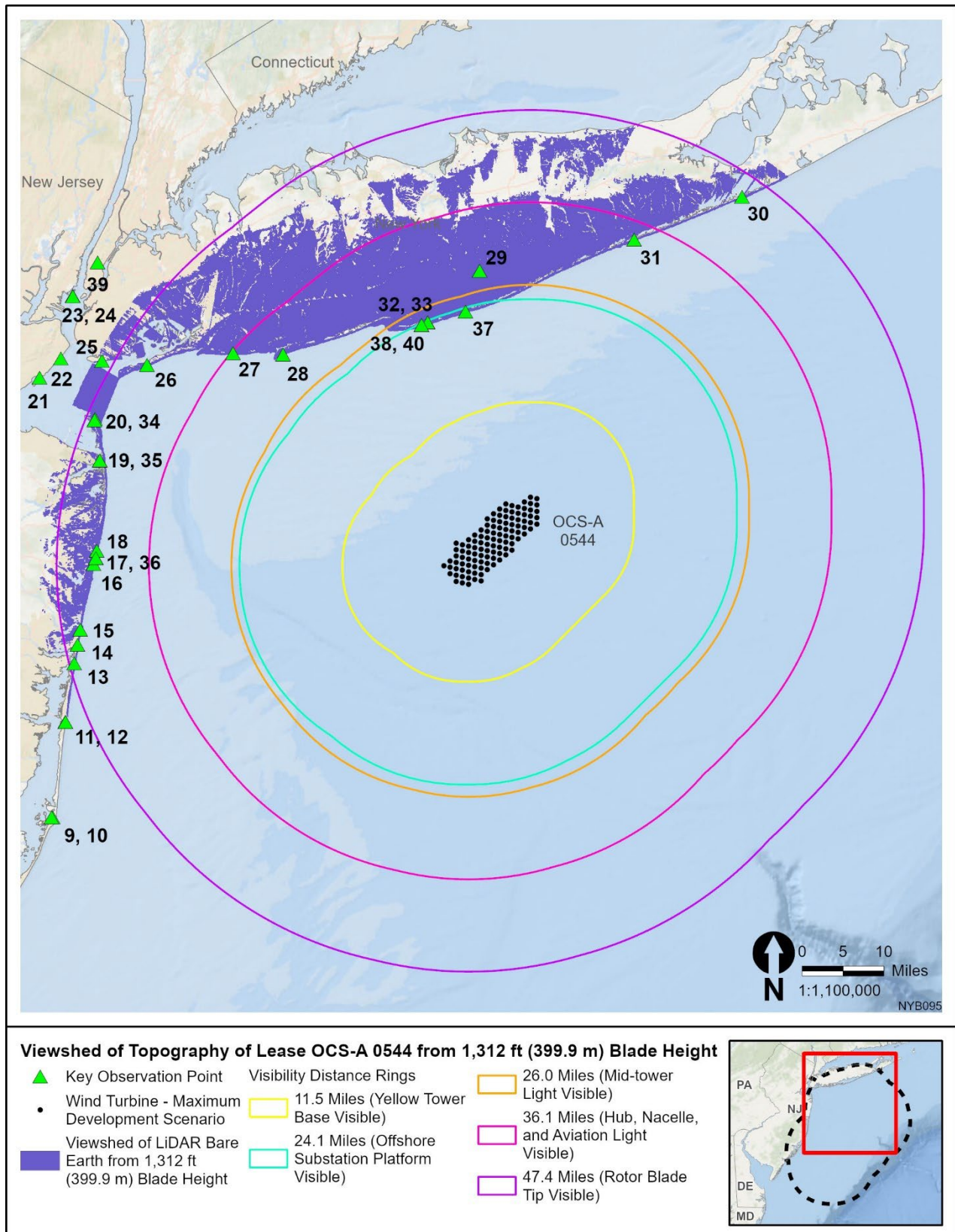
Viewshed of Topography of Lease OCS-A 0542 from 853 ft (260 m) Blade Height



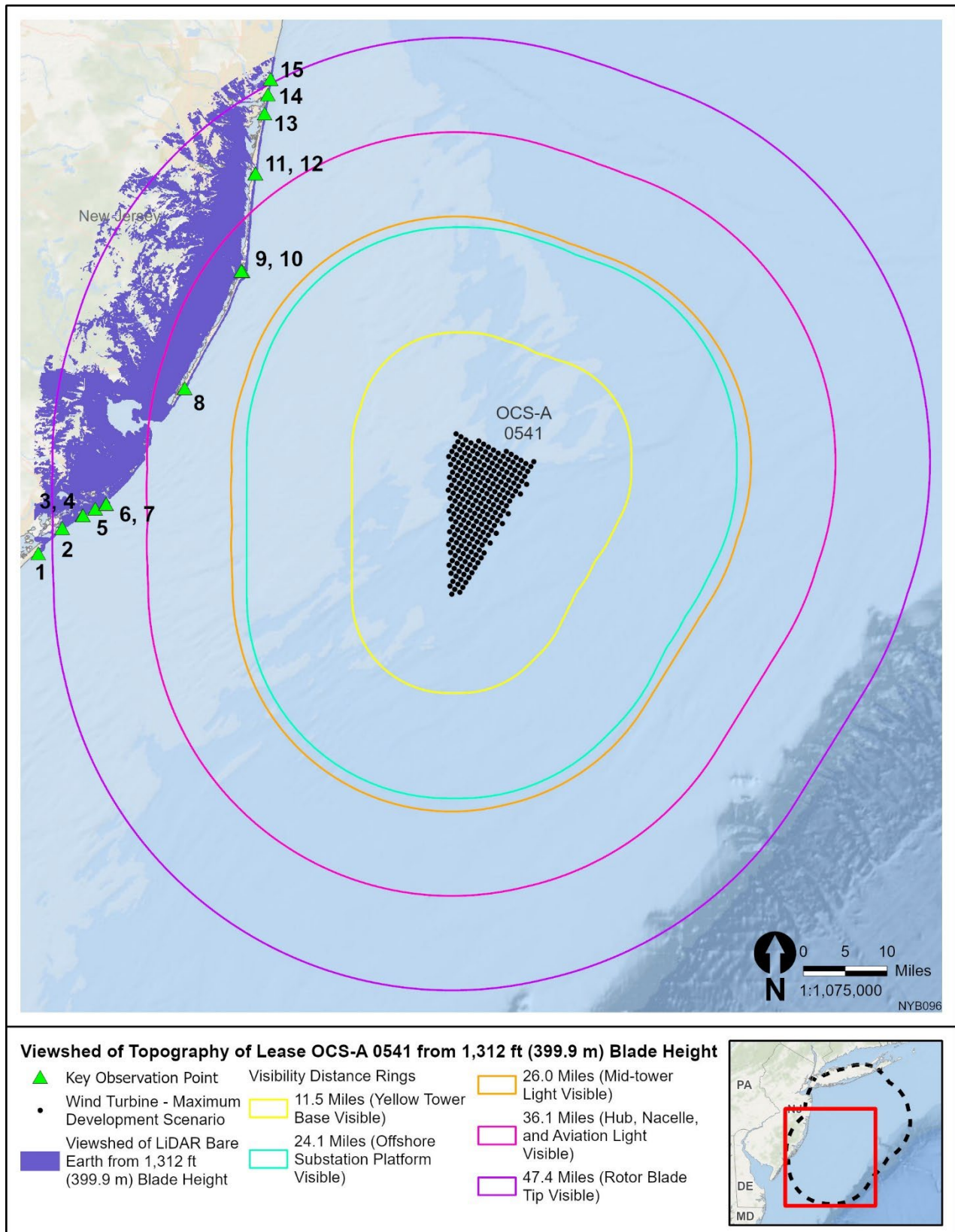
Viewshed of Topography from 1,312 ft (399.9 m) Blade Height



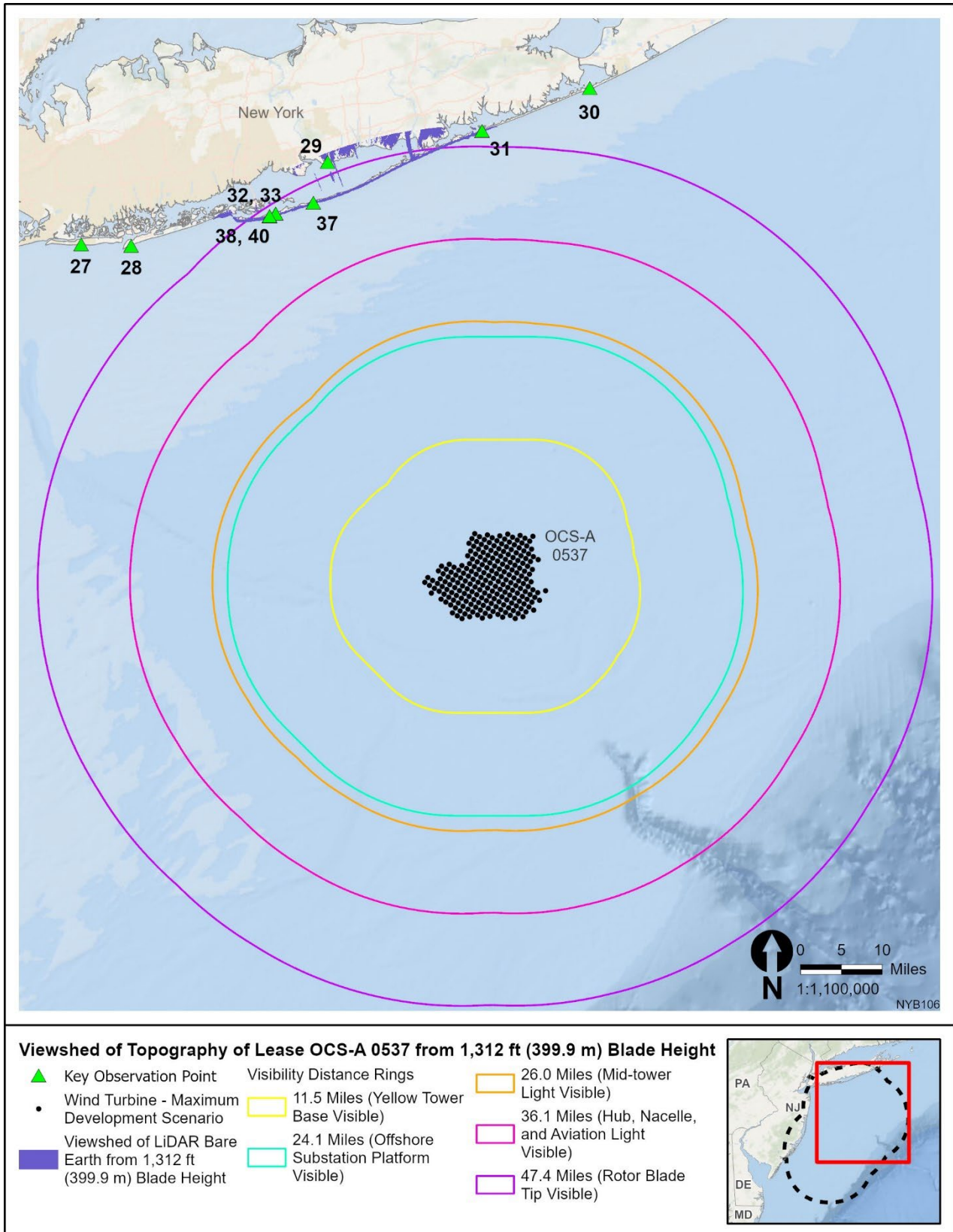
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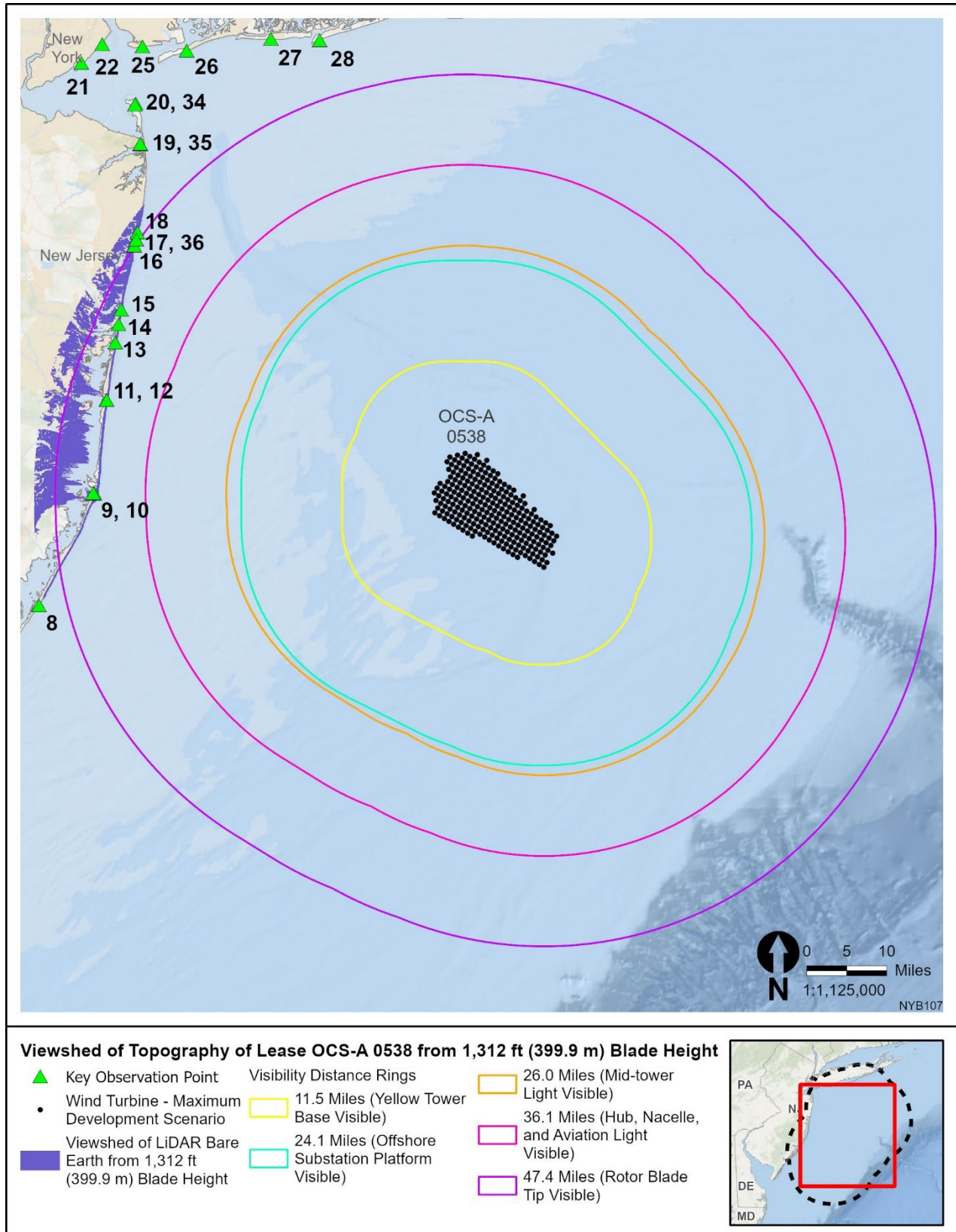
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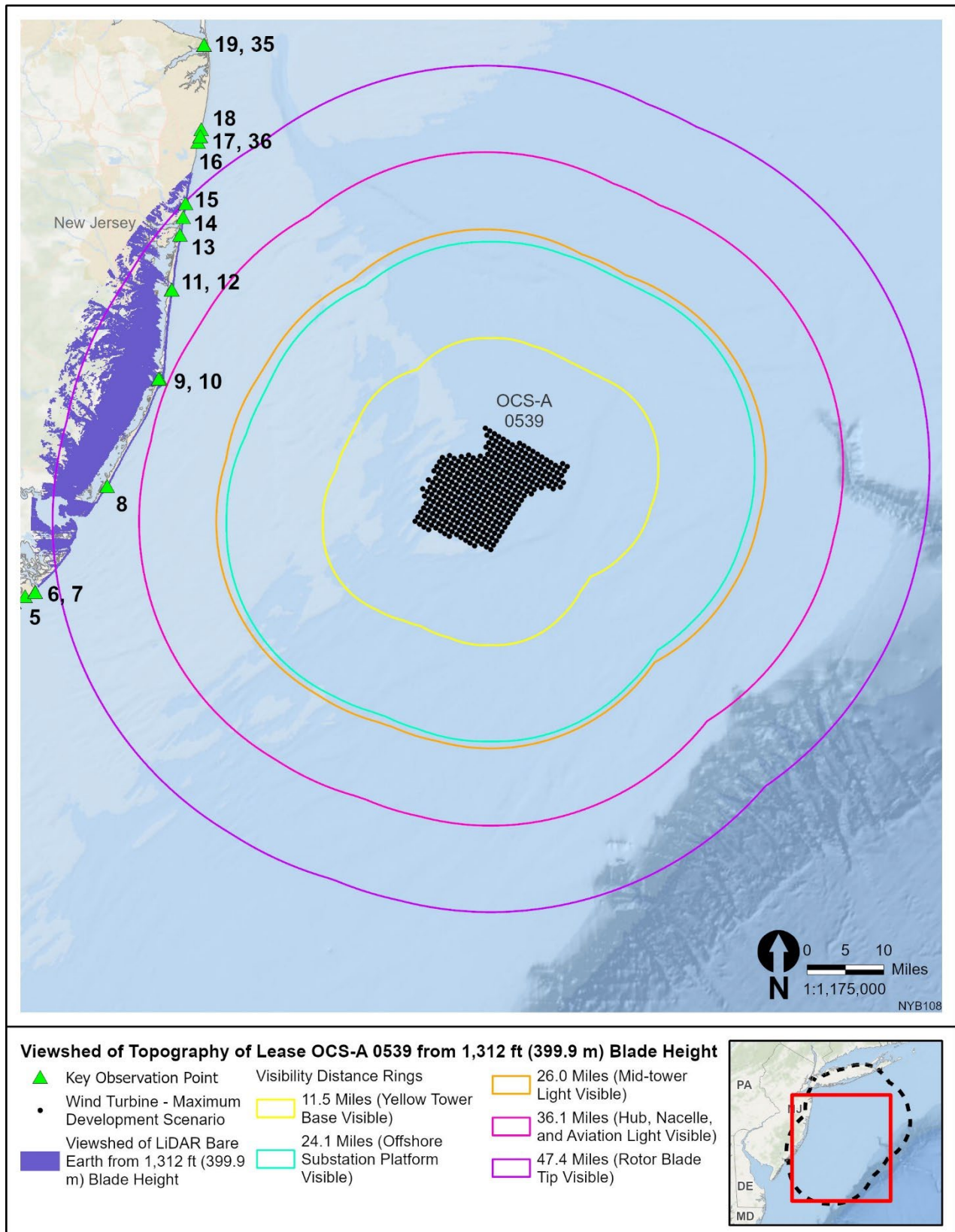
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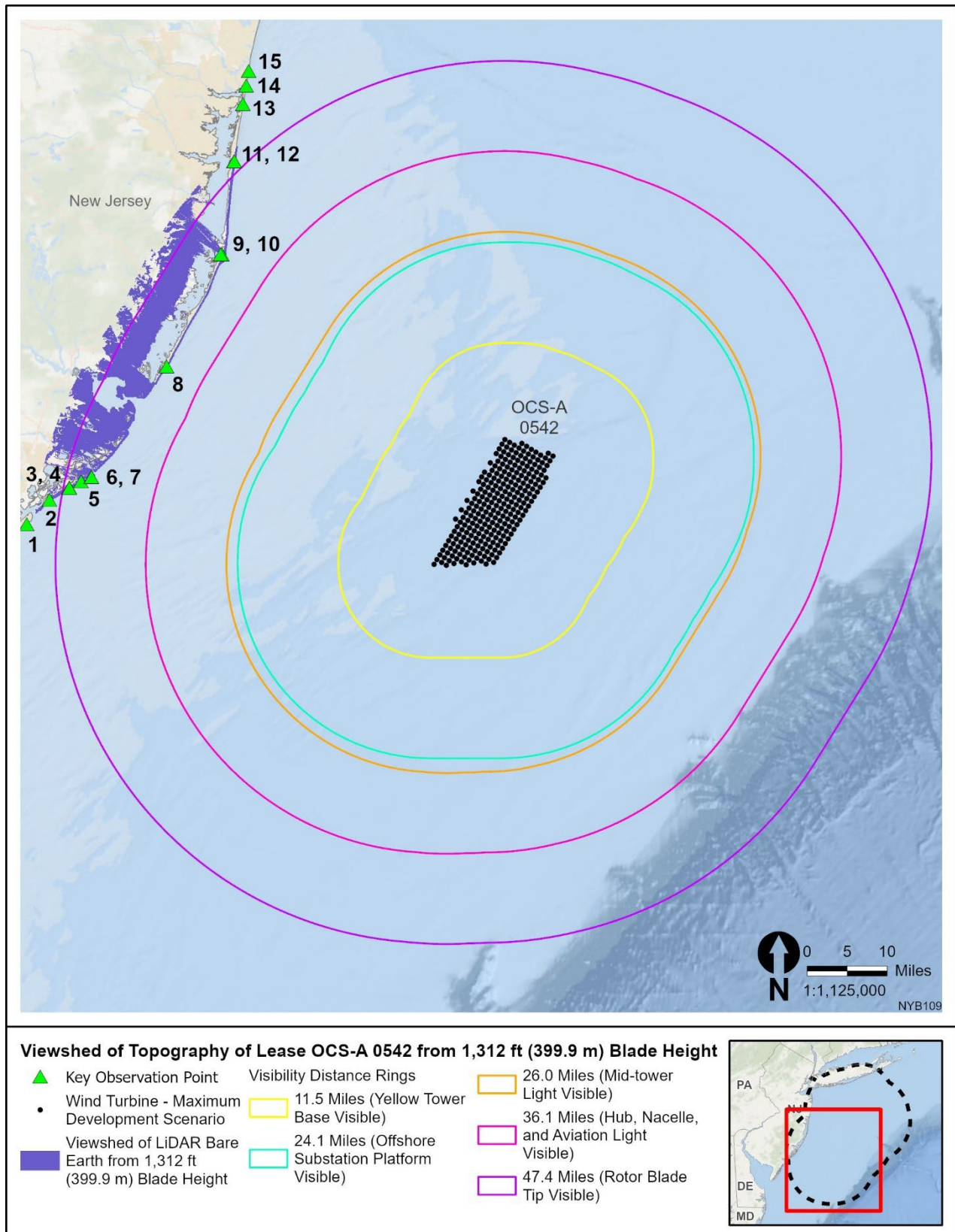
Viewshed of Topography of Lease OCS-A 0538 from 1,312 ft (399.9 m) Blade Height



Viewshed of Topography of Lease OCS-A 0539 from 1,312 ft (399.9 m) Blade Height

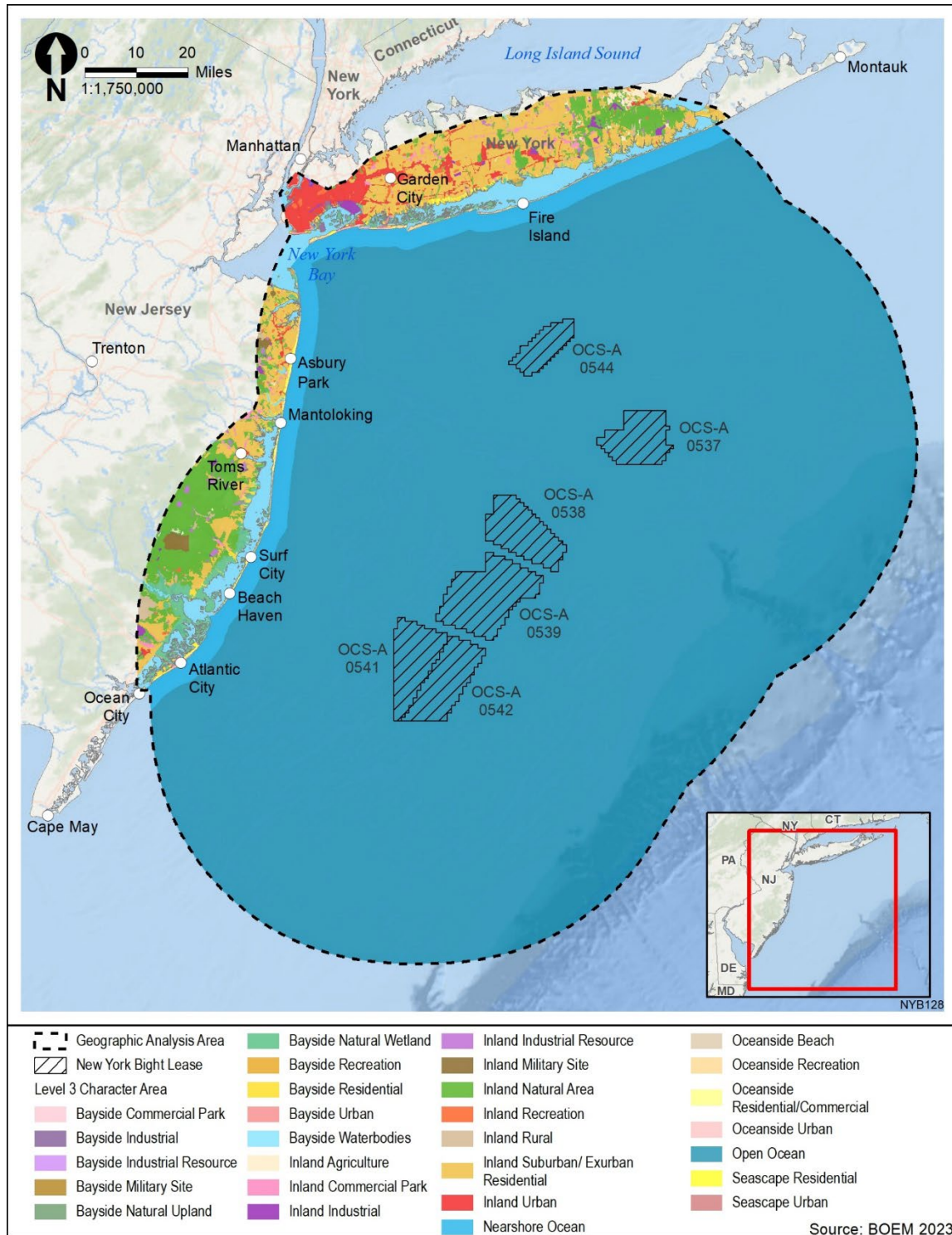


Viewshed of Topography of Lease OCS-A 0542 from 1,312 ft (399.9 m) Blade Height

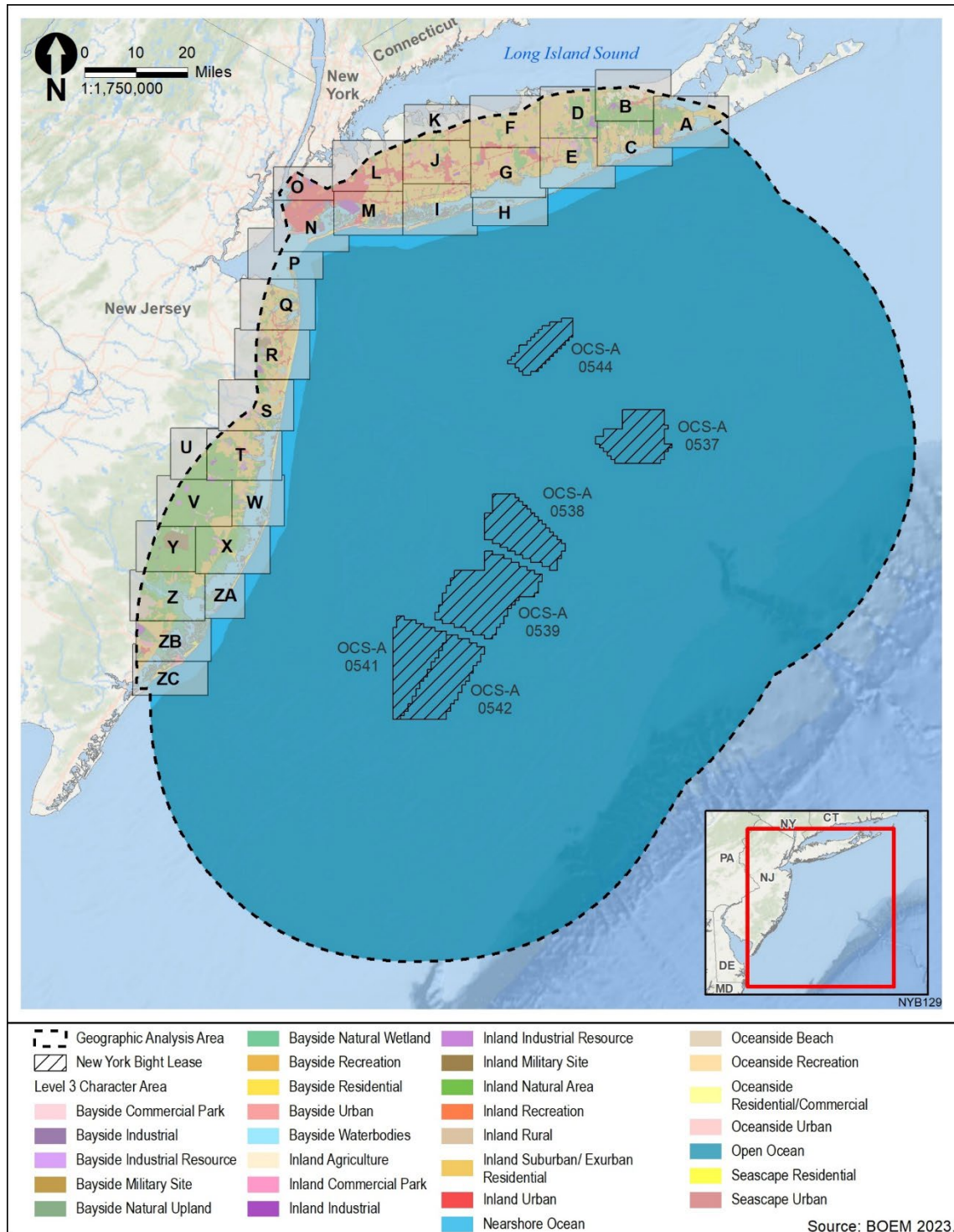


Appendix C: Character Areas Map Series

Series 1: Character Area Delineations Within the Geographic Analysis Area—Overview Map

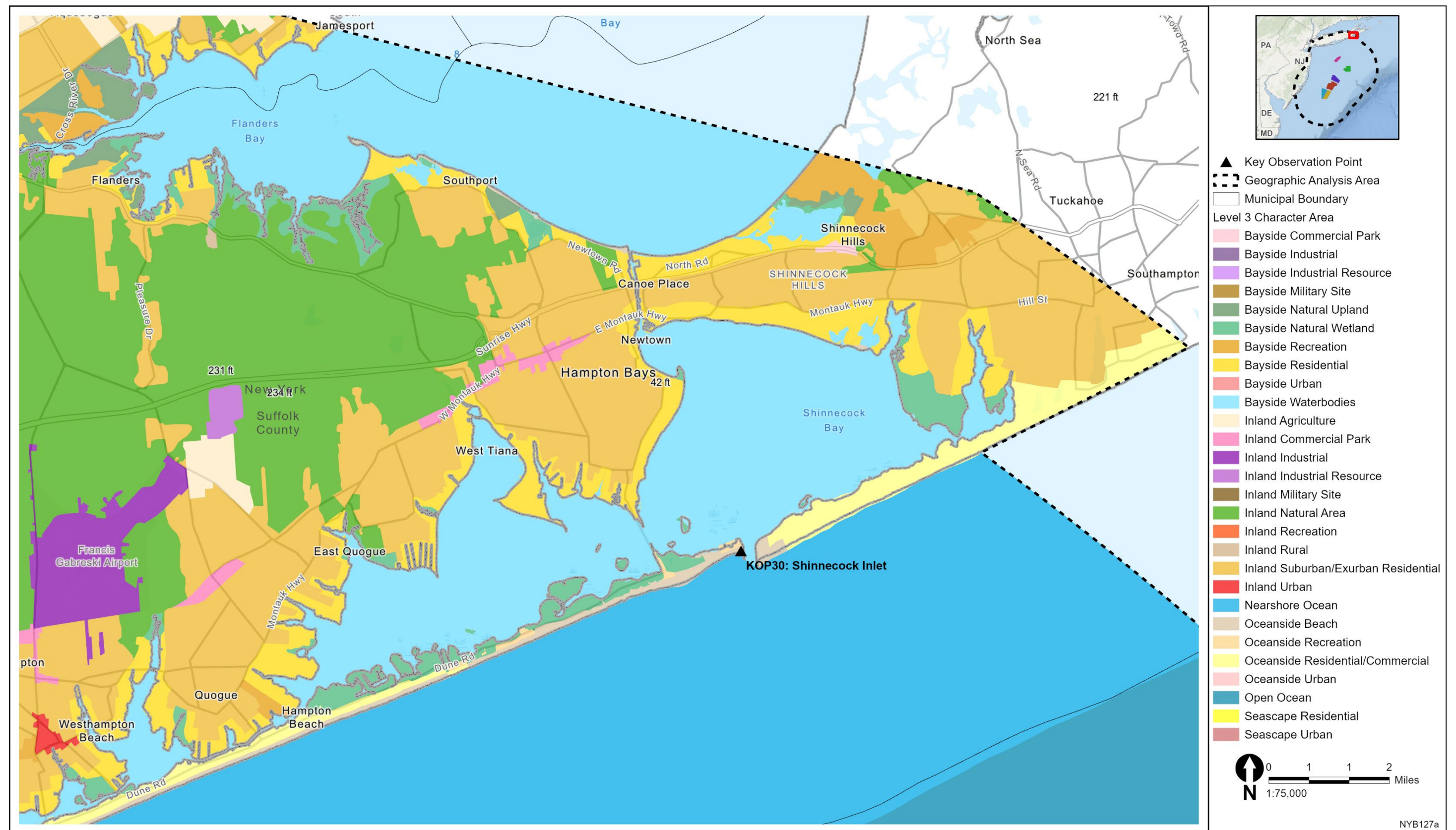


Series 1: Character Area Delineations Within the Geographic Analysis Area— Grid Index Overview



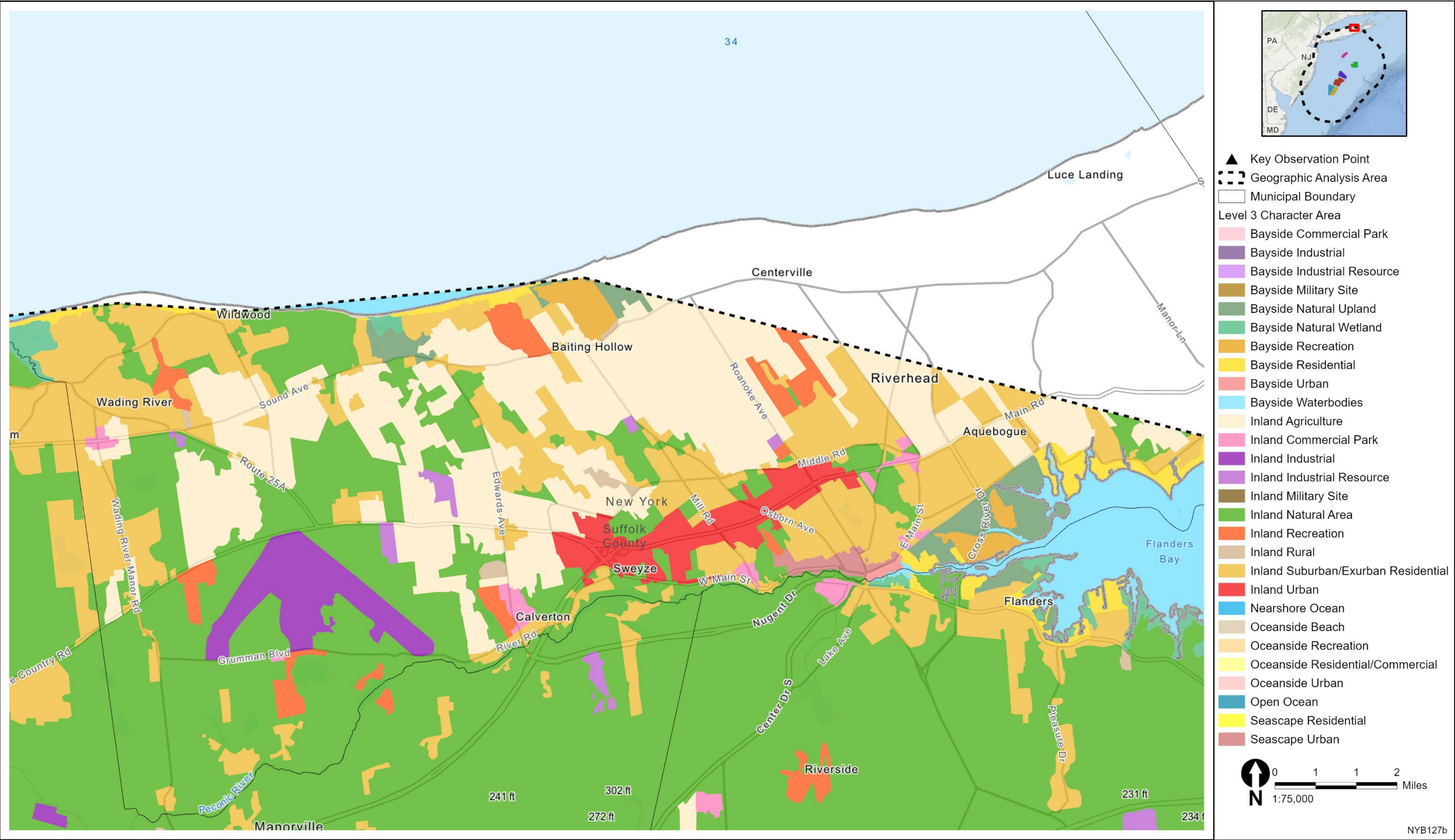
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP A



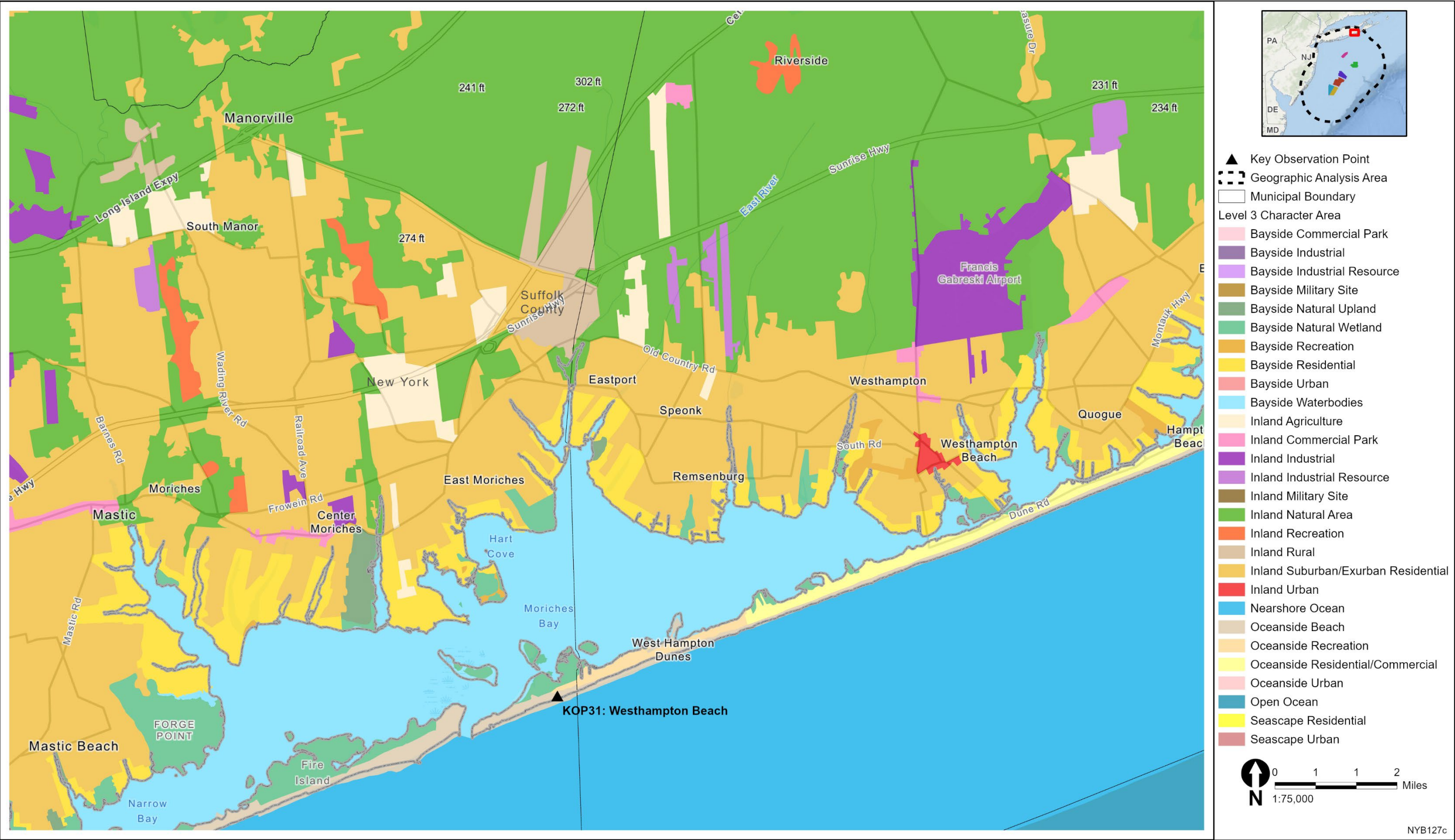
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP B



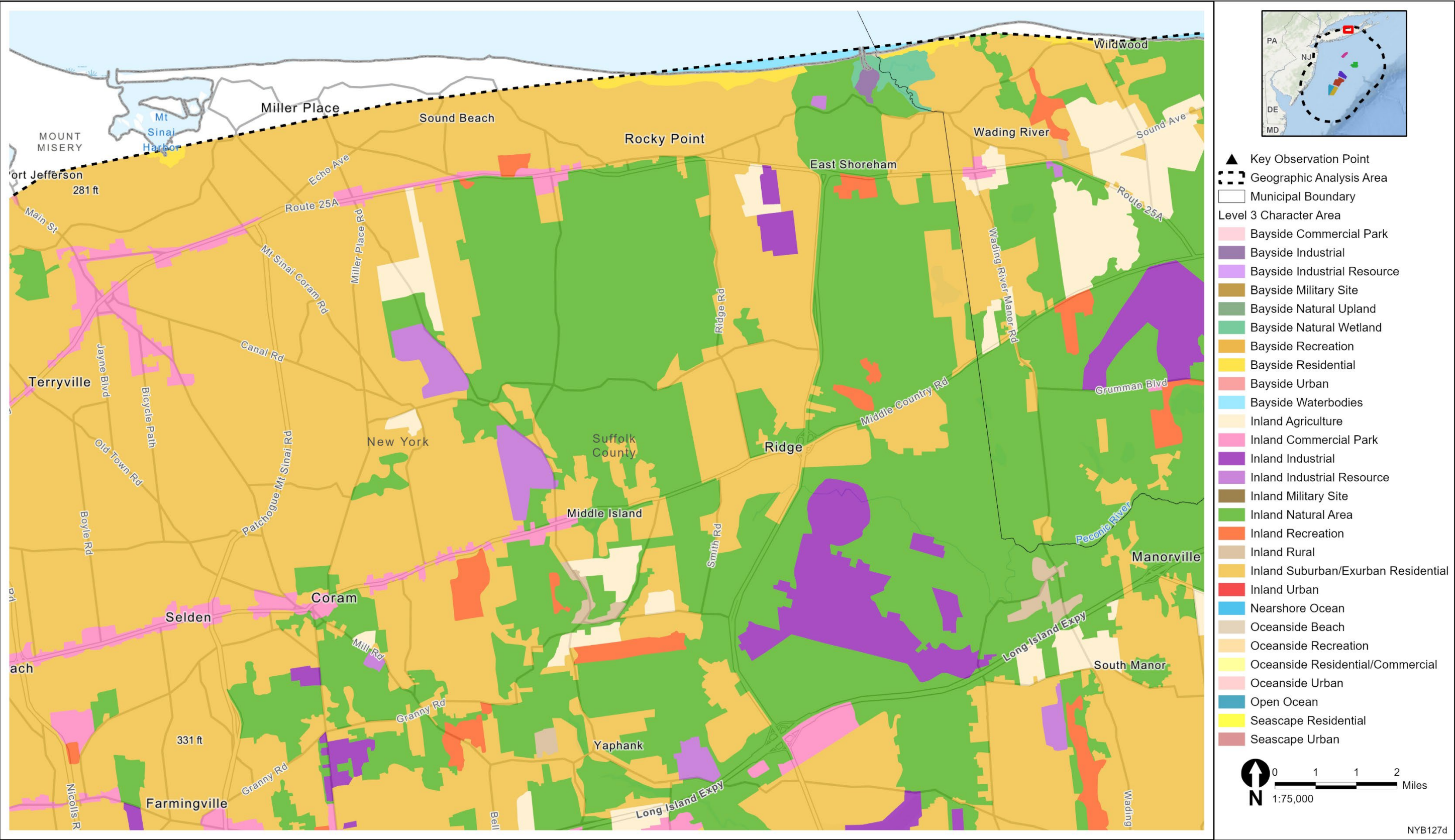
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP C



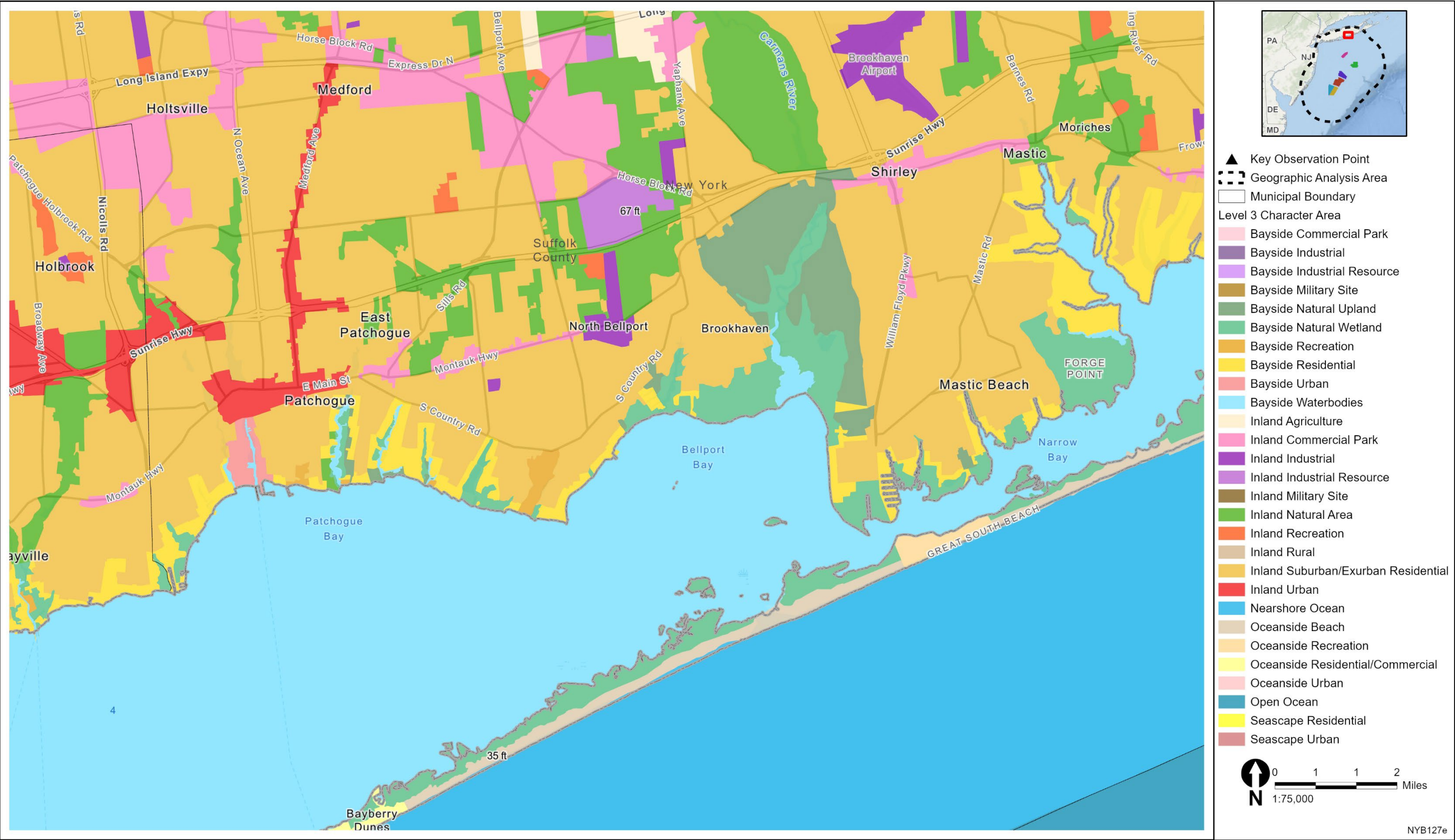
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP D



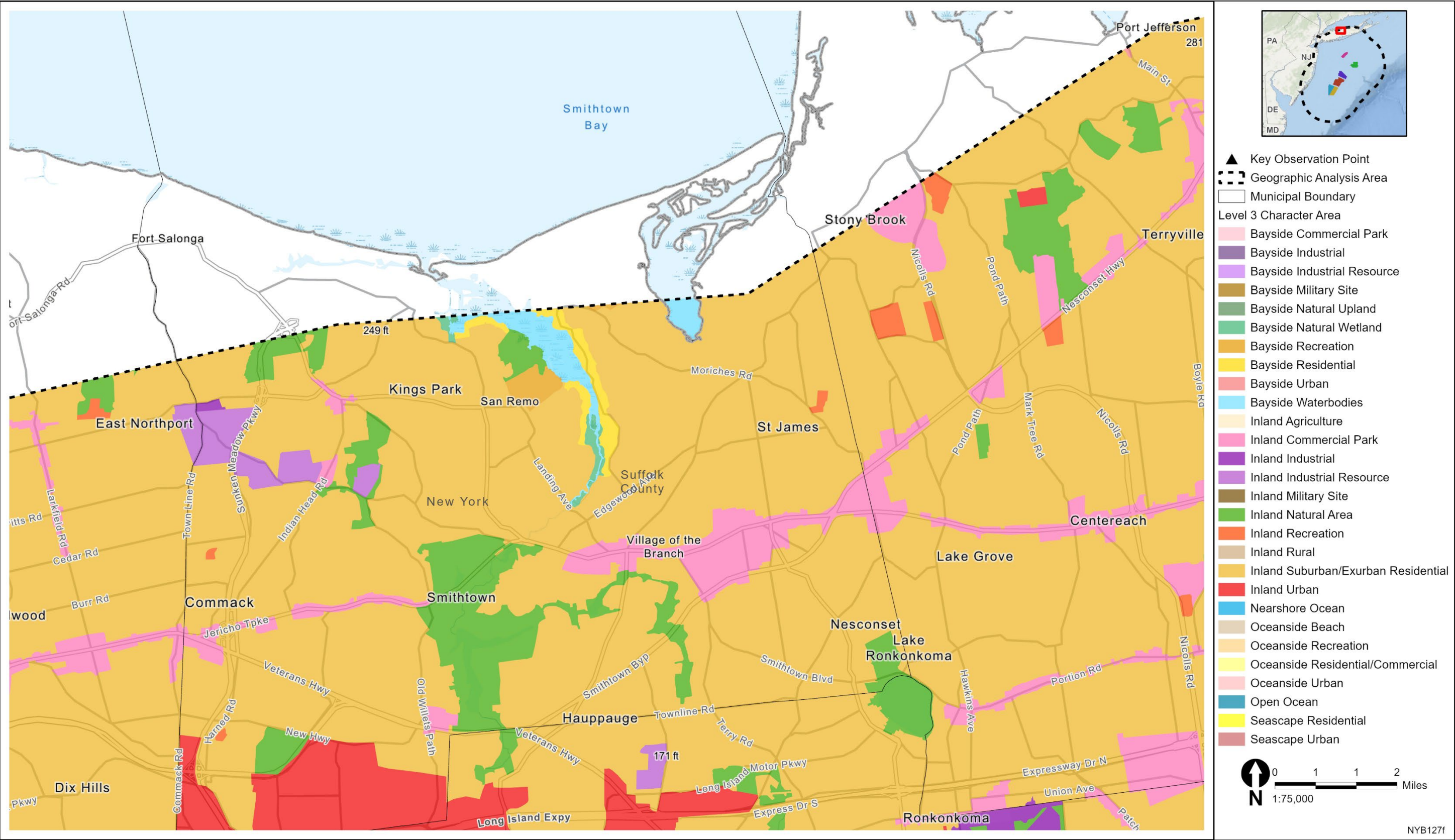
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP E



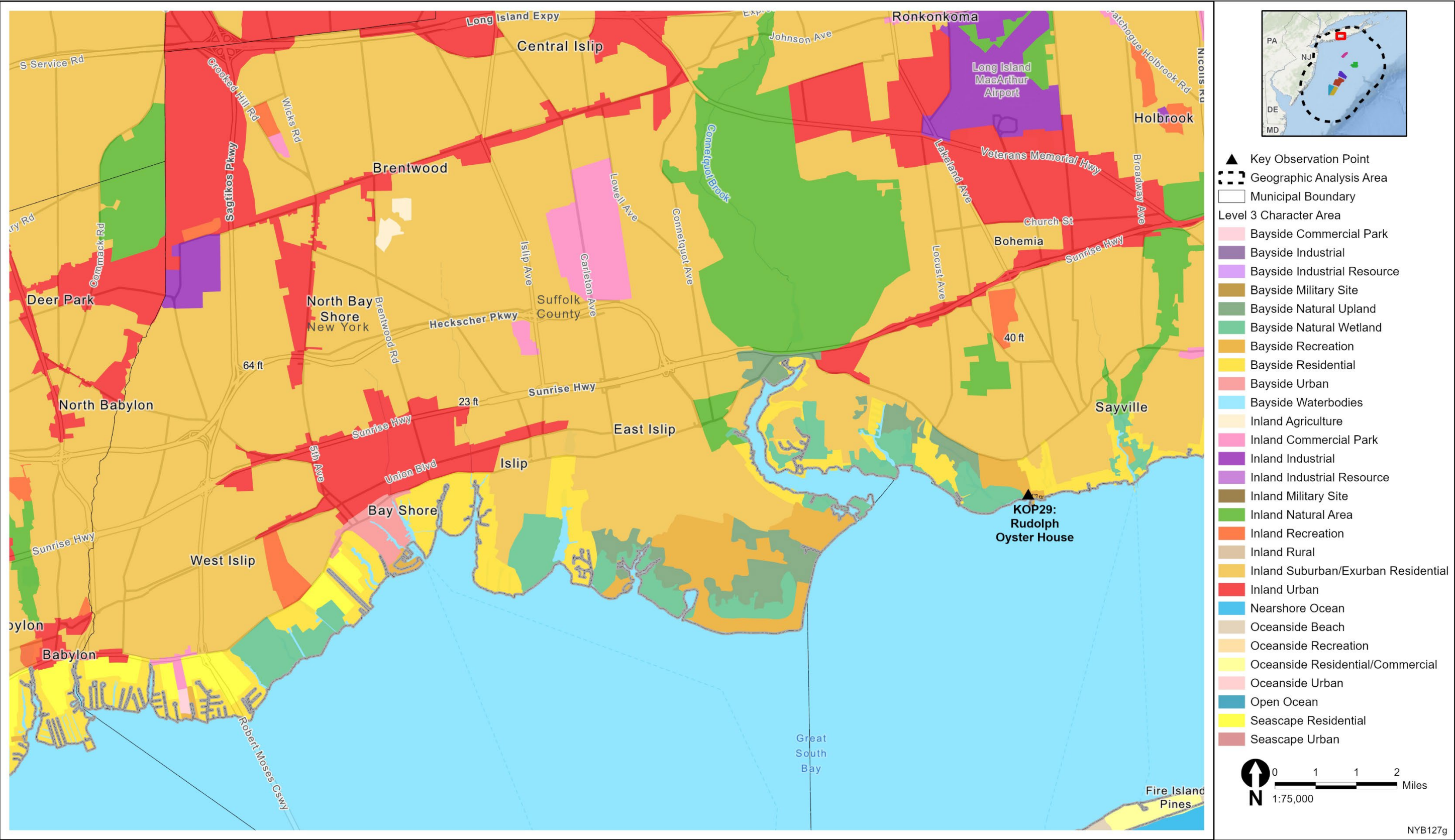
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP F



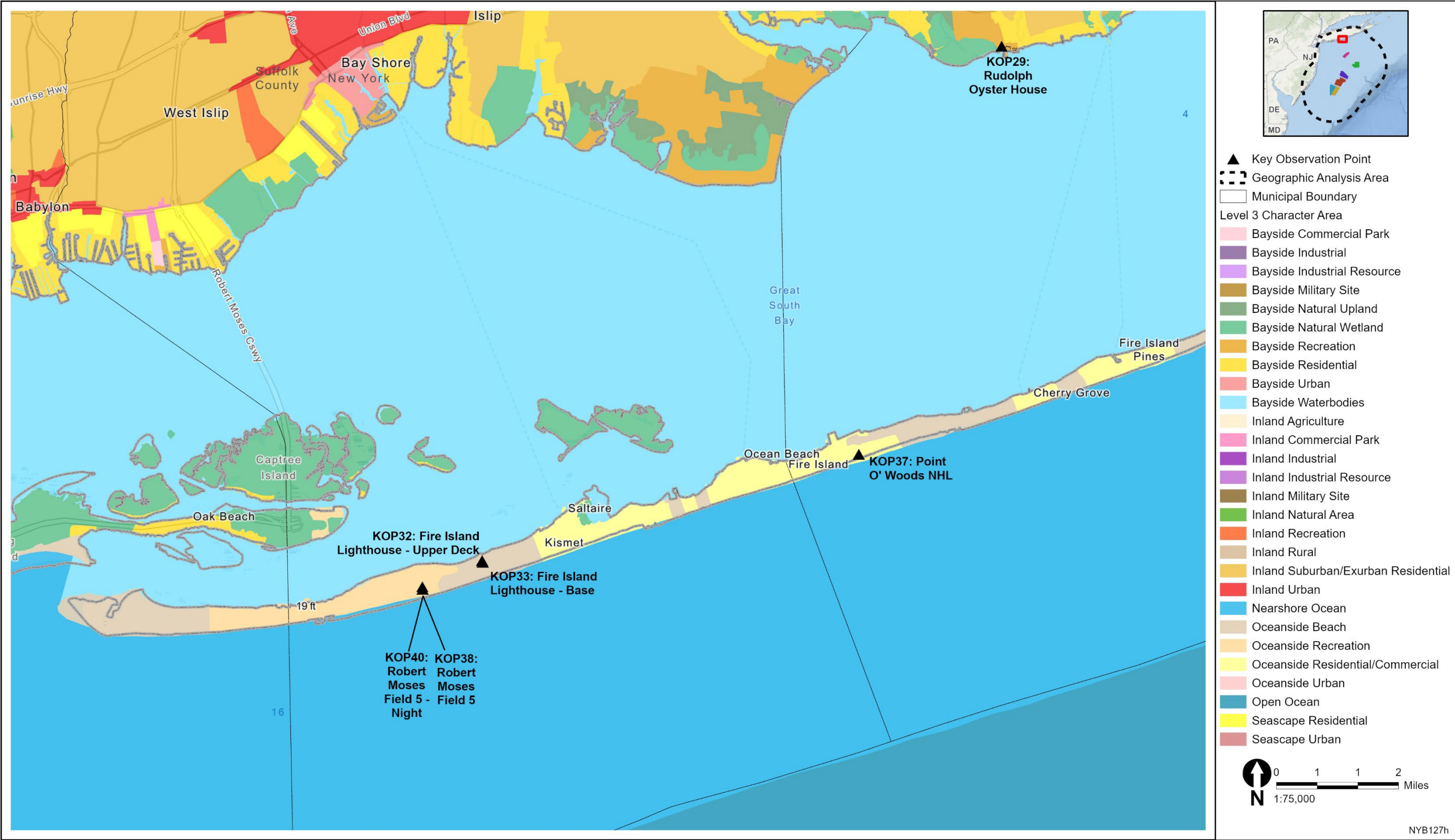
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP G



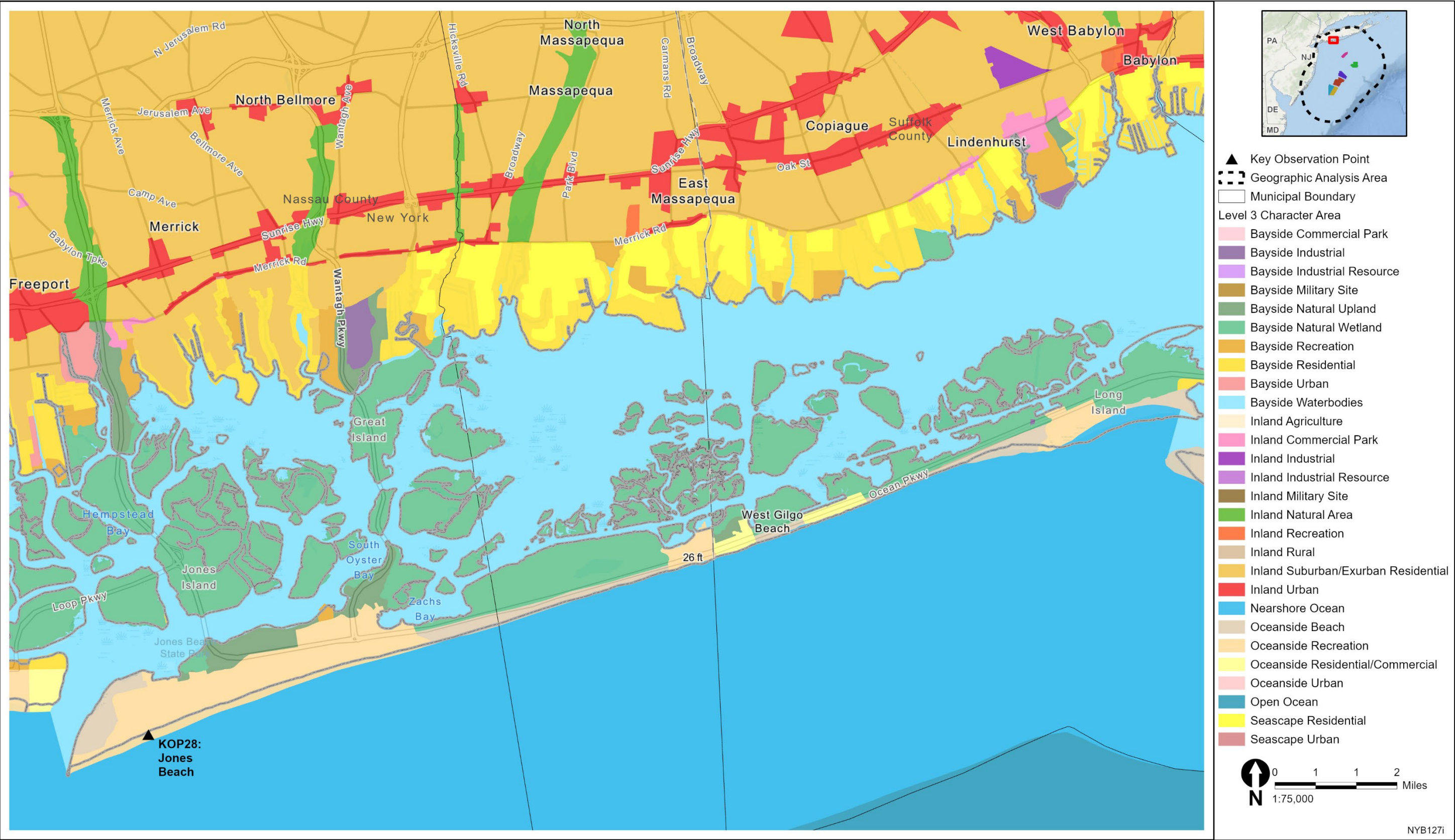
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP H



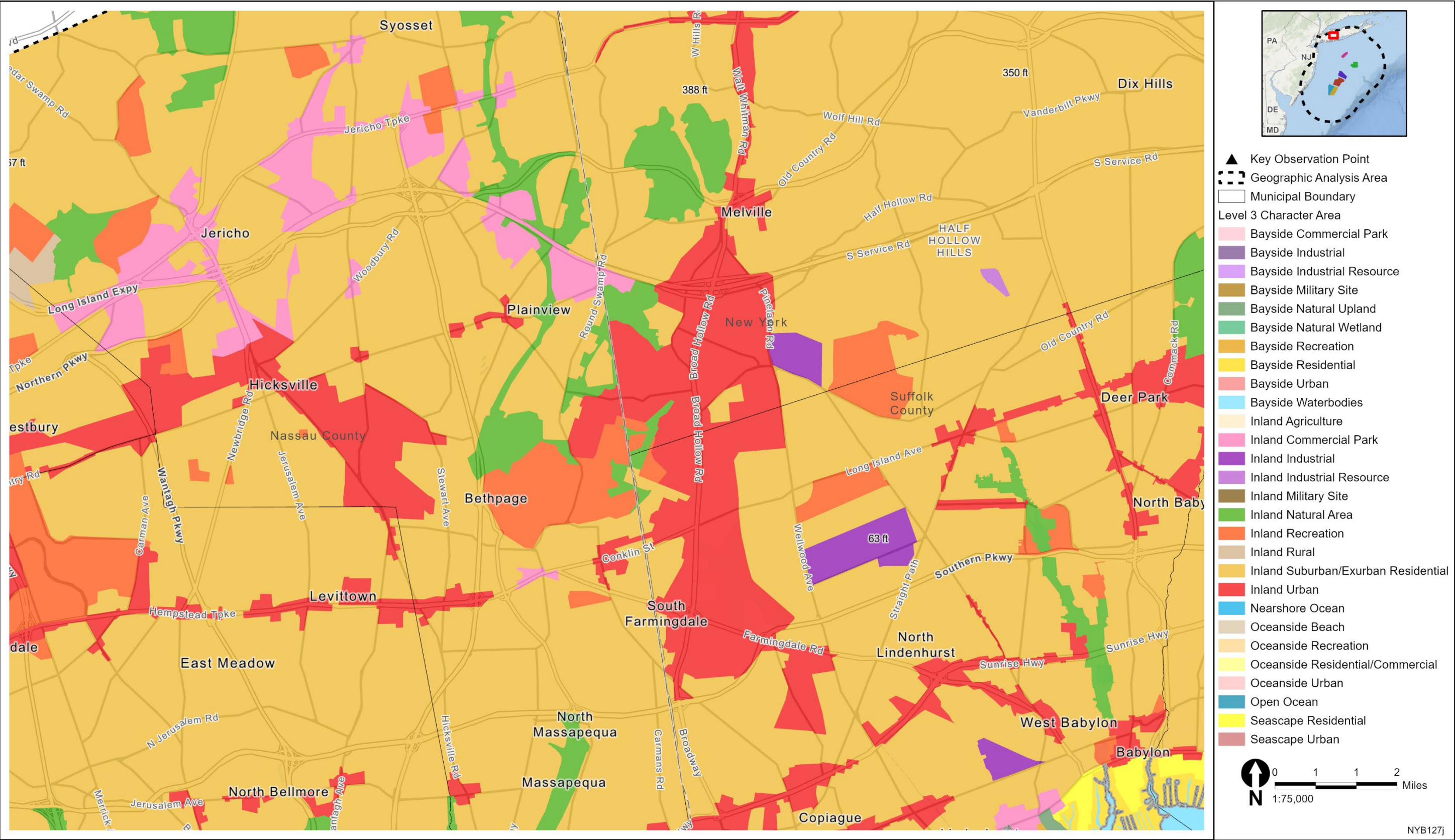
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP I



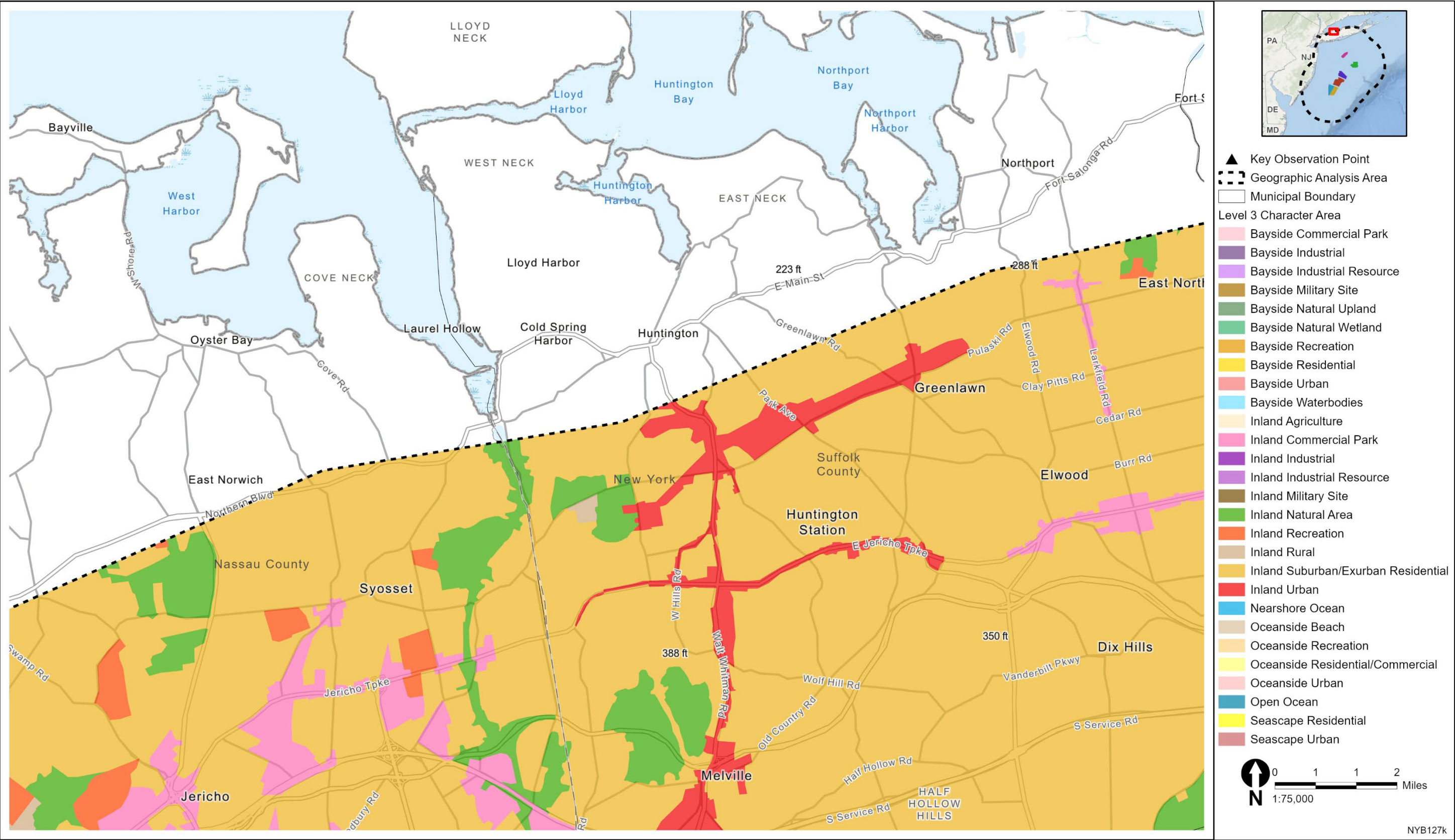
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP J



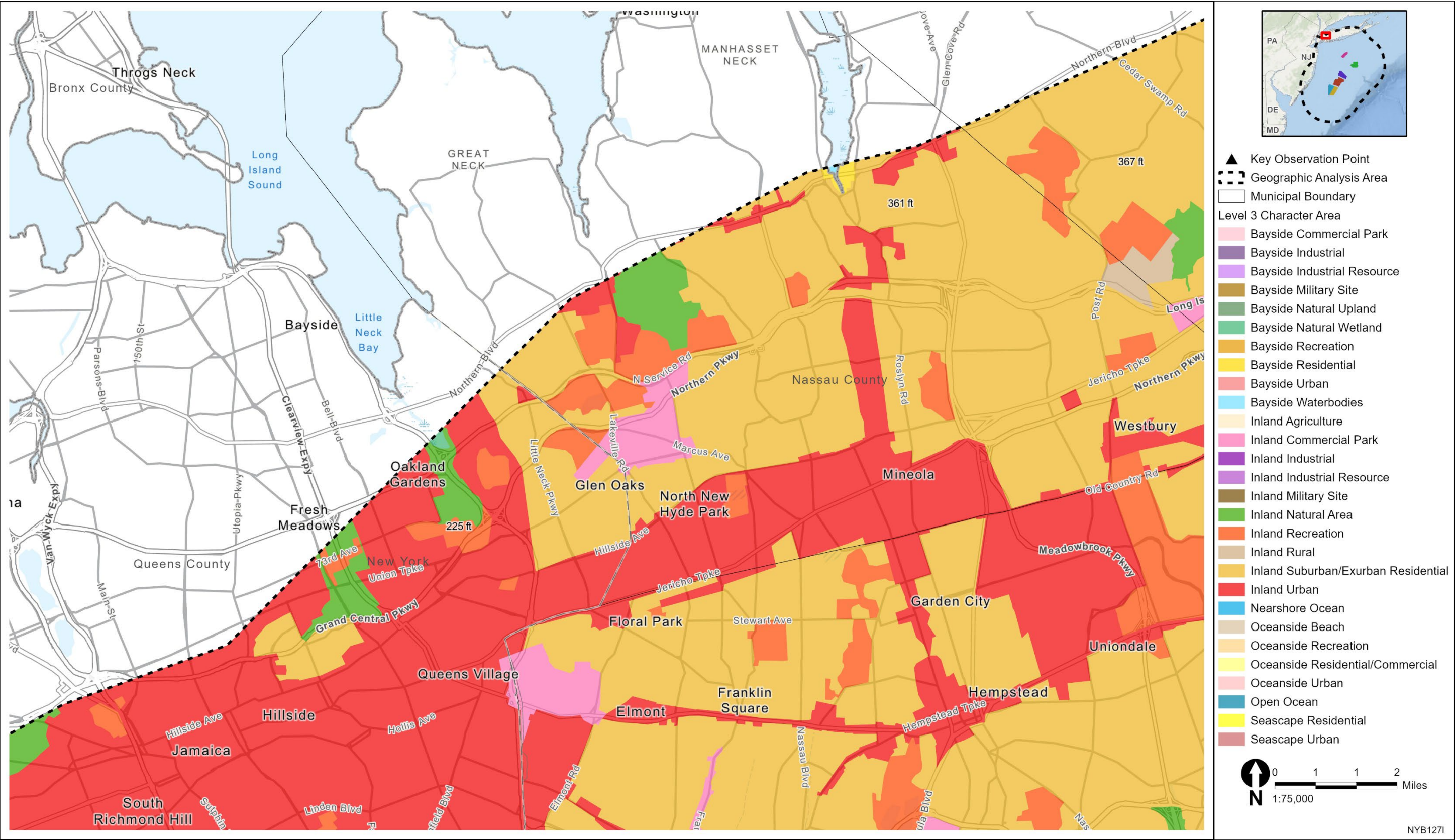
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP K



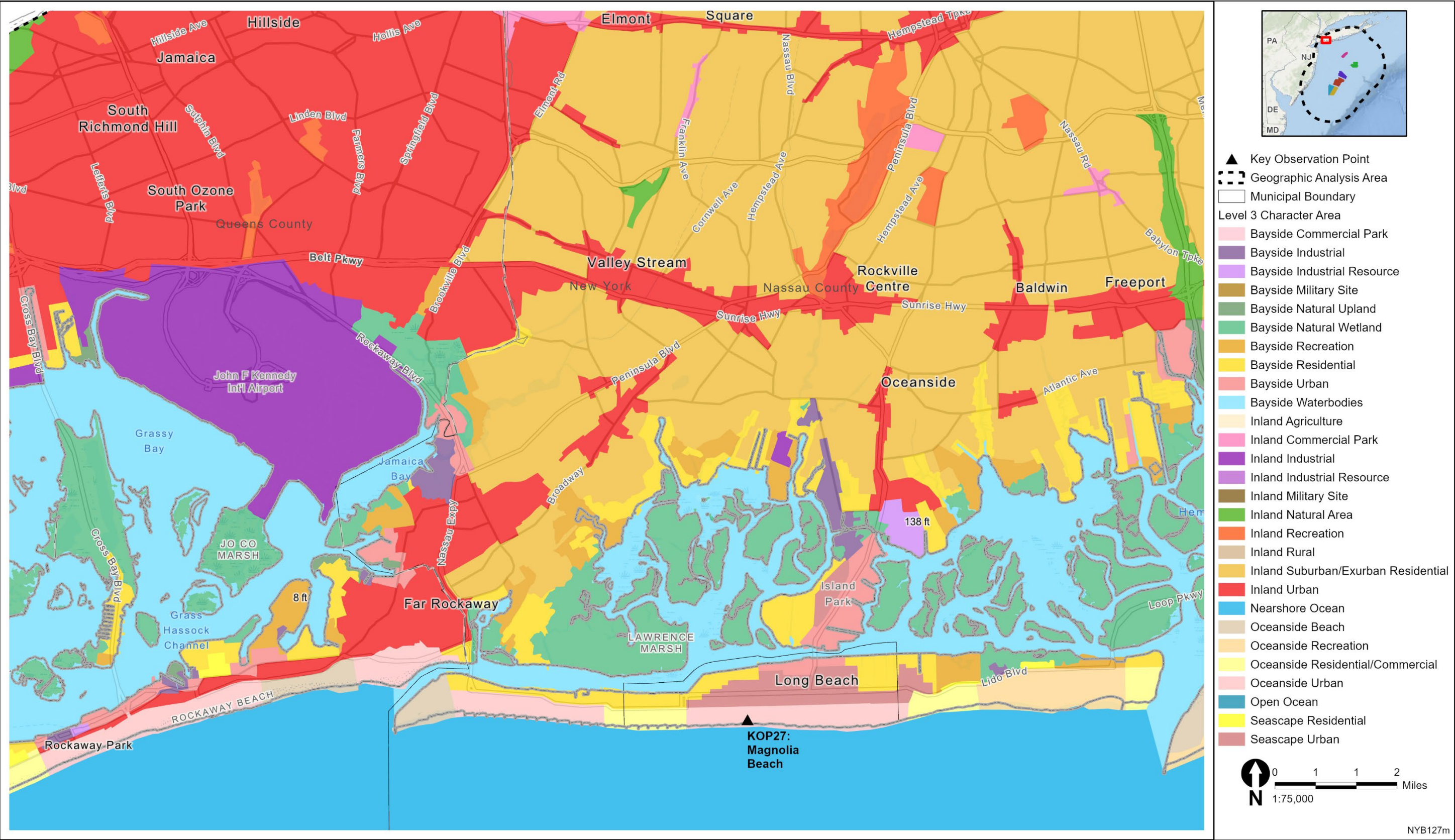
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP L



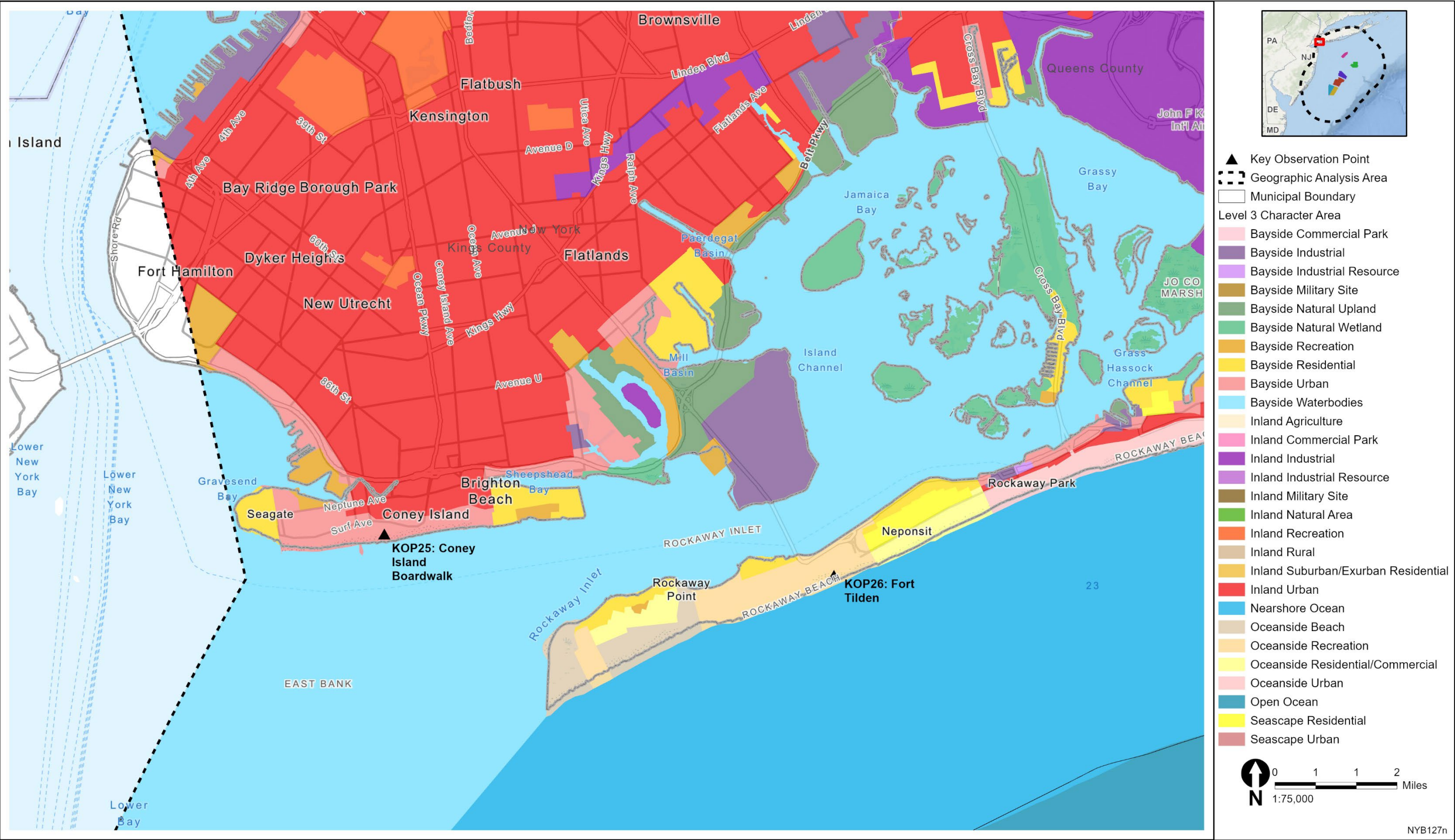
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP M



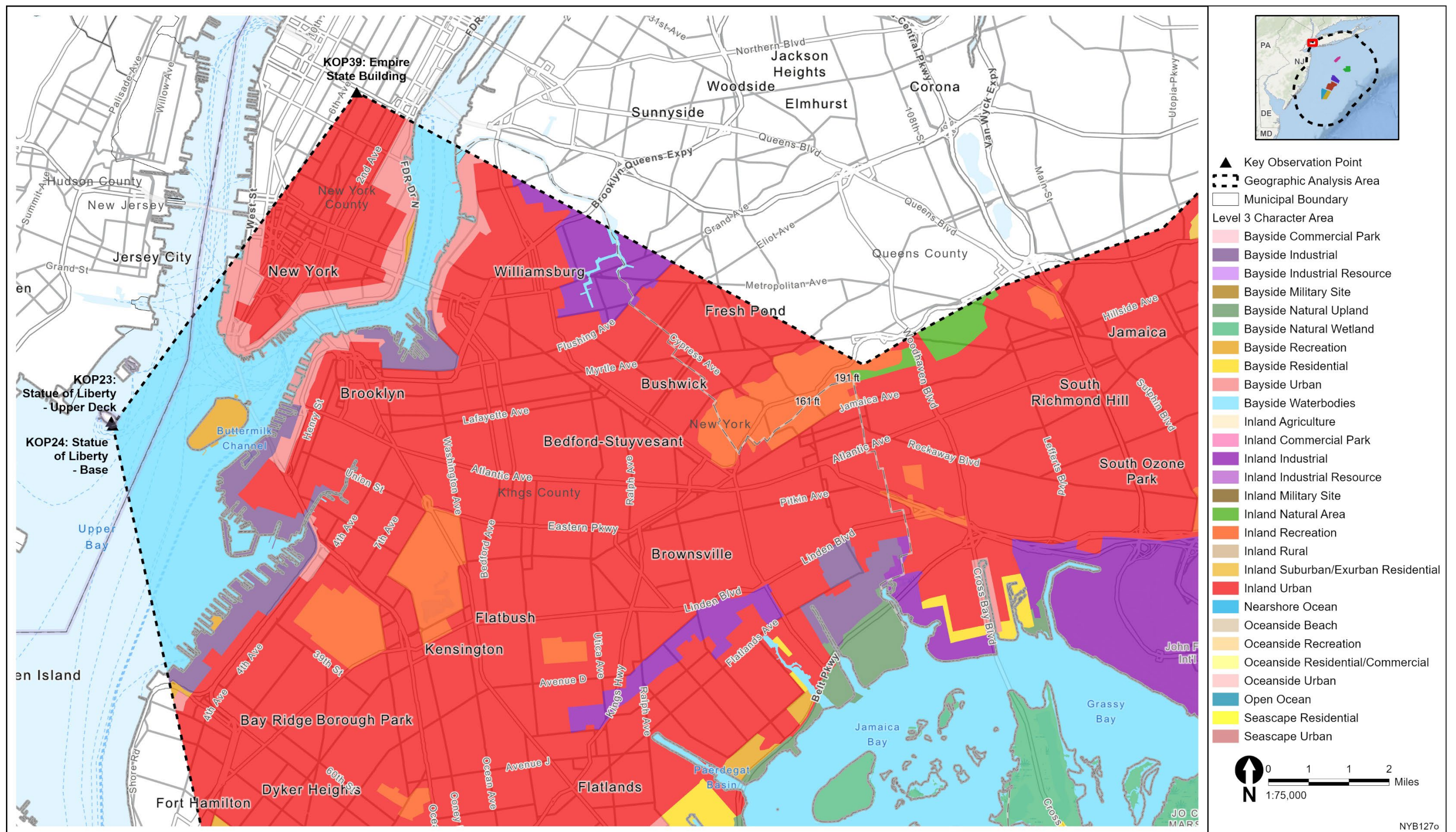
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP N



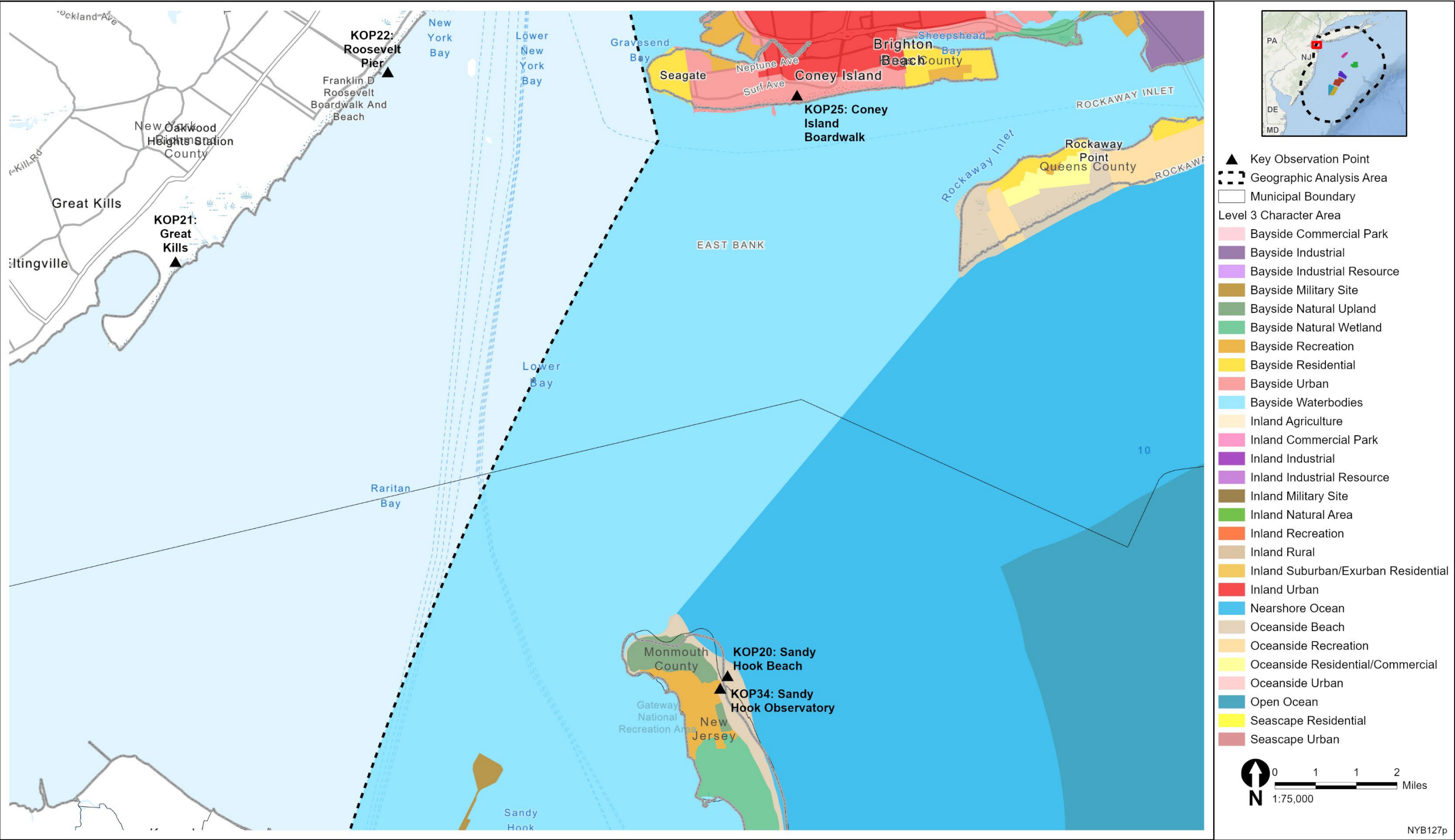
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP O



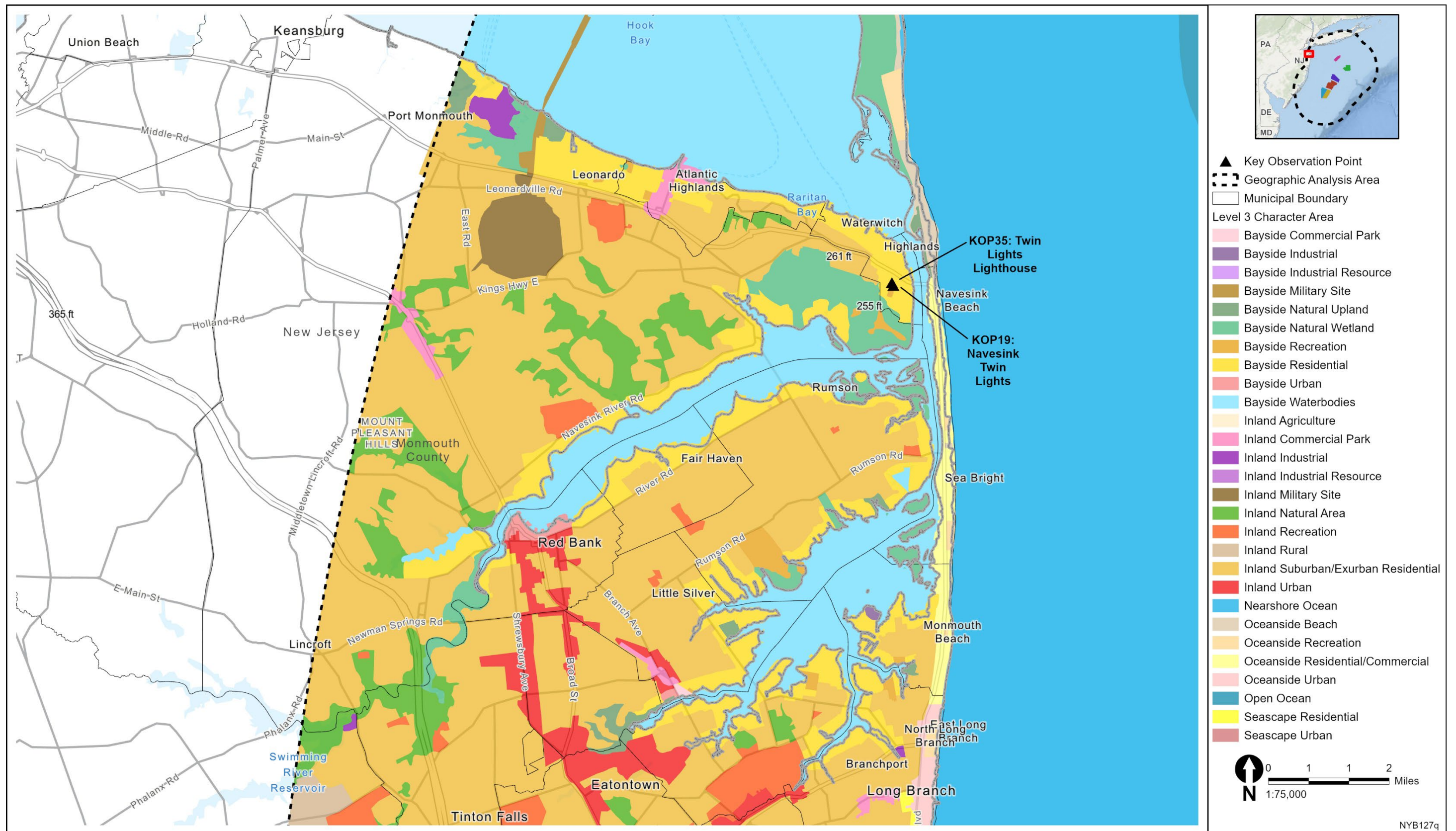
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP P



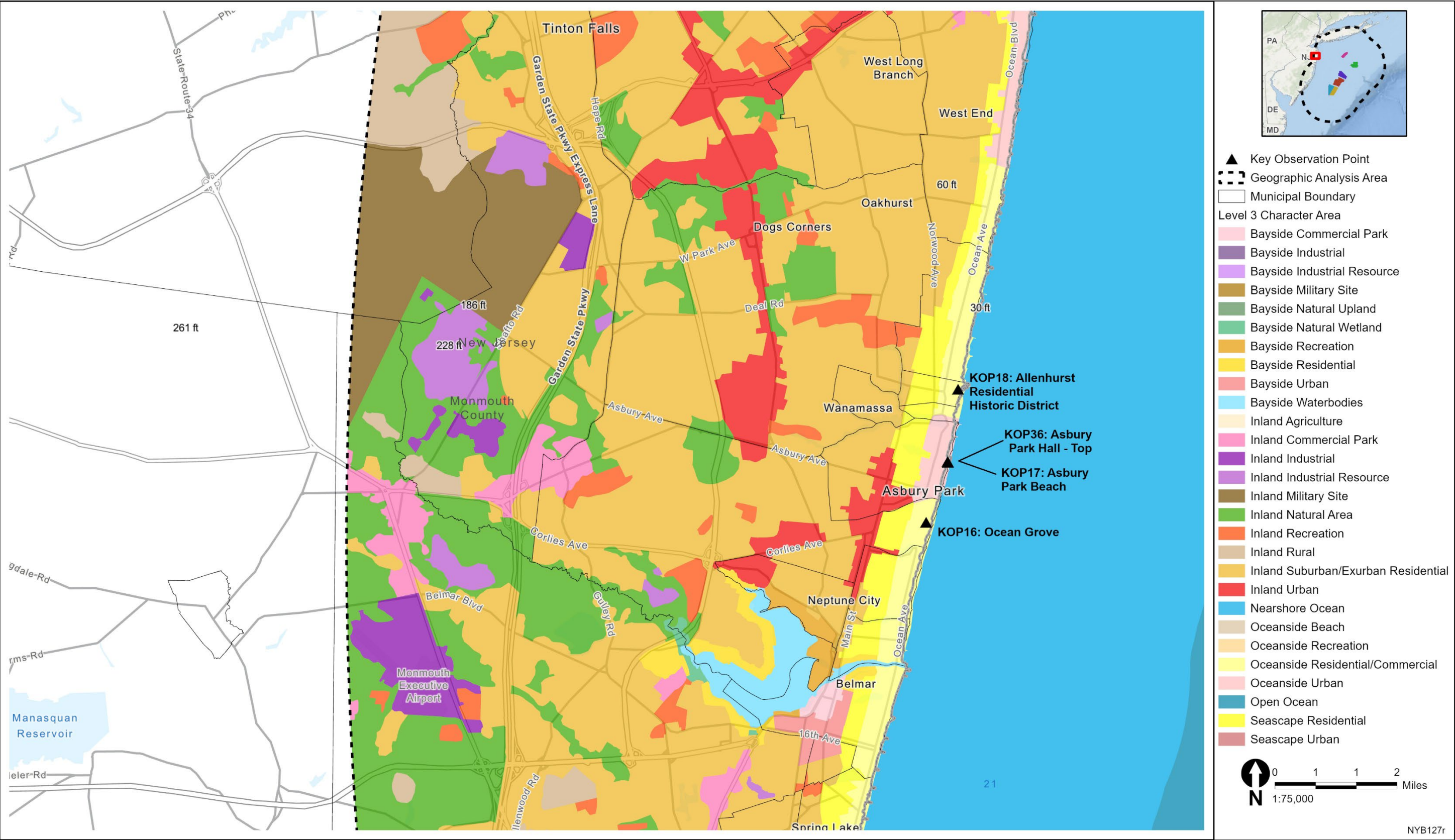
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP Q



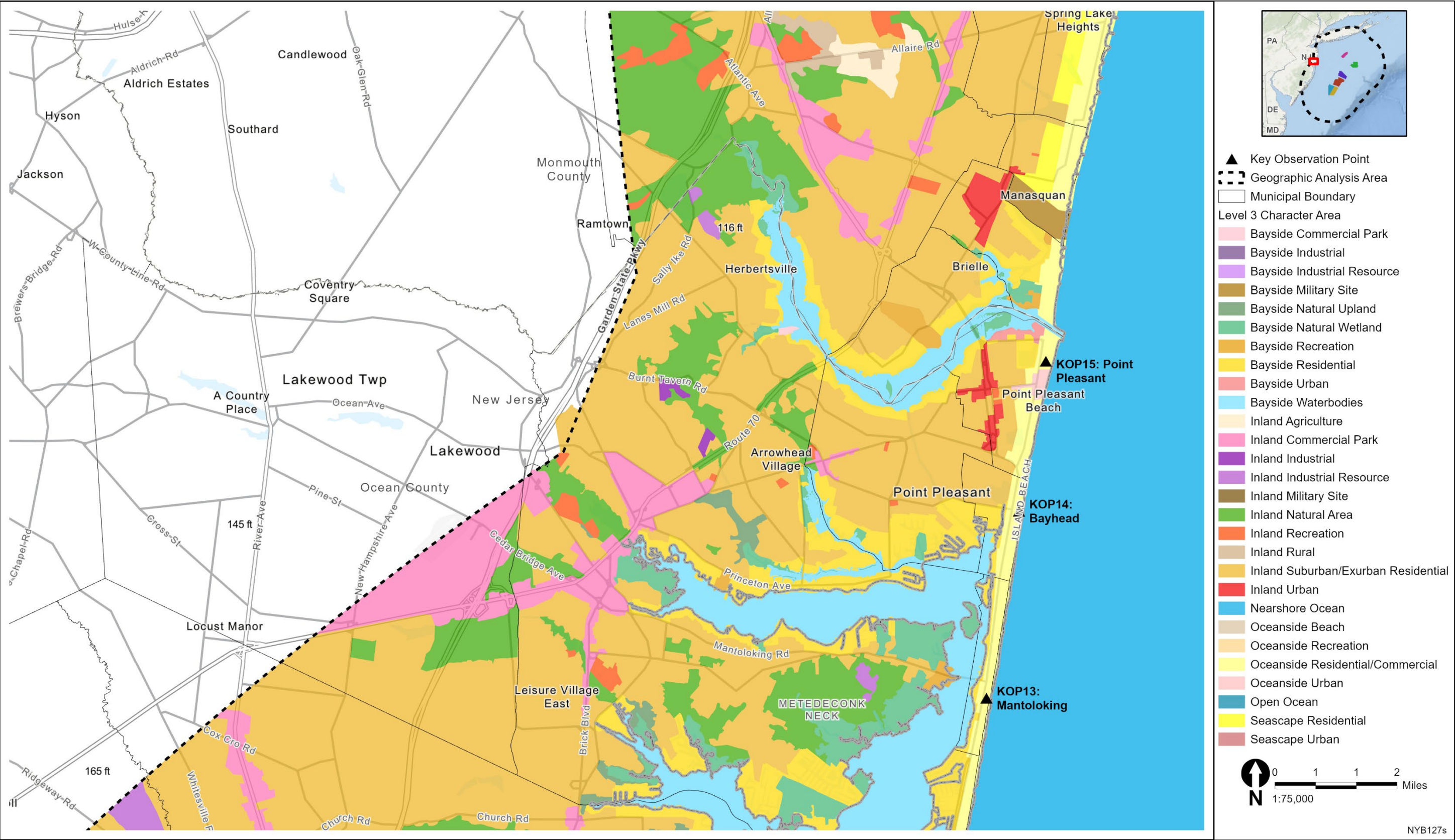
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP R



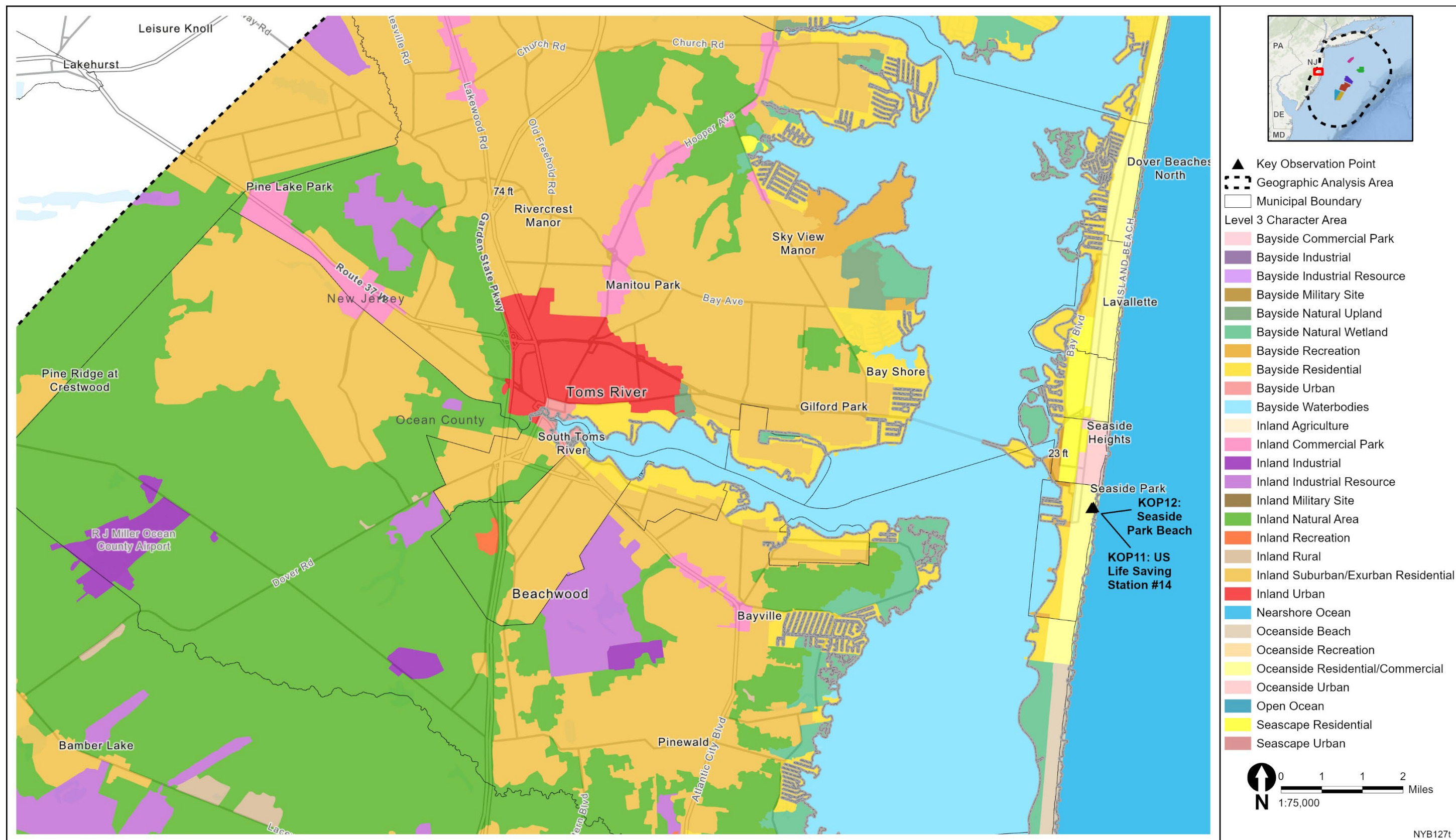
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP S



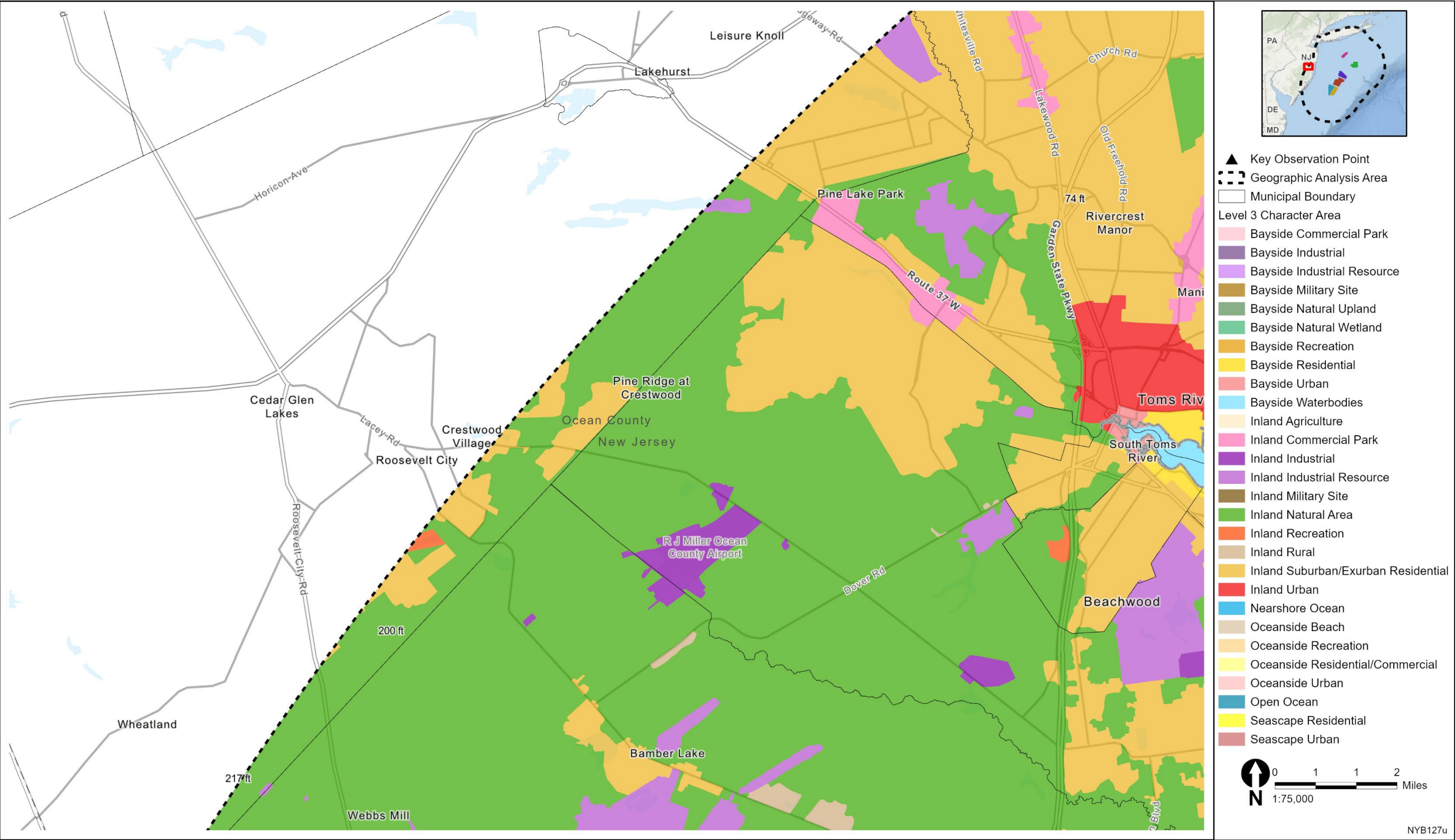
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP T



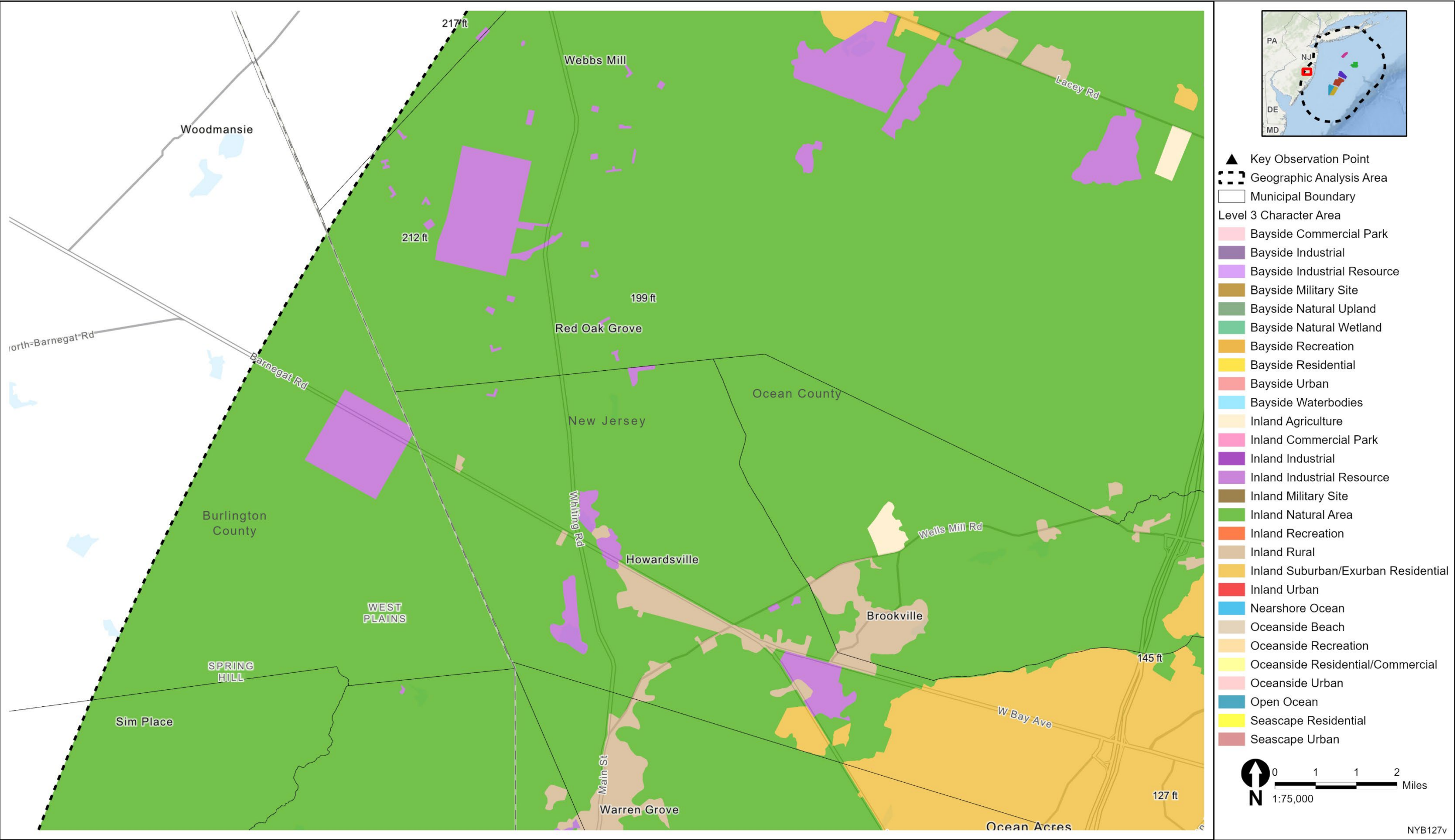
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP U



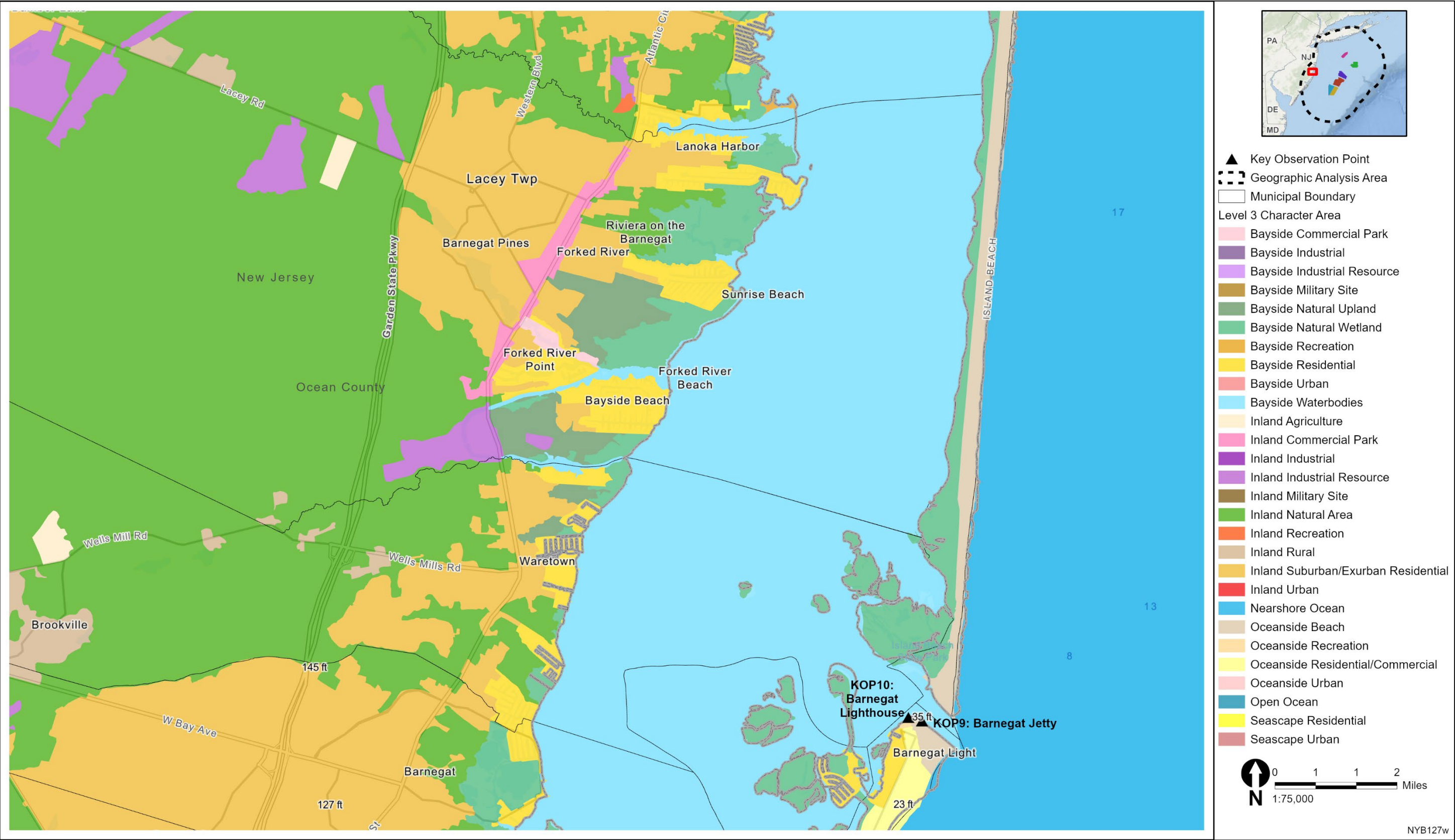
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP V



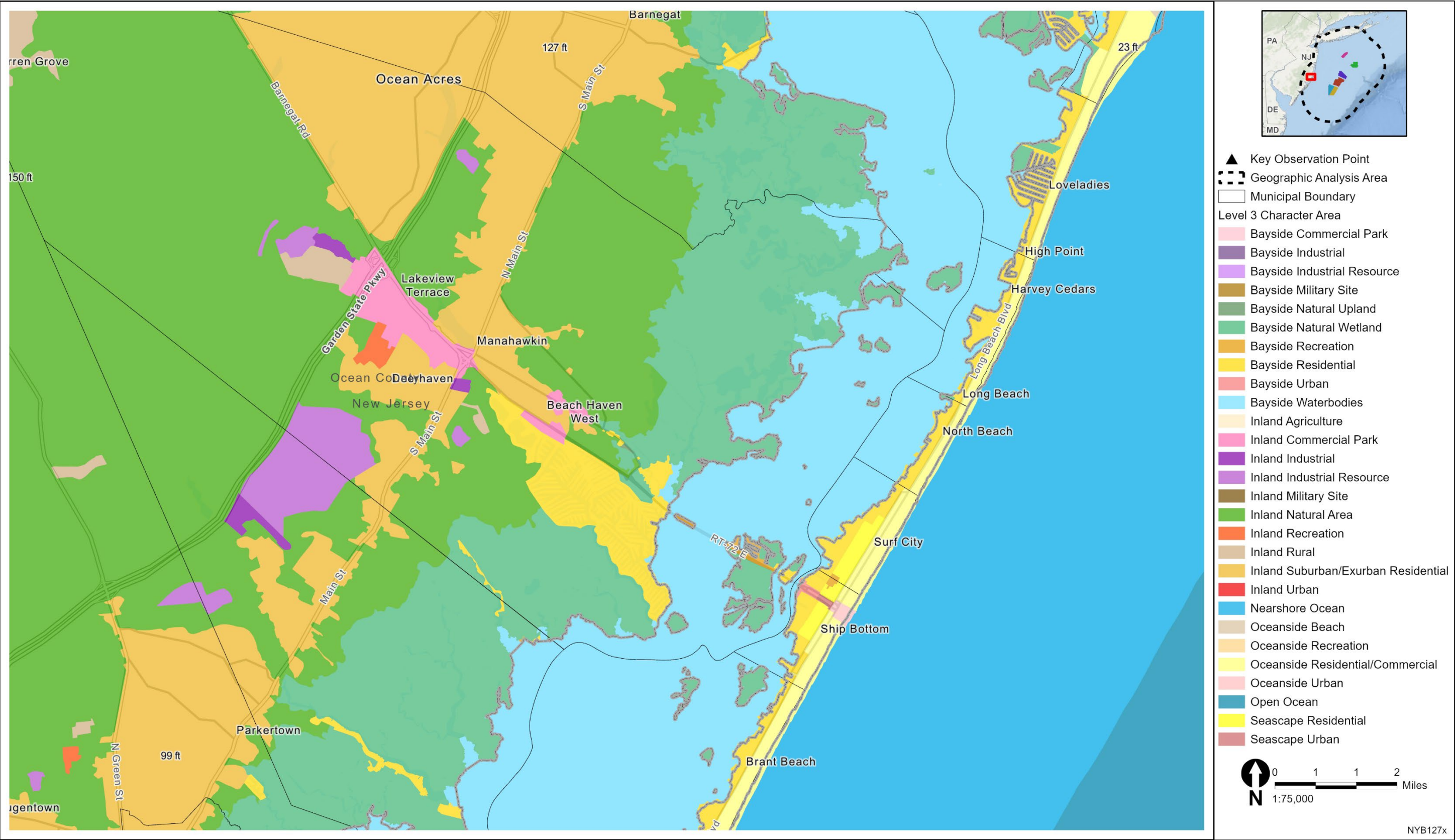
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP W



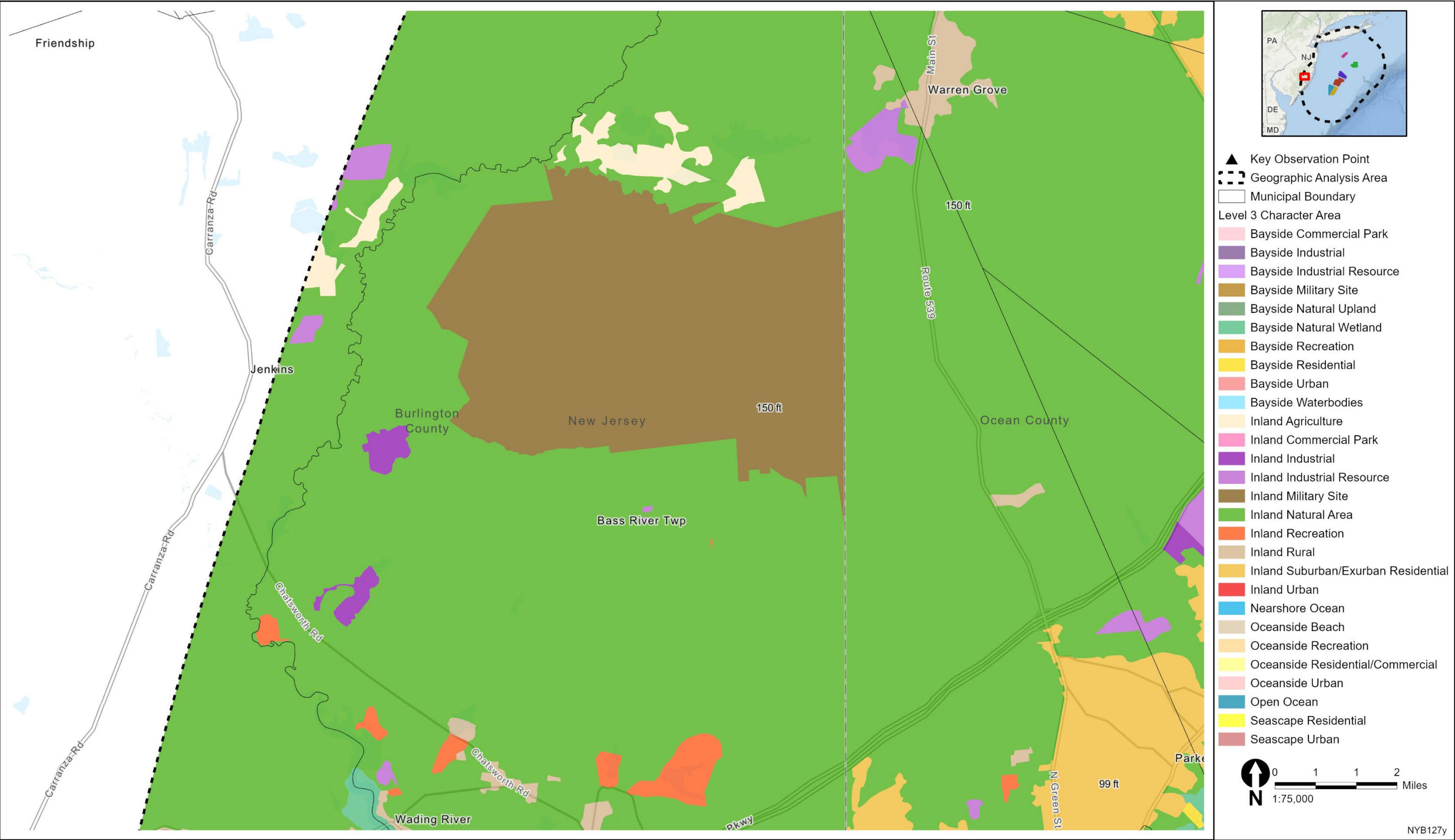
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP X



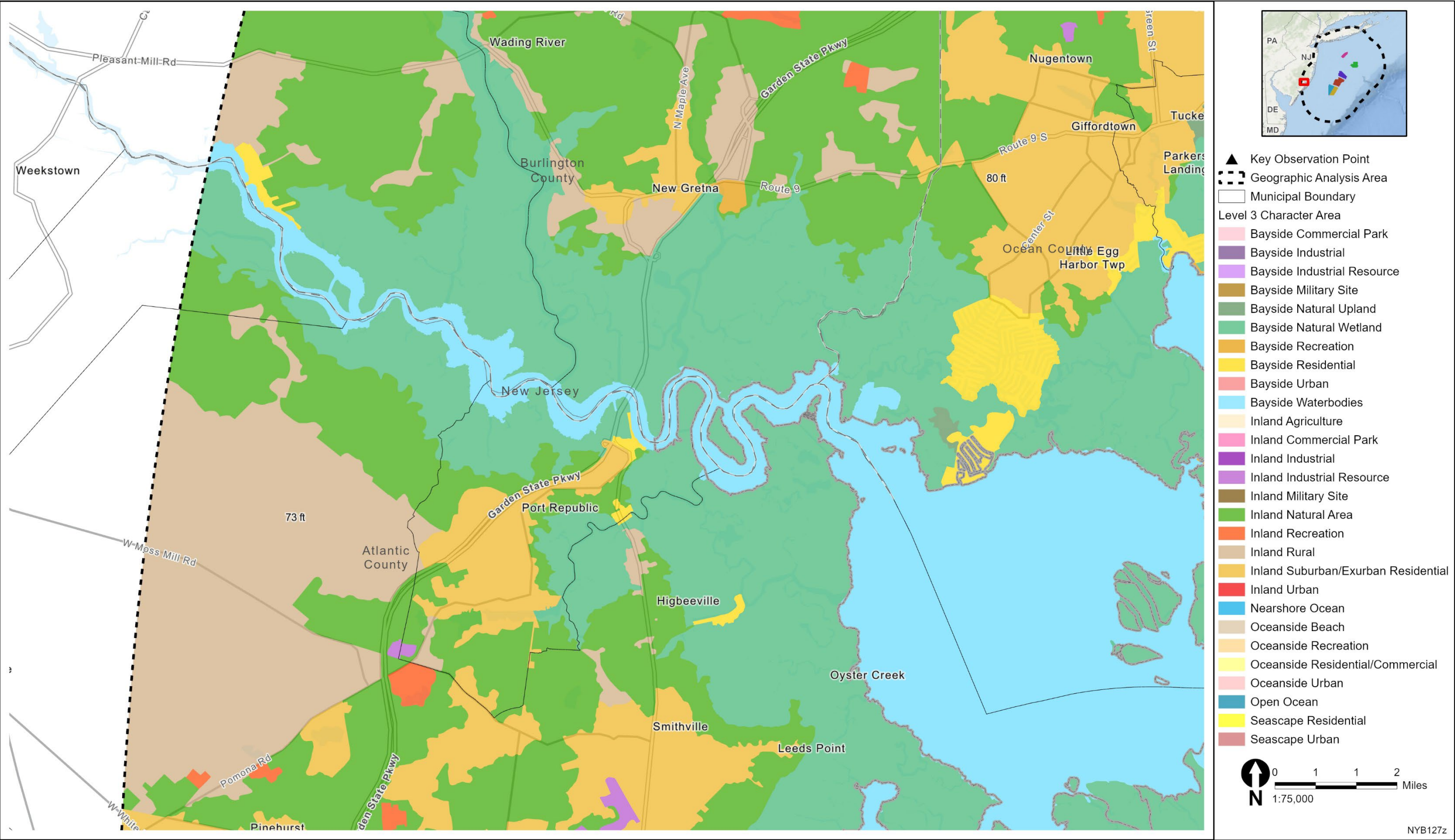
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP Y



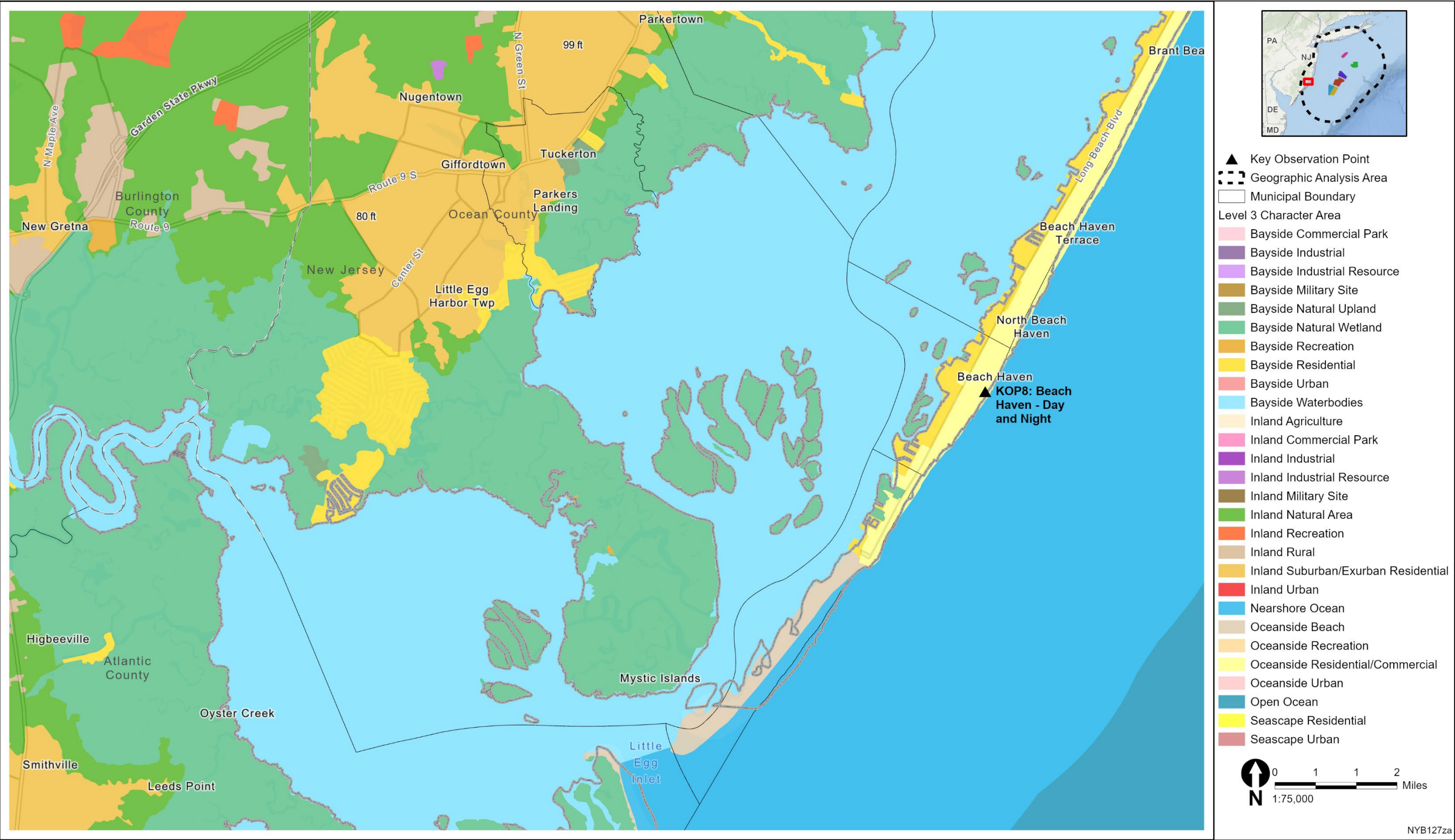
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP Z



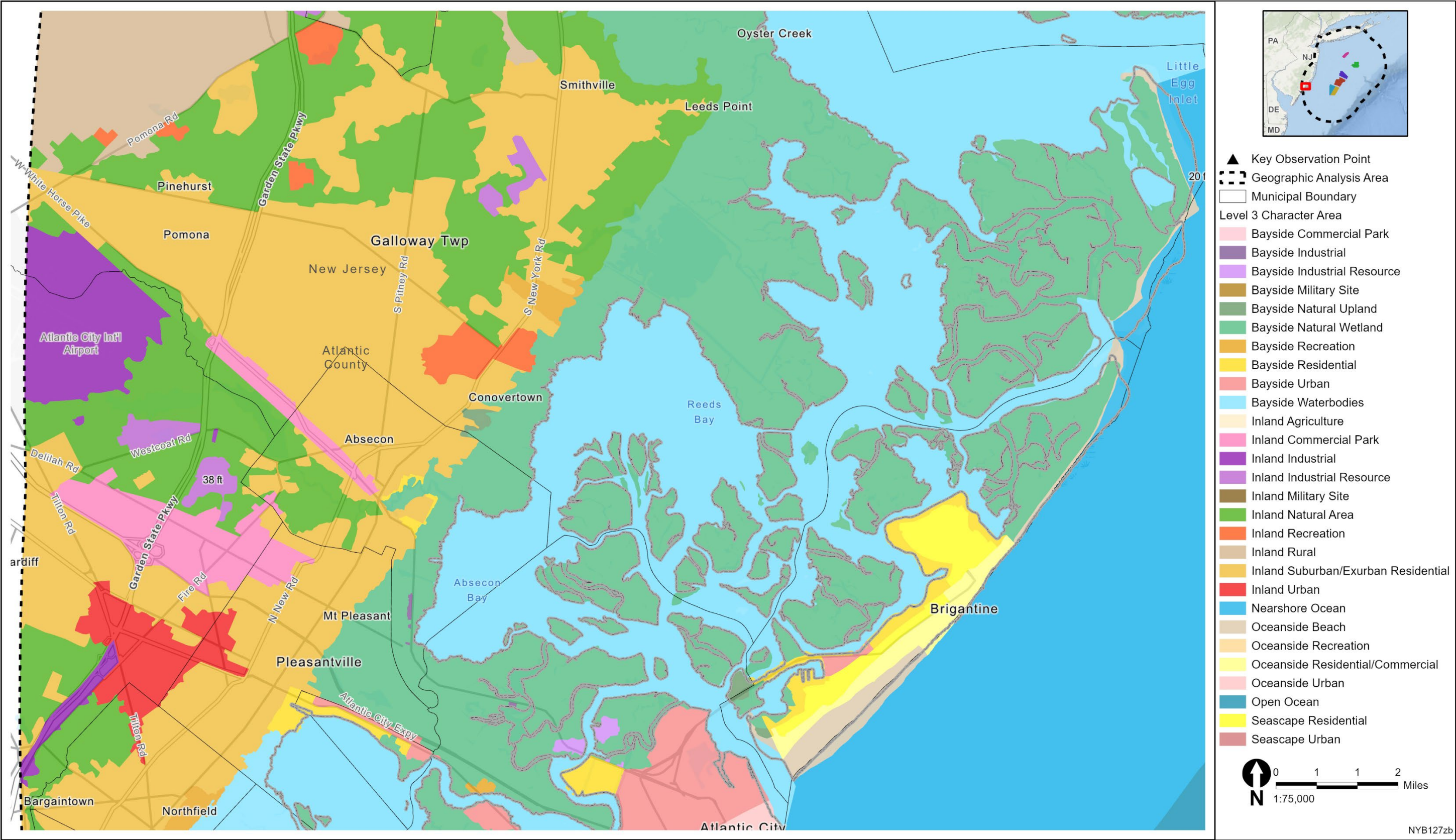
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP ZA



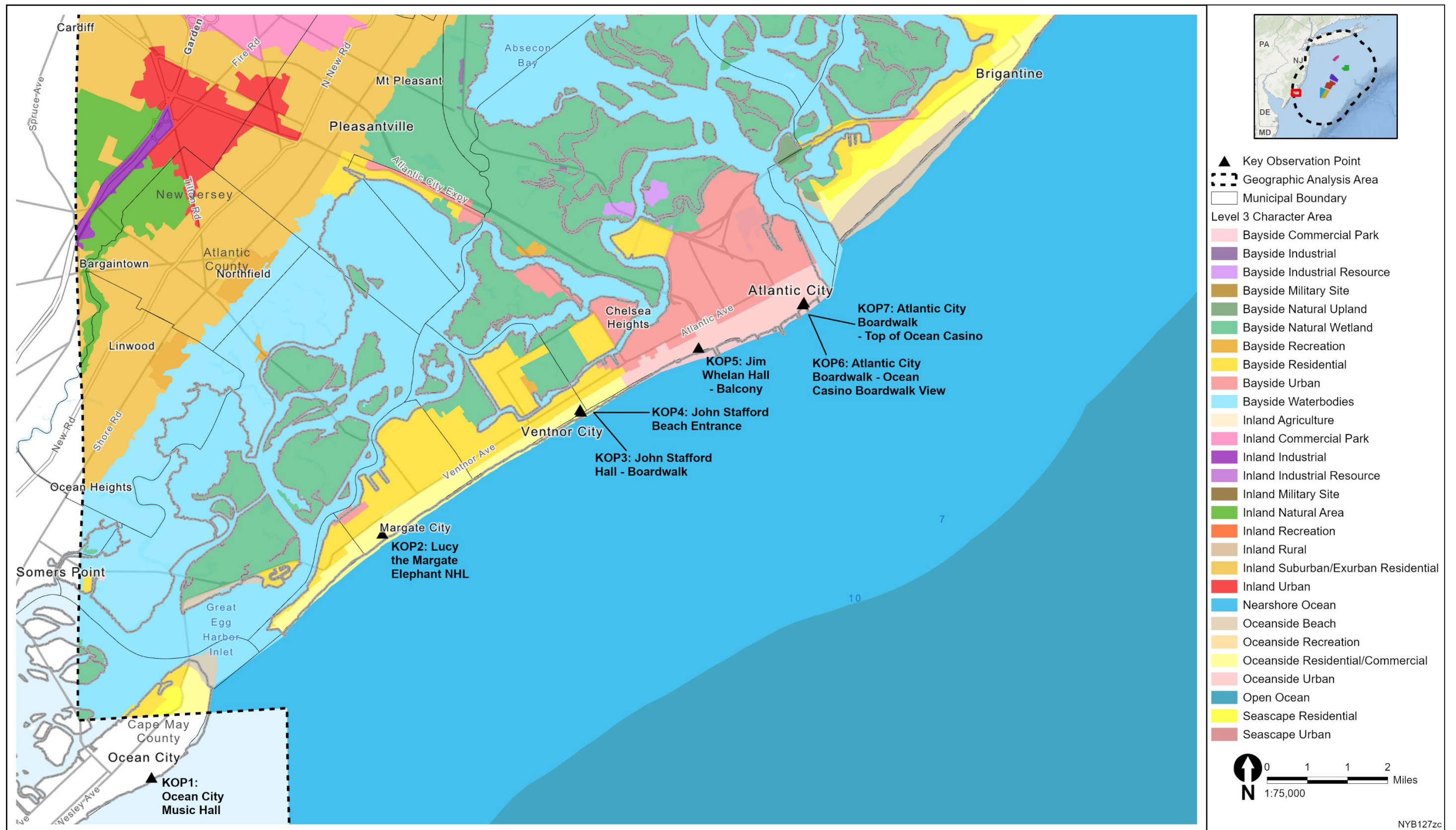
Series 1: Character Area Delineations Within the Geographic Analysis Area

MAP ZB

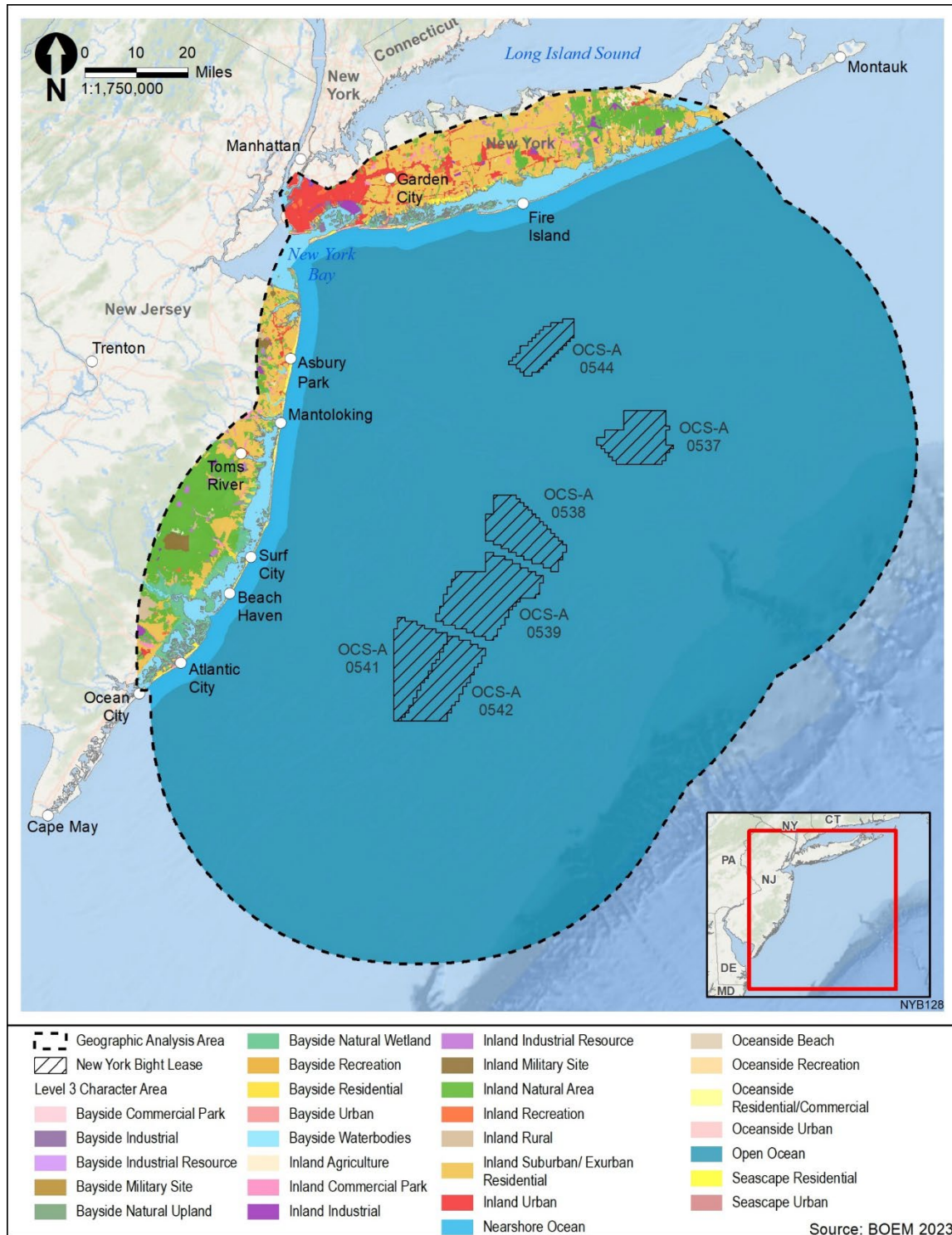


Series 1: Character Area Delineations Within the Geographic Analysis Area

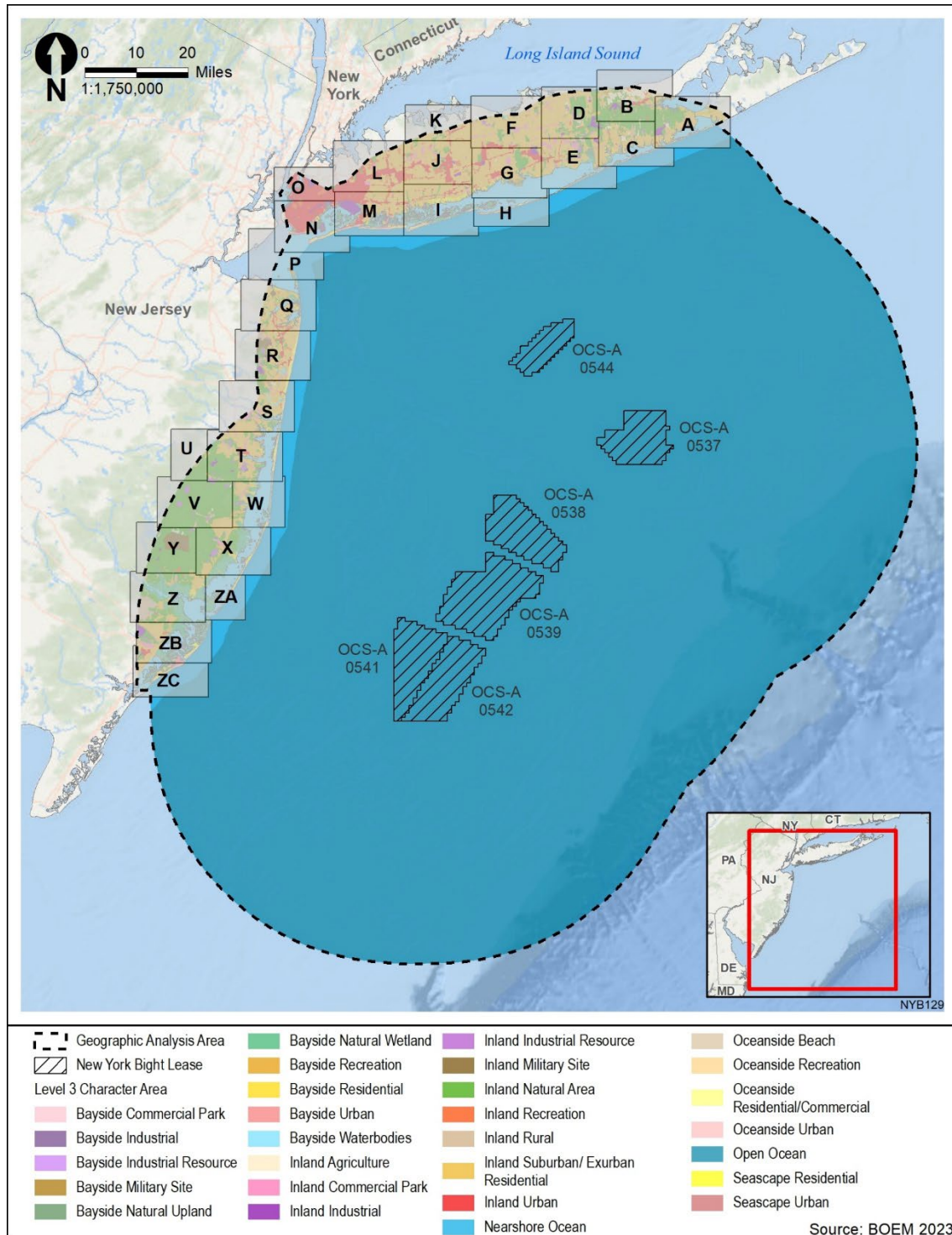
MAP ZC



Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height—Overview Map

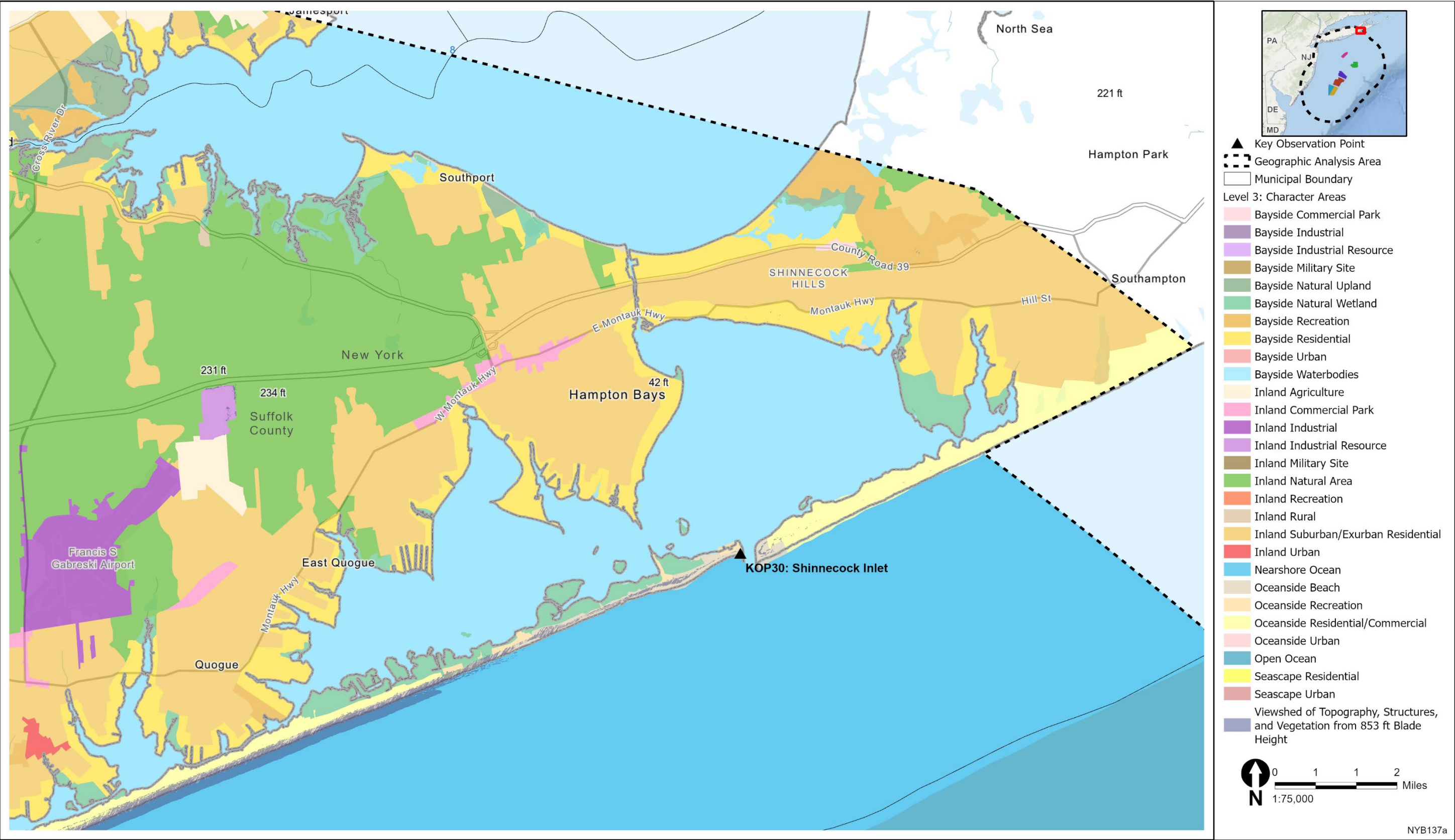


Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height—Grid Index Overview



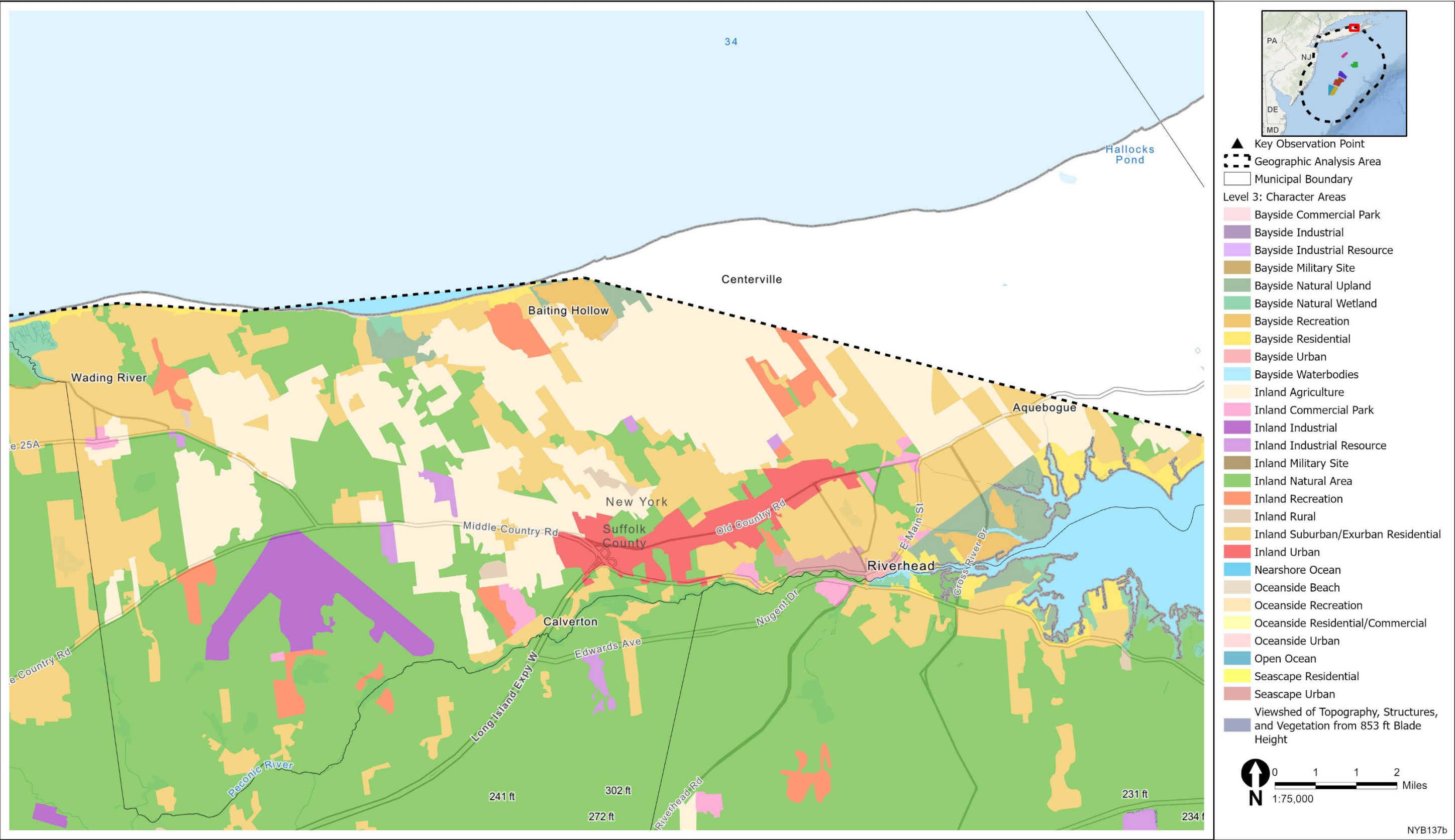
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP A



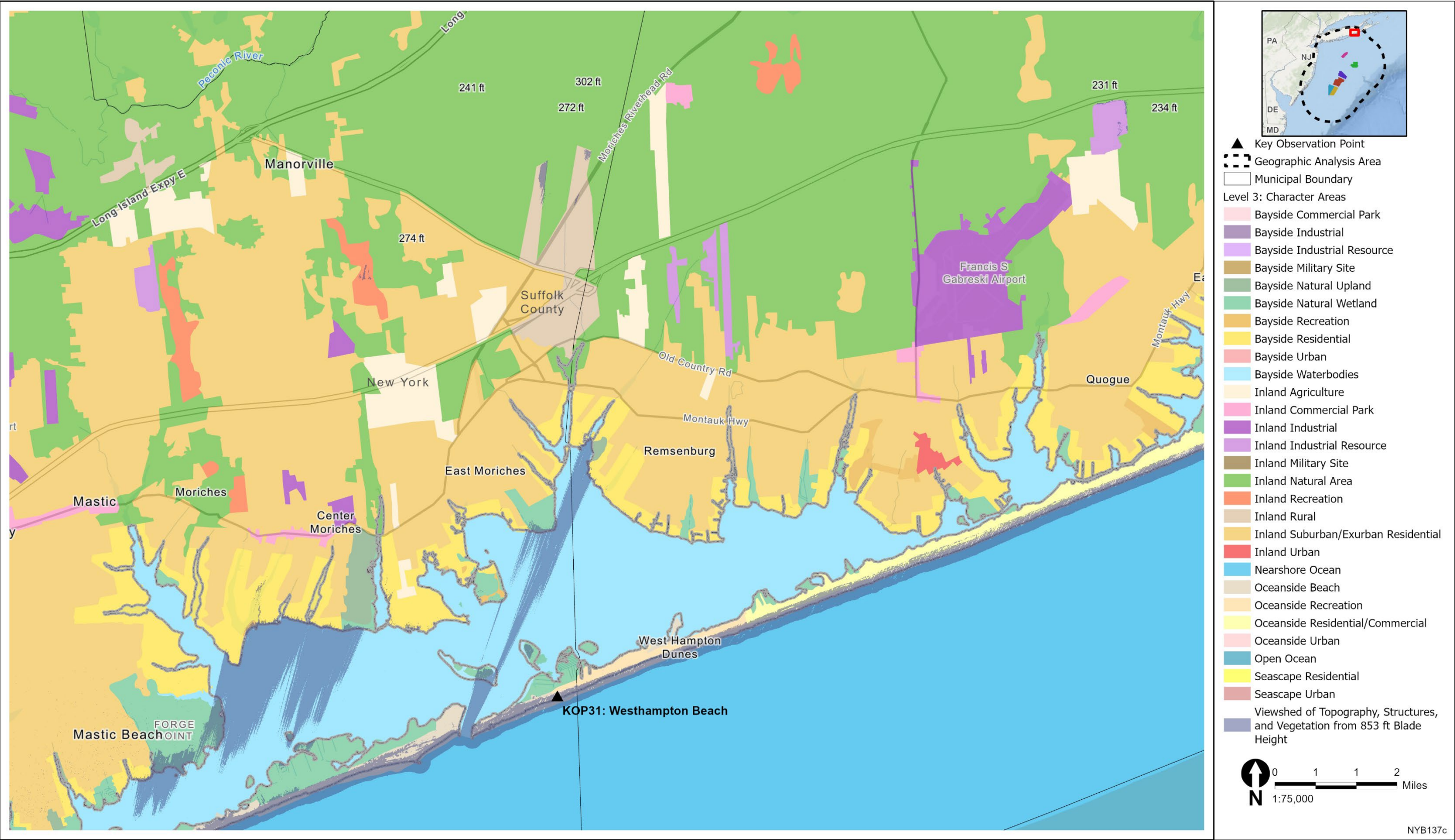
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP B



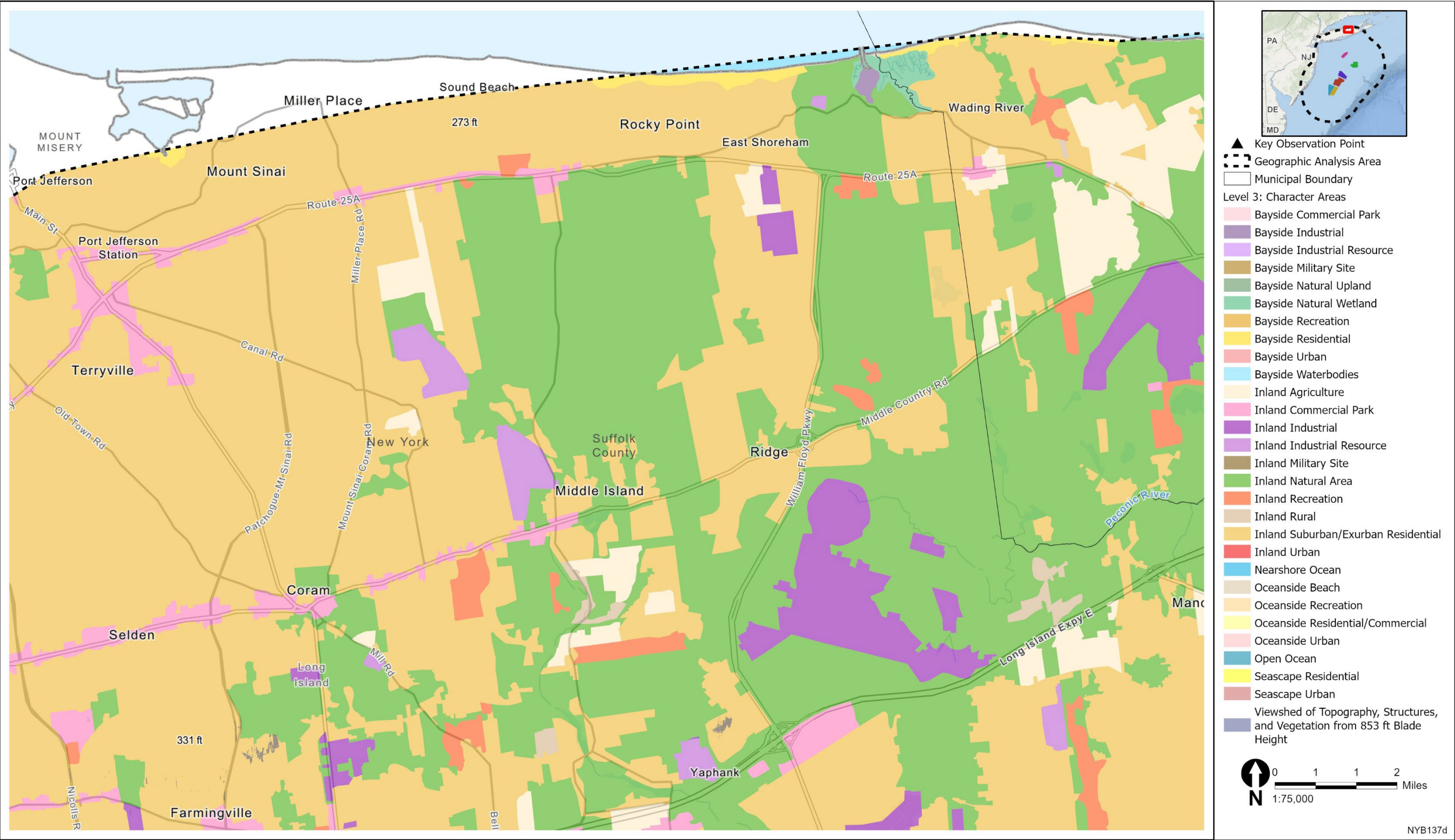
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP C



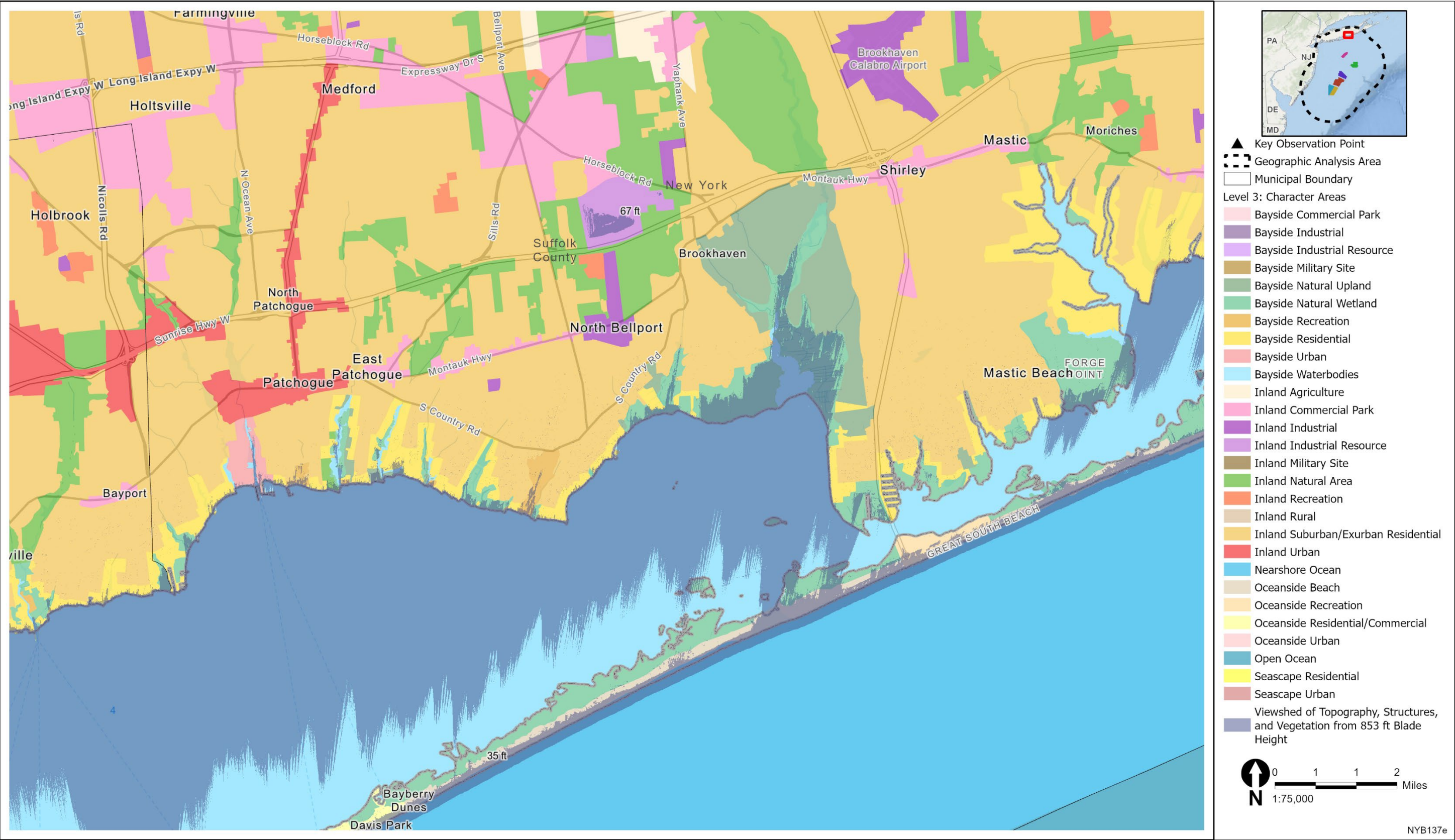
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP D



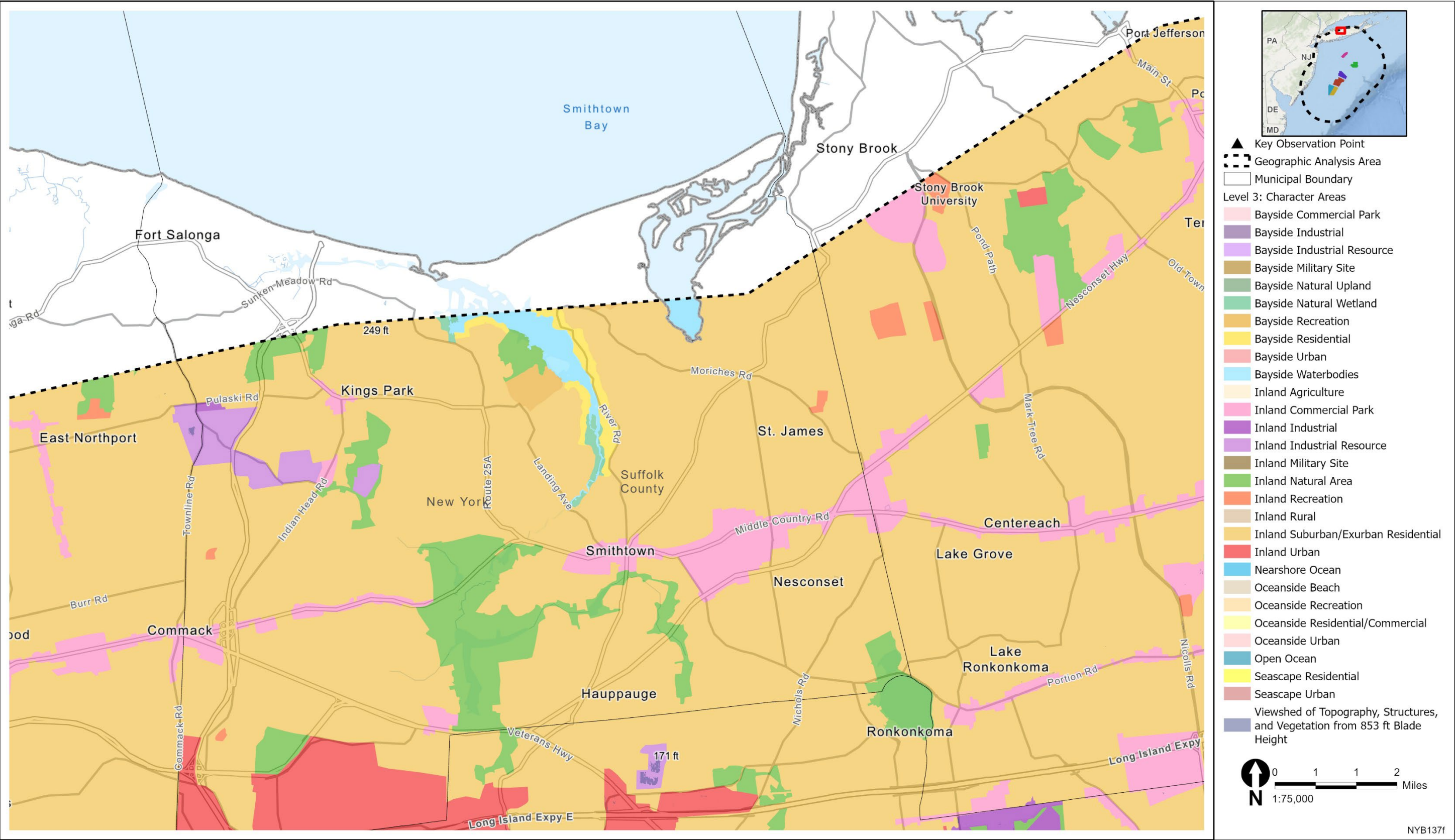
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP E



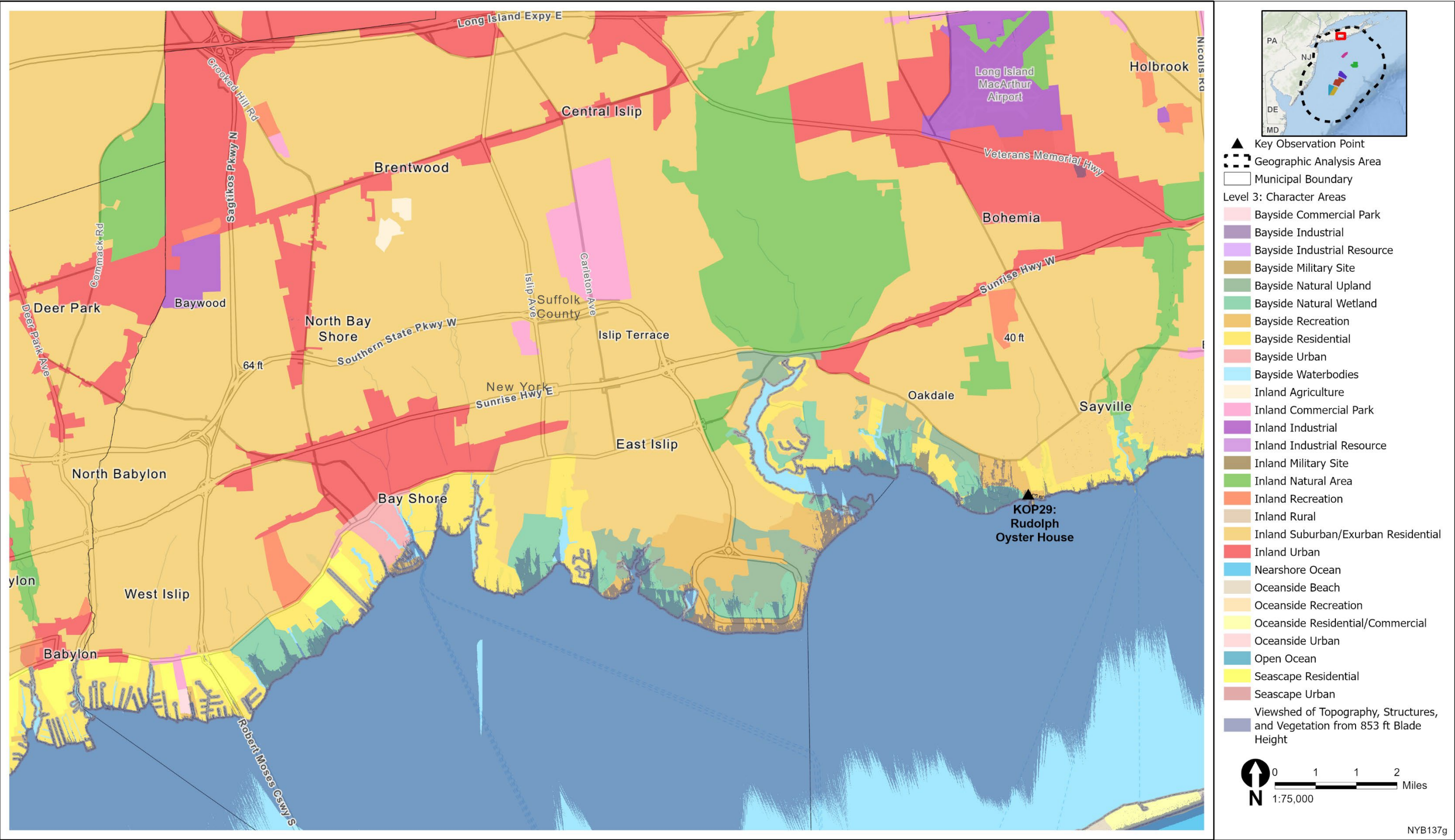
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP F



Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP G



Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP H



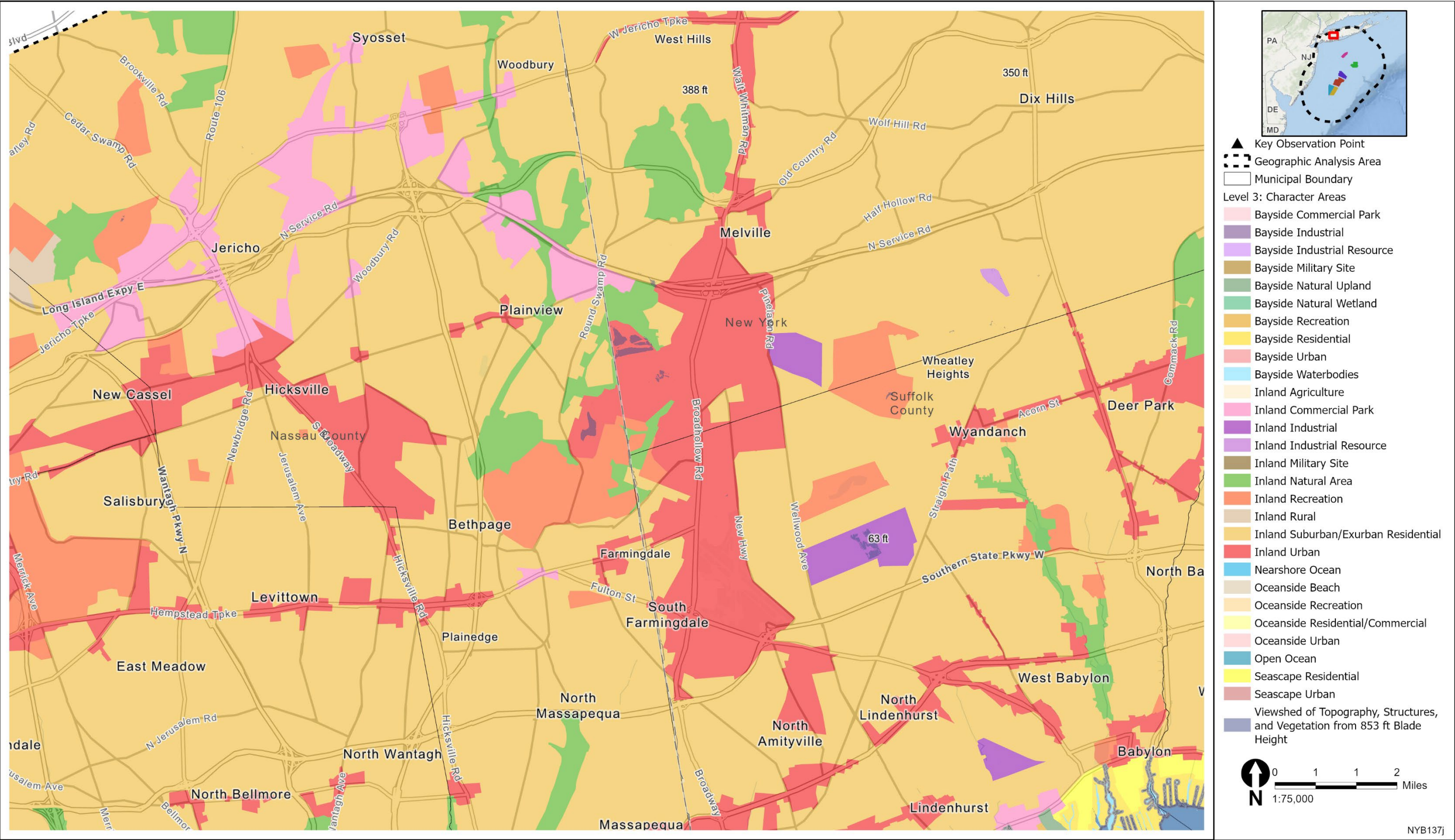
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP I



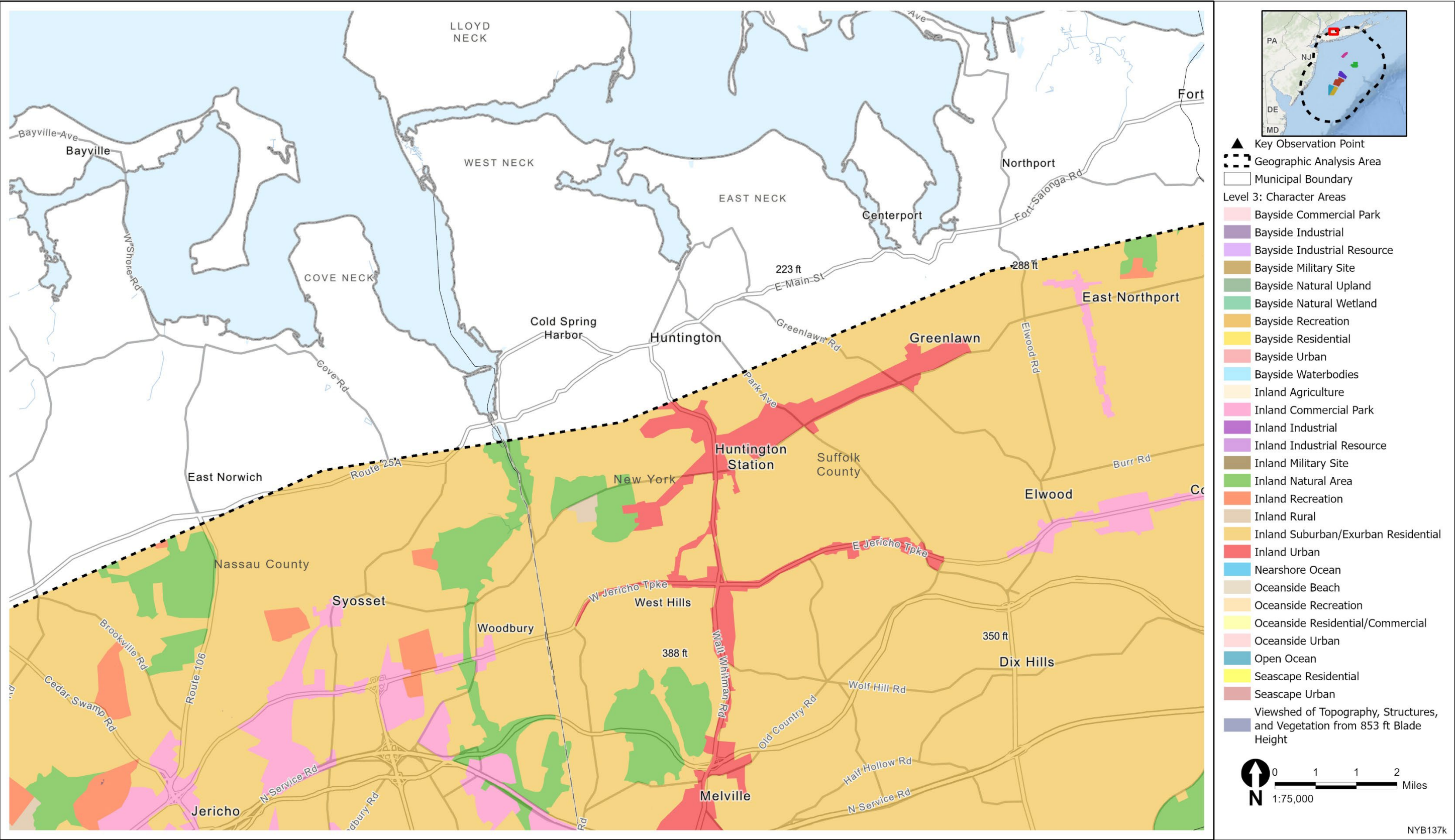
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP J



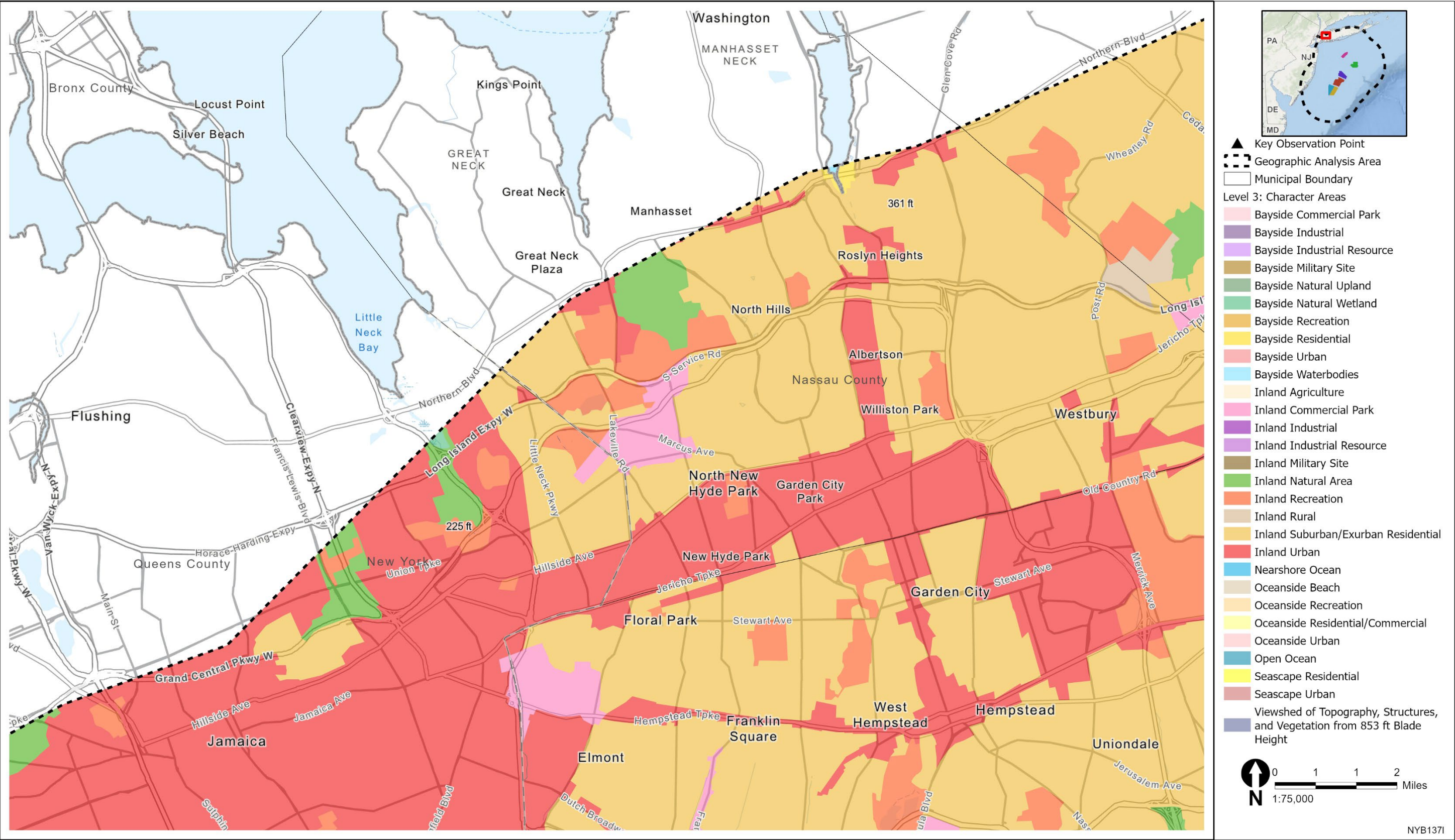
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP K



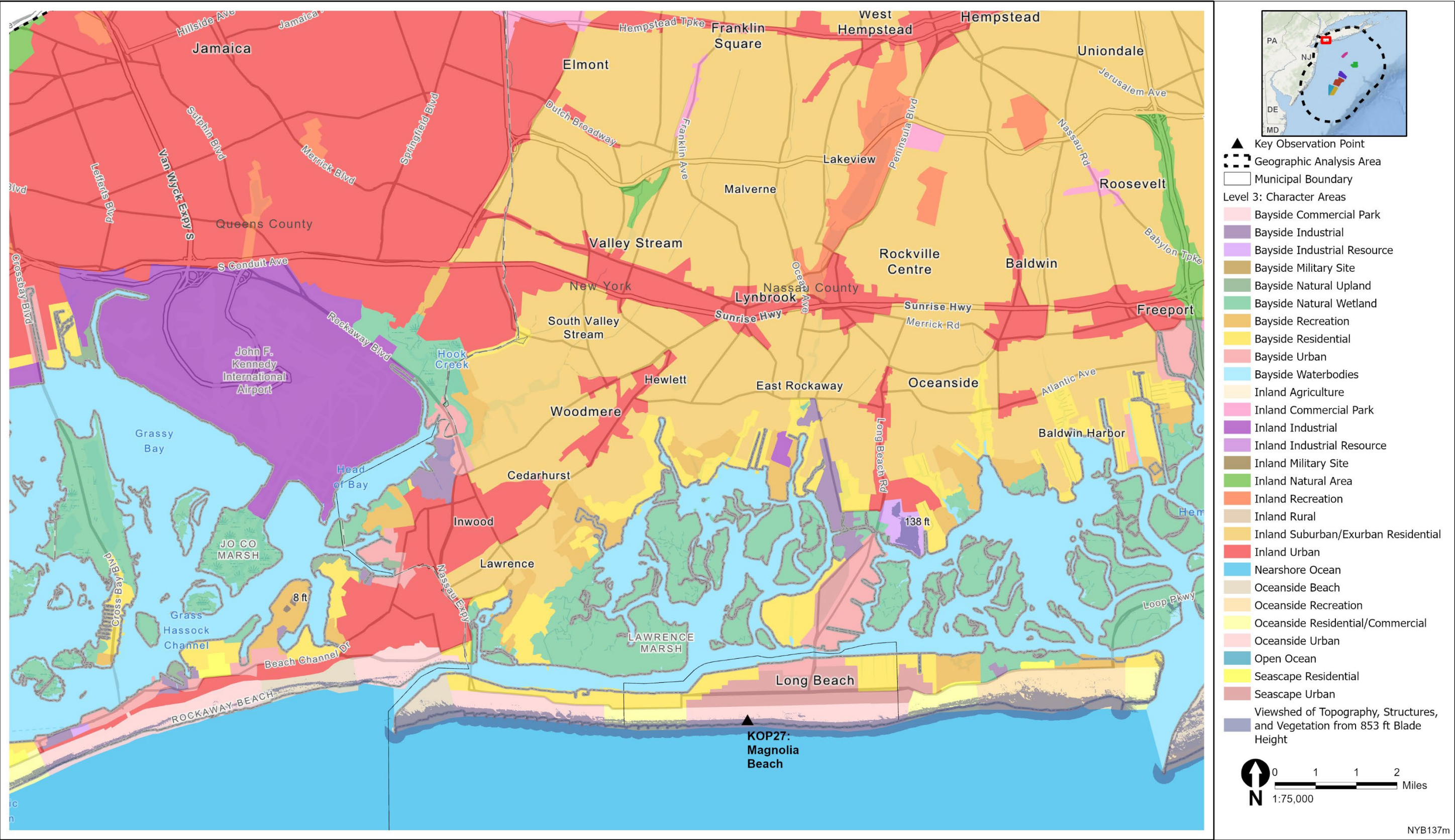
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP L



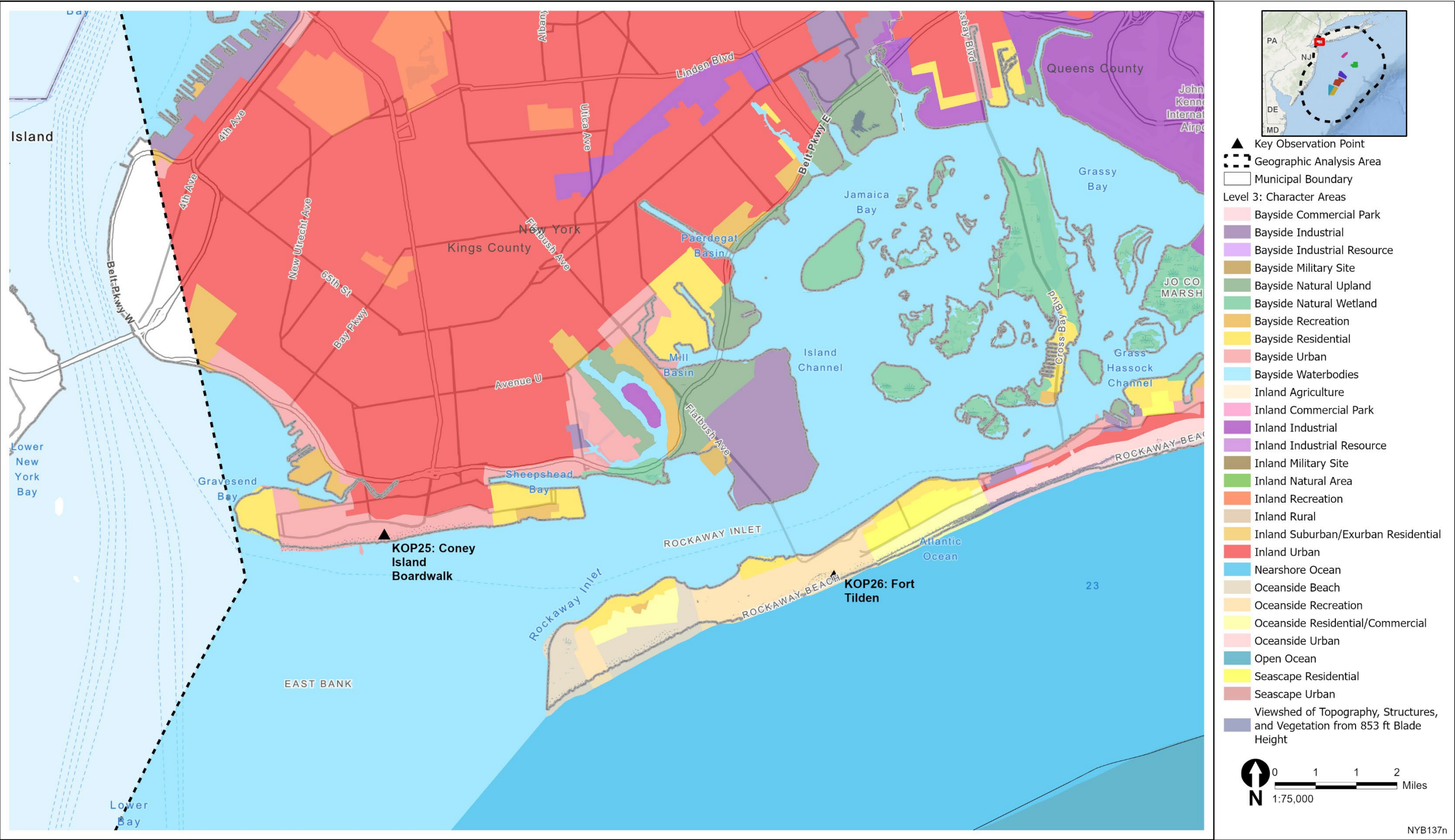
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP M



Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP N

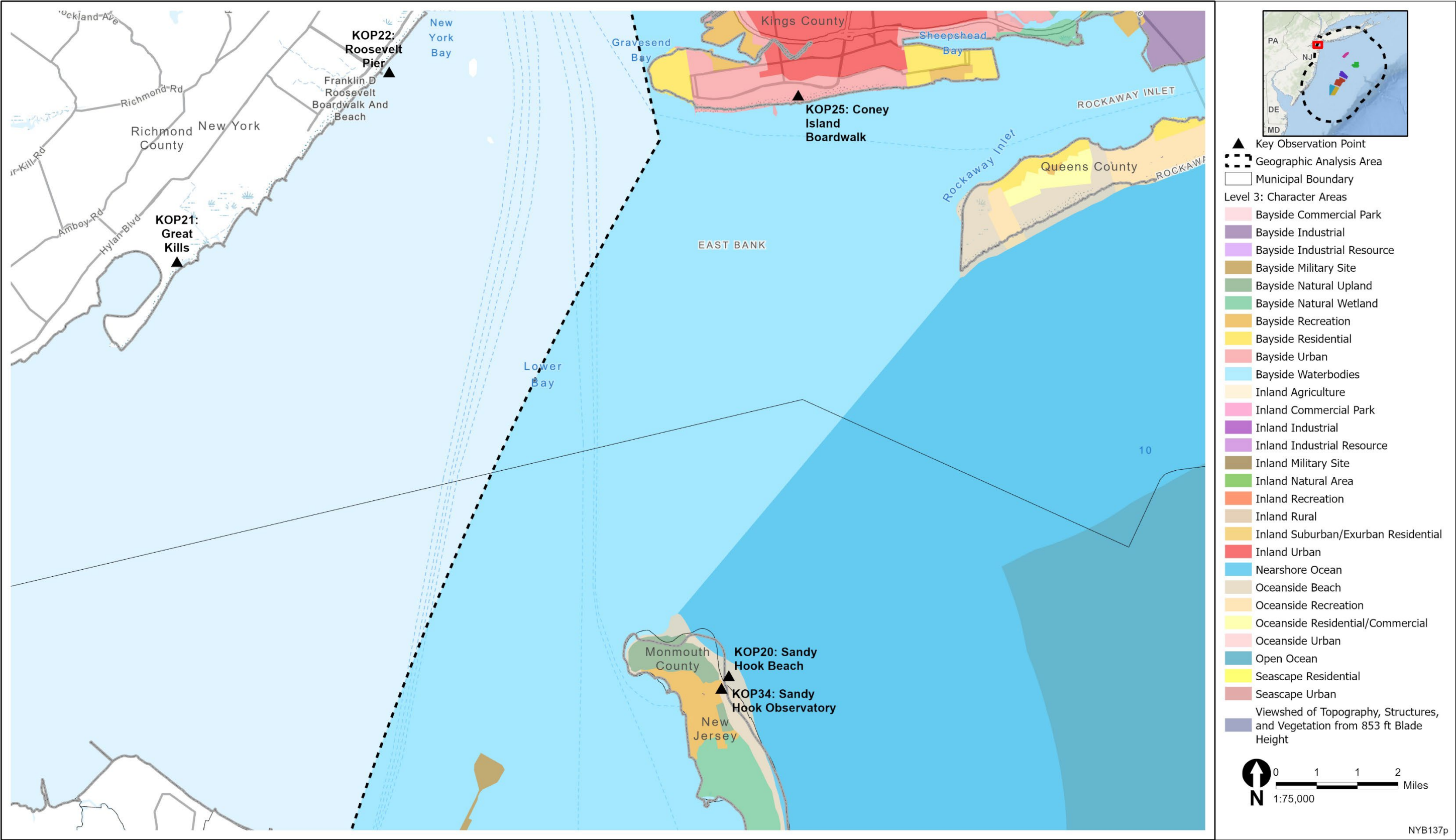


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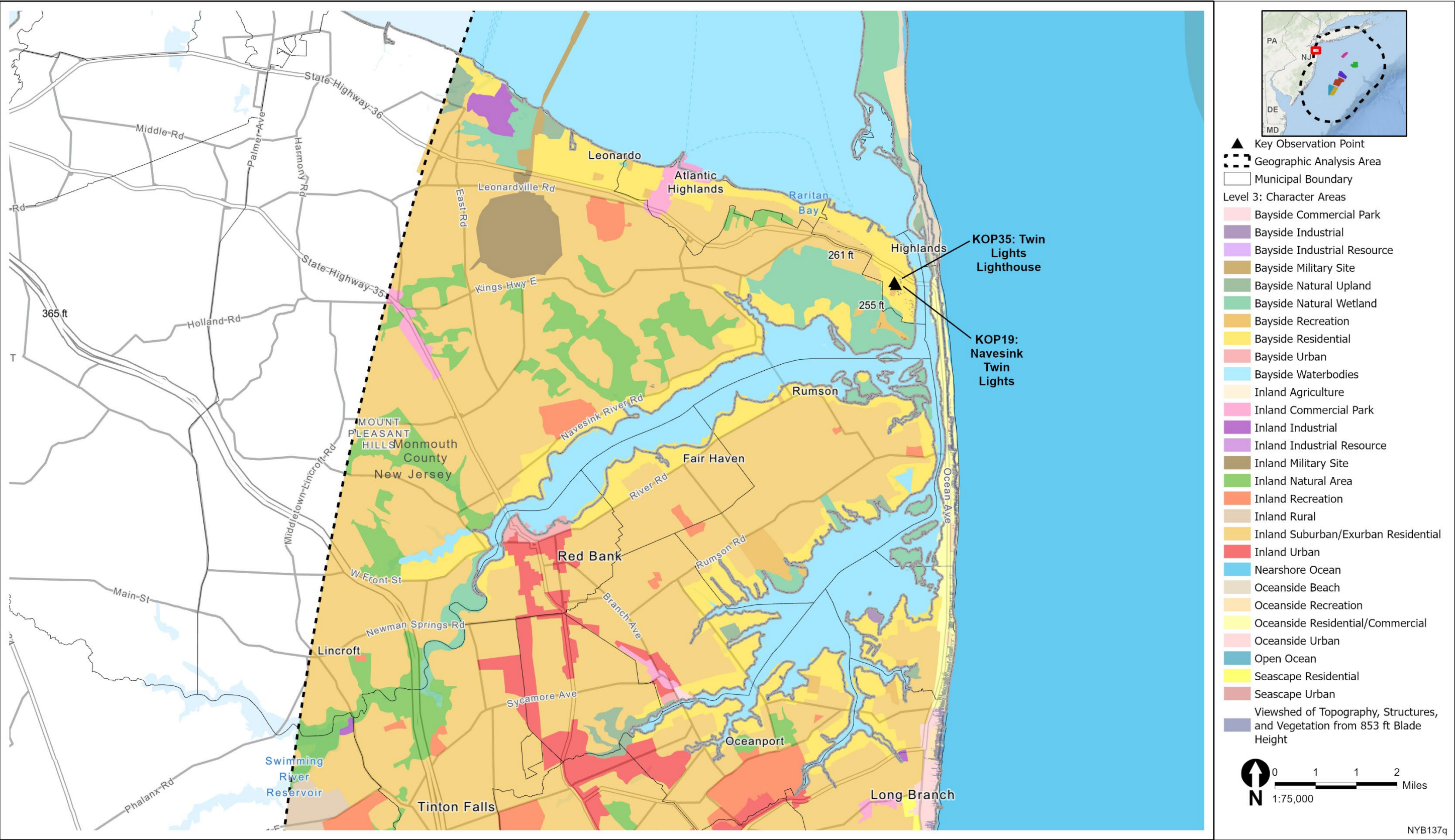
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP P



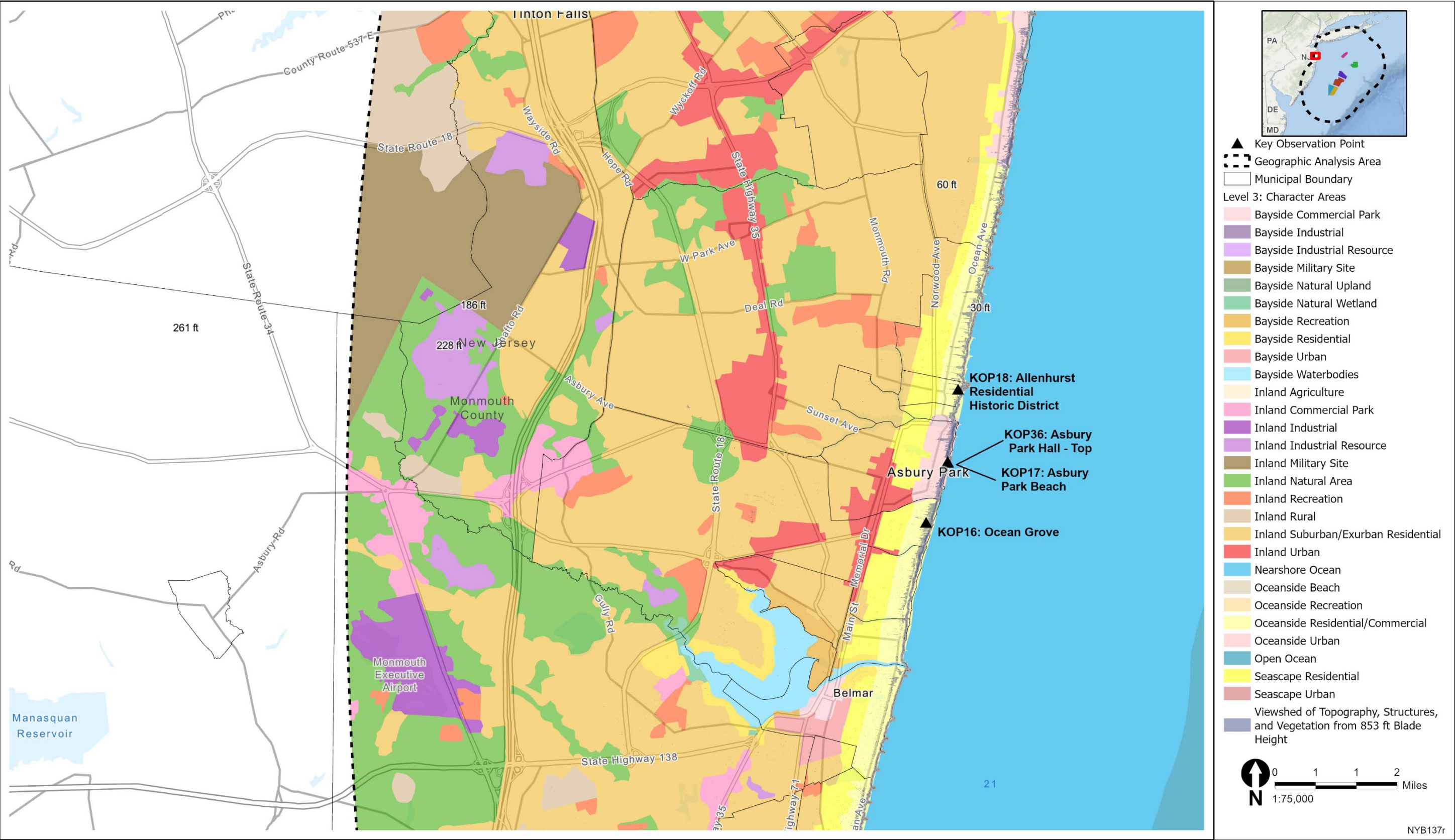
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP Q



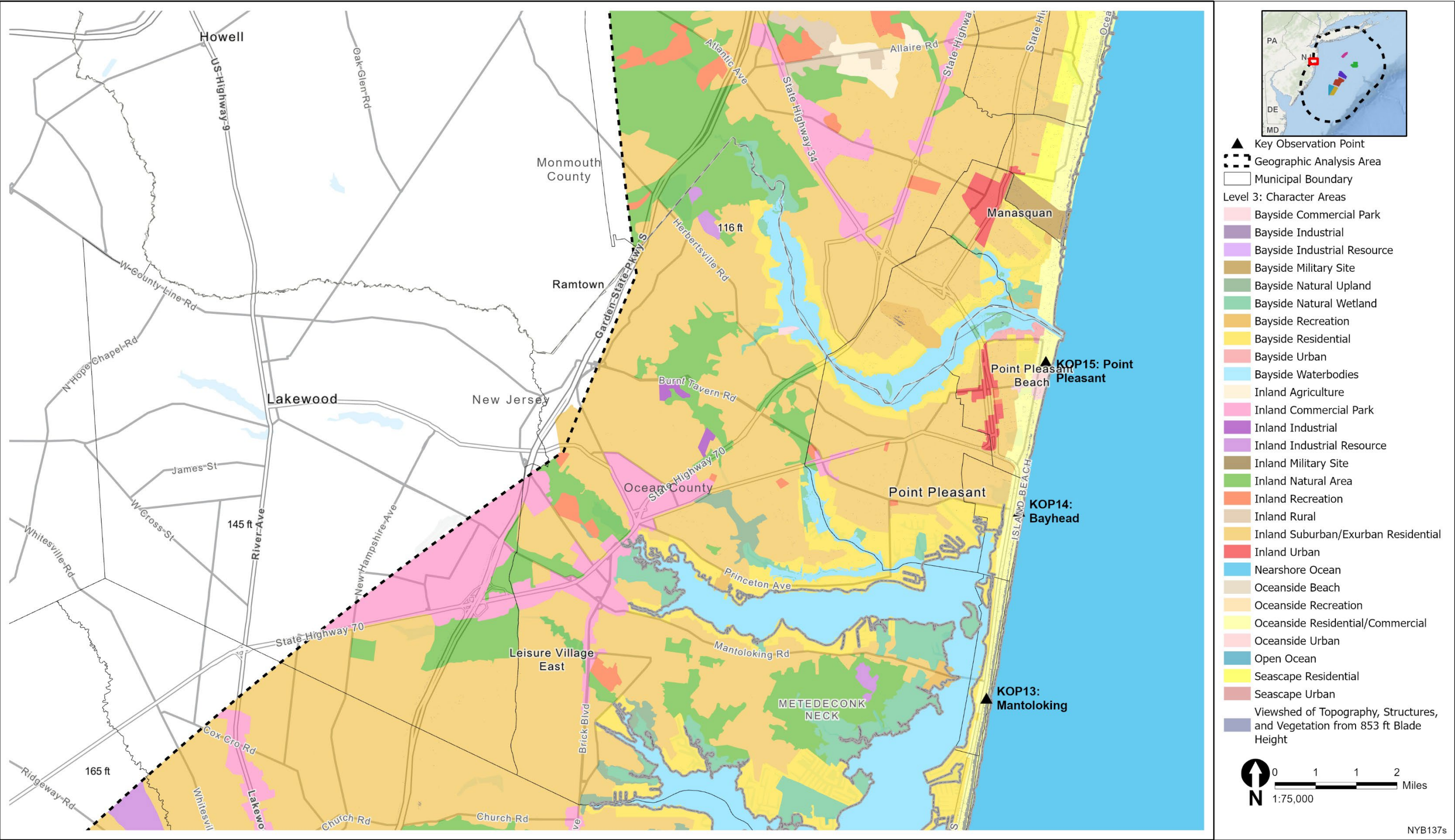
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP R



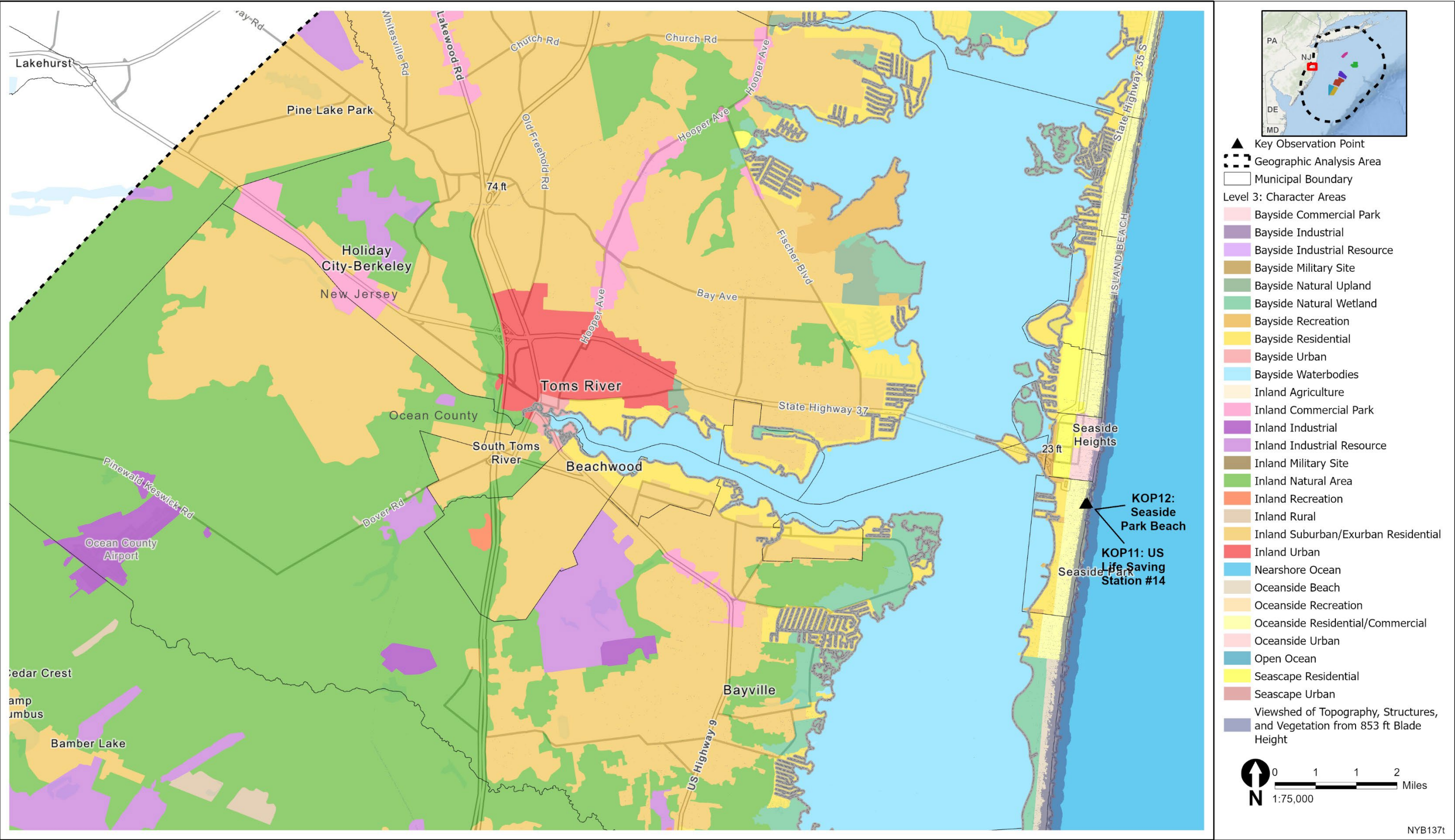
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP S



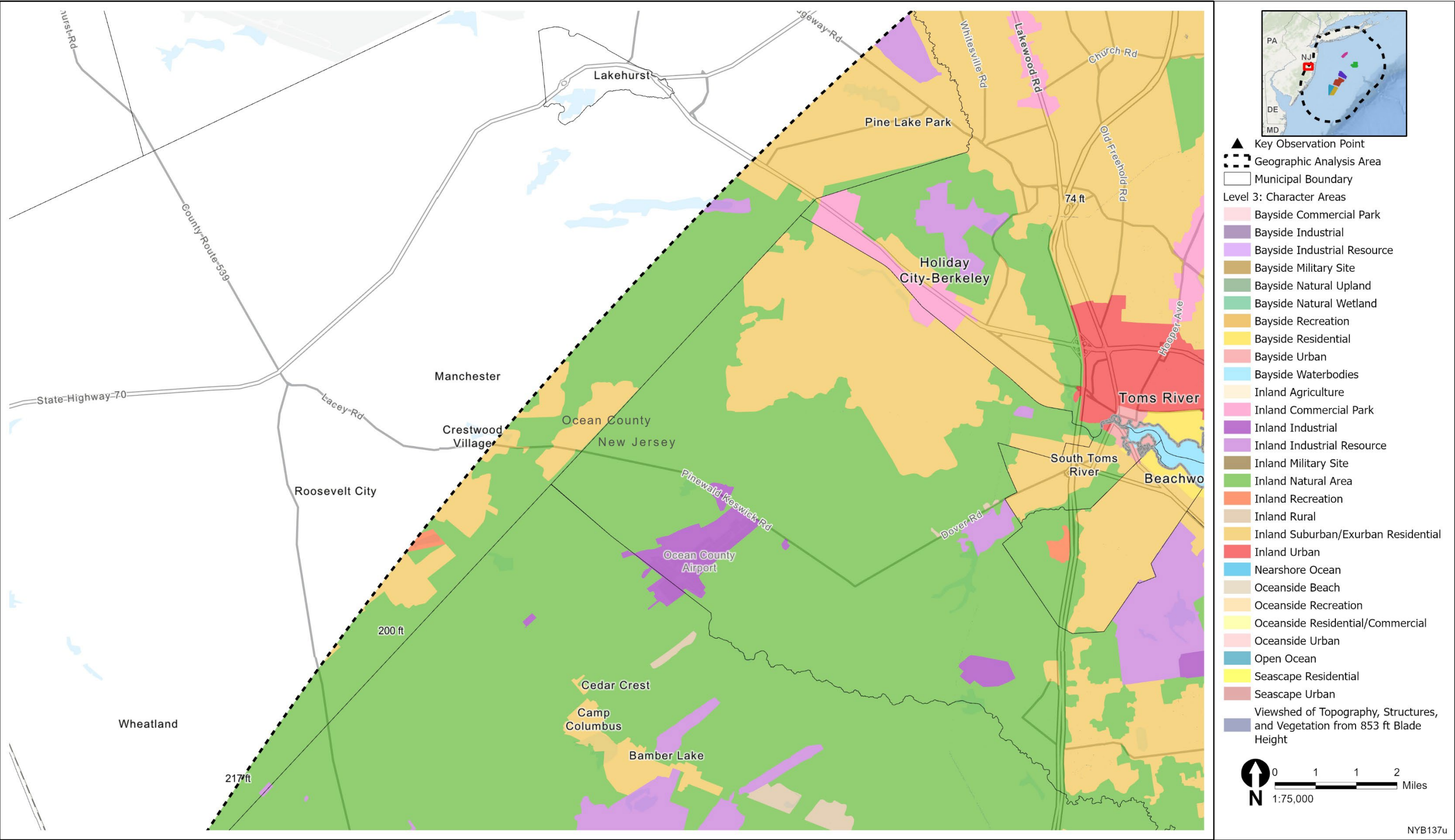
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP T



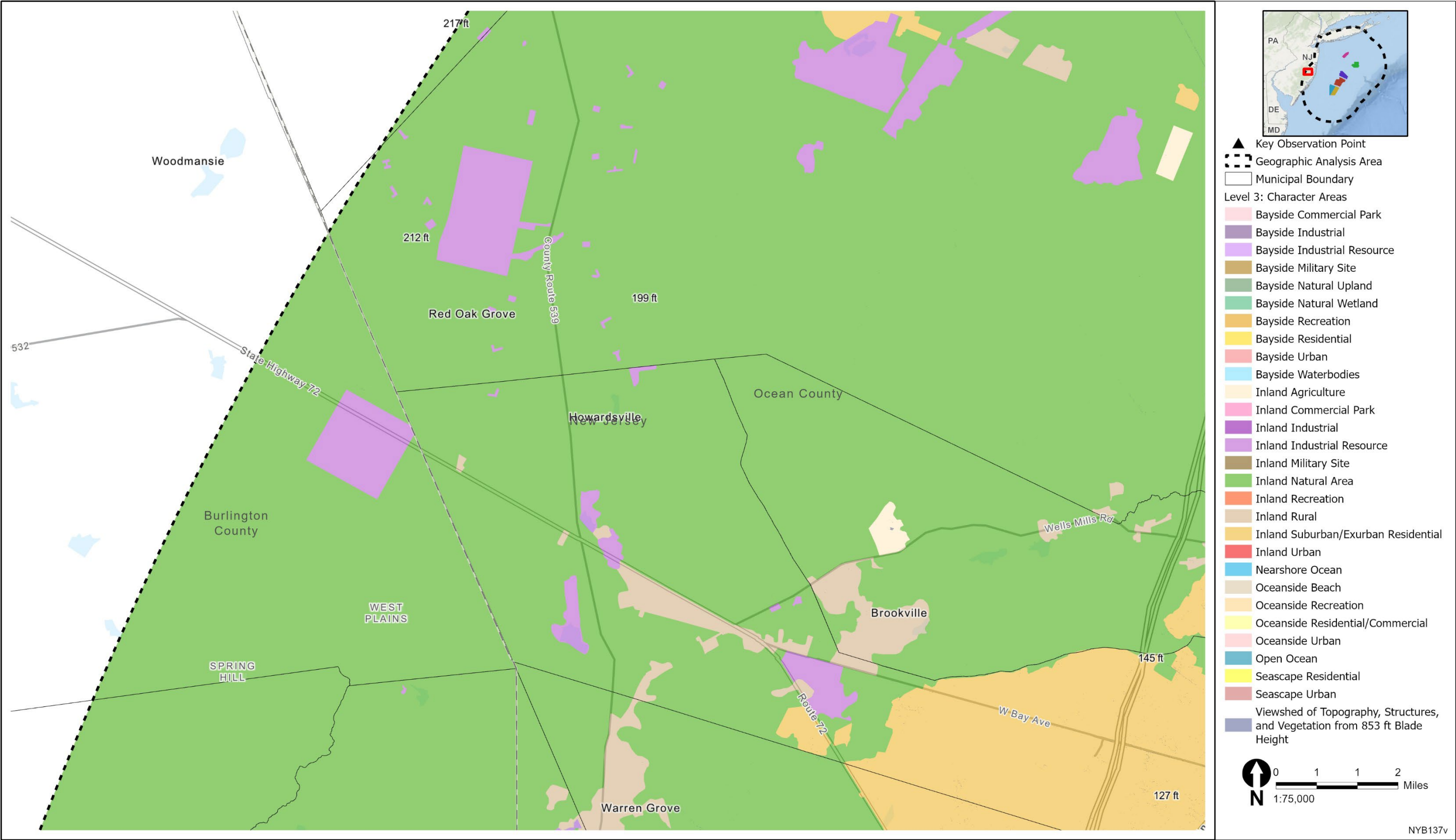
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP U



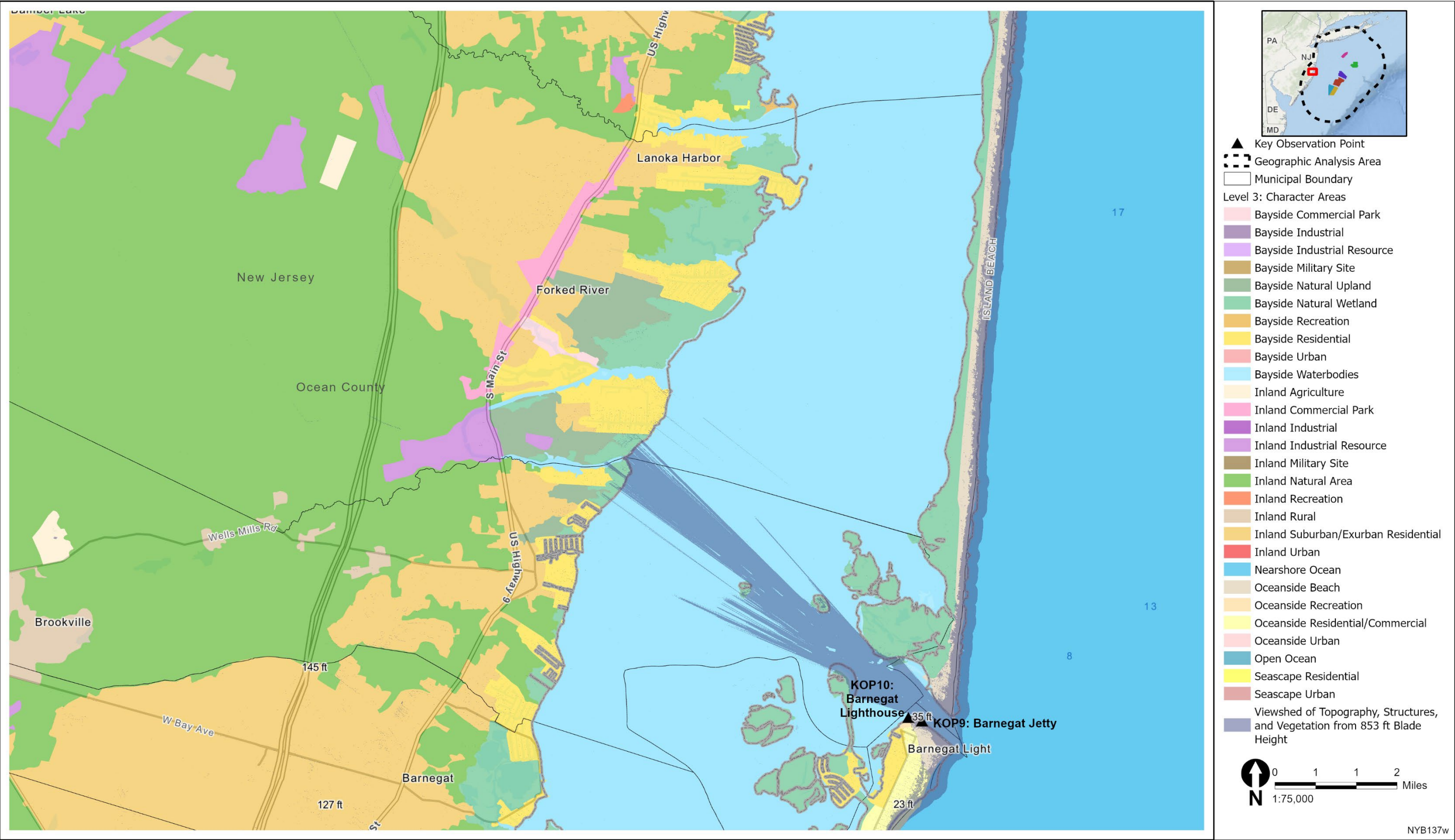
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP V



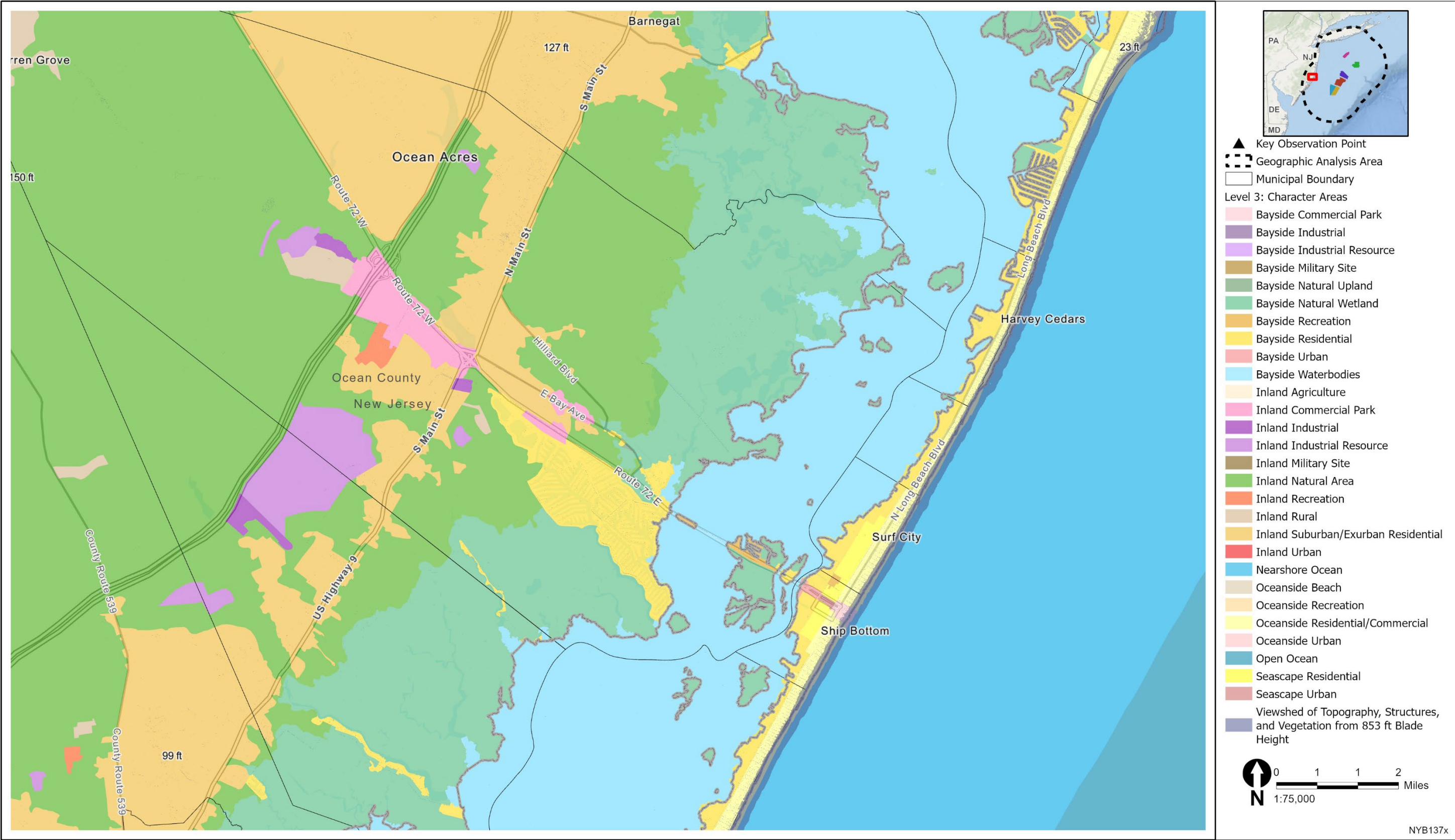
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP W



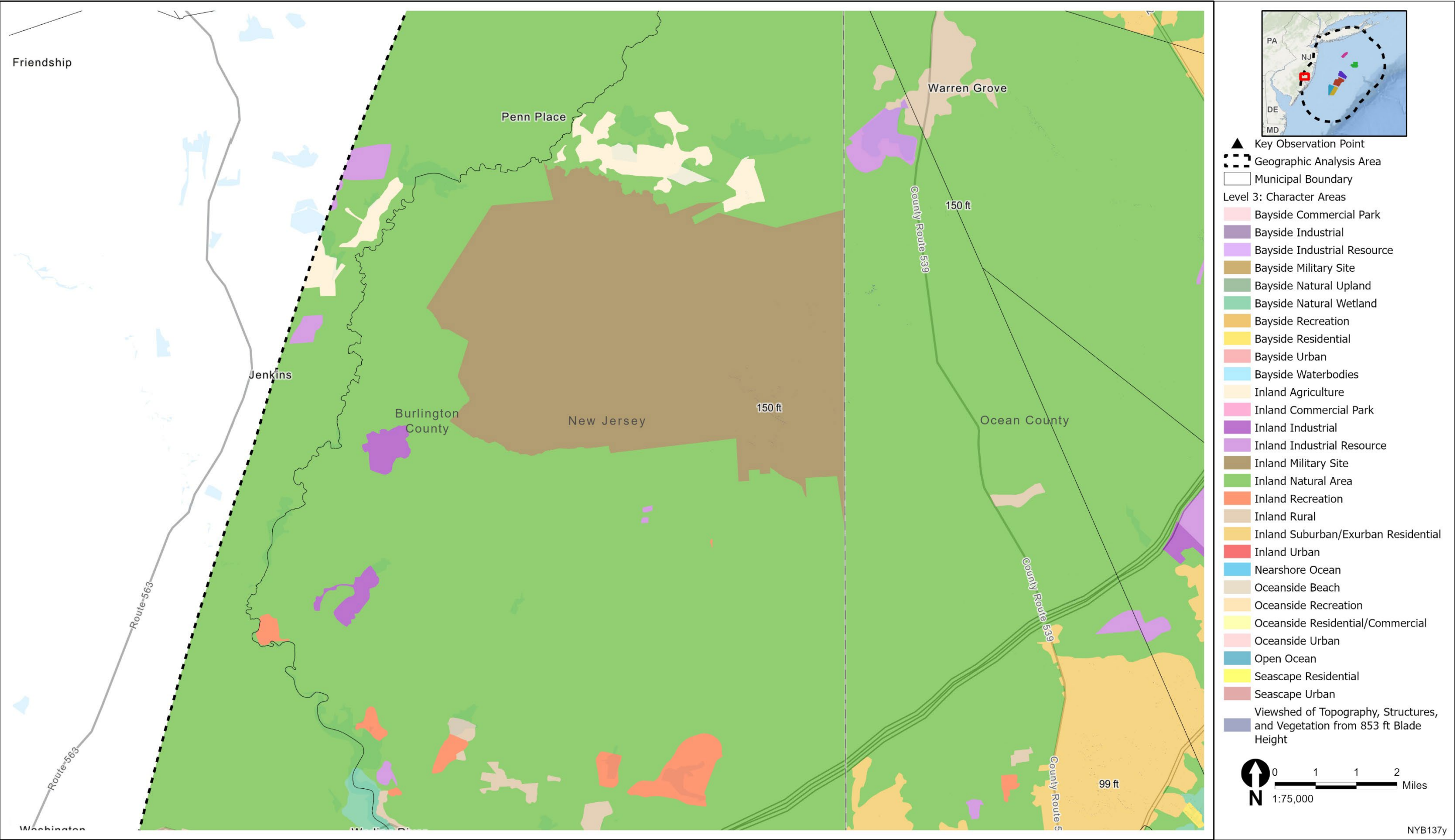
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP X



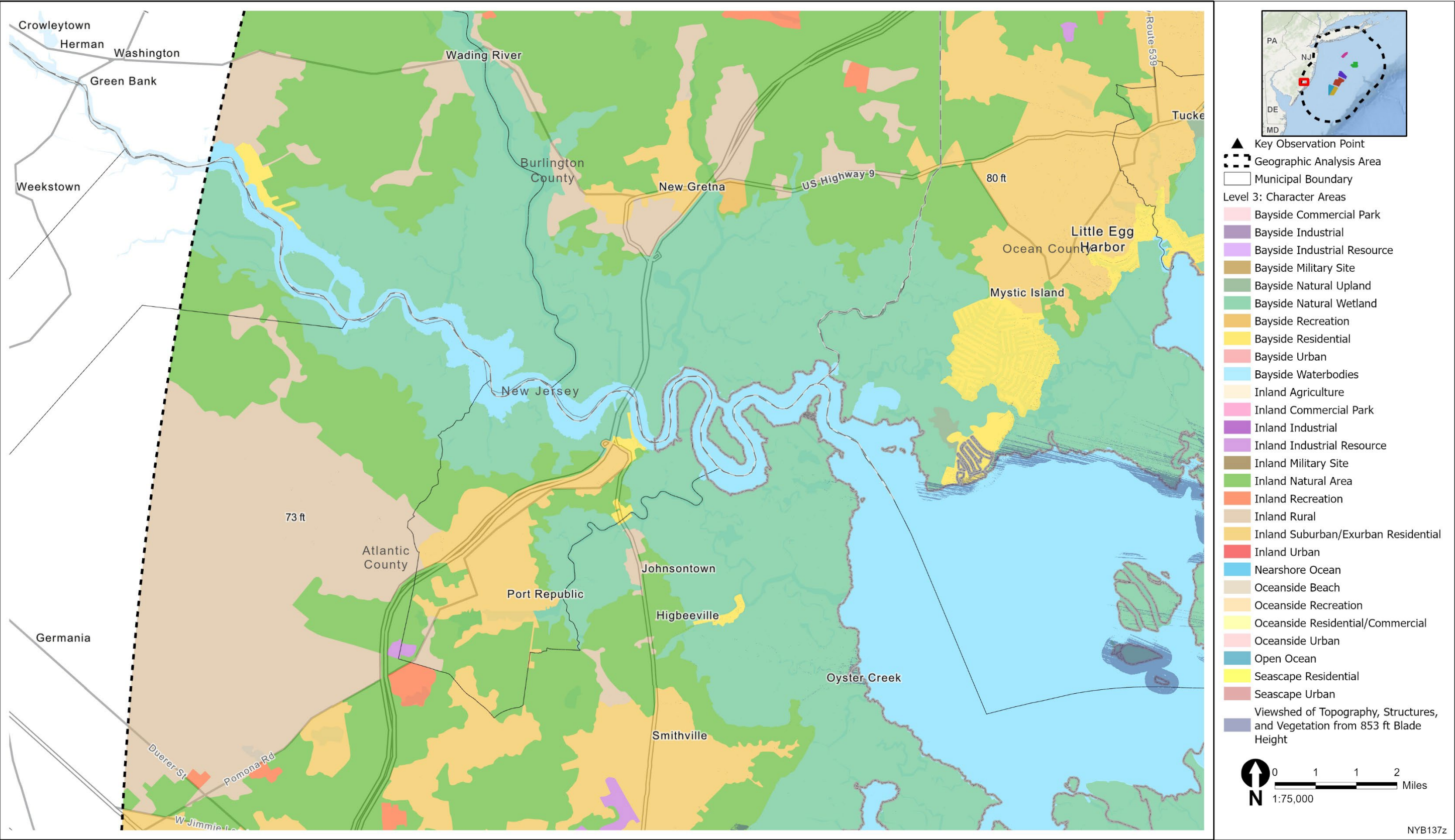
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP Y



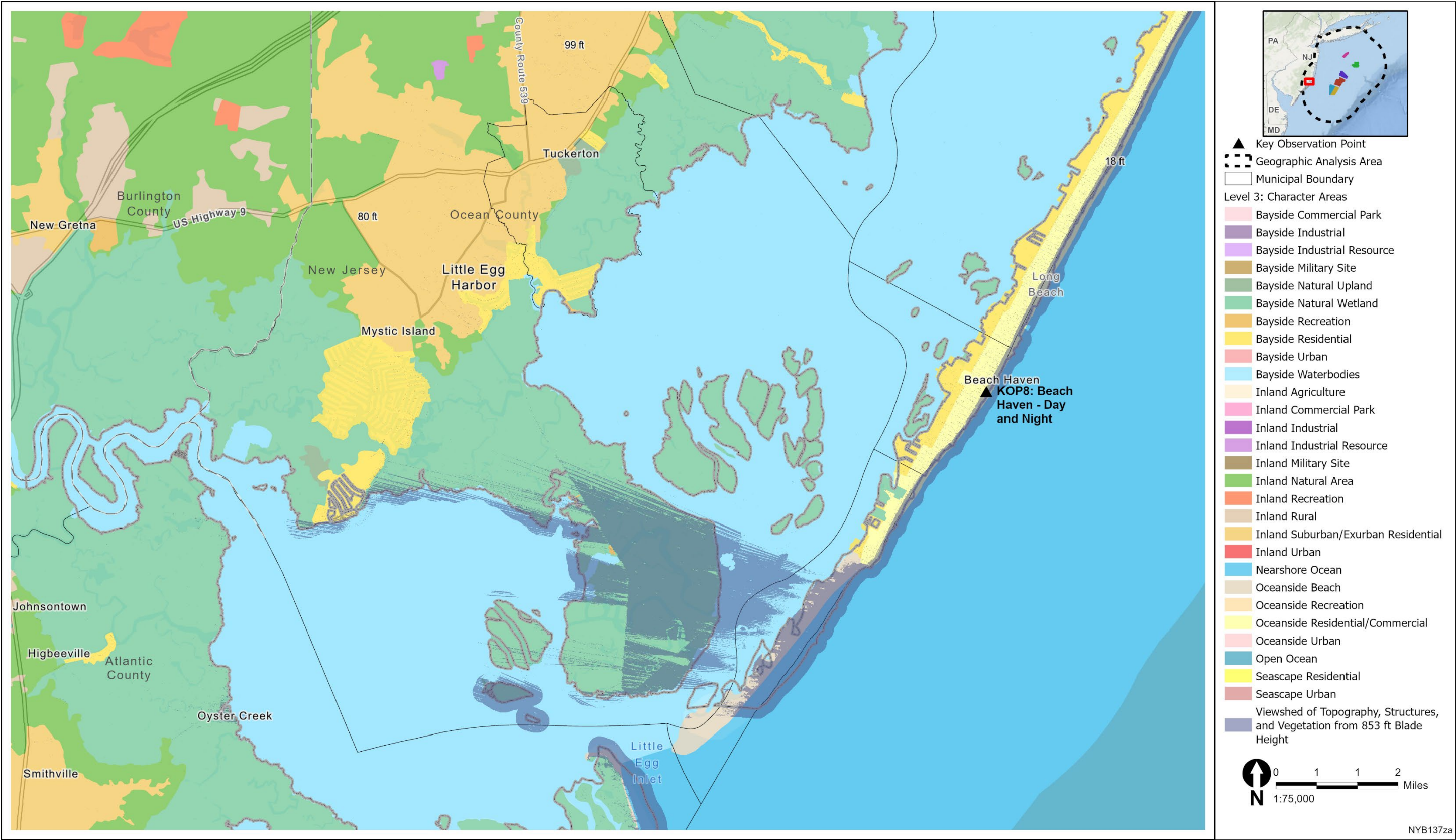
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP Z



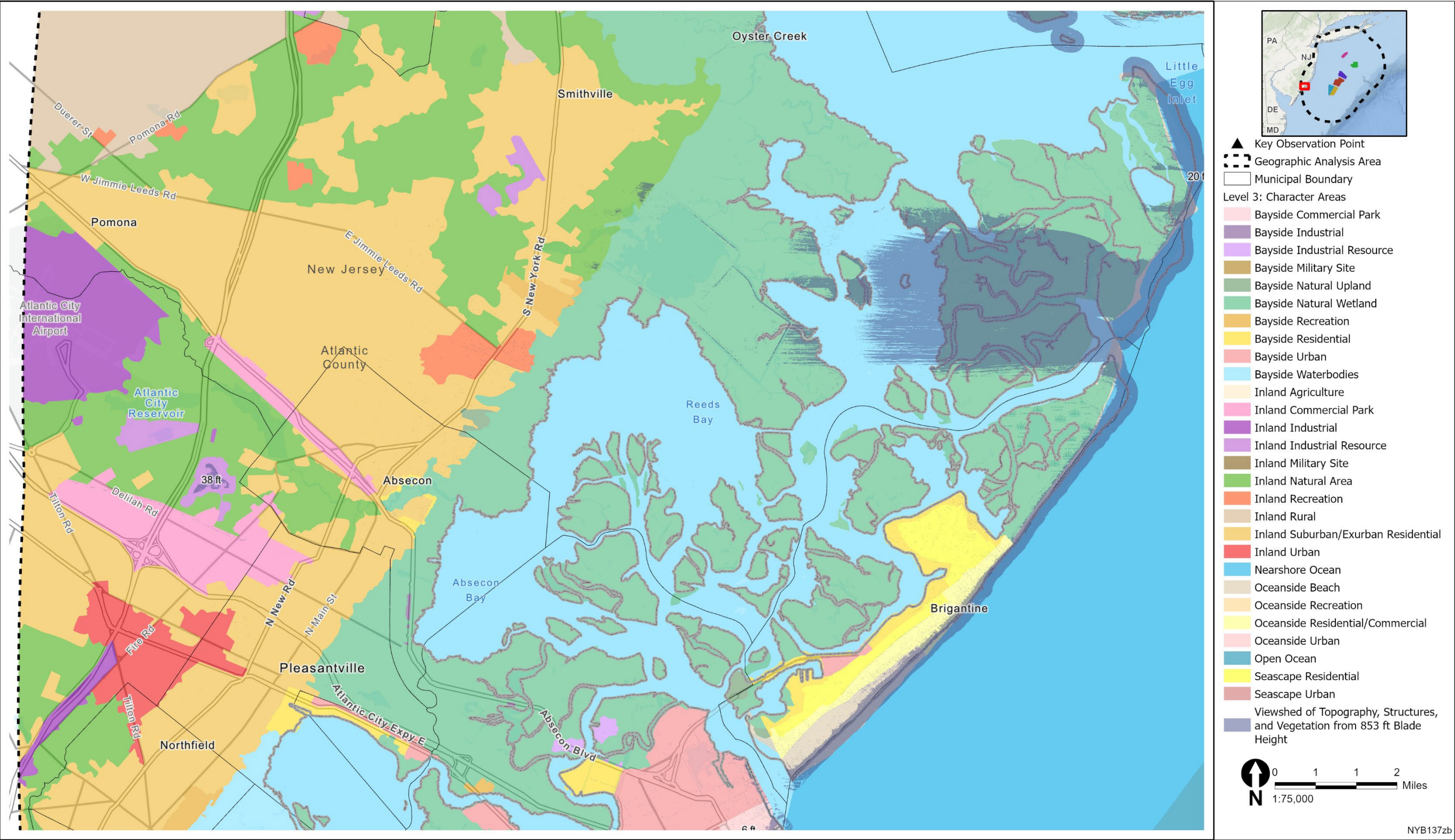
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP ZA



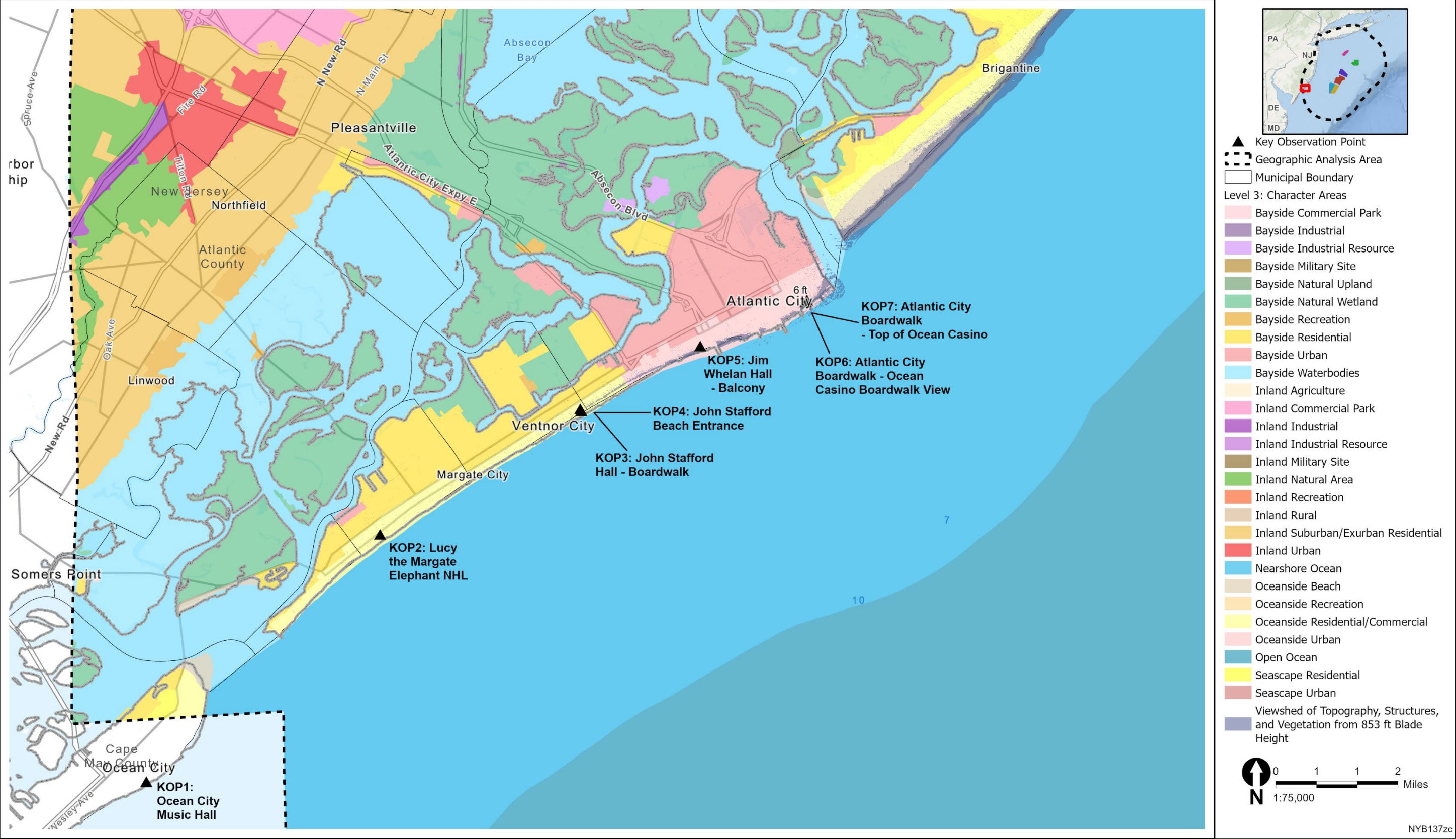
Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP ZB

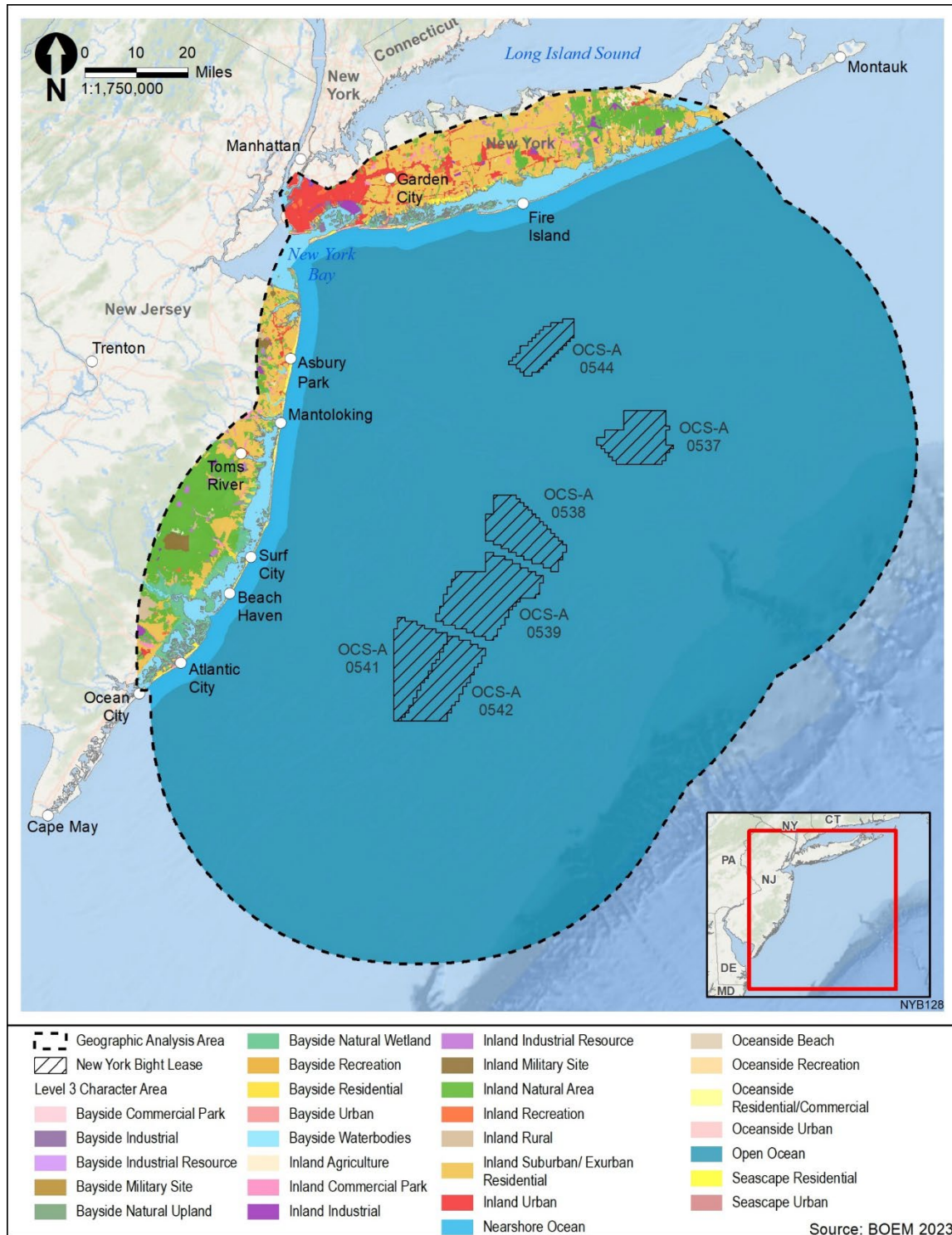


Series 2: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

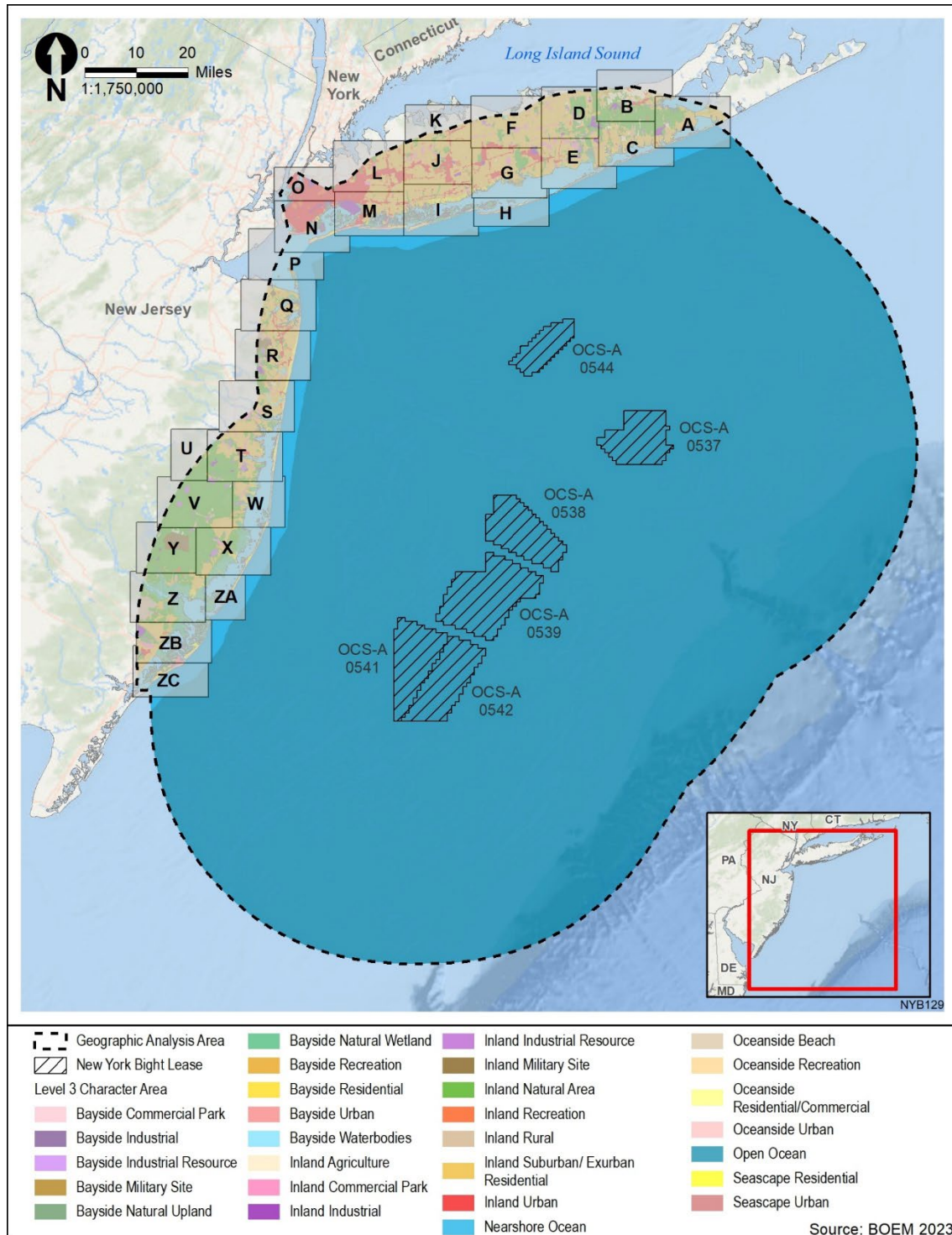
MAP ZC



Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height—Overview Map

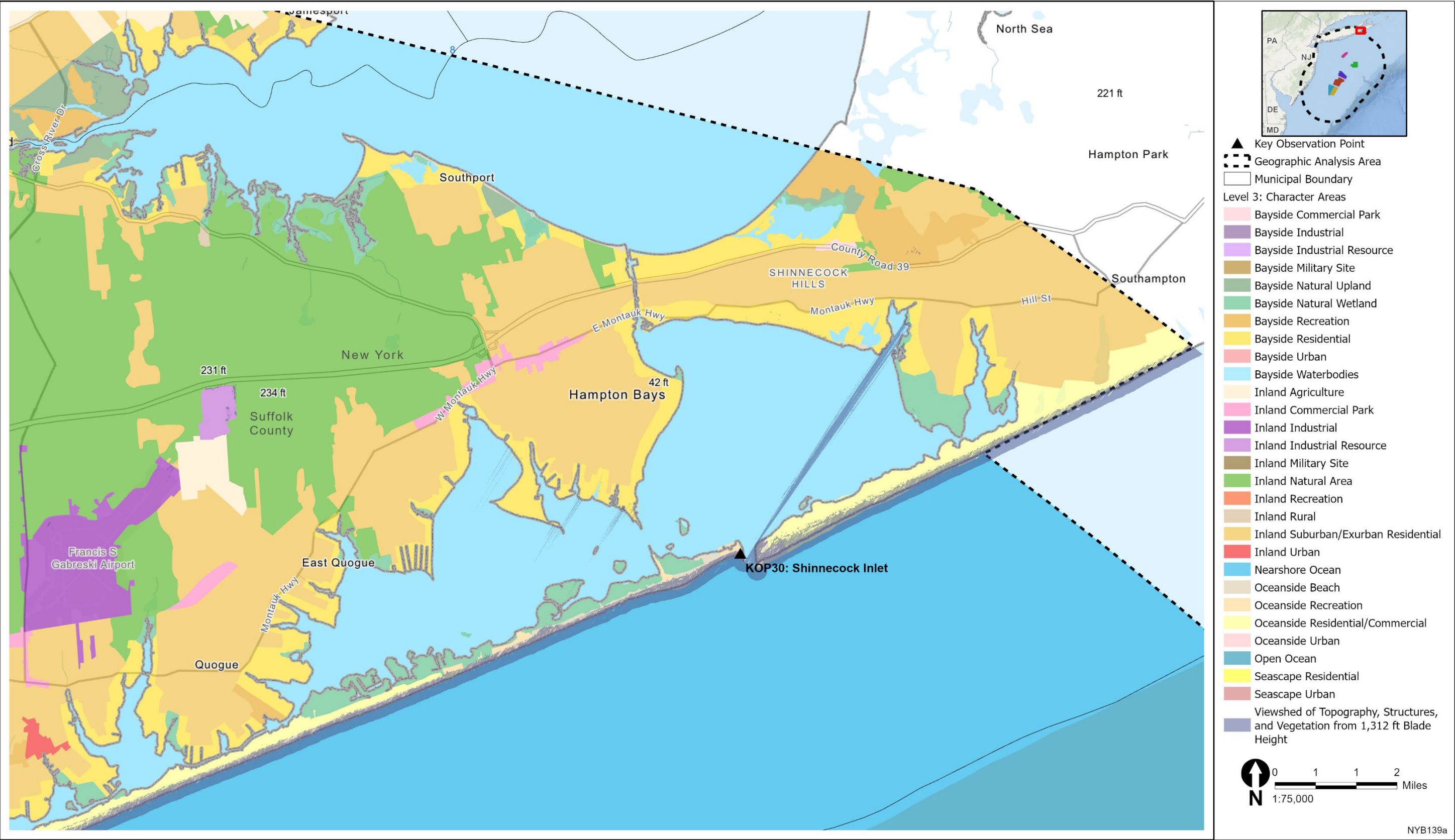


Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height—Grid Index Overview



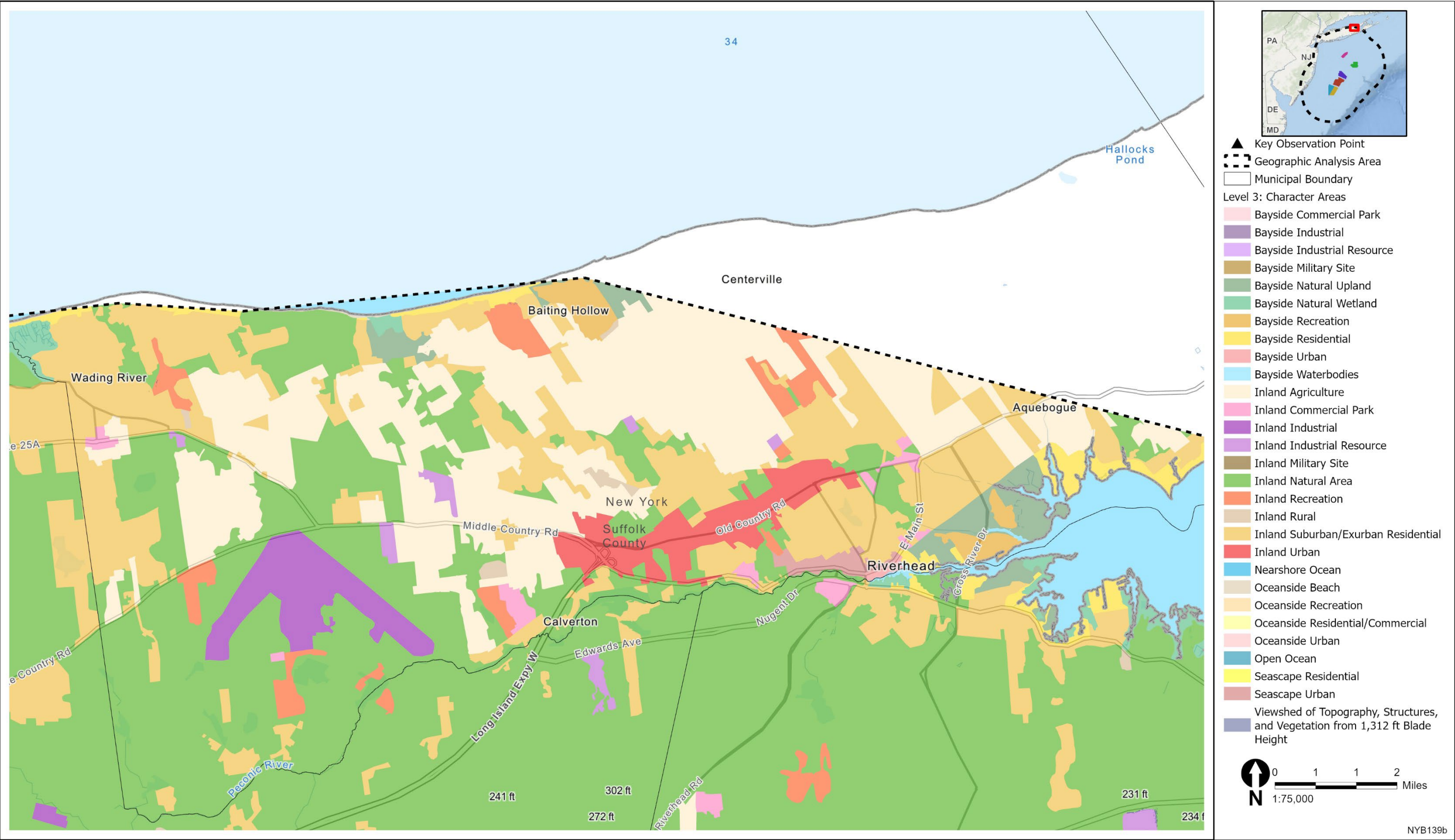
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP A



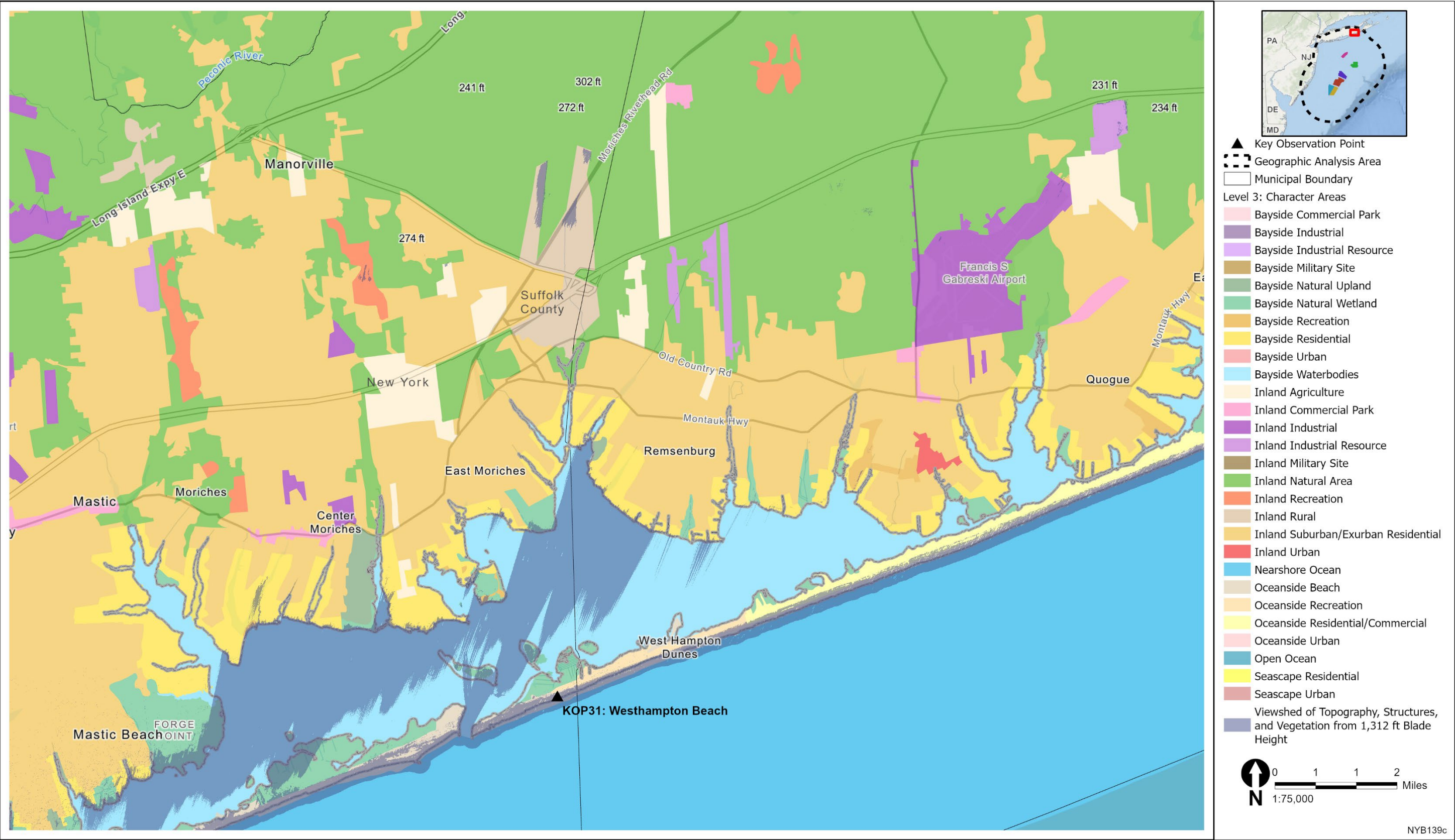
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP B



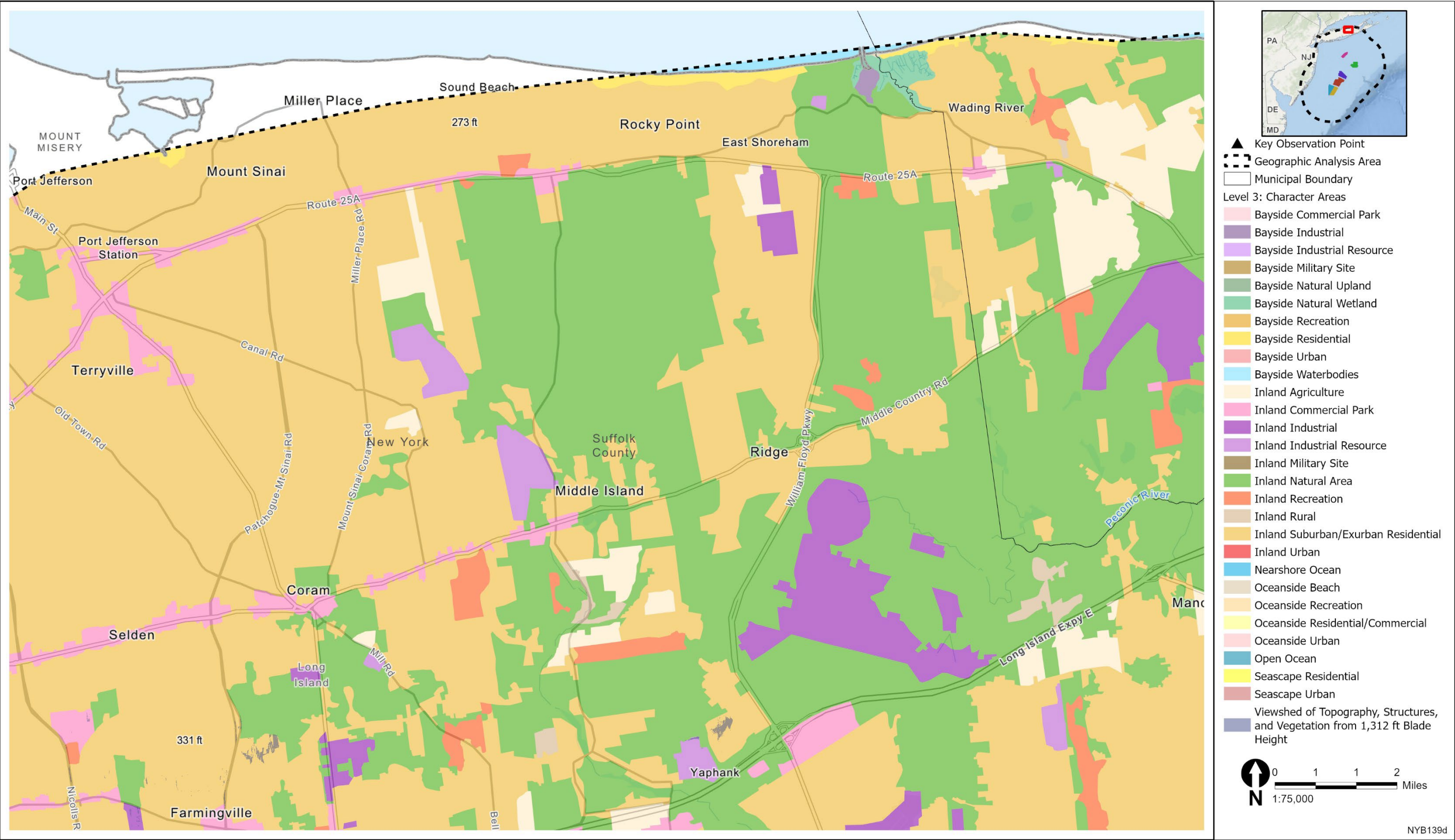
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP C



Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP D

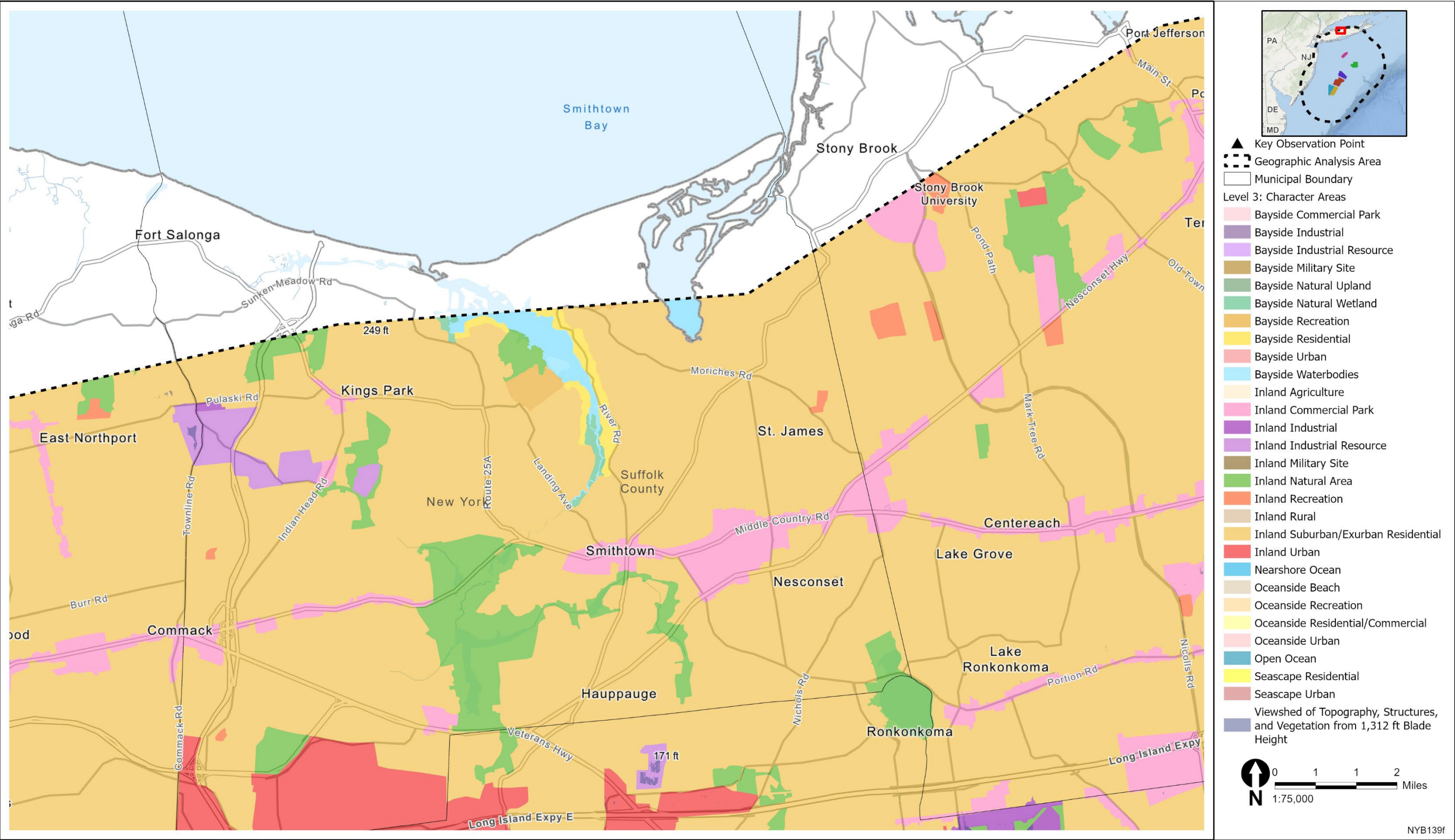


MAP E



Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP F

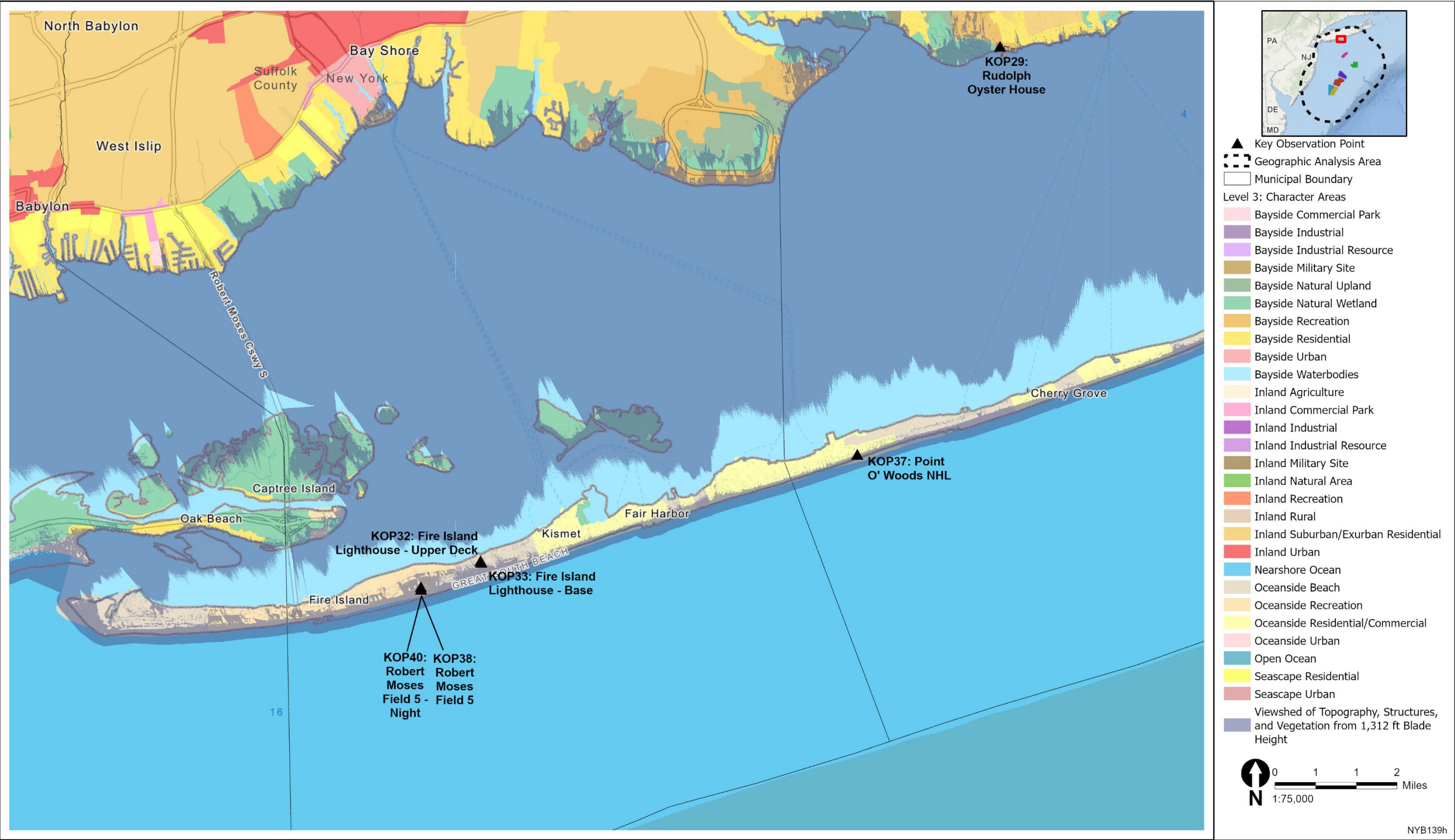


MAP G



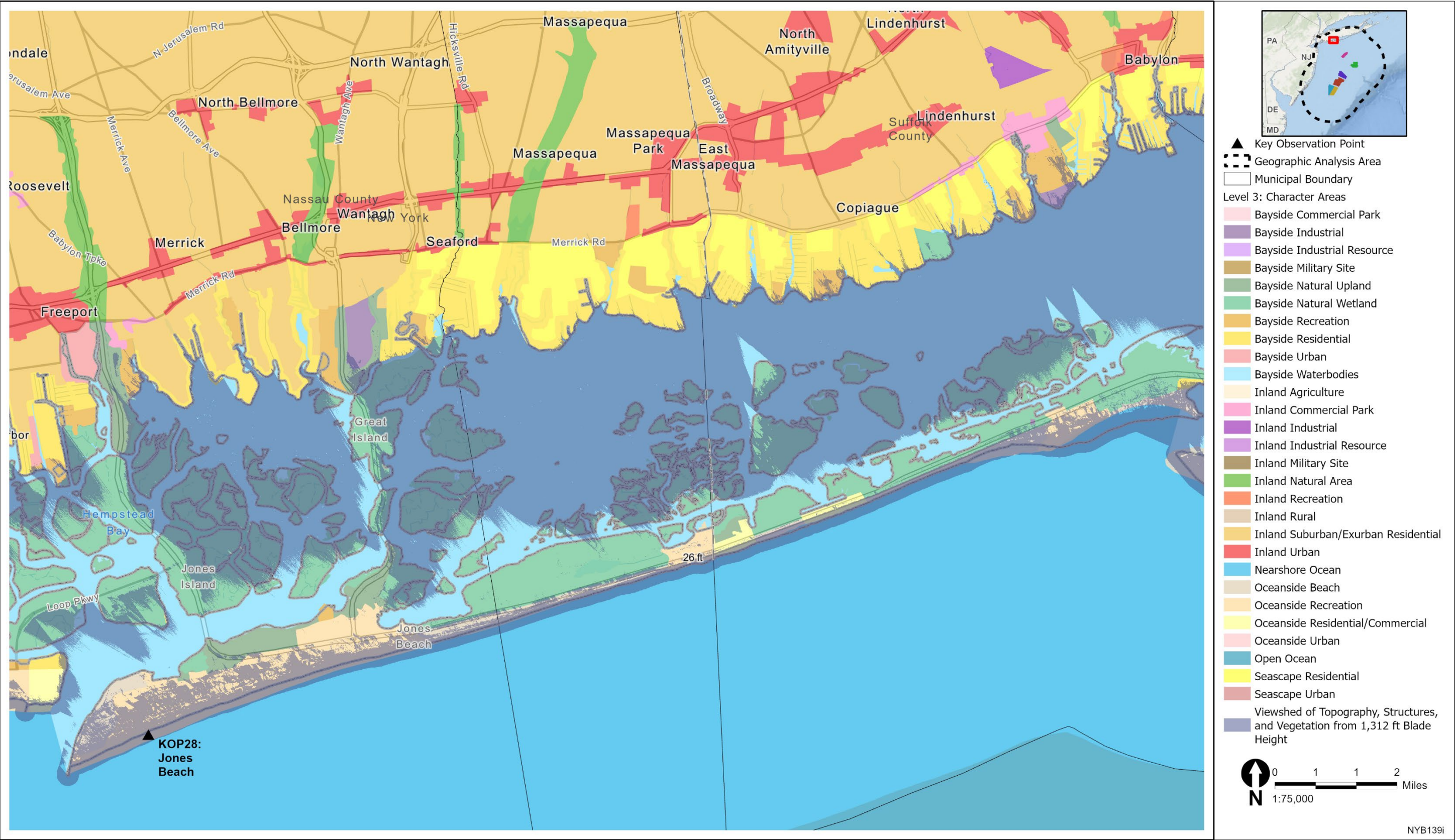
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP H



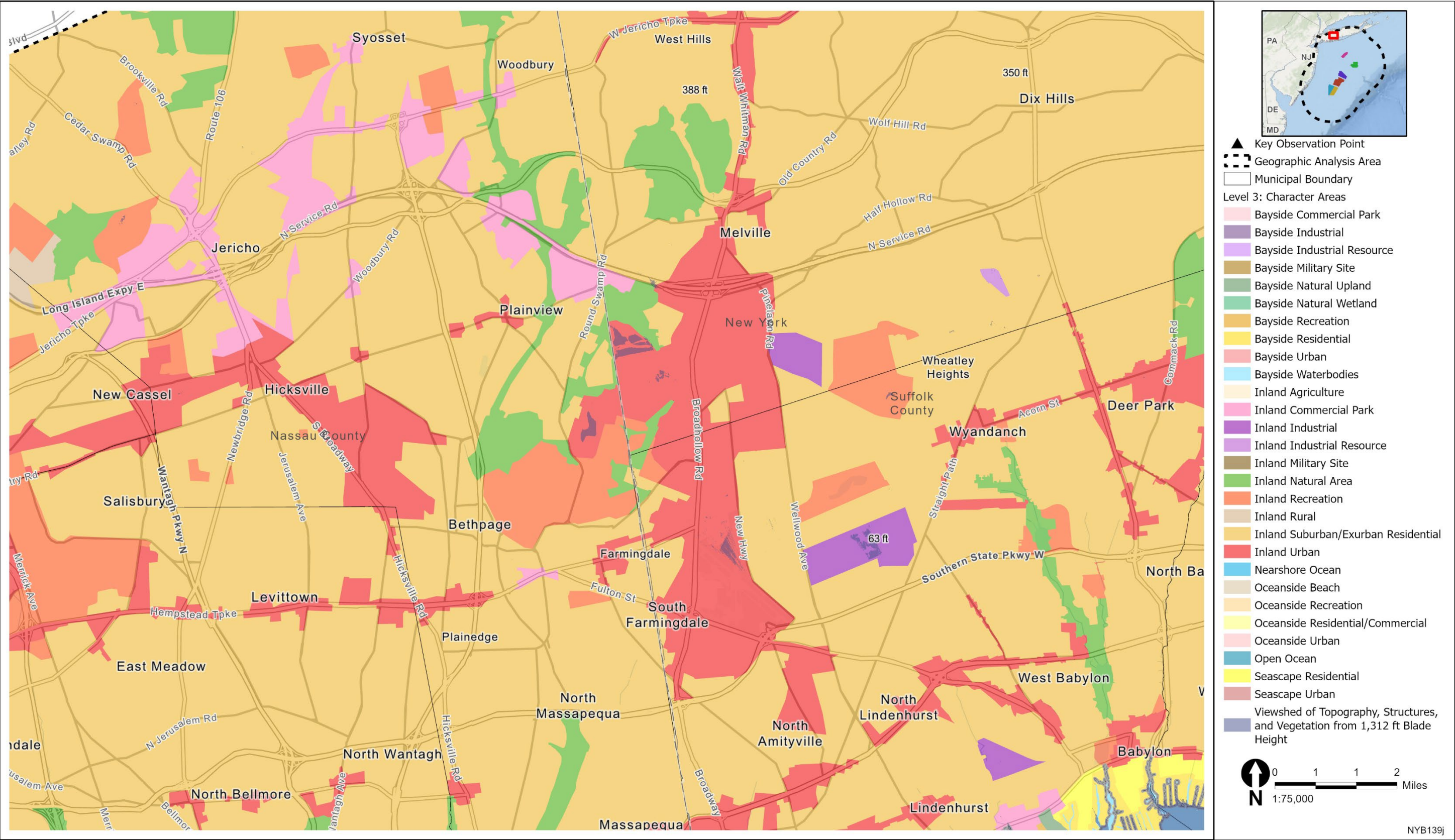
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP I



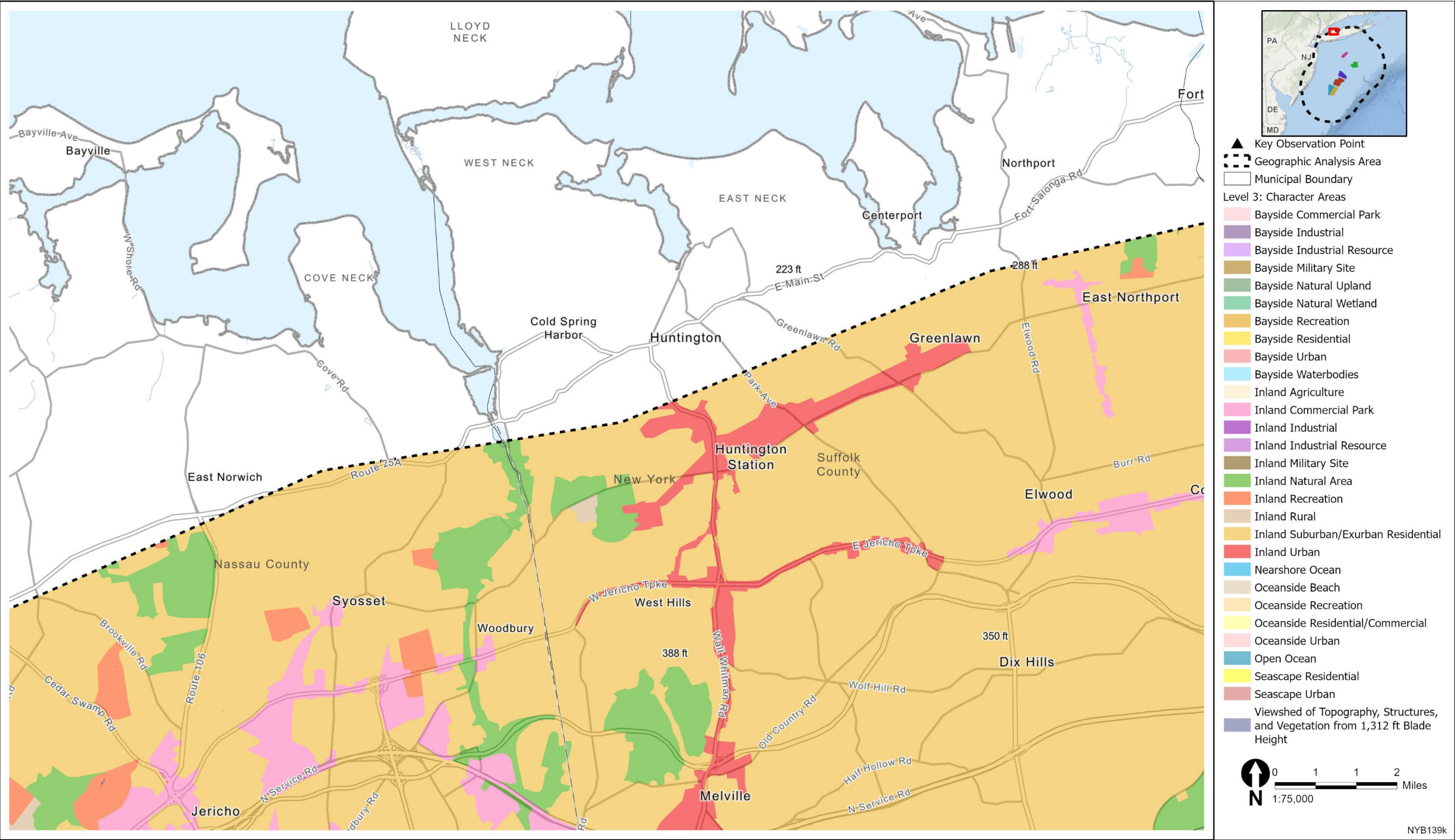
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP J



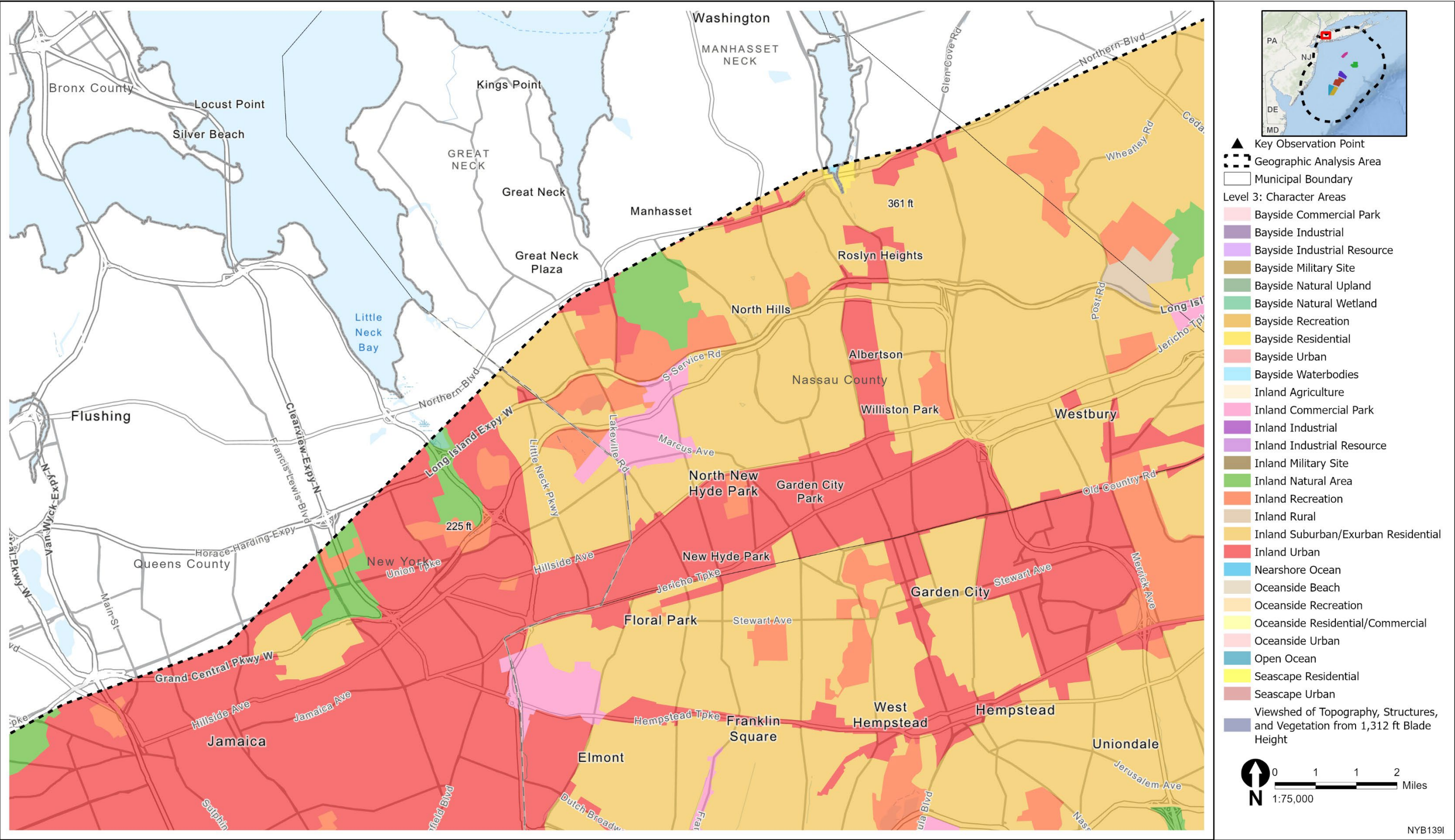
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP K



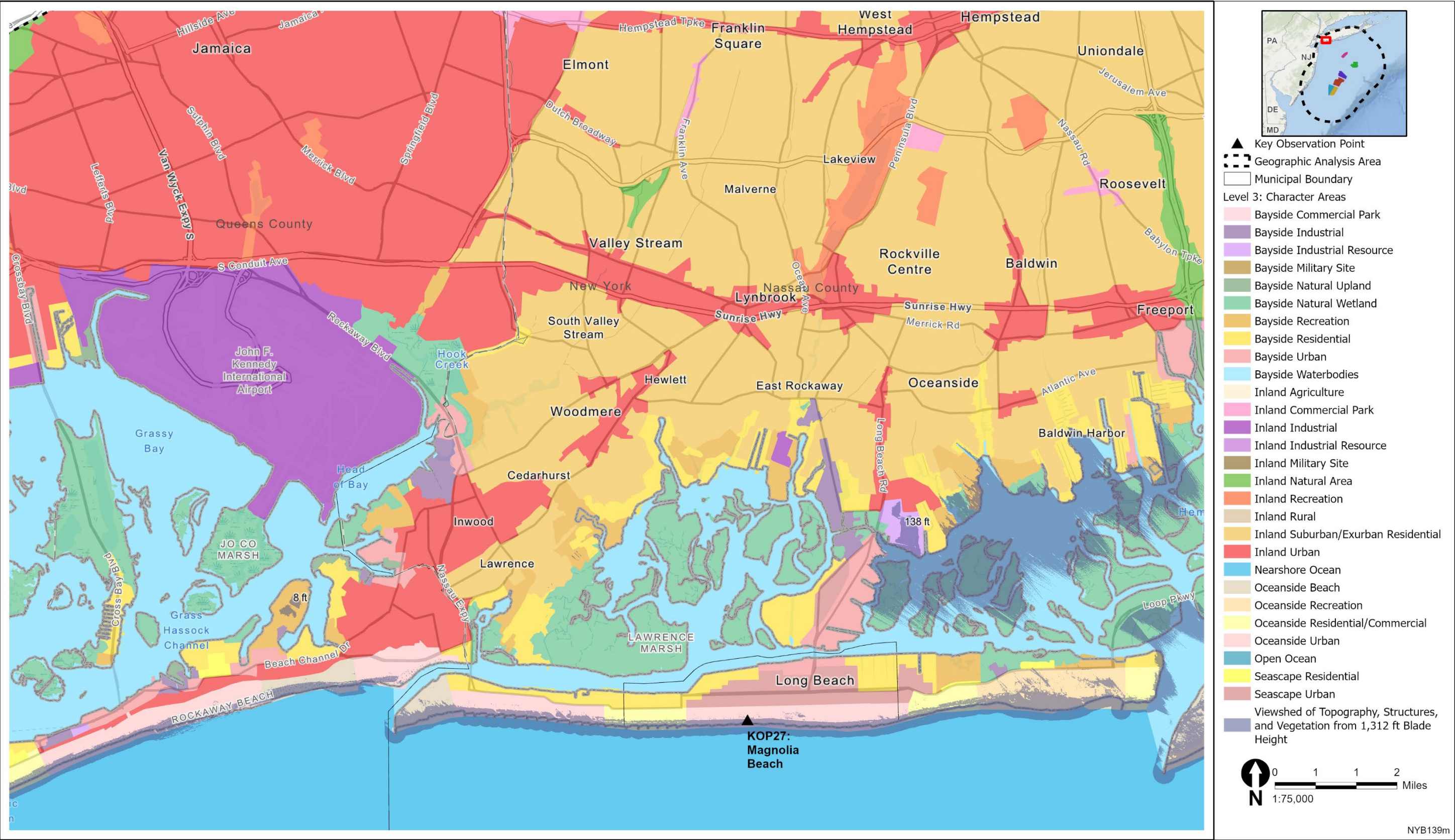
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP L



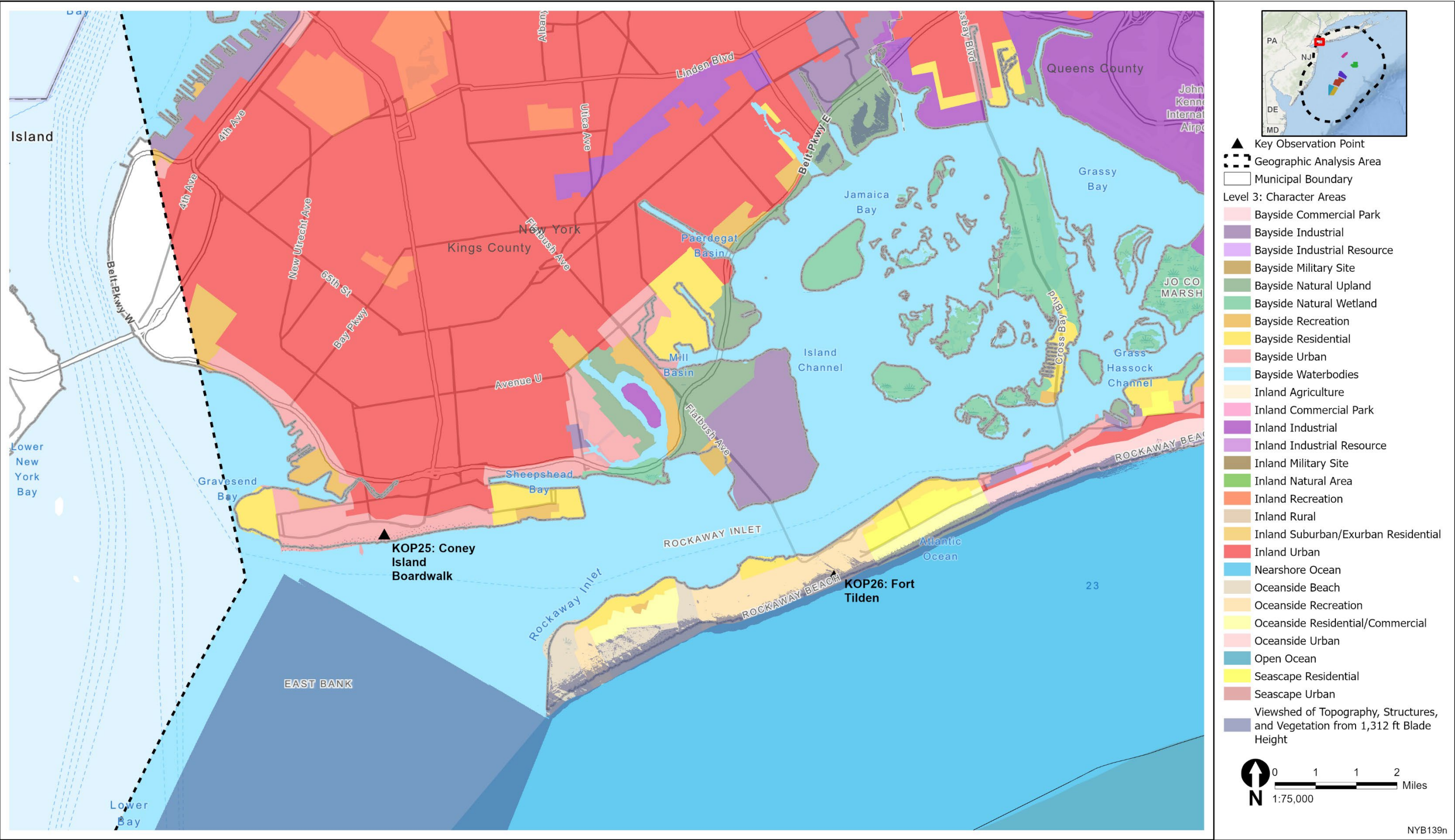
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP M



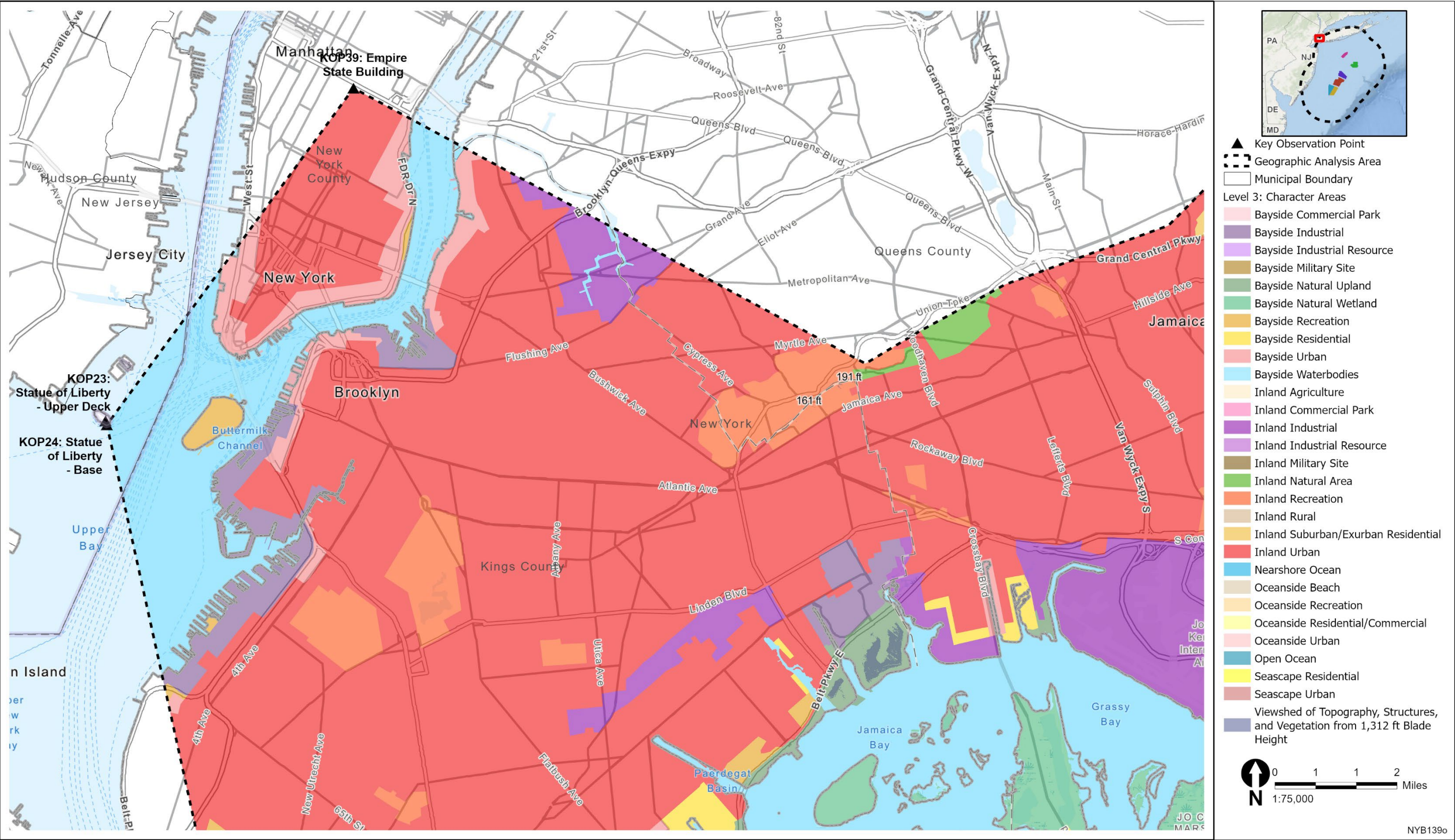
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP N



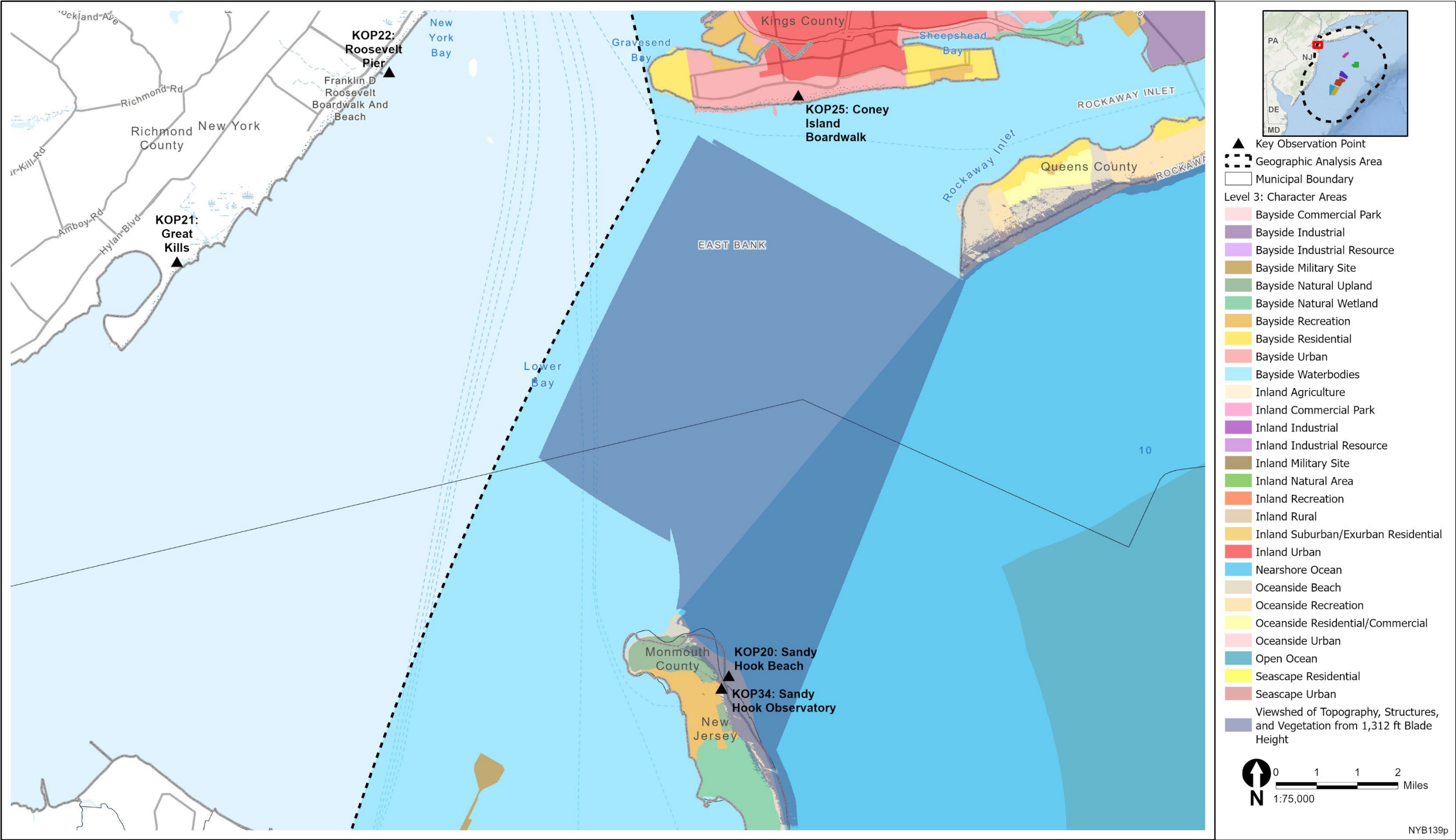
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP O



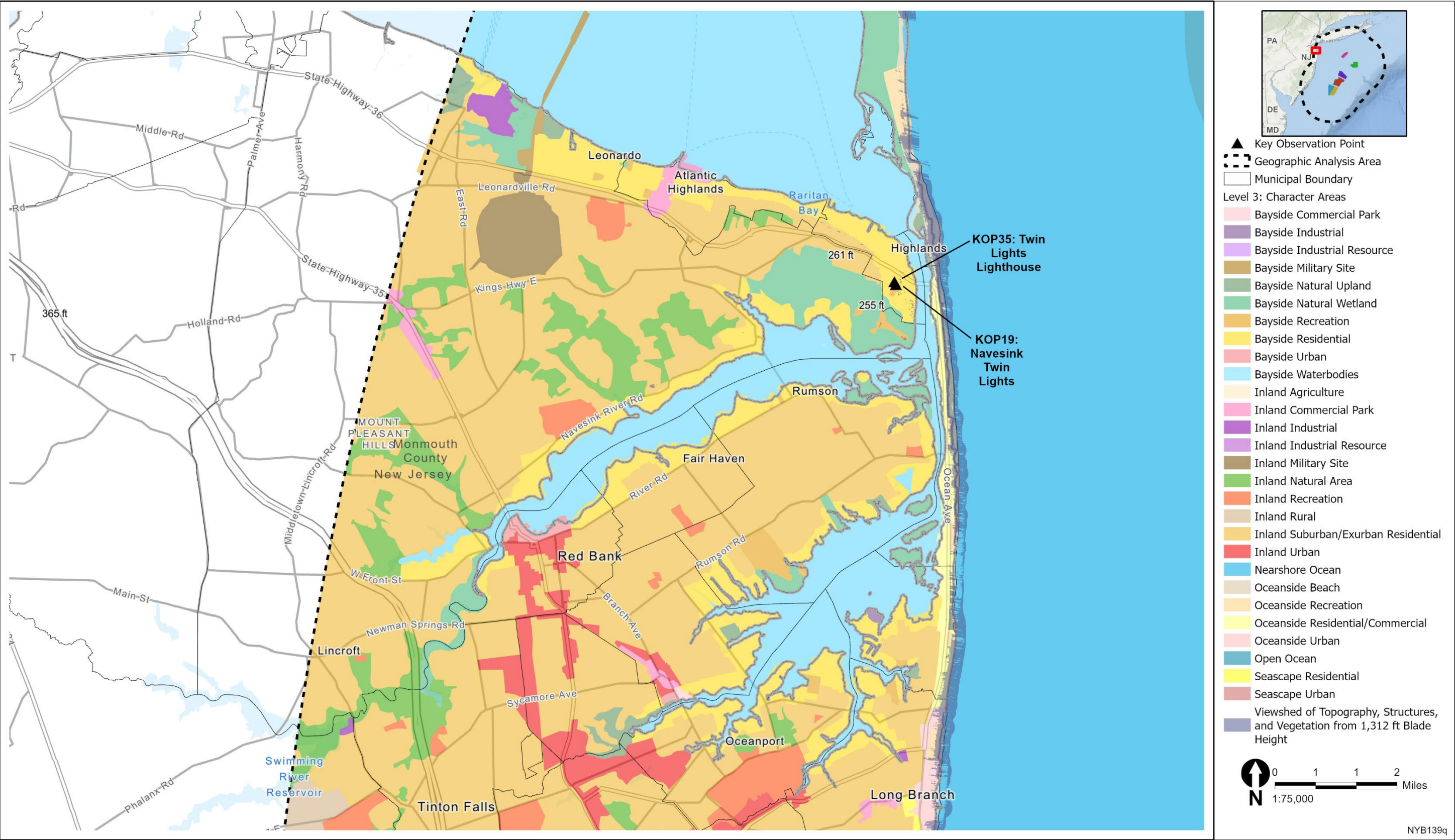
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP P



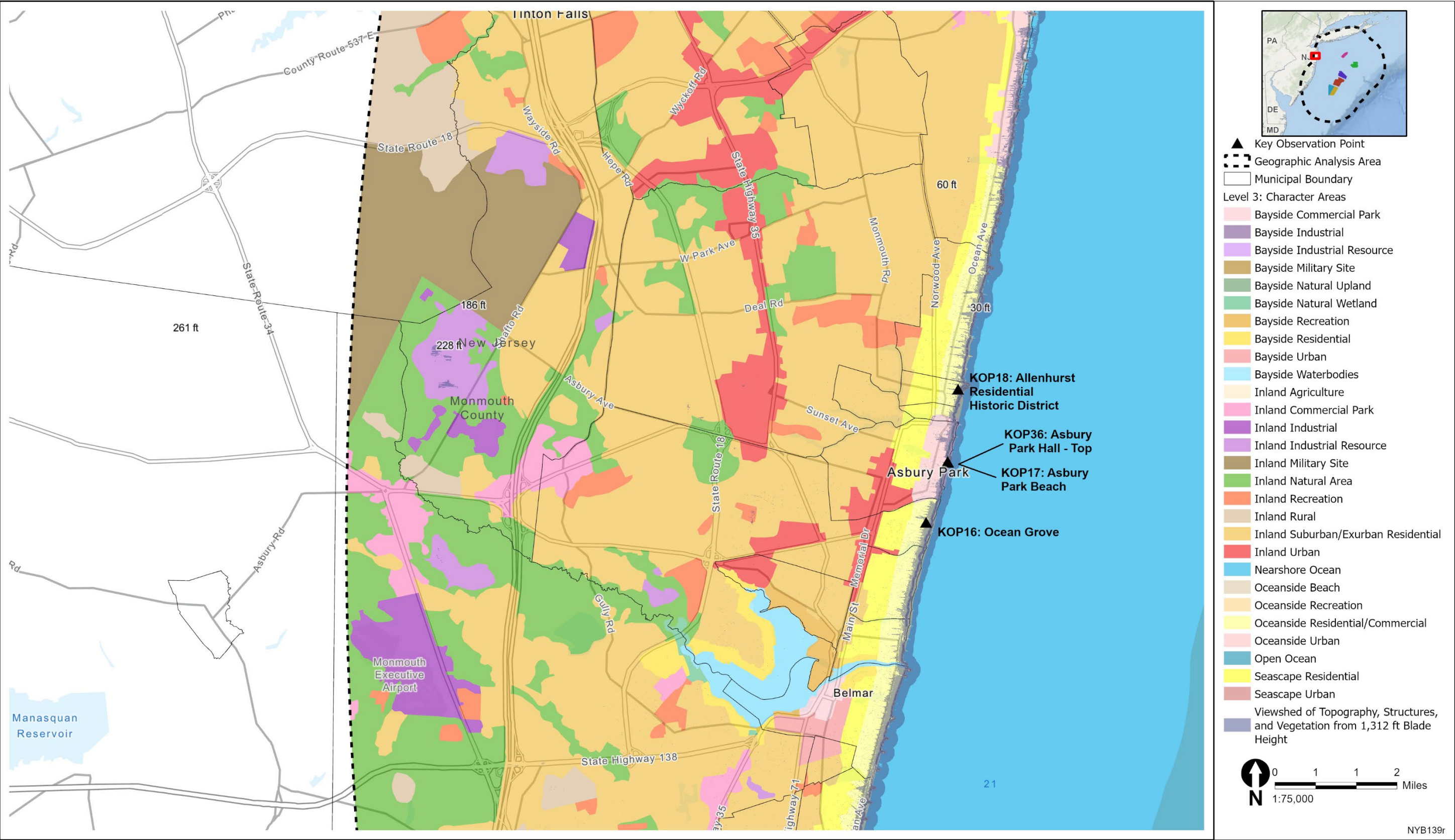
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MAP Q



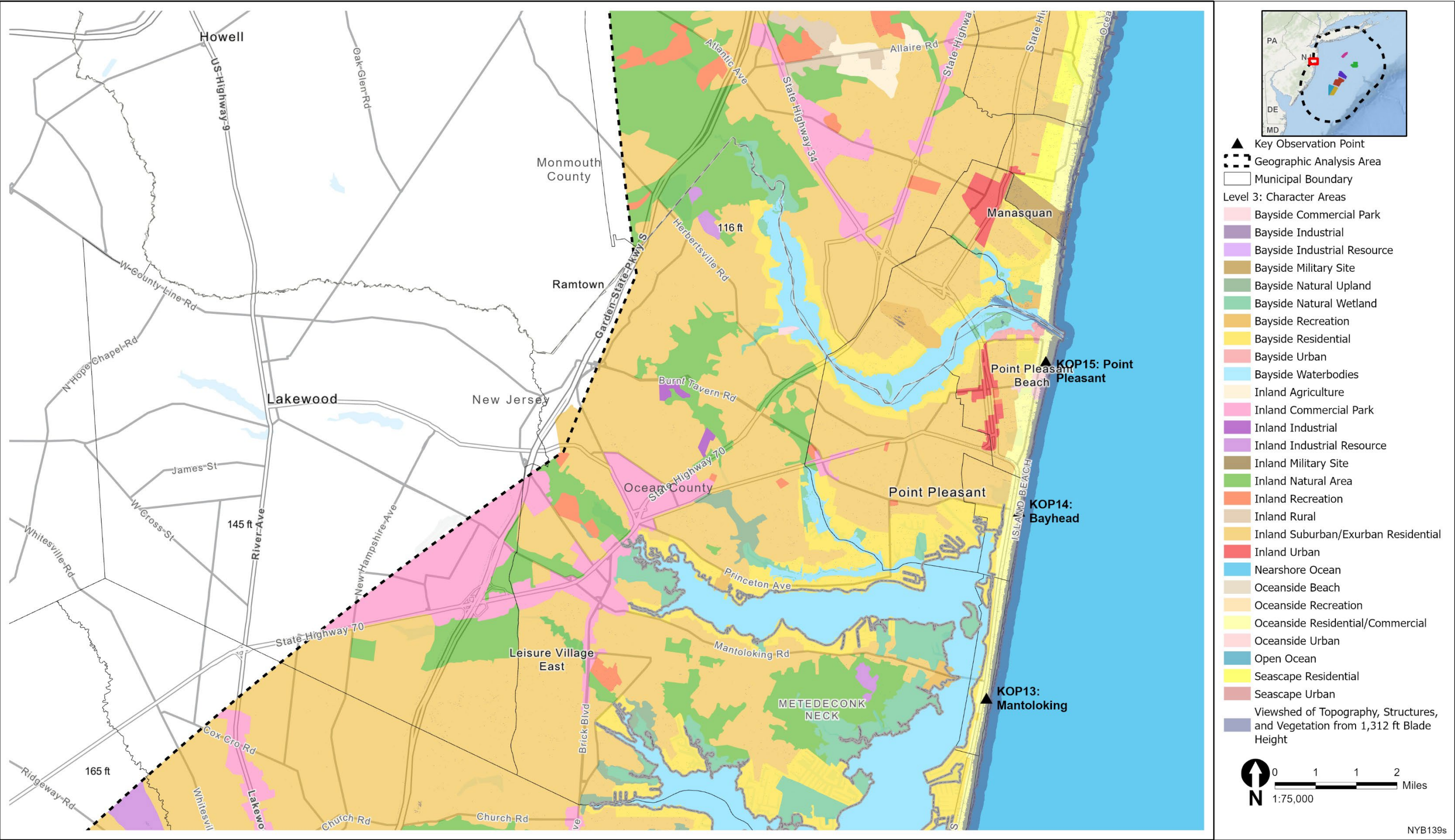
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MAP R



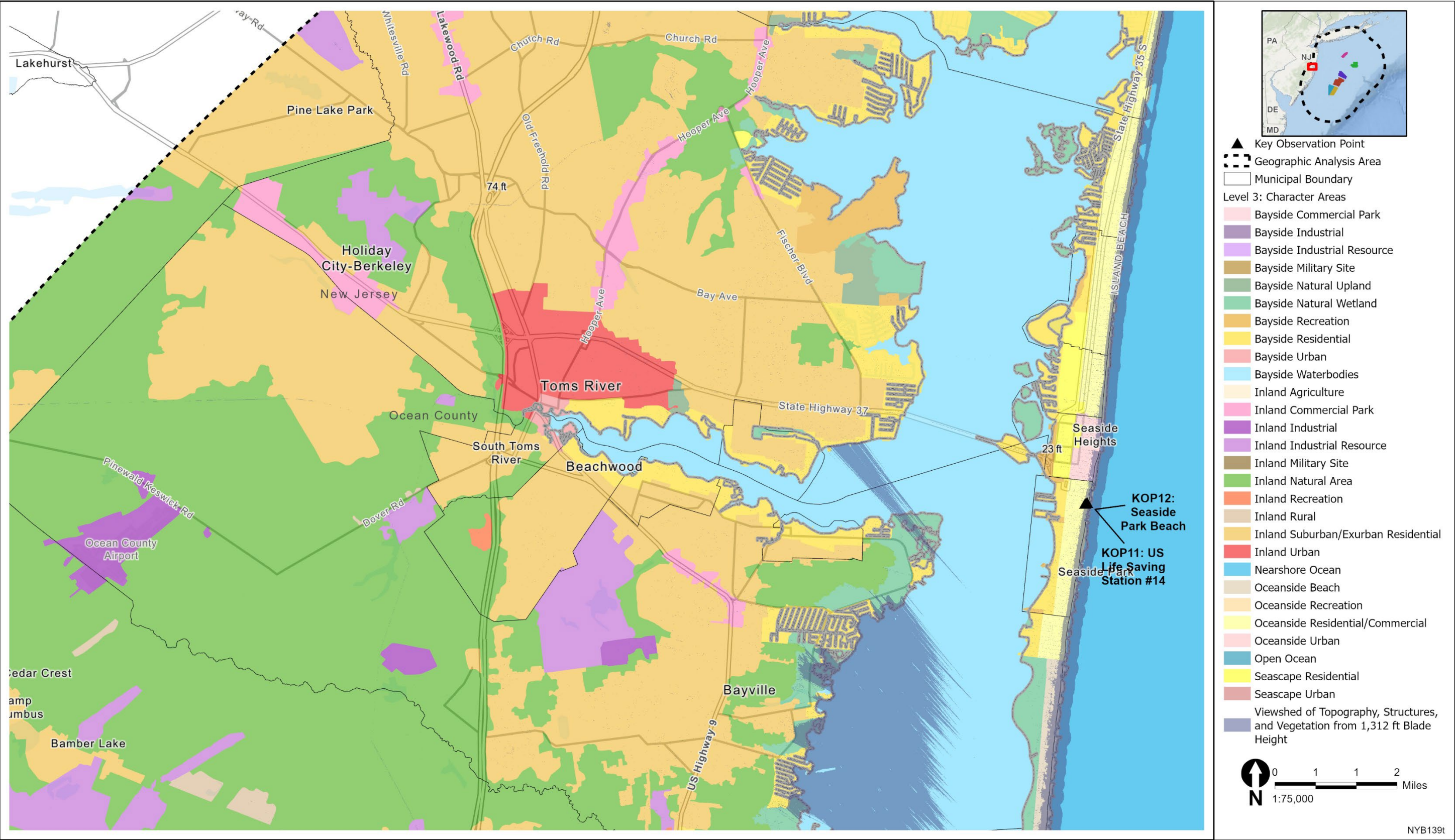
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MAP S



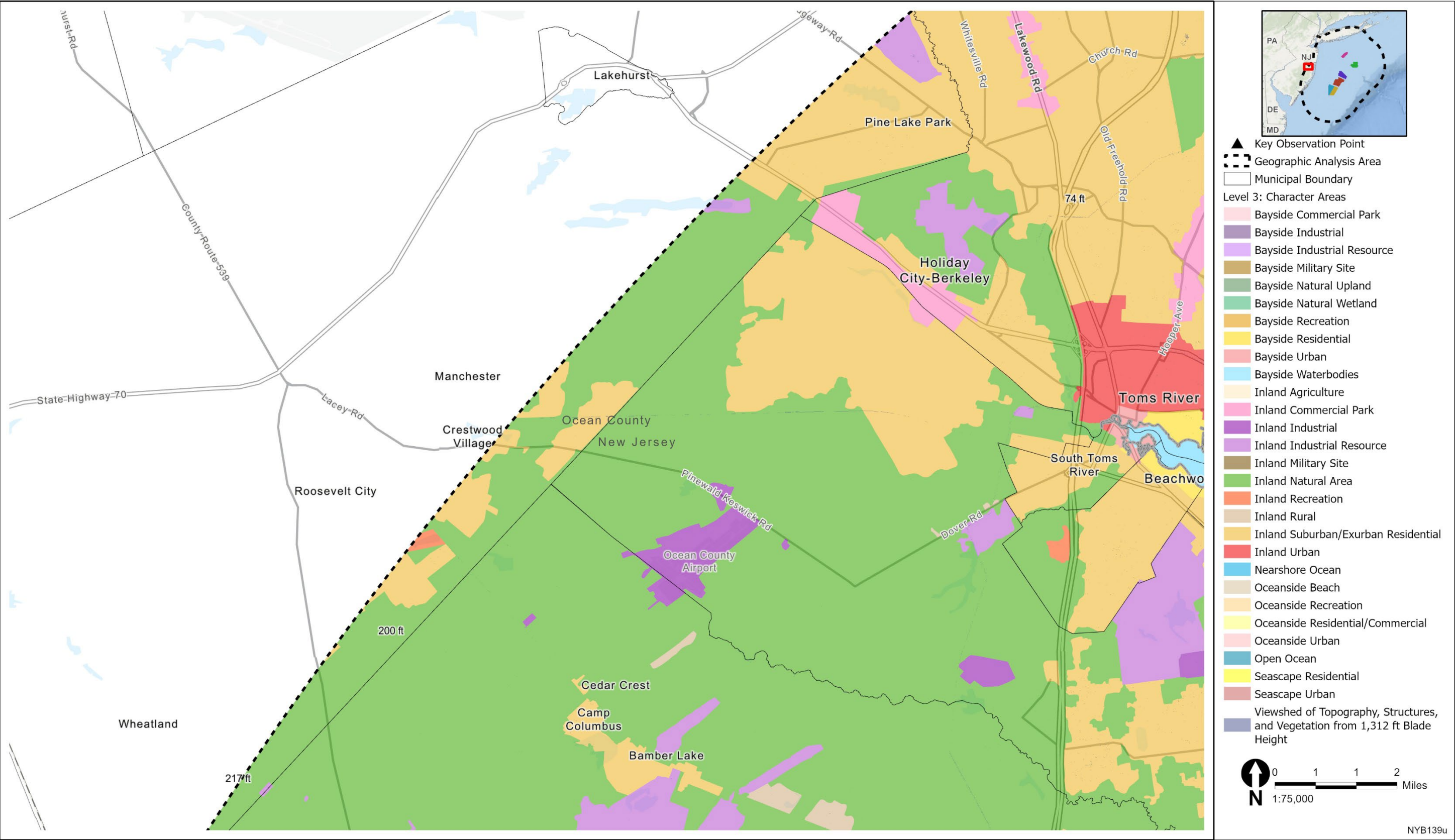
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MAP T



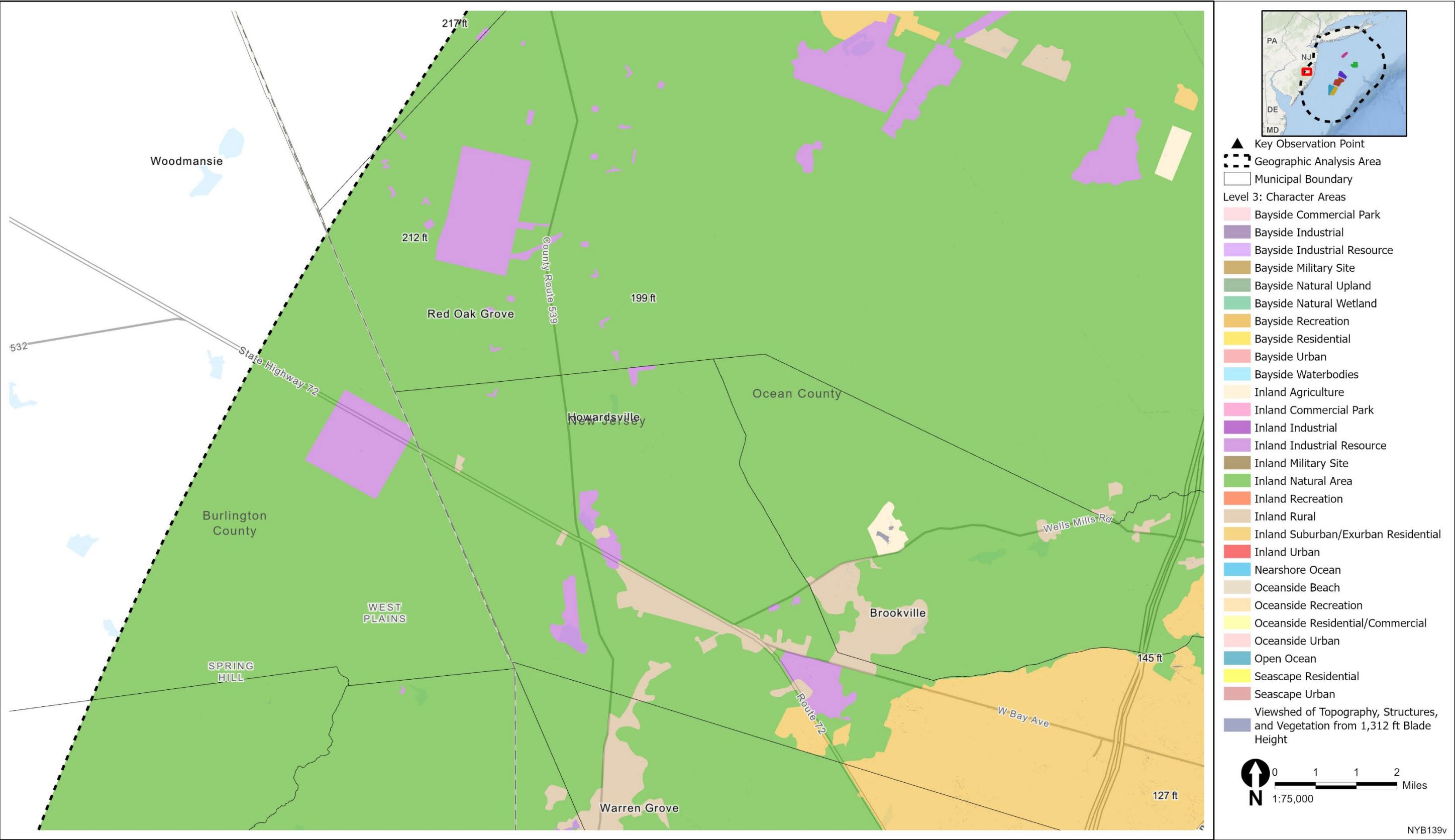
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MAP U



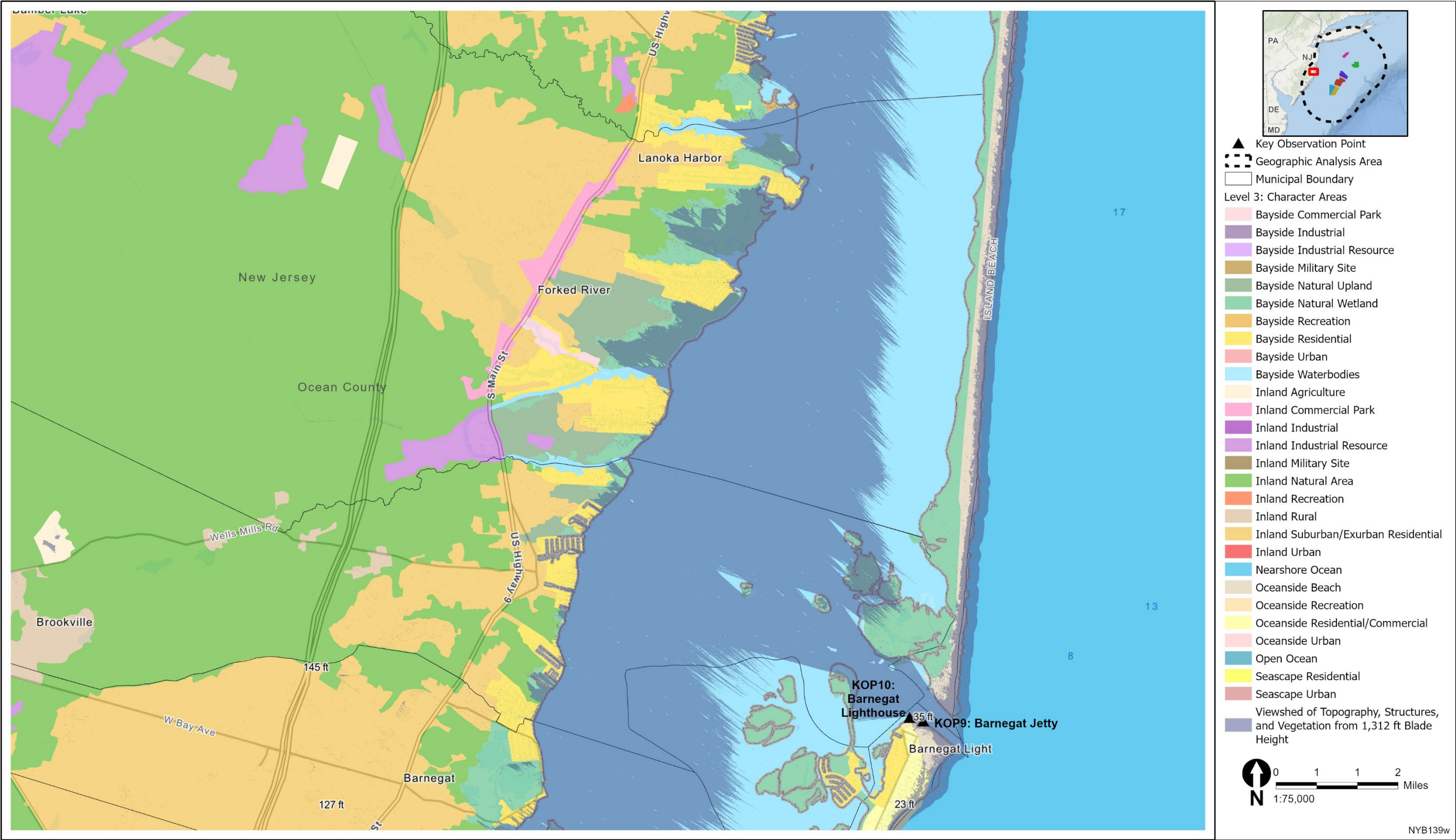
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MAP V



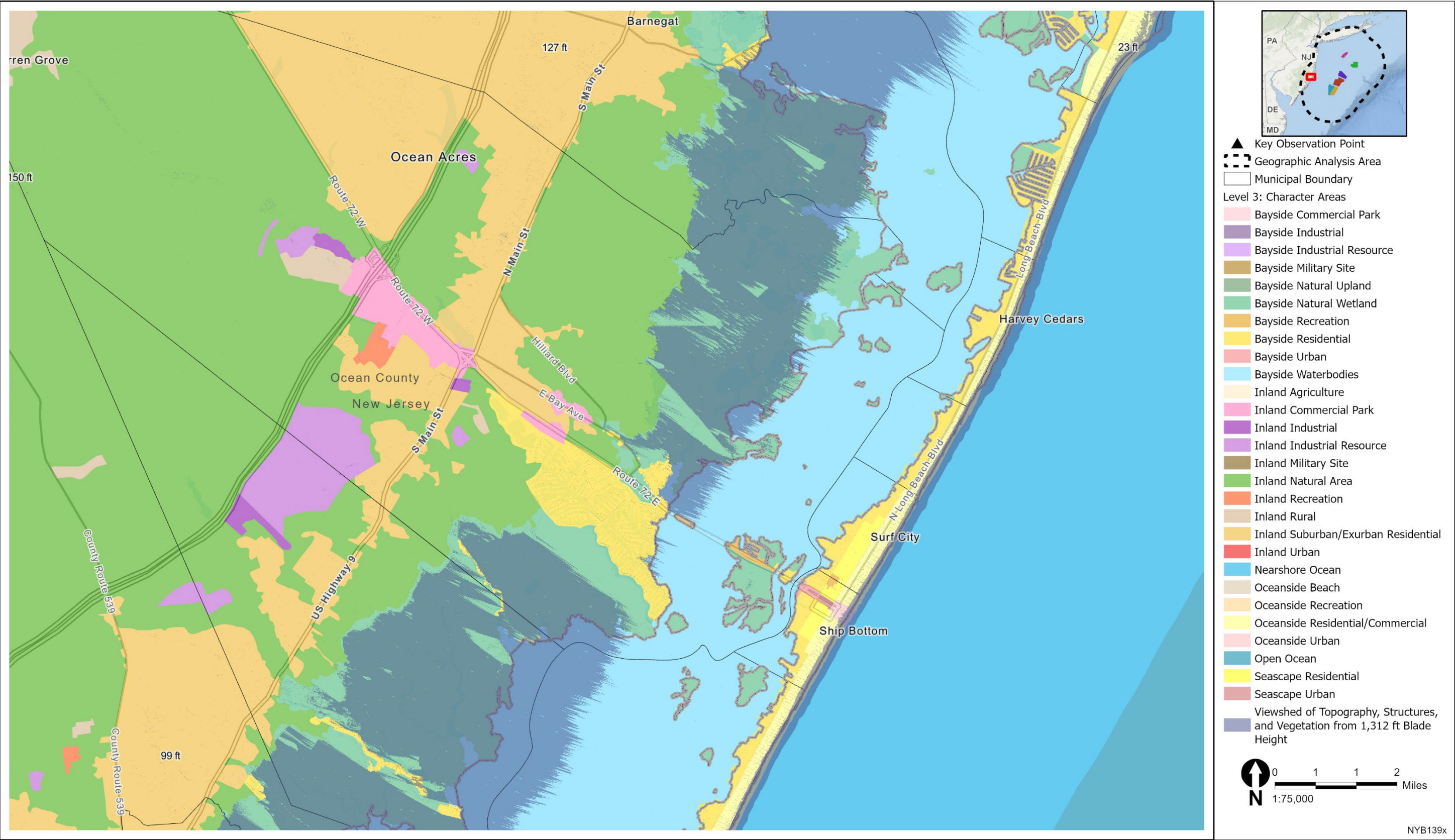
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MAP W



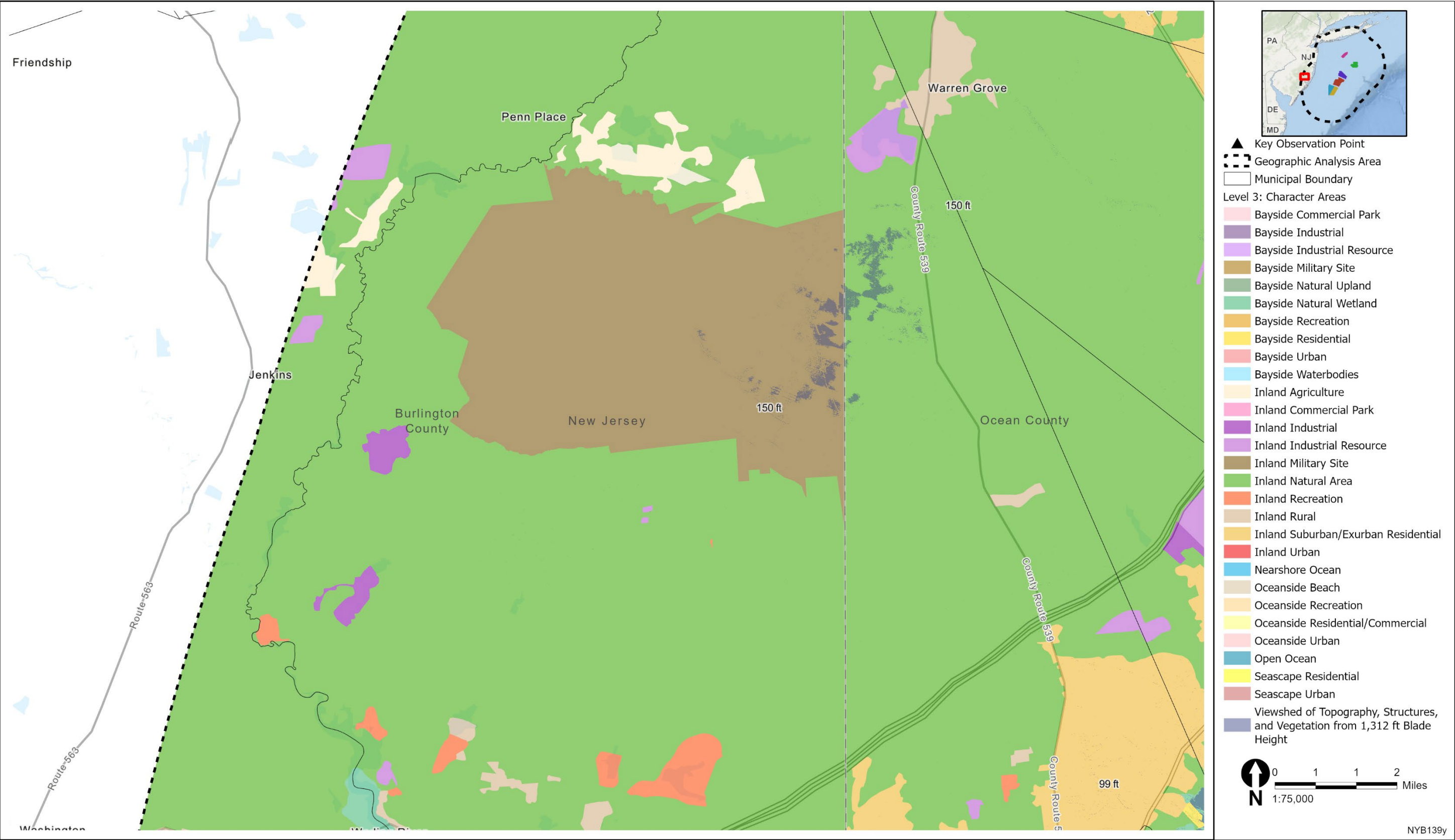
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP X



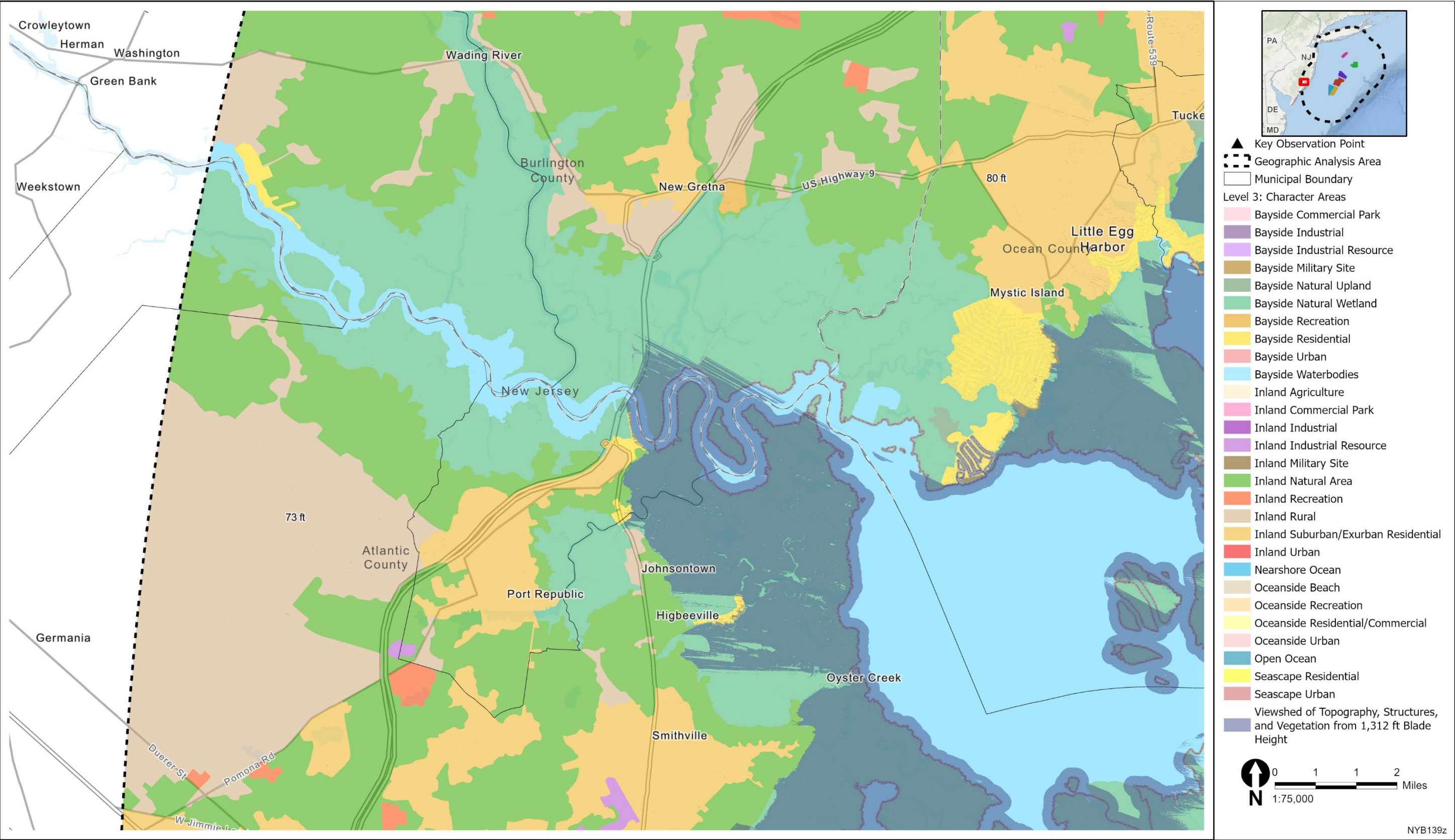
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MAP Y



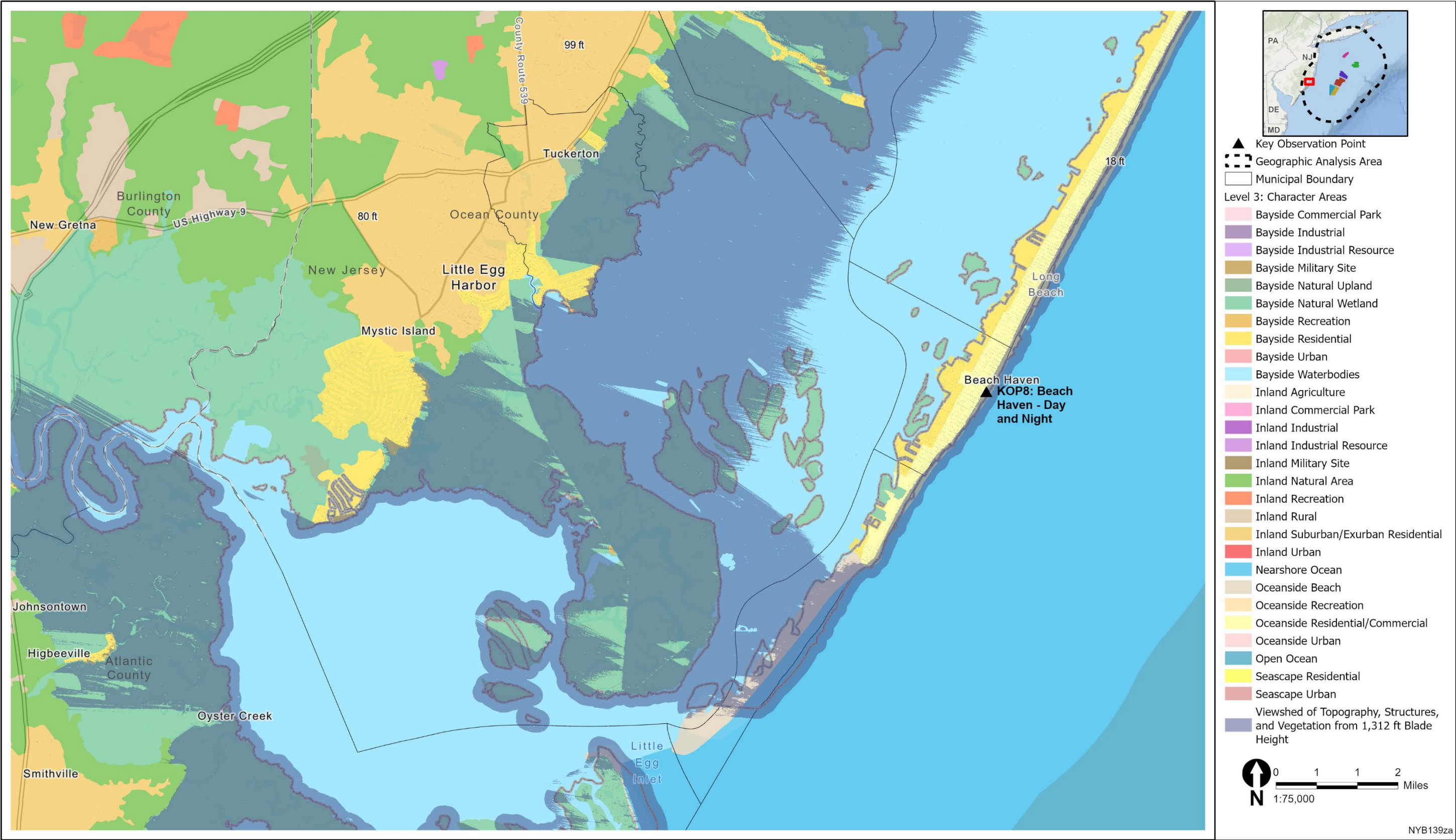
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MAP Z



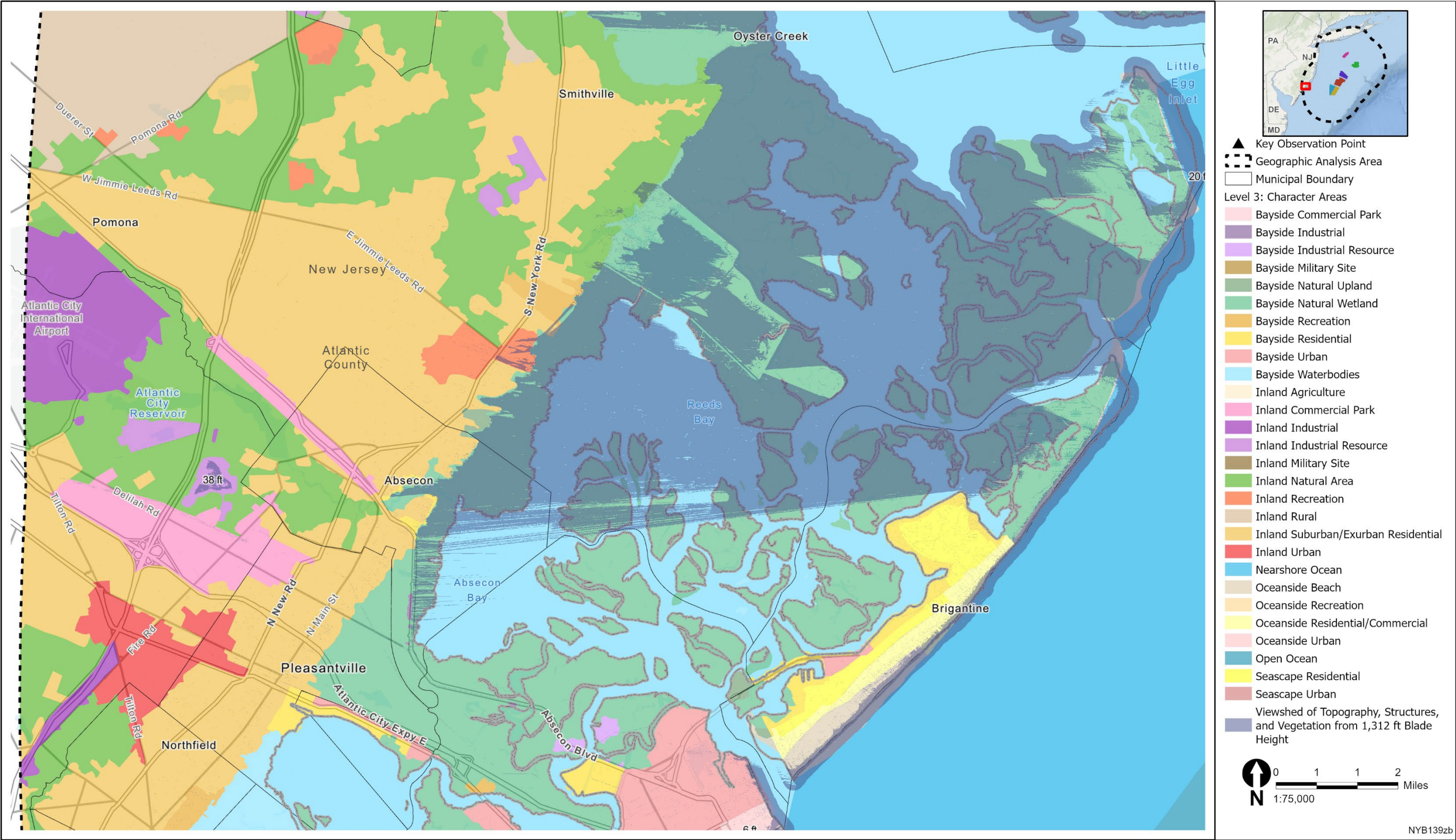
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP ZA



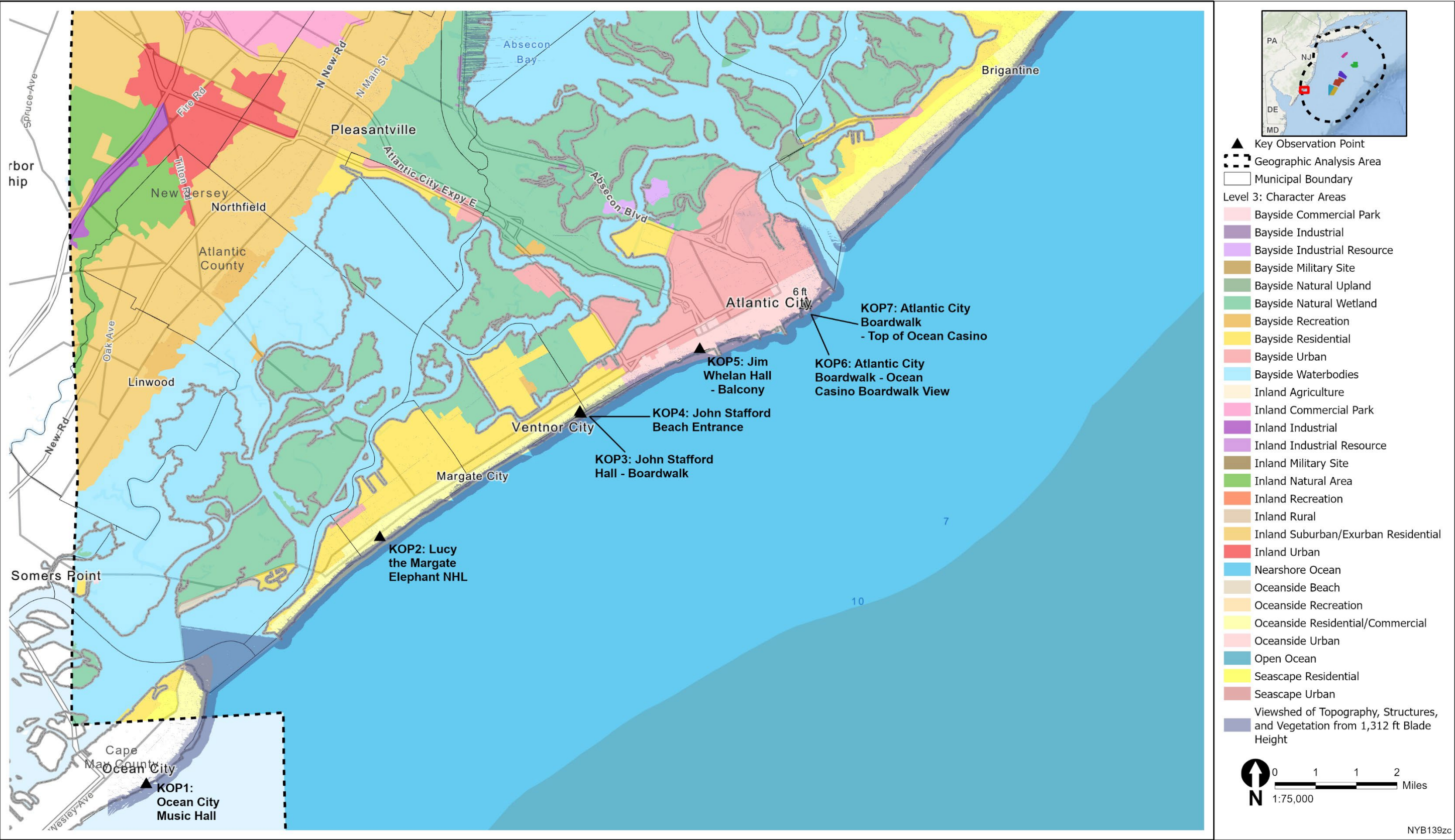
Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP ZB

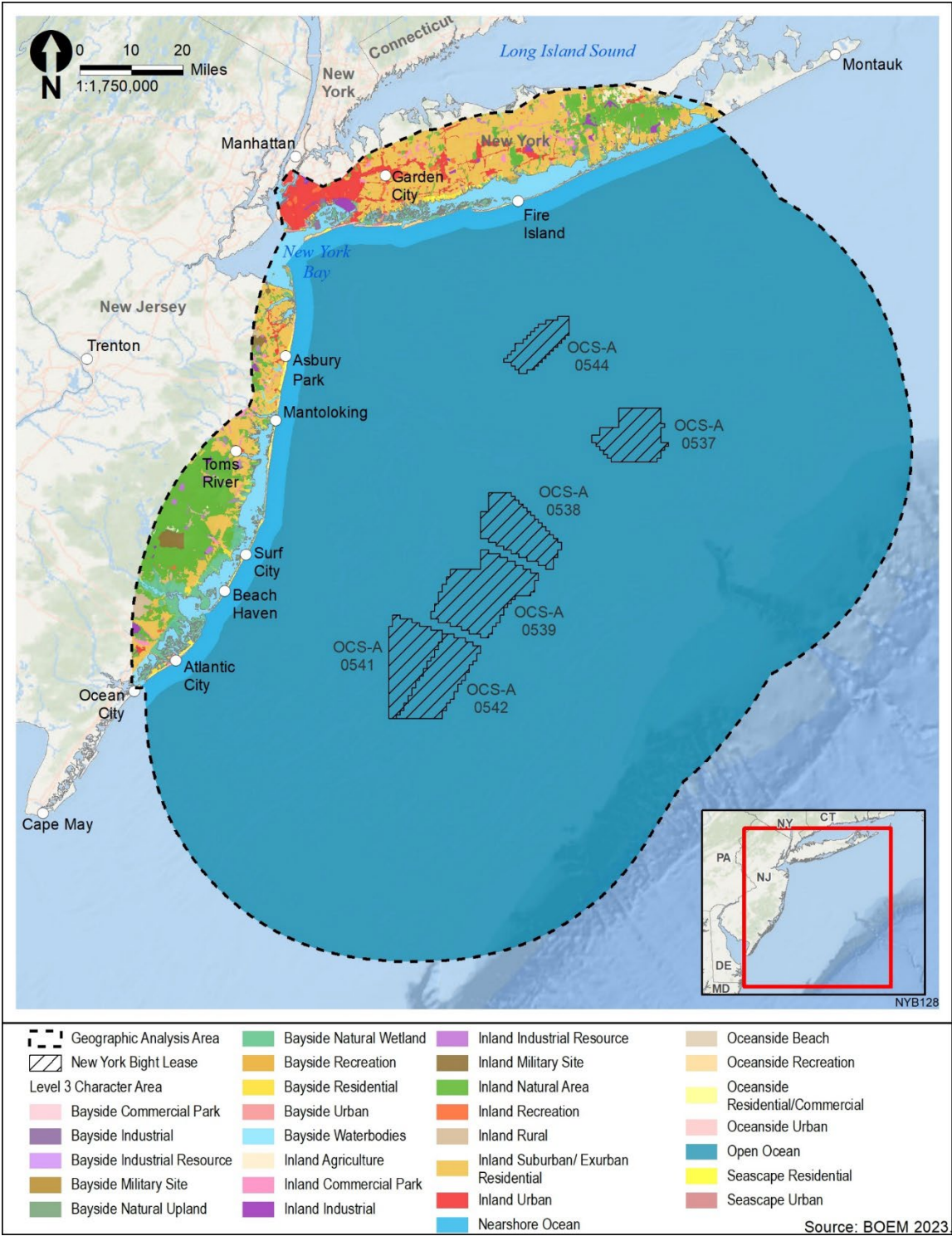


Series 3: Character Area Delineations and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

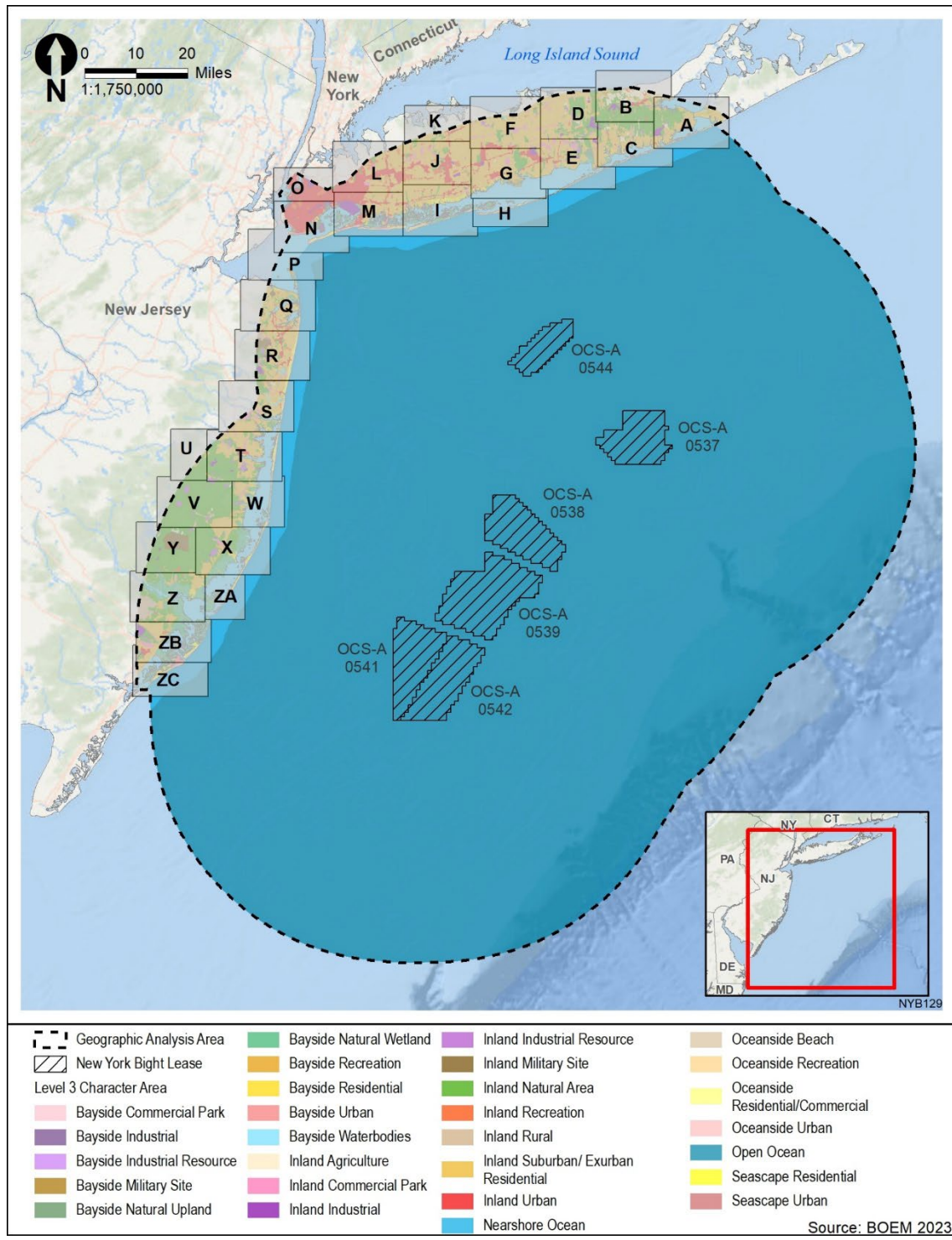
MAP ZC



Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height—Overview Map

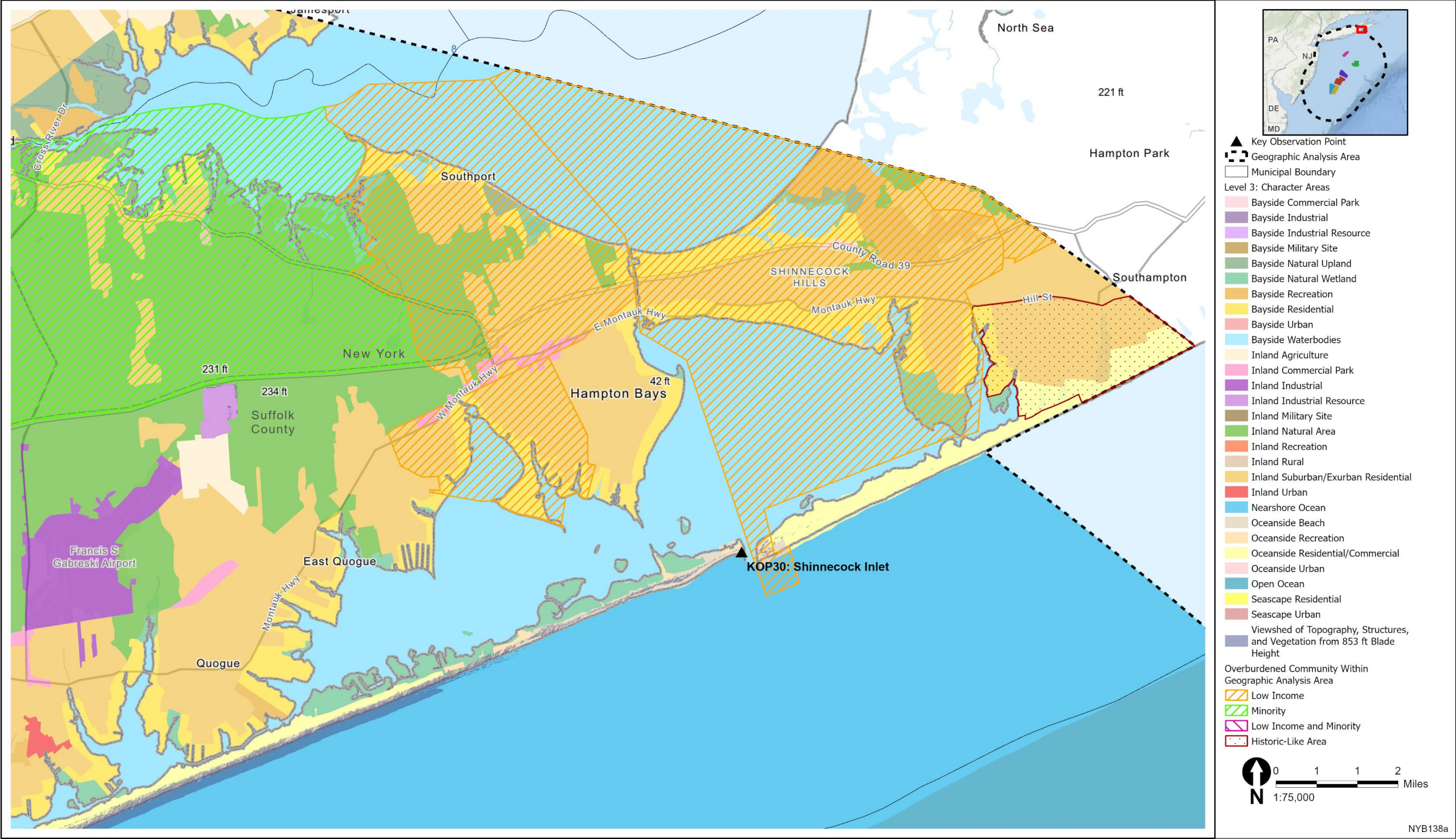


Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height—Grid Index Overview



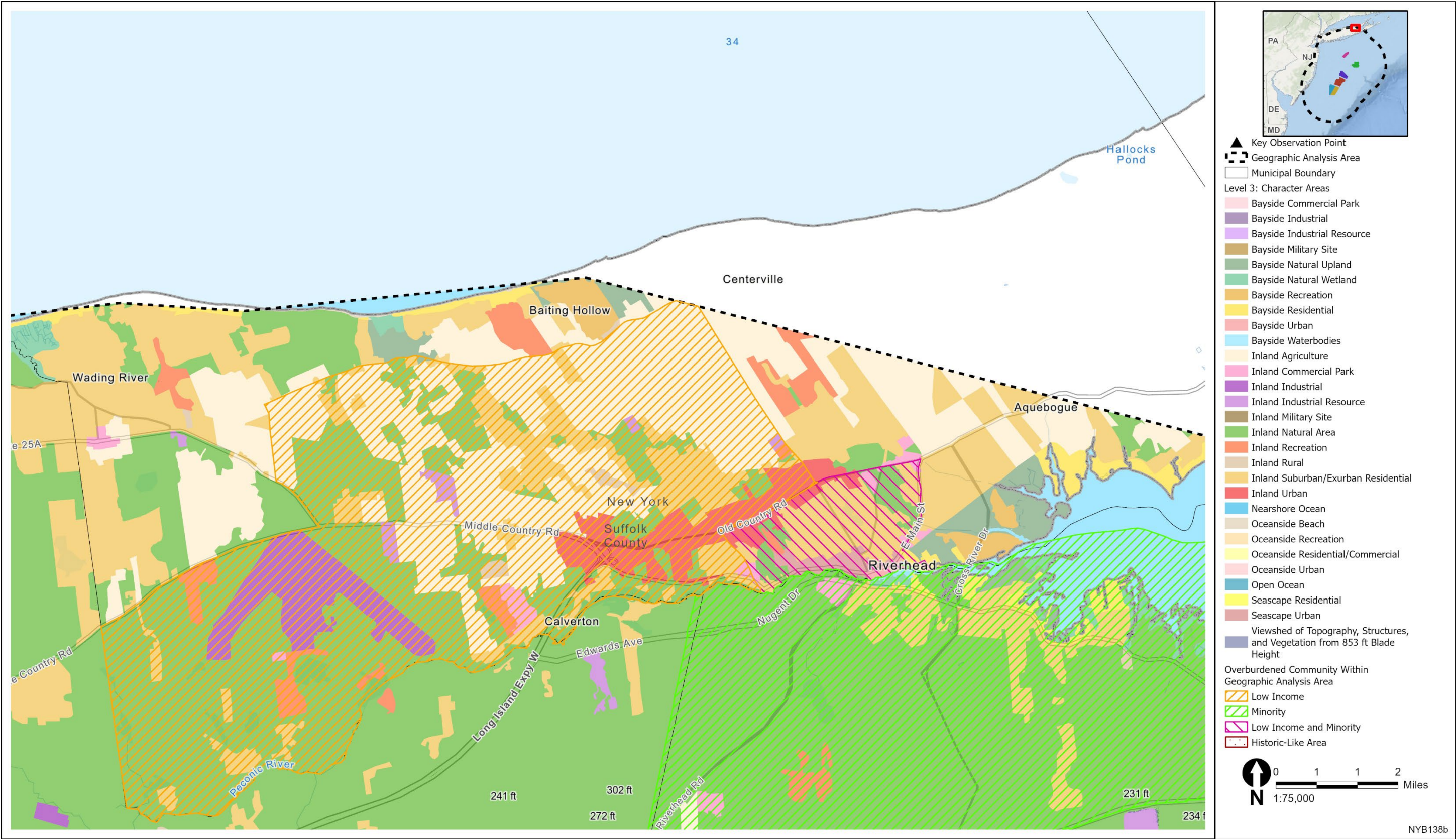
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP A



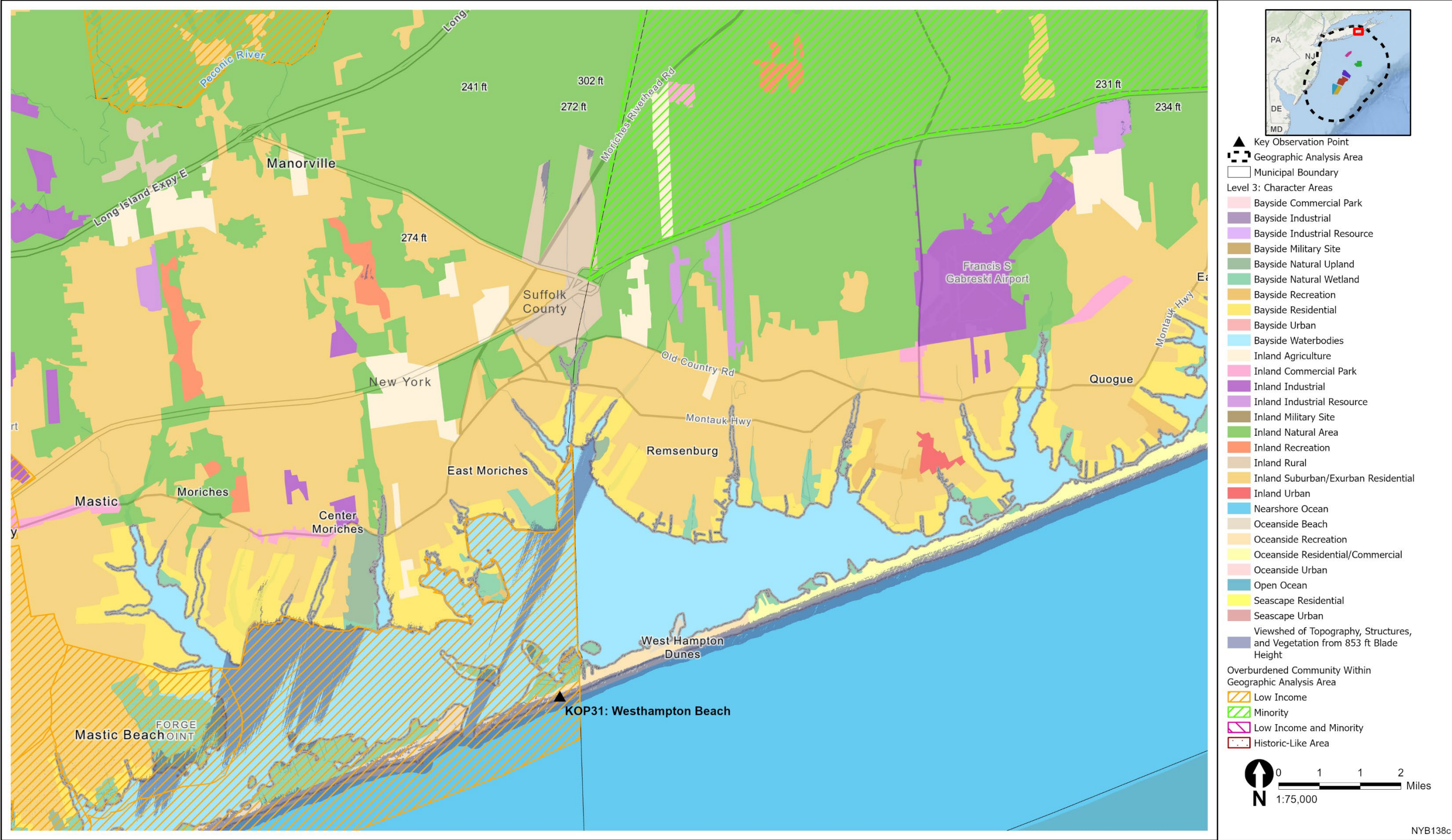
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP B



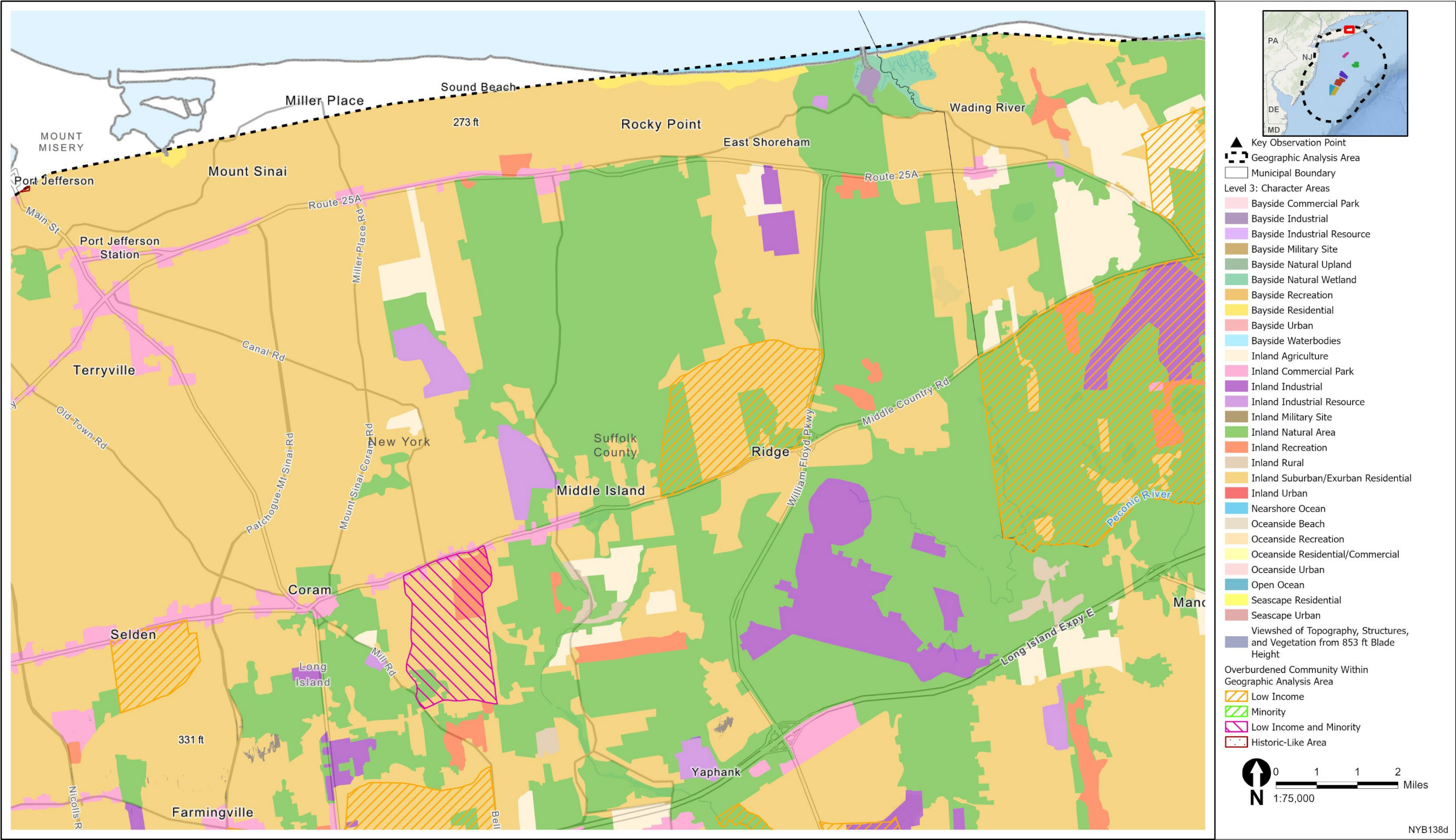
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MAP C



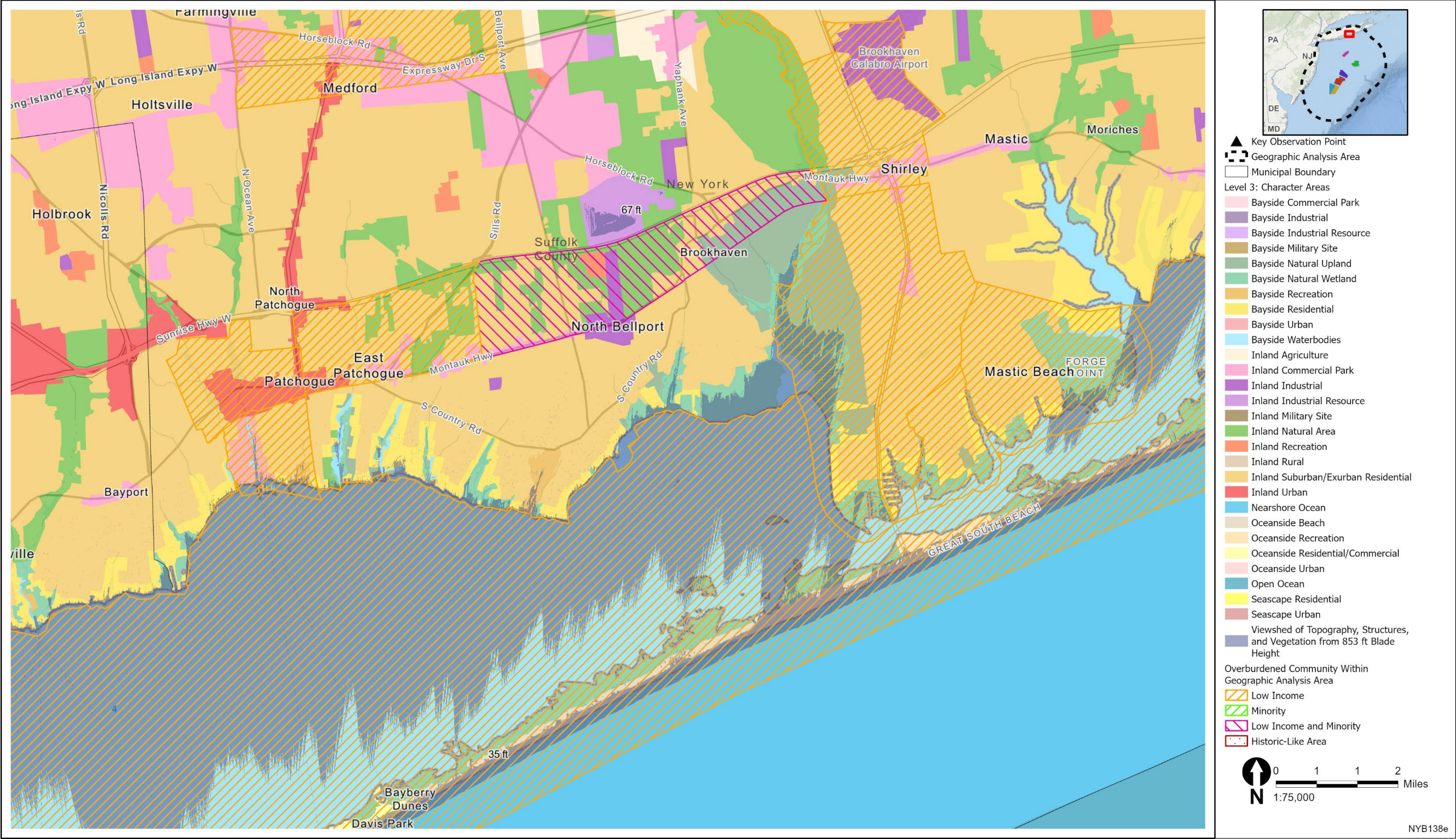
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP D



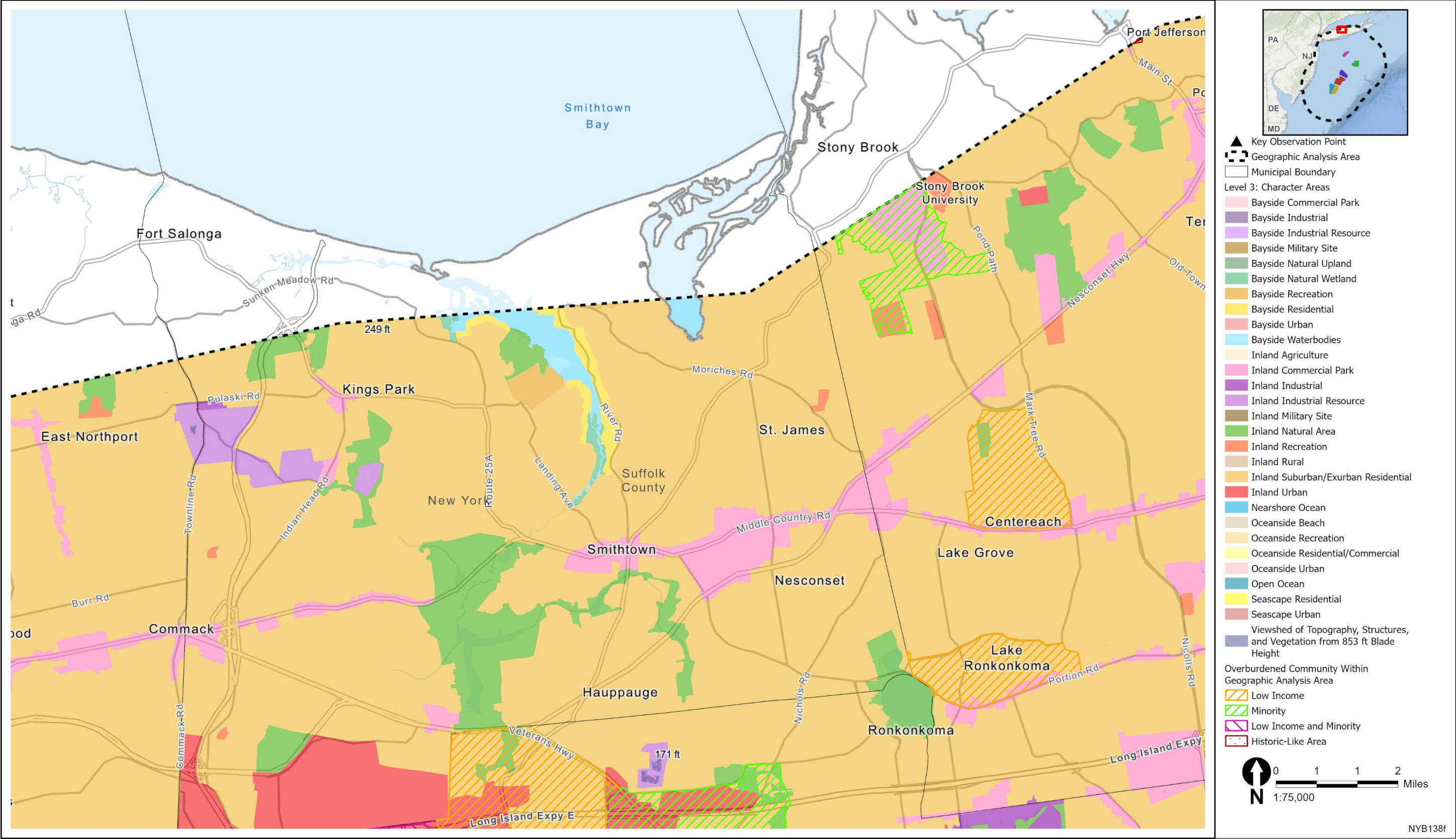
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP E



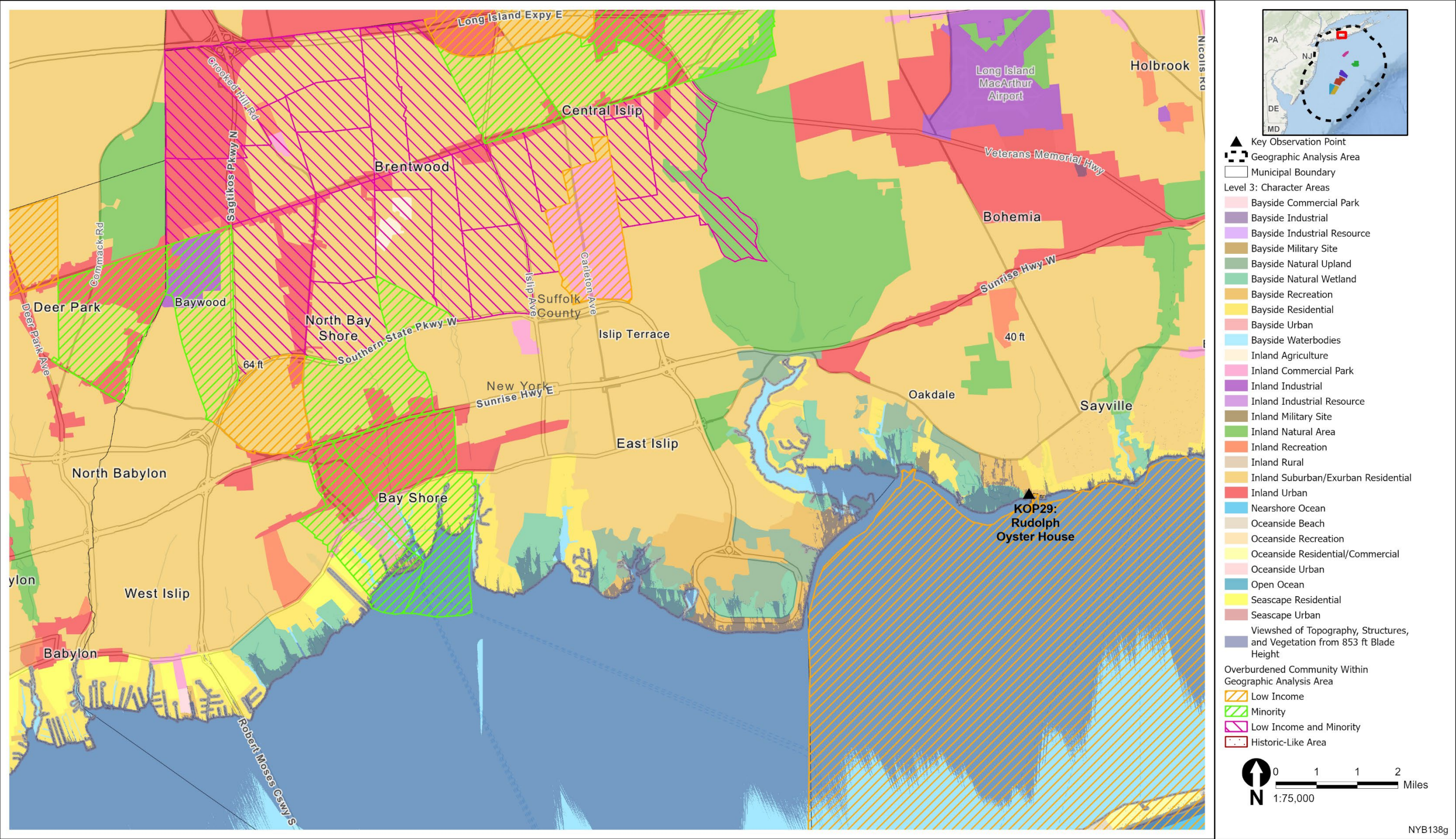
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP F



Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP G



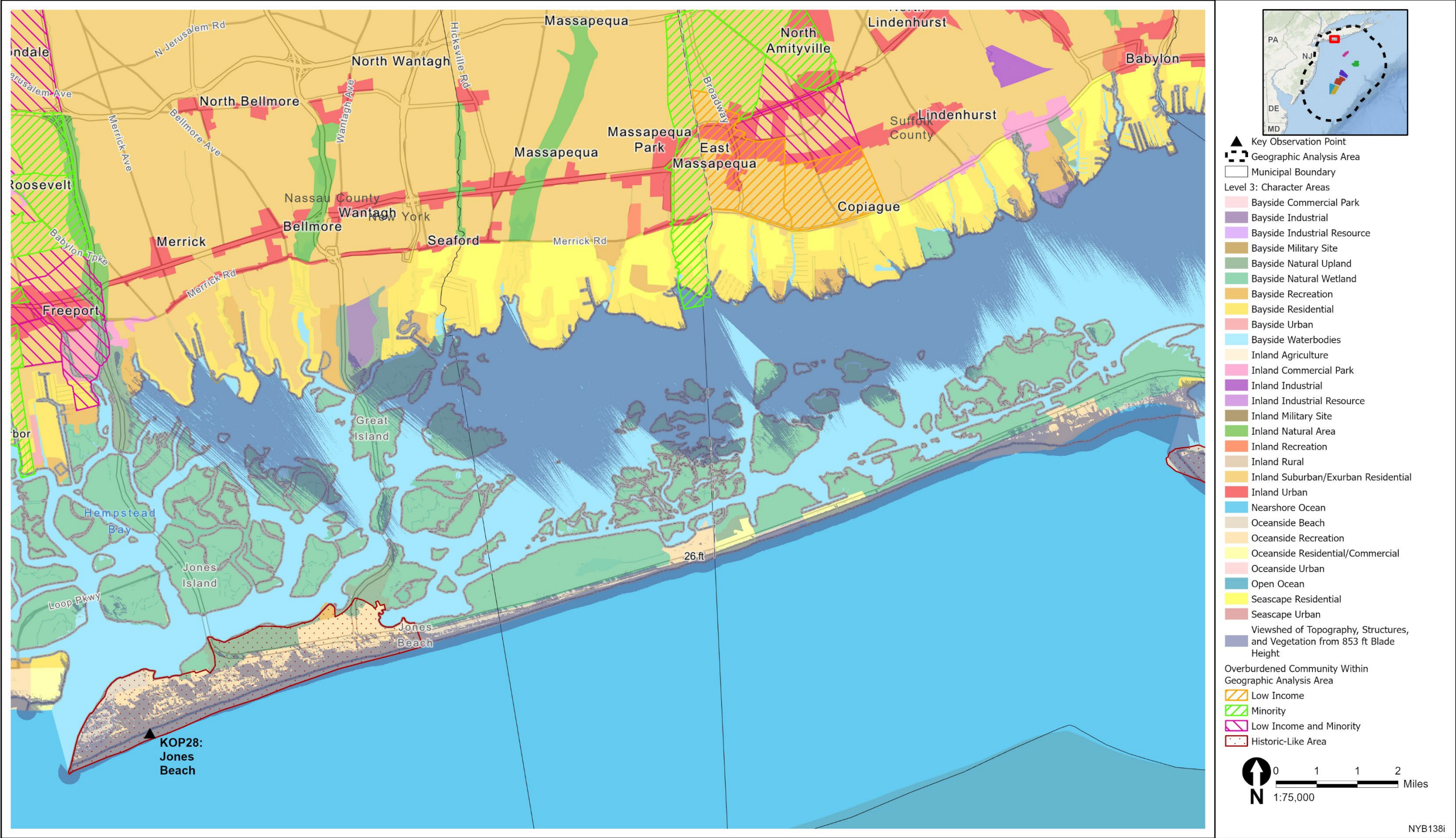
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP H



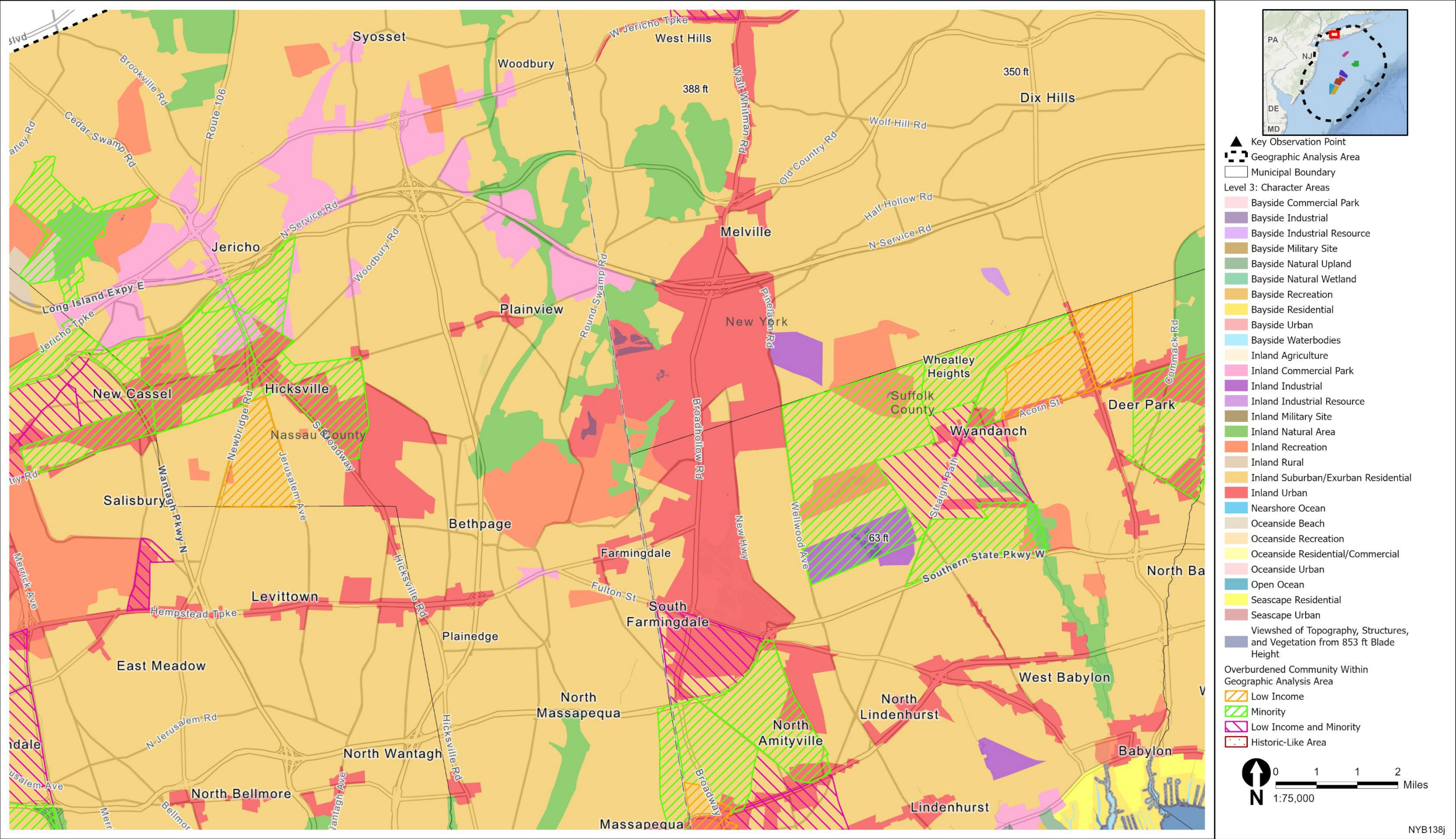
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP I



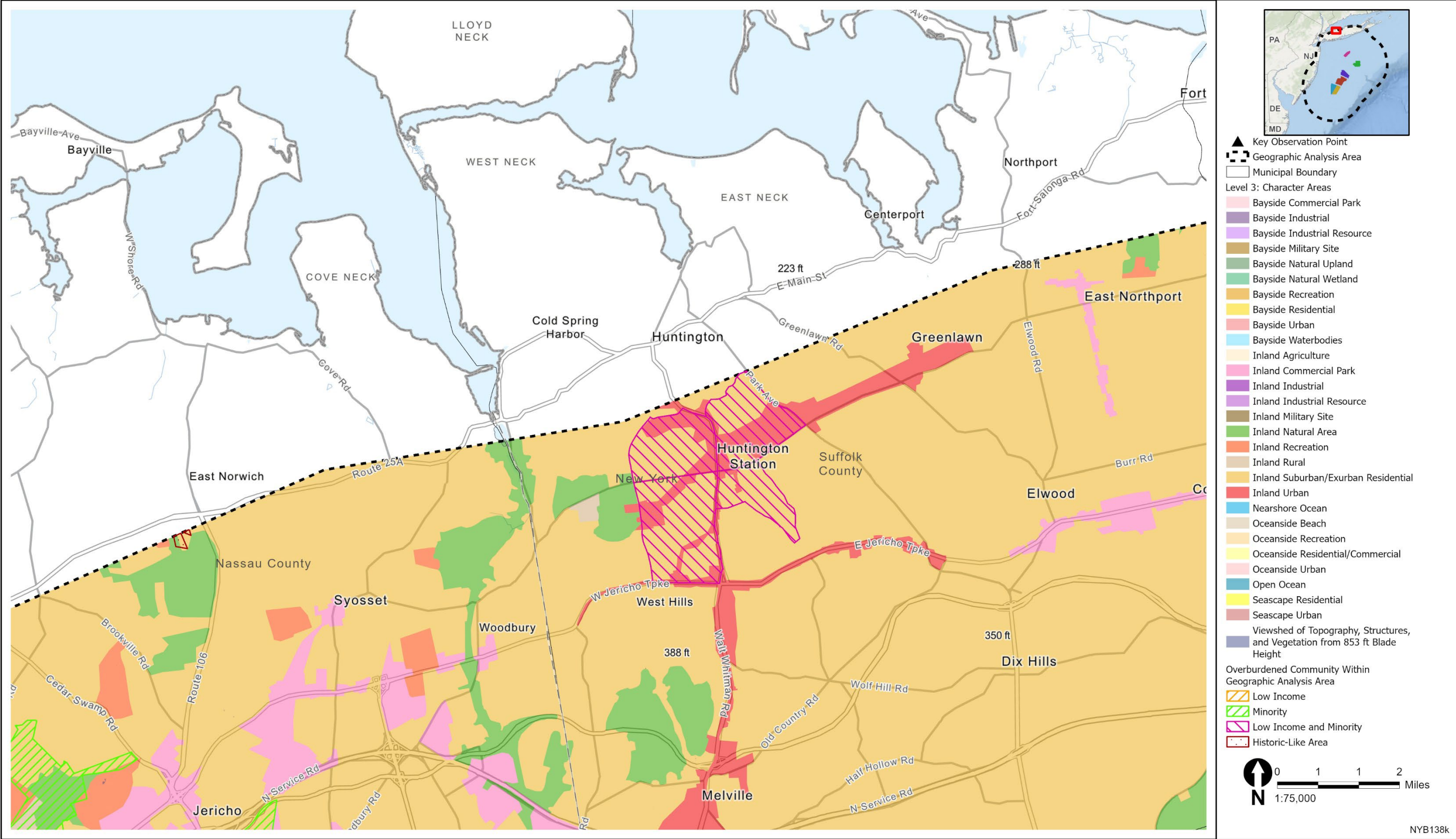
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MAP J



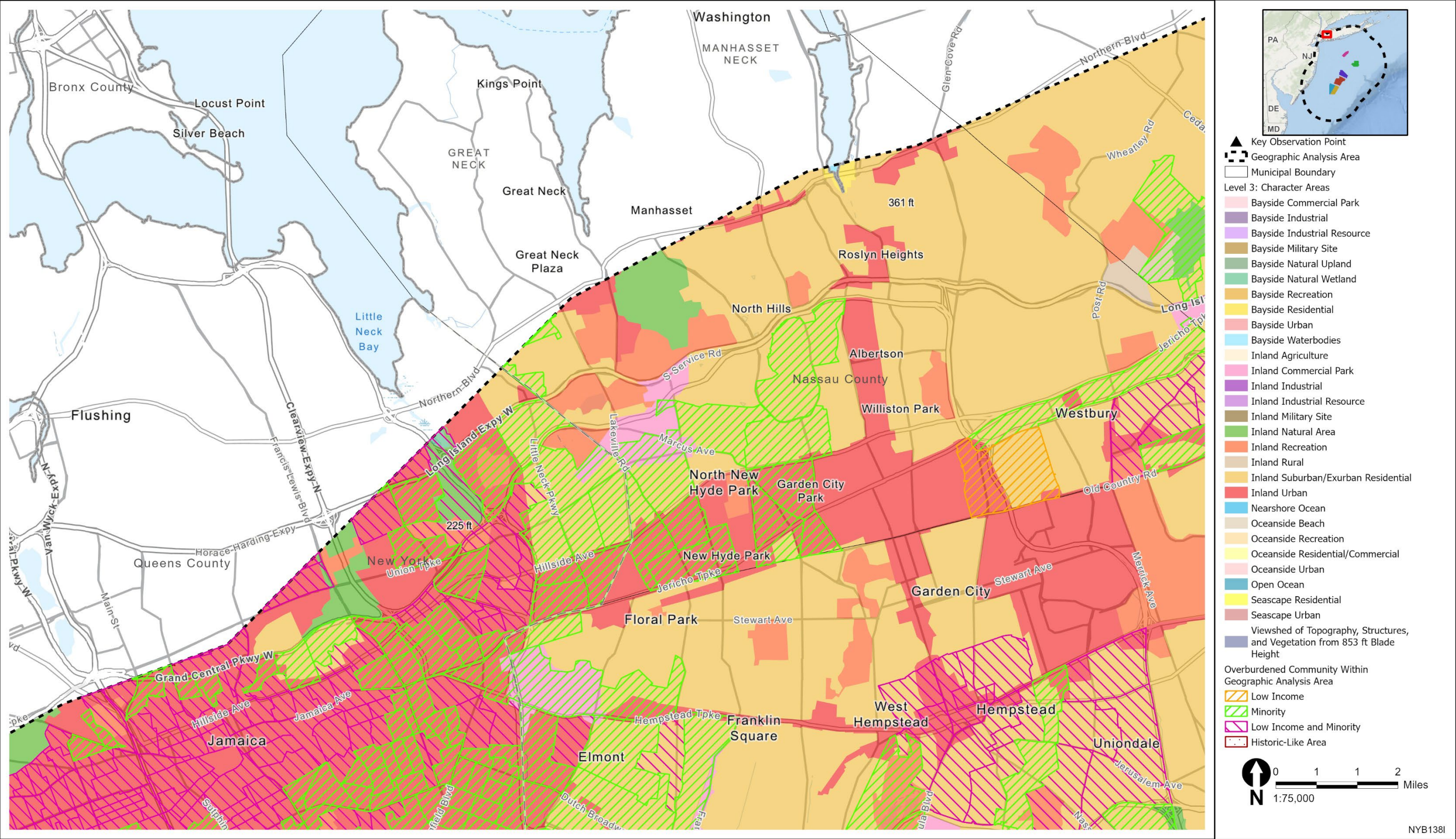
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP K



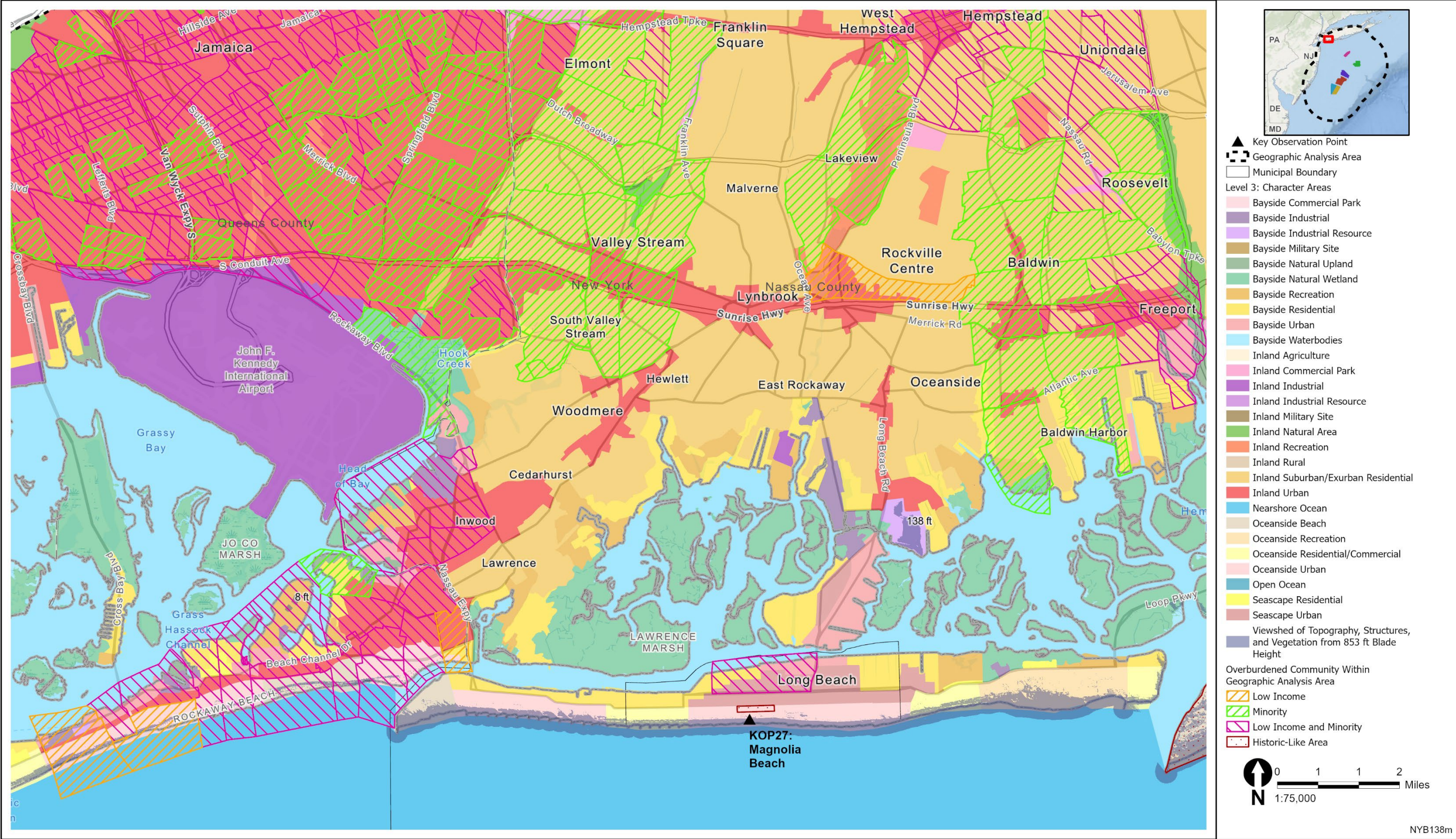
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MAP L



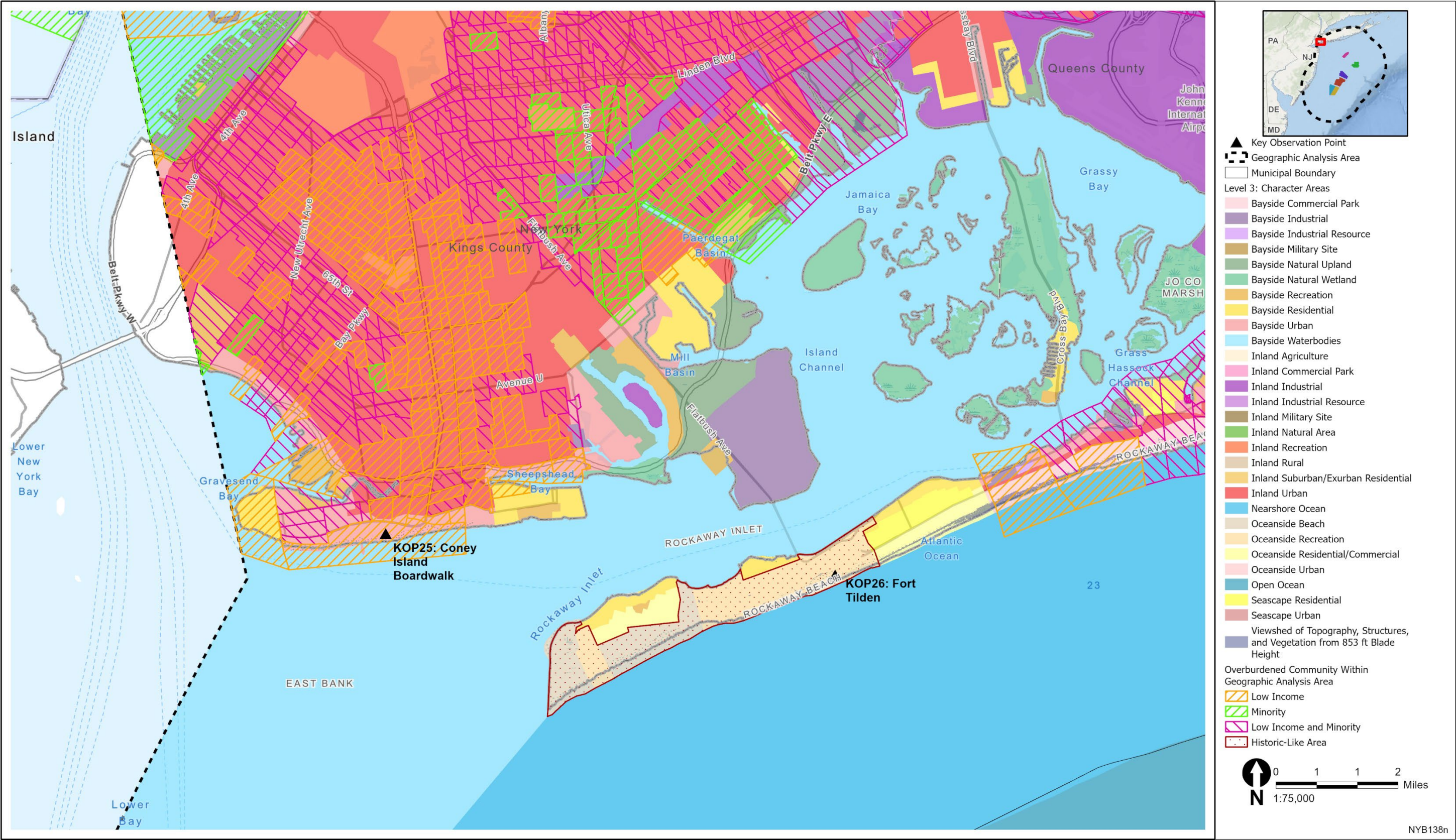
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP M



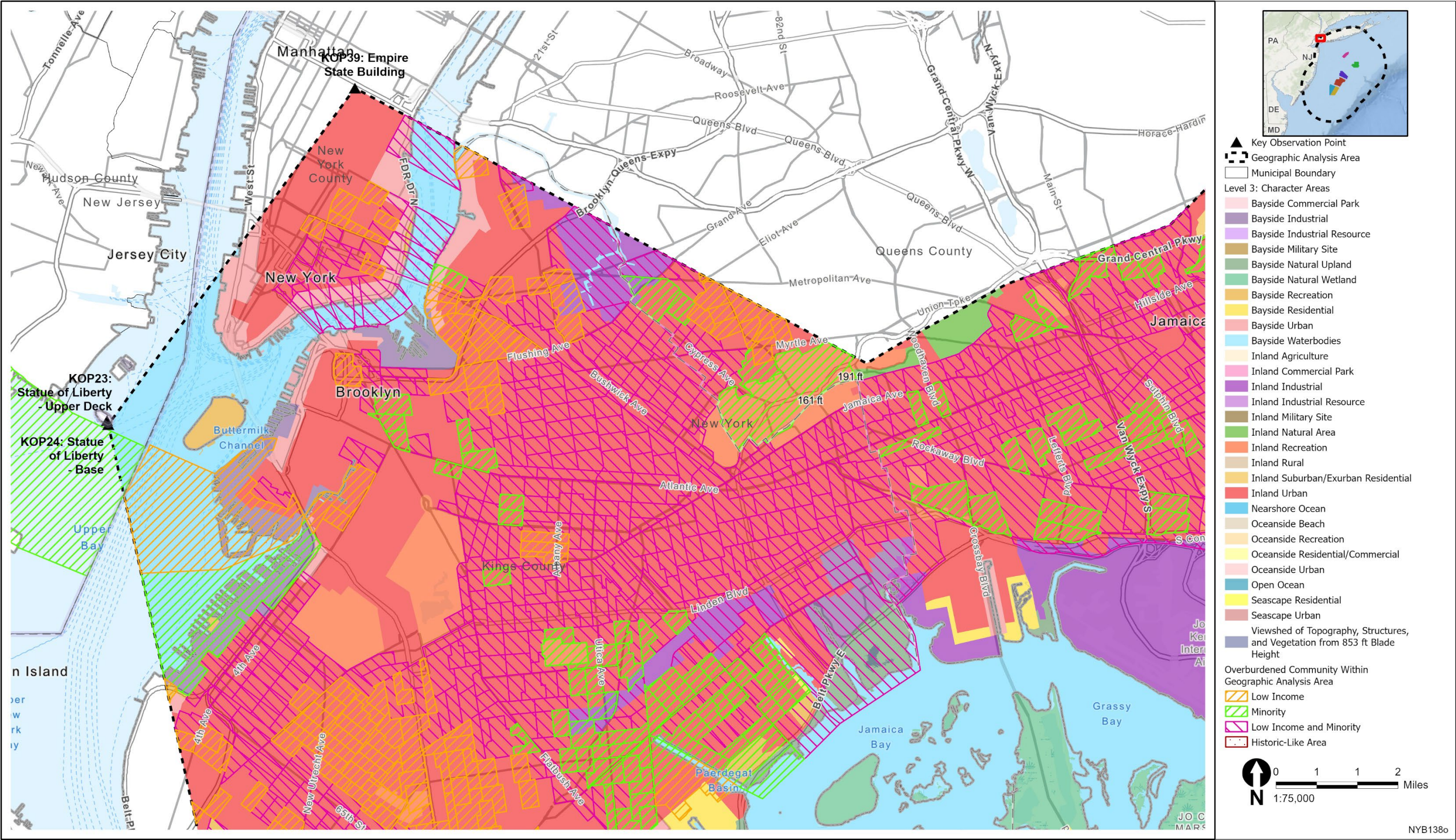
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MAP N



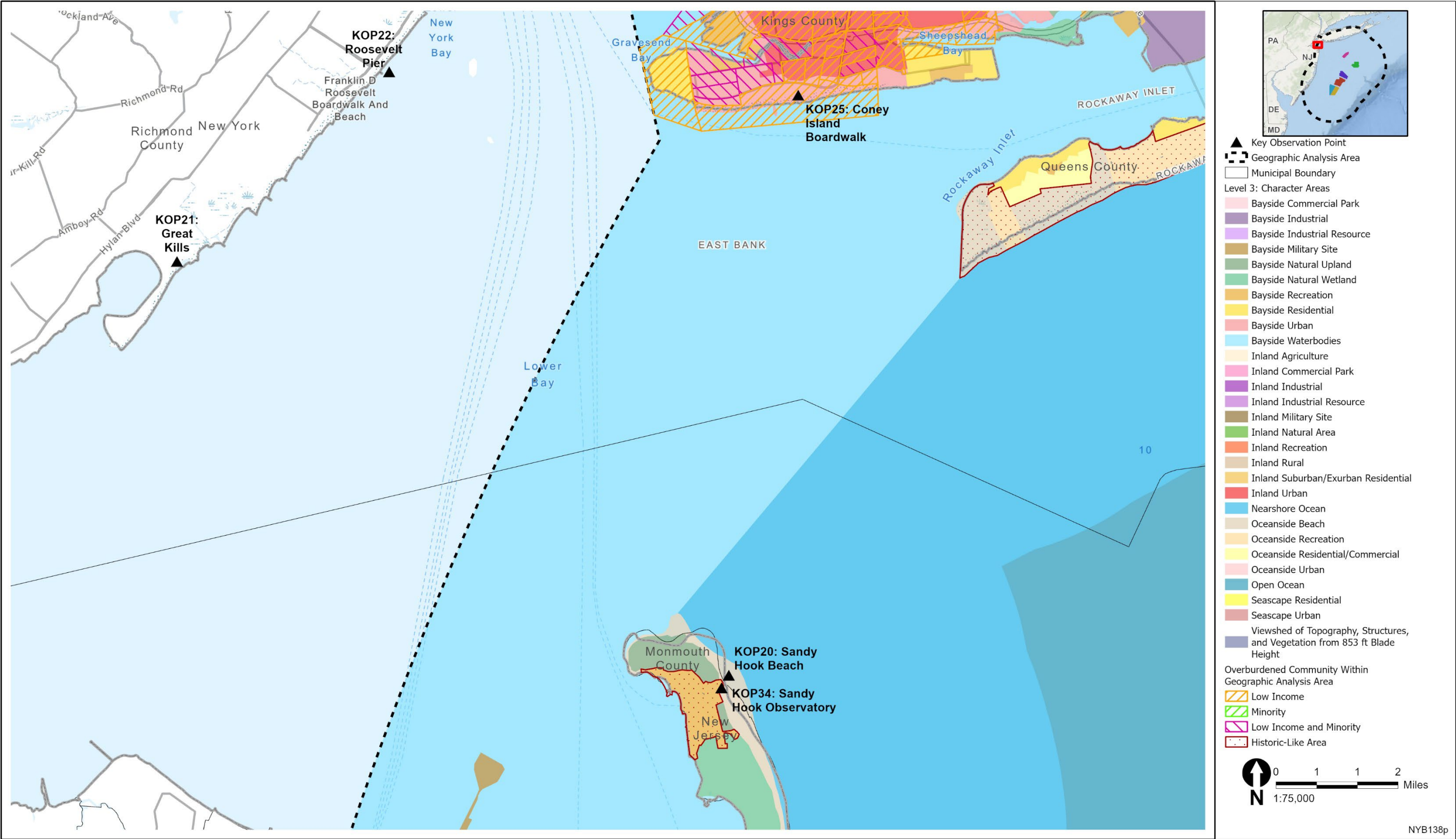
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MAP O



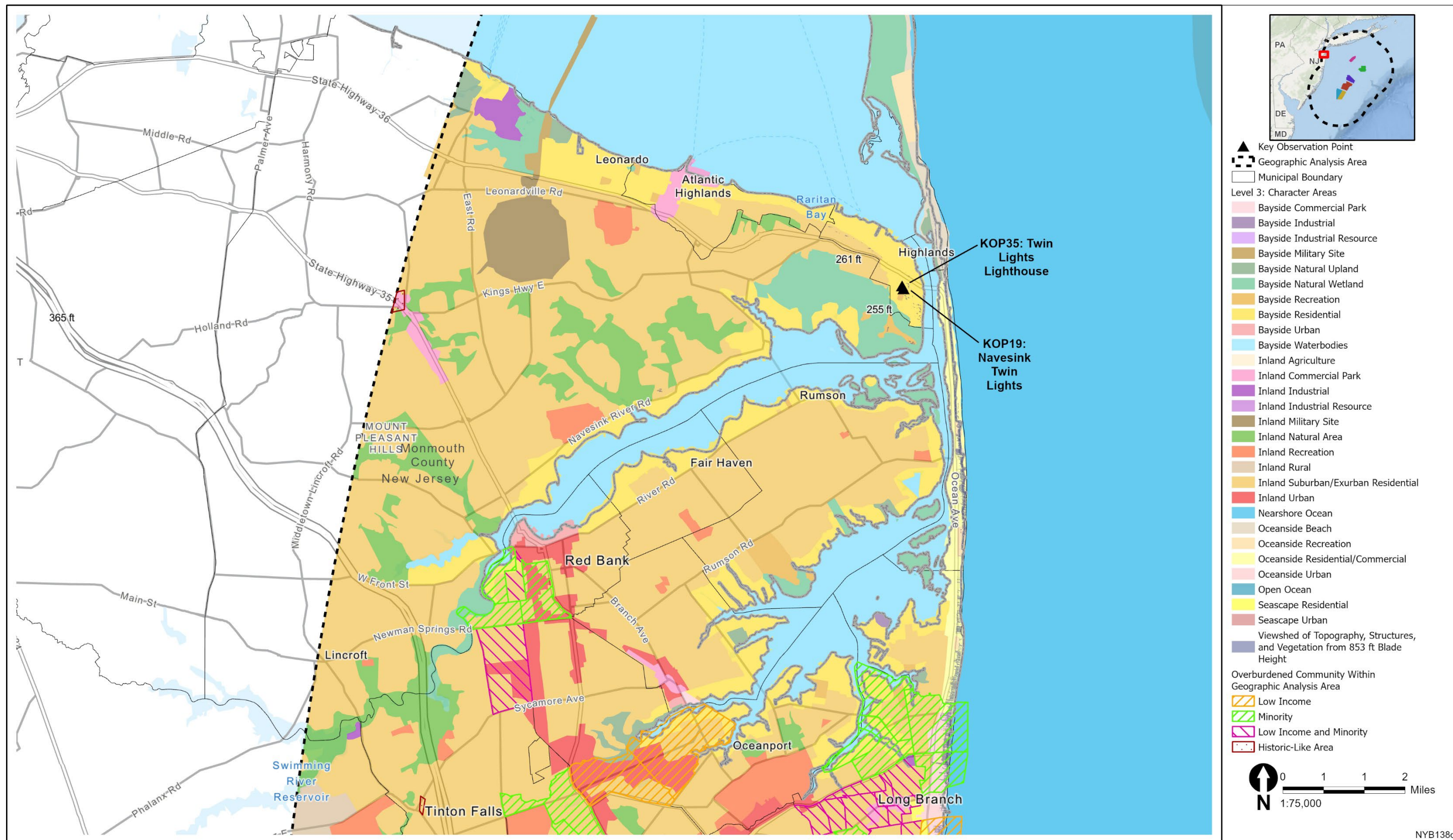
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MAP P



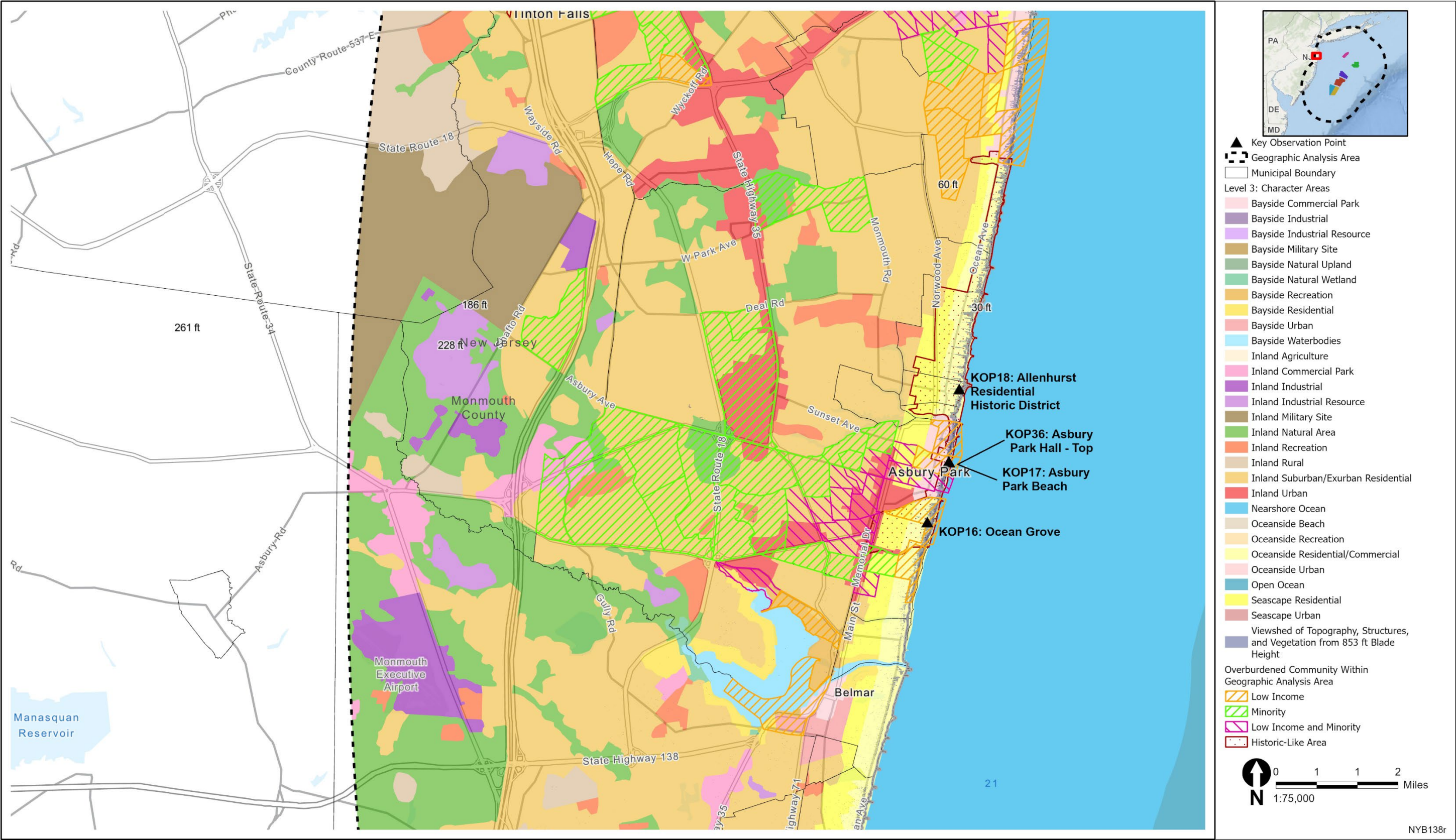
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MAP Q



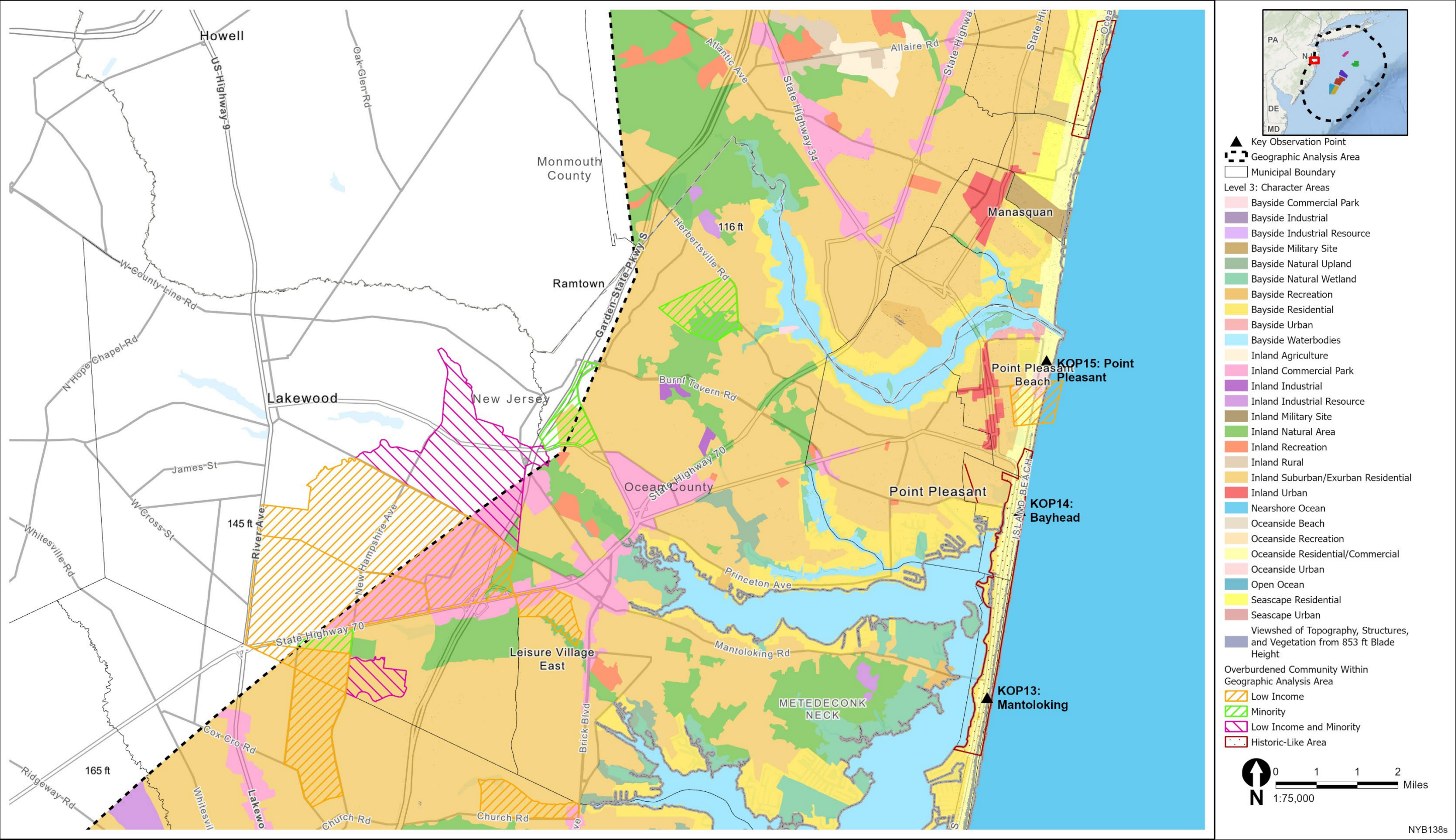
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MAP R



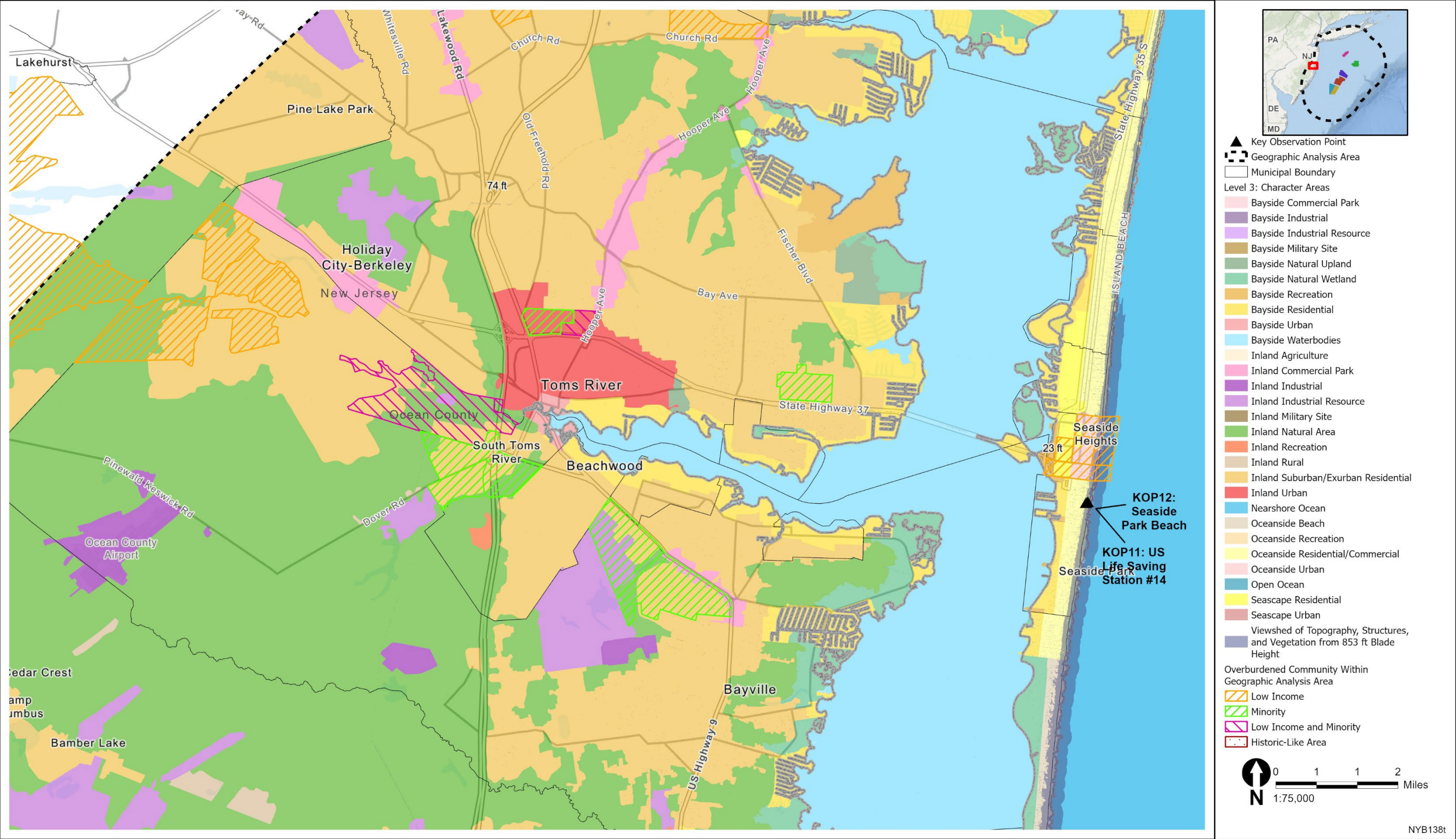
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MAP S



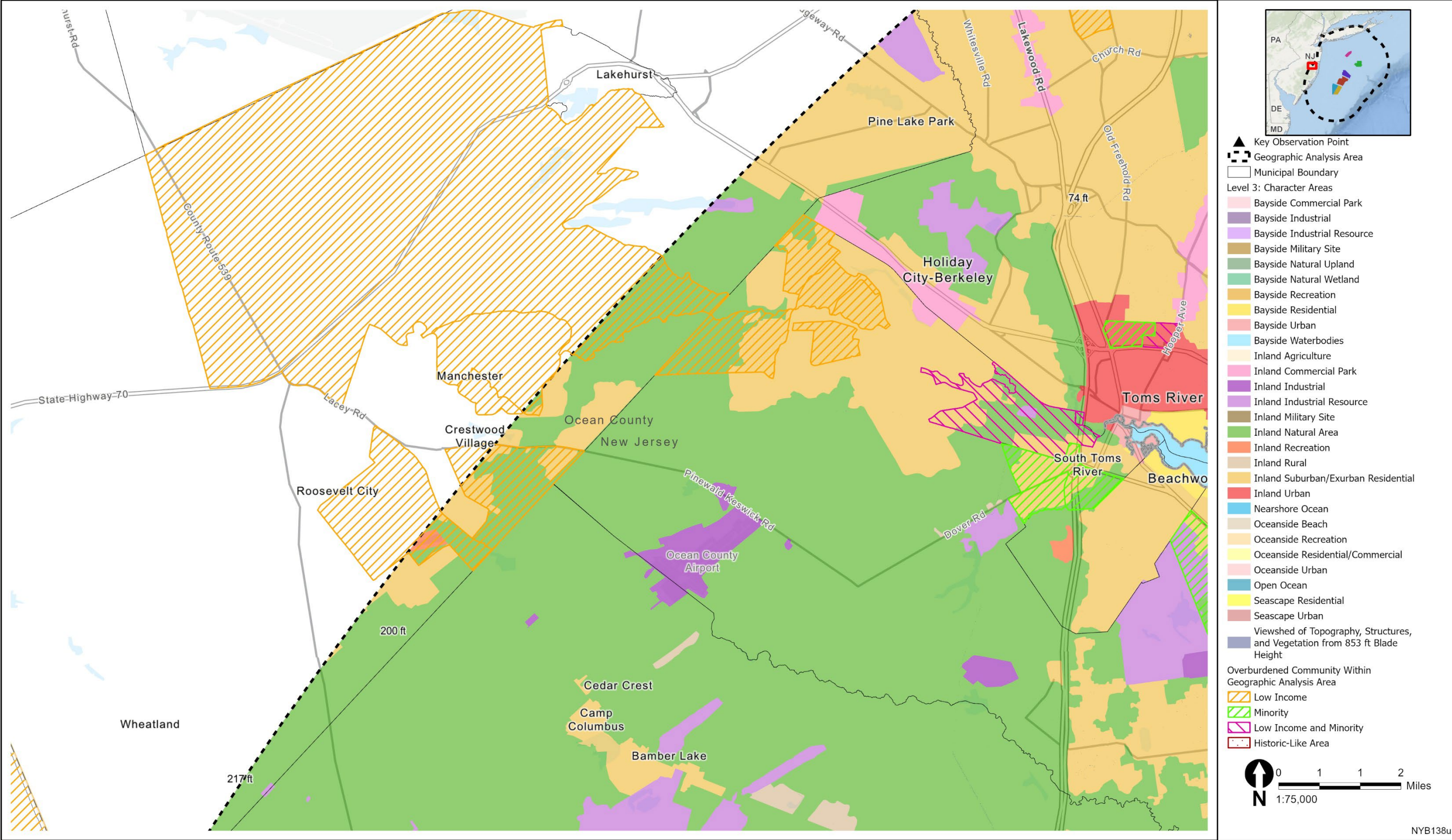
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP T



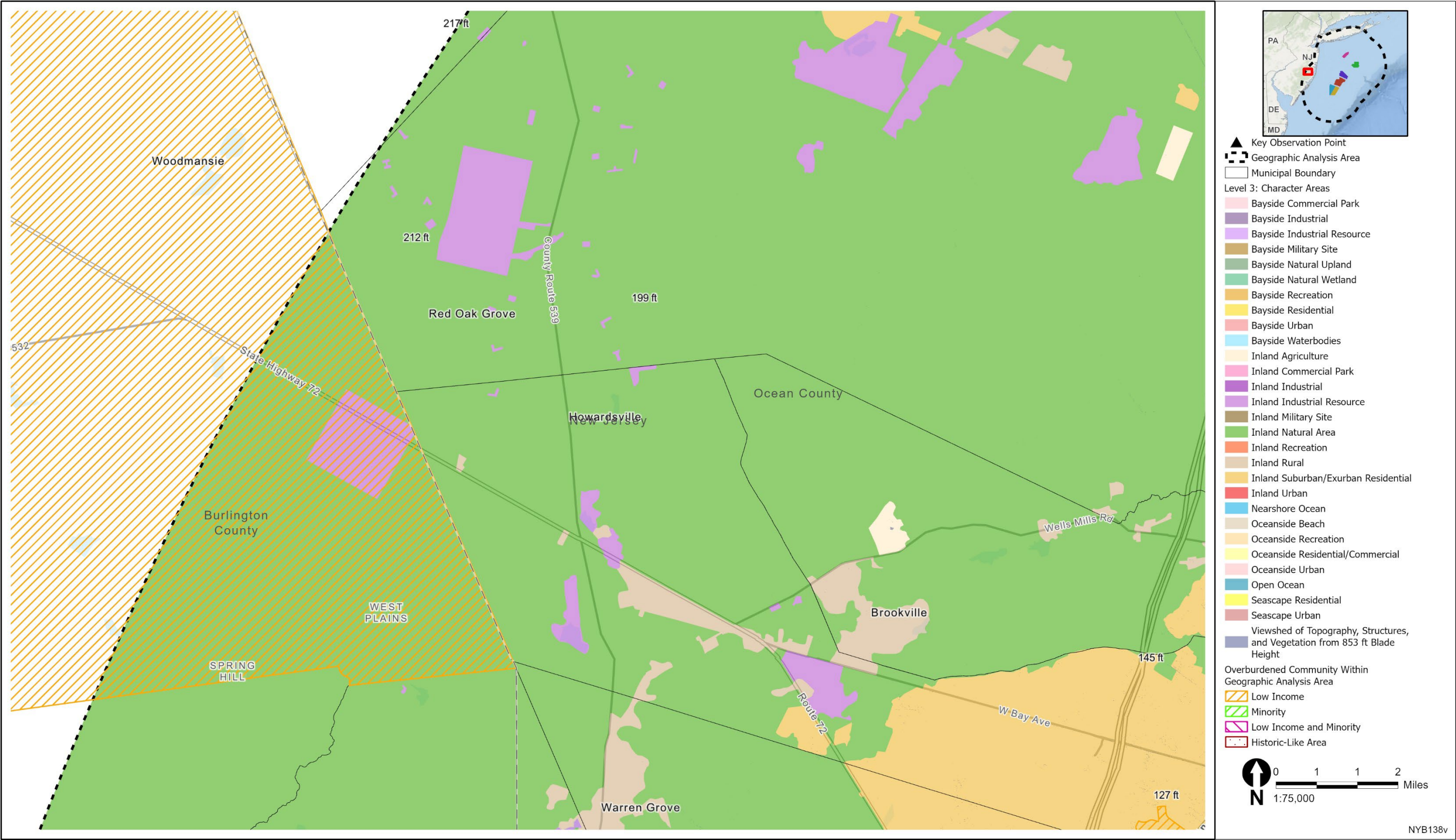
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MAP U



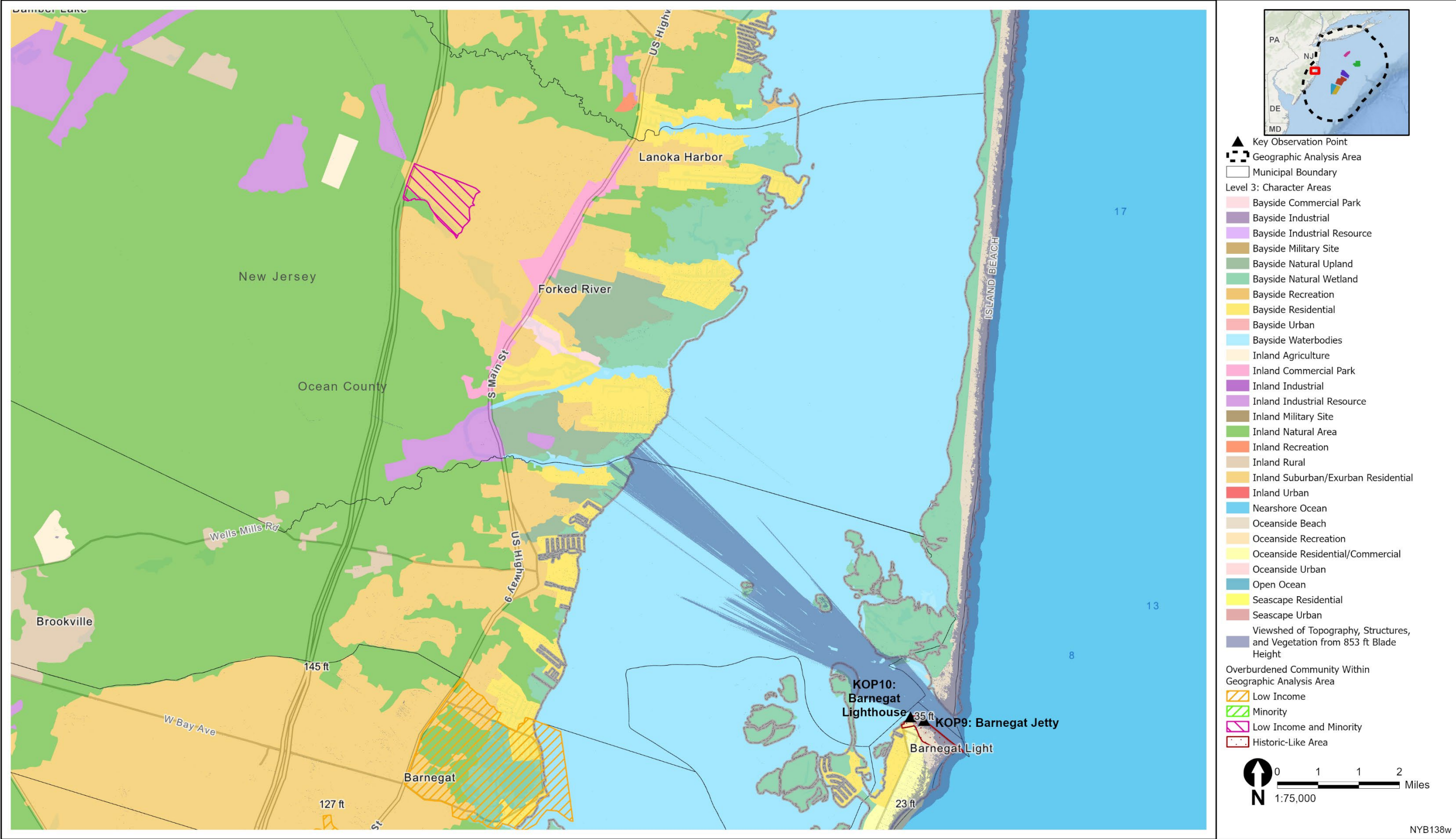
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MAP V



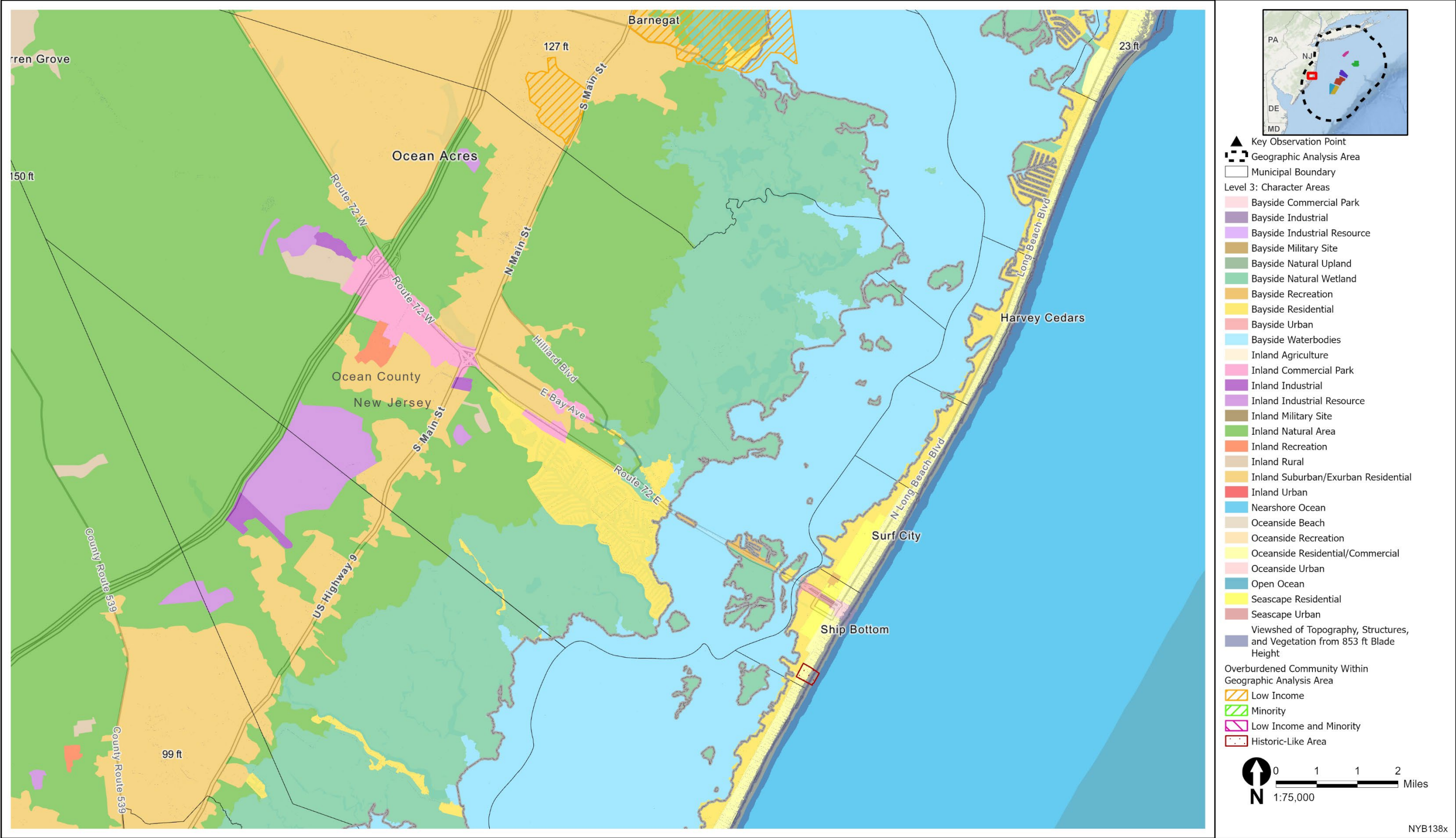
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MAP W



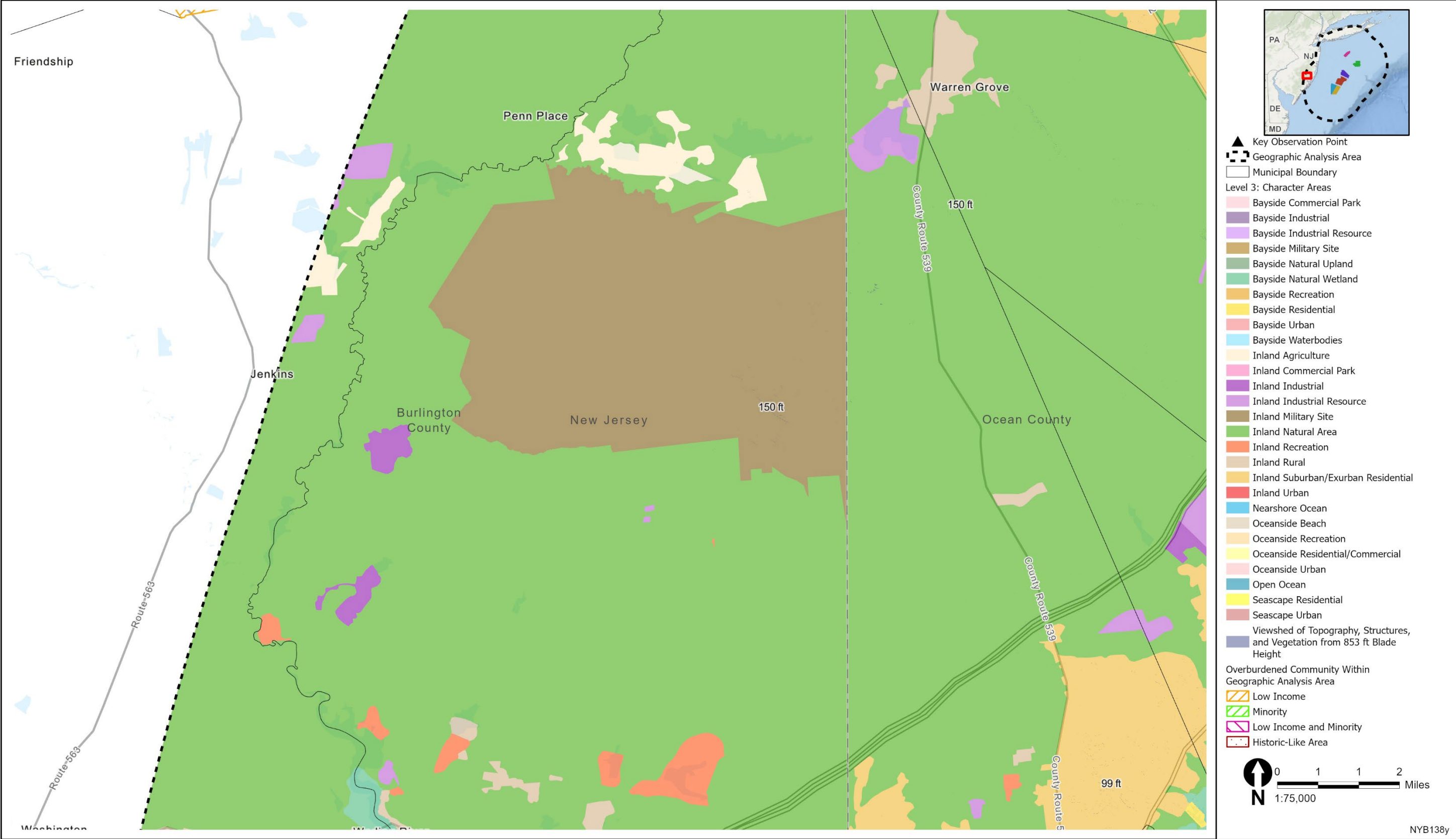
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP X



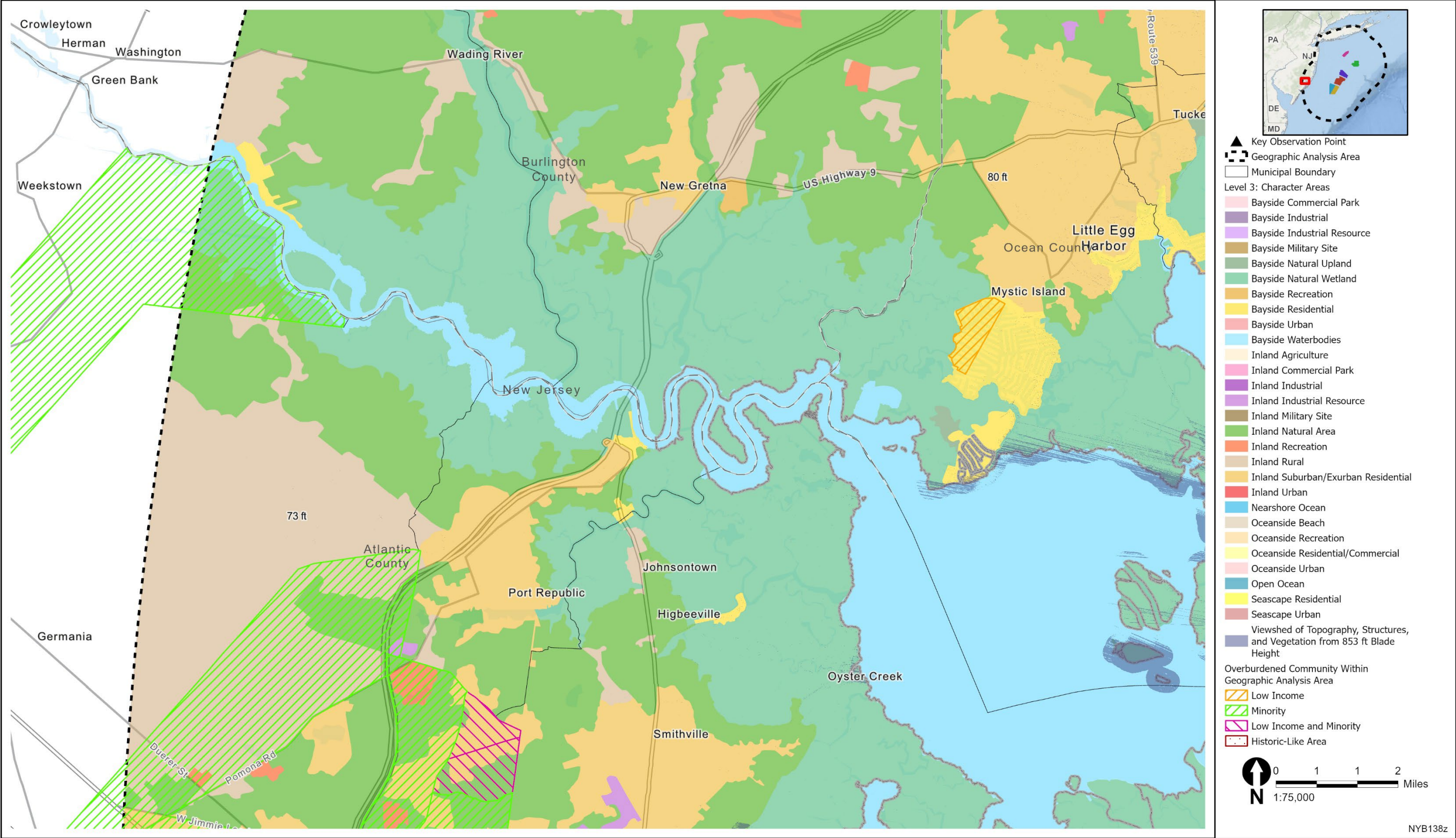
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP Y



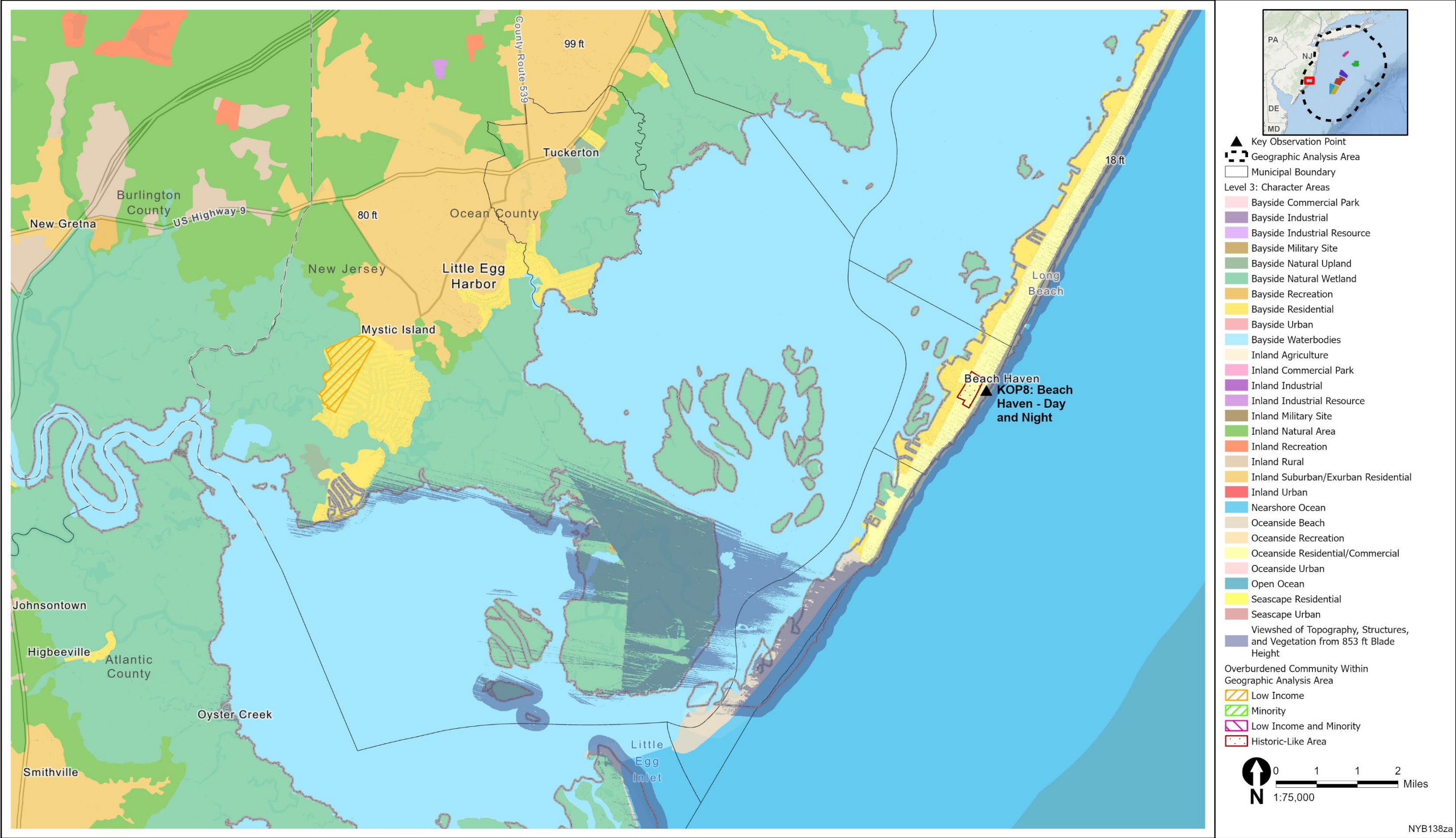
Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

MAP Z



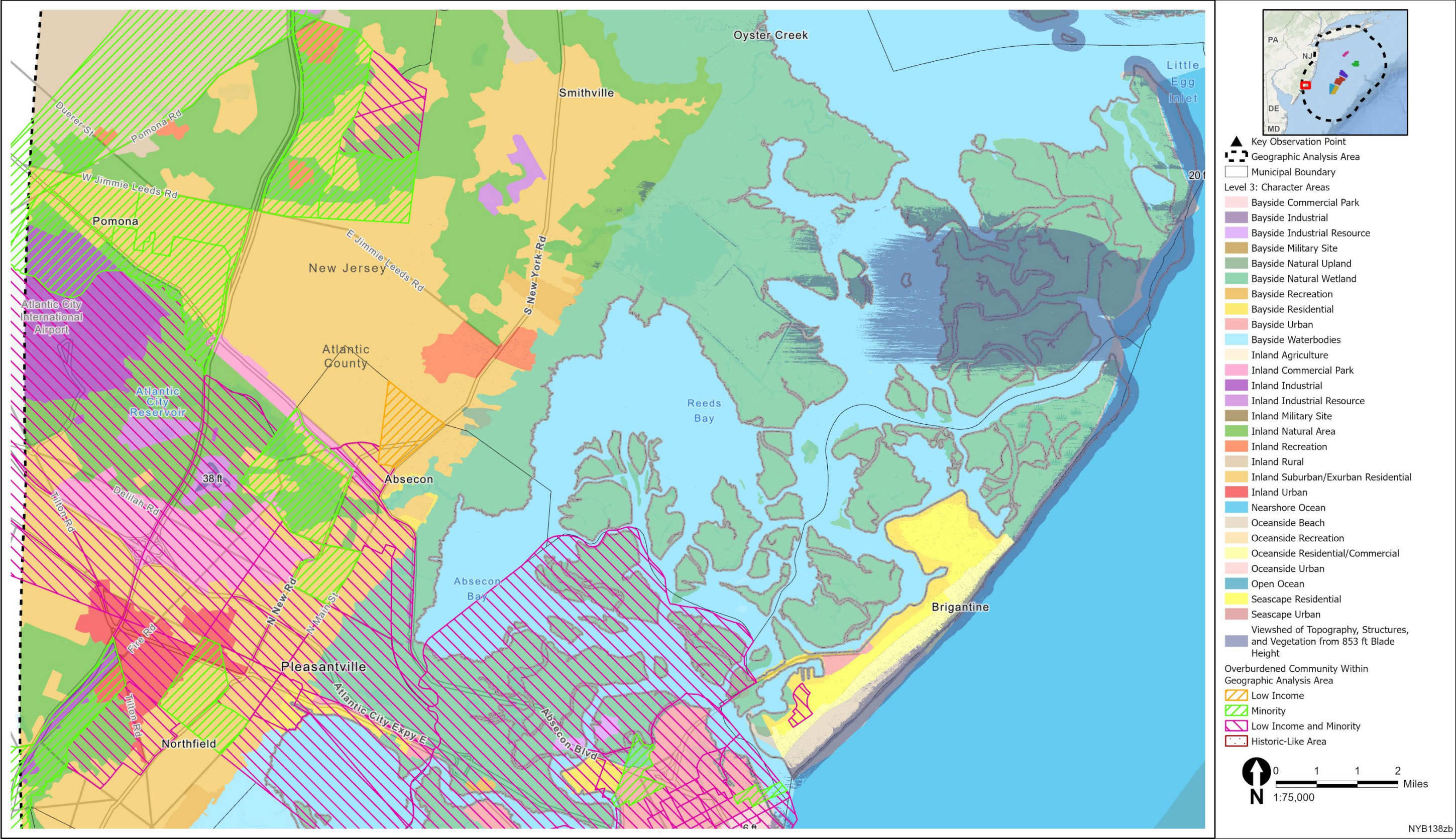
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MAP ZA



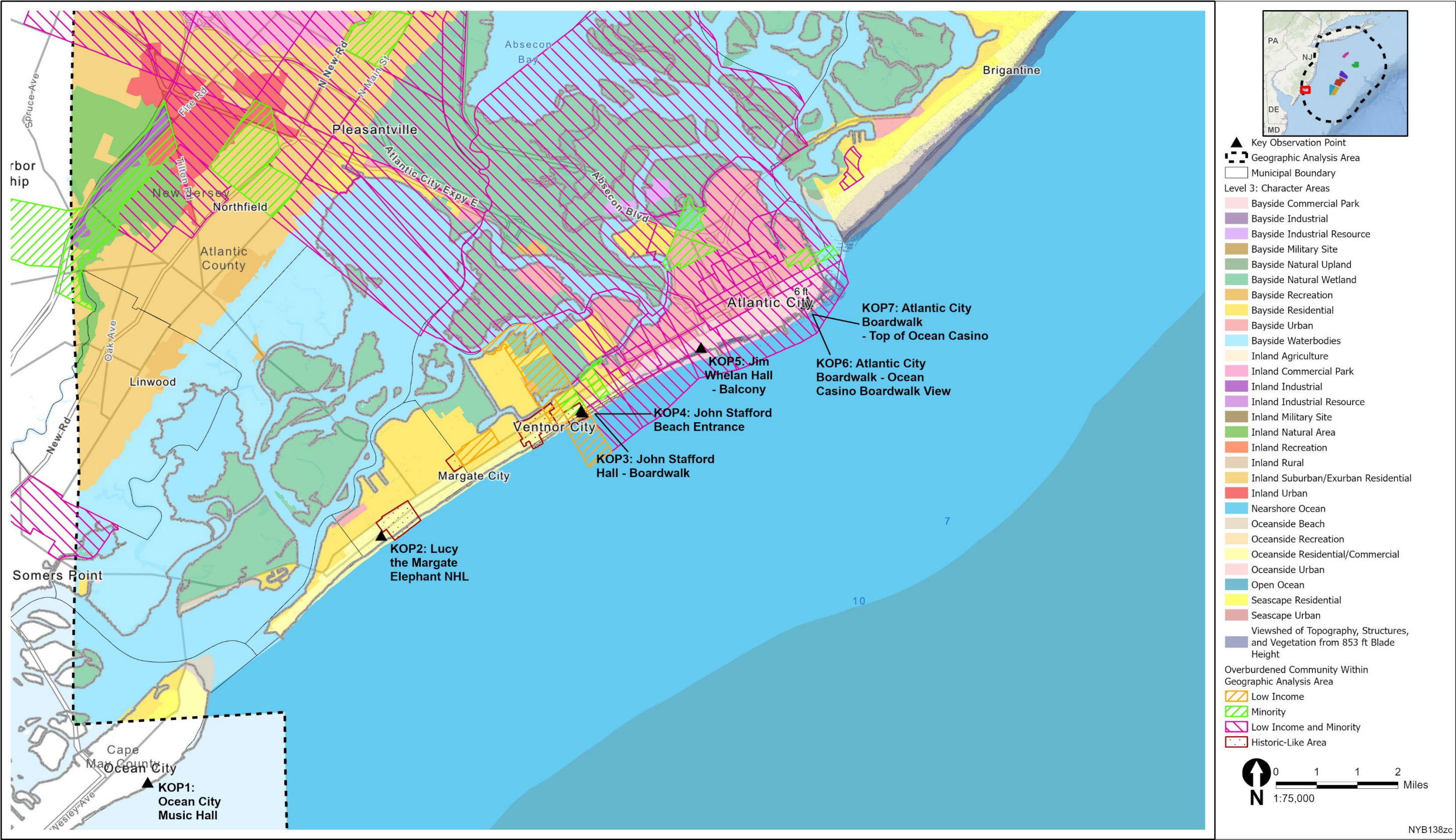
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MAP ZB

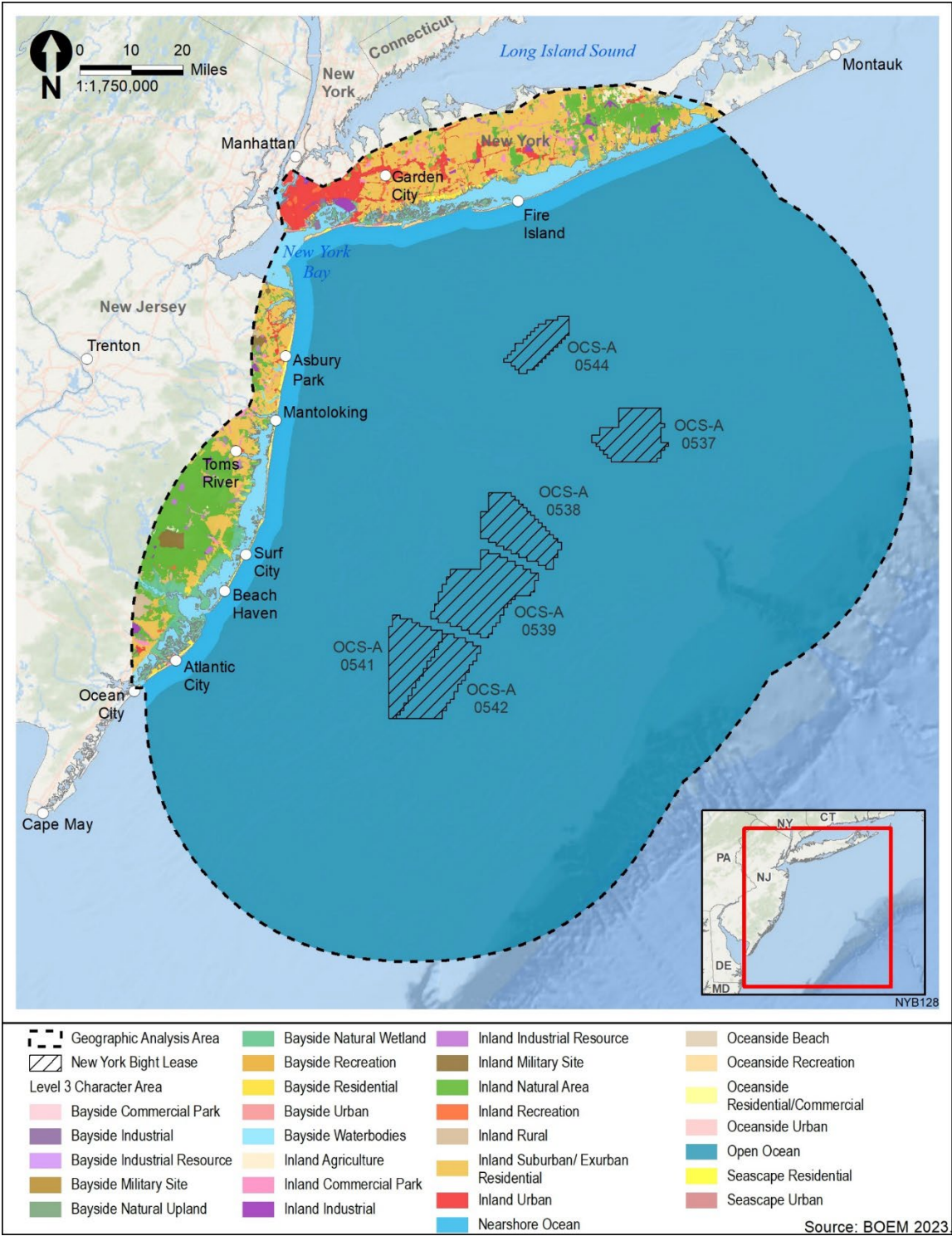


Series 4: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 853 ft Blade Height

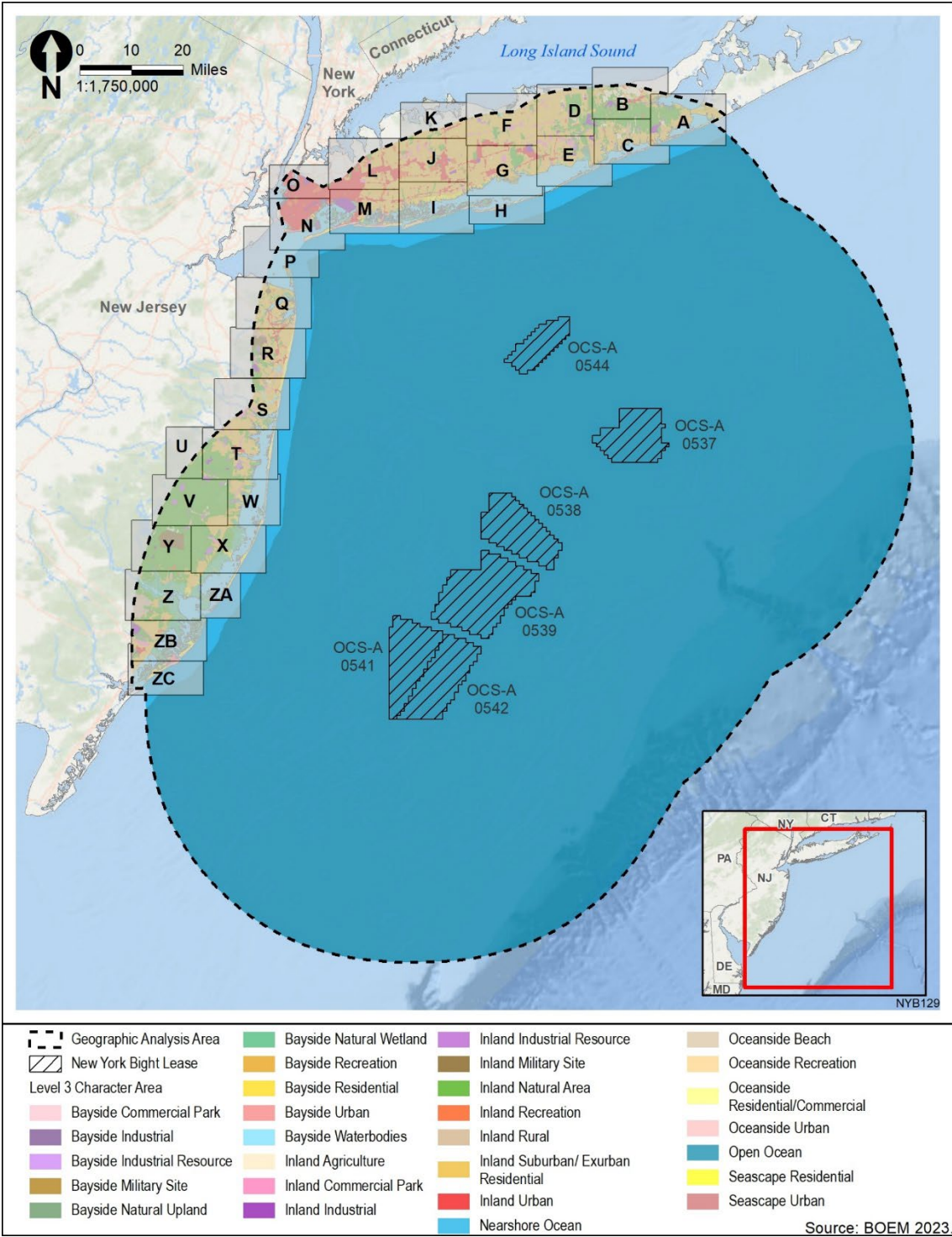
MAP ZC



Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height—Overview Map

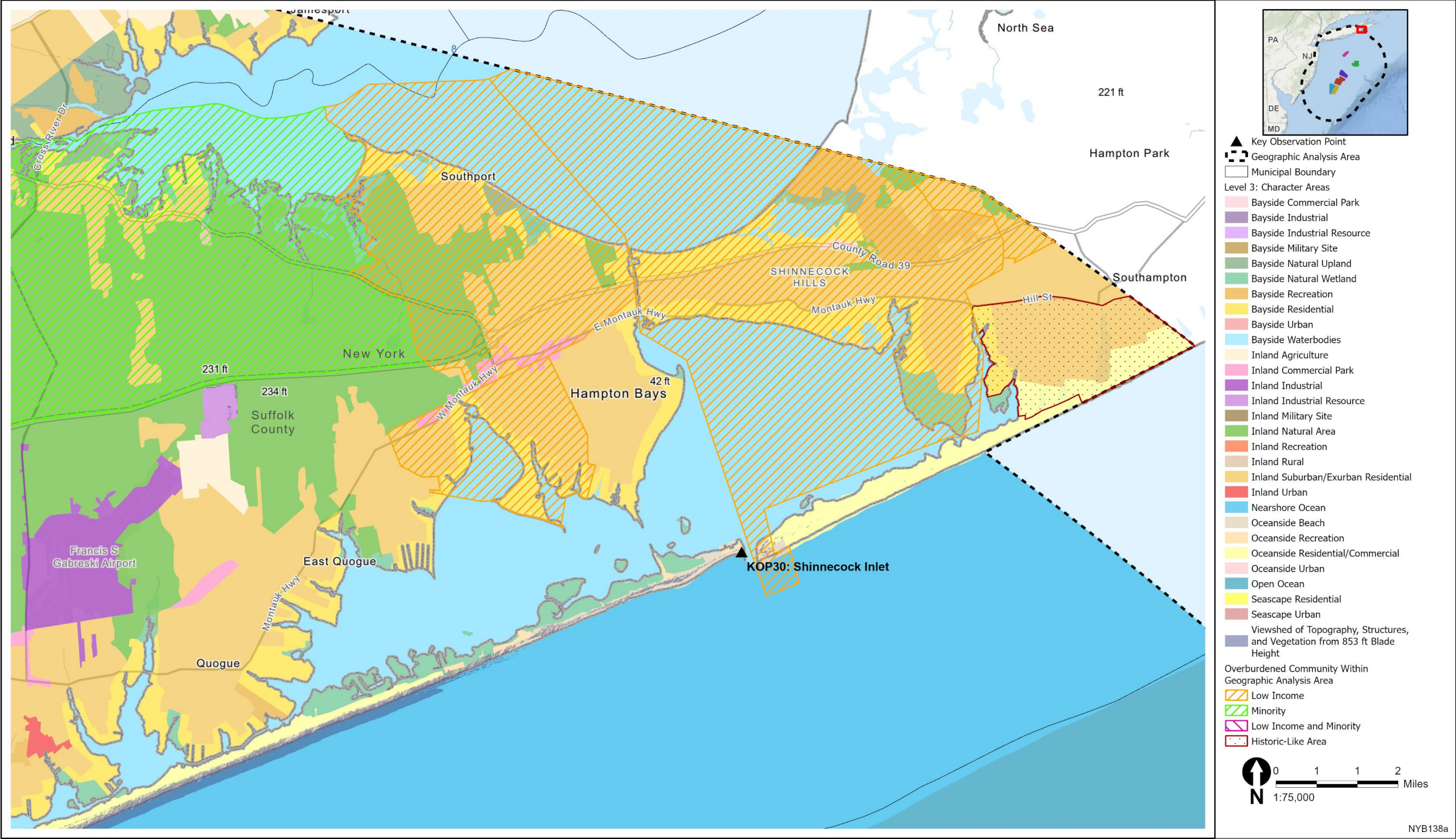


Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height—Grid Index Overview



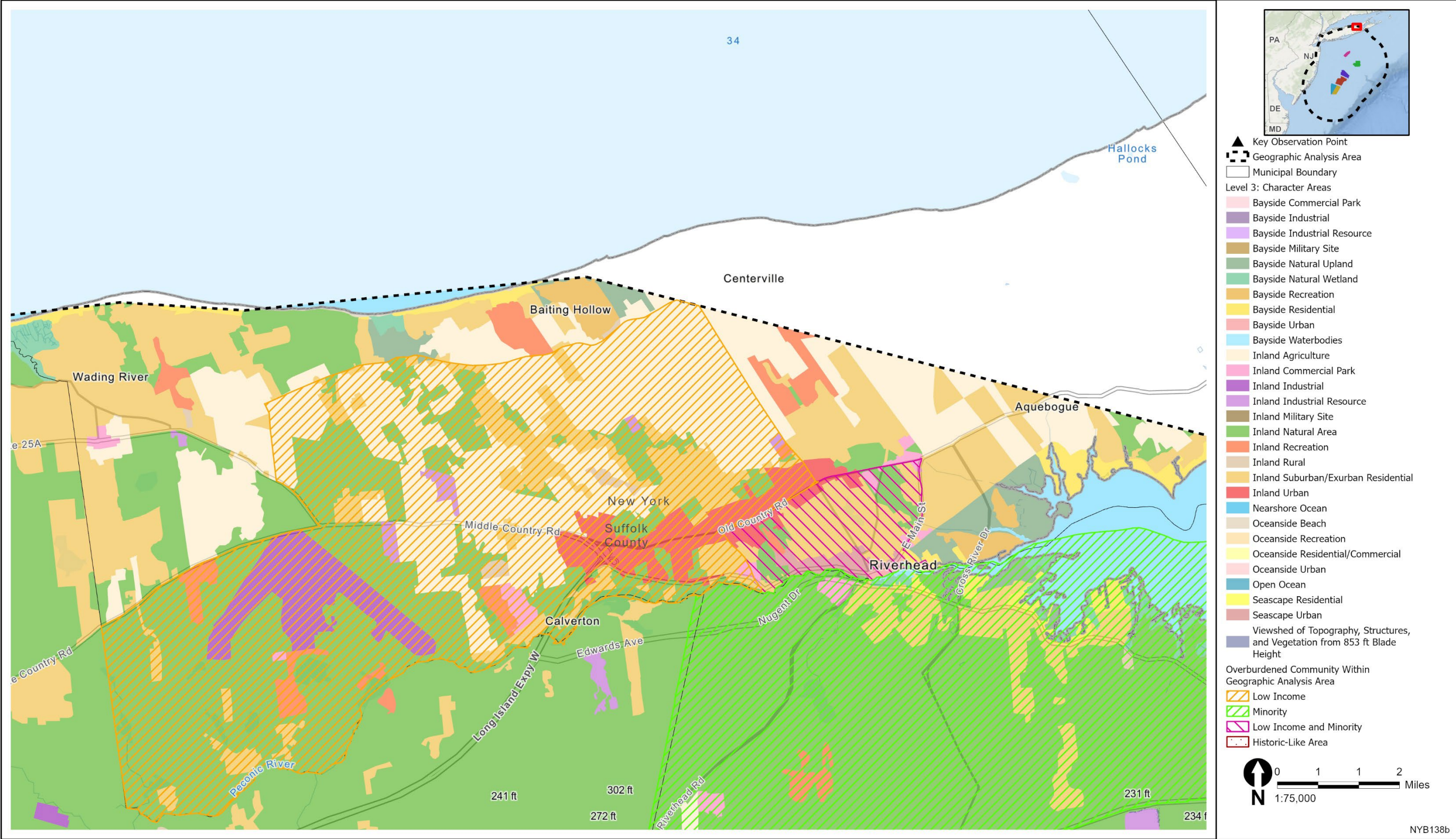
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP A



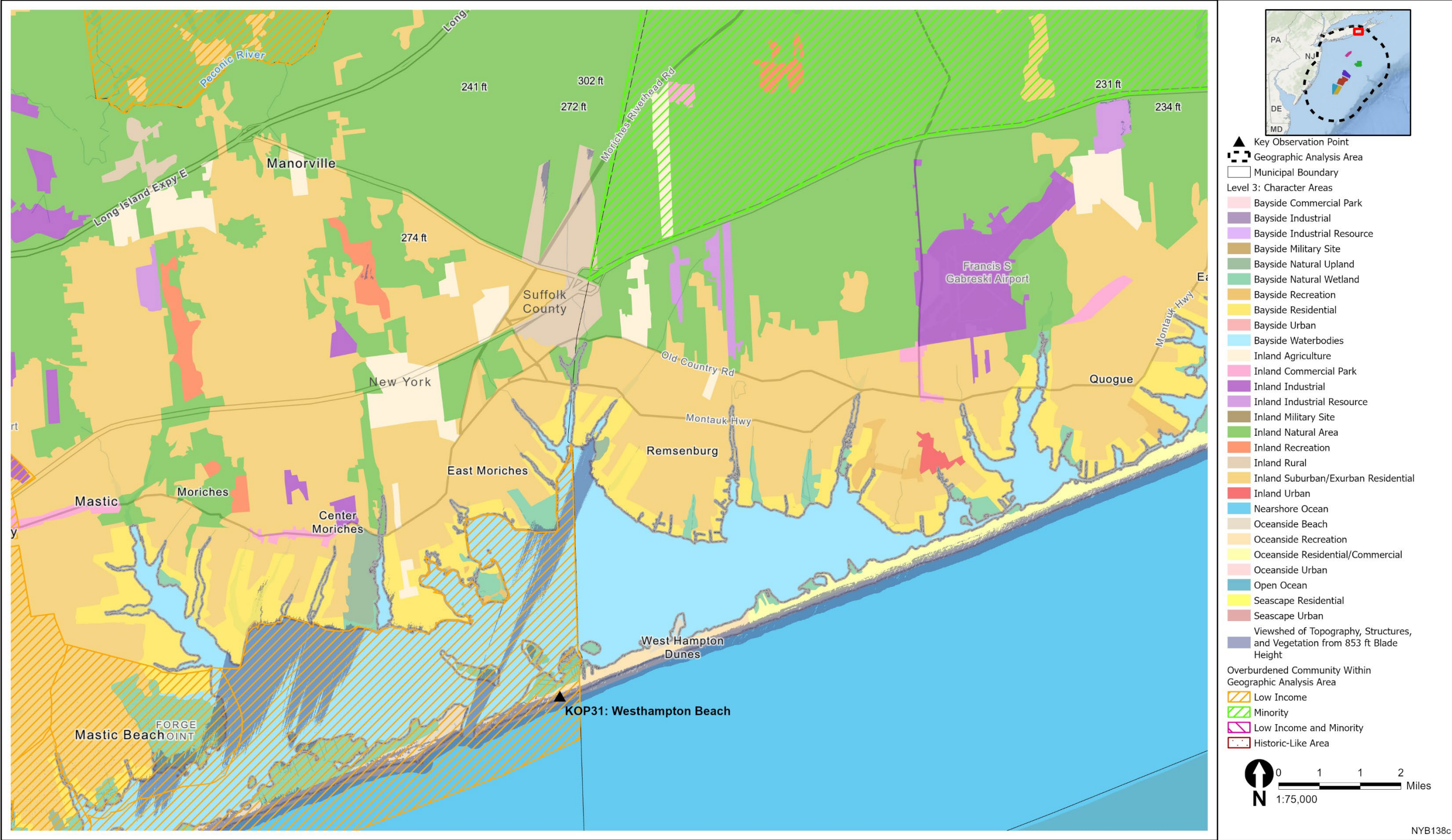
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP B



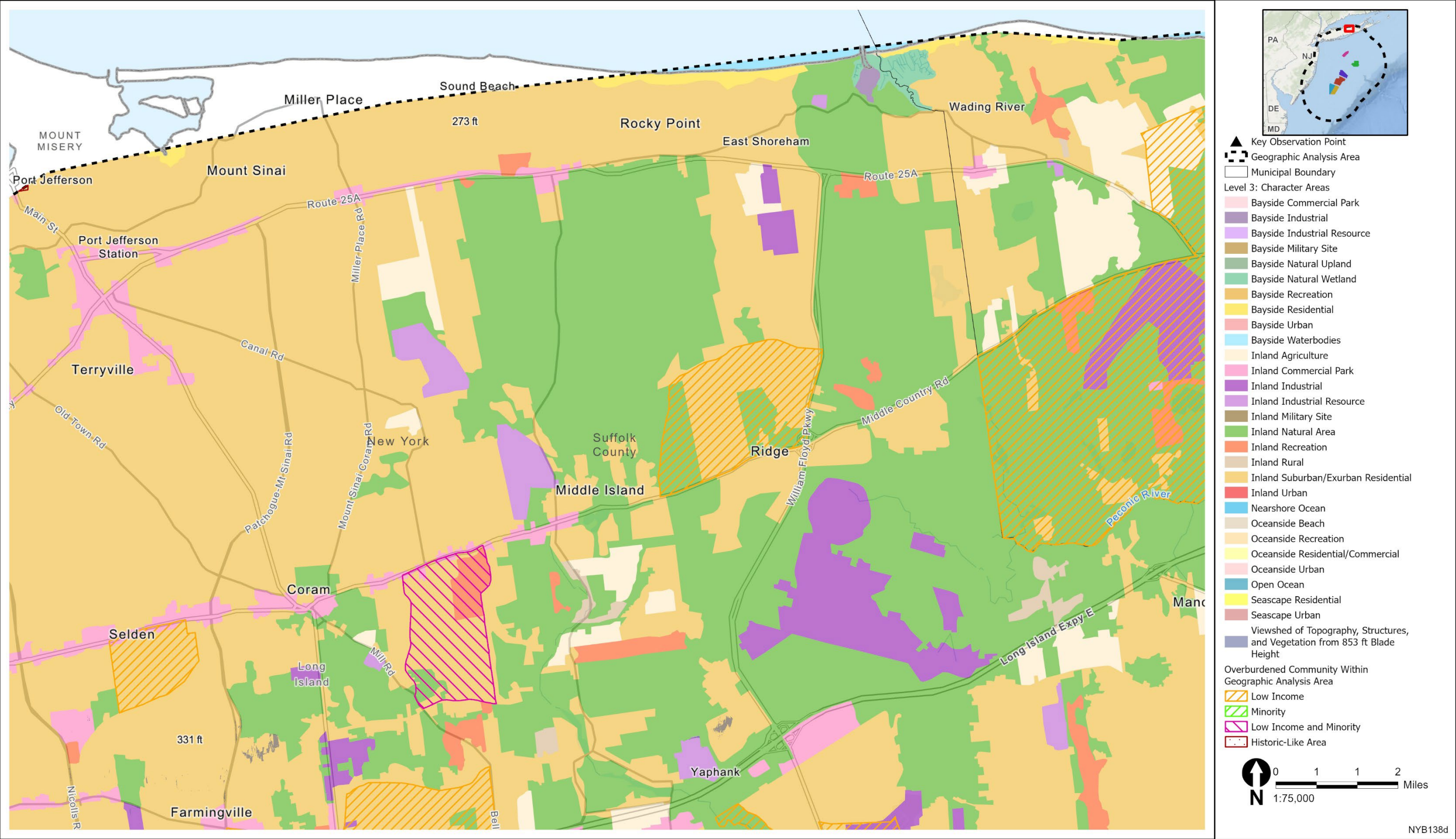
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MAP C



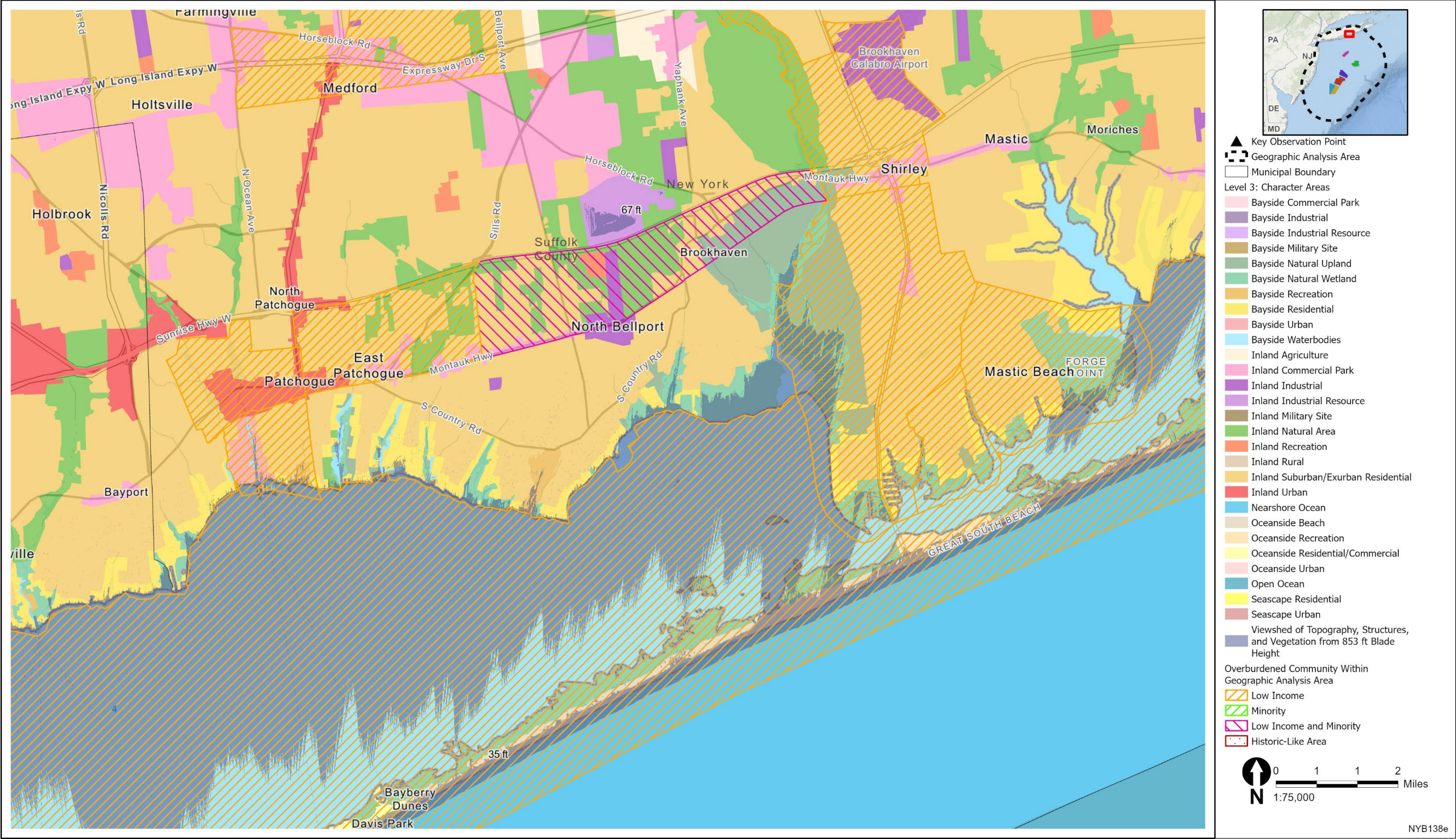
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MAP D



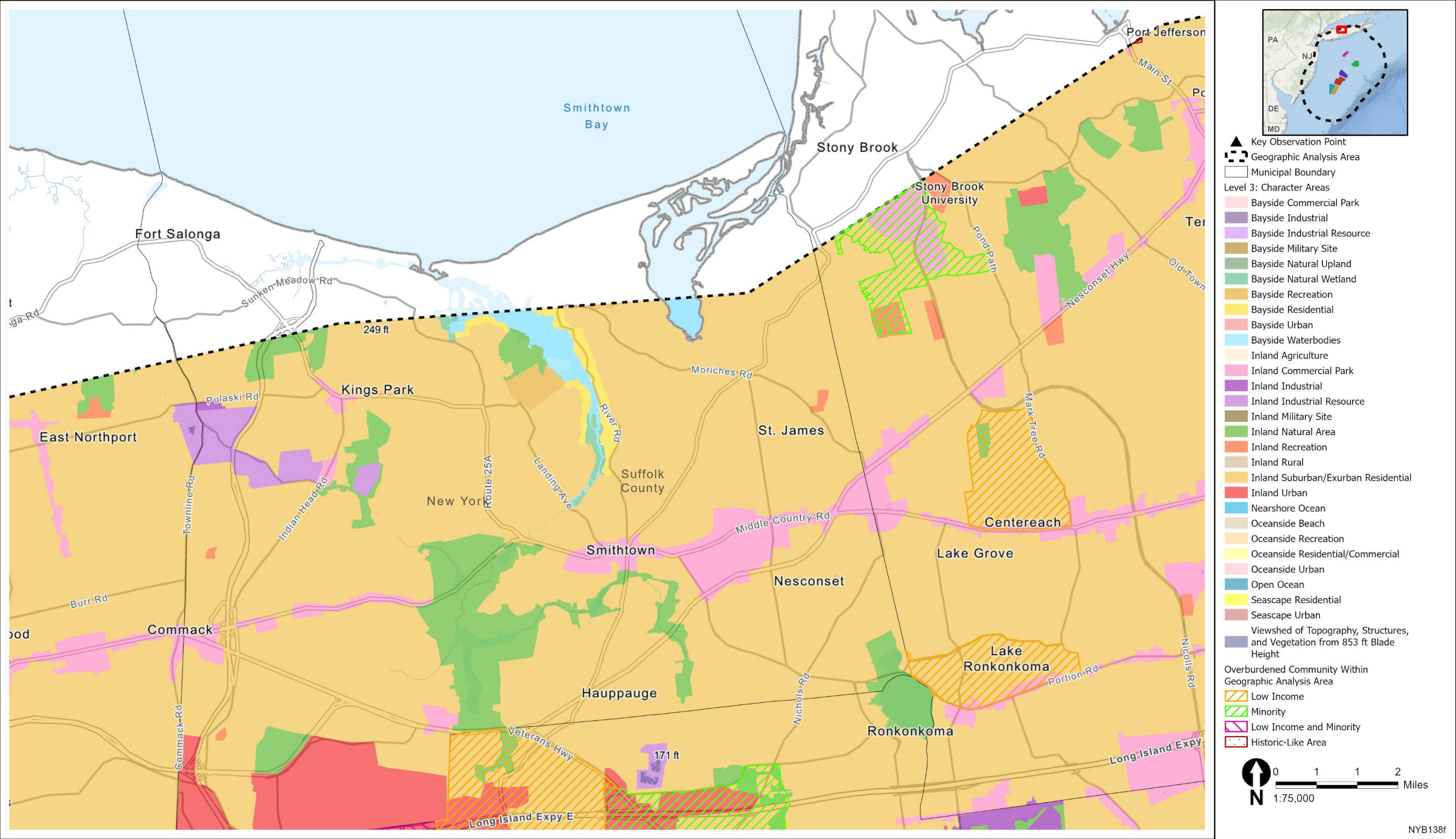
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP E



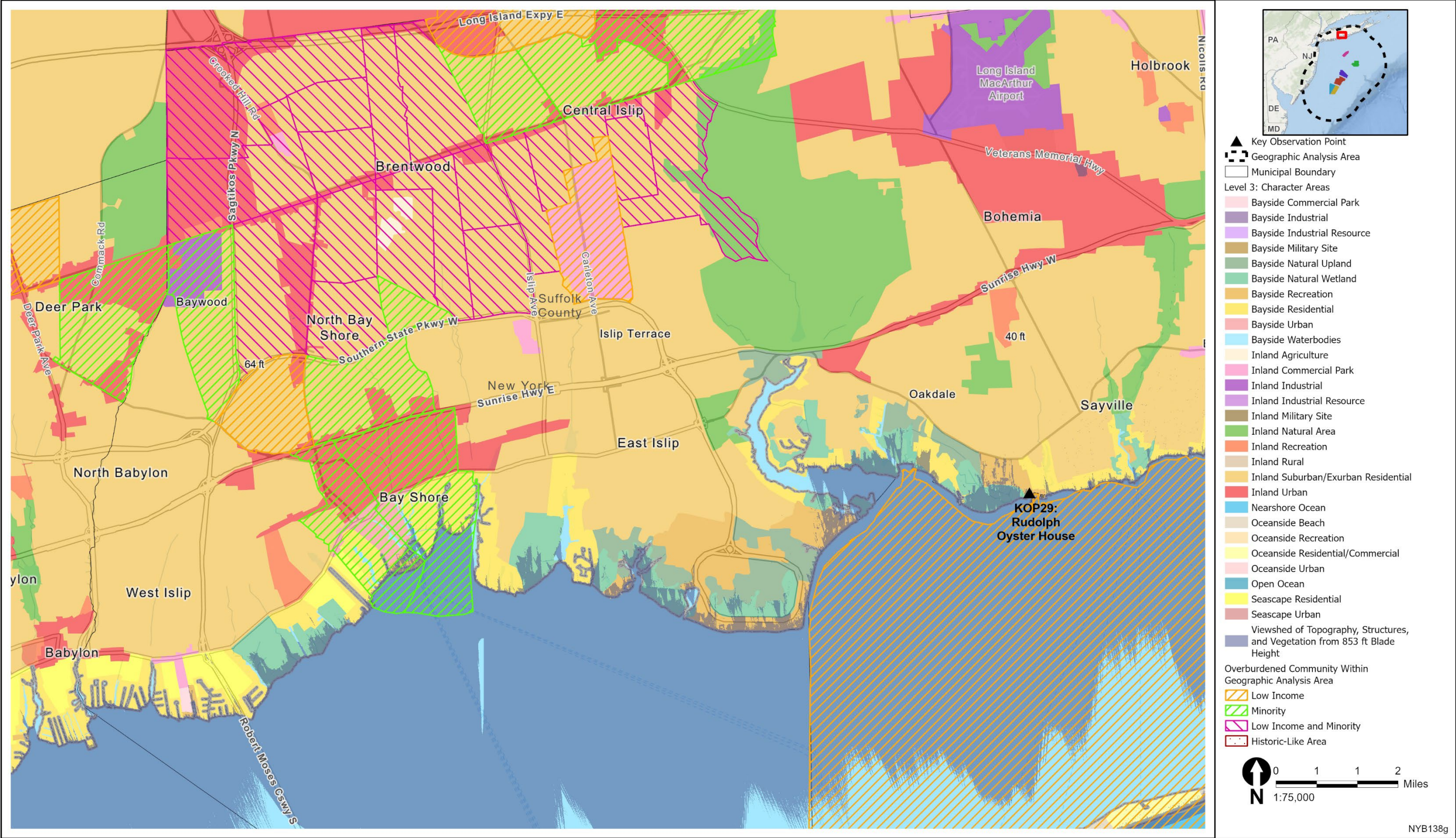
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP F



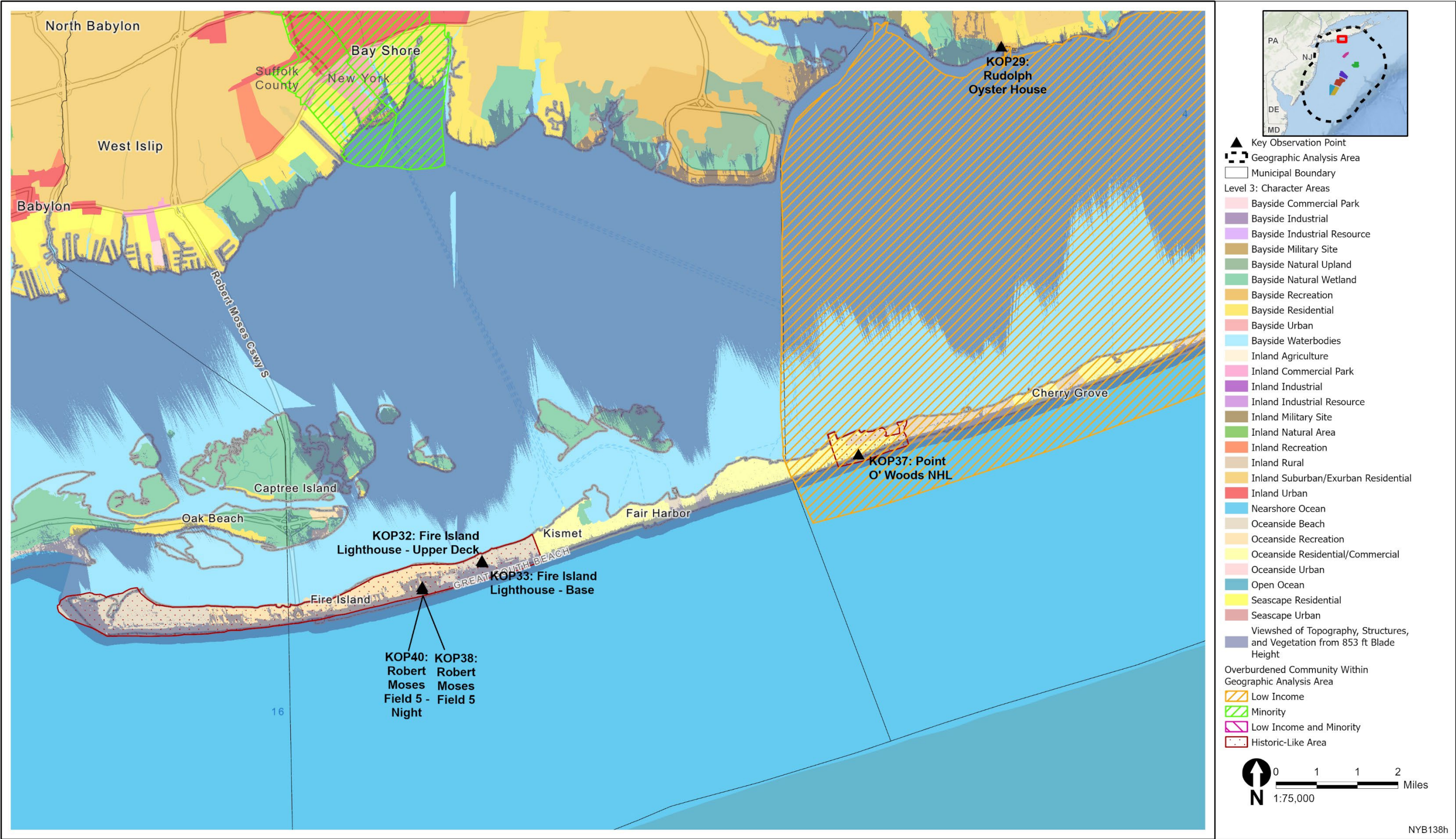
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP G



Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

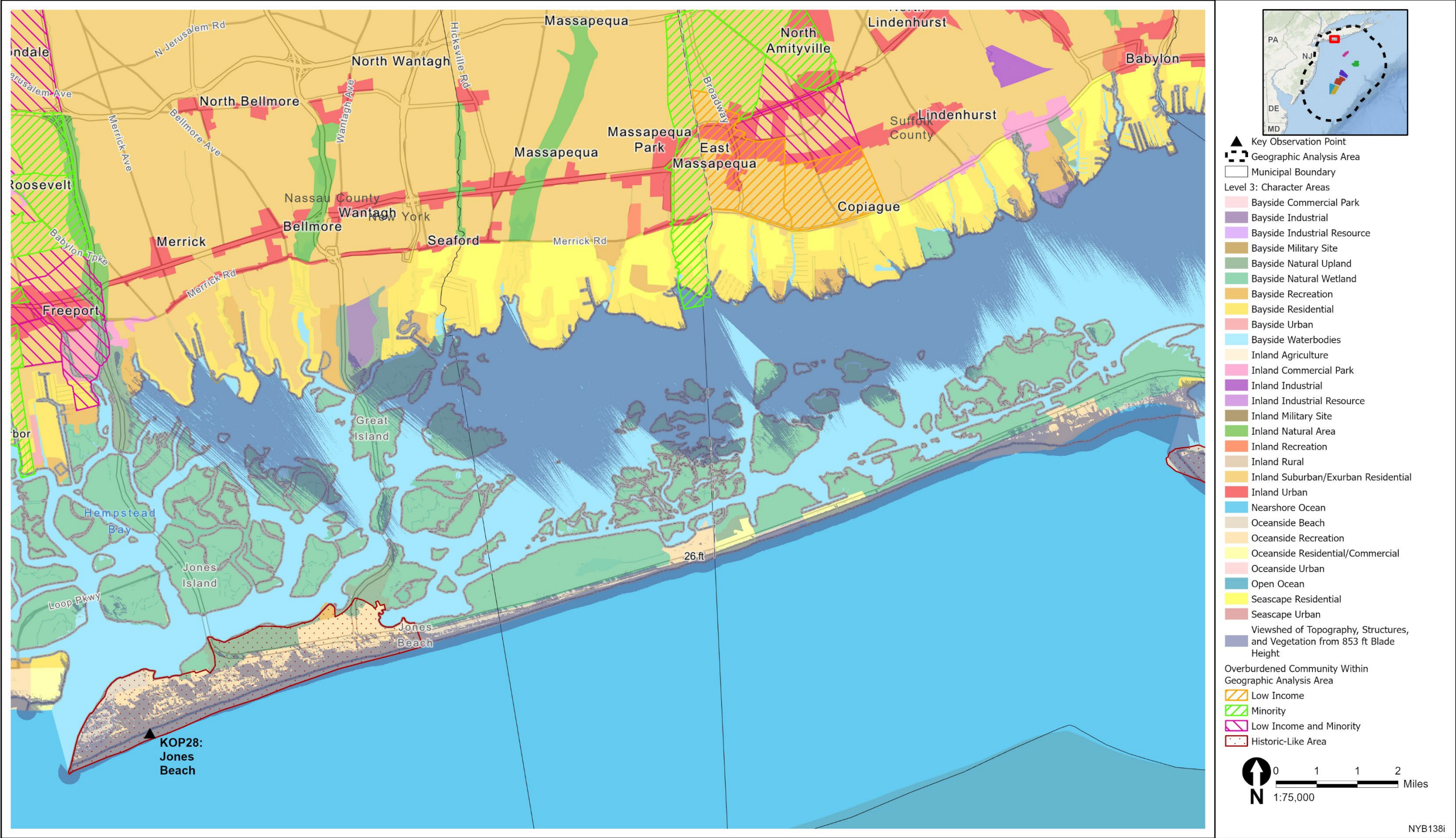
MAP H



NYB138h

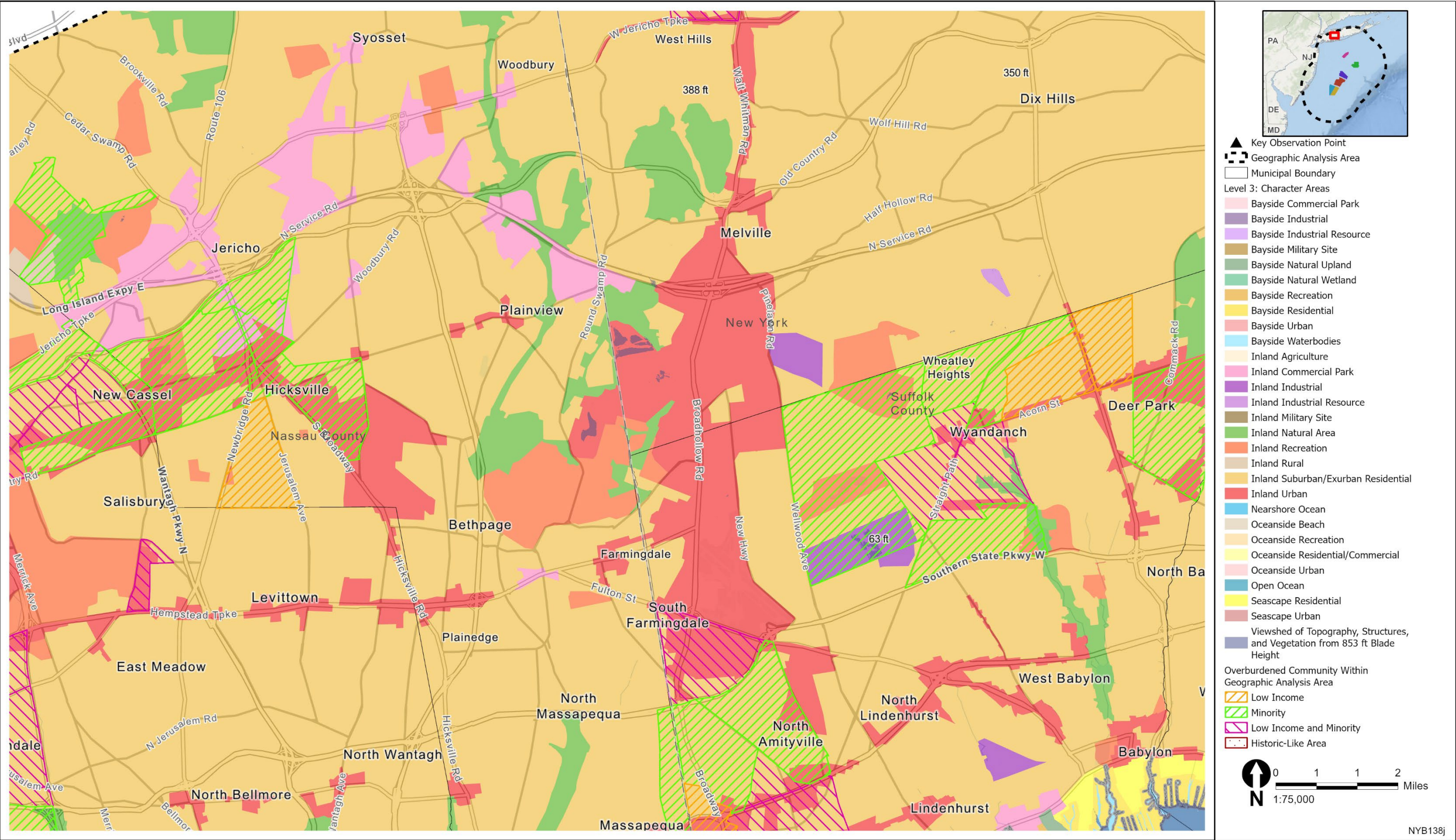
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP I



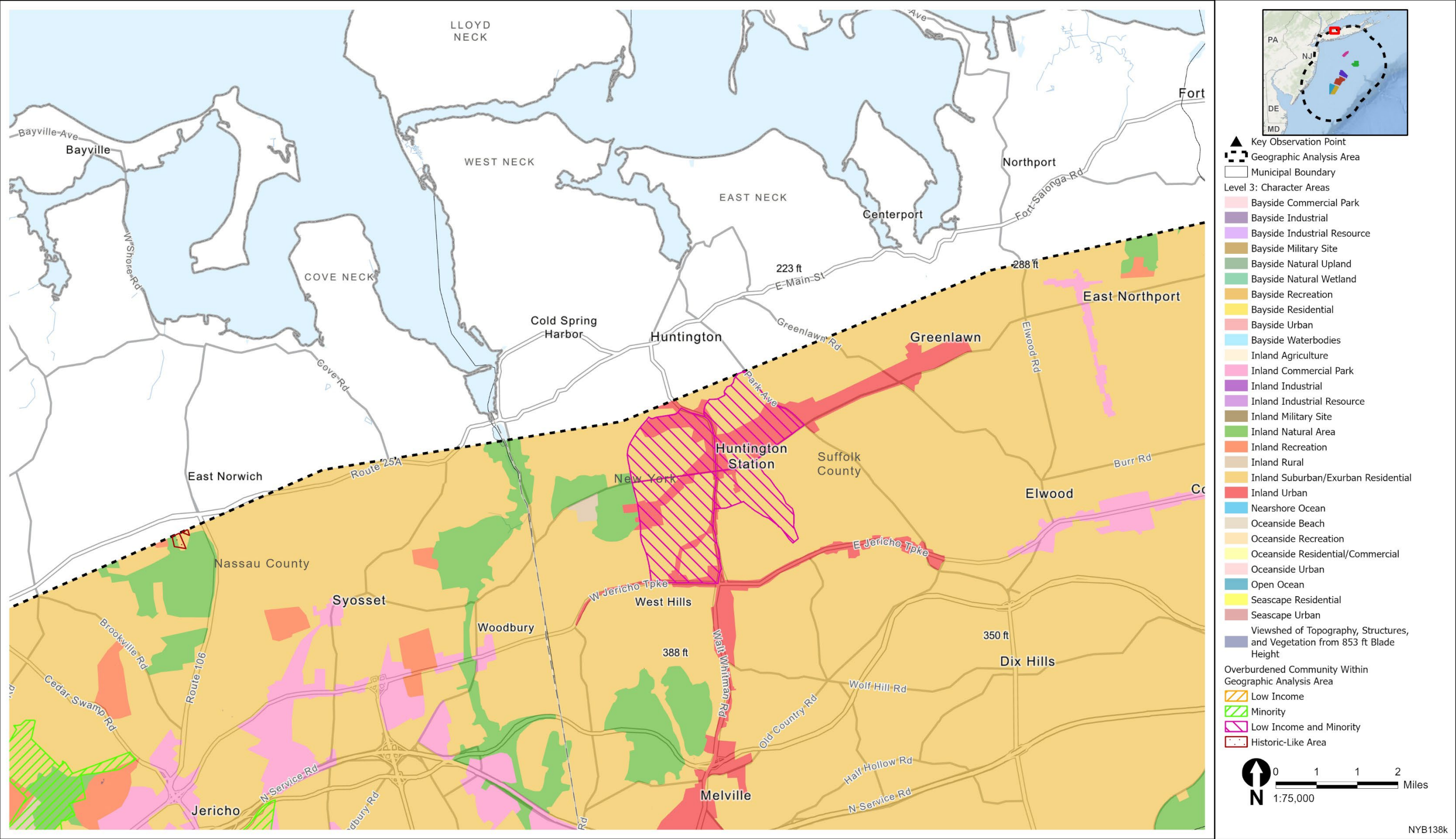
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP J



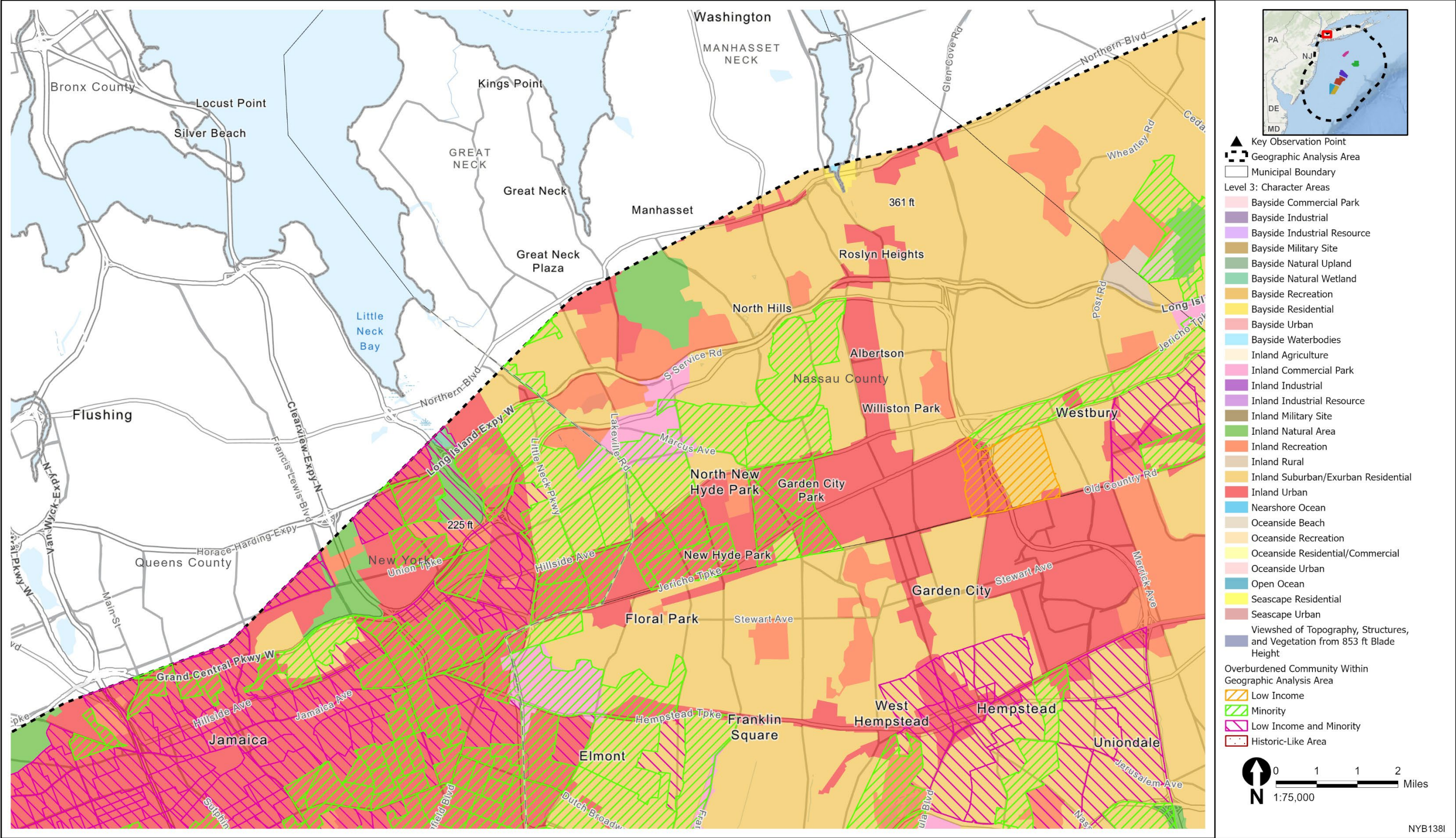
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP K



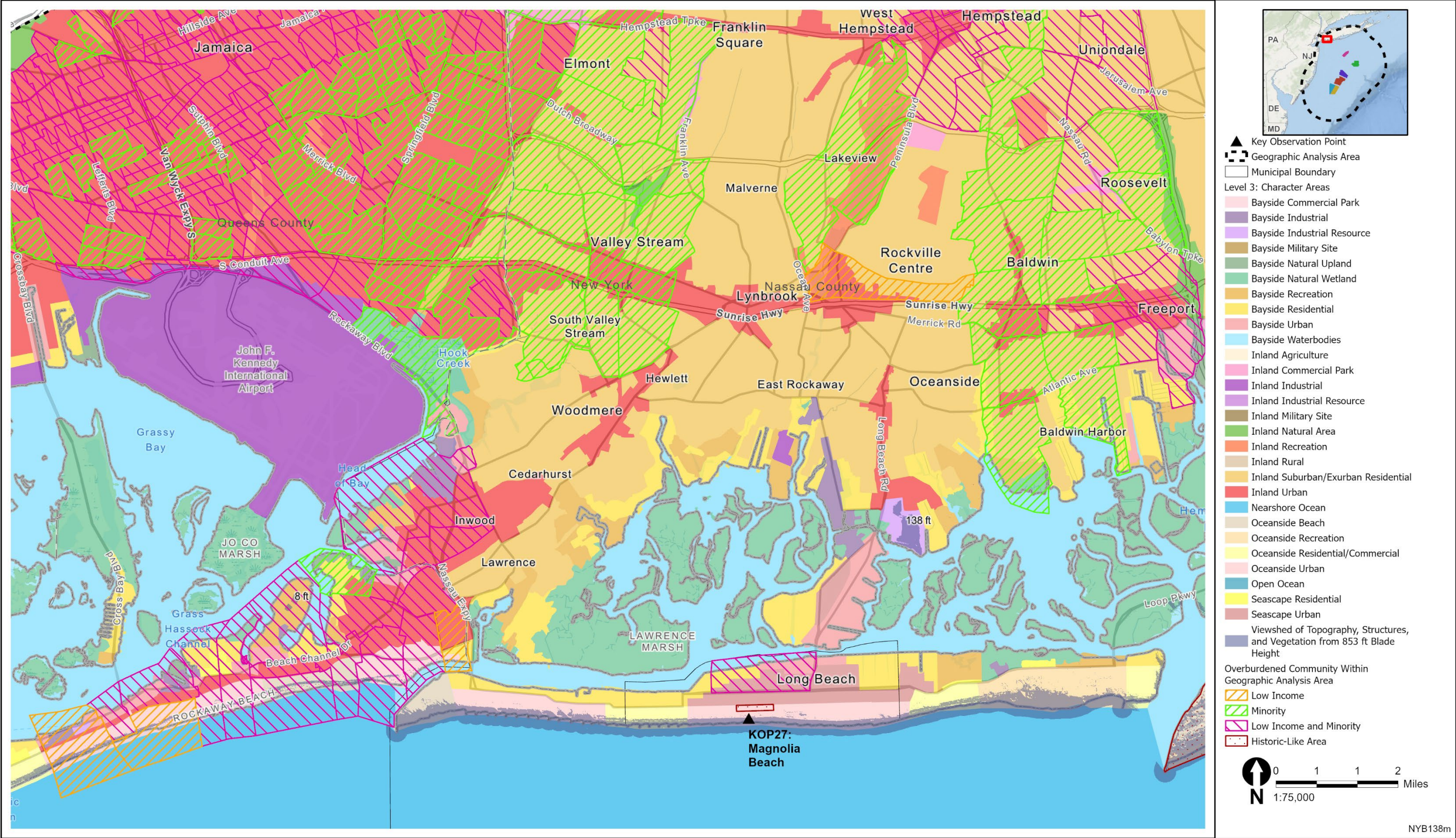
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MAP L



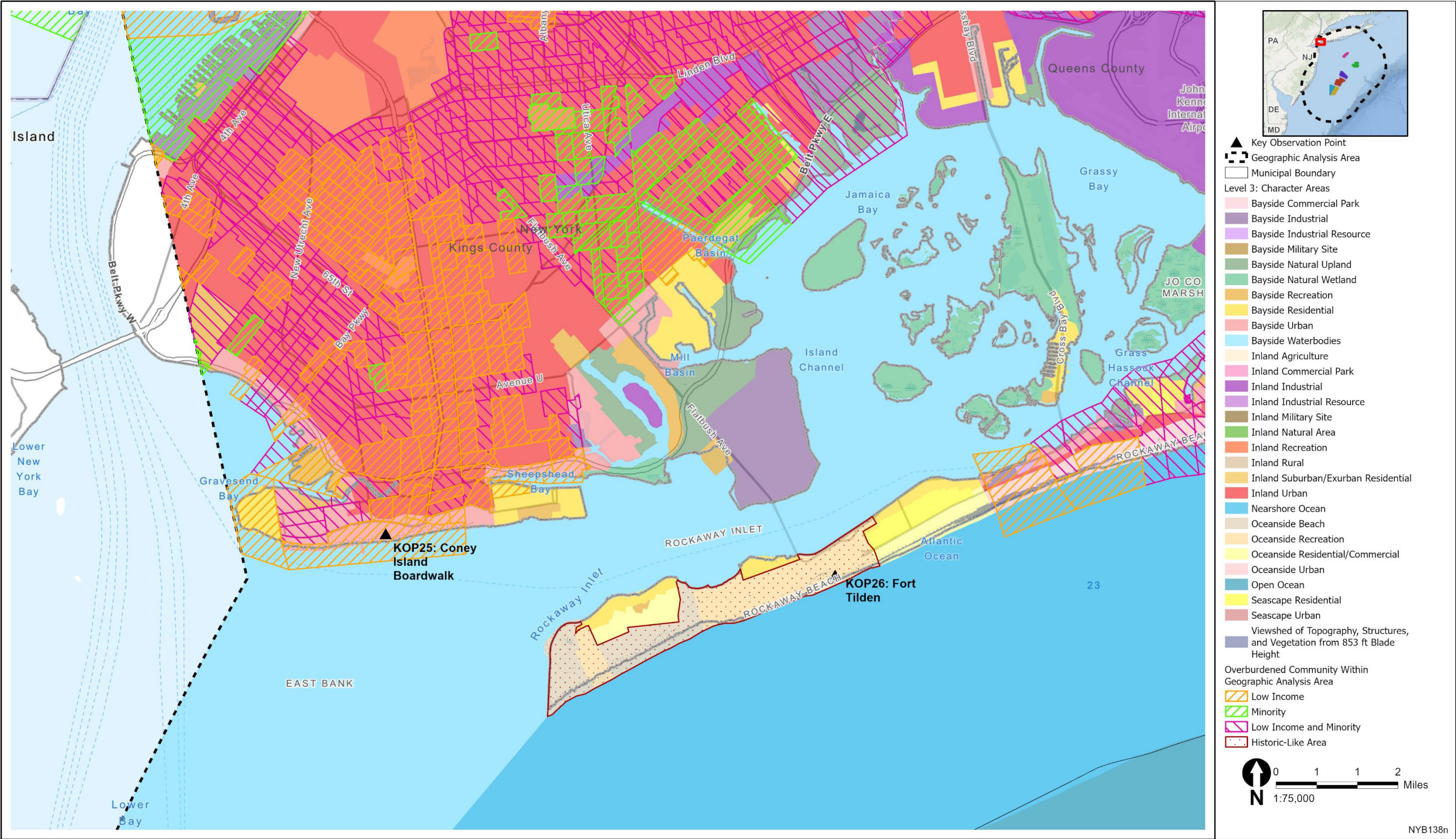
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP M



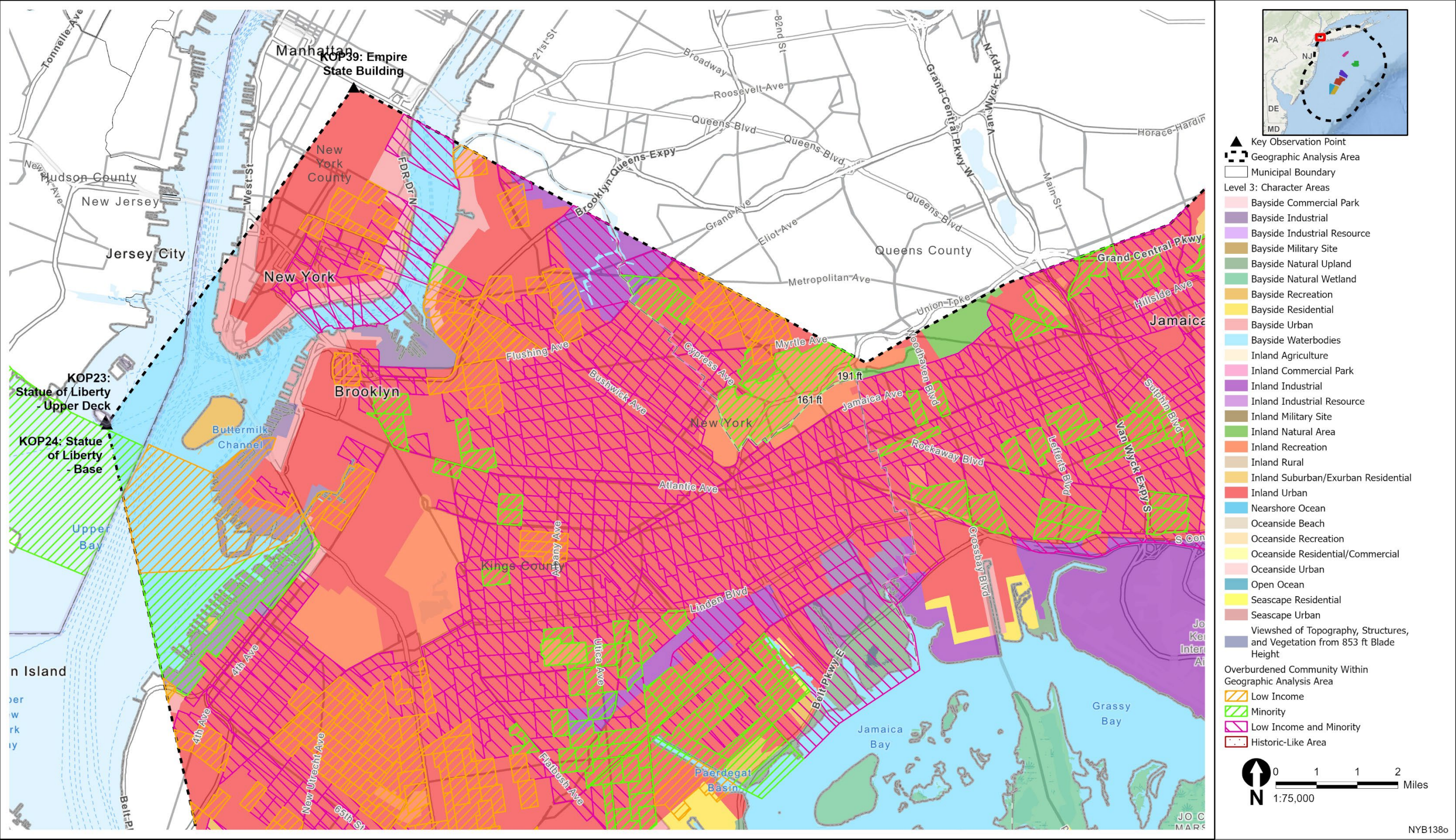
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP N



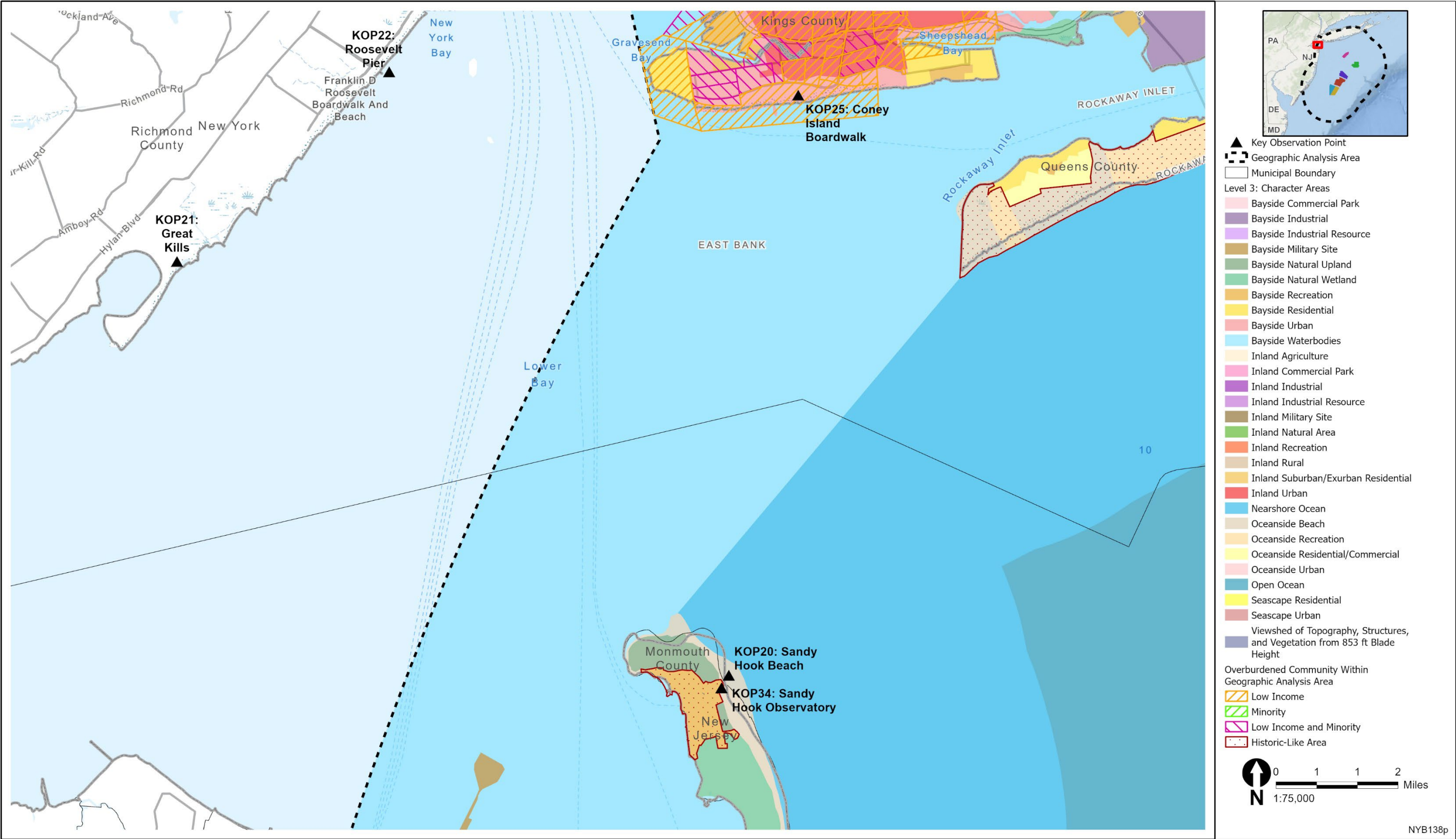
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP O



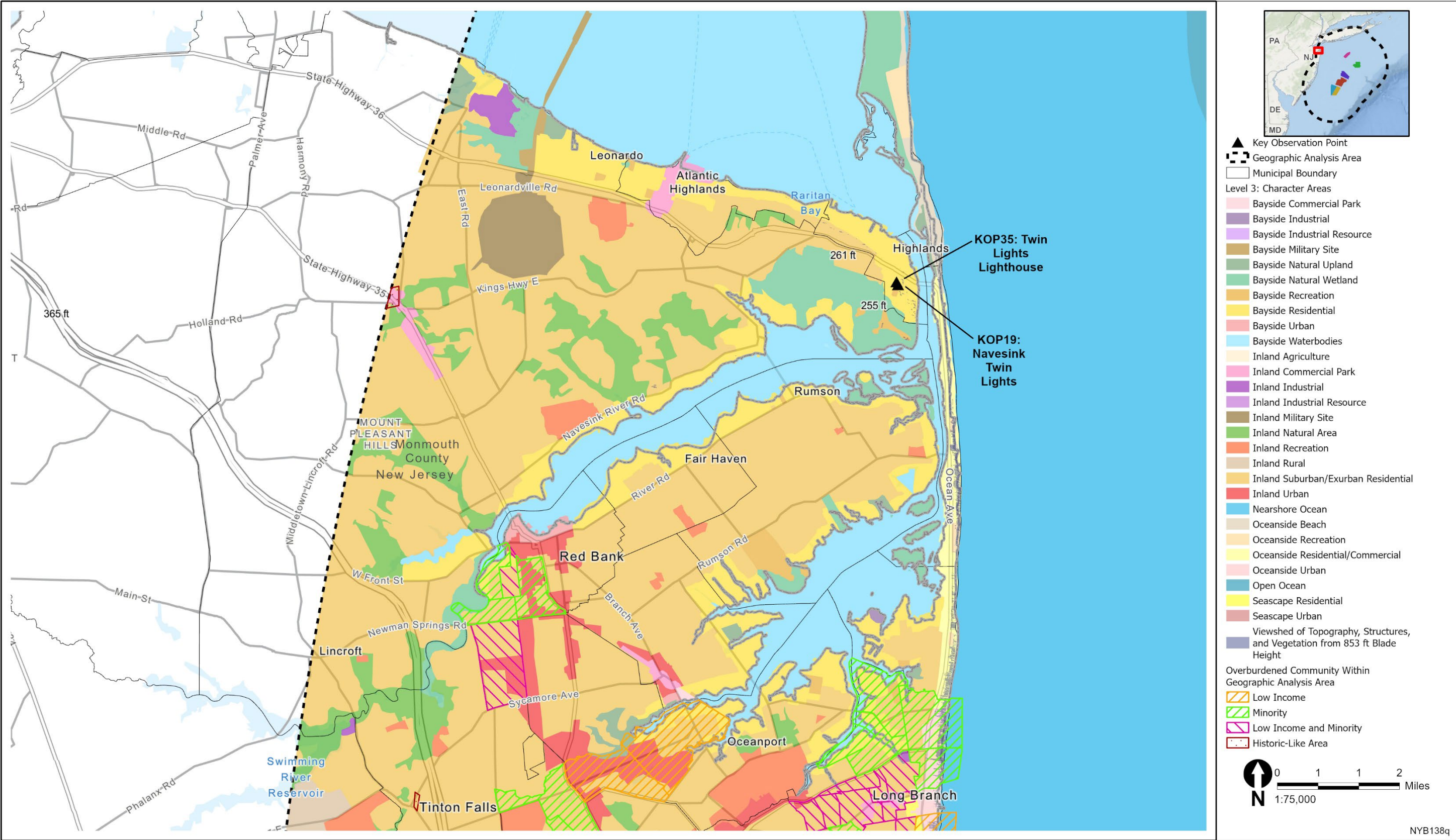
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP P



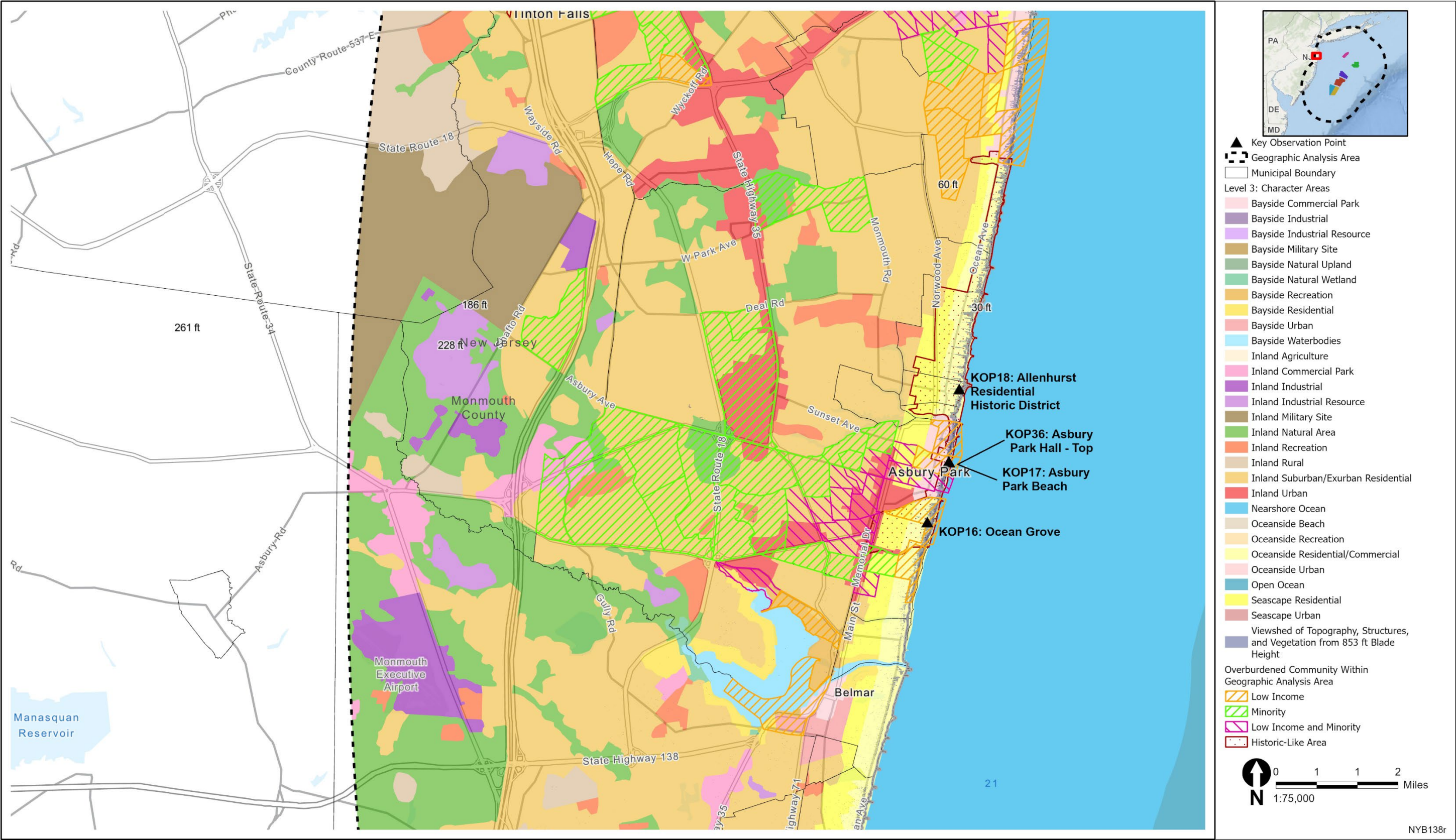
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MAP Q



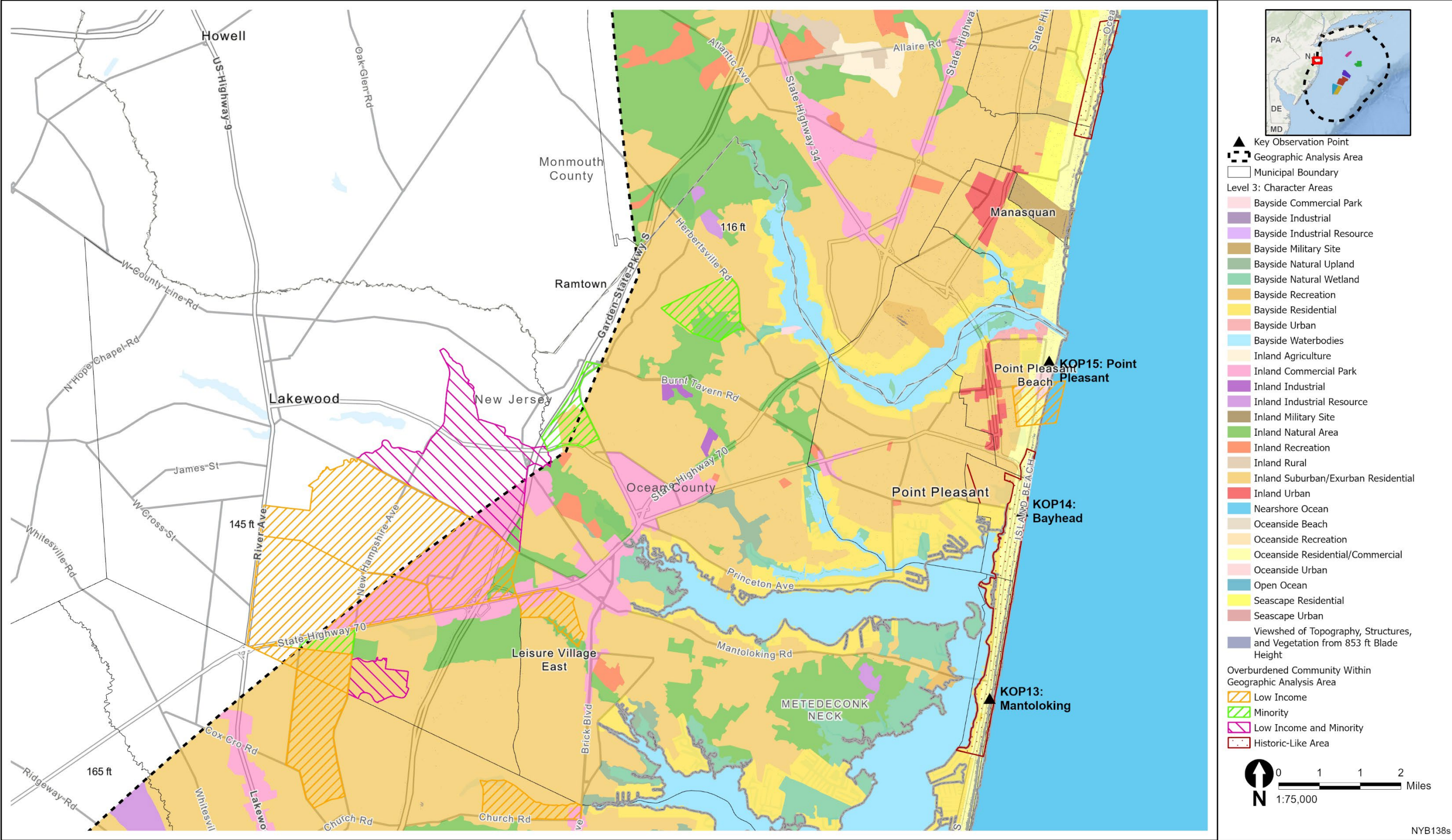
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MAP R



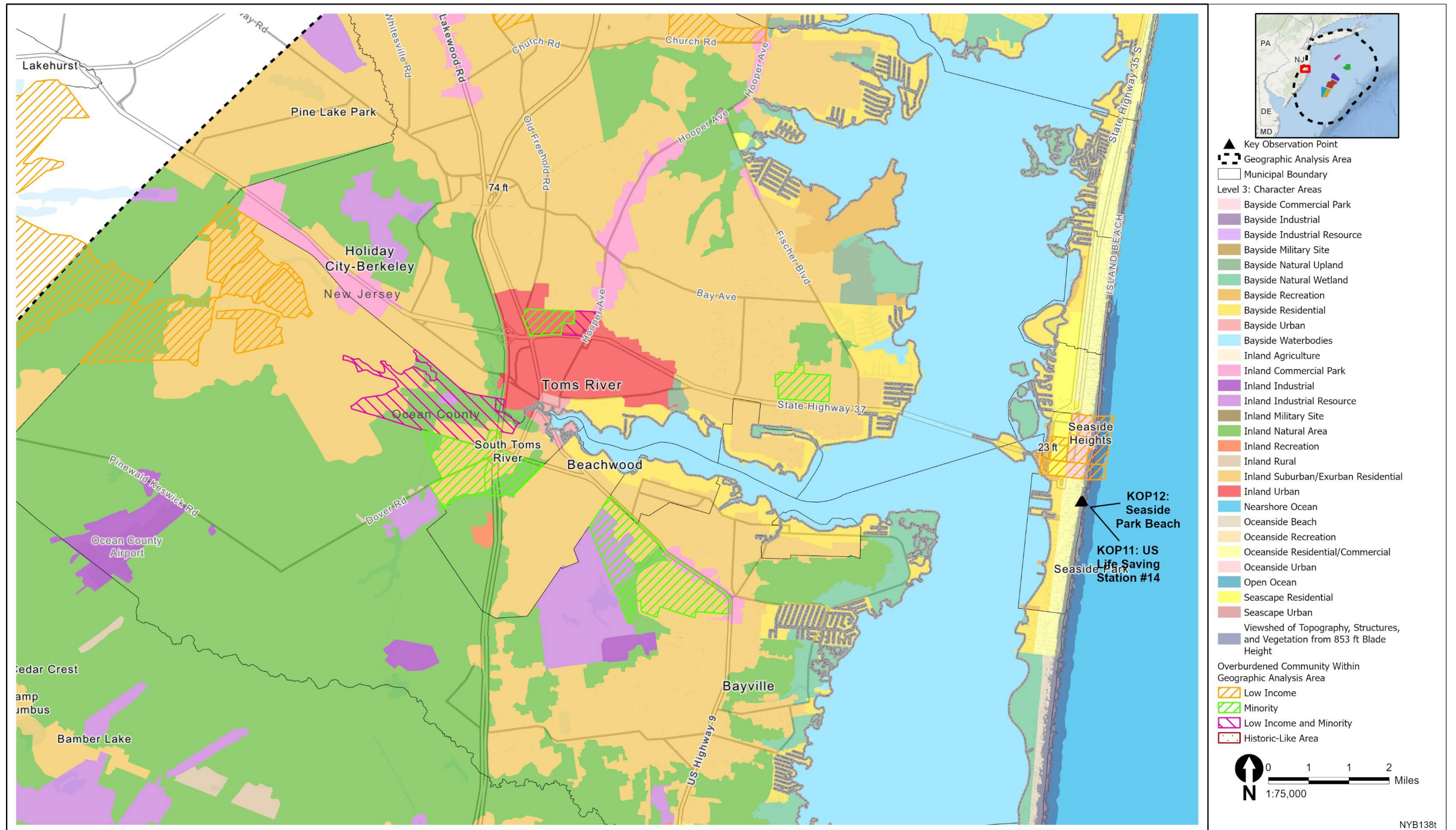
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP S



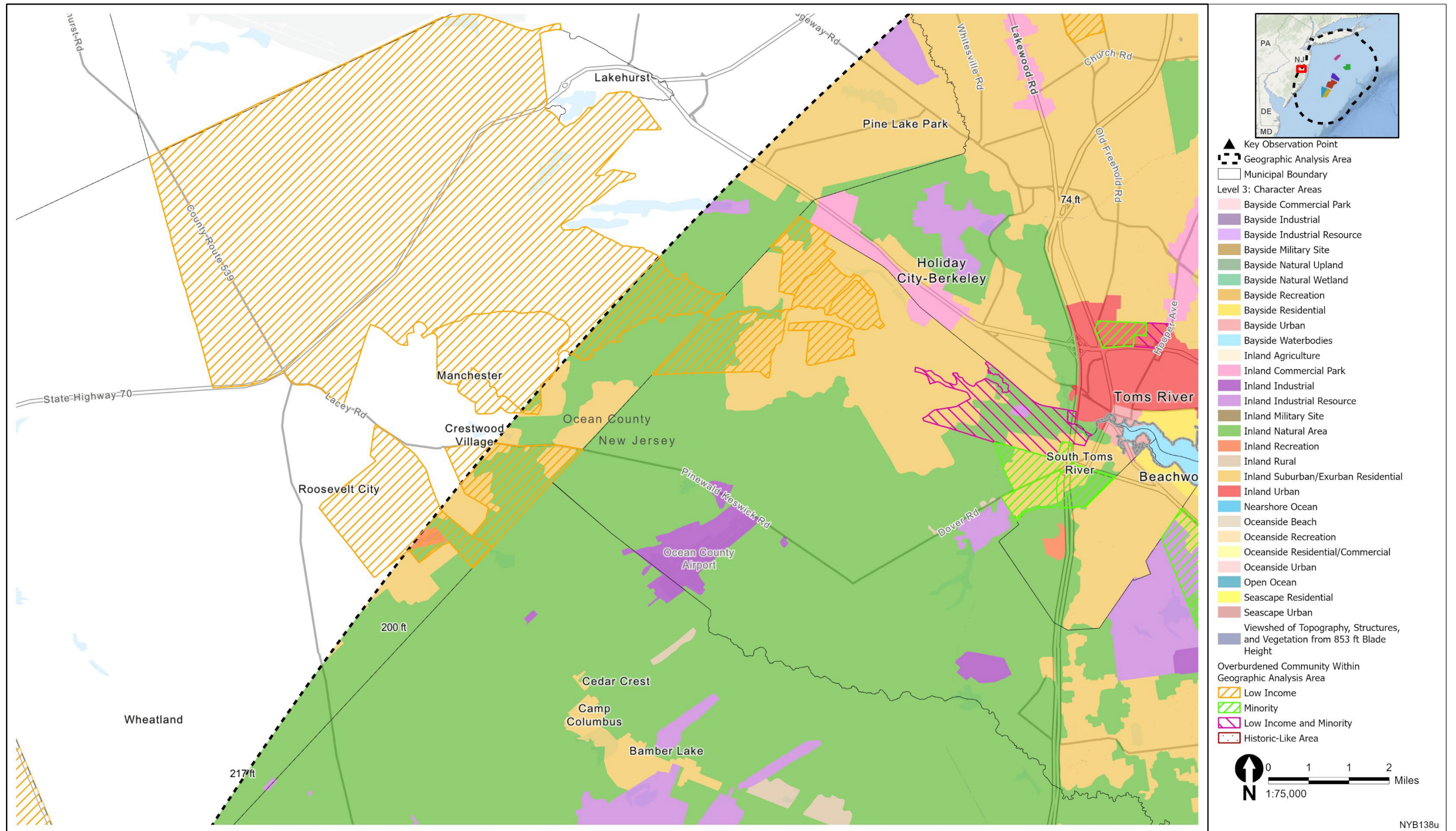
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP T



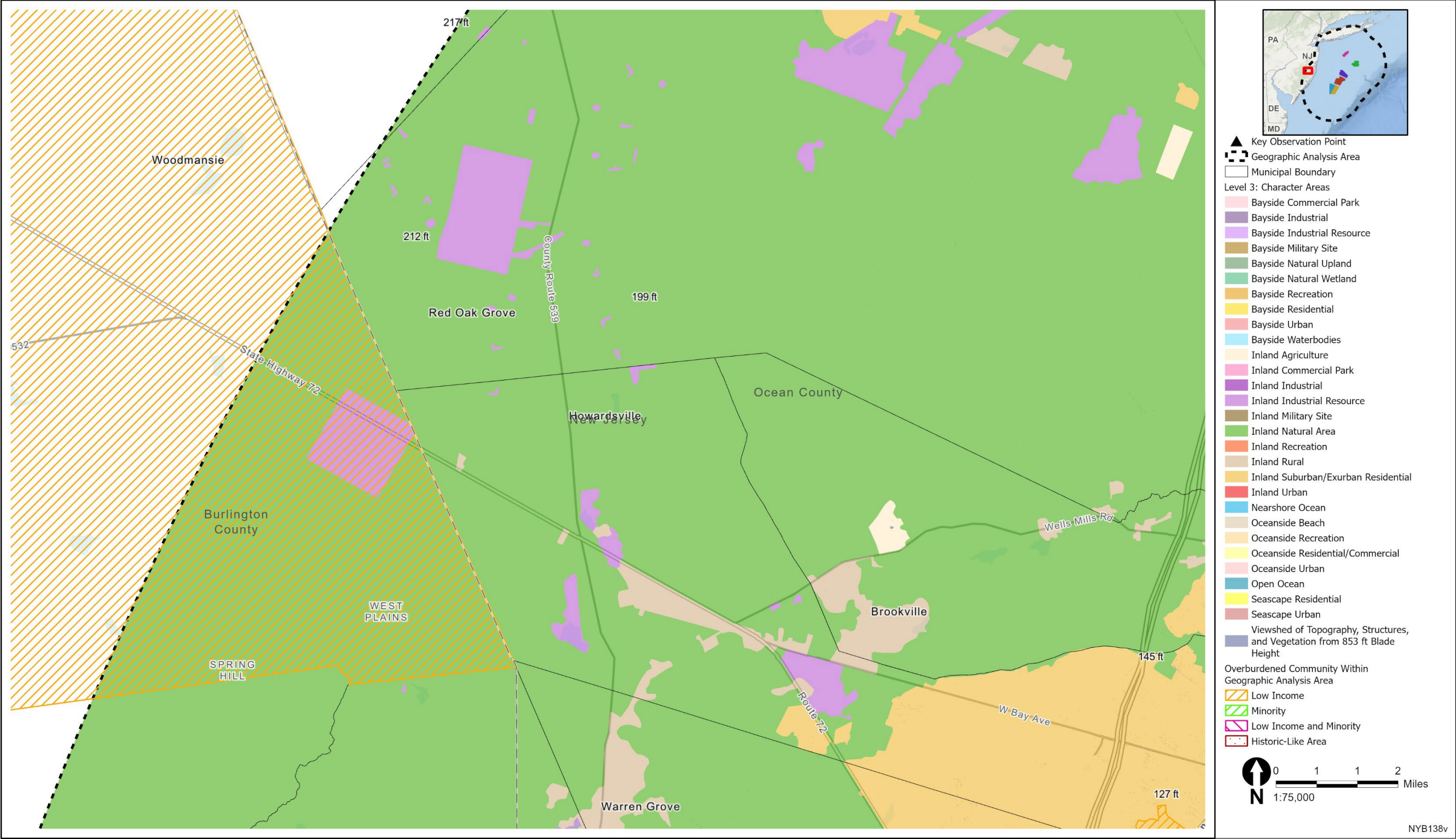
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MAP U



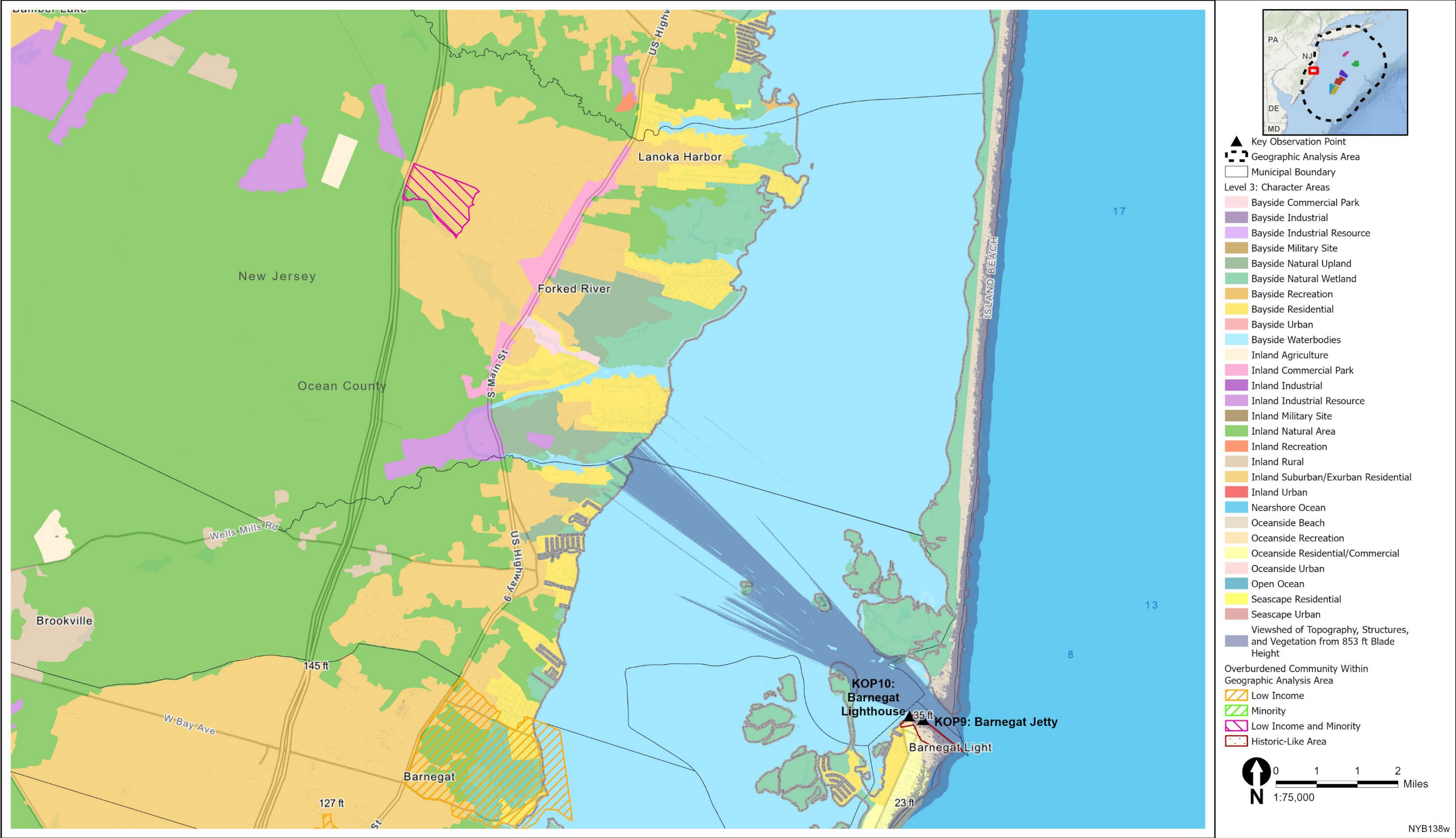
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP V



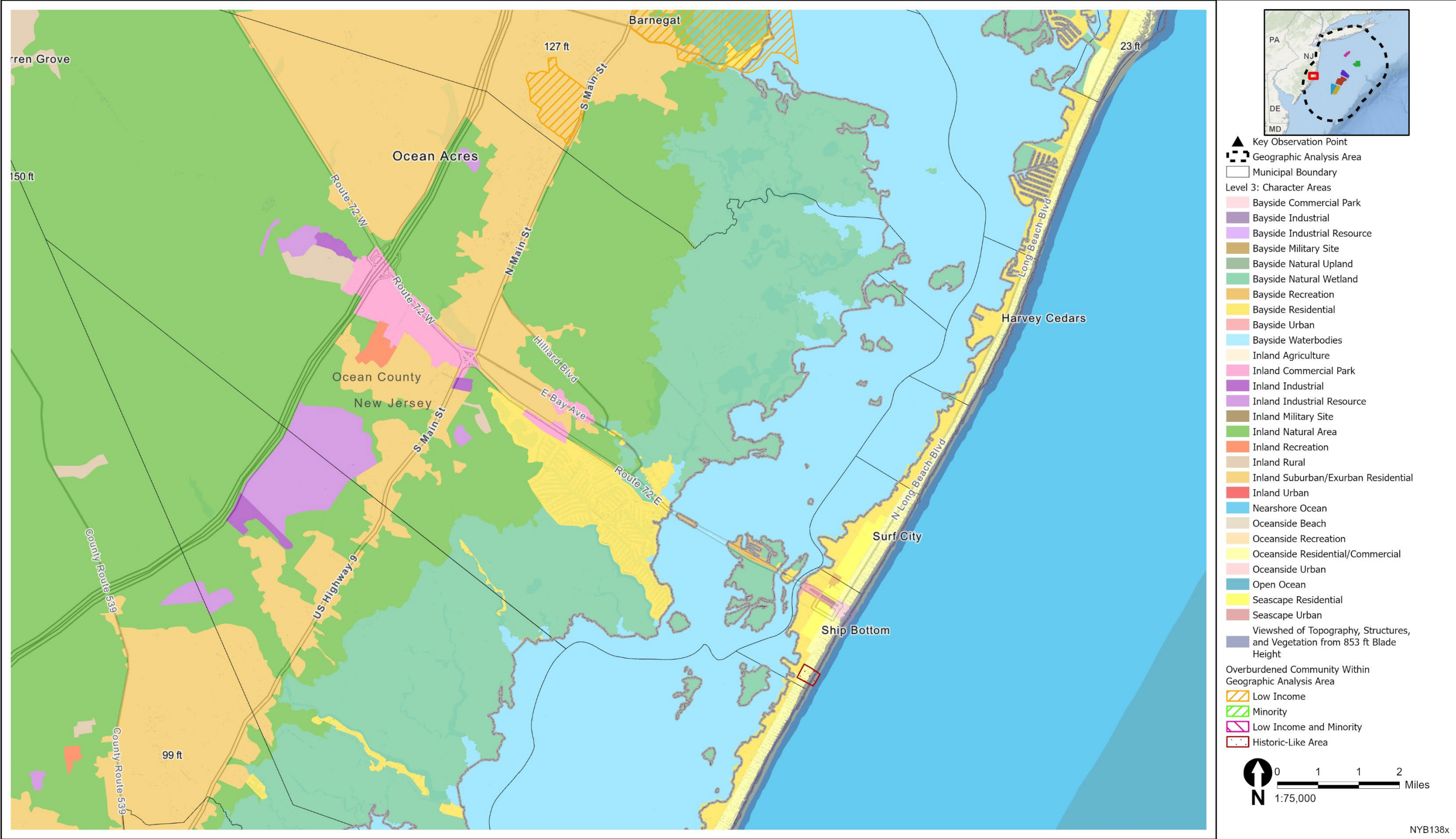
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP W



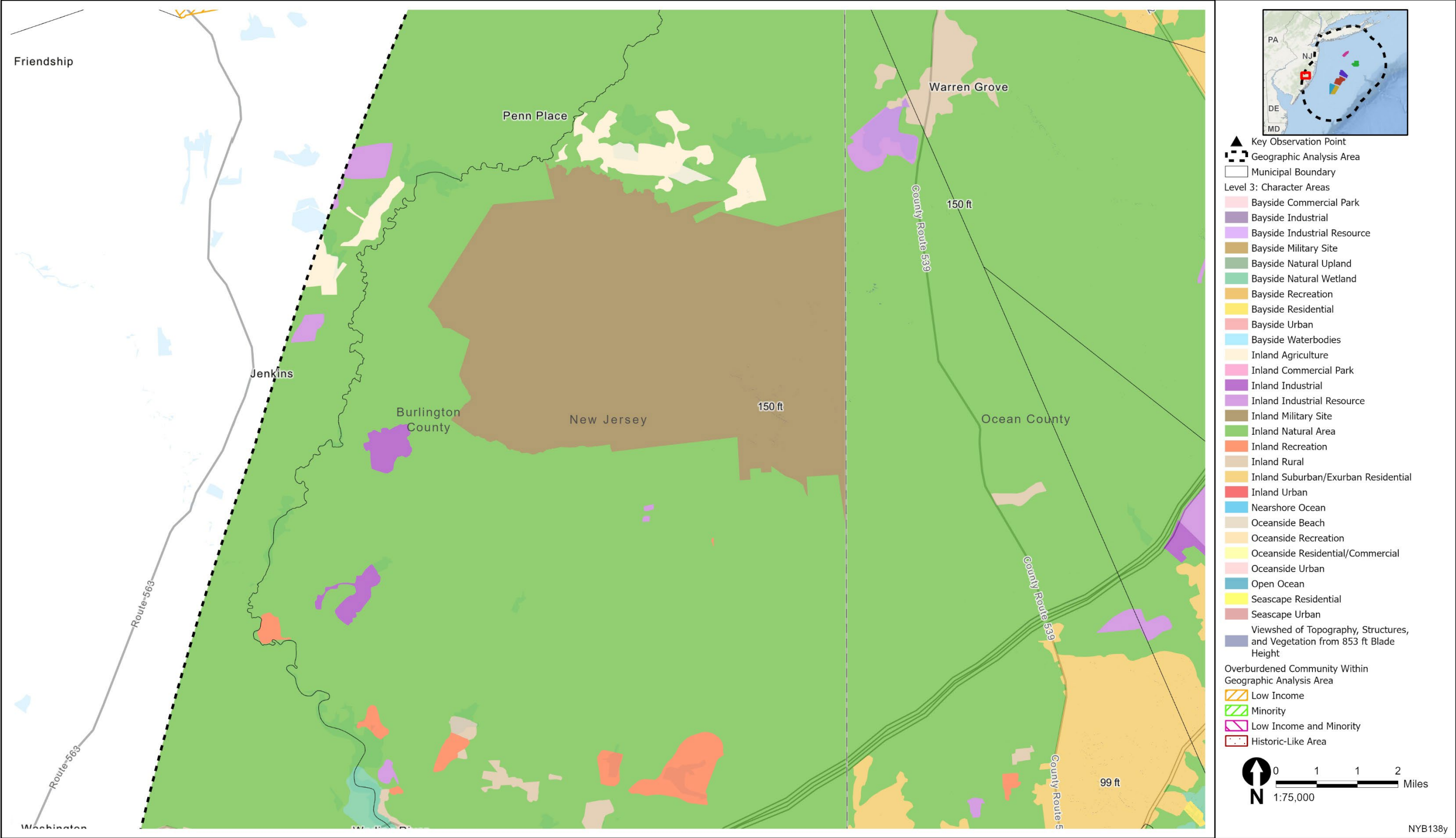
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP X



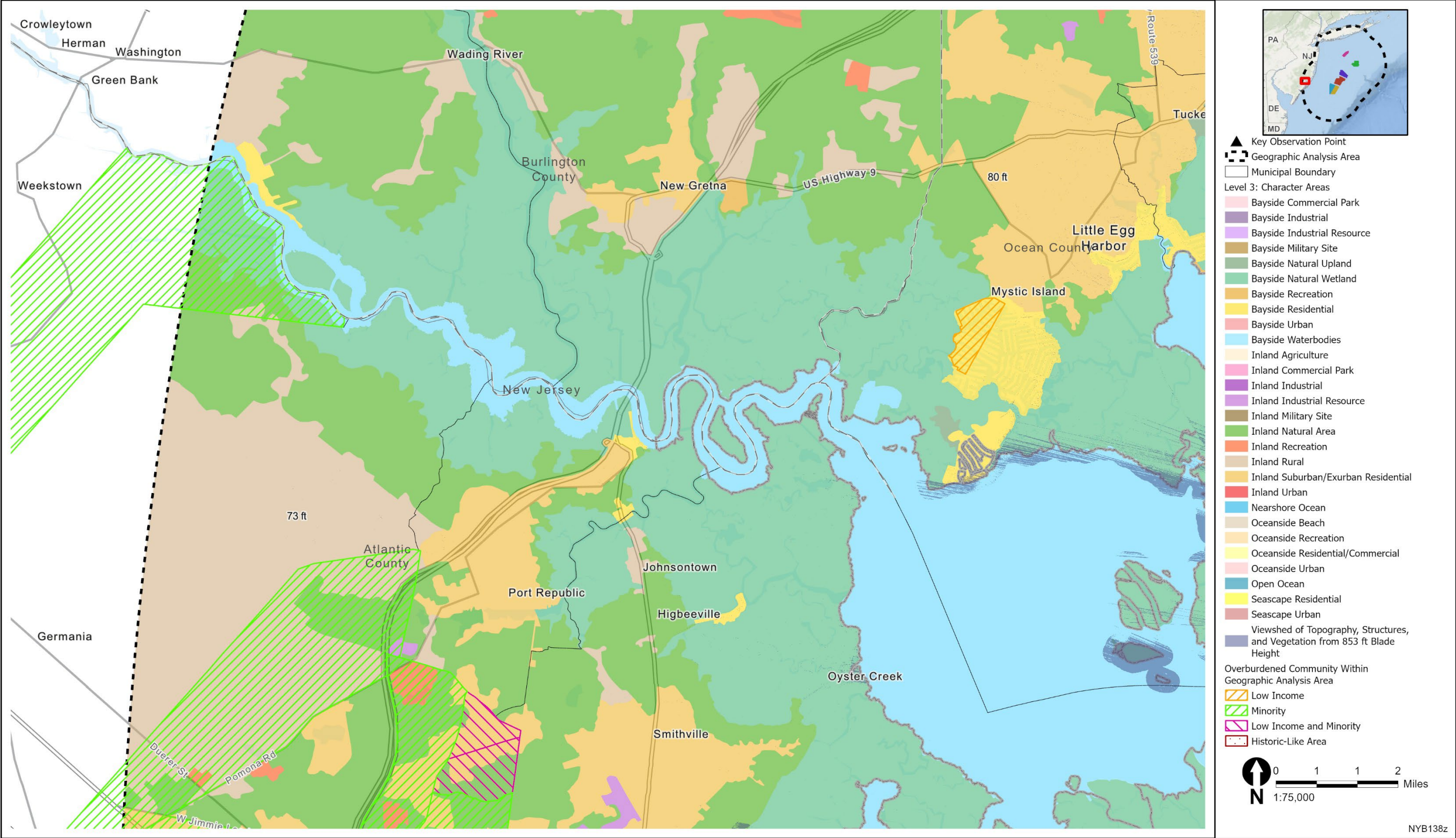
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP Y



Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

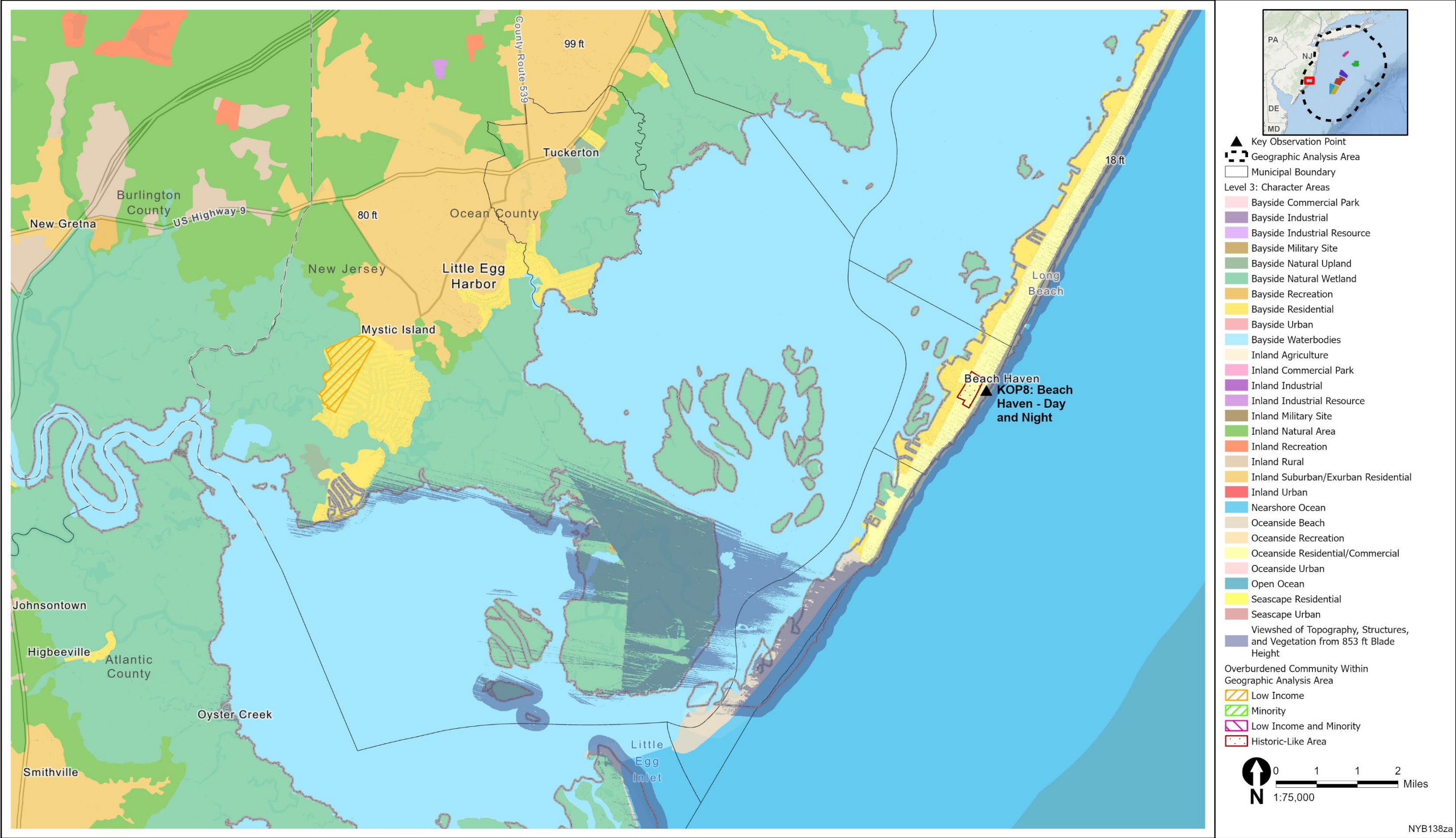
MAP Z



NYB138z

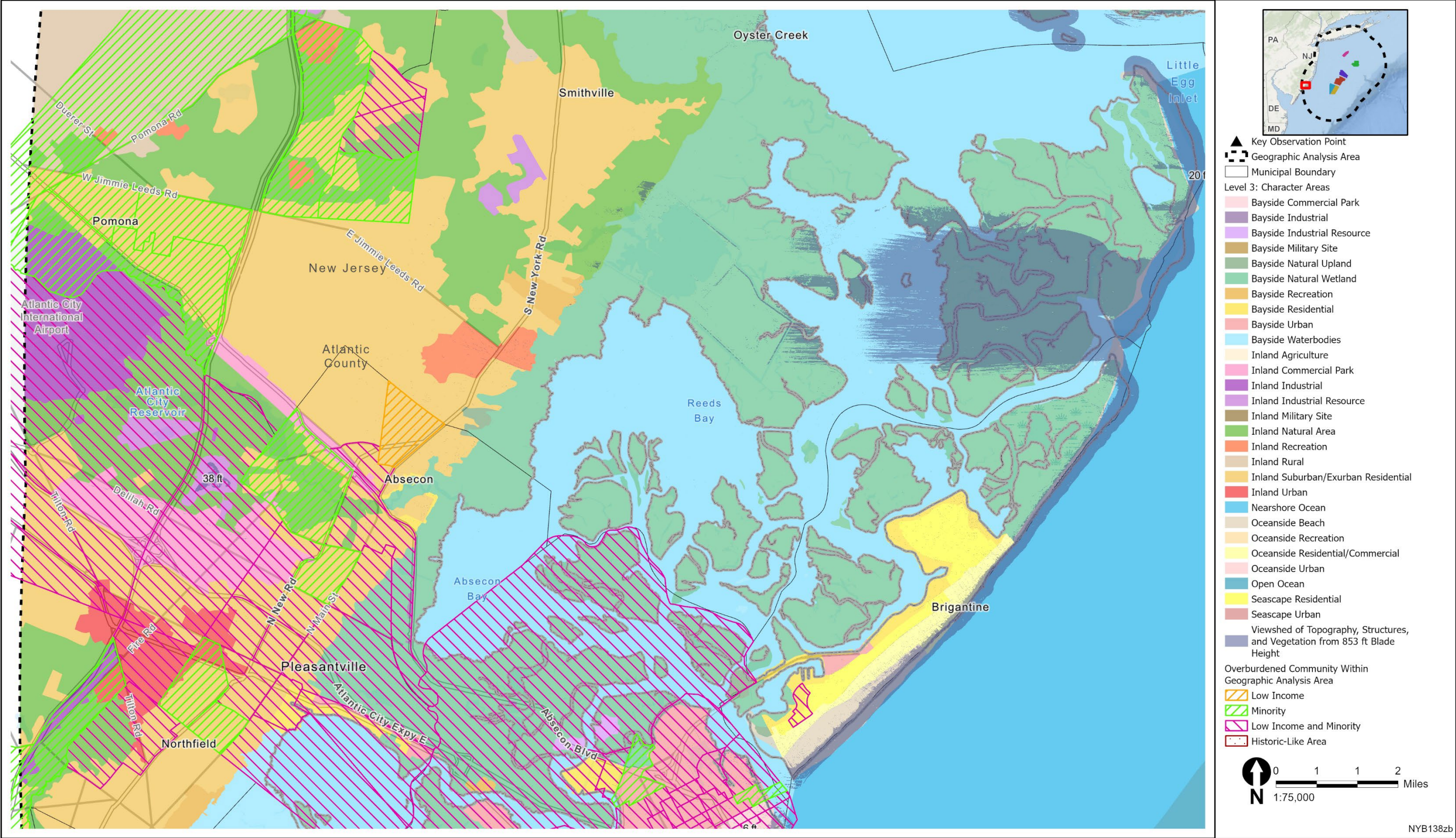
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP ZA



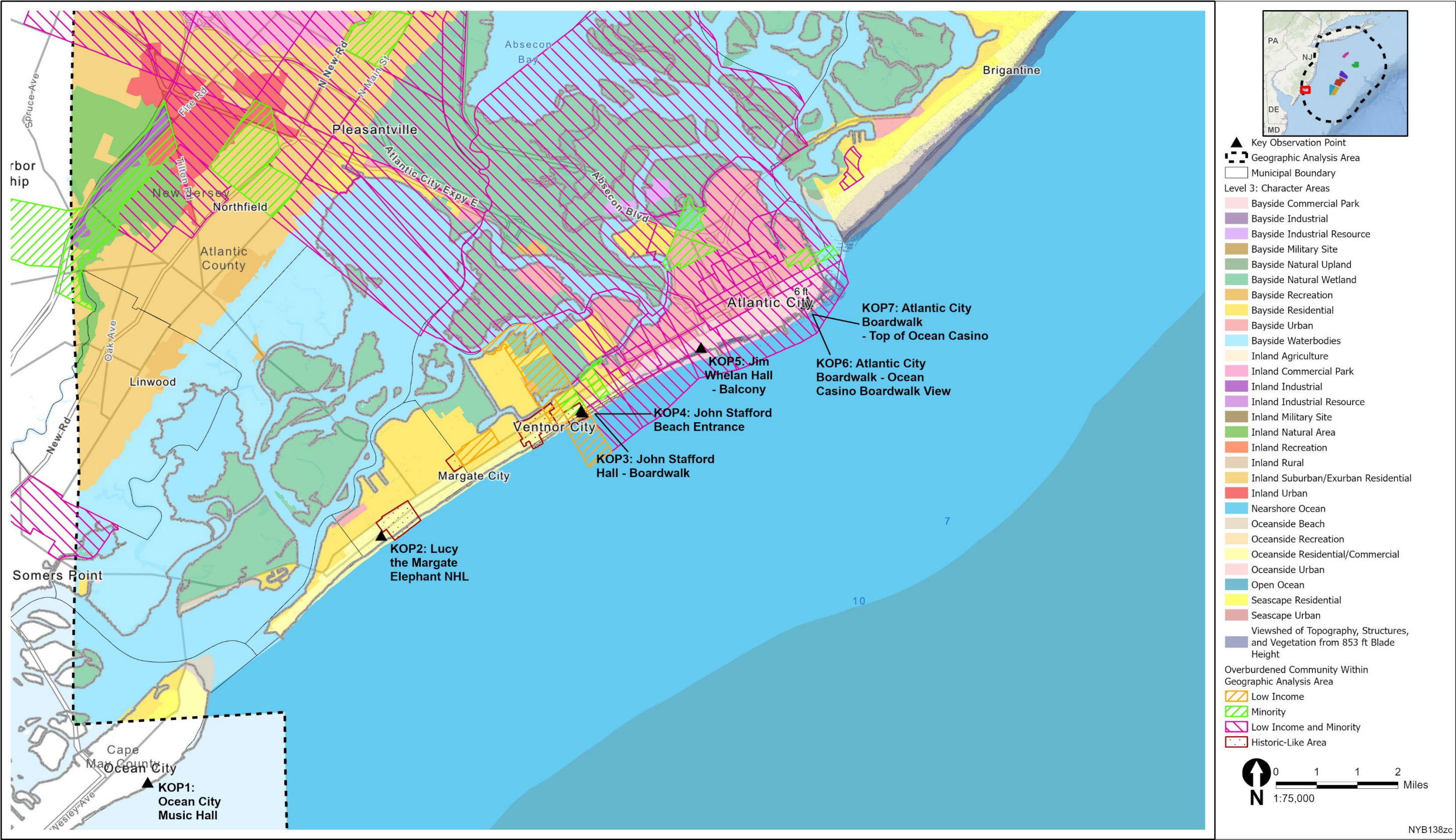
Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP ZB



Series 5: Character Area Delineations, Historic-Like Areas, Environmental Justice Communities, and Viewshed of Topography, Structures and Vegetation from 1,312 ft Blade Height

MAP ZC



Appendix D: Character Area Impact Tables

Table D-1 Character Areas in the GAA and Intersections with the External Leases and the NYB 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Character Area	Total Area in GAA		Intersect with Viewshed ^a																											
			New York Bight Lease Areas ^b			External Lease Areas ^{b,c}			Cumulative Lease Areas ^{b,c,d}			0537 Affected Area			0538 Affected Area			0539 Affected Area			0541 Affected Area			0542 Affected Area			0544 Affected Area			
	mi ²	km ²	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	
New Jersey																														
TOTAL	1,343.51	3,479.67	140.49	363.88	10.46	634.94	1,644.48	47.26	636.97	1,649.74	47.41	0.00	0.00	0.00	11.26	29.18	0.84	37.06	95.99	2.76	125.97	326.27	9.38	43.40	112.40	3.23	15.15	39.23	1.13	
Seascape	722.119	1,870.280	139.20585	360.541485	19.28	616.50	1,596.74	85.37	617.94	1,600.45	85.57	-	-	-	11.0782	28.6924	1.53	36.829	95.385	5.10	124.8704	323.4129	17.29	43.2198	111.9386	5.99	15.113	39.144	2.09	
Bayside	365.436	946.476	116.067	300.611	31.76	268.879	696.395	73.58	269.989	699.267	73.88				0.881	2.282	0.24	24.232	62.761	6.63	110.839	287.071	30.33	31.767	82.277	8.69	3.915	10.141	1.07	
Bayside Commercial Park	0.352	0.911	0.001	0.003	0.29	0.011	0.028	3.05	0.012	0.030	3.31	-	-	-	0.0005	0.0012	0.13	0.000	0.001	0.14	0.0002	0.0005	0.05	0.0001	0.0001	0.02	-	-	-	
Bayside Industrial	0.049	0.128	0.000	0.001	0.75	0.006	0.016	12.45	0.006	0.016	12.59	-	-	-	-	-	-	-	-	-	0.0004	0.0010	0.75	0.0000	0.0000	0.02	-	-	-	
Bayside Industrial Resource	0.141	0.364	0.001	0.003	0.87	0.048	0.124	34.18	0.049	0.126	34.69	-	-	-	-	-	-	-	-	-	0.0012	0.0032	0.87	0.0006	0.0016	0.45	-	-	-	
Bayside Military Site	0.575	1.490	0.040	0.103	6.90	0.228	0.590	39.56	0.233	0.603	40.43	-	-	-	0.0369	0.0954	6.40	0.033	0.085	5.70	0.0270	0.0699	4.69	-	-	-	0.031	0.081	5.45	
Bayside Natural Upland	3.866	10.014	0.062	0.161	1.60	0.385	0.996	9.95	0.393	1.017	10.16	-	-	-	0.0031	0.0079	0.08	0.004	0.010	0.10	0.0056	0.0146	0.15	0.0030	0.0079	0.08	0.054	0.140	1.40	
Bayside Natural Wetland	113.074	292.859	51.728	133.976	45.75	92.068	238.455	81.42	92.624	239.895	81.91	-	-	-	0.0711	0.1840	0.06	7.439	19.267	6.58	51.3434	132.9787	45.41	18.1092	46.9026	16.02	0.020	0.052	0.02	
Bayside Recreation	3.704	9.593	0.059	0.154	1.60	0.810	2.098	21.87	0.834	2.161	22.53	-	-	-	0.0175	0.0453	0.47	0.018	0.048	0.50	0.0383	0.0992	1.03	0.0127	0.0328	0.34	0.009	0.023	0.24	
Bayside Residential	37.411	96.894	0.664	1.721	1.78	4.702	12.179	12.57	4.988	12.920	13.33	-	-	-	0.1188	0.3078	0.32	0.286	0.742	0.77	0.5639	1.4604	1.51	0.1850	0.4791	0.49	0.009	0.024	0.02	
Bayside Urban	4.108	10.639	0.068	0.176	1.66	1.086	2.812	26.43	1.108	2.868	26.96	-	-	-	0.0044	0.0113	0.11	0.002	0.005	0.05	0.0635	0.1643	1.54	0.0480	0.1244	1.17	0.001	0.004	0.04	
Bayside Waterbodies	197.399	511.261	63.408	164.226	32.12	168.714	436.966	85.47	168.896	437.439	85.56	-	-	-	0.6096	1.5788	0.31	16.438	42.574	8.33	58.7786	152.2359	29.78	13.3983	34.7015	6.79	3.790	9.815	1.92	
Seascape Residential	4.740	12.277	0.033	0.086	0.70	0.814	2.109	17.18	0.838	2.170	17.68	-	-	-	0.0188	0.0487	0.40	0.011	0.027	0.22	0.0158	0.0410	0.33	0.0098	0.0254	0.21	0.001	0.002	0.01	
Seascape Urban	0.018	0.046	0.001	0.002	4.78	0.008	0.021	44.63	0.008	0.021	45.32	-	-	-	0.0006	0.0015	3.26	0.001	0.002	3.92	0.0008	0.0022	4.73	0.0007	0.0019	4.08	-	-	-	
Oceanside	356.682	923.802	343.252	889.018	96.23	347.62	900.34	97.46	347.95	901.18	97.55				172.124	445.799	48.26	204.905	530.701	57.45	241.631	625.820	67.74	188.540	488.317	52.86	136.266	352.926	38.20	
Nearshore Ocean	335.676	869.396	335.192	868.144	99.86	335.675	869.395	99.99	335.675	869.396	100.00	-	-	-	167.8256	434.6662	50.00	199.938	517.836	59.56	235.8749	610.9132	70.27	183.7868	476.0055	54.75	133.453	345.641	39.76	
Oceanside Beach	4.844	12.545	2.956	7.657	61.03	3.736	9.675	77.12	3.833	9.926	79.13	-	-	-	1.0732	2.7797	22.16	2.076	5.378	42.87	2.2786	5.9016	47.04	2.0941	5.4236	43.23	0.609	1.578	12.58	
Oceanside Recreation	0.326	0.845	0.082	0.212	25.05	0.208	0.538	63.65	0.209	0.542	64.10	-	-	-	0.0002	0.0006	0.07	0.000	0.001	0.07	0.0002	0.0004	0.05	0.0002	0.0004	0.05	0.081	0.211	24.97	
Oceanside Residential/ Commercial	13.440	34.808	4.355	11.279	32.40	6.680	17.302	49.71	6.878	17.815	51.18	-	-	-	2.9818	7.7227	22.19	2.763	7.156	20.56	3.0926	8.0099	23.01	2.3087	5.9796	17.18	1.828	4.735	13.60	
Oceanside Urban	2.397	6.208	0.667	1.726	27.81	1.325	3.431	55.26	1.351	3.500	56.38	-	-	-	0.2432	0.6299	10.15	0.128	0.332	5.34	0.3842	0.9951	16.03	0.3503	0.9074	14.62	0.294	0.761	12.25	
Landscape	621.388	1609.389	1.288	3.337	0.21	18.43	47.75	2.97	19.03	49.30	3.06	-	-	-	0.1865	0.4830	0.03	0.233	0.603	0.04	1.1019	2.8539	0.18	0.1790	0.4637	0.03	0.032	0.083	0.01	
Inland Agriculture	2.000	5.179	0.013	0.033	0.64	0.0574	0.1486	2.87	0.058	0.151	2.92	-	-	-	0.0006	0.0015	0.03	0.004	0.010	0.18	0.0117	0.0302	0.58	-	-	-	-	-	-	
Inland Commercial Park	13.413	34.740	0.031	0.080	0.23	0.4441	1.1501	3.31	0.463	1.199	3.45	-	-	-	0.0070	0.0182	0.05	0.009	0.023	0.07	0.0241	0.0625	0.18	0.0074	0.0193	0.06	0.000	0.000	0.00	
Inland Industrial	7.121	18.442	0.002	0.006	0.03	1.2040	3.1185	16.91	1.206	3.123	16.93	-	-	-	0.0002	0.0006	0.00	0.001	0.002	0.01	0.0014	0.0037	0.02	0.0005	0.0013	0.01	0.001	0.002	0.01	
Inland Industrial Resource	14.322	37.094	0.097	0.252	0.68	0.8326	2.1564	5.81	0.864	2.238	6.03	-	-	-	0.0025	0.0066	0.02	0.007	0.019	0.05	0.0728	0.1887	0.51	0.0014	0.0036	0.01	0.023	0.059	0.16	
Inland Military Site	20.393	52.817	0.244	0.632	1.20	0.6957	1.8019	3.41	0.805	2.084	3.95	-	-	-	-	-	-	-	-	-	0.2440	0.6320	1.20	-	-	-	-	-	-	
Inland Natural Area	316.458	819.623	0.439	1.138	0.14	4.5931	11.8962	1.45	4.692	12.152	1.48	-	-	-	0.0125	0.0324	0.00	0.045	0.116	0.01	0.4292	1.1116	0.14	0.0624	0.1615	0.02	0.000	0.000	0.00	
Inland Recreation	7.000	18.129	0.063	0.163	0.90	0.3302	0.8553	4.72	0.344	0.890	4.91	-	-	-</																

Character Area	Total Area in GAA		Intersect with Viewshed ^a																										
			New York Bight Lease Areas ^b			External Lease Areas ^{b,c}			Cumulative Lease Areas ^{b,c,d}			0537 Affected Area			0538 Affected Area			0539 Affected Area			0541 Affected Area			0542 Affected Area			0544 Affected Area		
	mi ²	km ²	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%
<i>Oceanside</i>	324.329	840.009	311.125	805.809	95.93	268.562	695.572	82.81	314.887	815.552	97.09	118.466	306.826	36.53	-	-	-	-	-	-	-	-	-	-	-	-	310.952	805.363	95.88
Nearshore Ocean	300.444	778.148	300.444	778.148	100.00	255.549	661.870	85.06	300.444	778.1476	100.00	114.791	297.306	38.21	-	-	-	-	-	-	-	-	-	-	-	-	300.444	778.148	100.00
Oceanside Beach	8.021	20.775	4.848	12.555	60.43	5.163	13.371	64.36	5.904	15.292	73.61	2.354	6.098	29.35	-	-	-	-	-	-	-	-	-	-	-	-	4.757	12.321	59.30
Oceanside Recreation	6.641	17.201	3.182	8.242	47.92	4.208	10.898	63.36	4.314	11.174	64.96	0.623	1.614	9.39	-	-	-	-	-	-	-	-	-	-	-	-	3.148	8.153	47.40
Oceanside Residential/ Commercial	6.678	17.295	1.835	4.754	27.49	2.253	5.836	33.74	2.821	7.307	42.25	0.698	1.808	10.45	-	-	-	-	-	-	-	-	-	-	-	-	1.788	4.631	26.78
Oceanside Urban	2.544	6.590	0.815	2.111	32.03	1.389	3.597	54.58	1.402	3.631	55.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.815	2.111	32.03
Landscape	867.252	2,246.172	0.993	2.573	0.11	71.97	186.39	8.30	72.52	187.82	8.36	0.111	0.288	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.883	2.287	0.10
Inland Agriculture	19.272	49.914	0.002	0.004	0.01	0.045	0.115	0.23	0.046	0.119	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	0.004	0.01
Inland Commercial Park	24.749	64.099	0.011	0.029	0.04	1.514	3.922	6.12	1.524	3.948	6.16	0.0001	0.0002	0.000	-	-	-	-	-	-	-	-	-	-	-	-	0.011	0.028	0.04
Inland Industrial	22.964	59.475	0.241	0.623	1.05	2.289	5.927	9.97	2.475	6.411	10.78	0.0000	0.0000	0.000	-	-	-	-	-	-	-	-	-	-	-	-	0.241	0.623	1.05
Inland Industrial Resource	4.224	10.941	0.179	0.463	4.23	0.222	0.576	5.26	0.245	0.635	5.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.179	0.463	4.23
Inland Military Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inland Natural Area	139.486	361.267	0.030	0.077	0.02	7.487	19.392	5.37	7.509	19.447	5.38	0.0011	0.0028	0.001	-	-	-	-	-	-	-	-	-	-	-	-	0.029	0.075	0.02
Inland Recreation	22.297	57.750	0.019	0.049	0.08	2.528	6.548	11.34	2.539	6.576	11.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.019	0.049	0.08
Inland Rural	2.496	6.464	0.106	0.273	4.23	0.056	0.146	2.25	0.162	0.419	6.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.106	0.273	4.23
Inland Suburban/Exurban Residential	484.621	1255.162	0.218	0.564	0.04	46.608	120.714	9.62	46.767	121.127	9.65	0.1101	0.2852	0.02	-	-	-	-	-	-	-	-	-	-	-	-	0.108	0.281	0.02
Inland Urban	147.143	381.099	0.190	0.491	0.13	11.216	29.049	7.62	11.252	29.143	7.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.190	0.491	0.13

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

^b Areas are not additive across leases due to overlap in lease area viewsheds. The area affected is a percentage of the total area GAA, not the individual lease area.

^c External lease areas include Atlantic Shores North (OCS-A 0549), Atlantic Shores South (OCS-A 0499), Empire Wind (OCS-A 0512), Ocean Wind 1 (OCS-A-0498), and Ocean Wind 2 (OCS-A 0532).

^d Cumulative lease areas include the six New York Bight leases and the external leases.

Table D-2 Character Areas in the GAA and Intersections with the External Leases and the NYB 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Character Area	Total Area in GAA		Intersect with Viewshed ^a																										
			New York Bight Lease Areas ^b			External Lease Areas ^{b,c}			Cumulative Lease Areas ^{b,c,d}			0537 Affected Area			0538 Affected Area			0539 Affected Area			0541 Affected Area			0542 Affected Area			0544 Affected Area		
	mi ²	km ²	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%
New Jersey																													
TOTAL	1,343.51	3,479.67	25.20	65.27	1.88	634.94	1,644.48	47.26	635.70	1646.45	47.32	0.00	0.00	0.00	1.87	4.85	0.14	7.29	18.87	0.54	23.89	61.88	1.78	3.55	9.21	0.26	0.58	1.49	0.04
Seascape	722.12	1,870.28	24.85	64.36	3.44	616.50	1,596.74	85.37	617.03	1,598.11	85.45	-	-	-	1.77	4.58	0.00	7.18	18.60	0.01	23.63	61.21	0.03	3.51	9.10	0.00	0.57	1.48	0.00
Bayside	365.436	946.476	13.624	35.285	3.73	268.879	696.395	73.58	269.17	697.14	73.66				0.065	0.168	0.02	0.900	2.330	0.25	13.147	34.051	3.60	0.319	0.825	0.09	0.011	0.030	0.00
Bayside Commercial Park	0.352	0.911	0.000	0.001	0.12	0.011	0.028	3.05	0.011	0.029	3.14	-	-	-	0.0003	0.0007	0.08	0.0001	0.0004	0.04	0.0000	0.0001	0.01	0.0000	0.0001	0.01	-	-	-
Bayside Industrial	0.049	0.128	0.000	0.000	0.02	0.006	0.016	12.45	0.006	0.016	12.47	-	-	-	-	-	-	-	-	-	-	0.0000	-	-	-	-	-	-	-
Bayside Industrial Resource	0.141	0.364	0.001	0.001	0.38	0.048	0.124	34.18	0.048	0.125	34.41	-	-	-	-	-	-	-	-	-	0.0005	0.0014	0.38	0.0003	0.0007	0.18	-	-	-
Bayside Military Site	0.575	1.490	0.004	0.011	0.74	0.228	0.590	39.56	0.229	0.594	39.86	-	-	-	0.0030	0.0077	0.52	0.0003	0.0007	0.05	-	0.0005	-	-	-	-	0.002	0.006	0.38
Bayside Natural Upland	3.866	10.014	0.003	0.009	0.08	0.385	0.996	9.95	0.386	1.001	9.99	-	-	-	0.0005	0.0013	0.01	0.0013	0.0033	0.03	0.0026	0.0069	0.07	0.0007	0.0019	0.02	0.000	0.001	0.01
Bayside Natural Wetland	113.074	292.859	7.279	18.851	6.44	92.068	238.455	81.42	92.214	238.832	81.55	-	-	-	0.0070	0.0180	0.01	0.0292	0.0757	0.03	7.2640	18.8138	6.42	0.2679	0.6938	0.24	0.000	0.000	0.00
Bayside Recreation	3.704	9.593	0.019	0.048	0.51	0.810	2.098	21.87	0.821	2.125	22.15	-	-	-	0.0105	0.0273	0.28	0.0056	0.0144	0.15	0.0089	0.0231	0.24	0.0026	0.0066	0.07	0.002	0.006	0.06
Bayside Residential	37.411	96.894	0.158	0.408	0.42	4.702	12.179	12.57	4.798	12.427	12.83	-	-	-	0.0197	0.0511	0.05	0.0410	0.1061	0.11	0.1340	0.3471	0.36	0.0189	0.0488	0.05	0.007	0.017	0.02
Bayside Urban	4.108	10.639	0.030	0.078	0.73	1.086	2.812	26.43	1.097	2.841	26.71	-	-	-	0.0019	0.0050	0.05	0.0008	0.0020	0.02	0.0283	0.0734	0.69	0.0093	0.0241	0.23	-	-	-
Bayside Waterbodies	197.399	511.261	6.108	15.821	3.09	168.714	436.966	85.47	168.721	436.985	85.47	-	-	-	0.0095	0.0245	0.00	0.8166	2.1150	0.41	5.6977	14.7570	2.89	0.0133	0.0345	0.01	-	-	-
Seascape Residential	4.740	12.277	0.021	0.055	0.45	0.814	2.109	17.18	0.828	2.145	17.47	-	-	-	0.0121	0.0314	0.26	0.0041	0.0107	0.09	0.0101	0.0260	0.21	0.0049	0.0127	0.10	0.000	0.000	0.00
Seascape Urban	0.018	0.046	0.001	0.002	4.30	0.008	0.021	44.63	0.008	0.021	45.15	-	-	-	0.0005	0.0012	2.56	0.0006	0.0016	3.43	0.0008	0.0020	4.24	0.0007	0.0018	3.86	-	-	-
Oceanside	356.683	923.803	163.997	424.749	45.98	347.62	900.34	97.46	347.87	900.97	97.53				3.105	8.042	0.87	88.494	229.198	24.81	163.043	422.279	45.71	23.375	60.540	6.55	0.748	1.937	0.21
Nearshore Ocean	335.676	869.397	158.762	411.192	47.30	335.675	869.395	99.99	335.675	869.395	100.00	-	-	-	1.4179	3.6723	0.01	85.274	220.860	25.40	158.569	410.691	47.24	20.966	54.302	6.25	0.195	0.506	0.06
Oceanside Beach	4.844	12.545	2.156	5.585	44.52	3.736	9.675	77.12	3.819	9.890	78.84	-	-	-	0.8016	2.0761	16.55	1.2189	3.1569	25.16	2.0791	5.3847	42.92	0.8555	2.2158	17.66	0.013	0.034	0.27
Oceanside Recreation	0.326	0.845	0.039	0.101	11.97	0.208	0.538	63.65	0.208	0.539	63.79	-	-	-	0.0002	0.0005	0.06	0.0002	0.0005	0.06	0.0002	0.0004	0.05	0.0001	0.0004	0.04	0.039	0.101	11.90
Oceanside Residential/Commercial	13.440	34.808	2.658	6.884	19.78	6.680	17.302	49.71	6.823	17.672	50.77	-	-	-	0.8246	2.1357	6.14	1.9144	4.9582	14.24	2.1857	5.6610	16.26	1.5086	3.9073	11.23	0.337	0.874	2.51
Oceanside Urban	2.397	6.208	0.381	0.988	15.92	1.325	3.431	55.26	1.341	3.472	55.93	-	-	-	0.0609	0.1579	2.54	0.0857	0.2221	3.58	0.2093	0.5421	8.73	0.0442	0.1146	1.85	0.163	0.423	6.82
Landscape	621.39	1609.39	0.35	0.91	0.06	18.43	47.75	2.97	18.66	48.34	3.00	-	-	-	0.10	0.26	0.00	0.10	0.27	0.00	0.26	0.67	0.00	0.04	0.11	0.00	0.00	0.01	0.00
Inland Agriculture	2.000	5.179	0.001	0.004	0.07	0.0574	0.1486	2.87	0.058	0.150	2.89	-	-	-	0.0003	0.0008	0.01	0.0010	0.0027	0.05	0.0001	0.0004	0.01	-	-	-	-	-	-
Inland Commercial Park	13.413	34.740	0.019	0.048	0.14	0.4441	1.1501	3.31	0.455	1.177	3.39	-	-	-	0.0046	0.0119	0.03	0.0047	0.0121	0.03	0.0141	0.0365	0.10	0.0038	0.0098	0.03	-	-	-
Inland Industrial	7.121	18.442	0.001	0.002	0.01	1.2040	3.1185	16.91	1.205	3.120	16.92	-	-	-	0.0001	0.0004	0.00	0.0005	0.0013	0.01	0.0007	0.0017	0.01	0.0003	0.0008	0.00	-	-	-
Inland Industrial Resource	14.322	37.094	0.050	0.130	0.35	0.8326	2.1564	5.81	0.850	2.203	5.94	-	-	-	0.0018	0.0048	0.01	0.0034	0.0087	0.02	0.0491	0.1273	0.34	0.0005	0.0012	0.00	0.000	0.001	0.00
Inland Military Site	20.393	52.817	0.003	0.008	0.02	0.6957	1.8019	3.41	0.698	1.808	3.42	-	-	-	-	-	-	-	-	-	0.0033	0.0084	0.02	-	-	-	-	-	-
Inland Natural Area	316.458	819.623	0.070	0.181	0.02	4.5931	11.8962	1.45	4.628	11.985	1.46	-	-	-	0.0058	0.0151	0.00	0.0147	0.0381	0.00	0.0663	0.1717	0.02	0.0040	0.0103	0.00	0.000	0.000	0.00
Inland Recreation	7.000	18.129	0.010	0.026	0.14	0.3302	0.8553	4.72	0.337	0.873	4.82	-	-	-	0.0021	0.0054	0.03	0.0004	0.0011	0.01	0.0072	0.0186	0.10	0.0014	0.0036	0.02	0.001	0.002	0.01
Inland Rural	23.102	59.833	0.002	0.005	0.01	0.1714	0.4440	0.74																					

Character Area	Total Area in GAA		Intersect with Viewshed ^a																										
			New York Bight Lease Areas ^b			External Lease Areas ^{b,c}			Cumulative Lease Areas ^{b,c,d}			0537 Affected Area			0538 Affected Area			0539 Affected Area			0541 Affected Area			0542 Affected Area			0544 Affected Area		
	mi ²	km ²	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%	mi ²	km ²	%
Oceanside Beach	8.021	20.775	3.9051	10.1141	48.68	5.163	13.371	64.36	5.588	14.473	69.67	0.062	0.1599	0.77	-	-	-	-	-	-	-	-	-	-	-	-	3.897	10.094	48.59
Oceanside Recreation	6.641	17.201	2.6171	6.7782	39.41	4.208	10.898	63.36	4.258	11.029	64.12	0.002	0.0063	0.04	-	-	-	-	-	-	-	-	-	-	-	-	2.616	6.776	39.39
Oceanside Residential/Commercial	6.678	17.295	1.2373	3.2045	18.53	2.253	5.836	33.74	2.363	6.120	35.39	0.051	0.1333	0.77	-	-	-	-	-	-	-	-	-	-	-	-	1.217	3.153	18.23
Oceanside Urban	2.544	6.590	0.5974	1.5474	23.48	1.389	3.597	54.58	1.399	3.624	54.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.597	1.547	23.48
Landscape	867.25	2246.17	0.53	1.37	0.06	71.97	186.39	8.30	72.13	186.81	8.32	0.04	0.11	0.00	-	-	-	-	-	-	-	-	-	-	-	-	0.49	1.26	0.06
Inland Agriculture	19.272	49.914	0.0002	0.0004	0.00	0.045	0.115	0.23	0.045	0.116	0.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000	-
Inland Commercial Park	24.749	64.099	0.0016	0.0042	0.01	1.514	3.922	6.12	1.516	3.925	6.12	0.000	0.0001	0.00	-	-	-	-	-	-	-	-	-	-	-	-	0.002	0.004	0.01
Inland Industrial	22.964	59.475	0.0473	0.1226	0.21	2.289	5.927	9.97	2.294	5.941	9.99	0.000	0.0000	0.00	-	-	-	-	-	-	-	-	-	-	-	-	0.047	0.123	0.21
Inland Industrial Resource	4.224	10.941	0.1633	0.4228	3.86	0.222	0.576	5.26	0.237	0.613	5.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.163	0.423	3.86
Inland Military Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inland Natural Area	139.486	361.267	0.0192	0.0498	0.01	7.487	19.392	5.37	7.499	19.421	5.38	0.000	0.0002	0.00	-	-	-	-	-	-	-	-	-	-	-	-	0.019	0.050	0.01
Inland Recreation	22.297	57.750	0.0124	0.0322	0.06	2.528	6.548	11.34	2.535	6.565	11.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.012	0.032	0.06
Inland Rural	2.496	6.464	0.0331	0.0858	1.33	0.056	0.146	2.25	0.089	0.231	3.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.033	0.086	1.33
Inland Suburban/Exurban Residential	484.621	1255.162	0.1201	0.3110	0.02	46.608	120.714	9.62	46.679	120.898	9.63	0.042	0.1096	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.078	0.201	0.02
Inland Urban	147.143	381.099	0.1324	0.3429	0.09	11.216	29.049	7.62	11.235	29.099	7.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.132	0.343	0.09

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

^b Areas are not additive across leases due to overlap in lease area viewsheds. The area affected is a percentage of the total area GAA, not the individual lease area.

^c External lease areas include Atlantic Shores North (OCS-A 0549), Atlantic Shores South (OCS-A 0499), Empire Wind (OCS-A 0512), Ocean Wind 1 (OCS-A-0498), and Ocean Wind 2 (OCS-A 0532).

^d Cumulative lease areas include the six New York Bight leases and the external leases.

Table D-3 Character Areas within Municipalities in the GAA and Intersections with the 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Absecon	-	-	-	-	-
Bayside Industrial	0.01936	0.050142	0.000127	0.00033	0.66
Bayside Natural Upland	0.006097	0.015792	0.000054	0.000139	0.89
Bayside Natural Wetland	1.747546	4.526124	0.996603	2.58119	57.03
Bayside Residential	0.079286	0.205349	0.00495	0.01282	6.24
Bayside Waterbodies	1.446802	3.747201	0.371764	0.962865	25.70
Inland Commercial Park	0.255205	0.660978	0.000087	0.000224	0.03
Inland Natural Area	0.889424	2.303598	0.000261	0.000676	0.03
Inland Suburban/Exurban Residential	2.782198	7.205859	0.010621	0.027508	0.38
Allenhurst Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.051156	0.132494	0.000121	0.000314	0.24
Nearshore Ocean	1.969915	5.102056	1.969915	5.102056	100.00
Oceanside Residential/Commercial	0.100129	0.259334	0.034291	0.088812	34.25
Seascape Residential	0.126647	0.328015	0.000409	0.001058	0.32
Asbury Park	-	-	-	-	-
Inland Suburban/Exurban Residential	0.564887	1.46305	0.000719	0.001861	0.13
Inland Urban	0.338321	0.876247	0.001053	0.002727	0.31
Nearshore Ocean	3.344827	8.663061	3.344758	8.662884	100.00
Oceanside Residential/Commercial	0.000092	0.000237	0.000092	0.000237	100.00
Oceanside Urban	0.341475	0.884416	0.097002	0.251233	28.41
Seascape Residential	0.294317	0.762279	0.001407	0.003644	0.48
Atlantic City	-	-	-	-	-
Bayside Industrial	0.00495	0.012821	0.000243	0.000629	4.91
Bayside Industrial Resource	0.140584	0.36411	0.001217	0.003153	0.87
Bayside Natural Upland	0.059239	0.153429	0.000451	0.001168	0.76
Bayside Natural Wetland	6.689709	17.326266	0.012755	0.033036	0.19
Bayside Recreation	0.046244	0.11977	0.00028	0.000726	0.61
Bayside Residential	0.610439	1.58103	0.001619	0.004193	0.27
Bayside Urban	2.94909	7.638107	0.057661	0.149341	1.96
Bayside Waterbodies	4.499754	11.654309	0.084093	0.2178	1.87
Nearshore Ocean	17.076699	44.228448	17.075713	44.225893	99.99
Oceanside Residential/Commercial	0.11773	0.30492	0.051809	0.134184	44.01
Oceanside Urban	1.011303	2.619262	0.000997	0.002583	0.10
Atlantic Highlands Borough	-	-	-	-	-
Bayside Residential	0.501105	1.297856	0.000236	0.000612	0.05
Inland Commercial Park	0.169751	0.439652	0.000019	0.00005	0.01
Avon-by-the-Sea Borough	-	-	-	-	-
Bayside Recreation	0.016289	0.042189	0.00006	0.000154	0.37
Bayside Residential	0.032462	0.084076	0.000157	0.000407	0.48
Bayside Waterbodies	0.048591	0.12585	0.001786	0.004626	3.68
Inland Suburban/Exurban Residential	0.066789	0.172982	0.000342	0.000885	0.51
Nearshore Ocean	1.729207	4.478625	1.728612	4.477085	99.97
Oceanside Residential/Commercial	0.185097	0.479398	0.051809	0.134184	27.99
Seascape Residential	0.157843	0.408812	0.000997	0.002583	0.63

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00002	0.000052	0.04
Bayside Residential	0.212181	0.549547	0.001885	0.004882	0.89
Bayside Waterbodies	0.280443	0.726343	0.099896	0.258729	35.62
Nearshore Ocean	11.089861	28.722607	11.088975	28.720314	99.99
Oceanside Beach	0.173074	0.44826	0.092892	0.24059	53.67
Oceanside Recreation	0.013546	0.035084	0.000262	0.000679	1.93
Oceanside Residential/Commercial	0.565739	1.465257	0.192552	0.498707	34.04
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	2.843599	7.364887	71.21
Bayside Residential	0.278385	0.721015	0.039668	0.102739	14.25
Bayside Waterbodies	5.607529	14.523434	2.740059	7.096719	48.86
Inland Industrial Resource	0.822256	2.129633	0.000492	0.001275	0.06
Inland Natural Area	18.426348	47.724023	0.010307	0.026696	0.06
Inland Rural	0.946237	2.450743	0.00055	0.001425	0.06
Inland Suburban/Exurban Residential	10.180429	26.367191	0.043071	0.111554	0.42
Bass River Township	-	-	-	-	-
Bayside Natural Wetland	8.533354	22.101285	0.584484	1.513806	6.85
Bayside Recreation	0.125957	0.326228	0.000416	0.001078	0.33
Bayside Waterbodies	0.921448	2.386539	0.520752	1.348743	56.51
Inland Agriculture	0.928313	2.404321	0.000135	0.00035	0.01
Inland Industrial	0.429622	1.112716	0.00001	0.000027	0.00
Inland Military Site	14.697994	38.06763	0.241535	0.625572	1.64
Inland Natural Area	48.146066	124.697738	0.001582	0.004097	0.00
Inland Recreation	0.994624	2.576065	0.00001	0.000025	0.00
Inland Rural	2.560409	6.631428	0.000347	0.000899	0.01
Inland Suburban/Exurban Residential	0.899931	2.33081	0.000078	0.000202	0.01
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.000425	0.0011	0.29
Bayside Waterbodies	0.059536	0.154198	0.000019	0.00005	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.001341	0.003473	0.46
Nearshore Ocean	4.95526	12.834063	4.955144	12.833764	100.00
Oceanside Residential/Commercial	0.263933	0.683583	0.075908	0.196602	28.76
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.0058	0.0151	0.005832	0.015105	100.00
Bayside Waterbodies	0.0001	0.0002	0.00006	0.000156	100.00
Nearshore Ocean	0.2108	0.5459	8.178912	21.183285	3880.34
Oceanside Residential/Commercial	0.1477	0.3825	0.147692	0.38252	100.00
Beachwood Borough	-	-	-	-	-
Bayside Residential	0.113936	0.295093	0.000058	0.00015	0.05
Inland Industrial Resource	0.404854	1.048568	0.000019	0.00005	0.00
Inland Natural Area	1.312749	3.400005	0.00002	0.000051	0.00
Inland Recreation	8.179239	21.184131	0.000106	0.000274	0.00
Inland Suburban/Exurban Residential	0.562577	1.457067	0.001757	0.00455	0.31
Belmar Borough	-	-	-	-	-
Bayside Commercial Park	0.155636	0.403095	0.000367	0.00095	0.24
Bayside Residential	0.085634	0.221791	0.000212	0.00055	0.25
Bayside Urban	0.246551	0.638563	0.000697	0.001805	0.28
Bayside Waterbodies	0.365347	0.946243	0.0024	0.006217	0.66

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	0.015408	0.039906	0.000048	0.000125	0.31
Nearshore Ocean	5.907429	15.300171	5.907128	15.299391	99.99
Oceanside Residential/Commercial	0.426051	1.103467	0.131134	0.339635	30.78
Seascape Residential	0.185078	0.479349	0.001364	0.003534	0.74
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.380069	0.984374	13.34
Bayside Recreation	0.060018	0.155447	0.011091	0.028725	18.48
Bayside Residential	1.629749	4.22103	0.063658	0.164872	3.91
Bayside Waterbodies	10.873353	28.161856	4.153181	10.756691	38.20
Inland Commercial Park	0.277677	0.719181	0.001692	0.004383	0.61
Inland Industrial	1.144983	2.965493	0.000473	0.001225	0.04
Inland Industrial Resource	1.821592	4.717901	0.001844	0.004776	0.10
Inland Natural Area	21.012984	54.42338	0.01154	0.029889	0.05
Inland Recreation	0.036896	0.095561	0.000113	0.000292	0.31
Inland Rural	0.024331	0.063017	0.000011	0.000029	0.05
Inland Suburban/Exurban Residential	12.623688	32.695203	0.024336	0.063031	0.19
Nearshore Ocean	33.900979	87.803132	33.899835	87.800169	100.00
Oceanside Beach	1.847662	4.785421	1.042491	2.700039	56.42
Oceanside Residential/Commercial	0.18328	0.474694	0.044484	0.115213	24.27
Seascape Residential	0.010911	0.02826	0.000276	0.000714	2.53
Bradley Beach Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.061045	0.158106	0.000126	0.000325	0.21
Inland Urban	0.074287	0.192402	0.000244	0.000633	0.33
Nearshore Ocean	1.952949	5.058115	1.952937	5.058083	100.00
Oceanside Residential/Commercial	0.278692	0.72181	0.111436	0.288617	39.99
Seascape Residential	0.249449	0.646071	0.001051	0.002723	0.42
Brick Township	-	-	-	-	-
Bayside Natural Upland	0.372007	0.963494	0.000056	0.000146	0.02
Bayside Natural Wetland	2.20499	5.710898	0.000135	0.000348	0.01
Bayside Recreation	0.117899	0.305357	0.000621	0.001608	0.53
Bayside Residential	3.512972	9.098556	0.007633	0.019769	0.22
Bayside Waterbodies	5.877627	15.222983	0.000254	0.000658	0.00
Inland Commercial Park	1.503155	3.893153	0.000424	0.001098	0.03
Inland Industrial	0.098205	0.25435	0.000029	0.000075	0.03
Inland Industrial Resource	0.146033	0.378224	0.000116	0.0003	0.08
Inland Natural Area	3.901053	10.103682	0.000547	0.001417	0.01
Inland Recreation	0.235213	0.609199	0.00057	0.001478	0.24
Inland Suburban/Exurban Residential	13.033739	33.757228	0.018928	0.049022	0.15
Nearshore Ocean	6.153921	15.938583	6.15381	15.938294	100.00
Oceanside Residential/Commercial	0.26327	0.681867	0.098456	0.254999	37.40
Brielle Borough	-	-	-	-	-
Bayside Natural Wetland	0.017724	0.045904	0.001208	0.003129	6.82
Bayside Recreation	0.20385	0.52797	0.009338	0.024184	4.58
Bayside Residential	0.501541	1.298985	0.004623	0.011973	0.92
Bayside Waterbodies	0.423917	1.097939	0.016348	0.04234	3.86
Inland Natural Area	0.002556	0.006619	0	0.000001	0.00
Inland Suburban/Exurban Residential	1.102552	2.855597	0.006786	0.017576	0.62
Brigantine	-	-	-	-	-
Bayside Natural Upland	0.037284	0.096565	0.000451	0.001168	1.21

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Natural Wetland	4.103657	10.628422	1.557867	4.034856	37.96
Bayside Residential	0.799583	2.070909	0.01827	0.047319	2.28
Bayside Urban	0.092944	0.240724	0.001096	0.00284	1.18
Bayside Waterbodies	3.110677	8.056615	1.115944	2.890282	35.87
Nearshore Ocean	24.77845	64.175891	24.777572	64.173618	100.00
Oceanside Beach	0.873285	2.261797	0.515273	1.334551	59.00
Oceanside Residential/Commercial	0.761558	1.972425	0.144674	0.374704	19.00
Seascape Residential	1.025155	2.65514	0.011645	0.030162	1.14
Deal Borough	-	-	-	-	-
Inland Recreation	0.057955	0.150103	0.000172	0.000446	0.30
Inland Suburban/Exurban Residential	0.307163	0.795549	0.000657	0.001703	0.21
Nearshore Ocean	5.187518	13.435609	5.186702	13.433497	99.98
Oceanside Residential/Commercial	0.49898	1.292352	0.144349	0.373861	28.93
Seascape Residential	0.384947	0.997009	0.001746	0.004521	0.45
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.644739	5.404715	13.998148	84.10
Bayside Recreation	0.003413	0.00884	0.001695	0.004389	49.66
Bayside Residential	0.191175	0.49514	0.035364	0.091591	18.50
Bayside Waterbodies	2.501679	6.479319	2.273462	5.888239	90.88
Inland Industrial	0.154902	0.401195	0.000004	0.000011	0.00
Inland Industrial Resource	0.950613	2.462075	0.001273	0.003298	0.13
Inland Natural Area	6.947407	17.993701	0.004741	0.012278	0.07
Inland Suburban/Exurban Residential	1.75839	4.554209	0.005828	0.015095	0.33
Egg Harbor City	-	-	-	-	-
Bayside Natural Wetland	1.038574	2.689893	0.000082	0.000211	0.01
Bayside Waterbodies	0.29391	0.761222	0.000064	0.000167	0.02
Inland Natural Area	0.648916	1.680684	0.000121	0.000314	0.02
Egg Harbor Township	-	-	-	-	-
Bayside Natural Wetland	2.923921	7.572922	0.000711	0.001841	0.02
Bayside Recreation	0.02584	0.066925	0.000019	0.00005	0.07
Bayside Residential	0.30687	0.794789	0.00057	0.001475	0.19
Bayside Urban	0.11787	0.305281	0.00011	0.000284	0.09
Bayside Waterbodies	8.128283	21.052156	0.173978	0.450601	2.14
Inland Commercial Park	1.78784	4.630485	0.009685	0.025084	0.54
Inland Industrial	2.401373	6.219527	0.000241	0.000625	0.01
Inland Industrial Resource	0.517924	1.341416	0.065232	0.16895	12.59
Inland Natural Area	4.662498	12.075815	0.001661	0.004301	0.04
Inland Suburban/Exurban Residential	3.076253	7.96746	0.001705	0.004416	0.06
Inland Urban	1.213161	3.142072	0.000676	0.001751	0.06
Oceanside Beach	0.086163	0.223162	0.000212	0.00055	0.25
Galloway Township	-	-	-	-	-
Bayside Natural Upland	0.070809	0.183395	0.000283	0.000734	0.40
Bayside Natural Wetland	28.241116	73.144156	20.818833	53.92053	73.72
Bayside Recreation	0.270319	0.700122	0.006869	0.01779	2.54
Bayside Residential	0.078624	0.203636	0.016912	0.043802	21.51
Bayside Waterbodies	20.323966	52.638829	11.429608	29.602549	56.24
Inland Commercial Park	0.294672	0.763197	0.000039	0.0001	0.01
Inland Industrial Resource	0.269761	0.698678	0.000015	0.000038	0.01
Inland Natural Area	15.240384	39.472414	0.065809	0.170445	0.43

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Recreation	1.020304	2.642575	0.057007	0.147648	5.59
Inland Rural	12.434094	32.204156	0.003821	0.009895	0.03
Inland Suburban/Exurban Residential	14.07714	36.459625	0.024506	0.06347	0.17
Nearshore Ocean	10.491951	27.174029	10.49158	27.173067	100.00
Oceanside Beach	0.160693	0.416192	0.137703	0.356649	85.69
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000263	0.000681	0.08
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	8.435694	21.848346	100.00
Oceanside Residential/Commercial	0.296536	0.768025	0.137232	0.35543	46.28
Highlands Borough	-	-	-	-	-
Bayside Residential	0.559143	1.448173	0.007139	0.018491	1.28
Bayside Waterbodies	0.119803	0.310287	0.000001	0.000001	0.00
Inland Suburban/Exurban Residential	0.146548	0.379558	0.001261	0.003266	0.86
Interlaken Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.383504	0.99327	0.00082	0.002125	0.21
Seascape Residential	0.014124	0.03658	0.000019	0.00005	0.13
Island Heights Borough	-	-	-	-	-
Bayside Residential	0.248817	0.644434	0.002202	0.005703	0.88
Bayside Waterbodies	0.255146	0.660825	0.000002	0.000004	0.00
Inland Suburban/Exurban Residential	0.365869	0.947596	0.001333	0.003453	0.36
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000651	0.001687	0.44
Bayside Natural Upland	1.482721	3.84023	0.002532	0.006558	0.17
Bayside Natural Wetland	2.027647	5.251583	1.245222	3.225109	61.41
Bayside Residential	2.301367	5.960513	0.075019	0.194297	3.26
Bayside Waterbodies	15.272406	39.55535	9.852251	25.517214	64.51
Inland Agriculture	0.154952	0.401323	0.000106	0.000275	0.07
Inland Commercial Park	0.67829	1.756763	0.00203	0.005258	0.30
Inland Industrial Resource	4.474981	11.590149	0.003581	0.009275	0.08
Inland Natural Area	64.91341	168.12496	0.014302	0.037043	0.02
Inland Rural	0.410648	1.063573	0.000251	0.000651	0.06
Inland Suburban/Exurban Residential	7.49792	19.419524	0.022216	0.05754	0.30
Lake Como Borough	-	-	-	-	-
Bayside Urban	0.086951	0.225202	0.00028	0.000726	0.32
Inland Recreation	0.005635	0.014595	0.000004	0.00001	0.07
Inland Suburban/Exurban Residential	0.109575	0.283798	0.000601	0.001556	0.55
Seascape Residential	0.049721	0.128778	0.000772	0.002	1.55
Lakewood Township	-	-	-	-	-
Inland Commercial Park	1.806915	4.679889	0.00245	0.006346	0.14
Inland Natural Area	0.783576	2.029453	0.00086	0.002228	0.11
Inland Suburban/Exurban Residential	2.668113	6.91038	0.004748	0.012298	0.18
Lavallette Borough	-	-	-	-	-
Bayside Recreation	0.034809	0.090155	0.000029	0.000075	0.08
Bayside Residential	0.375785	0.97328	0.000237	0.000615	0.06
Nearshore Ocean	4.979553	12.896984	4.979517	12.896891	100.00
Oceanside Residential/Commercial	0.465298	1.205118	0.107024	0.277192	23.00
Seascape Residential	0.090872	0.235356	0.000053	0.000137	0.06

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Linwood	-	-	-	-	-
Bayside Recreation	0.189037	0.489604	0.00027	0.0007	0.14
Bayside Waterbodies	1.655856	4.288647	0.000068	0.000175	0.00
Inland Suburban/Exurban Residential	1.712348	4.434961	0.000956	0.002475	0.06
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Upland	0.094972	0.245975	0.000019	0.00005	0.02
Bayside Natural Wetland	14.347208	37.159099	9.46328	24.509783	65.96
Bayside Recreation	0.011552	0.02992	0.003089	0.008	26.74
Bayside Residential	2.109492	5.463559	0.115386	0.298849	5.47
Bayside Waterbodies	24.740858	64.078527	12.686893	32.858901	51.28
Inland Industrial Resource	0.547275	1.417437	0.000048	0.000125	0.01
Inland Military Site	0.029327	0.075957	0.002476	0.006414	8.44
Inland Natural Area	22.847206	59.173991	0.279832	0.724761	1.22
Inland Recreation	0.04628	0.119866	0.000068	0.000175	0.15
Inland Rural	0.231146	0.598666	0.000001	0.000002	0.00
Inland Suburban/Exurban Residential	8.850442	22.92254	0.02472	0.064024	0.28
Oceanside Beach	0.079038	0.204708	0.020547	0.053216	26.00
Loch Arbour Village	-	-	-	-	-
Nearshore Ocean	0.733562	1.899916	0.733072	1.898648	99.93
Oceanside Residential/Commercial	0.043026	0.111437	0.017876	0.046298	41.55
Oceanside Urban	0.021004	0.054401	0.006681	0.017303	31.81
Seascape Residential	0.060794	0.157454	0.000306	0.000791	0.50
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.002278	0.005899	0.18
Bayside Residential	1.853823	4.801379	0.011936	0.030915	0.64
Bayside Waterbodies	17.404871	45.078409	3.466054	8.977037	19.91
Nearshore Ocean	43.727882	113.254696	43.726115	113.250118	100.00
Oceanside Beach	0.676831	1.752985	0.434157	1.12446	64.15
Oceanside Residential/Commercial	2.171806	5.624951	0.835049	2.162766	38.45
Long Branch	-	-	-	-	-
Inland Suburban/Exurban Residential	3.366266	8.718588	0.001114	0.002885	0.03
Nearshore Ocean	15.532177	40.228155	15.531326	40.225951	99.99
Oceanside Recreation	0.071082	0.184103	0.039102	0.101275	55.01
Oceanside Residential/Commercial	0.267907	0.693876	0.080043	0.20731	29.88
Oceanside Urban	0.634541	1.643454	0.169232	0.43831	26.67
Seascape Residential	0.371897	0.96321	0.000974	0.002522	0.26
Longport Borough	-	-	-	-	-
Bayside Residential	0.21212	0.549388	0.002499	0.006472	1.18
Bayside Urban	0.005314	0.013762	0.000097	0.00025	1.83
Bayside Waterbodies	0.173929	0.450474	0.06296	0.163065	36.20
Nearshore Ocean	5.466968	14.159381	5.391462	13.963823	98.62
Oceanside Residential/Commercial	0.265899	0.688675	0.110917	0.287274	41.71
Manasquan Borough	-	-	-	-	-
Bayside Military Site	0.00942	0.024398	0.000157	0.000408	1.67
Bayside Natural Wetland	0.083164	0.215393	0.000381	0.000987	0.46
Bayside Recreation	0.050631	0.131133	0.00123	0.003186	2.43
Bayside Residential	0.30206	0.782331	0.003116	0.008069	1.03
Bayside Waterbodies	0.078798	0.204085	0.022316	0.057799	28.32
Inland Natural Area	0.010181	0.026368	0.000029	0.000075	0.28

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	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	0.549375	1.422874	0.003593	0.009305	0.65
Inland Urban	0.278898	0.722341	0.001442	0.003734	0.52
Nearshore Ocean	4.680765	12.123125	4.680555	12.122581	100.00
Oceanside Residential/Commercial	0.223817	0.579683	0.090534	0.234481	40.45
Manchester Township	-	-	-	-	-
Inland Industrial Resource	0.411317	1.065307	0.000415	0.001075	0.10
Inland Natural Area	6.21663	16.100999	0.001051	0.002723	0.02
Inland Suburban/Exurban Residential	4.451259	11.528709	0.002163	0.005602	0.05
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000146	0.000377	0.08
Bayside Waterbodies	0.15918	0.412275	0.000042	0.000108	0.03
Nearshore Ocean	7.317539	18.952339	7.317423	18.952038	100.00
Oceanside Residential/Commercial	0.339952	0.880472	0.132429	0.34299	38.96
Margate City	-	-	-	-	-
Bayside Residential	1.039538	2.692392	0.005897	0.015274	0.57
Bayside Urban	0.050474	0.130728	0.000481	0.001246	0.95
Bayside Waterbodies	0.144981	0.375498	0.000022	0.000058	0.02
Nearshore Ocean	5.471949	14.172282	5.471731	14.171718	100.00
Oceanside Residential/Commercial	0.474007	1.227674	0.14068	0.364361	29.68
Middletown Township	-	-	-	-	-
Bayside Military Site	0.287201	0.743848	0.00001	0.000025	0.00
Bayside Natural Upland	0.6612	1.712501	0.054126	0.140186	8.19
Bayside Natural Wetland	2.864806	7.419813	0.019872	0.051467	0.69
Bayside Recreation	0.539901	1.398337	0.008795	0.02278	1.63
Bayside Residential	2.23249	5.782122	0.000808	0.002092	0.04
Bayside Waterbodies	27.535314	71.316135	3.78421	9.801059	13.74
Inland Industrial	0.221159	0.572798	0.000935	0.002422	0.42
Inland Suburban/Exurban Residential	13.995578	36.24838	0.001979	0.005125	0.01
Nearshore Ocean	26.807349	69.430715	26.8073	69.4307	100.00
Oceanside Beach	0.806461	2.088724	0.586689	1.519517	72.75
Oceanside Recreation	0.181945	0.471237	0.024261	0.062835	13.33
Monmouth Beach Borough	-	-	-	-	-
Nearshore Ocean	6.151021	15.931071	6.1510	15.9311	100.00
Oceanside Recreation	0.009031	0.02339	0.000066	0.000172	0.73
Oceanside Residential/Commercial	0.29216	0.75669	0.074767	0.193646	25.59
Neptune City Borough	-	-	-	-	-
Bayside Recreation	0.186156	0.482142	0.00028	0.000724	0.15
Bayside Residential	0.034799	0.090129	0.000029	0.000075	0.08
Bayside Waterbodies	0.010899	0.028228	0.000019	0.00005	0.17
Inland Suburban/Exurban Residential	0.472201	1.222994	0.000938	0.002429	0.20
Inland Urban	0.18838	0.487903	0.000307	0.000794	0.16
Neptune Township	-	-	-	-	-
Bayside Recreation	0.150593	0.390035	0.000327	0.000846	0.22
Bayside Residential	0.330337	0.855569	0.000498	0.001291	0.15
Bayside Waterbodies	0.601134	1.556929	0.000164	0.000425	0.03
Inland Recreation	0.445665	1.154266	0.002219	0.005748	0.50
Inland Suburban/Exurban Residential	5.241187	13.574611	0.005483	0.014201	0.10
Inland Urban	0.45881	1.188312	0.001057	0.002738	0.23
Nearshore Ocean	2.426312	6.28412	2.4263	6.2841	100.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Oceanside Residential/Commercial	0.19484	0.504632	0.07243	0.187594	37.17
Oceanside Urban	0.004327	0.011207	0.000104	0.000269	2.40
Seascape Residential	0.169061	0.437865	0.001219	0.003157	0.72
Northfield	-	-	-	-	-
Bayside Recreation	0.217445	0.56318	0.001503	0.003892	0.69
Bayside Waterbodies	0.395331	1.023902	0.000019	0.00005	0.00
Inland Suburban/Exurban Residential	2.320348	6.009674	0.004306	0.011152	0.19
Ocean City	-	-	-	-	-
Bayside Residential	0.17343	0.449183	0.001426	0.003694	0.82
Bayside Waterbodies	1.017099	2.634275	0.204709	0.530195	20.13
Nearshore Ocean	5.177963	13.410864	5.1780	13.4111	100.00
Oceanside Beach	0.111924	0.289882	0.103685	0.268543	92.64
Oceanside Residential/Commercial	0.167069	0.432707	0.022044	0.057093	13.19
Seascape Residential	0.0843	0.218336	0.000465	0.001205	0.55
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000241	0.000625	0.11
Inland Natural Area	0.001196	0.003097	0.00001	0.000025	0.84
Inland Suburban/Exurban Residential	0.233087	0.603693	0.00057	0.001475	0.24
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.001497	0.003877	0.73
Bayside Natural Wetland	1.313493	3.401931	0.471814	1.221993	35.92
Bayside Residential	1.039616	2.692594	0.087476	0.226561	8.41
Bayside Waterbodies	10.20872	26.440463	8.987785	23.278256	88.04
Inland Agriculture	0.190638	0.493749	0.012027	0.03115	6.31
Inland Industrial Resource	0.009842	0.025491	0.000019	0.00005	0.19
Inland Natural Area	16.34245	42.326751	0.00584	0.015126	0.04
Inland Recreation	0.564168	1.461187	0.00023	0.000595	0.04
Inland Rural	1.022571	2.648446	0.001796	0.004651	0.18
Inland Suburban/Exurban Residential	10.472781	27.124378	0.0161	0.041699	0.15
Inland Urban	1.223853	3.169765	0.000328	0.00085	0.03
Pine Beach Borough	-	-	-	-	-
Bayside Residential	0.264736	0.685664	0.001096	0.00284	0.41
Inland Suburban/Exurban Residential	0.379676	0.983357	0.000795	0.002058	0.21
Pleasantville	-	-	-	-	-
Bayside Natural Wetland	1.471803	3.811953	0.004	0.01036	0.27
Bayside Residential	0.148484	0.384571	0.000381	0.000987	0.26
Bayside Urban	0.046055	0.119282	0.002872	0.007438	6.24
Bayside Waterbodies	1.73479	4.493086	0.000058	0.000151	0.00
Inland Commercial Park	0.250718	0.649357	0.000895	0.002317	0.36
Inland Suburban/Exurban Residential	3.321798	8.603417	0.021839	0.056564	0.66
Inland Urban	0.284905	0.737899	0.000545	0.001411	0.19
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.002224	0.005761	3.45
Bayside Residential	0.182721	0.473245	0.001642	0.004254	0.90
Bayside Urban	0.075761	0.19622	0.003085	0.00799	4.07
Bayside Waterbodies	0.261104	0.676255	0.02331	0.060371	8.93
Inland Recreation	0.014755	0.038216	0.000054	0.000141	0.37
Inland Suburban/Exurban Residential	0.631836	1.636447	0.00576	0.014918	0.91
Inland Urban	0.177127	0.458756	0.000904	0.002341	0.51

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Nearshore Ocean	5.42523	14.051281	5.4252	14.0513	100.00
Oceanside Residential/Commercial	0.405586	1.050463	0.123441	0.319712	30.44
Oceanside Urban	0.080118	0.207504	0.030047	0.077822	37.50
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.003223	0.008348	0.29
Bayside Waterbodies	0.469913	1.21707	0.000019	0.00005	0.00
Inland Recreation	0.025964	0.067245	0.000068	0.000175	0.26
Inland Suburban/Exurban Residential	2.428247	6.28913	0.008016	0.020761	0.33
Inland Urban	0.016025	0.041505	0.000045	0.000117	0.28
Port Republic	-	-	-	-	-
Bayside Natural Wetland	2.59482	6.720553	0.722978	1.872503	27.86
Bayside Residential	0.102496	0.265463	0.012037	0.031177	11.74
Bayside Waterbodies	0.718117	1.859915	0.306204	0.793064	42.64
Inland Natural Area	2.487741	6.44322	0.001774	0.004594	0.07
Inland Rural	0.202746	0.525111	0.000029	0.000075	0.01
Inland Suburban/Exurban Residential	2.417496	6.261286	0.002014	0.005216	0.08
Rumson Borough	-	-	-	-	-
Bayside Residential	1.228204	3.181035	0.001103	0.002857	0.09
Bayside Waterbodies	1.91635	4.963323	0.000026	0.000068	0.00
Sea Bright Borough	-	-	-	-	-
Bayside Natural Upland	0.00493	0.012768	0.000068	0.000175	1.38
Nearshore Ocean	13.18029	34.136794	13.1803	34.1368	100.00
Oceanside Beach	0.028625	0.074139	0.022693	0.058776	79.28
Oceanside Recreation	0.050761	0.131471	0.018055	0.046761	35.57
Oceanside Residential/Commercial	0.586686	1.519509	0.174385	0.451654	29.72
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.039547	0.102427	14.18
Bayside Recreation	0.000186	0.000483	0.000001	0.000002	0.54
Bayside Residential	0.000232	0.0006	0.000003	0.000007	1.29
Inland Recreation	0.003151	0.008161	0.000046	0.00012	1.46
Inland Suburban/Exurban Residential	0.31327	0.811364	0.001447	0.003747	0.46
Inland Urban	0.013037	0.033765	0.000051	0.000133	0.39
Nearshore Ocean	4.412353	11.427942	4.4124	11.4279	100.00
Oceanside Residential/Commercial	0.310064	0.803061	0.113345	0.293561	36.56
Seascape Residential	0.238434	0.617542	0.002229	0.005772	0.93
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000623	0.001613	1.04
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	3.7514	9.7160	100.00
Oceanside Residential/Commercial	0.003488	0.009033	0.001584	0.004101	45.41
Oceanside Urban	0.244074	0.632149	0.067924	0.175922	27.83
Seascape Residential	0.191807	0.496778	0.002377	0.006157	1.24
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.001113	0.002881	1.80
Bayside Residential	0.228865	0.592758	0.00258	0.006681	1.13
Nearshore Ocean	5.723702	14.824319	5.7237	14.8243	100.00
Oceanside Residential/Commercial	0.471132	1.220226	0.150407	0.389552	31.92
Oceanside Urban	0.000014	0.000036	0.000014	0.000036	100.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000113	0.000293	1.02
Bayside Residential	0.253949	0.657724	0.001359	0.00352	0.54
Bayside Urban	0.036614	0.09483	0.000986	0.002555	2.69
Bayside Waterbodies	0.252445	0.65383	0.000194	0.000502	0.08
Nearshore Ocean	4.466743	11.568812	4.4667	11.5688	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.116693	0.302233	38.82
Oceanside Urban	0.055995	0.145025	0.02656	0.06879	47.43
Seascape Residential	0.120813	0.312905	0.000582	0.001506	0.48
Seascape Urban	0.017797	0.046095	0.000851	0.002205	4.78
South Toms River Borough	-	-	-	-	-
Bayside Urban	0.108832	0.281872	0.000434	0.001125	0.40
Inland Natural Area	0.279983	0.725152	0.000145	0.000375	0.05
Inland Suburban/Exurban Residential	0.774911	2.007009	0.000149	0.000385	0.02
Spring Lake Borough	-	-	-	-	-
Inland Recreation	0.03185	0.082492	0.000029	0.000075	0.09
Inland Suburban/Exurban Residential	0.453915	1.175635	0.001939	0.005023	0.43
Nearshore Ocean	6.952834	18.007758	6.9528	18.0078	100.00
Oceanside Residential/Commercial	0.583421	1.511054	0.211668	0.548219	36.28
Seascape Residential	0.478515	1.239349	0.004029	0.010436	0.84
Spring Lake Heights Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.307347	3.386014	0.005434	0.014075	0.42
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.00048	0.001243	7.55
Bayside Natural Wetland	8.789522	22.764757	5.708659	14.785359	64.95
Bayside Recreation	0.099286	0.25715	0.006625	0.017159	6.67
Bayside Residential	2.092265	5.41894	0.06688	0.173218	3.20
Bayside Waterbodies	7.021887	18.186603	0.774547	2.006068	11.03
Inland Commercial Park	1.074364	2.78259	0.008521	0.022069	0.79
Inland Industrial	0.114107	0.295537	0.000782	0.002026	0.69
Inland Industrial Resource	0.829568	2.148571	0.001392	0.003605	0.17
Inland Natural Area	25.321164	65.581513	0.035049	0.090777	0.14
Inland Recreation	0.140441	0.363739	0.000851	0.002204	0.61
Inland Rural	1.073095	2.779304	0.000618	0.0016	0.06
Inland Suburban/Exurban Residential	8.081042	20.929802	0.026101	0.067602	0.32
Surf City Borough	-	-	-	-	-
Bayside Recreation	0.005584	0.014464	0.00001	0.000025	0.18
Bayside Residential	0.258283	0.668951	0.001669	0.004322	0.65
Bayside Waterbodies	0.553974	1.434786	0.000036	0.000093	0.01
Nearshore Ocean	5.320502	13.780037	5.3205	13.7800	100.00
Oceanside Residential/Commercial	0.370025	0.958359	0.124877	0.323429	33.75
Seascape Residential	0.173221	0.44864	0.000371	0.000962	0.21
Tinton Falls Borough	-	-	-	-	-
Inland Industrial Resource	1.182896	3.063687	0.022153	0.057375	1.87
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.00027	0.0007	0.06
Bayside Natural Wetland	0.738379	1.912393	0.000244	0.000632	0.03
Bayside Recreation	0.80446	2.083541	0.000588	0.001524	0.07
Bayside Residential	3.357036	8.694683	0.021328	0.05524	0.64

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Urban	0.075735	0.196154	0.000039	0.0001	0.05
Bayside Waterbodies	11.250767	29.139353	0.189038	0.489607	1.68
Inland Commercial Park	2.083064	5.39511	0.002098	0.005434	0.10
Inland Industrial Resource	0.54356	1.407814	0.00001	0.000025	0.00
Inland Natural Area	4.883689	12.648696	0.001887	0.004888	0.04
Inland Suburban/Exurban Residential	22.29713	57.749303	0.05042	0.130588	0.23
Inland Urban	2.177285	5.639142	0.006545	0.016952	0.30
Nearshore Ocean	7.370257	19.088878	7.3703	19.0889	100.00
Oceanside Residential/Commercial	0.713613	1.848249	0.161801	0.419064	22.67
Oceanside Urban	0.003978	0.010302	0.000259	0.00067	6.51
Seascape Residential	0.262283	0.67931	0.001087	0.002815	0.41
Tuckerton Borough	-	-	-	-	-
Bayside Natural Upland	0.101106	0.261863	0.001711	0.004432	1.69
Bayside Natural Wetland	1.625877	4.211002	1.485427	3.847239	91.36
Bayside Recreation	0.009819	0.025431	0.004132	0.010702	42.08
Bayside Residential	0.371063	0.961048	0.02788	0.072209	7.51
Bayside Waterbodies	0.07524	0.19487	0.063084	0.163387	83.84
Inland Natural Area	0.213358	0.552595	0.001277	0.003307	0.60
Inland Suburban/Exurban Residential	1.28566	3.329845	0.004424	0.011457	0.34
Ventnor City	-	-	-	-	-
Bayside Natural Wetland	0.60895	1.577174	0.000885	0.002291	0.15
Bayside Recreation	0.024357	0.063084	0.000203	0.000525	0.83
Bayside Residential	1.10774	2.869033	0.006413	0.01661	0.58
Bayside Waterbodies	0.608586	1.576232	0.000098	0.000254	0.02
Nearshore Ocean	5.445494	14.103766	5.4455	14.1038	100.00
Oceanside Residential/Commercial	0.285293	0.738905	0.11827	0.306319	41.46
Wall Township	-	-	-	-	-
Bayside Natural Wetland	0.210179	0.544361	0.00001	0.000025	0.00
Bayside Residential	0.496866	1.286878	0.000423	0.001095	0.09
Bayside Urban	0.046813	0.121244	0.000223	0.000578	0.48
Bayside Waterbodies	0.417014	1.08006	0.00001	0.000025	0.00
Inland Agriculture	0.367204	0.951055	0.000566	0.001466	0.15
Inland Commercial Park	2.100229	5.439568	0.002803	0.00726	0.13
Inland Industrial Resource	0.290507	0.752411	0.000608	0.001575	0.21
Inland Natural Area	9.479763	24.552473	0.000203	0.000526	0.00
Inland Recreation	0.989488	2.562762	0.00125	0.003236	0.13
Inland Rural	0.722588	1.871493	0.000751	0.001945	0.10
Inland Suburban/Exurban Residential	12.955414	33.554367	0.015282	0.03958	0.12
Washington Township	-	-	-	-	-
Bayside Natural Wetland	5.107411	13.228135	0.000029	0.000075	0.00
Bayside Residential	0.182599	0.472929	0.000019	0.00005	0.01
Bayside Waterbodies	1.111837	2.879646	0.00009	0.000233	0.01
Inland Natural Area	19.718399	51.070419	0.000357	0.000925	0.00
Woodland Township	-	-	-	-	-
Inland Industrial Resource	0.990679	2.565846	0.000039	0.0001	0.00
Inland Natural Area	13.572946	35.153769	0.000135	0.00035	0.00
New York					
Amityville	-	-	-	-	-
Bayside Recreation	0.031534	0.081672	0.008366	0.021667	26.53

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	0.452969	1.173185	0.022948	0.059434	5.07
Bayside Waterbodies	0.330296	0.855463	0.291089	0.753916	88.13
Atlantic Beach	-	-	-	-	-
Nearshore Ocean	0.000181	0.000468	0.000181	0.000468	100.00
Oceanside Beach	0.010218	0.026464	0.001463	0.003788	14.32
Oceanside Urban	0.332698	0.861683	0.086851	0.224943	26.11
Babylon	-	-	-	-	-
Bayside Industrial	0.072703	0.188299	0.029945	0.077557	41.19
Bayside Natural Upland	0.130587	0.338218	0.000477	0.001235	0.37
Bayside Natural Wetland	5.507022	14.26312	2.374121	6.148946	43.11
Bayside Recreation	0.44051	1.140916	0.112444	0.291228	25.53
Bayside Residential	2.133089	5.524675	0.174751	0.452604	8.19
Bayside Waterbodies	18.444166	47.77017	15.116745	39.15219	81.96
Inland Commercial Park	0.261536	0.677375	0.000683	0.00177	0.26
Inland Industrial	0.882498	2.285659	0.046054	0.119279	5.22
Inland Recreation	1.237111	3.204103	0.002937	0.007608	0.24
Inland Suburban/Exurban Residential	23.934067	61.98895	0.001376	0.003565	0.01
Inland Urban	7.84184	20.310272	0.03744	0.096968	0.48
Nearshore Ocean	30.602222	79.259392	30.602222	79.259391	100.00
Oceanside Beach	1.213613	3.143244	0.798236	2.067421	65.77
Oceanside Recreation	0.560366	1.451341	0.348868	0.903565	62.26
Oceanside Residential/Commercial	0.238664	0.618138	0.092727	0.240163	38.85
Seascape Residential	0.728118	1.885818	0.000011	0.000029	0.00
Bellport	-	-	-	-	-
Bayside Natural Upland	0.007899	0.020458	0.000386	0.000998	4.89
Bayside Natural Wetland	0.026852	0.069547	0.00874	0.022636	32.55
Bayside Recreation	0.181398	0.469818	0.040353	0.104512	22.25
Bayside Residential	0.185113	0.479442	0.035589	0.092175	19.23
Bayside Waterbodies	0.073828	0.191214	0.071634	0.18553	97.03
Inland Suburban/Exurban Residential	1.031411	2.671341	0.010779	0.027917	1.05
Brightwaters	-	-	-	-	-
Bayside Residential	0.097227	0.251817	0.005318	0.013774	5.47
Bayside Waterbodies	0.022727	0.058863	0.002733	0.007079	12.03
Brookhaven	-	-	-	-	-
Bayside Natural Upland	3.05994	7.925209	0.029823	0.07724	0.97
Bayside Natural Wetland	6.783609	17.569466	2.416915	6.259782	35.63
Bayside Recreation	0.068349	0.177022	0.027588	0.071453	40.36
Bayside Residential	5.895368	15.268933	0.294472	0.76268	4.99
Bayside Urban	0.000139	0.000361	0.000132	0.000342	94.96
Bayside Waterbodies	61.640293	159.647625	51.558869	133.536859	83.64
Inland Agriculture	3.702175	9.588588	0.001167	0.003021	0.03
Inland Commercial Park	11.206191	29.023901	0.004444	0.011509	0.04
Inland Industrial	5.157618	13.358169	0.015579	0.040351	0.30
Inland Industrial Resource	2.191928	5.677066	0.120567	0.312268	5.50
Inland Natural Area	62.54903	162.001244	0.020493	0.053078	0.03
Inland Recreation	2.653809	6.873334	0.008387	0.021722	0.32
Inland Rural	1.69541	4.391093	0.105551	0.273377	6.23
Inland Suburban/Exurban Residential	127.068774	329.106615	0.155774	0.403452	0.12
Inland Urban	1.080975	2.799713	0.001502	0.003891	0.14

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Nearshore Ocean	79.669359	206.342692	79.669358	206.342691	100.00
Oceanside Beach	2.793658	7.23554	1.781193	4.613268	63.76
Oceanside Recreation	0.324854	0.841368	0.142147	0.36816	43.76
Oceanside Residential/Commercial	1.208334	3.129571	0.466674	1.20868	38.62
Brookville	-	-	-	-	-
Inland Recreation	0.277539	0.718822	0.000193	0.0005	0.07
Farmingdale	-	-	-	-	-
Inland Suburban/Exurban Residential	0.890046	2.305208	0.00001	0.000025	0.00
Freeport	-	-	-	-	-
Bayside Natural Wetland	0.009118	0.023614	0.008958	0.023202	98.25
Bayside Recreation	0.067058	0.173678	0.016861	0.043669	25.14
Bayside Residential	0.729593	1.889638	0.010473	0.027126	1.44
Bayside Urban	0.333939	0.864898	0.000917	0.002376	0.27
Bayside Waterbodies	0.124098	0.321413	0.039914	0.103377	32.16
Hempstead	-	-	-	-	-
Bayside Industrial	0.910828	2.359034	0.016431	0.042556	1.80
Bayside Industrial Resource	0.255743	0.662372	0.114026	0.295325	44.59
Bayside Natural Upland	1.245382	3.225525	0.14302	0.370419	11.48
Bayside Natural Wetland	12.04004	31.183561	6.229808	16.135128	51.74
Bayside Recreation	1.929091	4.996324	0.106021	0.274593	5.50
Bayside Residential	3.476425	9.0039	0.100731	0.260892	2.90
Bayside Urban	0.839459	2.174189	0.016744	0.043366	1.99
Bayside Waterbodies	16.597306	42.986826	7.587543	19.651647	45.72
Inland Commercial Park	1.016703	2.633248	0.000037	0.000097	0.00
Inland Suburban/Exurban Residential	51.255621	132.75145	0.000086	0.000222	0.00
Nearshore Ocean	54.56195	141.314802	54.561896	141.314662	100.00
Oceanside Beach	0.771964	1.999379	0.429656	1.112803	55.66
Oceanside Recreation	3.182074	8.241535	1.941871	5.029424	61.03
Oceanside Residential/Commercial	0.551963	1.429577	0.216193	0.559938	39.17
Oceanside Urban	0.327274	0.847636	0.222788	0.577018	68.07
Seascape Residential	0.220829	0.571946	0.000314	0.000813	0.14
Huntington	-	-	-	-	-
Inland Industrial	0.309618	0.801908	0.00001	0.000025	0.00
Inland Industrial Resource	0.214652	0.555947	0.016072	0.041625	7.49
Inland Natural Area	2.831339	7.333134	0.001545	0.004002	0.05
Inland Recreation	0.599024	1.551466	0	0	0.00
Inland Suburban/Exurban Residential	49.98802	129.468378	0.007849	0.02033	0.02
Inland Urban	6.058866	15.692391	0.086349	0.223642	1.43
Islandia	-	-	-	-	-
Inland Suburban/Exurban Residential	0.880307	2.279984	0.000001	0.000002	0.00
Inland Urban	1.001583	2.594089	0.002712	0.007023	0.27
Islip	-	-	-	-	-
Bayside Commercial Park	0.037037	0.095925	0.000408	0.001056	1.10
Bayside Natural Upland	1.462962	3.789053	0.025704	0.066574	1.76
Bayside Natural Wetland	4.3486	11.262822	2.045477	5.297762	47.04
Bayside Recreation	1.889144	4.89286	0.491502	1.272983	26.02
Bayside Residential	4.193639	10.861475	0.330331	0.855552	7.88
Bayside Urban	0.405448	1.050105	0.007016	0.018171	1.73
Bayside Waterbodies	31.210628	80.835155	27.640216	71.58783	88.56

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Commercial Park	2.096979	5.431151	0.005835	0.015113	0.28
Inland Industrial	2.30498	5.969871	0.176009	0.455862	7.64
Inland Industrial Resource	0.151762	0.393061	0.034064	0.088225	22.45
Inland Natural Area	8.758321	22.683946	0.000464	0.001201	0.01
Inland Suburban/Exurban Residential	59.075764	153.005527	0.031805	0.082375	0.05
Inland Urban	12.445311	32.233208	0.028031	0.0726	0.23
Nearshore Ocean	24.339217	63.038283	24.339217	63.038283	100.00
Oceanside Beach	0.447225	1.158308	0.243091	0.629602	54.36
Oceanside Recreation	0.689908	1.786853	0.322019	0.834025	46.68
Oceanside Residential/Commercial	0.614889	1.592555	0.191614	0.496278	31.16
Seascape Residential	0.694722	1.799321	0.0122	0.031598	1.76
Lawrence	-	-	-	-	-
Bayside Natural Wetland	1.785345	4.624023	0.000261	0.000675	0.01
Bayside Recreation	0.29194	0.756122	0.001998	0.005175	0.68
Bayside Residential	0.472955	1.224949	0.000336	0.00087	0.07
Inland Suburban/Exurban Residential	0.836933	2.167647	0.000261	0.000675	0.03
Inland Urban	0.268891	0.696423	0.00006	0.000155	0.02
Lindenhurst	-	-	-	-	-
Bayside Natural Wetland	0.000101	0.000261	0.000101	0.000261	100.00
Bayside Residential	0.38149	0.988053	0.024445	0.063312	6.41
Bayside Waterbodies	0.036053	0.093377	0.011521	0.029839	31.96
Inland Commercial Park	0.078724	0.203893	0.000005	0.000014	0.01
Long Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.164083	0.424973	0.047991	0.124296	29.25
Oceanside Urban	0.636125	1.647557	0.177742	0.460349	27.94
Massapequa Park	-	-	-	-	-
Bayside Residential	0.147647	0.382404	0.147647	0.382404	100.00
Bayside Waterbodies	0.022515	0.058314	0.022515	0.058314	100.00
Muttontown	-	-	-	-	-
Inland Suburban/Exurban Residential	3.695857	9.572224	0.000328	0.00085	0.01
New York	-	-	-	-	-
Bayside Industrial	4.62244	11.972064	0.000058	0.00015	0.00
Bayside Natural Upland	2.357439	6.105738	0.178225	0.4616	7.56
Bayside Natural Wetland	4.084322	10.578346	0.000116	0.0003	0.00
Bayside Recreation	2.329157	6.032489	0.033948	0.087925	1.46
Bayside Urban	5.826575	15.09076	0.001236	0.0032	0.02
Bayside Waterbodies	48.810452	126.41849	10.706991	27.730978	21.94
Inland Recreation	5.057623	13.099184	0.004324	0.0112	0.09
Inland Suburban/Exurban Residential	2.988713	7.740731	0.000106	0.000275	0.00
Inland Urban	86.124077	223.060335	0.000203	0.000525	0.00
Nearshore Ocean	37.146786	96.209734	37.146786	96.209734	100.00
Oceanside Beach	1.289173	3.338943	0.53794	1.393258	41.73
Oceanside Recreation	1.294633	3.353083	0.33645	0.871403	25.99
Oceanside Residential/Commercial	0.725993	1.880313	0.171374	0.443856	23.61
Oceanside Urban	1.248393	3.233324	0.327571	0.848404	26.24
North Hempstead	-	-	-	-	-
Inland Suburban/Exurban Residential	6.183616	16.015493	0.000008	0.000022	0.00
North Hills	-	-	-	-	-
Inland Recreation	0.625917	1.621117	0.000019	0.00005	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	1.876356	4.859739	0.00001	0.000025	0.00
Ocean Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.138311	0.358225	0.019165	0.049638	13.86
Old Westbury	-	-	-	-	-
Inland Recreation	1.104741	2.861266	0.000193	0.0005	0.02
Oyster Bay	-	-	-	-	-
Bayside Natural Wetland	2.408452	6.237862	1.125867	2.915983	46.75
Bayside Residential	1.513069	3.918831	0.093912	0.243231	6.21
Bayside Waterbodies	6.731873	17.435471	5.982688	15.495091	88.87
Inland Commercial Park	4.130391	10.697663	0.000029	0.000075	0.00
Inland Natural Area	3.60004	9.324061	0.00001	0.000025	0.00
Inland Recreation	2.605963	6.749412	0.00194	0.005025	0.07
Inland Suburban/Exurban Residential	31.111857	80.579339	0.00006	0.000155	0.00
Inland Urban	4.109239	10.642879	0.033311	0.086276	0.81
Nearshore Ocean	8.818017	22.838559	8.818017	22.838559	100.00
Oceanside Beach	0.238493	0.617693	0.183727	0.47585	77.04
Oceanside Recreation	0.197249	0.510872	0.046436	0.120268	23.54
Patchogue	-	-	-	-	-
Bayside Recreation	0.045815	0.118659	0.02159	0.055917	47.12
Bayside Residential	0.02952	0.076457	0.009672	0.02505	32.76
Bayside Urban	0.288787	0.747955	0.027715	0.07178	9.60
Bayside Waterbodies	0.189779	0.491527	0.165528	0.428716	87.22
Inland Suburban/Exurban Residential	1.509502	3.909592	0.008786	0.022756	0.58
Quogue	-	-	-	-	-
Bayside Residential	1.019611	2.640781	0.000019	0.00005	0.00
Nearshore Ocean	0.008711	0.022562	0.008711	0.022562	100.00
Oceanside Beach	0.143547	0.371785	0.115178	0.298309	80.24
Oceanside Residential/Commercial	0.37188	0.963165	0.022125	0.057303	5.95
Riverhead	-	-	-	-	-
Bayside Residential	0.998488	2.586072	0.000033	0.000085	0.00
Inland Agriculture	14.347468	37.159771	0.000241	0.000625	0.00
Inland Recreation	1.461878	3.786247	0.000928	0.002403	0.06
Inland Suburban/Exurban Residential	11.578653	29.988573	0.000169	0.000437	0.00
Roslyn Estates	-	-	-	-	-
Inland Suburban/Exurban Residential	0.488702	1.265732	0.000001	0.000003	0.00
Saltaire	-	-	-	-	-
Bayside Natural Wetland	0.033405	0.086519	0.000042	0.000108	0.13
Oceanside Residential/Commercial	0.221511	0.573711	0.034067	0.088233	15.38
Shinnecock Indian Territory	-	-	-	-	-
Bayside Natural Wetland	0.449319	1.163732	0.005517	0.01429	1.23
Bayside Residential	0.336969	0.872747	0.000092	0.000238	0.03
Bayside Waterbodies	0.016795	0.043499	0.001881	0.004871	11.20
Smithtown	-	-	-	-	-
Inland Urban	2.765018	7.161365	0.000019	0.00005	0.00
Southampton	-	-	-	-	-
Bayside Natural Upland	0.424579	1.099656	0.000789	0.002045	0.19
Bayside Natural Wetland	2.467092	6.389739	0.006511	0.016863	0.26
Bayside Recreation	1.284155	3.325945	0.00418	0.010825	0.33
Bayside Residential	6.450016	16.705466	0.071615	0.185481	1.11

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Waterbodies	31.207218	80.826324	1.537168	3.981247	4.93
Inland Agriculture	1.09126	2.826351	0.000108	0.000281	0.01
Inland Industrial	1.991721	5.158533	0.002876	0.00745	0.14
Inland Industrial Resource	0.618949	1.603071	0.008005	0.020733	1.29
Inland Natural Area	35.9446	93.096086	0.007215	0.018687	0.02
Inland Suburban/Exurban Residential	23.487471	60.832271	0.000402	0.001042	0.00
Nearshore Ocean	65.298105	169.121315	65.298105	169.121315	100.00
Oceanside Beach	0.971235	2.515488	0.704348	1.824253	72.52
Oceanside Recreation	0.162181	0.420047	0.015091	0.039086	9.31
Oceanside Residential/Commercial	1.941435	5.028293	0.487506	1.262634	25.11
West Hampton Dunes	-	-	-	-	-
Bayside Natural Wetland	0.03574	0.092565	0.001569	0.004062	4.39
Bayside Waterbodies	0.011442	0.029635	0.000053	0.000137	0.46
Oceanside Beach	0.062194	0.161082	0.046301	0.11992	74.45
Oceanside Recreation	0.230019	0.595747	0.029415	0.076186	12.79
Westhampton Beach	-	-	-	-	-
Bayside Residential	0.48185	1.247985	0.001046	0.002709	0.22
Bayside Waterbodies	0.091944	0.238133	0.000007	0.000018	0.01
Oceanside Beach	0.00744	0.01927	0.006423	0.016636	86.33
Oceanside Residential/Commercial	0.499856	1.29462	0.085946	0.222599	17.19
Woodsburgh	-	-	-	-	-
Bayside Recreation	0.194077	0.502657	0.000015	0.000038	0.01
Bayside Residential	0.098757	0.25578	0.000005	0.000012	0.01

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-4 Character Areas within Municipalities and Intersections with the OCS-A 0544 Lease Area 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Allenhurst Borough	-	-	-	-	-
Nearshore Ocean	3.93983	10.20411	1.96992	5.10206	50.00
Oceanside Residential/Commercial	0.10013	0.25933	0.03203	0.08296	31.99
Asbury Park	-	-	-	-	-
Inland Urban	0.33832	0.87625	0.00010	0.00025	0.03
Nearshore Ocean	3.34483	8.66306	3.34476	8.66288	100.00
Oceanside Residential/Commercial	0.00009	0.66098	0.00009	0.00024	100.00
Oceanside Urban	0.34148	0.88442	0.08761	0.22691	25.66
Seascape Residential	0.29432	0.76228	0.00003	0.00007	0.01
Atlantic Highlands Borough	-	-	-	-	-
Bayside Residential	0.50111	1.29786	0.00024	0.00061	0.05
Inland Commercial Park	0.16975	0.43965	0.00002	0.00005	0.01
Avon-by-the-Sea Borough	-	-	-	-	-
Bayside Waterbodies	0.04859	0.12585	0.00085	0.00221	1.76
Inland Suburban/Exurban Residential	0.06679	0.17298	0.00004	0.00010	0.06
Nearshore Ocean	1.72921	4.47863	1.72861	4.47709	99.97
Oceanside Residential/Commercial	0.18510	0.47940	0.04754	0.12314	25.69
Bay Head Borough	-	-	-	-	-
Nearshore Ocean	4.95526	12.83406	4.95514	12.83377	100.00
Oceanside Residential/Commercial	0.26393	0.68358	0.07093	0.18370	26.87
Belmar Borough	-	-	-	-	-
Bayside Waterbodies	0.36535	0.94624	0.00217	0.00561	0.59
Nearshore Ocean	5.90743	15.30017	5.90713	15.29939	99.99
Oceanside Residential/Commercial	0.42605	1.10347	0.11632	0.30127	27.30
Seascape Residential	0.18508	0.47935	0.00014	0.00035	0.07
Bradley Beach Borough	-	-	-	-	-
Nearshore Ocean	1.95295	5.05812	1.95294	5.05808	100.00
Oceanside Residential/Commercial	0.27869	0.72181	0.10424	0.26999	37.40
Seascape Residential	0.24945	0.64607	0.00003	0.00008	0.01
Brick Township	-	-	-	-	-
Nearshore Ocean	6.15392	15.93858	5.99681	15.53167	97.45
Oceanside Residential/Commercial	0.26327	0.68187	0.08347	0.21618	31.70
Brielle Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.10255	2.85560	0.00005	0.00013	0.00
Deal Borough	-	-	-	-	-
Nearshore Ocean	5.18752	13.43561	5.18670	13.43350	99.98
Oceanside Residential/Commercial	0.49898	1.29235	0.13098	0.33924	26.25
Highlands Borough	-	-	-	-	-
Bayside Residential	0.55914	1.44817	0.00714	0.01849	1.28
Bayside Waterbodies	0.11980	0.31029	0.00000	0.00000	0.00
Inland Suburban/Exurban Residential	0.14655	0.37956	0.00126	0.00327	0.86
Interlaken Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.38350	0.99327	0.00023	0.00060	0.06
Seascape Residential	0.01412	0.03658	0.00001	0.00003	0.07

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Lavallette Borough	-	-	-	-	-
Nearshore Ocean	4.97955	12.89698	2.79590	7.24134	56.15
Oceanside Residential/Commercial	0.46530	1.20512	0.09162	0.23728	19.69
Loch Arbour Village	-	-	-	-	-
Nearshore Ocean	1.46712	3.79983	0.73307	1.89865	49.97
Oceanside Residential/Commercial	0.04303	0.11144	0.01650	0.04274	38.35
Oceanside Urban	0.02100	0.05440	0.00639	0.01655	30.42
Seascape Residential	0.06079	0.15745	0.00003	0.00007	0.04
Long Branch	-	-	-	-	-
Inland Suburban/Exurban Residential	3.36627	8.71859	0.00054	0.00141	0.02
Nearshore Ocean	15.53218	40.22816	15.53133	40.22595	99.99
Oceanside Recreation	0.07108	0.18410	0.03910	0.10128	55.01
Oceanside Residential/Commercial	0.26791	0.69388	0.07434	0.19255	27.75
Oceanside Urban	0.63454	1.64345	0.16649	0.43121	26.24
Seascape Residential	0.37190	0.96321	0.00010	0.00026	0.03
Manasquan Borough	-	-	-	-	-
Bayside Waterbodies	0.07880	0.20409	0.00085	0.00219	1.07
Nearshore Ocean	4.68077	12.12313	4.68056	12.12258	100.00
Oceanside Residential/Commercial	0.22382	0.57968	0.08618	0.22320	38.50
Mantoloking Borough	-	-	-	-	-
Nearshore Ocean	7.31754	18.95234	7.31742	18.95204	100.00
Oceanside Residential/Commercial	0.33995	0.88047	0.12594	0.32619	37.05
Middletown Township	-	-	-	-	-
Bayside Military Site	0.28720	0.74385	0.00001	0.00003	0.00
Bayside Natural Upland	0.66120	1.71250	0.05413	0.14019	8.19
Bayside Natural Wetland	2.86481	7.41981	0.01987	0.05147	0.69
Bayside Recreation	0.53990	1.39834	0.00880	0.02278	1.63
Bayside Residential	2.23249	5.78212	0.00081	0.00209	0.04
Bayside Waterbodies	27.53531	71.31614	3.78421	9.80106	13.74
Inland Industrial	0.22116	0.57280	0.00094	0.00242	0.42
Inland Suburban/Exurban Residential	14.02901	36.33496	0.00198	0.00513	0.01
Nearshore Ocean	26.80735	69.43072	26.80592	69.42701	99.99
Oceanside Beach	0.80646	2.08872	0.58669	1.51952	72.75
Oceanside Recreation	0.18195	0.47124	0.02426	0.06284	13.33
Monmouth Beach Borough	-	-	-	-	-
Nearshore Ocean	6.15102	15.93107	6.15020	15.92894	99.99
Oceanside Recreation	0.00903	0.02339	0.00007	0.00017	0.73
Oceanside Residential/Commercial	0.29216	0.75669	0.07477	0.19365	25.59
Neptune Township	-	-	-	-	-
Inland Recreation	0.44567	1.15427	0.00129	0.00335	0.29
Inland Suburban/Exurban Residential	5.24119	13.57461	0.00026	0.00068	0.00
Nearshore Ocean	2.42631	6.28412	2.42625	6.28396	100.00
Oceanside Residential/Commercial	0.19484	0.50463	0.06639	0.17195	34.07
Oceanside Urban	0.00433	0.01121	0.00008	0.00022	1.94
Ocean Township	-	-	-	-	-
Inland Natural Area	16.34245	42.32675	0.00015	0.00040	0.00
Inland Suburban/Exurban Residential	10.47278	27.12438	0.00140	0.00363	0.01
Inland Urban	1.22385	3.16977	0.00033	0.00085	0.03

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.06456	0.16720	0.00033	0.00086	0.51
Bayside Urban	0.07576	0.19622	0.00146	0.00378	1.92
Bayside Waterbodies	0.26110	0.67626	0.00147	0.00380	0.56
Nearshore Ocean	5.42523	14.05128	5.42515	14.05109	100.00
Oceanside Residential/Commercial	0.40559	1.05046	0.11417	0.29569	28.15
Oceanside Urban	0.08012	0.20750	0.02724	0.07056	34.00
Rumson Borough	-	-	-	-	-
Bayside Residential	1.22820	3.18104	0.00110	0.00286	0.09
Bayside Waterbodies	1.91635	4.96332	0.00003	0.00007	0.00
Sea Bright Borough	-	-	-	-	-
Bayside Natural Upland	0.00493	0.01277	0.00007	0.00018	1.38
Nearshore Ocean	13.18029	34.13679	13.17935	34.13436	99.99
Oceanside Beach	0.02863	0.07414	0.02269	0.05878	79.28
Oceanside Recreation	0.05076	0.13147	0.01806	0.04676	35.57
Oceanside Residential/Commercial	0.58669	1.51951	0.17439	0.45165	29.72
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.27880	0.72208	0.03136	0.08123	11.25
Nearshore Ocean	4.41235	11.42794	4.41215	11.42743	100.00
Oceanside Residential/Commercial	0.31006	0.80306	0.10029	0.25976	32.35
Seascape Residential	0.23843	0.61754	0.00002	0.00005	0.01
Seaside Heights Borough	-	-	-	-	-
Nearshore Ocean	3.75137	9.71600	1.14299	2.96034	30.47
Oceanside Residential/Commercial	0.00349	0.00903	0.00103	0.00267	29.59
Oceanside Urban	0.24407	0.63215	0.00588	0.01523	2.41
Seaside Park Borough	-	-	-	-	-
Nearshore Ocean	5.72370	14.82432	0.06415	0.16616	1.12
Spring Lake Borough	-	-	-	-	-
Nearshore Ocean	6.95283	18.00776	6.95240	18.00663	99.99
Oceanside Residential/Commercial	0.58342	1.51105	0.18691	0.48408	32.04
Seascape Residential	0.47852	1.23935	0.00024	0.00061	0.05
Tinton Falls Borough	-	-	-	-	-
Inland Industrial Resource	1.18290	3.06369	0.02215	0.05738	1.87
Toms River Township	-	-	-	-	-
Nearshore Ocean	7.37026	19.08888	4.78615	12.39608	64.94
Oceanside Residential/Commercial	0.71361	1.84825	0.13022	0.33727	18.25
Wall Township	-	-	-	-	-
Inland Industrial Resource	0.29051	0.75241	0.00060	0.00155	0.21
Inland Suburban/Exurban Residential	12.95541	33.55437	0.00073	0.00190	0.01
New York					
Amityville	-	-	-	-	-
Bayside Recreation	0.03153	0.08167	0.00837	0.02167	26.53
Bayside Residential	0.45297	1.17319	0.02295	0.05943	5.07
Bayside Waterbodies	0.33030	0.85546	0.29109	0.75392	88.13
Atlantic Beach	-	-	-	-	-
Nearshore Ocean	0.00018	0.00047	0.00018	0.00047	100.00
Oceanside Beach	0.01022	0.02646	0.00146	0.00379	14.32
Oceanside Urban	0.33270	0.86168	0.08685	0.22494	26.11

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Babylon	-	-	-	-	-
Bayside Industrial	0.07270	0.18830	0.02986	0.07735	41.08
Bayside Natural Upland	0.13059	0.33822	0.00048	0.00124	0.37
Bayside Natural Wetland	5.50702	14.26312	2.36303	6.12021	42.91
Bayside Recreation	0.44051	1.14092	0.11244	0.29123	25.53
Bayside Residential	2.13309	5.52468	0.17107	0.44306	8.02
Bayside Waterbodies	18.44417	47.77017	15.11665	39.15193	81.96
Inland Commercial Park	0.26154	0.67738	0.00068	0.00177	0.26
Inland Industrial	0.88250	2.28566	0.04605	0.11928	5.22
Inland Recreation	1.23711	3.20410	0.00294	0.00761	0.24
Inland Suburban/Exurban Residential	23.93407	61.98895	0.00138	0.00357	0.01
Inland Urban	7.84184	20.31027	0.03744	0.09697	0.48
Nearshore Ocean	30.60222	79.25939	1.21878	3.15663	3.98
Oceanside Beach	1.21361	3.14324	0.78406	2.03071	64.61
Oceanside Recreation	0.56037	1.45134	0.33966	0.87970	60.61
Oceanside Residential/Commercial	0.23866	0.61814	0.09273	0.24016	38.85
Seascape Residential	0.72812	1.88582	0.00001	0.00003	0.00
Bellport	-	-	-	-	-
Bayside Natural Wetland	0.02685	0.06955	0.00822	0.02129	30.60
Bayside Recreation	0.18140	0.46982	0.03886	0.10064	21.42
Bayside Residential	0.18511	0.47944	0.02662	0.06894	14.38
Bayside Waterbodies	0.07383	0.19121	0.07162	0.18549	97.01
Inland Suburban/Exurban Residential	1.03141	2.67134	0.00000	0.00000	0.00
Brightwaters	-	-	-	-	-
Bayside Residential	0.09723	0.25182	0.00532	0.01377	5.47
Bayside Waterbodies	0.02273	0.05886	0.00273	0.00708	12.03
Brookhaven	-	-	-	-	-
Bayside Natural Upland	3.05994	7.92521	0.02749	0.07119	0.90
Bayside Natural Wetland	6.78361	17.56947	2.35076	6.08844	34.65
Bayside Recreation	0.06835	0.17702	0.02722	0.07050	39.82
Bayside Residential	5.89537	15.26893	0.24659	0.63867	4.18
Bayside Urban	0.00014	0.00036	0.00013	0.00034	94.96
Bayside Waterbodies	61.64029	159.64763	51.50895	133.40756	83.56
Inland Agriculture	3.70218	9.58859	0.00117	0.00302	0.03
Inland Commercial Park	11.20619	29.02390	0.00444	0.01151	0.04
Inland Industrial	5.15762	13.35817	0.01557	0.04033	0.30
Inland Industrial Resource	2.19193	5.67707	0.12057	0.31227	5.50
Inland Natural Area	62.54903	162.00124	0.01976	0.05118	0.03
Inland Recreation	2.65381	6.87333	0.00839	0.02172	0.32
Inland Rural	1.69541	4.39109	0.10555	0.27338	6.23
Inland Suburban/Exurban Residential	127.06877	329.10662	0.08661	0.22431	0.07
Inland Urban	1.08098	2.79971	0.00150	0.00389	0.14
Nearshore Ocean	79.66936	206.34269	79.66936	206.34269	100.00
Oceanside Beach	2.79366	7.23554	1.72510	4.46798	61.75
Oceanside Recreation	0.32485	0.84137	0.13505	0.34977	41.57
Oceanside Residential/Commercial	1.20833	3.12957	0.43977	1.13899	36.39

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Brookville	-	-	-	-	-
Inland Recreation	0.27754	0.71882	0.00019	0.00050	0.07
Farmingdale	-	-	-	-	-
Inland Suburban/Exurban Residential	0.89005	2.30521	0.00001	0.00003	0.00
Freeport	-	-	-	-	-
Bayside Natural Wetland	0.00912	0.02361	0.00896	0.02320	98.25
Bayside Recreation	0.06706	0.17368	0.01686	0.04367	25.14
Bayside Residential	0.72959	1.88964	0.01047	0.02713	1.44
Bayside Urban	0.33394	0.86490	0.00092	0.00238	0.27
Bayside Waterbodies	0.12410	0.32141	0.03991	0.10338	32.16
Hempstead	-	-	-	-	-
Bayside Industrial	0.91083	2.35903	0.01643	0.04256	1.80
Bayside Industrial Resource	0.25574	0.66237	0.11403	0.29533	44.59
Bayside Natural Upland	1.24538	3.22553	0.14302	0.37042	11.48
Bayside Natural Wetland	12.04004	31.18356	6.22981	16.13513	51.74
Bayside Recreation	1.92909	4.99632	0.10602	0.27459	5.50
Bayside Residential	3.47643	9.00390	0.10073	0.26089	2.90
Bayside Urban	0.83946	2.17419	0.01674	0.04337	1.99
Bayside Waterbodies	16.59731	42.98683	7.58754	19.65165	45.72
Inland Commercial Park	1.01670	2.63325	0.00004	0.00010	0.00
Inland Suburban/Exurban Residential	51.25562	132.75145	0.00009	0.00022	0.00
Nearshore Ocean	54.56195	141.31480	54.56190	141.31467	100.00
Oceanside Beach	0.77196	1.99938	0.42966	1.11280	55.66
Oceanside Recreation	3.18207	8.24154	1.94187	5.02942	61.03
Oceanside Residential/Commercial	0.55196	1.42958	0.21619	0.55994	39.17
Oceanside Urban	0.32727	0.84764	0.22279	0.57702	68.07
Seascape Residential	0.22083	0.57195	0.00031	0.00081	0.14
Huntington	-	-	-	-	-
Inland Industrial	0.30962	0.80191	0.00001	0.00003	0.00
Inland Industrial Resource	0.21465	0.55595	0.01607	0.04163	7.49
Inland Natural Area	2.83134	7.33313	0.00155	0.00400	0.05
Inland Recreation	0.59902	1.55147	0.00000	0.00000	0.00
Inland Suburban/Exurban Residential	49.98802	129.46838	0.00785	0.02033	0.02
Inland Urban	6.05887	15.69239	0.08635	0.22364	1.43
Islandia	-	-	-	-	-
Inland Suburban/Exurban Residential	0.88031	2.27998	0.00000	0.00000	0.00
Inland Urban	1.00158	2.59409	0.00271	0.00702	0.27
Islip	-	-	-	-	-
Bayside Commercial Park	0.03704	0.09593	0.00041	0.00106	1.10
Bayside Natural Upland	1.46296	3.78905	0.02021	0.05233	1.38
Bayside Natural Wetland	4.34860	11.26282	2.03701	5.27582	46.84
Bayside Recreation	1.88914	4.89286	0.48340	1.25200	25.59
Bayside Residential	4.19364	10.86148	0.31217	0.80853	7.44
Bayside Urban	0.40545	1.05011	0.00702	0.01817	1.73
Bayside Waterbodies	31.21063	80.83516	27.63847	71.58331	88.55
Inland Commercial Park	2.09698	5.43115	0.00577	0.01496	0.28
Inland Industrial	2.30498	5.96987	0.17601	0.45586	7.64
Inland Industrial Resource	0.15176	0.39306	0.03406	0.08823	22.45
Inland Natural Area	8.75832	22.68395	0.00032	0.00082	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	59.07576	153.00553	0.00621	0.01609	0.01
Inland Urban	12.44531	32.23321	0.02803	0.07260	0.23
Nearshore Ocean	24.33922	63.03828	24.33922	63.03828	100.00
Oceanside Beach	0.44723	1.15831	0.22496	0.58266	50.30
Oceanside Recreation	0.68991	1.78685	0.30940	0.80133	44.85
Oceanside Residential/Commercial	0.61489	1.59256	0.17809	0.46126	28.96
Seascape Residential	0.69472	1.79932	0.01220	0.03160	1.76
Lawrence	-	-	-	-	-
Bayside Natural Wetland	1.78535	4.62402	0.00026	0.00068	0.01
Bayside Recreation	0.29194	0.75612	0.00200	0.00518	0.68
Bayside Residential	0.47296	1.22495	0.00034	0.00087	0.07
Inland Suburban/Exurban Residential	0.83693	2.16765	0.00026	0.00068	0.03
Inland Urban	0.26889	0.69642	0.00006	0.00016	0.02
Lindenhurst	-	-	-	-	-
Bayside Natural Wetland	0.00010	0.00026	0.00010	0.00026	100.00
Bayside Residential	0.38149	0.98805	0.02445	0.06331	6.41
Bayside Waterbodies	0.03605	0.09338	0.01152	0.02984	31.96
Inland Commercial Park	0.07872	0.20389	0.00001	0.00001	0.01
Long Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.16408	0.42497	0.04799	0.12430	29.25
Oceanside Urban	0.63613	1.64756	0.17774	0.46035	27.94
Massapequa Park	-	-	-	-	-
Bayside Residential	0.14765	0.38240	0.00760	0.01968	5.15
Bayside Waterbodies	0.02252	0.05831	0.01823	0.04720	80.95
Muttontown	-	-	-	-	-
Inland Suburban/Exurban Residential	3.69586	9.57222	0.00033	0.00085	0.01
New York	-	-	-	-	-
Bayside Industrial	4.62253	11.97231	0.00006	0.00015	0.00
Bayside Natural Upland	2.35744	6.10574	0.17823	0.46160	7.56
Bayside Natural Wetland	4.08432	10.57835	0.00012	0.00030	0.00
Bayside Recreation	2.32979	6.03412	0.03395	0.08793	1.46
Bayside Urban	5.82666	15.09097	0.00124	0.00320	0.02
Bayside Waterbodies	48.81241	126.42356	10.70699	27.73098	21.93
Inland Recreation	5.05762	13.09918	0.00432	0.01120	0.09
Inland Suburban/Exurban Residential	2.98871	7.74073	0.00011	0.00028	0.00
Inland Urban	86.12539	223.06374	0.00020	0.00053	0.00
Nearshore Ocean	37.14679	96.20973	37.14677	96.20968	100.00
Oceanside Beach	1.28917	3.33894	0.53794	1.39326	41.73
Oceanside Recreation	1.29463	3.35308	0.33645	0.87140	25.99
Oceanside Residential/Commercial	0.72599	1.88031	0.17137	0.44386	23.61
Oceanside Urban	1.24839	3.23332	0.32757	0.84840	26.24
North Hempstead	-	-	-	-	-
Inland Suburban/Exurban Residential	6.18362	16.01549	0.00001	0.00002	0.00
North Hills	-	-	-	-	-
Inland Recreation	0.62592	1.62112	0.00002	0.00005	0.00
Inland Suburban/Exurban Residential	1.87636	4.85974	0.00001	0.00003	0.00
Ocean Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.13831	0.35823	0.01689	0.04374	12.21

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Old Westbury	-	-	-	-	-
Inland Recreation	1.10474	2.86127	0.00019	0.00050	0.02
Oyster Bay	-	-	-	-	-
Bayside Natural Wetland	2.40845	6.23786	1.12587	2.91598	46.75
Bayside Residential	1.51307	3.91883	0.09391	0.24323	6.21
Bayside Waterbodies	6.73187	17.43547	5.98269	15.49509	88.87
Inland Commercial Park	4.13039	10.69766	0.00003	0.00008	0.00
Inland Natural Area	3.60004	9.32406	0.00001	0.00003	0.00
Inland Recreation	2.60596	6.74941	0.00194	0.00503	0.07
Inland Suburban/Exurban Residential	31.11186	80.57934	0.00006	0.00016	0.00
Inland Urban	4.10924	10.64288	0.03331	0.08628	0.81
Nearshore Ocean	8.81802	22.83856	8.81802	22.83856	100.00
Oceanside Beach	0.23849	0.61769	0.18373	0.47585	77.04
Oceanside Recreation	0.19725	0.51087	0.04644	0.12027	23.54
Patchogue	-	-	-	-	-
Bayside Recreation	0.04582	0.11866	0.02123	0.05497	46.33
Bayside Residential	0.02952	0.07646	0.00867	0.02244	29.35
Bayside Urban	0.28879	0.74796	0.02502	0.06480	8.66
Bayside Waterbodies	0.18978	0.49153	0.16544	0.42848	87.17
Inland Suburban/Exurban Residential	1.50950	3.90959	0.00493	0.01276	0.33
Quogue	-	-	-	-	-
Bayside Residential	1.01961	2.64078	0.00002	0.00005	0.00
Nearshore Ocean	0.00871	0.02256	0.00871	0.02256	100.00
Oceanside Beach	0.14355	0.37179	0.11518	0.29831	80.24
Oceanside Residential/Commercial	0.37188	0.96317	0.02213	0.05730	5.95
Riverhead	-	-	-	-	-
Bayside Residential	0.99849	2.58607	0.00003	0.00009	0.00
Inland Agriculture	14.34747	37.15977	0.00024	0.00063	0.00
Inland Recreation	1.46188	3.78625	0.00093	0.00240	0.06
Inland Suburban/Exurban Residential	11.57865	29.98857	0.00017	0.00044	0.00
Roslyn Estates	-	-	-	-	-
Inland Suburban/Exurban Residential	0.41511	1.07513	0.00000	0.00000	0.00
Saltaire	-	-	-	-	-
Oceanside Residential/Commercial	0.22151	0.57371	0.02949	0.07637	13.31
Shinnecock Indian Territory	-	-	-	-	-
Bayside Natural Wetland	0.44932	1.16373	0.00552	0.01429	1.23
Bayside Residential	0.33697	0.87275	0.00009	0.00024	0.03
Bayside Waterbodies	0.01680	0.04350	0.00188	0.00487	11.20
Smithtown	-	-	-	-	-
Inland Urban	2.76502	7.16137	0.00002	0.00005	0.00
Southampton	-	-	-	-	-
Bayside Natural Upland	0.42458	1.09966	0.00079	0.00205	0.19
Bayside Natural Wetland	2.46709	6.38974	0.00651	0.01686	0.26
Bayside Recreation	1.28416	3.32595	0.00418	0.01083	0.33
Bayside Residential	6.45002	16.70547	0.07162	0.18548	1.11
Bayside Waterbodies	31.20722	80.82632	1.53716	3.98122	4.93
Inland Agriculture	1.09126	2.82635	0.00011	0.00028	0.01
Inland Industrial	1.99172	5.15853	0.00288	0.00745	0.14
Inland Industrial Resource	0.61895	1.60307	0.00801	0.02073	1.29

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Natural Area	35.94460	93.09609	0.00722	0.01869	0.02
Inland Suburban/Exurban Residential	23.48747	60.83227	0.00040	0.00104	0.00
Nearshore Ocean	65.29811	169.12132	65.29805	169.12118	100.00
Oceanside Beach	0.97124	2.51549	0.70289	1.82047	72.37
Oceanside Recreation	0.16218	0.42005	0.01509	0.03909	9.31
Oceanside Residential/Commercial	1.94180	5.02923	0.48751	1.26263	25.11
West Hampton Dunes	-	-	-	-	-
Bayside Natural Wetland	0.03574	0.09257	0.00157	0.00406	4.39
Bayside Waterbodies	0.01144	0.02964	0.00004	0.00011	0.38
Oceanside Beach	0.06219	0.16108	0.04564	0.11821	73.39
Oceanside Recreation	0.23002	0.59575	0.02385	0.06178	10.37
Westhampton Beach	-	-	-	-	-
Bayside Residential	0.48185	1.24799	0.00105	0.00271	0.22
Bayside Waterbodies	0.09194	0.23813	0.00001	0.00002	0.01
Oceanside Beach	0.00744	0.01927	0.00642	0.01664	86.33
Oceanside Residential/Commercial	0.49986	1.29462	0.08595	0.22260	17.19
Woodsburgh	-	-	-	-	-
Bayside Recreation	0.19408	0.50266	0.00002	0.00004	0.01
Bayside Residential	0.09876	0.25578	0.00001	0.00001	0.01

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-5 Character Areas within Municipalities and Intersections with the OCS-A 0542 Lease Area 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Absecon	-	-	-	-	-
Bayside Industrial	0.01936	0.050142	0.00001	0.000025	0.05
Bayside Natural Upland	0.006097	0.015792	0.000015	0.000039	0.25
Bayside Natural Wetland	1.747546	4.526124	0.000526	0.001362	0.03
Bayside Residential	0.079286	0.205349	0.000409	0.001058	0.52
Bayside Waterbodies	1.446802	3.747201	0.000035	0.000091	0.00
Inland Commercial Park	0.255205	0.660978	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	2.782198	7.205859	0.002981	0.007722	0.11
Atlantic City	-	-	-	-	-
Bayside Industrial Resource	0.140584	0.36411	0.000635	0.001644	0.45
Bayside Natural Upland	0.059239	0.153429	0.000441	0.001143	0.74
Bayside Natural Wetland	6.689709	17.326266	0.000685	0.001775	0.01
Bayside Residential	0.610439	1.58103	0.001156	0.002993	0.19
Bayside Urban	2.94909	7.638107	0.046104	0.119408	1.56
Bayside Waterbodies	4.499754	11.654309	0.073957	0.191549	1.64
Nearshore Ocean	17.076699	44.228448	17.075716	44.2259	99.99
Oceanside Residential/Commercial	0.11773	0.30492	0.059375	0.153781	50.43
Oceanside Urban	1.011303	2.619262	0.264302	0.684539	26.13
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00001	0.000025	0.02
Bayside Residential	0.212181	0.549547	0.001164	0.003016	0.55
Bayside Waterbodies	0.280443	0.726343	0.091994	0.238262	32.80
Nearshore Ocean	11.089861	28.722607	11.088975	28.720314	99.99
Oceanside Beach	0.173074	0.44826	0.081849	0.211988	47.29
Oceanside Recreation	0.013546	0.035084	0.000159	0.000411	1.17
Oceanside Residential/Commercial	0.565739	1.465257	0.182172	0.471825	32.20
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	0.000739	0.001913	0.02
Bayside Residential	0.278385	0.721015	0.002689	0.006965	0.97
Bayside Waterbodies	5.607529	14.523434	0.000173	0.000448	0.00
Inland Natural Area	18.426348	47.724023	0.001093	0.002831	0.01
Inland Suburban/Exurban Residential	10.180429	26.367191	0.019861	0.051441	0.20
Bass River Township	-	-	-	-	-
Bayside Natural Wetland	8.533354	22.101285	0.000087	0.000225	0.00
Bayside Waterbodies	0.921448	2.386539	0.000039	0.0001	0.00
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.404854	1.048568	0.004538	0.011755	1.12
Bayside Waterbodies	1.312749	3.400005	0.000022	0.000056	0.00
Nearshore Ocean	8.179239	21.184131	8.178912	21.183285	100.00
Oceanside Residential/Commercial	0.562577	1.457067	0.145976	0.378075	25.95
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.015919	0.041231	0.56
Bayside Recreation	0.060018	0.155447	0.000941	0.002437	1.57
Bayside Residential	1.629749	4.22103	0.007351	0.019039	0.45
Bayside Waterbodies	10.873353	28.161856	0.159443	0.412955	1.47

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Natural Area	21.012984	54.42338	0.000213	0.000553	0.00
Inland Recreation	0.036896	0.095561	0.000074	0.000192	0.20
Inland Suburban/Exurban Residential	12.623688	32.695203	0.00117	0.003031	0.01
Nearshore Ocean	33.900979	87.803132	33.849781	87.670529	99.85
Oceanside Beach	1.847662	4.785421	0.977748	2.532355	52.92
Oceanside Residential/Commercial	0.18328	0.474694	0.041463	0.10739	22.62
Seascape Residential	0.010911	0.02826	0.000123	0.000319	1.13
Brigantine	-	-	-	-	-
Bayside Natural Upland	0.037284	0.096565	0.000348	0.000901	0.93
Bayside Natural Wetland	4.103657	10.628422	0.378611	0.980599	9.23
Bayside Residential	0.799583	2.070909	0.010533	0.027281	1.32
Bayside Urban	0.092944	0.240724	0.000881	0.002283	0.95
Bayside Waterbodies	3.110677	8.056615	0.232553	0.602309	7.48
Nearshore Ocean	24.77845	64.175891	24.777578	64.173631	100.00
Oceanside Beach	0.873285	2.261797	0.511236	1.324095	58.54
Oceanside Residential/Commercial	0.761558	1.972425	0.141992	0.367757	18.64
Seascape Residential	1.025155	2.65514	0.008355	0.021638	0.81
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.644739	0.004429	0.011472	0.07
Bayside Recreation	0.003413	0.00884	0.000059	0.000152	1.73
Bayside Residential	0.191175	0.49514	0.001762	0.004562	0.92
Bayside Waterbodies	2.501679	6.479319	0.000122	0.000316	0.00
Inland Industrial Resource	0.950613	2.462075	0.000707	0.001831	0.07
Inland Natural Area	6.947407	17.993701	0.002107	0.005458	0.03
Inland Suburban/Exurban Residential	1.75839	4.554209	0.004392	0.011375	0.25
Egg Harbor Township	-	-	-	-	--
Bayside Natural Wetland	2.923921	7.572922	0.000111	0.000288	0.00
Bayside Residential	0.30687	0.794789	0.000125	0.000325	0.04
Bayside Waterbodies	8.128283	21.052156	0.014223	0.036838	0.17
Galloway Township	-	-	-	-	-
Bayside Natural Upland	0.070809	0.183395	0.000022	0.000056	0.03
Bayside Natural Wetland	28.241116	73.144156	11.460916	29.683636	40.58
Bayside Recreation	0.270319	0.700122	0.005241	0.013575	1.94
Bayside Residential	0.078624	0.203636	0.002311	0.005984	2.94
Bayside Waterbodies	20.323966	52.638829	5.587533	14.471645	27.49
Inland Natural Area	15.240384	39.472414	0.047154	0.122127	0.31
Inland Recreation	1.020304	2.642575	0.018069	0.046798	1.77
Inland Suburban/Exurban Residential	14.07714	36.459625	0.015771	0.040847	0.11
Nearshore Ocean	10.491951	27.174029	10.491583	27.173074	100.00
Oceanside Beach	0.160693	0.416192	0.135934	0.352067	84.59
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000224	0.000579	0.06
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	8.435694	21.848346	100.00
Oceanside Residential/Commercial	0.296536	0.768025	0.134623	0.348673	45.40
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000058	0.000149	0.04
Bayside Natural Upland	1.482721	3.84023	0.001086	0.002812	0.07
Bayside Natural Wetland	2.027647	5.251583	0.008711	0.022562	0.43

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	2.301367	5.960513	0.015901	0.041183	0.69
Bayside Waterbodies	15.272406	39.55535	0.092686	0.240055	0.61
Inland Commercial Park	0.67829	1.756763	0.000318	0.000823	0.05
Inland Industrial Resource	4.474981	11.590149	0.000145	0.000375	0.00
Inland Natural Area	64.91341	168.12496	0.001093	0.002831	0.00
Inland Suburban/Exurban Residential	7.49792	19.419524	0.003939	0.010202	0.05
Lavallette Borough	-	-	-	-	-
Nearshore Ocean	4.979553	12.896984	0.054188	0.140346	1.09
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Upland	0.094972	0.245975	0	0	0.00
Bayside Natural Wetland	14.347208	37.159099	6.16259	15.961035	42.95
Bayside Recreation	0.011552	0.02992	0.002189	0.00567	18.95
Bayside Residential	2.109492	5.463559	0.079881	0.206891	3.79
Bayside Waterbodies	24.740858	64.078527	3.856403	9.988039	15.59
Inland Industrial Resource	0.547275	1.417437	0.000019	0.00005	0.00
Inland Natural Area	22.847206	59.173991	0.003472	0.008992	0.02
Inland Recreation	0.04628	0.119866	0.000029	0.000075	0.06
Inland Suburban/Exurban Residential	8.850442	22.92254	0.015288	0.039596	0.17
Oceanside Beach	0.079038	0.204708	0.003613	0.009359	4.57
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000344	0.00089	0.03
Bayside Residential	1.853823	4.801379	0.006885	0.017833	0.37
Bayside Waterbodies	17.404871	45.078409	0.490388	1.270098	2.82
Nearshore Ocean	43.727882	113.254696	43.726115	113.250119	100.00
Oceanside Beach	0.676831	1.752985	0.383697	0.993771	56.69
Oceanside Residential/Commercial	2.171806	5.624951	0.824995	2.136727	37.99
Longport Borough	-	-	-	-	-
Bayside Residential	0.21212	0.549388	0.001195	0.003094	0.56
Bayside Waterbodies	0.173929	0.450474	0.060622	0.157011	34.85
Nearshore Ocean	5.466968	14.159381	1.022616	2.648563	18.71
Oceanside Residential/Commercial	0.265899	0.688675	0.106208	0.275078	39.94
Margate City	-	-	-	-	-
Bayside Residential	1.039538	2.692392	0.003074	0.007962	0.30
Bayside Urban	0.050474	0.130728	0.000196	0.000507	0.39
Bayside Waterbodies	0.144981	0.375498	0.000006	0.000014	0.00
Nearshore Ocean	5.471949	14.172282	3.375336	8.742081	61.68
Oceanside Residential/Commercial	0.474007	1.227674	0.132096	0.342128	27.87
Ocean City	-	-	-	-	-
Bayside Waterbodies	1.017125	2.634342	0.053004	0.13728	5.21
Nearshore Ocean	5.178047	13.411081	0.018265	0.047305	0.35
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.000462	0.001198	0.23
Bayside Natural Wetland	1.313493	3.401931	0.066609	0.172516	5.07
Bayside Residential	1.039616	2.692594	0.011773	0.030492	1.13
Bayside Waterbodies	10.20872	26.440463	2.683557	6.950381	26.29
Inland Natural Area	16.34245	42.326751	0.00117	0.00303	0.01
Inland Rural	1.022571	2.648446	0.000193	0.0005	0.02
Inland Suburban/Exurban Residential	10.472781	27.124378	0.005629	0.014578	0.05

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Pleasantville	-	-	-	-	-
Bayside Natural Wetland	1.471803	3.811953	0.00041	0.001062	0.03
Bayside Urban	0.046055	0.119282	0.000135	0.00035	0.29
Inland Suburban/Exurban Residential	3.321798	8.603417	0.001284	0.003325	0.04
Port Republic	-	-	-	-	-
Bayside Natural Wetland	2.59482	6.720553	0.00001	0.000025	0.00
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000422	0.001093	0.70
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	2.001967	5.185071	53.37
Oceanside Residential/Commercial	0.003488	0.009033	0.001288	0.003336	36.93
Oceanside Urban	0.244074	0.632149	0.059911	0.155168	24.55
Seascape Residential	0.191807	0.496778	0.000567	0.001469	0.30
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.000957	0.002479	1.54
Bayside Residential	0.228865	0.592758	0.001403	0.003634	0.61
Nearshore Ocean	5.723702	14.824319	4.179244	10.824192	73.02
Oceanside Residential/Commercial	0.471132	1.220226	0.139689	0.361792	29.65
Oceanside Urban	0.000014	0.000036	0.000014	0.000036	100.00
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000074	0.000193	0.67
Bayside Residential	0.253949	0.657724	0.000414	0.001073	0.16
Bayside Urban	0.036614	0.09483	0.000724	0.001876	1.98
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000477	0.07
Nearshore Ocean	4.466743	11.568812	4.466529	11.568258	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.115515	0.299183	38.42
Oceanside Urban	0.055995	0.145025	0.026049	0.067465	46.52
Seascape Residential	0.120813	0.312905	0.000447	0.001157	0.37
Seascape Urban	0.017797	0.046095	0.000726	0.00188	4.08
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.00035	0.000907	5.50
Bayside Natural Wetland	8.789522	22.764757	0.005984	0.015499	0.07
Bayside Recreation	0.099286	0.25715	0.002519	0.006523	2.54
Bayside Residential	2.092265	5.41894	0.022209	0.057521	1.06
Bayside Waterbodies	7.021887	18.186603	0.001247	0.00323	0.02
Inland Commercial Park	1.074364	2.78259	0.007113	0.018421	0.66
Inland Industrial	0.114107	0.295537	0.000512	0.001325	0.45
Inland Industrial Resource	0.829568	2.148571	0.000533	0.001379	0.06
Inland Natural Area	25.321164	65.581513	0.005688	0.014731	0.02
Inland Recreation	0.140441	0.363739	0.000638	0.001652	0.45
Inland Rural	1.073095	2.779304	0.000077	0.0002	0.01
Inland Suburban/Exurban Residential	8.081042	20.929802	0.014609	0.037837	0.18
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.000272	0.000704	0.11
Bayside Waterbodies	0.553974	1.434786	0.000033	0.000085	0.01
Nearshore Ocean	5.320502	13.780037	5.320185	13.779215	99.99
Oceanside Residential/Commercial	0.370025	0.958359	0.123545	0.319979	33.39
Seascape Residential	0.173221	0.44864	0.000179	0.000462	0.10

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Toms River Township	-	-	-	-	-
Nearshore Ocean	7.370257	19.088878	0.360096	0.932645	4.89
Oceanside Residential/Commercial	0.713613	1.848249	0.04522	0.117119	6.34
Oceanside Urban	0.003978	0.010302	0.000059	0.000152	1.48
Seascape Residential	0.262283	0.67931	0.000145	0.000375	0.06
Tuckerton Borough	-	-	-	-	-
Bayside Natural Upland	0.101106	0.261863	0.000316	0.000819	0.31
Bayside Natural Wetland	1.625877	4.211002	0.002093	0.005421	0.13
Bayside Recreation	0.009819	0.025431	0.000091	0.000235	0.93
Bayside Residential	0.371063	0.961048	0.006086	0.015762	1.64
Bayside Waterbodies	0.07524	0.19487	0.000016	0.000041	0.02
Inland Natural Area	0.213358	0.552595	0.000372	0.000963	0.17
Inland Suburban/Exurban Residential	1.28566	3.329845	0.003311	0.008576	0.26
Ventnor City	-	-	-	-	-
Bayside Natural Wetland	0.60895	1.577174	0.000399	0.001034	0.07
Bayside Recreation	0.024357	0.063084	0.000164	0.000425	0.67
Bayside Residential	1.10774	2.869033	0.003615	0.009362	0.33
Bayside Waterbodies	0.608586	1.576232	0.000059	0.000154	0.01
Nearshore Ocean	5.445494	14.103766	5.355756	13.871343	98.35
Oceanside Residential/Commercial	0.285293	0.738905	0.114588	0.296782	40.17

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-6 Character Areas within Municipalities and Intersections with the OCS-A 0541 Lease Area 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Absecon	-	-	-	-	-
Bayside Industrial	0.01936	0.050142	0.000127	0.00033	0.66
Bayside Natural Upland	0.006097	0.015792	0.000054	0.000139	0.89
Bayside Natural Wetland	1.747546	4.526124	0.996603	2.58119	57.03
Bayside Residential	0.079286	0.205349	0.00495	0.01282	6.24
Bayside Waterbodies	1.446802	3.747201	0.371764	0.962865	25.70
Inland Commercial Park	0.255205	0.660978	0.000087	0.000224	0.03
Inland Natural Area	0.889424	2.303598	0.000261	0.000676	0.03
Inland Suburban/Exurban Residential	2.782198	7.205859	0.010602	0.027458	0.38
Atlantic City	-	-	-	-	-
Bayside Industrial	0.00495	0.012821	0.000243	0.000629	4.91
Bayside Industrial Resource	0.140584	0.36411	0.001217	0.003153	0.87
Bayside Natural Upland	0.059239	0.153429	0.000451	0.001168	0.76
Bayside Natural Wetland	6.689709	17.326266	0.012746	0.033011	0.19
Bayside Recreation	0.046244	0.11977	0.00028	0.000726	0.61
Bayside Residential	0.610439	1.58103	0.00158	0.004093	0.26
Bayside Urban	2.94909	7.638107	0.057344	0.14852	1.94
Bayside Waterbodies	4.499754	11.654309	0.084082	0.217772	1.87
Nearshore Ocean	17.076699	44.228448	17.075716	44.2259	99.99
Oceanside Residential/Commercial	0.11773	0.30492	0.060302	0.156181	51.22
Oceanside Urban	1.011303	2.619262	0.268371	0.695079	26.54
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00002	0.000052	0.04
Bayside Residential	0.212181	0.549547	0.001464	0.003791	0.69
Bayside Waterbodies	0.280443	0.726343	0.091717	0.237545	32.70
Nearshore Ocean	11.089861	28.722607	11.088975	28.720314	99.99
Oceanside Beach	0.173074	0.44826	0.084328	0.218408	48.72
Oceanside Recreation	0.013546	0.035084	0.000168	0.000436	1.24
Oceanside Residential/Commercial	0.565739	1.465257	0.183892	0.476279	32.50
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	2.838949	7.352844	71.09
Bayside Residential	0.278385	0.721015	0.035095	0.090896	12.61
Bayside Waterbodies	5.607529	14.523434	2.737898	7.091124	48.83
Inland Industrial Resource	0.822256	2.129633	0.000338	0.000875	0.04
Inland Natural Area	18.426348	47.724023	0.009209	0.023852	0.05
Inland Rural	0.946237	2.450743	0.000512	0.001325	0.05
Inland Suburban/Exurban Residential	10.180429	26.367191	0.031745	0.082219	0.31
Bass River Township	-	-	-	-	-
Bayside Natural Wetland	8.533354	22.101285	0.584484	1.513806	6.85
Bayside Recreation	0.125957	0.326228	0.000416	0.001078	0.33
Bayside Waterbodies	0.921448	2.386539	0.520752	1.348743	56.51
Inland Agriculture	0.928313	2.404321	0.000135	0.00035	0.01
Inland Industrial	0.429622	1.112716	0.00001	0.000027	0.00
Inland Military Site	14.697994	38.06763	0.241535	0.625572	1.64
Inland Natural Area	48.146066	124.697738	0.001582	0.004097	0.00
Inland Recreation	0.994624	2.576065	0.00001	0.000025	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Rural	2.560409	6.631428	0.000347	0.000899	0.01
Inland Suburban/Exurban Residential	0.899931	2.33081	0.000078	0.000202	0.01
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.00021	0.000543	0.14
Bayside Waterbodies	0.059536	0.154198	0.000019	0.00005	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.000713	0.001848	0.25
Nearshore Ocean	4.95526	12.834063	4.955144	12.833765	100.00
Oceanside Residential/Commercial	0.263933	0.683583	0.071441	0.185031	27.07
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.404854	1.048568	0.005745	0.01488	1.42
Bayside Waterbodies	1.312749	3.400005	0.00006	0.000156	0.00
Nearshore Ocean	8.179239	21.184131	8.178912	21.183285	100.00
Oceanside Residential/Commercial	0.562577	1.457067	0.147006	0.380745	26.13
Beachwood Borough	-	-	-	-	-
Inland Industrial Resource	0.007608	0.019704	0.000019	0.00005	0.25
Inland Natural Area	0.866181	2.243399	0.00001	0.000026	0.00
Inland Recreation	0.076431	0.197955	0.000106	0.000274	0.14
Inland Suburban/Exurban Residential	1.655336	4.287301	0.001303	0.003375	0.08
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.31648	0.819679	11.11
Bayside Recreation	0.060018	0.155447	0.009464	0.024512	15.77
Bayside Residential	1.629749	4.22103	0.045747	0.118485	2.81
Bayside Waterbodies	10.873353	28.161856	4.108308	10.640468	37.78
Inland Commercial Park	0.277677	0.719181	0.000415	0.001075	0.15
Inland Industrial	1.144983	2.965493	0.000386	0.001	0.03
Inland Industrial Resource	1.821592	4.717901	0.00172	0.004455	0.09
Inland Natural Area	21.012984	54.42338	0.010118	0.026206	0.05
Inland Recreation	0.036896	0.095561	0.000074	0.000192	0.20
Inland Rural	0.024331	0.063017	0.000011	0.000029	0.05
Inland Suburban/Exurban Residential	12.623688	32.695203	0.015201	0.039371	0.12
Nearshore Ocean	33.900979	87.803132	33.899836	87.800173	100.00
Oceanside Beach	1.847662	4.785421	0.988974	2.561431	53.53
Oceanside Residential/Commercial	0.18328	0.474694	0.042199	0.109294	23.02
Seascape Residential	0.010911	0.02826	0.000193	0.000499	1.77
Brick Township	-	-	-	-	-
Bayside Natural Upland	0.372007	0.963494	0.000019	0.00005	0.01
Bayside Natural Wetland	2.20499	5.710898	0.000058	0.00015	0.00
Bayside Recreation	0.117899	0.305357	0.000602	0.001558	0.51
Bayside Residential	3.512972	9.098556	0.003695	0.00957	0.11
Bayside Waterbodies	5.877627	15.222983	0.000223	0.000577	0.00
Inland Commercial Park	1.505045	3.898049	0.000278	0.00072	0.02
Inland Industrial	0.098205	0.25435	0.000019	0.00005	0.02
Inland Industrial Resource	0.146033	0.378224	0.000058	0.00015	0.04
Inland Natural Area	3.901053	10.103682	0.00024	0.000621	0.01
Inland Recreation	0.235841	0.610826	0.000513	0.001328	0.22
Inland Suburban/Exurban Residential	13.123919	33.990795	0.008566	0.022187	0.07
Nearshore Ocean	6.153921	15.938583	6.15381	15.938294	100.00
Oceanside Residential/Commercial	0.26327	0.681867	0.085023	0.220208	32.29
Brielle Borough	-	-	-	-	-
Bayside Recreation	0.20385	0.52797	0.001054	0.002729	0.52

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	0.501541	1.298985	0.000638	0.001653	0.13
Bayside Waterbodies	0.423917	1.097939	0.000115	0.000299	0.03
Inland Suburban/Exurban Residential	1.102552	2.855597	0.001793	0.004644	0.16
Brigantine	-	-	-	-	-
Bayside Natural Upland	0.037284	0.096565	0.000451	0.001168	1.21
Bayside Natural Wetland	4.103657	10.628422	1.556527	4.031386	37.93
Bayside Residential	0.799583	2.070909	0.017966	0.046532	2.25
Bayside Urban	0.092944	0.240724	0.001096	0.00284	1.18
Bayside Waterbodies	3.110677	8.056615	1.114698	2.887055	35.83
Nearshore Ocean	24.77845	64.175891	24.777578	64.173631	100.00
Oceanside Beach	0.873285	2.261797	0.514807	1.333344	58.95
Oceanside Residential/Commercial	0.761558	1.972425	0.144254	0.373615	18.94
Seascape Residential	1.025155	2.65514	0.011491	0.029762	1.12
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.644739	5.40425	13.996944	84.09
Bayside Recreation	0.003413	0.00884	0.001685	0.004364	49.37
Bayside Residential	0.191175	0.49514	0.03491	0.090416	18.26
Bayside Waterbodies	2.501679	6.479319	2.273462	5.888239	90.88
Inland Industrial	0.154902	0.401195	0.000004	0.000011	0.00
Inland Industrial Resource	0.950613	2.462075	0.001167	0.003022	0.12
Inland Natural Area	6.947407	17.993701	0.004333	0.011223	0.06
Inland Suburban/Exurban Residential	1.75839	4.554209	0.005346	0.013845	0.30
Egg Harbor City	-	-	-	-	-
Bayside Natural Wetland	1.038574	2.689893	0.000082	0.000211	0.01
Bayside Waterbodies	0.29391	0.761222	0.000064	0.000167	0.02
Inland Natural Area	0.648916	1.680684	0.000121	0.000314	0.02
Egg Harbor Township	-	-	-	-	-
Bayside Natural Wetland	2.923921	7.572922	0.000711	0.001841	0.02
Bayside Recreation	0.02584	0.066925	0.000019	0.00005	0.07
Bayside Residential	0.30687	0.794789	0.000569	0.001475	0.19
Bayside Urban	0.11787	0.305281	0.00011	0.000284	0.09
Bayside Waterbodies	8.128283	21.052156	0.173968	0.450576	2.14
Inland Commercial Park	1.78784	4.630485	0.009685	0.025084	0.54
Inland Industrial	2.401373	6.219527	0.000241	0.000625	0.01
Inland Industrial Resource	0.517924	1.341416	0.065232	0.16895	12.59
Inland Natural Area	4.662498	12.075815	0.001661	0.004301	0.04
Inland Suburban/Exurban Residential	3.076253	7.96746	0.001705	0.004416	0.06
Inland Urban	1.213161	3.142072	0.000676	0.001751	0.06
Oceanside Beach	0.086163	0.223162	0.000212	0.00055	0.25
Galloway Township	-	-	-	-	-
Bayside Natural Upland	0.070809	0.183395	0.000283	0.000734	0.40
Bayside Natural Wetland	28.241116	73.144156	20.804919	53.884494	73.67
Bayside Recreation	0.270319	0.700122	0.006869	0.01779	2.54
Bayside Residential	0.078624	0.203636	0.016893	0.043752	21.49
Bayside Waterbodies	20.323966	52.638829	11.427225	29.596377	56.23
Inland Commercial Park	0.294672	0.763197	0.000039	0.0001	0.01
Inland Industrial Resource	0.269761	0.698678	0.000015	0.000038	0.01
Inland Natural Area	15.240384	39.472414	0.065722	0.17022	0.43
Inland Recreation	1.020304	2.642575	0.056969	0.147548	5.58
Inland Rural	12.434094	32.204156	0.003821	0.009895	0.03

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	14.07714	36.459625	0.024487	0.06342	0.17
Nearshore Ocean	10.491951	27.174029	10.491583	27.173074	100.00
Oceanside Beach	0.160693	0.416192	0.13702	0.354881	85.27
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000263	0.000681	0.08
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	8.435694	21.848346	100.00
Oceanside Residential/Commercial	0.296536	0.768025	0.134884	0.349347	45.49
Island Heights Borough	0.869832	2.252855	0.00194	0.005024	0.22
Bayside Residential	0.248817	0.644434	0.001236	0.003201	0.50
Bayside Waterbodies	0.255146	0.660825	0.000002	0.000004	0.00
Inland Suburban/Exurban Residential	0.365869	0.947596	0.000702	0.001819	0.19
Lacey Township	99.363588	257.350513	10.90527	28.244518	10.98
Bayside Commercial Park	0.149246	0.386545	0.000193	0.0005	0.13
Bayside Natural Upland	1.482721	3.84023	0.001435	0.003716	0.10
Bayside Natural Wetland	2.027647	5.251583	1.038483	2.689659	51.22
Bayside Residential	2.301367	5.960513	0.052115	0.134977	2.26
Bayside Waterbodies	15.272406	39.55535	9.781241	25.333299	64.05
Inland Agriculture	0.154952	0.401323	0.000058	0.00015	0.04
Inland Commercial Park	0.67829	1.756763	0.001354	0.003506	0.20
Inland Industrial Resource	4.474981	11.590149	0.002751	0.007125	0.06
Inland Natural Area	64.91341	168.12496	0.012398	0.03211	0.02
Inland Rural	0.410648	1.063573	0.000213	0.000551	0.05
Inland Suburban/Exurban Residential	7.49792	19.419524	0.015029	0.038925	0.20
Lakewood Township	-	-	-	-	-
Inland Commercial Park	1.806915	4.679889	0.002402	0.006221	0.13
Inland Natural Area	0.783576	2.029453	0.00086	0.002228	0.11
Inland Suburban/Exurban Residential	2.668113	6.91038	0.003253	0.008426	0.12
Lavallette Borough	-	-	-	-	-
Bayside Residential	0.375785	0.97328	0.000187	0.000485	0.05
Nearshore Ocean	4.979553	12.896984	4.979518	12.896892	100.00
Oceanside Residential/Commercial	0.465298	1.205118	0.099359	0.25734	21.35
Seascape Residential	0.090872	0.235356	0.000046	0.000119	0.05
Linwood	-	-	-	-	-
Bayside Recreation	0.189037	0.489604	0.00027	0.0007	0.14
Bayside Waterbodies	1.655856	4.288647	0.000068	0.000175	0.00
Inland Suburban/Exurban Residential	1.712348	4.434961	0.000956	0.002475	0.06
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Upland	0.094972	0.245975	0.000019	0.00005	0.02
Bayside Natural Wetland	14.347208	37.159099	9.431947	24.428631	65.74
Bayside Recreation	0.011552	0.02992	0.003012	0.007802	26.07
Bayside Residential	2.109492	5.463559	0.114541	0.296659	5.43
Bayside Waterbodies	24.740858	64.078527	12.681767	32.845625	51.26
Inland Industrial Resource	0.547275	1.417437	0.000039	0.0001	0.01
Inland Military Site	0.029327	0.075957	0.002476	0.006414	8.44
Inland Natural Area	22.847206	59.173991	0.279558	0.724052	1.22
Inland Recreation	0.04628	0.119866	0.000068	0.000175	0.15
Inland Rural	0.231146	0.598666	0.000001	0.000002	0.00
Inland Suburban/Exurban Residential	8.850442	22.92254	0.021862	0.056622	0.25
Oceanside Beach	0.079038	0.204708	0.02047	0.053016	25.90

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.002266	0.005869	0.18
Bayside Residential	1.853823	4.801379	0.010553	0.027333	0.57
Bayside Waterbodies	17.404871	45.078409	3.456999	8.953585	19.86
Nearshore Ocean	43.727882	113.254696	43.726115	113.250119	100.00
Oceanside Beach	0.676831	1.752985	0.429106	1.111379	63.40
Oceanside Residential/Commercial	2.171806	5.624951	0.828417	2.14559	38.14
Longport Borough	-	-	-	-	-
Bayside Residential	0.21212	0.549388	0.002499	0.006472	1.18
Bayside Urban	0.005314	0.013762	0.000097	0.00025	1.83
Bayside Waterbodies	0.173929	0.450474	0.06296	0.163065	36.20
Nearshore Ocean	5.466968	14.159381	5.391463	13.963825	98.62
Oceanside Residential/Commercial	0.265899	0.688675	0.110879	0.287174	41.70
Manasquan Borough	-	-	-	-	-
Bayside Military Site	0.00942	0.024398	0.000023	0.000059	0.24
Bayside Natural Wetland	0.083164	0.215393	0.000108	0.000279	0.13
Bayside Recreation	0.050631	0.131133	0.000244	0.000632	0.48
Bayside Residential	0.30206	0.782331	0.000279	0.000721	0.09
Bayside Waterbodies	0.078798	0.204085	0.002232	0.005782	2.83
Inland Suburban/Exurban Residential	0.549375	1.422874	0.000635	0.001645	0.12
Inland Urban	0.278898	0.722341	0.000187	0.000483	0.07
Nearshore Ocean	4.680765	12.123125	1.960096	5.076625	41.88
Oceanside Residential/Commercial	0.223817	0.579683	0.075056	0.194395	33.53
Manchester Township	-	-	-	-	-
Inland Industrial Resource	0.411317	1.065307	0.000415	0.001075	0.10
Inland Natural Area	6.21663	16.100999	0.001051	0.002723	0.02
Inland Suburban/Exurban Residential	4.451259	11.528709	0.002163	0.005602	0.05
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000074	0.000192	0.04
Bayside Waterbodies	0.15918	0.412275	0.000042	0.000108	0.03
Nearshore Ocean	7.317539	18.952339	7.317423	18.952038	100.00
Oceanside Residential/Commercial	0.339952	0.880472	0.128759	0.333485	37.88
Margate City	-	-	-	-	-
Bayside Residential	1.039538	2.692392	0.005868	0.015199	0.56
Bayside Urban	0.050474	0.130728	0.000481	0.001246	0.95
Bayside Waterbodies	0.144981	0.375498	0.000022	0.000058	0.02
Nearshore Ocean	5.471949	14.172282	5.471731	14.171718	100.00
Oceanside Residential/Commercial	0.474007	1.227674	0.140585	0.364113	29.66
Northfield	-	-	-	-	-
Bayside Recreation	0.217445	0.56318	0.001503	0.003892	0.69
Bayside Waterbodies	0.395331	1.023902	0.000019	0.00005	0.00
Inland Suburban/Exurban Residential	2.320348	6.009674	0.004306	0.011152	0.19
Ocean City	-	-	-	-	-
Bayside Residential	0.17348	0.449312	0.001426	0.003694	0.82
Bayside Waterbodies	1.017125	2.634342	0.204709	0.530195	20.13
Nearshore Ocean	5.178047	13.411081	4.769121	12.351966	92.10
Oceanside Beach	0.111924	0.289882	0.103685	0.268543	92.64
Oceanside Residential/Commercial	0.16714	0.432889	0.022044	0.057093	13.19
Seascape Residential	0.084352	0.21847	0.000465	0.001205	0.55

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000058	0.00015	0.03
Inland Suburban/Exurban Residential	0.233087	0.603693	0.00029	0.00075	0.12
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.000522	0.001352	0.26
Bayside Natural Wetland	1.313493	3.401931	0.432107	1.119151	32.90
Bayside Residential	1.039616	2.692594	0.066785	0.172973	6.42
Bayside Waterbodies	10.20872	26.440463	8.350927	21.628802	81.80
Inland Agriculture	0.190638	0.493749	0.011467	0.0297	6.02
Inland Natural Area	16.34245	42.326751	0.003434	0.008895	0.02
Inland Rural	1.022571	2.648446	0.001614	0.004179	0.16
Inland Suburban/Exurban Residential	10.472781	27.124378	0.007789	0.020172	0.07
Pine Beach Borough	-	-	-	-	-
Bayside Residential	0.264736	0.685664	0.000019	0.00005	0.01
Inland Suburban/Exurban Residential	0.379676	0.983357	0.000145	0.000375	0.04
Pleasantville	-	-	-	-	-
Bayside Natural Wetland	1.471803	3.811953	0.004	0.01036	0.27
Bayside Residential	0.148484	0.384571	0.000381	0.000987	0.26
Bayside Urban	0.046055	0.119282	0.002872	0.007438	6.24
Bayside Waterbodies	1.73479	4.493086	0.000058	0.000151	0.00
Inland Commercial Park	0.250718	0.649357	0.000895	0.002317	0.36
Inland Suburban/Exurban Residential	3.321798	8.603417	0.021839	0.056564	0.66
Inland Urban	0.284905	0.737899	0.000545	0.001411	0.19
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.000975	0.002525	1.51
Bayside Residential	0.182721	0.473245	0.000564	0.00146	0.31
Bayside Urban	0.075761	0.19622	0.000499	0.001291	0.66
Bayside Waterbodies	0.261104	0.676255	0.000185	0.000479	0.07
Inland Recreation	0.014755	0.038216	0.000023	0.000058	0.16
Inland Suburban/Exurban Residential	0.631836	1.636447	0.002525	0.00654	0.40
Inland Urban	0.177127	0.458756	0.000391	0.001012	0.22
Nearshore Ocean	5.42523	14.051281	5.004395	12.961325	92.24
Oceanside Residential/Commercial	0.405586	1.050463	0.115249	0.298494	28.42
Oceanside Urban	0.080118	0.207504	0.026648	0.069019	33.26
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.001377	0.003566	0.12
Bayside Waterbodies	0.469913	1.21707	0.00001	0.000025	0.00
Inland Recreation	0.025964	0.067245	0.000048	0.000125	0.18
Inland Suburban/Exurban Residential	2.428247	6.28913	0.004188	0.010847	0.17
Inland Urban	0.016025	0.041505	0.000005	0.000014	0.03
Port Republic	-	-	-	-	-
Bayside Natural Wetland	2.59482	6.720553	0.722978	1.872503	27.86
Bayside Residential	0.102496	0.265463	0.012037	0.031177	11.74
Bayside Waterbodies	0.718117	1.859915	0.306204	0.793064	42.64
Inland Natural Area	2.487741	6.44322	0.001774	0.004594	0.07
Inland Rural	0.202746	0.525111	0.000029	0.000075	0.01
Inland Suburban/Exurban Residential	2.417496	6.261286	0.002014	0.005216	0.08
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.026965	0.06984	9.67
Nearshore Ocean	4.412353	11.427942	0.111161	0.287906	2.52
Oceanside Residential/Commercial	0.310064	0.803061	0.048971	0.126836	15.79

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	mi ²	km ²	mi ²	km ²	%
Seascape Residential	0.238434	0.617542	0.000597	0.001546	0.25
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000567	0.001468	0.94
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	3.751369	9.716001	100.00
Oceanside Residential/Commercial	0.003488	0.009033	0.001426	0.003694	40.88
Oceanside Urban	0.244074	0.632149	0.062926	0.162978	25.78
Seascape Residential	0.191807	0.496778	0.001433	0.003712	0.75
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.001076	0.002787	1.74
Bayside Residential	0.228865	0.592758	0.001875	0.004855	0.82
Nearshore Ocean	5.723702	14.824319	5.723544	14.82391	100.00
Oceanside Residential/Commercial	0.471132	1.220226	0.145253	0.376204	30.83
Oceanside Urban	0.000014	0.000036	0.000014	0.000036	100.00
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000113	0.000293	1.02
Bayside Residential	0.253949	0.657724	0.00133	0.003445	0.52
Bayside Urban	0.036614	0.09483	0.000958	0.00248	2.62
Bayside Waterbodies	0.252445	0.65383	0.000194	0.000502	0.08
Nearshore Ocean	4.466743	11.568812	4.466529	11.568258	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.115863	0.300083	38.54
Oceanside Urban	0.055995	0.145025	0.026164	0.067765	46.73
Seascape Residential	0.120813	0.312905	0.000582	0.001506	0.48
Seascape Urban	0.017797	0.046095	0.000842	0.00218	4.73
South Toms River Borough	-	-	-	-	-
Inland Natural Area	0.279983	0.725152	0.000145	0.000375	0.05
Inland Suburban/Exurban Residential	0.774911	2.007009	0.000048	0.000125	0.01
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.00048	0.001243	7.55
Bayside Natural Wetland	8.789522	22.764757	5.708306	14.784444	64.94
Bayside Recreation	0.099286	0.25715	0.006326	0.016384	6.37
Bayside Residential	2.092265	5.41894	0.066501	0.172236	3.18
Bayside Waterbodies	7.021887	18.186603	0.774383	2.005643	11.03
Inland Commercial Park	1.074364	2.78259	0.008358	0.021648	0.78
Inland Industrial	0.114107	0.295537	0.000763	0.001976	0.67
Inland Industrial Resource	0.829568	2.148571	0.001037	0.002686	0.13
Inland Natural Area	25.321164	65.581513	0.033822	0.087599	0.13
Inland Recreation	0.140441	0.363739	0.000807	0.00209	0.57
Inland Rural	1.073095	2.779304	0.000415	0.001075	0.04
Inland Suburban/Exurban Residential	8.081042	20.929802	0.023375	0.060541	0.29
Surf City Borough	-	-	-	-	-
Bayside Recreation	0.005584	0.014464	0.00001	0.000025	0.18
Bayside Residential	0.258283	0.668951	0.001669	0.004322	0.65
Bayside Waterbodies	0.553974	1.434786	0.000036	0.000093	0.01
Nearshore Ocean	5.320502	13.780037	5.320185	13.779215	99.99
Oceanside Residential/Commercial	0.370025	0.958359	0.123757	0.320529	33.45
Seascape Residential	0.173221	0.44864	0.000362	0.000937	0.21
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.000232	0.000601	0.05
Bayside Natural Wetland	0.738379	1.912393	0.000057	0.000149	0.01
Bayside Recreation	0.80446	2.083541	0.000473	0.001224	0.06

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	3.357036	8.694683	0.018734	0.048521	0.56
Bayside Waterbodies	11.250767	29.139353	0.188902	0.489253	1.68
Inland Commercial Park	2.083064	5.39511	0.000622	0.001611	0.03
Inland Industrial Resource	0.54356	1.407814	0.00001	0.000025	0.00
Inland Natural Area	4.883689	12.648696	0.001154	0.002989	0.02
Inland Suburban/Exurban Residential	22.29713	57.749303	0.030039	0.0778	0.13
Inland Urban	2.177285	5.639142	0.004193	0.010861	0.19
Nearshore Ocean	7.370257	19.088878	7.370012	19.088244	100.00
Oceanside Residential/Commercial	0.713613	1.848249	0.149834	0.388067	21.00
Oceanside Urban	0.003978	0.010302	0.000077	0.0002	1.94
Seascape Residential	0.262283	0.67931	0.000642	0.001664	0.24
Tuckerton Borough	-	-	-	-	-
Bayside Natural Upland	0.101106	0.261863	0.001702	0.004407	1.68
Bayside Natural Wetland	1.625877	4.211002	1.485427	3.847239	91.36
Bayside Recreation	0.009819	0.025431	0.004132	0.010702	42.08
Bayside Residential	0.371063	0.961048	0.02761	0.071509	7.44
Bayside Waterbodies	0.07524	0.19487	0.063084	0.163387	83.84
Inland Natural Area	0.213358	0.552595	0.001255	0.00325	0.59
Inland Suburban/Exurban Residential	1.28566	3.329845	0.004195	0.010864	0.33
Ventnor City	-	-	-	-	-
Bayside Natural Wetland	0.60895	1.577174	0.000865	0.002241	0.14
Bayside Recreation	0.024357	0.063084	0.000203	0.000525	0.83
Bayside Residential	1.10774	2.869033	0.006297	0.01631	0.57
Bayside Waterbodies	0.608586	1.576232	0.000098	0.000254	0.02
Nearshore Ocean	5.445494	14.103766	5.445213	14.103037	99.99
Oceanside Residential/Commercial	0.285293	0.738905	0.118193	0.306119	41.43
Wall Township	-	-	-	-	-
Bayside Residential	0.496866	1.286878	0.000106	0.000275	0.02
Bayside Waterbodies	0.417014	1.08006	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	12.955414	33.554367	0.000154	0.0004	0.00
Washington Township	-	-	-	-	-
Bayside Natural Wetland	5.107411	13.228135	0.000029	0.000075	0.00
Bayside Residential	0.182599	0.472929	0.000019	0.00005	0.01
Bayside Waterbodies	1.111837	2.879646	0.00009	0.000233	0.01
Inland Natural Area	19.718399	51.070419	0.000357	0.000925	0.00
Woodland Township	-	-	-	-	-
Inland Industrial Resource	0.990679	2.565846	0.000039	0.0001	0.00
Inland Natural Area	13.572946	35.153769	0.000135	0.00035	0.00

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-7 Character Areas within Municipalities and Intersections with the OCS-A 0539 Lease Area 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Atlantic City	-	-	-	-	-
Bayside Waterbodies	4.499754	11.654309	0.038816	0.100534	0.86
Nearshore Ocean	17.076699	44.228448	0.09191	0.238046	0.54
Oceanside Urban	1.011303	2.619262	0.008143	0.02109	0.81
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00001	0.000027	0.02
Bayside Residential	0.212181	0.549547	0.001673	0.004332	0.79
Bayside Waterbodies	0.280443	0.726343	0.096137	0.248995	34.28
Nearshore Ocean	11.089861	28.722607	11.088975	28.720314	99.99
Oceanside Beach	0.173074	0.44826	0.088869	0.23017	51.35
Oceanside Recreation	0.013546	0.035084	0.000214	0.000554	1.58
Oceanside Residential/Commercial	0.565739	1.465257	0.185257	0.479813	32.75
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	0.033072	0.085656	0.83
Bayside Residential	0.278385	0.721015	0.02457	0.063637	8.83
Bayside Waterbodies	5.607529	14.523434	0.543604	1.407929	9.69
Inland Industrial Resource	0.822256	2.129633	0.000338	0.000875	0.04
Inland Natural Area	18.426348	47.724023	0.004608	0.011935	0.03
Inland Rural	0.946237	2.450743	0.000269	0.000698	0.03
Inland Suburban/Exurban Residential	10.180429	26.367191	0.027846	0.07212	0.27
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.000262	0.000678	0.18
Bayside Waterbodies	0.059536	0.154198	0.000019	0.00005	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.000946	0.00245	0.33
Nearshore Ocean	4.95526	12.834063	4.955144	12.833765	100.00
Oceanside Residential/Commercial	0.263933	0.683583	0.073676	0.190821	27.91
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.404854	1.048568	0.002459	0.006369	0.61
Bayside Waterbodies	1.312749	3.400005	0.000022	0.000056	0.00
Nearshore Ocean	8.179239	21.184131	8.178912	21.183285	100.00
Oceanside Residential/Commercial	0.562577	1.457067	0.139925	0.362403	24.87
Beachwood Borough	-	-	-	-	-
Inland Natural Area	0.866181	2.243399	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	1.655336	4.287301	0.001052	0.002725	0.06
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.218885	0.566911	7.68
Bayside Recreation	0.060018	0.155447	0.008857	0.022938	14.76
Bayside Residential	1.629749	4.22103	0.042984	0.111327	2.64
Bayside Waterbodies	10.873353	28.161856	0.914502	2.368549	8.41
Inland Commercial Park	0.277677	0.719181	0.001289	0.00334	0.46
Inland Industrial	1.144983	2.965493	0.000299	0.000775	0.03
Inland Industrial Resource	1.821592	4.717901	0.001655	0.004286	0.09
Inland Natural Area	21.012984	54.42338	0.004423	0.011456	0.02
Inland Recreation	0.036896	0.095561	0.000093	0.000242	0.25
Inland Rural	0.024331	0.063017	0.000011	0.000029	0.05
Inland Suburban/Exurban Residential	12.623688	32.695203	0.014229	0.036852	0.11

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Nearshore Ocean	33.900979	87.803132	33.899836	87.800173	100.00
Oceanside Beach	1.847662	4.785421	1.003031	2.597839	54.29
Oceanside Residential/Commercial	0.18328	0.474694	0.043002	0.111375	23.46
Seascape Residential	0.010911	0.02826	0.000182	0.000472	1.67
Brick Township	-	-	-	-	-
Bayside Natural Upland	0.372007	0.963494	0.000023	0.000059	0.01
Bayside Natural Wetland	2.20499	5.710898	0.000039	0.0001	0.00
Bayside Recreation	0.117899	0.305357	0.000502	0.0013	0.43
Bayside Residential	3.512972	9.098556	0.003711	0.00961	0.11
Bayside Waterbodies	5.877627	15.222983	0.000241	0.000625	0.00
Inland Commercial Park	1.505045	3.898049	0.00003	0.000078	0.00
Inland Industrial Resource	0.146033	0.378224	0.000039	0.0001	0.03
Inland Natural Area	3.901053	10.103682	0.000174	0.00045	0.00
Inland Recreation	0.235841	0.610826	0.000503	0.001303	0.21
Inland Suburban/Exurban Residential	13.123919	33.990795	0.007661	0.019841	0.06
Nearshore Ocean	6.153921	15.938583	6.15381	15.938294	100.00
Oceanside Residential/Commercial	0.26327	0.681867	0.087884	0.227618	33.38
Brielle Borough	-	-	-	-	-
Bayside Recreation	0.20385	0.52797	0.002298	0.005952	1.13
Bayside Residential	0.501541	1.298985	0.001419	0.003676	0.28
Bayside Waterbodies	0.423917	1.097939	0.000164	0.000424	0.04
Inland Suburban/Exurban Residential	1.102552	2.855597	0.002779	0.007199	0.25
Brigantine	-	-	-	-	-
Bayside Natural Wetland	4.103657	10.628422	0.06392	0.165553	1.56
Bayside Residential	0.799583	2.070909	0.006342	0.016427	0.79
Bayside Urban	0.092944	0.240724	0.000385	0.000996	0.41
Bayside Waterbodies	3.110677	8.056615	0.049311	0.127715	1.59
Nearshore Ocean	24.77845	64.175891	20.206123	52.333617	81.55
Oceanside Beach	0.873285	2.261797	0.490716	1.270948	56.19
Oceanside Residential/Commercial	0.761558	1.972425	0.134371	0.348019	17.64
Seascape Residential	1.025155	2.65514	0.005326	0.013793	0.52
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.644739	0.017749	0.045969	0.28
Bayside Recreation	0.003413	0.00884	0.000163	0.000422	4.78
Bayside Residential	0.191175	0.49514	0.005092	0.013188	2.66
Bayside Waterbodies	2.501679	6.479319	0.00019	0.000492	0.01
Inland Industrial	0.154902	0.401195	0.000004	0.00001	0.00
Inland Industrial Resource	0.950613	2.462075	0.00098	0.002538	0.10
Inland Natural Area	6.947407	17.993701	0.002381	0.006166	0.03
Inland Suburban/Exurban Residential	1.75839	4.554209	0.003651	0.009456	0.21
Galloway Township	-	-	-	-	-
Bayside Natural Wetland	28.241116	73.144156	3.659719	9.47863	12.96
Bayside Waterbodies	20.323966	52.638829	1.804664	4.674058	8.88
Inland Natural Area	15.240384	39.472414	0.000404	0.001047	0.00
Nearshore Ocean	10.491951	27.174029	10.491583	27.173074	100.00
Oceanside Beach	0.160693	0.416192	0.134906	0.349404	83.95
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000204	0.000529	0.06
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	8.435694	21.848346	100.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Oceanside Residential/Commercial	0.296536	0.768025	0.135848	0.351845	45.81
Island Heights Borough	-	-	-	-	-
Bayside Residential	0.248817	0.644434	0.001824	0.004723	0.73
Inland Suburban/Exurban Residential	0.365869	0.947596	0.000821	0.002127	0.22
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000487	0.001263	0.33
Bayside Natural Upland	1.482721	3.84023	0.001925	0.004985	0.13
Bayside Natural Wetland	2.027647	5.251583	1.169591	3.029228	57.68
Bayside Residential	2.301367	5.960513	0.057239	0.148248	2.49
Bayside Waterbodies	15.272406	39.55535	5.056283	13.095713	33.11
Inland Agriculture	0.154952	0.401323	0.000068	0.000175	0.04
Inland Commercial Park	0.67829	1.756763	0.001176	0.003046	0.17
Inland Industrial Resource	4.474981	11.590149	0.003002	0.007774	0.07
Inland Natural Area	64.91341	168.12496	0.010031	0.025979	0.02
Inland Rural	0.410648	1.063573	0.000048	0.000125	0.01
Inland Suburban/Exurban Residential	7.49792	19.419524	0.013931	0.036081	0.19
Lakewood Township	-	-	-	-	-
Inland Suburban/Exurban Residential	2.668113	6.91038	0.00111	0.002875	0.04
Lavallette Borough	-	-	-	-	-
Bayside Recreation	0.034809	0.090155	0.00001	0.000025	0.03
Bayside Residential	0.375785	0.97328	0.000205	0.00053	0.05
Nearshore Ocean	4.979553	12.896984	4.979518	12.896892	100.00
Oceanside Residential/Commercial	0.465298	1.205118	0.102593	0.265716	22.05
Seascape Residential	0.090872	0.235356	0.000053	0.000137	0.06
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Upland	0.094972	0.245975	0.000019	0.00005	0.02
Bayside Natural Wetland	14.347208	37.159099	2.058732	5.332091	14.35
Bayside Recreation	0.011552	0.02992	0.000515	0.001334	4.46
Bayside Residential	2.109492	5.463559	0.02053	0.053171	0.97
Bayside Waterbodies	24.740858	64.078527	1.271759	3.293841	5.14
Inland Industrial Resource	0.547275	1.417437	0.000029	0.000075	0.01
Inland Natural Area	22.847206	59.173991	0.005161	0.013366	0.02
Inland Suburban/Exurban Residential	8.850442	22.92254	0.015323	0.039686	0.17
Oceanside Beach	0.079038	0.204708	0.006749	0.01748	8.54
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000468	0.001213	0.04
Bayside Residential	1.853823	4.801379	0.009112	0.0236	0.49
Bayside Waterbodies	17.404871	45.078409	0.35649	0.923306	2.05
Nearshore Ocean	43.727882	113.254696	43.726115	113.250119	100.00
Oceanside Beach	0.676831	1.752985	0.352031	0.911756	52.01
Oceanside Residential/Commercial	2.171806	5.624951	0.816594	2.11497	37.60
Manasquan Borough	-	-	-	-	-
Bayside Military Site	0.00942	0.024398	0.000061	0.000159	0.65
Bayside Natural Wetland	0.083164	0.215393	0.000214	0.000554	0.26
Bayside Recreation	0.050631	0.131133	0.000918	0.002379	1.81
Bayside Residential	0.30206	0.782331	0.000954	0.002472	0.32
Bayside Waterbodies	0.078798	0.204085	0.009232	0.023911	11.72
Inland Suburban/Exurban Residential	0.549375	1.422874	0.001489	0.003855	0.27
Inland Urban	0.278898	0.722341	0.000492	0.001273	0.18
Nearshore Ocean	4.680765	12.123125	4.233708	10.965253	90.45

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Oceanside Residential/Commercial	0.223817	0.579683	0.085496	0.221433	38.20
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000095	0.000247	0.05
Bayside Waterbodies	0.15918	0.412275	0.000042	0.000108	0.03
Nearshore Ocean	7.317539	18.952339	7.317423	18.952038	100.00
Oceanside Residential/Commercial	0.339952	0.880472	0.130488	0.337962	38.38
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000116	0.0003	0.05
Inland Natural Area	0.001196	0.003097	0.00001	0.000025	0.84
Inland Suburban/Exurban Residential	0.233087	0.603693	0.000347	0.0009	0.15
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.001087	0.002814	0.53
Bayside Natural Wetland	1.313493	3.401931	0.203188	0.526255	15.47
Bayside Residential	1.039616	2.692594	0.069538	0.180102	6.69
Bayside Waterbodies	10.20872	26.440463	6.286947	16.283118	61.58
Inland Agriculture	0.190638	0.493749	0.0036	0.009325	1.89
Inland Natural Area	16.34245	42.326751	0.004096	0.010608	0.03
Inland Rural	1.022571	2.648446	0.00106	0.002746	0.10
Inland Suburban/Exurban Residential	10.472781	27.124378	0.008935	0.023141	0.09
Pine Beach Borough	-	-	-	-	-
Bayside Residential	0.264736	0.685664	0.000068	0.000175	0.03
Inland Suburban/Exurban Residential	0.379676	0.983357	0.00029	0.00075	0.08
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.001303	0.003375	2.02
Bayside Residential	0.182721	0.473245	0.001131	0.002929	0.62
Bayside Urban	0.075761	0.19622	0.000742	0.001922	0.98
Bayside Waterbodies	0.261104	0.676255	0.005694	0.014747	2.18
Inland Recreation	0.014755	0.038216	0.000054	0.000141	0.37
Inland Suburban/Exurban Residential	0.631836	1.636447	0.003779	0.009787	0.60
Inland Urban	0.177127	0.458756	0.000526	0.001363	0.30
Nearshore Ocean	5.42523	14.051281	5.425154	14.051085	100.00
Oceanside Residential/Commercial	0.405586	1.050463	0.118102	0.305883	29.12
Oceanside Urban	0.080118	0.207504	0.028468	0.073731	35.53
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.001903	0.00493	0.17
Bayside Waterbodies	0.469913	1.21707	0.000019	0.00005	0.00
Inland Recreation	0.025964	0.067245	0.000039	0.0001	0.15
Inland Suburban/Exurban Residential	2.428247	6.28913	0.004926	0.012758	0.20
Inland Urban	0.016025	0.041505	0.000005	0.000014	0.03
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.032734	0.084779	11.74
Inland Recreation	0.003151	0.008161	0.000018	0.000045	0.57
Inland Suburban/Exurban Residential	0.31327	0.811364	0.000534	0.001384	0.17
Inland Urban	0.013037	0.033765	0.000027	0.000071	0.21
Nearshore Ocean	4.412353	11.427942	2.518556	6.52303	57.08
Oceanside Residential/Commercial	0.310064	0.803061	0.086216	0.223298	27.81
Seascape Residential	0.238434	0.617542	0.000866	0.002243	0.36
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000546	0.001413	0.91
Bayside Residential	0.01777	0.046024	0	0	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Nearshore Ocean	3.751369	9.716001	3.751369	9.716001	100.00
Oceanside Residential/Commercial	0.003488	0.009033	0.001522	0.003941	43.64
Oceanside Urban	0.244074	0.632149	0.065237	0.168963	26.73
Seascape Residential	0.191807	0.496778	0.00191	0.004947	1.00
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.001072	0.002776	1.73
Bayside Residential	0.228865	0.592758	0.002017	0.005224	0.88
Nearshore Ocean	5.723702	14.824319	5.723544	14.82391	100.00
Oceanside Residential/Commercial	0.471132	1.220226	0.146285	0.378876	31.05
Oceanside Urban	0.000014	0.000036	0.000014	0.000036	100.00
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000084	0.000218	0.76
Bayside Residential	0.253949	0.657724	0.000656	0.001698	0.26
Bayside Urban	0.036614	0.09483	0.000753	0.001951	2.06
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000477	0.07
Nearshore Ocean	4.466743	11.568812	4.466529	11.568258	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.11483	0.297408	38.20
Oceanside Urban	0.055995	0.145025	0.026078	0.067542	46.57
Seascape Residential	0.120813	0.312905	0.000485	0.001256	0.40
Seascape Urban	0.017797	0.046095	0.000697	0.001804	3.92
South Toms River Borough	-	-	-	-	-
Inland Natural Area	0.279983	0.725152	0.000145	0.000375	0.05
Inland Suburban/Exurban Residential	0.774911	2.007009	0.000106	0.000275	0.01
Spring Lake Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.453915	1.175635	0.000197	0.000509	0.04
Nearshore Ocean	6.952834	18.007758	1.595718	4.13289	22.95
Oceanside Residential/Commercial	0.583421	1.511054	0.085496	0.221435	14.65
Seascape Residential	0.478515	1.239349	0.000645	0.001671	0.13
Spring Lake Heights Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.307347	3.386014	0.000029	0.000075	0.00
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.000355	0.000921	5.58
Bayside Natural Wetland	8.789522	22.764757	0.009587	0.024831	0.11
Bayside Recreation	0.099286	0.25715	0.002918	0.007557	2.94
Bayside Residential	2.092265	5.41894	0.017618	0.04563	0.84
Bayside Waterbodies	7.021887	18.186603	0.001469	0.003805	0.02
Inland Commercial Park	1.074364	2.78259	0.005151	0.013341	0.48
Inland Industrial	0.114107	0.295537	0.000454	0.001175	0.40
Inland Industrial Resource	0.829568	2.148571	0.001214	0.003144	0.15
Inland Natural Area	25.321164	65.581513	0.012432	0.032198	0.05
Inland Recreation	0.140441	0.363739	0.000646	0.001673	0.46
Inland Rural	1.073095	2.779304	0.000512	0.001325	0.05
Inland Suburban/Exurban Residential	8.081042	20.929802	0.015065	0.039018	0.19
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.000522	0.001351	0.20
Bayside Waterbodies	0.553974	1.434786	0.000034	0.000087	0.01
Nearshore Ocean	5.320502	13.780037	5.320185	13.779215	99.99
Oceanside Residential/Commercial	0.370025	0.958359	0.122671	0.317716	33.15
Seascape Residential	0.173221	0.44864	0.000198	0.000513	0.11

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.000157	0.000407	0.03
Bayside Natural Wetland	0.738379	1.912393	0.00006	0.000156	0.01
Bayside Recreation	0.80446	2.083541	0.000386	0.000999	0.05
Bayside Residential	3.357036	8.694683	0.008119	0.021029	0.24
Bayside Urban	0.075735	0.196154	0.000019	0.00005	0.03
Bayside Waterbodies	11.250767	29.139353	0.001934	0.00501	0.02
Inland Commercial Park	2.083064	5.39511	0.001118	0.002895	0.05
Inland Natural Area	4.883689	12.648696	0.00074	0.001917	0.02
Inland Suburban/Exurban Residential	22.29713	57.749303	0.030488	0.078963	0.14
Inland Urban	2.177285	5.639142	0.004309	0.011161	0.20
Nearshore Ocean	7.370257	19.088878	7.370012	19.088244	100.00
Oceanside Residential/Commercial	0.713613	1.848249	0.152504	0.394984	21.37
Oceanside Urban	0.003978	0.010302	0.000094	0.000243	2.36
Seascape Residential	0.262283	0.67931	0.000882	0.002285	0.34
Tuckerton Borough	-	-	-	-	-
Bayside Natural Upland	0.101106	0.261863	0.000374	0.00097	0.37
Bayside Natural Wetland	1.625877	4.211002	0.00264	0.006837	0.16
Bayside Recreation	0.009819	0.025431	0.000091	0.000235	0.93
Bayside Residential	0.371063	0.961048	0.005897	0.015274	1.59
Bayside Waterbodies	0.07524	0.19487	0.00001	0.000025	0.01
Inland Natural Area	0.213358	0.552595	0.000365	0.000946	0.17
Inland Suburban/Exurban Residential	1.28566	3.329845	0.002553	0.006612	0.20
Wall Township	-	-	-	-	-
Bayside Residential	0.496866	1.286878	0.000039	0.0001	0.01
Bayside Waterbodies	0.417014	1.08006	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	12.955414	33.554367	0.000772	0.002	0.01

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-8 Character Areas within Municipalities and Intersections with the OCS-A 0538 Lease Area 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Allenhurst Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.051156	0.132494	0.000121	0.000314	0.24
Nearshore Ocean	3.93983	10.204112	1.749742	4.53181	44.41
Oceanside Residential/Commercial	0.100129	0.259334	0.02976	0.077078	29.72
Seascape Residential	0.126647	0.328015	0.000409	0.001058	0.32
Asbury Park	-	-	-	-	-
Inland Suburban/Exurban Residential	0.564887	1.46305	0.000719	0.001861	0.13
Inland Urban	0.338321	0.876247	0.000957	0.002477	0.28
Nearshore Ocean	3.344827	8.663061	3.11311	8.062918	93.07
Oceanside Residential/Commercial	0.000092	0.000237	0.000092	0.000237	100.00
Oceanside Urban	0.341475	0.884416	0.082729	0.214268	24.23
Seascape Residential	0.294317	0.762279	0.00139	0.003601	0.47
Avon-by-the-Sea Borough	-	-	-	-	-
Bayside Recreation	0.016289	0.042189	0.00006	0.000154	0.37
Bayside Residential	0.032462	0.084076	0.000157	0.000407	0.48
Bayside Waterbodies	0.048591	0.12585	0.001691	0.00438	3.48
Inland Suburban/Exurban Residential	0.066789	0.172982	0.000303	0.000785	0.45
Nearshore Ocean	1.729207	4.478625	1.728612	4.477085	99.97
Oceanside Residential/Commercial	0.185097	0.479398	0.044056	0.114104	23.80
Seascape Residential	0.157843	0.408812	0.000997	0.002583	0.63
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0	0	0.00
Bayside Residential	0.212181	0.549547	0.000859	0.002225	0.40
Bayside Waterbodies	0.280443	0.726343	0.096425	0.249739	34.38
Nearshore Ocean	11.089861	28.722607	11.088975	28.720314	99.99
Oceanside Beach	0.173074	0.44826	0.085199	0.220664	49.23
Oceanside Recreation	0.013546	0.035084	0.000233	0.000604	1.72
Oceanside Residential/Commercial	0.565739	1.465257	0.181101	0.469049	32.01
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	0.000664	0.00172	0.02
Bayside Residential	0.278385	0.721015	0.00268	0.006942	0.96
Bayside Waterbodies	5.607529	14.523434	0.000215	0.000557	0.00
Inland Natural Area	18.426348	47.724023	0.000862	0.002232	0.00
Inland Suburban/Exurban Residential	10.180429	26.367191	0.012874	0.033343	0.13
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.000367	0.00095	0.25
Bayside Waterbodies	0.059536	0.154198	0.000019	0.00005	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.001091	0.002825	0.38
Nearshore Ocean	4.95526	12.834063	4.955144	12.833765	100.00
Oceanside Residential/Commercial	0.263933	0.683583	0.074383	0.192652	28.18
Beachwood Borough	-	-	-	-	-
Bayside Residential	0.155926	0.403847	0.000058	0.00015	0.04
Inland Industrial Resource	0.007608	0.019704	0.00001	0.000025	0.13
Inland Natural Area	0.866181	2.243399	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	1.655336	4.287301	0.00111	0.002875	0.07

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Belmar Borough	-	-	-	-	-
Bayside Commercial Park	0.155636	0.403095	0.000367	0.00095	0.24
Bayside Residential	0.085634	0.221791	0.000212	0.00055	0.25
Bayside Urban	0.246551	0.638563	0.000697	0.001805	0.28
Bayside Waterbodies	0.365347	0.946243	0.000364	0.000944	0.10
Inland Suburban/Exurban Residential	0.015408	0.039906	0.000048	0.000125	0.31
Nearshore Ocean	5.907429	15.300171	5.907128	15.299391	99.99
Oceanside Residential/Commercial	0.426051	1.103467	0.116696	0.302242	27.39
Seascape Residential	0.185078	0.479349	0.001229	0.003183	0.66
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.010387	0.026901	0.36
Bayside Recreation	0.060018	0.155447	0.002629	0.006809	4.38
Bayside Residential	1.629749	4.22103	0.023851	0.061773	1.46
Bayside Waterbodies	10.873353	28.161856	0.04496	0.116447	0.41
Inland Commercial Park	0.277677	0.719181	0.001007	0.002608	0.36
Inland Industrial	1.144983	2.965493	0.000212	0.00055	0.02
Inland Industrial Resource	1.821592	4.717901	0.000056	0.000146	0.00
Inland Natural Area	21.012984	54.42338	0.001484	0.003844	0.01
Inland Recreation	0.036896	0.095561	0.000113	0.000292	0.31
Inland Suburban/Exurban Residential	12.623688	32.695203	0.013678	0.035425	0.11
Nearshore Ocean	33.900979	87.803132	33.899836	87.800173	100.00
Oceanside Beach	1.847662	4.785421	0.988049	2.559034	53.48
Oceanside Residential/Commercial	0.18328	0.474694	0.043102	0.111633	23.52
Seascape Residential	0.010911	0.02826	0.000142	0.000368	1.30
Bradley Beach Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.061045	0.158106	0.000126	0.000325	0.21
Inland Urban	0.074287	0.192402	0.000244	0.000633	0.33
Nearshore Ocean	1.952949	5.058115	1.952937	5.058083	100.00
Oceanside Residential/Commercial	0.278692	0.72181	0.103759	0.268735	37.23
Seascape Residential	0.249449	0.646071	0.001022	0.002648	0.41
Brick Township	-	-	-	-	-
Bayside Natural Upland	0.372007	0.963494	0.000043	0.000112	0.01
Bayside Natural Wetland	2.20499	5.710898	0.000115	0.000298	0.01
Bayside Recreation	0.117899	0.305357	0.00055	0.001425	0.47
Bayside Residential	3.512972	9.098556	0.00545	0.014115	0.16
Bayside Waterbodies	5.877627	15.222983	0.000215	0.000556	0.00
Inland Commercial Park	1.505045	3.898049	0.00021	0.000544	0.01
Inland Industrial	0.098205	0.25435	0.000019	0.00005	0.02
Inland Industrial Resource	0.146033	0.378224	0.000097	0.00025	0.07
Inland Natural Area	3.901053	10.103682	0.000426	0.001103	0.01
Inland Recreation	0.235841	0.610826	0.000493	0.001278	0.21
Inland Suburban/Exurban Residential	13.123919	33.990795	0.014093	0.0365	0.11
Nearshore Ocean	6.153921	15.938583	6.15381	15.938294	100.00
Oceanside Residential/Commercial	0.26327	0.681867	0.086578	0.224236	32.89
Brielle Borough	-	-	-	-	-
Bayside Natural Wetland	0.017724	0.045904	0.001208	0.003129	6.82
Bayside Recreation	0.20385	0.52797	0.008884	0.023009	4.36
Bayside Residential	0.501541	1.298985	0.004311	0.011166	0.86
Bayside Waterbodies	0.423917	1.097939	0.016338	0.042315	3.85
Inland Natural Area	0.002556	0.006619	0	0.000001	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	1.102552	2.855597	0.005969	0.015458	0.54
Deal Borough	-	-	-	-	-
Inland Recreation	0.057955	0.150103	0.000172	0.000446	0.30
Inland Suburban/Exurban Residential	0.307163	0.795549	0.000657	0.001703	0.21
Nearshore Ocean	5.187518	13.435609	3.453169	8.943667	66.57
Oceanside Residential/Commercial	0.49898	1.292352	0.108515	0.281052	21.75
Seascape Residential	0.384947	0.997009	0.001746	0.004521	0.45
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000186	0.000481	0.05
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	8.435694	21.848346	100.00
Oceanside Residential/Commercial	0.296536	0.768025	0.134497	0.348346	45.36
Interlaken Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.383504	0.99327	0.000589	0.001525	0.15
Seascape Residential	0.014124	0.03658	0.00001	0.000025	0.07
Island Heights Borough	-	-	-	-	-
Bayside Residential	0.248817	0.644434	0.001081	0.0028	0.43
Inland Suburban/Exurban Residential	0.365869	0.947596	0.000911	0.00236	0.25
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000096	0.000249	0.06
Bayside Natural Upland	1.482721	3.84023	0.001479	0.00383	0.10
Bayside Natural Wetland	2.027647	5.251583	0.032972	0.085398	1.63
Bayside Residential	2.301367	5.960513	0.028862	0.074753	1.25
Bayside Waterbodies	15.272406	39.55535	0.001907	0.00494	0.01
Inland Commercial Park	0.67829	1.756763	0.001063	0.002754	0.16
Inland Industrial Resource	4.474981	11.590149	0.002339	0.006058	0.05
Inland Natural Area	64.91341	168.12496	0.005581	0.014455	0.01
Inland Suburban/Exurban Residential	7.49792	19.419524	0.011057	0.028637	0.15
Lake Como Borough	-	-	-	-	-
Bayside Urban	0.086951	0.225202	0.00028	0.000726	0.32
Inland Recreation	0.005635	0.014595	0.000004	0.00001	0.07
Inland Suburban/Exurban Residential	0.109575	0.283798	0.000601	0.001556	0.55
Seascape Residential	0.049721	0.128778	0.000772	0.002	1.55
Lakewood Township	-	-	-	-	-
Inland Commercial Park	1.806915	4.679889	0.000241	0.000625	0.01
Inland Natural Area	0.783576	2.029453	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	2.668113	6.91038	0.00275	0.007122	0.10
Lavallette Borough	-	-	-	-	-
Bayside Recreation	0.034809	0.090155	0.000019	0.00005	0.05
Bayside Residential	0.375785	0.97328	0.000183	0.000475	0.05
Nearshore Ocean	4.979553	12.896984	4.979518	12.896892	100.00
Oceanside Residential/Commercial	0.465298	1.205118	0.102567	0.265648	22.04
Seascape Residential	0.090872	0.235356	0.000046	0.000119	0.05
Loch Arbour Village	-	-	-	-	-
Nearshore Ocean	1.467124	3.799832	0.633674	1.641208	43.19
Oceanside Residential/Commercial	0.043026	0.111437	0.017016	0.044072	39.55
Oceanside Urban	0.021004	0.054401	0.004153	0.010756	19.77
Seascape Residential	0.060794	0.157454	0.000278	0.000721	0.46
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000264	0.000685	0.02

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	1.853823	4.801379	0.00481	0.012459	0.26
Bayside Waterbodies	17.404871	45.078409	0.00197	0.005101	0.01
Nearshore Ocean	43.727882	113.254696	18.658616	48.325594	42.67
Oceanside Residential/Commercial	2.171806	5.624951	0.659574	1.708288	30.37
Long Branch	-	-	-	-	-
Inland Suburban/Exurban Residential	3.366266	8.718588	0.000569	0.001475	0.02
Nearshore Ocean	15.532177	40.228155	3.268025	8.464146	21.04
Oceanside Residential/Commercial	0.267907	0.693876	0.057493	0.148906	21.46
Oceanside Urban	0.634541	1.643454	0.035602	0.092208	5.61
Seascape Residential	0.371897	0.96321	0.000873	0.002261	0.23
Manasquan Borough	-	-	-	-	-
Bayside Military Site	0.00942	0.024398	0.000148	0.000383	1.57
Bayside Natural Wetland	0.083164	0.215393	0.000333	0.000862	0.40
Bayside Recreation	0.050631	0.131133	0.000603	0.001561	1.19
Bayside Residential	0.30206	0.782331	0.003038	0.007869	1.01
Bayside Waterbodies	0.078798	0.204085	0.019585	0.050725	24.85
Inland Natural Area	0.010181	0.026368	0.000029	0.000075	0.28
Inland Suburban/Exurban Residential	0.549375	1.422874	0.003256	0.008433	0.59
Inland Urban	0.278898	0.722341	0.001382	0.00358	0.50
Nearshore Ocean	4.680765	12.123125	4.680555	12.122581	100.00
Oceanside Residential/Commercial	0.223817	0.579683	0.087864	0.227566	39.26
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000095	0.000247	0.05
Bayside Waterbodies	0.15918	0.412275	0.000032	0.000083	0.02
Nearshore Ocean	7.317539	18.952339	7.317423	18.952038	100.00
Oceanside Residential/Commercial	0.339952	0.880472	0.130494	0.337979	38.39
Neptune City Borough	-	-	-	-	-
Bayside Recreation	0.186156	0.482142	0.00028	0.000724	0.15
Bayside Residential	0.034799	0.090129	0.000029	0.000075	0.08
Bayside Waterbodies	0.010899	0.028228	0.000019	0.00005	0.17
Inland Suburban/Exurban Residential	0.472201	1.222994	0.000938	0.002429	0.20
Inland Urban	0.18838	0.487903	0.000307	0.000794	0.16
Neptune Township	-	-	-	-	-
Bayside Recreation	0.150593	0.390035	0.000327	0.000846	0.22
Bayside Residential	0.330337	0.855569	0.000498	0.001291	0.15
Bayside Waterbodies	0.601134	1.556929	0.000164	0.000425	0.03
Inland Recreation	0.445665	1.154266	0.001331	0.003448	0.30
Inland Suburban/Exurban Residential	5.241187	13.574611	0.005232	0.013551	0.10
Inland Urban	0.45881	1.188312	0.001057	0.002738	0.23
Nearshore Ocean	2.426312	6.28412	2.420361	6.268707	99.75
Oceanside Residential/Commercial	0.19484	0.504632	0.063027	0.163239	32.35
Oceanside Urban	0.004327	0.011207	0.000025	0.000066	0.58
Seascape Residential	0.169061	0.437865	0.001219	0.003157	0.72
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000193	0.0005	0.09
Inland Natural Area	0.001196	0.003097	0.00001	0.000025	0.84
Inland Suburban/Exurban Residential	0.233087	0.603693	0.000425	0.0011	0.18
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.001045	0.002706	0.51
Bayside Natural Wetland	1.313493	3.401931	0.020026	0.051867	1.52

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	1.039616	2.692594	0.026063	0.067503	2.51
Bayside Waterbodies	10.20872	26.440463	0.399393	1.034424	3.91
Inland Industrial Resource	0.009842	0.025491	0.000019	0.00005	0.19
Inland Natural Area	16.34245	42.326751	0.002121	0.005493	0.01
Inland Recreation	0.564168	1.461187	0.00023	0.000595	0.04
Inland Rural	1.022571	2.648446	0.000376	0.000975	0.04
Inland Suburban/Exurban Residential	10.472781	27.124378	0.008767	0.022706	0.08
Pine Beach Borough	-	-	-	-	-
Bayside Residential	0.264736	0.685664	0.001096	0.00284	0.41
Inland Suburban/Exurban Residential	0.379676	0.983357	0.000756	0.001958	0.20
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.001486	0.00385	2.30
Bayside Residential	0.182721	0.473245	0.001584	0.004104	0.87
Bayside Urban	0.075761	0.19622	0.002173	0.005628	2.87
Bayside Waterbodies	0.261104	0.676255	0.023295	0.060335	8.92
Inland Recreation	0.014755	0.038216	0.000042	0.000108	0.28
Inland Suburban/Exurban Residential	0.631836	1.636447	0.00518	0.013415	0.82
Inland Urban	0.177127	0.458756	0.000801	0.002074	0.45
Nearshore Ocean	5.42523	14.051281	5.425154	14.051085	100.00
Oceanside Residential/Commercial	0.405586	1.050463	0.120974	0.313322	29.83
Oceanside Urban	0.080118	0.207504	0.029149	0.075496	36.38
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.002654	0.006873	0.24
Bayside Waterbodies	0.469913	1.21707	0.000019	0.00005	0.00
Inland Recreation	0.025964	0.067245	0.000019	0.00005	0.07
Inland Suburban/Exurban Residential	2.428247	6.28913	0.005921	0.015336	0.24
Inland Urban	0.016025	0.041505	0.000045	0.000117	0.28
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.036704	0.095063	13.17
Bayside Recreation	0.000186	0.000483	0.000001	0.000002	0.54
Bayside Residential	0.000232	0.0006	0.000003	0.000007	1.29
Inland Recreation	0.003151	0.008161	0.000046	0.00012	1.46
Inland Suburban/Exurban Residential	0.31327	0.811364	0.001321	0.003422	0.42
Inland Urban	0.013037	0.033765	0.000051	0.000133	0.39
Nearshore Ocean	4.412353	11.427942	4.412154	11.427427	100.00
Oceanside Residential/Commercial	0.310064	0.803061	0.101845	0.263777	32.85
Seascape Residential	0.238434	0.617542	0.001744	0.004516	0.73
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000584	0.001513	0.97
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	3.751369	9.716001	100.00
Oceanside Residential/Commercial	0.003488	0.009033	0.001532	0.003967	43.92
Oceanside Urban	0.244074	0.632149	0.06577	0.170344	26.95
Seascape Residential	0.191807	0.496778	0.001816	0.004704	0.95
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.001006	0.002606	1.62
Bayside Residential	0.228865	0.592758	0.002089	0.00541	0.91
Nearshore Ocean	5.723702	14.824319	5.723544	14.82391	100.00
Oceanside Residential/Commercial	0.471132	1.220226	0.144992	0.375529	30.78
Oceanside Urban	0.000014	0.000036	0.000014	0.000036	100.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000048	0.000125	0.43
Bayside Residential	0.253949	0.657724	0.000318	0.000823	0.13
Bayside Urban	0.036614	0.09483	0.000531	0.001376	1.45
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000477	0.07
Nearshore Ocean	4.466743	11.568812	4.466529	11.568258	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.113332	0.293529	37.70
Oceanside Urban	0.055995	0.145025	0.025519	0.066095	45.57
Seascape Residential	0.120813	0.312905	0.000309	0.0008	0.26
Seascape Urban	0.017797	0.046095	0.000581	0.001504	3.26
South Toms River Borough	-	-	-	-	-
Bayside Urban	0.108832	0.281872	0.000434	0.001125	0.40
Inland Suburban/Exurban Residential	0.774911	2.007009	0.000129	0.000335	0.02
Spring Lake Borough	-	-	-	-	-
Inland Recreation	0.03185	0.082492	0.000029	0.000075	0.09
Inland Suburban/Exurban Residential	0.453915	1.175635	0.001916	0.004963	0.42
Nearshore Ocean	6.952834	18.007758	6.9524	18.006632	99.99
Oceanside Residential/Commercial	0.583421	1.511054	0.188785	0.488951	32.36
Seascape Residential	0.478515	1.239349	0.003811	0.009869	0.80
Spring Lake Heights Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.307347	3.386014	0.005434	0.014075	0.42
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.000337	0.000872	5.30
Bayside Natural Wetland	8.789522	22.764757	0.003414	0.008842	0.04
Bayside Recreation	0.099286	0.25715	0.002131	0.005519	2.15
Bayside Residential	2.092265	5.41894	0.001895	0.004909	0.09
Bayside Waterbodies	7.021887	18.186603	0.001193	0.00309	0.02
Inland Commercial Park	1.074364	2.78259	0.000029	0.000075	0.00
Inland Natural Area	25.321164	65.581513	0.000931	0.002411	0.00
Inland Suburban/Exurban Residential	8.081042	20.929802	0.000727	0.001882	0.01
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.00016	0.000415	0.06
Bayside Waterbodies	0.553974	1.434786	0.000013	0.000035	0.00
Nearshore Ocean	5.320502	13.780037	5.320185	13.779215	99.99
Oceanside Residential/Commercial	0.370025	0.958359	0.120771	0.312796	32.64
Seascape Residential	0.173221	0.44864	0.000077	0.0002	0.04
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.00015	0.000388	0.03
Bayside Natural Wetland	0.738379	1.912393	0.000171	0.000444	0.02
Bayside Recreation	0.80446	2.083541	0.000357	0.000925	0.04
Bayside Residential	3.357036	8.694683	0.005634	0.014591	0.17
Bayside Urban	0.075735	0.196154	0.000019	0.00005	0.03
Bayside Waterbodies	11.250767	29.139353	0.001564	0.004051	0.01
Inland Commercial Park	2.083064	5.39511	0.00166	0.004299	0.08
Inland Natural Area	4.883689	12.648696	0.000836	0.002165	0.02
Inland Suburban/Exurban Residential	22.29713	57.749303	0.030292	0.078456	0.14
Inland Urban	2.177285	5.639142	0.001995	0.005168	0.09
Nearshore Ocean	7.370257	19.088878	7.370012	19.088244	100.00
Oceanside Residential/Commercial	0.713613	1.848249	0.148953	0.385786	20.87
Oceanside Urban	0.003978	0.010302	0.000259	0.00067	6.51

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Seascape Residential	0.262283	0.67931	0.000924	0.002393	0.35
Wall Township	-	-	-	-	-
Bayside Natural Wetland	0.210179	0.544361	0.00001	0.000025	0.00
Bayside Residential	0.496866	1.286878	0.000413	0.00107	0.08
Bayside Urban	0.046813	0.121244	0.000223	0.000578	0.48
Bayside Waterbodies	0.417014	1.08006	0.00001	0.000025	0.00
Inland Agriculture	0.367204	0.951055	0.000566	0.001466	0.15
Inland Commercial Park	2.100229	5.439568	0.002803	0.00726	0.13
Inland Industrial Resource	0.290507	0.752411	0.00001	0.000025	0.00
Inland Natural Area	9.479763	24.552473	0.000203	0.000526	0.00
Inland Recreation	0.989488	2.562762	0.00125	0.003236	0.13
Inland Rural	0.722588	1.871493	0.000751	0.001945	0.10
Inland Suburban/Exurban Residential	12.955414	33.554367	0.014403	0.037305	0.11

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-9 Character Areas within Municipalities and Intersections with the OCS-A 0537 Lease Area 1,312-ft (399.9-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New York					
Babylon	-	-	-	-	-
Bayside Industrial	0.072703	0.188299	0.000106	0.000275	0.15
Bayside Natural Wetland	5.507022	14.26312	0.022342	0.057864	0.41
Bayside Residential	2.133089	5.524675	0.006249	0.016184	0.29
Bayside Waterbodies	18.444166	47.77017	0.001779	0.004608	0.01
Nearshore Ocean	30.602222	79.259392	11.559768	29.939662	37.77
Oceanside Beach	1.213613	3.143244	0.406768	1.053525	33.52
Oceanside Recreation	0.560366	1.451341	0.2604	0.674433	46.47
Bellport	-	-	-	-	-
Bayside Natural Upland	0.007899	0.020458	0.000386	0.000998	4.89
Bayside Natural Wetland	0.026852	0.069547	0.000651	0.001687	2.42
Bayside Recreation	0.181398	0.469818	0.003185	0.00825	1.76
Bayside Residential	0.185113	0.479442	0.012582	0.032587	6.80
Bayside Waterbodies	0.073828	0.191214	0.000346	0.000897	0.47
Inland Suburban/Exurban Residential	1.031411	2.671341	0.010779	0.027917	1.05
Brookhaven	-	-	-	-	-
Bayside Natural Upland	3.05994	7.925209	0.00279	0.007227	0.09
Bayside Natural Wetland	6.783609	17.569466	0.257032	0.66571	3.79
Bayside Recreation	0.068349	0.177022	0.00065	0.001683	0.95
Bayside Residential	5.895368	15.268933	0.056558	0.146484	0.96
Bayside Waterbodies	61.640293	159.647625	0.989114	2.561794	1.60
Inland Industrial	5.157618	13.358169	0.00001	0.000025	0.00
Inland Natural Area	62.54903	162.001244	0.00092	0.002383	0.00
Inland Suburban/Exurban Residential	127.068774	329.106615	0.069324	0.179547	0.05
Nearshore Ocean	79.669359	206.342692	75.05014	194.378971	94.20
Oceanside Beach	2.793658	7.23554	1.614229	4.180835	57.78
Oceanside Recreation	0.324854	0.841368	0.121299	0.314163	37.34
Oceanside Residential/Commercial	1.208334	3.129571	0.456443	1.182183	37.77
Islip	-	-	-	-	-
Bayside Natural Upland	1.462962	3.789053	0.005915	0.015321	0.40
Bayside Natural Wetland	4.3486	11.262822	0.016958	0.043921	0.39
Bayside Recreation	1.889144	4.89286	0.009941	0.025746	0.53
Bayside Residential	4.193639	10.861475	0.025368	0.065702	0.60
Bayside Waterbodies	31.210628	80.835155	0.002559	0.006627	0.01
Inland Commercial Park	2.096979	5.431151	0.000061	0.000157	0.00
Inland Natural Area	8.758321	22.683946	0.000148	0.000384	0.00
Inland Suburban/Exurban Residential	59.075764	153.005527	0.0256	0.066304	0.04
Nearshore Ocean	24.339217	63.038283	24.339217	63.038283	100.00
Oceanside Beach	0.447225	1.158308	0.227697	0.589732	50.91
Oceanside Recreation	0.689908	1.786853	0.223685	0.579342	32.42
Oceanside Residential/Commercial	0.614889	1.592555	0.188785	0.48895	30.70
Ocean Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.138311	0.358225	0.019079	0.049413	13.79
Patchogue	-	-	-	-	-
Bayside Recreation	0.045815	0.118659	0.000849	0.002199	1.85
Bayside Residential	0.02952	0.076457	0.001726	0.004471	5.85

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Urban	0.288787	0.747955	0.003363	0.00871	1.16
Bayside Waterbodies	0.189779	0.491527	0.000193	0.000499	0.10
Inland Suburban/Exurban Residential	1.509502	3.909592	0.004406	0.011412	0.29
Saltaire	-	-	-	-	-
Bayside Natural Wetland	0.033405	0.086519	0.000042	0.000108	0.13
Oceanside Residential/Commercial	0.221511	0.573711	0.033584	0.086983	15.16
Southampton	-	-	-	-	-
Bayside Waterbodies	31.207218	80.826324	0.00001	0.000025	0.00
Nearshore Ocean	65.298105	169.121315	3.841441	9.949288	5.88
Oceanside Beach	0.971235	2.515488	0.083558	0.216414	8.60
Oceanside Recreation	0.162181	0.420047	0.000427	0.001105	0.26
West Hampton Dunes	-	-	-	-	-
Bayside Waterbodies	0.011442	0.029635	0.00001	0.000025	0.09
Oceanside Beach	0.062194	0.161082	0.022139	0.05734	35.60
Oceanside Recreation	0.230019	0.595747	0.017481	0.045275	7.60

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-10 Character Areas within Municipalities in the GAA and Intersections with the 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Absecon	-	-	-	-	-
Bayside Industrial	0.01936	0.050142	0.00001	0.000025	0.05
Bayside Natural Upland	0.006097	0.015792	0.000028	0.000073	0.46
Bayside Natural Wetland	1.747546	4.526124	0.000267	0.00069	0.02
Bayside Residential	0.079286	0.205349	0.000453	0.001174	0.57
Bayside Waterbodies	1.446802	3.747201	0.000029	0.000075	0.00
Inland Commercial Park	0.255205	0.660978	0.000039	0.0001	0.02
Inland Suburban/Exurban Residential	2.782198	7.205859	0.004328	0.01121	0.16
Allenhurst Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.051156	0.132494	0.000102	0.000264	0.20
Oceanside Residential/Commercial	0.100129	0.259334	0.010386	0.0269	10.37
Seascape Residential	0.126647	0.328015	0.000244	0.000633	0.19
Asbury Park	-	-	-	-	-
Inland Suburban/Exurban Residential	0.564887	1.46305	0.00039	0.001011	0.07
Inland Urban	0.338321	0.876247	0.000645	0.00167	0.19
Nearshore Ocean	3.344827	8.663061	0.000019	0.00005	0.00
Oceanside Residential/Commercial	0.000092	0.000237	0.000019	0.00005	20.65
Oceanside Urban	0.341475	0.884416	0.056251	0.145688	16.47
Seascape Residential	0.294317	0.762279	0.000707	0.00183	0.24
Atlantic City	-	-	-	-	-
Bayside Industrial Resource	0.140584	0.36411	0.000538	0.001395	0.38
Bayside Natural Upland	0.059239	0.153429	0.000441	0.001143	0.74
Bayside Natural Wetland	6.689709	17.326266	0.000493	0.001277	0.01
Bayside Recreation	0.046244	0.11977	0.00001	0.000025	0.02
Bayside Residential	0.610439	1.58103	0.000963	0.002493	0.16
Bayside Urban	2.94909	7.638107	0.026861	0.069571	0.91
Bayside Waterbodies	4.499754	11.654309	0.012206	0.031613	0.27
Nearshore Ocean	17.076699	44.228448	1.884877	4.881809	11.04
Oceanside Residential/Commercial	0.11773	0.30492	0.013896	0.035991	11.80
Oceanside Urban	1.011303	2.619262	0.121619	0.314991	12.03
Atlantic Highlands Borough	-	-	-	-	-
Bayside Residential	0.501105	1.297856	0.000174	0.00045	0.03
Avon-by-the-Sea Borough	-	-	-	-	-
Bayside Recreation	0.016289	0.042189	0.00004	0.000104	0.25
Bayside Residential	0.032462	0.084076	0.00008	0.000207	0.25
Bayside Waterbodies	0.048591	0.12585	0.000123	0.000318	0.25
Inland Suburban/Exurban Residential	0.066789	0.172982	0.000135	0.00035	0.20
Oceanside Residential/Commercial	0.185097	0.479398	0.006957	0.018019	3.76
Seascape Residential	0.157843	0.408812	0.000502	0.0013	0.32
Barneget Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00001	0.000025	0.02
Bayside Residential	0.212181	0.549547	0.001501	0.003887	0.71
Bayside Waterbodies	0.280443	0.726343	0.094608	0.245034	33.74
Nearshore Ocean	11.089861	28.722607	11.088975	28.720314	99.99
Oceanside Beach	0.173074	0.44826	0.088503	0.229222	51.14
Oceanside Recreation	0.013546	0.035084	0.000243	0.000629	1.79
Oceanside Residential/Commercial	0.565739	1.465257	0.188978	0.489451	33.40

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Barneget Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	0.001	0.00259	0.03
Bayside Residential	0.278385	0.721015	0.003028	0.007842	1.09
Bayside Waterbodies	5.607529	14.523434	0.000226	0.000586	0.00
Inland Industrial Resource	0.822256	2.129633	0.000048	0.000125	0.01
Inland Natural Area	18.426348	47.724023	0.001728	0.004477	0.01
Inland Rural	0.946237	2.450743	0.000096	0.000248	0.01
Inland Suburban/Exurban Residential	10.180429	26.367191	0.028706	0.074348	0.28
Bass River Township	-	-	-	-	-
Bayside Natural Wetland	8.533354	22.101285	0.000356	0.000923	0.00
Bayside Recreation	0.125957	0.326228	0.000029	0.000075	0.02
Bayside Waterbodies	0.921448	2.386539	0.000155	0.000402	0.02
Inland Agriculture	0.928313	2.404321	0.000097	0.00025	0.01
Inland Industrial	0.429622	1.112716	0.00001	0.000025	0.00
Inland Military Site	14.697994	38.06763	0.003249	0.008414	0.02
Inland Natural Area	48.146066	124.697738	0.000192	0.000496	0.00
Inland Rural	2.560409	6.631428	0.000058	0.00015	0.00
Inland Suburban/Exurban Residential	0.899931	2.33081	0.00001	0.000025	0.00
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.000262	0.000678	0.18
Bayside Waterbodies	0.059536	0.154198	0.000019	0.00005	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.000975	0.002525	0.34
Oceanside Residential/Commercial	0.263933	0.683583	0.014374	0.037228	5.45
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.404854	1.048568	0.004394	0.01138	1.09
Bayside Waterbodies	1.312749	3.400005	0.000022	0.000056	0.00
Nearshore Ocean	8.179239	21.184131	8.178912	21.183285	100.00
Oceanside Residential/Commercial	0.562577	1.457067	0.146543	0.379545	26.05
Beachwood Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.655336	4.287301	0.000251	0.00065	0.02
Belmar Borough	-	-	-	-	-
Bayside Commercial Park	0.155636	0.403095	0.00027	0.0007	0.17
Bayside Residential	0.085634	0.221791	0.000174	0.00045	0.20
Bayside Urban	0.246551	0.638563	0.000484	0.001254	0.20
Bayside Waterbodies	0.365347	0.946243	0.000125	0.000325	0.03
Inland Suburban/Exurban Residential	0.015408	0.039906	0.000048	0.000125	0.31
Nearshore Ocean	5.907429	15.300171	0.000039	0.0001	0.00
Oceanside Residential/Commercial	0.426051	1.103467	0.020614	0.053391	4.84
Seascape Residential	0.185078	0.479349	0.000792	0.002052	0.43
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.017245	0.044664	0.61
Bayside Recreation	0.060018	0.155447	0.001058	0.00274	1.76
Bayside Residential	1.629749	4.22103	0.013172	0.034114	0.81
Bayside Waterbodies	10.873353	28.161856	0.14048	0.363841	1.29
Inland Commercial Park	0.277677	0.719181	0.001062	0.00275	0.38
Inland Industrial	1.144983	2.965493	0.00027	0.0007	0.02
Inland Industrial Resource	1.821592	4.717901	0.00028	0.000725	0.02
Inland Natural Area	21.012984	54.42338	0.002747	0.007115	0.01
Inland Recreation	0.036896	0.095561	0.000093	0.000242	0.25
Inland Rural	0.024331	0.063017	0.000011	0.000029	0.05
Inland Suburban/Exurban Residential	12.623688	32.695203	0.013436	0.034799	0.11

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Nearshore Ocean	33.900979	87.803132	33.899836	87.800173	100.00
Oceanside Beach	1.847662	4.785421	1.025393	2.655755	55.50
Oceanside Residential/Commercial	0.18328	0.474694	0.043771	0.113366	23.88
Seascape Residential	0.010911	0.02826	0.000146	0.000379	1.34
Bradley Beach Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.061045	0.158106	0.000097	0.00025	0.16
Inland Urban	0.074287	0.192402	0.000135	0.00035	0.18
Oceanside Residential/Commercial	0.278692	0.72181	0.034172	0.088506	12.26
Seascape Residential	0.249449	0.646071	0.00066	0.00171	0.26
Brick Township	-	-	-	-	-
Bayside Natural Wetland	2.20499	5.710898	0.000019	0.00005	0.00
Bayside Recreation	0.117899	0.305357	0.000222	0.000575	0.19
Bayside Residential	3.512972	9.098556	0.00205	0.005309	0.06
Bayside Waterbodies	5.877627	15.222983	0.000145	0.000375	0.00
Inland Commercial Park	1.505045	3.898049	0.00001	0.000025	0.00
Inland Industrial Resource	0.146033	0.378224	0.000029	0.000075	0.02
Inland Natural Area	3.901053	10.103682	0.000073	0.000189	0.00
Inland Recreation	0.235841	0.610826	0.000019	0.00005	0.01
Inland Suburban/Exurban Residential	13.123919	33.990795	0.002548	0.006598	0.02
Nearshore Ocean	6.153921	15.938583	0.000545	0.00141	0.01
Oceanside Residential/Commercial	0.26327	0.681867	0.065906	0.170696	25.03
Brielle Borough	-	-	-	-	-
Bayside Recreation	0.20385	0.52797	0.007098	0.018384	3.48
Bayside Residential	0.501541	1.298985	0.002063	0.005344	0.41
Bayside Waterbodies	0.423917	1.097939	0.000154	0.000399	0.04
Inland Natural Area	0.002556	0.006619	0	0.000001	0.00
Inland Suburban/Exurban Residential	1.102552	2.855597	0.00556	0.014401	0.50
Brigantine	-	-	-	-	-
Bayside Natural Upland	0.037284	0.096565	0.00029	0.000751	0.78
Bayside Natural Wetland	4.103657	10.628422	0.070587	0.182819	1.72
Bayside Residential	0.799583	2.070909	0.008245	0.021354	1.03
Bayside Urban	0.092944	0.240724	0.000758	0.001964	0.82
Bayside Waterbodies	3.110677	8.056615	0.044817	0.116075	1.44
Nearshore Ocean	24.77845	64.175891	22.545059	58.391434	90.99
Oceanside Beach	0.873285	2.261797	0.511127	1.323814	58.53
Oceanside Residential/Commercial	0.761558	1.972425	0.143128	0.3707	18.79
Seascape Residential	1.025155	2.65514	0.007767	0.020116	0.76
Deal Borough	-	-	-	-	-
Inland Recreation	0.057955	0.150103	0.000152	0.000394	0.26
Inland Suburban/Exurban Residential	0.307163	0.795549	0.000591	0.00153	0.19
Nearshore Ocean	5.187518	13.435609	0.000135	0.00035	0.00
Oceanside Residential/Commercial	0.49898	1.292352	0.06731	0.174332	13.49
Seascape Residential	0.384947	0.997009	0.001361	0.003525	0.35
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.644739	0.004177	0.010818	0.06
Bayside Recreation	0.003413	0.00884	0.000059	0.000152	1.73
Bayside Residential	0.191175	0.49514	0.001783	0.004619	0.93
Bayside Waterbodies	2.501679	6.479319	0.000112	0.000291	0.00
Inland Industrial	0.154902	0.401195	0	0.000001	0.00
Inland Industrial Resource	0.950613	2.462075	0.000727	0.001882	0.08
Inland Natural Area	6.947407	17.993701	0.002015	0.00522	0.03

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	1.75839	4.554209	0.004183	0.010833	0.24
Egg Harbor Township	-	-	-	-	-
Bayside Natural Wetland	2.923921	7.572922	0.000058	0.00015	0.00
Bayside Residential	0.30687	0.794789	0.000039	0.0001	0.01
Bayside Waterbodies	8.128283	21.052156	0.00056	0.00145	0.01
Inland Commercial Park	1.78784	4.630485	0.005048	0.013075	0.28
Inland Industrial	2.401373	6.219527	0.000019	0.00005	0.00
Inland Industrial Resource	0.517924	1.341416	0.04584	0.118725	8.85
Inland Natural Area	4.662498	12.075815	0.000048	0.000125	0.00
Inland Suburban/Exurban Residential	3.076253	7.96746	0.000309	0.0008	0.01
Inland Urban	1.213161	3.142072	0.000068	0.000175	0.01
Oceanside Beach	0.086163	0.223162	0.000029	0.000075	0.03
Galloway Township	-	-	-	-	-
Bayside Natural Upland	0.070809	0.183395	0.000046	0.00012	0.06
Bayside Natural Wetland	28.241116	73.144156	4.126872	10.68855	14.61
Bayside Recreation	0.270319	0.700122	0.000864	0.002238	0.32
Bayside Residential	0.078624	0.203636	0.000964	0.002496	1.23
Bayside Waterbodies	20.323966	52.638829	1.55817	4.035642	7.67
Inland Natural Area	15.240384	39.472414	0.033324	0.086308	0.22
Inland Recreation	1.020304	2.642575	0.006421	0.016631	0.63
Inland Rural	12.434094	32.204156	0.000678	0.001757	0.01
Inland Suburban/Exurban Residential	14.07714	36.459625	0.00496	0.012848	0.04
Nearshore Ocean	10.491951	27.174029	10.491582	27.173074	100.00
Oceanside Beach	0.160693	0.416192	0.136322	0.353071	84.83
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000215	0.000556	0.06
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	8.435694	21.848346	100.00
Oceanside Residential/Commercial	0.296536	0.768025	0.136595	0.35378	46.06
Highlands Borough	-	-	-	-	-
Bayside Residential	0.559143	1.448173	0.005872	0.015209	1.05
Inland Suburban/Exurban Residential	0.146548	0.379558	0.001213	0.003141	0.83
Interlaken Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.383504	0.99327	0.000405	0.00105	0.11
Island Heights Borough	-	-	-	-	-
Bayside Residential	0.248817	0.644434	0.000572	0.001481	0.23
Inland Suburban/Exurban Residential	0.365869	0.947596	0.000799	0.002069	0.22
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000139	0.000359	0.09
Bayside Natural Upland	1.482721	3.84023	0.001307	0.003384	0.09
Bayside Natural Wetland	2.027647	5.251583	0.010022	0.025957	0.49
Bayside Residential	2.301367	5.960513	0.019224	0.04979	0.84
Bayside Waterbodies	15.272406	39.55535	0.058072	0.150405	0.38
Inland Agriculture	0.154952	0.401323	0.000048	0.000125	0.03
Inland Commercial Park	0.67829	1.756763	0.000941	0.002436	0.14
Inland Industrial Resource	4.474981	11.590149	0.00242	0.006269	0.05
Inland Natural Area	64.91341	168.12496	0.007874	0.020395	0.01
Inland Rural	0.410648	1.063573	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	7.49792	19.419524	0.012627	0.032705	0.17
Lake Como Borough	-	-	-	-	-
Bayside Urban	0.086951	0.225202	0.000216	0.000558	0.25

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Recreation	0.005635	0.014595	0.000004	0.00001	0.07
Inland Suburban/Exurban Residential	0.109575	0.283798	0.000332	0.000859	0.30
Seascape Residential	0.049721	0.128778	0.000382	0.00099	0.77
Lakewood Township	-	-	-	-	-
Inland Commercial Park	1.806915	4.679889	0.001282	0.003321	0.07
Inland Natural Area	0.783576	2.029453	0.000658	0.001703	0.08
Inland Suburban/Exurban Residential	2.668113	6.91038	0.001033	0.002676	0.04
Lavallette Borough	-	-	-	-	-
Bayside Recreation	0.034809	0.090155	0.000019	0.00005	0.05
Bayside Residential	0.375785	0.97328	0.000185	0.00048	0.05
Nearshore Ocean	4.979553	12.896984	0.195885	0.507339	3.93
Oceanside Residential/Commercial	0.465298	1.205118	0.089038	0.230606	19.14
Seascape Residential	0.090872	0.235356	0.000053	0.000137	0.06
Linwood	-	-	-	-	-
Bayside Waterbodies	1.655856	4.288647	0.000019	0.00005	0.00
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Upland	0.094972	0.245975	0	0	0.00
Bayside Natural Wetland	14.347208	37.159099	2.975186	7.705697	20.74
Bayside Recreation	0.011552	0.02992	0.001746	0.004522	15.11
Bayside Residential	2.109492	5.463559	0.03197	0.082803	1.52
Bayside Waterbodies	24.740858	64.078527	1.557306	4.033404	6.29
Inland Industrial Resource	0.547275	1.417437	0.000019	0.00005	0.00
Inland Military Site	0.029327	0.075957	0.000006	0.000015	0.02
Inland Natural Area	22.847206	59.173991	0.006823	0.017672	0.03
Inland Recreation	0.04628	0.119866	0.000019	0.00005	0.04
Inland Suburban/Exurban Residential	8.850442	22.92254	0.016783	0.043468	0.19
Oceanside Beach	0.079038	0.204708	0.002903	0.007518	3.67
Loch Arbour Village	-	-	-	-	-
Oceanside Residential/Commercial	0.043026	0.111437	0.004334	0.011224	10.07
Oceanside Urban	0.021004	0.054401	0.001642	0.004252	7.82
Seascape Residential	0.060794	0.157454	0.000058	0.00015	0.10
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000373	0.000966	0.03
Bayside Residential	1.853823	4.801379	0.007626	0.019752	0.41
Bayside Waterbodies	17.404871	45.078409	0.250194	0.647999	1.44
Nearshore Ocean	43.727882	113.254696	43.726115	113.250119	100.00
Oceanside Beach	0.676831	1.752985	0.378966	0.981517	55.99
Oceanside Residential/Commercial	2.171806	5.624951	0.830591	2.15122	38.24
Long Branch	-	-	-	-	-
Inland Suburban/Exurban Residential	3.366266	8.718588	0.000984	0.00255	0.03
Nearshore Ocean	15.532177	40.228155	0.19432	0.503288	1.25
Oceanside Recreation	0.071082	0.184103	0.031502	0.08159	44.32
Oceanside Residential/Commercial	0.267907	0.693876	0.039388	0.102015	14.70
Oceanside Urban	0.634541	1.643454	0.106498	0.275829	16.78
Seascape Residential	0.371897	0.96321	0.000613	0.001589	0.16
Longport Borough	-	-	-	-	-
Bayside Residential	0.21212	0.549388	0.000422	0.001093	0.20
Bayside Waterbodies	0.173929	0.450474	0.000022	0.000056	0.01
Oceanside Residential/Commercial	0.265899	0.688675	0.000639	0.001655	0.24
Manasquan Borough	-	-	-	-	-
Bayside Military Site	0.00942	0.024398	0.000071	0.000183	0.75

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Natural Wetland	0.083164	0.215393	0.000272	0.000704	0.33
Bayside Recreation	0.050631	0.131133	0.000349	0.000904	0.69
Bayside Residential	0.30206	0.782331	0.001737	0.004499	0.58
Bayside Waterbodies	0.078798	0.204085	0.000221	0.000574	0.28
Inland Suburban/Exurban Residential	0.549375	1.422874	0.002765	0.007162	0.50
Inland Urban	0.278898	0.722341	0.001166	0.003021	0.42
Nearshore Ocean	4.680765	12.123125	0.000039	0.0001	0.00
Oceanside Residential/Commercial	0.223817	0.579683	0.002408	0.006237	1.08
Manchester Township	-	-	-	-	-
Inland Suburban/Exurban Residential	4.451259	11.528709	0.000019	0.00005	0.00
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000055	0.000142	0.03
Bayside Waterbodies	0.15918	0.412275	0.000032	0.000083	0.02
Nearshore Ocean	7.317539	18.952339	0.000178	0.000462	0.00
Oceanside Residential/Commercial	0.339952	0.880472	0.062673	0.162323	18.44
Margate City	-	-	-	-	-
Bayside Residential	1.039538	2.692392	0.002176	0.005636	0.21
Bayside Urban	0.050474	0.130728	0.000074	0.000191	0.15
Bayside Waterbodies	0.144981	0.375498	0.000017	0.000043	0.01
Nearshore Ocean	5.471949	14.172282	0.000039	0.0001	0.00
Oceanside Residential/Commercial	0.474007	1.227674	0.003534	0.009153	0.75
Middletown Township	-	-	-	-	-
Bayside Natural Upland	0.6612	1.712501	0.000214	0.000555	0.03
Bayside Natural Wetland	2.864806	7.419813	0.000142	0.000368	0.00
Bayside Recreation	0.539901	1.398337	0.002184	0.005657	0.40
Bayside Residential	2.23249	5.782122	0.000154	0.0004	0.01
Inland Suburban/Exurban Residential	14.029007	36.334961	0.001178	0.00305	0.01
Oceanside Beach	0.806461	2.088724	0.00737	0.019087	0.91
Oceanside Recreation	0.181945	0.471237	0.00001	0.000025	0.01
Monmouth Beach Borough	-	-	-	-	-
Nearshore Ocean	6.151021	15.931071	0.000419	0.001085	0.01
Oceanside Recreation	0.009031	0.02339	0.000051	0.000132	0.56
Oceanside Residential/Commercial	0.29216	0.75669	0.042592	0.110312	14.58
Neptune City Borough	-	-	-	-	-
Bayside Recreation	0.186156	0.482142	0.000202	0.000524	0.11
Inland Suburban/Exurban Residential	0.472201	1.222994	0.000554	0.001436	0.12
Inland Urban	0.18838	0.487903	0.000159	0.000413	0.08
Neptune Township	-	-	-	-	-
Bayside Recreation	0.150593	0.390035	0.000172	0.000446	0.11
Bayside Residential	0.330337	0.855569	0.00021	0.000544	0.06
Bayside Waterbodies	0.601134	1.556929	0.000145	0.000375	0.02
Inland Recreation	0.445665	1.154266	0.001527	0.003955	0.34
Inland Suburban/Exurban Residential	5.241187	13.574611	0.003958	0.01025	0.08
Inland Urban	0.45881	1.188312	0.000501	0.001298	0.11
Nearshore Ocean	2.426312	6.28412	0.000068	0.000175	0.00
Oceanside Residential/Commercial	0.19484	0.504632	0.039064	0.101176	20.05
Oceanside Urban	0.004327	0.011207	0.000085	0.000221	1.96
Seascape Residential	0.169061	0.437865	0.000574	0.001487	0.34
Northfield	-	-	-	-	-
Inland Suburban/Exurban Residential	2.320348	6.009674	0.000019	0.00005	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Ocean City	-	-	-	-	-
Bayside Residential	0.17348	0.449312	0.00001	0.000025	0.01
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000039	0.0001	0.02
Inland Natural Area	0.001196	0.003097	0.00001	0.000025	0.84
Inland Suburban/Exurban Residential	0.233087	0.603693	0.00027	0.0007	0.12
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.000331	0.000857	0.16
Bayside Natural Wetland	1.313493	3.401931	0.062425	0.16168	4.75
Bayside Residential	1.039616	2.692594	0.013108	0.033949	1.26
Bayside Waterbodies	10.20872	26.440463	2.387227	6.18289	23.38
Inland Agriculture	0.190638	0.493749	0.001004	0.0026	0.53
Inland Natural Area	16.34245	42.326751	0.002235	0.005788	0.01
Inland Recreation	0.564168	1.461187	0.000135	0.00035	0.02
Inland Rural	1.022571	2.648446	0.000572	0.001482	0.06
Inland Suburban/Exurban Residential	10.472781	27.124378	0.010913	0.028265	0.10
Inland Urban	1.223853	3.169765	0.000058	0.00015	0.00
Pine Beach Borough	-	-	-	-	-
Bayside Residential	0.264736	0.685664	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	0.379676	0.983357	0.000163	0.000423	0.04
Pleasantville	-	-	-	-	-
Bayside Natural Wetland	1.471803	3.811953	0.000106	0.000275	0.01
Bayside Waterbodies	1.73479	4.493086	0.00001	0.000025	0.00
Inland Commercial Park	0.250718	0.649357	0.000116	0.0003	0.05
Inland Suburban/Exurban Residential	3.321798	8.603417	0.001438	0.003724	0.04
Inland Urban	0.284905	0.737899	0.000097	0.000251	0.03
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.000782	0.002025	1.21
Bayside Residential	0.182721	0.473245	0.001123	0.002909	0.61
Bayside Urban	0.075761	0.19622	0.000654	0.001695	0.86
Bayside Waterbodies	0.261104	0.676255	0.000053	0.000136	0.02
Inland Recreation	0.014755	0.038216	0.000054	0.000141	0.37
Inland Suburban/Exurban Residential	0.631836	1.636447	0.004126	0.010685	0.65
Inland Urban	0.177127	0.458756	0.000609	0.001576	0.34
Nearshore Ocean	5.42523	14.051281	0.000021	0.000055	0.00
Oceanside Residential/Commercial	0.405586	1.050463	0.012064	0.031246	2.97
Oceanside Urban	0.080118	0.207504	0.001882	0.004876	2.35
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.001008	0.002611	0.09
Bayside Waterbodies	0.469913	1.21707	0	0	0.00
Inland Recreation	0.025964	0.067245	0.00001	0.000025	0.04
Inland Suburban/Exurban Residential	2.428247	6.28913	0.004634	0.012002	0.19
Inland Urban	0.016025	0.041505	0.000005	0.000014	0.03
Port Republic	-	-	-	-	-
Bayside Natural Wetland	2.59482	6.720553	0.000448	0.00116	0.02
Bayside Residential	0.102496	0.265463	0.000562	0.001456	0.55
Bayside Waterbodies	0.718117	1.859915	0.000021	0.000054	0.00
Inland Natural Area	2.487741	6.44322	0.000149	0.000385	0.01
Inland Rural	0.202746	0.525111	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	2.417496	6.261286	0.000712	0.001845	0.03

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Rumson Borough	-	-	-	-	-
Bayside Residential	1.228204	3.181035	0.000405	0.00105	0.03
Sea Bright Borough	-	-	-	-	-
Nearshore Ocean	13.18029	34.136794	0.000195	0.000505	0.00
Oceanside Beach	0.028625	0.074139	0.005604	0.014514	19.58
Oceanside Recreation	0.050761	0.131471	0.007261	0.018805	14.30
Oceanside Residential/Commercial	0.586686	1.519509	0.05648	0.146283	9.63
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.004172	0.010806	1.50
Inland Recreation	0.003151	0.008161	0.000037	0.000095	1.17
Inland Suburban/Exurban Residential	0.31327	0.811364	0.001205	0.003122	0.38
Inland Urban	0.013037	0.033765	0.000051	0.000133	0.39
Nearshore Ocean	4.412353	11.427942	0.000214	0.000554	0.00
Oceanside Residential/Commercial	0.310064	0.803061	0.006627	0.017164	2.14
Seascape Residential	0.238434	0.617542	0.001342	0.003475	0.56
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000555	0.001438	0.92
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	2.551415	6.608133	68.01
Oceanside Residential/Commercial	0.003488	0.009033	0.001556	0.004029	44.61
Oceanside Urban	0.244074	0.632149	0.06695	0.173399	27.43
Seascape Residential	0.191807	0.496778	0.001848	0.004785	0.96
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.001102	0.002853	1.78
Bayside Residential	0.228865	0.592758	0.002175	0.005634	0.95
Nearshore Ocean	5.723702	14.824319	5.227954	13.540338	91.34
Oceanside Residential/Commercial	0.471132	1.220226	0.148787	0.385357	31.58
Oceanside Urban	0.000014	0.000036	0.000014	0.000036	100.00
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000074	0.000193	0.67
Bayside Residential	0.253949	0.657724	0.000424	0.001098	0.17
Bayside Urban	0.036614	0.09483	0.000715	0.001851	1.95
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000477	0.07
Nearshore Ocean	4.466743	11.568812	4.466529	11.568258	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.116027	0.300508	38.59
Oceanside Urban	0.055995	0.145025	0.02628	0.068065	46.93
Seascape Residential	0.120813	0.312905	0.000466	0.001207	0.39
Seascape Urban	0.017797	0.046095	0.000765	0.00198	4.30
South Toms River Borough	-	-	-	-	-
Inland Natural Area	0.279983	0.725152	0.000106	0.000275	0.04
Inland Suburban/Exurban Residential	0.774911	2.007009	0.000019	0.00005	0.00
Spring Lake Borough	-	-	-	-	-
Inland Recreation	0.03185	0.082492	0.000019	0.00005	0.06
Inland Suburban/Exurban Residential	0.453915	1.175635	0.001359	0.003521	0.30
Nearshore Ocean	6.952834	18.007758	0.000135	0.00035	0.00
Oceanside Residential/Commercial	0.583421	1.511054	0.024568	0.063632	4.21
Seascape Residential	0.478515	1.239349	0.002605	0.006747	0.54
Spring Lake Heights Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.307347	3.386014	0.004328	0.011208	0.33
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.000348	0.000902	5.47

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Natural Wetland	8.789522	22.764757	0.005871	0.015206	0.07
Bayside Recreation	0.099286	0.25715	0.002579	0.00668	2.60
Bayside Residential	2.092265	5.41894	0.019004	0.049219	0.91
Bayside Waterbodies	7.021887	18.186603	0.001236	0.003201	0.02
Inland Commercial Park	1.074364	2.78259	0.006962	0.018032	0.65
Inland Industrial	0.114107	0.295537	0.000463	0.0012	0.41
Inland Industrial Resource	0.829568	2.148571	0.000598	0.001548	0.07
Inland Natural Area	25.321164	65.581513	0.010788	0.02794	0.04
Inland Recreation	0.140441	0.363739	0.00063	0.001631	0.45
Inland Rural	1.073095	2.779304	0.000154	0.0004	0.01
Inland Suburban/Exurban Residential	8.081042	20.929802	0.016508	0.042756	0.20
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.000252	0.000654	0.10
Bayside Waterbodies	0.553974	1.434786	0.000033	0.000085	0.01
Nearshore Ocean	5.320502	13.780037	5.320185	13.779215	99.99
Oceanside Residential/Commercial	0.370025	0.958359	0.124394	0.322179	33.62
Seascape Residential	0.173221	0.44864	0.000169	0.000437	0.10
Tinton Falls Borough	-	-	-	-	-
Inland Industrial Resource	1.182896	3.063687	0.000097	0.00025	0.01
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.000068	0.000175	0.01
Bayside Recreation	0.80446	2.083541	0.000087	0.000225	0.01
Bayside Residential	3.357036	8.694683	0.00274	0.007096	0.08
Bayside Waterbodies	11.250767	29.139353	0.001499	0.003882	0.01
Inland Commercial Park	2.083064	5.39511	0.000984	0.002549	0.05
Inland Natural Area	4.883689	12.648696	0.000587	0.001521	0.01
Inland Suburban/Exurban Residential	22.29713	57.749303	0.020077	0.051999	0.09
Inland Urban	2.177285	5.639142	0.00237	0.006139	0.11
Nearshore Ocean	7.370257	19.088878	0.545307	1.412339	7.40
Oceanside Residential/Commercial	0.713613	1.848249	0.155652	0.403138	21.81
Oceanside Urban	0.003978	0.010302	0.000259	0.00067	6.51
Seascape Residential	0.262283	0.67931	0.000922	0.002389	0.35
Tuckerton Borough	-	-	-	-	-
Bayside Natural Upland	0.101106	0.261863	0.000212	0.000549	0.21
Bayside Natural Wetland	1.625877	4.211002	0.001642	0.004252	0.10
Bayside Recreation	0.009819	0.025431	0.000081	0.00021	0.82
Bayside Residential	0.371063	0.961048	0.003952	0.010237	1.07
Inland Natural Area	0.213358	0.552595	0.000229	0.000594	0.11
Inland Suburban/Exurban Residential	1.28566	3.329845	0.002895	0.007499	0.23
Ventnor City	-	-	-	-	-
Bayside Natural Wetland	0.60895	1.577174	0.000168	0.000435	0.03
Bayside Recreation	0.024357	0.063084	0.000183	0.000475	0.75
Bayside Residential	1.10774	2.869033	0.002747	0.007116	0.25
Bayside Waterbodies	0.608586	1.576232	0.00005	0.000129	0.01
Nearshore Ocean	5.445494	14.103766	0.000092	0.000237	0.00
Oceanside Residential/Commercial	0.285293	0.738905	0.004754	0.012312	1.67
Wall Township	-	-	-	-	-
Bayside Natural Wetland	0.210179	0.544361	0.00001	0.000025	0.00
Bayside Residential	0.496866	1.286878	0.000317	0.00082	0.06
Bayside Urban	0.046813	0.121244	0.000213	0.000553	0.46
Bayside Waterbodies	0.417014	1.08006	0.00001	0.000025	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Agriculture	0.367204	0.951055	0.000294	0.000763	0.08
Inland Commercial Park	2.100229	5.439568	0.002206	0.005714	0.11
Inland Industrial Resource	0.290507	0.752411	0.000106	0.000275	0.04
Inland Natural Area	9.479763	24.552473	0.000068	0.000176	0.00
Inland Recreation	0.989488	2.562762	0.000782	0.002027	0.08
Inland Rural	0.722588	1.871493	0.000521	0.001349	0.07
Inland Suburban/Exurban Residential	12.955414	33.554367	0.010556	0.02734	0.08
Washington Township	-	-	-	-	-
Bayside Natural Wetland	5.107411	13.228135	0.000001	0.000025	0.00
Bayside Waterbodies	1.111837	2.879646	0.000029	0.000075	0.00
Woodland Township	-	-	-	-	-
Inland Natural Area	13.572946	35.153769	0.000135	0.00035	0.00
New York					
Amityville	-	-	-	-	-
Bayside Recreation	0.031534	0.081672	0.008037	0.020817	25.49
Bayside Residential	0.452969	1.173185	0.021285	0.055127	4.70
Bayside Waterbodies	0.330296	0.855463	0.283461	0.734161	85.82
Atlantic Beach	-	-	-	-	-
Nearshore Ocean	0.000181	0.000468	0.000181	0.000468	100.00
Oceanside Beach	0.010218	0.026464	0.001453	0.003763	14.22
Oceanside Urban	0.332698	0.861683	0.086396	0.223766	25.97
Babylon	-	-	-	-	-
Bayside Industrial	0.072703	0.188299	0.02824	0.073141	38.84
Bayside Natural Upland	0.130587	0.338218	0.000098	0.000254	0.08
Bayside Natural Wetland	5.507022	14.26312	0.758314	1.964024	13.77
Bayside Recreation	0.44051	1.140916	0.083252	0.215622	18.90
Bayside Residential	2.133089	5.524675	0.146715	0.379989	6.88
Bayside Waterbodies	18.444166	47.77017	9.514162	24.641565	51.58
Inland Commercial Park	0.261536	0.677375	0.00013	0.000335	0.05
Inland Industrial	0.882498	2.285659	0.044122	0.114275	5.00
Inland Recreation	1.237111	3.204103	0.002654	0.006875	0.21
Inland Suburban/Exurban Residential	23.934067	61.98895	0.000309	0.0008	0.00
Inland Urban	7.84184	20.310272	0.000261	0.000675	0.00
Nearshore Ocean	30.602222	79.259392	30.602222	79.259392	100.00
Oceanside Beach	1.213613	3.143244	0.71252	1.845419	58.71
Oceanside Recreation	0.560366	1.451341	0.322088	0.834203	57.48
Oceanside Residential/Commercial	0.238664	0.618138	0.090169	0.233538	37.78
Seascape Residential	0.728118	1.885818	0.000001	0.000003	0.00
Bellport	-	-	-	-	-
Bayside Natural Upland	0.007899	0.020458	0.00021	0.000544	2.66
Bayside Natural Wetland	0.026852	0.069547	0.00715	0.018518	26.63
Bayside Recreation	0.181398	0.469818	0.033029	0.085545	18.21
Bayside Residential	0.185113	0.479442	0.026793	0.069393	14.47
Bayside Waterbodies	0.073828	0.191214	0.071345	0.184782	96.64
Inland Suburban/Exurban Residential	1.031411	2.671341	0.007216	0.01869	0.70
Brightwaters	-	-	-	-	-
Bayside Residential	0.097227	0.251817	0.00527	0.013649	5.42
Bayside Waterbodies	0.022727	0.058863	0.002714	0.007029	11.94
Brookhaven	-	-	-	-	-
Bayside Natural Upland	3.05994	7.925209	0.025058	0.0649	0.82
Bayside Natural Wetland	6.783609	17.569466	1.665243	4.31296	24.55

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	mi ²	km ²	mi ²	km ²	%
Bayside Recreation	0.068349	0.177022	0.019018	0.049256	27.82
Bayside Residential	5.895368	15.268933	0.146868	0.380387	2.49
Bayside Urban	0.000139	0.000361	0.000126	0.000327	90.65
Bayside Waterbodies	61.640293	159.647625	39.876956	103.280843	64.69
Inland Agriculture	3.702175	9.588588	0.000042	0.000108	0.00
Inland Commercial Park	11.206191	29.023901	0.000512	0.001325	0.00
Inland Industrial	5.157618	13.358169	0.000553	0.001432	0.01
Inland Industrial Resource	2.191928	5.677066	0.117311	0.303834	5.35
Inland Natural Area	62.54903	162.001244	0.014795	0.038319	0.02
Inland Recreation	2.653809	6.873334	0.006303	0.016325	0.24
Inland Rural	1.69541	4.391093	0.033144	0.085841	1.95
Inland Suburban/Exurban Residential	127.068774	329.106615	0.09357	0.242346	0.07
Nearshore Ocean	79.669359	206.342692	79.669359	206.342692	100.00
Oceanside Beach	2.793658	7.23554	1.702052	4.408295	60.93
Oceanside Recreation	0.324854	0.841368	0.132577	0.343373	40.81
Oceanside Residential/Commercial	1.208334	3.129571	0.447111	1.158013	37.00
Brookville	-	-	-	-	-
Inland Recreation	0.277539	0.718822	0.000019	0.00005	0.01
Freeport	-	-	-	-	-
Bayside Urban	0.333939	0.864898	0.000052	0.000134	0.02
Bayside Waterbodies	0.124098	0.321413	0.000006	0.000016	0.00
Hempstead	-	-	-	-	-
Bayside Industrial	0.910828	2.359034	0.014403	0.037303	1.58
Bayside Industrial Resource	0.255743	0.662372	0.105521	0.273299	41.26
Bayside Natural Upland	1.245382	3.225525	0.104231	0.269956	8.37
Bayside Natural Wetland	12.04004	31.183561	1.144621	2.964555	9.51
Bayside Recreation	1.929091	4.996324	0.023644	0.061237	1.23
Bayside Residential	3.476425	9.0039	0.049936	0.129334	1.44
Bayside Waterbodies	16.597306	42.986826	2.181548	5.650184	13.14
Inland Commercial Park	1.016703	2.633248	0.000016	0.00004	0.00
Nearshore Ocean	54.56195	141.314802	54.213761	140.412997	99.36
Oceanside Beach	0.771964	1.999379	0.385476	0.998379	49.93
Oceanside Recreation	3.182074	8.241535	1.784288	4.621286	56.07
Oceanside Residential/Commercial	0.551963	1.429577	0.203169	0.526204	36.81
Oceanside Urban	0.327274	0.847636	0.221437	0.57352	67.66
Seascape Residential	0.220829	0.571946	0.000039	0.0001	0.02
Huntington	-	-	-	-	-
Inland Industrial Resource	0.214652	0.555947	0.005792	0.015	2.70
Inland Natural Area	2.831339	7.333134	0.001361	0.003524	0.05
Inland Recreation	0.599024	1.551466	0	0	0.00
Inland Suburban/Exurban Residential	49.98802	129.468378	0.005284	0.013687	0.01
Inland Urban	6.058866	15.692391	0.078969	0.204529	1.30
Islandia	-	-	-	-	-
Inland Urban	1.001583	2.594089	0.001834	0.00475	0.18
Islip	-	-	-	-	-
Bayside Commercial Park	0.037037	0.095925	0.000268	0.000693	0.72
Bayside Natural Upland	1.462962	3.789053	0.016578	0.042936	1.13
Bayside Natural Wetland	4.3486	11.262822	1.645317	4.261352	37.84
Bayside Recreation	1.889144	4.89286	0.440695	1.141394	23.33
Bayside Residential	4.193639	10.861475	0.29763	0.770859	7.10
Bayside Urban	0.405448	1.050105	0.005886	0.015244	1.45

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Waterbodies	31.210628	80.835155	24.408269	63.217128	78.20
Inland Commercial Park	2.096979	5.431151	0.000964	0.002497	0.05
Inland Industrial	2.30498	5.969871	0.002646	0.006853	0.11
Inland Industrial Resource	0.151762	0.393061	0.033166	0.0859	21.85
Inland Natural Area	8.758321	22.683946	0.000073	0.000188	0.00
Inland Suburban/Exurban Residential	59.075764	153.005527	0.009095	0.023555	0.02
Inland Urban	12.445311	32.233208	0.020232	0.0524	0.16
Nearshore Ocean	24.339217	63.038283	24.339217	63.038283	100.00
Oceanside Beach	0.447225	1.158308	0.219392	0.568222	49.06
Oceanside Recreation	0.689908	1.786853	0.291512	0.755014	42.25
Oceanside Residential/Commercial	0.614889	1.592555	0.181891	0.471095	29.58
Seascape Residential	0.694722	1.799321	0.004201	0.01088	0.60
Lindenhurst	-	-	-	-	-
Bayside Natural Wetland	0.000101	0.000261	0.000101	0.000261	100.00
Bayside Residential	0.38149	0.988053	0.022566	0.058446	5.92
Bayside Waterbodies	0.036053	0.093377	0.008685	0.022495	24.09
Long Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.164083	0.424973	0.047788	0.123771	29.12
Oceanside Urban	0.636125	1.647557	0.175561	0.4547	27.60
Massapequa Park	-	-	-	-	-
Bayside Residential	0.147647	0.382404	0.007036	0.018223	4.77
Bayside Waterbodies	0.022515	0.058314	0.017874	0.046293	79.39
Muttontown	-	-	-	-	-
Inland Suburban/Exurban Residential	3.695857	9.572224	0.000261	0.000675	0.01
New York	-	-	-	-	-
Bayside Natural Upland	2.357439	6.105738	0.037066	0.096	1.57
Bayside Recreation	2.329788	6.034123	0.013629	0.0353	0.58
Inland Recreation	5.057623	13.099184	0.002191	0.005675	0.04
Inland Suburban/Exurban Residential	2.988713	7.740731	0.00001	0.000025	0.00
Inland Urban	86.125389	223.063735	0.000039	0.0001	0.00
Nearshore Ocean	37.146786	96.209734	1.895115	4.908327	5.10
Oceanside Beach	1.289173	3.338943	0.041023	0.10625	3.18
Oceanside Recreation	1.294633	3.353083	0.006003	0.015549	0.46
Oceanside Residential/Commercial	0.725993	1.880313	0.055512	0.143776	7.65
Oceanside Urban	1.248393	3.233324	0.11405	0.295388	9.14
Ocean Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.138311	0.358225	0.018121	0.046933	13.10
Oyster Bay	-	-	-	-	-
Bayside Natural Wetland	2.408452	6.237862	0.451459	1.169273	18.74
Bayside Residential	1.513069	3.918831	0.089941	0.232945	5.94
Bayside Waterbodies	6.731873	17.435471	4.689639	12.146108	69.66
Inland Recreation	2.605963	6.749412	0.001139	0.00295	0.04
Inland Suburban/Exurban Residential	31.111857	80.579339	0.00001	0.000025	0.00
Inland Urban	4.109239	10.642879	0.031037	0.080385	0.76
Nearshore Ocean	8.818017	22.838559	8.818017	22.838559	100.00
Oceanside Beach	0.238493	0.617693	0.181355	0.469707	76.04
Oceanside Recreation	0.197249	0.510872	0.042579	0.11028	21.59
Patchogue	-	-	-	-	-
Bayside Recreation	0.045815	0.118659	0.018943	0.049063	41.35
Bayside Residential	0.02952	0.076457	0.008264	0.021404	27.99
Bayside Urban	0.288787	0.747955	0.023185	0.06005	8.03

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Waterbodies	0.189779	0.491527	0.162877	0.42185	85.82
Inland Suburban/Exurban Residential	1.509502	3.909592	0.004313	0.011171	0.29
Quogue	-	-	-	-	-
Nearshore Ocean	0.008711	0.022562	0.007334	0.018996	84.19
Oceanside Beach	0.143547	0.371785	0.110717	0.286756	77.13
Oceanside Residential/Commercial	0.37188	0.963165	0.021507	0.055703	5.78
Riverhead	-	-	-	-	-
Inland Recreation	1.461878	3.786247	0.000106	0.000275	0.01
Saltair	-	-	-	-	-
Oceanside Residential/Commercial	0.221511	0.573711	0.030952	0.080165	13.97
Smithtown	-	-	-	-	-
Inland Urban	2.765018	7.161365	0.00001	0.000025	0.00
Southampton	-	-	-	-	-
Bayside Natural Upland	0.424579	1.099656	0.000601	0.001557	0.14
Bayside Natural Wetland	2.467092	6.389739	0.001936	0.005015	0.08
Bayside Recreation	1.284155	3.325945	0.000434	0.001125	0.03
Bayside Residential	6.450016	16.705466	0.014597	0.037806	0.23
Bayside Waterbodies	31.207218	80.826324	0.144682	0.374725	0.46
Inland Agriculture	1.09126	2.826351	0.000108	0.000281	0.01
Inland Industrial Resource	0.618949	1.603071	0.006985	0.018091	1.13
Inland Natural Area	35.9446	93.096086	0.003013	0.007804	0.01
Nearshore Ocean	65.298105	169.121315	30.034607	77.789274	46.00
Oceanside Beach	0.971235	2.515488	0.499643	1.29407	51.44
Oceanside Recreation	0.162181	0.420047	0.01442	0.037347	8.89
Oceanside Residential/Commercial	1.941798	5.029234	0.05907	0.15299	3.04
West Hampton Dunes	-	-	-	-	-
Bayside Waterbodies	0.011442	0.029635	0.00001	0.000025	0.09
Oceanside Beach	0.062194	0.161082	0.045217	0.117112	72.70
Oceanside Recreation	0.230019	0.595747	0.023595	0.061111	10.26
Westhampton Beach	-	-	-	-	-
Oceanside Beach	0.00744	0.01927	0.006224	0.01612	83.66
Oceanside Residential/Commercial	0.499856	1.29462	0.081961	0.212278	16.40

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-11 Character Areas within Municipalities and Intersections with the OCS-A 0544 Lease Area 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Allenhurst Borough	-	-	-	-	-
Oceanside Residential/Commercial	0.100129	0.259334	0.010087	0.026125	10.07
Asbury Park	-	-	-	-	-
Oceanside Residential/Commercial	0.000092	0.000237	0.000019	0.00005	20.65
Oceanside Urban	0.341475	0.884416	0.055237	0.143063	16.18
Seascape Residential	0.294317	0.762279	0.000007	0.000018	0.00
Atlantic Highlands Borough	-	-	-	-	-
Bayside Residential	0.501105	1.297856	0.000174	0.00045	0.03
Avon-by-the-Sea Borough	-	-	-	-	-
Oceanside Residential/Commercial	0.185097	0.479398	0.006465	0.016744	3.49
Belmar Borough	-	-	-	-	-
Oceanside Residential/Commercial	0.426051	1.103467	0.017471	0.04525	4.10
Bradley Beach Borough	-	-	-	-	-
Oceanside Residential/Commercial	0.278692	0.72181	0.033211	0.086016	11.92
Brielle Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.102552	2.855597	0.00001	0.000025	0.00
Deal Borough	-	-	-	-	-
Oceanside Residential/Commercial	0.49898	1.292352	0.066502	0.172239	13.33
Highlands Borough	-	-	-	-	-
Bayside Residential	0.559143	1.448173	0.005872	0.015209	1.05
Inland Suburban/Exurban Residential	0.146548	0.379558	0.001213	0.003141	0.83
Loch Arbour Village	-	-	-	-	-
Oceanside Residential/Commercial	0.043026	0.111437	0.004295	0.011124	9.98
Oceanside Urban	0.021004	0.054401	0.001642	0.004252	7.82
Long Branch	-	-	-	-	-
Inland Suburban/Exurban Residential	3.366266	8.718588	0.000434	0.001125	0.01
Nearshore Ocean	15.532177	40.228155	0.1943	0.503236	1.25
Oceanside Recreation	0.071082	0.184103	0.031502	0.08159	44.32
Oceanside Residential/Commercial	0.267907	0.693876	0.039123	0.101329	14.60
Oceanside Urban	0.634541	1.643454	0.10645	0.275704	16.78
Seascape Residential	0.371897	0.96321	0.000048	0.000125	0.01
Manasquan Borough	-	-	-	-	-
Oceanside Residential/Commercial	0.223817	0.579683	0.000087	0.000225	0.04
Middletown Township	-	-	-	-	-
Bayside Natural Upland	0.6612	1.712501	0.000214	0.000555	0.03
Bayside Natural Wetland	2.864806	7.419813	0.000142	0.000368	0.00
Bayside Recreation	0.539901	1.398337	0.002184	0.005657	0.40
Bayside Residential	2.23249	5.782122	0.000154	0.0004	0.01
Inland Suburban/Exurban Residential	14.029007	36.334961	0.001178	0.00305	0.01
Oceanside Beach	0.806461	2.088724	0.00737	0.019087	0.91
Oceanside Recreation	0.181945	0.471237	0.00001	0.000025	0.01
Monmouth Beach Borough	-	-	-	-	-
Nearshore Ocean	6.151021	15.931071	0.000419	0.001085	0.01
Oceanside Recreation	0.009031	0.02339	0.000051	0.000132	0.56
Oceanside Residential/Commercial	0.29216	0.75669	0.042592	0.110312	14.58

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Neptune Township	-	-	-	-	-
Inland Recreation	0.445665	1.154266	0.000801	0.002075	0.18
Inland Suburban/Exurban Residential	5.241187	13.574611	0.000077	0.0002	0.00
Oceanside Residential/Commercial	0.19484	0.504632	0.038254	0.099076	19.63
Oceanside Urban	0.004327	0.011207	0.000076	0.000196	1.76
Ocean Township	-	-	-	-	-
Inland Natural Area	16.34245	42.326751	0.000116	0.0003	0.00
Inland Suburban/Exurban Residential	10.472781	27.124378	0.000763	0.001975	0.01
Inland Urban	1.223853	3.169765	0.000058	0.00015	0.00
Rumson Borough	-	-	-	-	-
Bayside Residential	1.228204	3.181035	0.000405	0.00105	0.03
Sea Bright Borough	-	-	-	-	-
Nearshore Ocean	13.18029	34.136794	0.000195	0.000505	0.00
Oceanside Beach	0.028625	0.074139	0.005604	0.014514	19.58
Oceanside Recreation	0.050761	0.131471	0.007261	0.018805	14.30
Oceanside Residential/Commercial	0.586686	1.519509	0.05648	0.146283	9.63
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.002177	0.005639	0.78
Oceanside Residential/Commercial	0.310064	0.803061	0.004087	0.010586	1.32
Spring Lake Borough	-	-	-	-	-
Oceanside Residential/Commercial	0.583421	1.511054	0.018721	0.048487	3.21
Seascape Residential	0.478515	1.239349	0.000034	0.000088	0.01
Tinton Falls Borough	-	-	-	-	-
Inland Industrial Resource	1.182896	3.063687	0.000097	0.00025	0.01
Wall Township	-	-	-	-	-
Inland Industrial Resource	0.290507	0.752411	0.000106	0.000275	0.04
Inland Suburban/Exurban Residential	12.955414	33.554367	0.000125	0.000325	0.00
New York					
Amityville	-	-	-	-	-
Bayside Recreation	0.031534	0.081672	0.008037	0.020817	25.49
Bayside Residential	0.452969	1.173185	0.021285	0.055127	4.70
Bayside Waterbodies	0.330296	0.855463	0.283461	0.734161	85.82
Atlantic Beach	-	-	-	-	-
Nearshore Ocean	0.000181	0.000468	0.000181	0.000468	100.00
Oceanside Beach	0.010218	0.026464	0.000181	0.000468	1.77
Oceanside Urban	0.332698	0.861683	0.086396	0.223766	25.97
Babylon	-	-	-	-	-
Bayside Industrial	0.072703	0.188299	0.02824	0.073141	38.84
Bayside Natural Upland	0.130587	0.338218	0.000098	0.000254	0.08
Bayside Natural Wetland	5.507022	14.26312	0.758185	1.96369	13.77
Bayside Recreation	0.44051	1.140916	0.083252	0.215622	18.90
Bayside Residential	2.133089	5.524675	0.146695	0.379939	6.88
Bayside Waterbodies	18.444166	47.77017	9.514036	24.64124	51.58
Inland Commercial Park	0.261536	0.677375	0.00013	0.000335	0.05
Inland Industrial	0.882498	2.285659	0.044122	0.114275	5.00
Inland Recreation	1.237111	3.204103	0.002654	0.006875	0.21
Inland Suburban/Exurban Residential	23.934067	61.98895	0.000309	0.0008	0.00
Inland Urban	7.84184	20.310272	0.000261	0.000675	0.00
Nearshore Ocean	30.602222	79.259392	30.602222	79.259392	100.00
Oceanside Beach	1.213613	3.143244	0.712763	1.846049	58.73

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Oceanside Recreation	0.560366	1.451341	0.322078	0.834178	57.48
Oceanside Residential/Commercial	0.238664	0.618138	0.090169	0.233538	37.78
Seascape Residential	0.728118	1.885818	0.000001	0.000003	0.00
Bellport		-			-
Bayside Natural Wetland	0.026852	0.069547	0.00713	0.018468	26.55
Bayside Recreation	0.181398	0.469818	0.032627	0.084504	17.99
Bayside Residential	0.185113	0.479442	0.025247	0.065389	13.64
Bayside Waterbodies	0.073828	0.191214	0.071345	0.184782	96.64
Inland Suburban/Exurban Residential	1.031411	2.671341	0	0	0.00
Brightwaters		-			-
Bayside Residential	0.097227	0.251817	0.00527	0.013649	5.42
Bayside Waterbodies	0.022727	0.058863	0.002714	0.007029	11.94
Brookhaven		-			-
Bayside Natural Upland	3.05994	7.925209	0.024787	0.064199	0.81
Bayside Natural Wetland	6.783609	17.569466	1.662219	4.305128	24.50
Bayside Recreation	0.068349	0.177022	0.018972	0.049136	27.76
Bayside Residential	5.895368	15.268933	0.142175	0.368231	2.41
Bayside Urban	0.000139	0.000361	0.000126	0.000327	90.65
Bayside Waterbodies	61.640293	159.647625	39.875765	103.277757	64.69
Inland Agriculture	3.702175	9.588588	0.000042	0.000108	0.00
Inland Commercial Park	11.206191	29.023901	0.000512	0.001325	0.00
Inland Industrial	5.157618	13.358169	0.000543	0.001407	0.01
Inland Industrial Resource	2.191928	5.677066	0.117311	0.303834	5.35
Inland Natural Area	62.54903	162.001244	0.014748	0.038198	0.02
Inland Recreation	2.653809	6.873334	0.006303	0.016325	0.24
Inland Rural	1.69541	4.391093	0.033144	0.085841	1.95
Inland Suburban/Exurban Residential	127.068774	329.106615	0.06596	0.170836	0.05
Nearshore Ocean	79.669359	206.342692	79.669359	206.342692	100.00
Oceanside Beach	2.793658	7.23554	1.694496	4.388724	60.66
Oceanside Recreation	0.324854	0.841368	0.132236	0.342489	40.71
Oceanside Residential/Commercial	1.208334	3.129571	0.43479	1.126102	35.98
Brookville		-			-
Inland Recreation	0.277539	0.718822	0.000019	0.00005	0.01
Freeport		-			-
Bayside Urban	0.333939	0.864898	0.000052	0.000134	0.02
Bayside Waterbodies	0.124098	0.321413	0.000006	0.000016	0.00
Hempstead		-			-
Bayside Industrial	0.910828	2.359034	0.014403	0.037303	1.58
Bayside Industrial Resource	0.255743	0.662372	0.105521	0.273299	41.26
Bayside Natural Upland	1.245382	3.225525	0.104231	0.269956	8.37
Bayside Natural Wetland	12.04004	31.183561	1.144621	2.964555	9.51
Bayside Recreation	1.929091	4.996324	0.023644	0.061237	1.23
Bayside Residential	3.476425	9.0039	0.049936	0.129334	1.44
Bayside Waterbodies	16.597306	42.986826	2.181548	5.650184	13.14
Inland Commercial Park	1.016703	2.633248	0.000016	0.00004	0.00
Nearshore Ocean	54.56195	141.314802	54.21406	140.413772	99.36
Oceanside Beach	0.771964	1.999379	0.385476	0.998379	49.93
Oceanside Recreation	3.182074	8.241535	1.784356	4.621461	56.08
Oceanside Residential/Commercial	0.551963	1.429577	0.203169	0.526204	36.81
Oceanside Urban	0.327274	0.847636	0.221437	0.57352	67.66

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Seascape Residential	0.220829	0.571946	0.000039	0.0001	0.02
Huntington		-			-
Inland Industrial Resource	0.214652	0.555947	0.005792	0.015	2.70
Inland Natural Area	2.831339	7.333134	0.001361	0.003524	0.05
Inland Recreation	0.599024	1.551466	0	0	0.00
Inland Suburban/Exurban Residential	49.98802	129.468378	0.005284	0.013687	0.01
Inland Urban	6.058866	15.692391	0.078969	0.204529	1.30
Islandia		-			-
Inland Urban	1.001583	2.594089	0.001834	0.00475	0.18
Islip		-			-
Bayside Commercial Park	0.037037	0.095925	0.000268	0.000693	0.72
Bayside Natural Upland	1.462962	3.789053	0.016356	0.042361	1.12
Bayside Natural Wetland	4.3486	11.262822	1.644414	4.259013	37.81
Bayside Recreation	1.889144	4.89286	0.440598	1.141144	23.32
Bayside Residential	4.193639	10.861475	0.296664	0.768356	7.07
Bayside Urban	0.405448	1.050105	0.005886	0.015244	1.45
Bayside Waterbodies	31.210628	80.835155	24.407829	63.215987	78.20
Inland Commercial Park	2.096979	5.431151	0.000917	0.002374	0.04
Inland Industrial	2.30498	5.969871	0.002646	0.006853	0.11
Inland Industrial Resource	0.151762	0.393061	0.033166	0.0859	21.85
Inland Natural Area	8.758321	22.683946	0.000036	0.000094	0.00
Inland Suburban/Exurban Residential	59.075764	153.005527	0.00178	0.00461	0.00
Inland Urban	12.445311	32.233208	0.020232	0.0524	0.16
Nearshore Ocean	24.339217	63.038283	24.339217	63.038283	100.00
Oceanside Beach	0.447225	1.158308	0.219131	0.567547	49.00
Oceanside Recreation	0.689908	1.786853	0.290943	0.753539	42.17
Oceanside Residential/Commercial	0.614889	1.592555	0.177168	0.458864	28.81
Seascape Residential	0.694722	1.799321	0.004201	0.01088	0.60
Lindenhurst		-			-
Bayside Natural Wetland	0.000101	0.000261	0.000101	0.000261	100.00
Bayside Residential	0.38149	0.988053	0.022566	0.058446	5.92
Bayside Waterbodies	0.036053	0.093377	0.008685	0.022495	24.09
Long Beach		-			-
Oceanside Residential/Commercial	0.164083	0.424973	0.047788	0.123771	29.12
Oceanside Urban	0.636125	1.647557	0.175561	0.4547	27.60
Massapequa Park		-			-
Bayside Residential	0.147647	0.382404	0.007036	0.018223	4.77
Bayside Waterbodies	0.022515	0.058314	0.017874	0.046293	79.39
Muttontown		-			-
Inland Suburban/Exurban Residential	3.695857	9.572224	0.000261	0.000675	0.01
New York		-			-
Bayside Natural Upland	2.357439	6.105738	0.037066	0.096	1.57
Bayside Recreation	2.329788	6.034123	0.013629	0.0353	0.58
Inland Recreation	5.057623	13.099184	0.002191	0.005675	0.04
Inland Suburban/Exurban Residential	2.988713	7.740731	0.00001	0.000025	0.00
Inland Urban	86.125389	223.063735	0.000039	0.0001	0.00
Nearshore Ocean	37.146786	96.209734	1.89527	4.908727	5.10
Oceanside Beach	1.289173	3.338943	0.041023	0.10625	3.18
Oceanside Recreation	1.294633	3.353083	0.006003	0.015549	0.46
Oceanside Residential/Commercial	0.725993	1.880313	0.055512	0.143776	7.65

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Oceanside Urban	1.248393	3.233324	0.11405	0.295388	9.14
Ocean Beach		-			-
Oceanside Residential/Commercial	0.138311	0.358225	0.016869	0.04369	12.20
Oyster Bay		-			-
Bayside Natural Wetland	2.408452	6.237862	0.451459	1.169273	18.74
Bayside Residential	1.513069	3.918831	0.089941	0.232945	5.94
Bayside Waterbodies	6.731873	17.435471	4.689639	12.146108	69.66
Inland Recreation	2.605963	6.749412	0.001139	0.00295	0.04
Inland Suburban/Exurban Residential	31.111857	80.579339	0.00001	0.000025	0.00
Inland Urban	4.109239	10.642879	0.031037	0.080385	0.76
Nearshore Ocean	8.818017	22.838559	8.818017	22.838559	100.00
Oceanside Beach	0.238493	0.617693	0.181355	0.469707	76.04
Oceanside Recreation	0.197249	0.510872	0.042579	0.11028	21.59
Patchogue		-			-
Bayside Recreation	0.045815	0.118659	0.018943	0.049063	41.35
Bayside Residential	0.02952	0.076457	0.008264	0.021404	27.99
Bayside Urban	0.288787	0.747955	0.023176	0.060025	8.03
Bayside Waterbodies	0.189779	0.491527	0.162877	0.42185	85.82
Inland Suburban/Exurban Residential	1.509502	3.909592	0.00414	0.010721	0.27
Quogue		-			-
Nearshore Ocean	0.008711	0.022562	0.007334	0.018996	84.19
Oceanside Beach	0.143547	0.371785	0.110717	0.286756	77.13
Oceanside Residential/Commercial	0.37188	0.963165	0.021507	0.055703	5.78
Riverhead		-			-
Inland Recreation	1.461878	3.786247	0.000106	0.000275	0.01
Saltaire		-			-
Oceanside Residential/Commercial	0.221511	0.573711	0.029379	0.07609	13.26
Smithtown		-			-
Inland Urban	2.765018	7.161365	0.00001	0.000025	0.00
Southampton		-			-
Bayside Natural Upland	0.424579	1.099656	0.000601	0.001557	0.14
Bayside Natural Wetland	2.467092	6.389739	0.001936	0.005015	0.08
Bayside Recreation	1.284155	3.325945	0.000434	0.001125	0.03
Bayside Residential	6.450016	16.705466	0.014597	0.037806	0.23
Bayside Waterbodies	31.207218	80.826324	0.144682	0.374725	0.46
Inland Agriculture	1.09126	2.826351	0.000108	0.000281	0.01
Inland Industrial Resource	0.618949	1.603071	0.006985	0.018091	1.13
Inland Natural Area	35.9446	93.096086	0.003013	0.007804	0.01
Nearshore Ocean	65.298105	169.121315	30.035147	77.790674	46.00
Oceanside Beach	0.971235	2.515488	0.499614	1.293995	51.44
Oceanside Recreation	0.162181	0.420047	0.01442	0.037347	8.89
Oceanside Residential/Commercial	1.941798	5.029234	0.05907	0.15299	3.04
West Hampton Dunes		-			-
Oceanside Beach	0.062194	0.161082	0.045207	0.117087	72.69
Oceanside Recreation	0.230019	0.595747	0.023441	0.060711	10.19
Westhampton Beach		-			-
Oceanside Beach	0.00744	0.01927	0.006224	0.01612	83.66
Oceanside Residential/Commercial	0.499856	1.29462	0.081961	0.212278	16.40

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3

through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-12 Character Areas within Municipalities and Intersections with the OCS-A 0542 Lease Area 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Absecon	-	-	-	-	-
Inland Suburban/Exurban Residential	2.782198	7.205859	0.000058	0.00015	0.00
Atlantic City	-	-	-	-	-
Bayside Industrial Resource	0.140584	0.36411	0.00026	0.000674	0.18
Bayside Natural Upland	0.059239	0.153429	0.000383	0.000993	0.65
Bayside Natural Wetland	6.689709	17.326266	0.000095	0.000245	0.00
Bayside Residential	0.610439	1.58103	0.000314	0.000814	0.05
Bayside Urban	2.94909	7.638107	0.008124	0.021041	0.28
Bayside Waterbodies	4.499754	11.654309	0.000456	0.00118	0.01
Nearshore Ocean	17.076699	44.228448	0.000131	0.00034	0.00
Oceanside Residential/Commercial	0.11773	0.30492	0.000473	0.001225	0.40
Oceanside Urban	1.011303	2.619262	0.02262	0.058586	2.24
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00001	0.000025	0.02
Bayside Residential	0.212181	0.549547	0.000672	0.001741	0.32
Bayside Waterbodies	0.280443	0.726343	0.003605	0.009338	1.29
Nearshore Ocean	11.089861	28.722607	1.085788	2.812179	9.79
Oceanside Beach	0.173074	0.44826	0.060481	0.156644	34.95
Oceanside Recreation	0.013546	0.035084	0.00014	0.000362	1.03
Oceanside Residential/Commercial	0.565739	1.465257	0.171303	0.443672	30.28
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	0.000048	0.000125	0.00
Bayside Waterbodies	5.607529	14.523434	0.000019	0.00005	0.00
Inland Natural Area	18.426348	47.724023	0.000245	0.000635	0.00
Inland Suburban/Exurban Residential	10.180429	26.367191	0.012841	0.033258	0.13
Bass River Township	-	-	-	-	-
Bayside Natural Wetland	8.533354	22.101285	0.000039	0.0001	0.00
Bayside Waterbodies	0.921448	2.386539	0.00001	0.000025	0.00
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.404854	1.048568	0.003599	0.009321	0.89
Nearshore Ocean	8.179239	21.184131	3.284243	8.506151	40.15
Oceanside Residential/Commercial	0.562577	1.457067	0.13144	0.340427	23.36
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.001848	0.004786	0.06
Bayside Recreation	0.060018	0.155447	0.00016	0.000414	0.27
Bayside Residential	1.629749	4.22103	0.000152	0.000393	0.01
Bayside Waterbodies	10.873353	28.161856	0.001052	0.002724	0.01
Inland Natural Area	21.012984	54.42338	0.000091	0.000235	0.00
Inland Recreation	0.036896	0.095561	0.000074	0.000192	0.20
Inland Suburban/Exurban Residential	12.623688	32.695203	0.000484	0.001255	0.00
Nearshore Ocean	33.900979	87.803132	0.000218	0.000566	0.00
Oceanside Beach	1.847662	4.785421	0.239735	0.620911	12.98
Oceanside Residential/Commercial	0.18328	0.474694	0.000193	0.0005	0.11
Brigantine	-	-	-	-	-
Bayside Natural Upland	0.037284	0.096565	0.000186	0.000482	0.50
Bayside Natural Wetland	4.103657	10.628422	0.050541	0.1309	1.23

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	0.799583	2.070909	0.004492	0.011634	0.56
Bayside Urban	0.092944	0.240724	0.000598	0.001548	0.64
Bayside Waterbodies	3.110677	8.056615	0.000656	0.0017	0.02
Nearshore Ocean	24.77845	64.175891	1.025615	2.65633	4.14
Oceanside Beach	0.873285	2.261797	0.187814	0.486435	21.51
Oceanside Residential/Commercial	0.761558	1.972425	0.109992	0.284878	14.44
Seascape Residential	1.025155	2.65514	0.004516	0.011696	0.44
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.644739	0.000013	0.000033	0.00
Bayside Residential	0.191175	0.49514	0.000006	0.000016	0.00
Bayside Waterbodies	2.501679	6.479319	0.000013	0.000034	0.00
Inland Industrial Resource	0.950613	2.462075	0.000276	0.000714	0.03
Inland Natural Area	6.947407	17.993701	0.0005	0.001295	0.01
Inland Suburban/Exurban Residential	1.75839	4.554209	0.000988	0.002558	0.06
Egg Harbor Township	-	-	-	-	-
Bayside Natural Wetland	2.923921	7.572922	0.000029	0.000075	0.00
Galloway Township	-	-	-	-	-
Bayside Natural Wetland	28.241116	73.144156	0.207427	0.537234	0.73
Bayside Recreation	0.270319	0.700122	0.000087	0.000225	0.03
Bayside Waterbodies	20.323966	52.638829	0.00286	0.007407	0.01
Inland Natural Area	15.240384	39.472414	0.00044	0.001141	0.00
Inland Recreation	1.020304	2.642575	0.000975	0.002525	0.10
Inland Suburban/Exurban Residential	14.07714	36.459625	0.000737	0.001909	0.01
Nearshore Ocean	10.491951	27.174029	0.792462	2.052468	7.55
Oceanside Beach	0.160693	0.416192	0.08835	0.228826	54.98
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000195	0.000504	0.06
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	2.201648	5.702242	26.10
Oceanside Residential/Commercial	0.296536	0.768025	0.132496	0.343162	44.68
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000029	0.000074	0.02
Bayside Natural Upland	1.482721	3.84023	0.000136	0.000352	0.01
Bayside Natural Wetland	2.027647	5.251583	0.00001	0.000025	0.00
Bayside Residential	2.301367	5.960513	0.000277	0.000718	0.01
Bayside Waterbodies	15.272406	39.55535	0.000312	0.000807	0.00
Inland Commercial Park	0.67829	1.756763	0.000146	0.000377	0.02
Inland Natural Area	64.91341	168.12496	0.000485	0.001257	0.00
Inland Suburban/Exurban Residential	7.49792	19.419524	0.001202	0.003114	0.02
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Upland	0.094972	0.245975	0	0	0.00
Bayside Natural Wetland	14.347208	37.159099	0.005153	0.013346	0.04
Bayside Recreation	0.011552	0.02992	0.000104	0.00027	0.90
Bayside Residential	2.109492	5.463559	0.000844	0.002185	0.04
Bayside Waterbodies	24.740858	64.078527	0.001165	0.003017	0.00
Inland Natural Area	22.847206	59.173991	0.000489	0.001267	0.00
Inland Suburban/Exurban Residential	8.850442	22.92254	0.00425	0.011007	0.05
Oceanside Beach	0.079038	0.204708	0.000592	0.001533	0.75
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000221	0.000574	0.02

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Residential	1.853823	4.801379	0.005058	0.013099	0.27
Bayside Waterbodies	17.404871	45.078409	0.001575	0.00408	0.01
Nearshore Ocean	43.727882	113.254696	9.702266	25.128755	22.19
Oceanside Beach	0.676831	1.752985	0.278545	0.721429	41.15
Oceanside Residential/Commercial	2.171806	5.624951	0.740969	1.919102	34.12
Longport Borough	-	-	-	-	-
Bayside Residential	0.21212	0.549388	0.000032	0.000083	0.02
Bayside Waterbodies	0.173929	0.450474	0.000007	0.000017	0.00
Oceanside Residential/Commercial	0.265899	0.688675	0.000174	0.00045	0.07
Margate City	-	-	-	-	-
Bayside Residential	1.039538	2.692392	0.000222	0.000575	0.02
Nearshore Ocean	5.471949	14.172282	0.000029	0.000075	0.00
Oceanside Residential/Commercial	0.474007	1.227674	0.000241	0.000625	0.05
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.000009	0.000024	0.00
Bayside Natural Wetland	1.313493	3.401931	0.001001	0.002592	0.08
Bayside Residential	1.039616	2.692594	0.000107	0.000276	0.01
Bayside Waterbodies	10.20872	26.440463	0.000524	0.001358	0.01
Inland Natural Area	16.34245	42.326751	0.000473	0.001226	0.00
Inland Rural	1.022571	2.648446	0.000125	0.000325	0.01
Inland Suburban/Exurban Residential	10.472781	27.124378	0.002511	0.006502	0.02
Pleasantville	-	-	-	-	-
Bayside Natural Wetland	1.471803	3.811953	0.000048	0.000125	0.00
Inland Suburban/Exurban Residential	3.321798	8.603417	0.000048	0.000125	0.00
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000001	0.000025	0.02
Oceanside Urban	0.244074	0.632149	0.000019	0.00005	0.01
Seascape Residential	0.191807	0.496778	0.000001	0.000025	0.01
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.00013	0.000337	0.21
Bayside Residential	0.228865	0.592758	0.000111	0.000288	0.05
Oceanside Residential/Commercial	0.471132	1.220226	0.000029	0.000075	0.01
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000019	0.00005	0.17
Bayside Residential	0.253949	0.657724	0.000318	0.000823	0.13
Bayside Urban	0.036614	0.09483	0.00057	0.001476	1.56
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000477	0.07
Nearshore Ocean	4.466743	11.568812	1.274522	3.300997	28.53
Oceanside Residential/Commercial	0.300635	0.778642	0.101929	0.263994	33.90
Oceanside Urban	0.055995	0.145025	0.021606	0.05596	38.59
Seascape Residential	0.120813	0.312905	0.00027	0.0007	0.22
Seascape Urban	0.017797	0.046095	0.000687	0.001779	3.86
Stafford Township	-	-	-	-	-
Bayside Natural Wetland	8.789522	22.764757	0.001346	0.003486	0.02
Bayside Recreation	0.099286	0.25715	0.001899	0.004919	1.91
Bayside Residential	2.092265	5.41894	0.001259	0.00326	0.06
Bayside Waterbodies	7.021887	18.186603	0.000846	0.00219	0.01
Inland Commercial Park	1.074364	2.78259	0.00364	0.009427	0.34
Inland Industrial	0.114107	0.295537	0.00029	0.00075	0.25
Inland Industrial Resource	0.829568	2.148571	0.000203	0.000525	0.02

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Natural Area	25.321164	65.581513	0.001235	0.003199	0.00
Inland Recreation	0.140441	0.363739	0.000325	0.000842	0.23
Inland Rural	1.073095	2.779304	0.000019	0.00005	0.00
Inland Suburban/Exurban Residential	8.081042	20.929802	0.007327	0.018977	0.09
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.000122	0.000316	0.05
Bayside Waterbodies	0.553974	1.434786	0.000013	0.000035	0.00
Nearshore Ocean	5.320502	13.780037	1.595137	4.131386	29.98
Oceanside Residential/Commercial	0.370025	0.958359	0.118328	0.306468	31.98
Seascape Residential	0.173221	0.44864	0.000106	0.000275	0.06
Tuckerton Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.28566	3.329845	0.000145	0.000375	0.01
Ventnor City	-	-	-	-	-
Bayside Natural Wetland	0.60895	1.577174	0.000037	0.000095	0.01
Bayside Recreation	0.024357	0.063084	0.000145	0.000375	0.60
Bayside Residential	1.10774	2.869033	0.001081	0.002801	0.10
Bayside Waterbodies	0.608586	1.576232	0.00003	0.000079	0.00
Oceanside Residential/Commercial	0.285293	0.738905	0.001042	0.0027	0.37

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-13 Character Areas within Municipalities and Intersections with the OCS-A 0541 Lease Area 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Absecon	-	-	-	-	-
Bayside Industrial	0.01936	0.050142	0.00001	0.000025	0.05
Bayside Natural Upland	0.006097	0.015792	0.000028	0.000073	0.46
Bayside Natural Wetland	1.747546	4.526124	0.000267	0.00069	0.02
Bayside Residential	0.079286	0.205349	0.000453	0.001174	0.57
Bayside Waterbodies	1.446802	3.747201	0.000029	0.000075	0.00
Inland Commercial Park	0.255205	0.660978	0.000039	0.0001	0.02
Inland Suburban/Exurban Residential	2.782198	7.205859	0.004328	0.01121	0.16
Atlantic City	-	-	-	-	-
Bayside Industrial Resource	0.140584	0.36411	0.000538	0.001395	0.38
Bayside Natural Upland	0.059239	0.153429	0.000432	0.001118	0.73
Bayside Natural Wetland	6.689709	17.326266	0.000492	0.001275	0.01
Bayside Recreation	0.046244	0.11977	0.00001	0.000025	0.02
Bayside Residential	0.610439	1.58103	0.000963	0.002493	0.16
Bayside Urban	2.94909	7.638107	0.026765	0.069321	0.91
Bayside Waterbodies	4.499754	11.654309	0.01237	0.032039	0.27
Nearshore Ocean	17.076699	44.228448	1.88507	4.882309	11.04
Oceanside Residential/Commercial	0.11773	0.30492	0.013896	0.035991	11.80
Oceanside Urban	1.011303	2.619262	0.121571	0.314866	12.02
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00001	0.000025	0.02
Bayside Residential	0.212181	0.549547	0.00101	0.002616	0.48
Bayside Waterbodies	0.280443	0.726343	0.091292	0.236446	32.55
Nearshore Ocean	11.089861	28.722607	11.088975	28.720314	99.99
Oceanside Beach	0.173074	0.44826	0.079812	0.206712	46.11
Oceanside Recreation	0.013546	0.035084	0.000159	0.000411	1.17
Oceanside Residential/Commercial	0.565739	1.465257	0.180715	0.468051	31.94
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	0.001	0.00259	0.03
Bayside Residential	0.278385	0.721015	0.003028	0.007842	1.09
Bayside Waterbodies	5.607529	14.523434	0.000226	0.000586	0.00
Inland Industrial Resource	0.822256	2.129633	0.000039	0.0001	0.00
Inland Natural Area	18.426348	47.724023	0.001539	0.003986	0.01
Inland Rural	0.946237	2.450743	0.000096	0.000248	0.01
Inland Suburban/Exurban Residential	10.180429	26.367191	0.022757	0.058939	0.22
Bass River Township	-	-	-	-	-
Bayside Natural Wetland	8.533354	22.101285	0.000356	0.000923	0.00
Bayside Recreation	0.125957	0.326228	0.000029	0.000075	0.02
Bayside Waterbodies	0.921448	2.386539	0.000155	0.000402	0.02
Inland Agriculture	0.928313	2.404321	0.000097	0.00025	0.01
Inland Industrial	0.429622	1.112716	0.00001	0.000025	0.00
Inland Military Site	14.697994	38.06763	0.003249	0.008414	0.02
Inland Natural Area	48.146066	124.697738	0.000192	0.000496	0.00
Inland Rural	2.560409	6.631428	0.000058	0.00015	0.00
Inland Suburban/Exurban Residential	0.899931	2.33081	0.00001	0.000025	0.00
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.000125	0.000325	0.08

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Waterbodies	0.059536	0.154198	0.000019	0.000005	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.000396	0.001025	0.14
Oceanside Residential/Commercial	0.263933	0.683583	0.001728	0.004475	0.65
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.404854	1.048568	0.004297	0.01113	1.06
Bayside Waterbodies	1.312749	3.400005	0.000022	0.000056	0.00
Nearshore Ocean	8.179239	21.184131	8.178912	21.183285	100.00
Oceanside Residential/Commercial	0.562577	1.457067	0.145983	0.378095	25.95
Beachwood Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.655336	4.287301	0.000193	0.0005	0.01
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.014518	0.037602	0.51
Bayside Recreation	0.060018	0.155447	0.001008	0.002611	1.68
Bayside Residential	1.629749	4.22103	0.011564	0.02995	0.71
Bayside Waterbodies	10.873353	28.161856	0.140065	0.362766	1.29
Inland Commercial Park	0.277677	0.719181	0.000125	0.000325	0.05
Inland Industrial	1.144983	2.965493	0.000183	0.000475	0.02
Inland Industrial Resource	1.821592	4.717901	0.000241	0.000625	0.01
Inland Natural Area	21.012984	54.42338	0.002291	0.005933	0.01
Inland Recreation	0.036896	0.095561	0.000074	0.000192	0.20
Inland Rural	0.024331	0.063017	0.000011	0.000029	0.05
Inland Suburban/Exurban Residential	12.623688	32.695203	0.007391	0.019144	0.06
Nearshore Ocean	33.900979	87.803132	33.899836	87.800173	100.00
Oceanside Beach	1.847662	4.785421	0.969924	2.512091	52.49
Oceanside Residential/Commercial	0.18328	0.474694	0.041685	0.107963	22.74
Seascape Residential	0.010911	0.02826	0.000104	0.000269	0.95
Brick Township	-	-	-	-	-
Bayside Recreation	0.117899	0.305357	0.000058	0.00015	0.05
Bayside Residential	3.512972	9.098556	0.00067	0.001736	0.02
Bayside Waterbodies	5.877627	15.222983	0.000125	0.000325	0.00
Inland Industrial Resource	0.146033	0.378224	0.000019	0.00005	0.01
Inland Natural Area	3.901053	10.103682	0.00002	0.000051	0.00
Inland Recreation	0.235841	0.610826	0.000019	0.00005	0.01
Inland Suburban/Exurban Residential	13.123919	33.990795	0.000212	0.000549	0.00
Nearshore Ocean	6.153921	15.938583	0.00049	0.001268	0.01
Oceanside Residential/Commercial	0.26327	0.681867	0.04989	0.129215	18.95
Brielle Borough	-	-	-	-	-
Bayside Recreation	0.20385	0.52797	0.000562	0.001454	0.28
Bayside Residential	0.501541	1.298985	0.000203	0.000525	0.04
Bayside Waterbodies	0.423917	1.097939	0.000029	0.000075	0.01
Inland Suburban/Exurban Residential	1.102552	2.855597	0.001263	0.003271	0.11
Brigantine	-	-	-	-	-
Bayside Natural Upland	0.037284	0.096565	0.000281	0.000726	0.75
Bayside Natural Wetland	4.103657	10.628422	0.070509	0.182619	1.72
Bayside Residential	0.799583	2.070909	0.008177	0.021179	1.02
Bayside Urban	0.092944	0.240724	0.000758	0.001964	0.82
Bayside Waterbodies	3.110677	8.056615	0.044817	0.116075	1.44
Nearshore Ocean	24.77845	64.175891	22.545692	58.393074	90.99
Oceanside Beach	0.873285	2.261797	0.511143	1.323855	58.53
Oceanside Residential/Commercial	0.761558	1.972425	0.143002	0.370375	18.78
Seascape Residential	1.025155	2.65514	0.007728	0.020016	0.75

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.644739	0.004177	0.010818	0.06
Bayside Recreation	0.003413	0.00884	0.000059	0.000152	1.73
Bayside Residential	0.191175	0.49514	0.001783	0.004619	0.93
Bayside Waterbodies	2.501679	6.479319	0.000112	0.000291	0.00
Inland Industrial	0.154902	0.401195	0	0.000001	0.00
Inland Industrial Resource	0.950613	2.462075	0.000707	0.00183	0.07
Inland Natural Area	6.947407	17.993701	0.001958	0.005072	0.03
Inland Suburban/Exurban Residential	1.75839	4.554209	0.004125	0.010683	0.23
Egg Harbor Township	-	-	-	-	-
Bayside Natural Wetland	2.923921	7.572922	0.000058	0.00015	0.00
Bayside Residential	0.30687	0.794789	0.000039	0.0001	0.01
Bayside Waterbodies	8.128283	21.052156	0.00056	0.00145	0.01
Inland Commercial Park	1.78784	4.630485	0.005048	0.013075	0.28
Inland Industrial	2.401373	6.219527	0.000019	0.00005	0.00
Inland Industrial Resource	0.517924	1.341416	0.04584	0.118725	8.85
Inland Natural Area	4.662498	12.075815	0.000048	0.000125	0.00
Inland Suburban/Exurban Residential	3.076253	7.96746	0.000309	0.0008	0.01
Inland Urban	1.213161	3.142072	0.000068	0.000175	0.01
Oceanside Beach	0.086163	0.223162	0.000029	0.000075	0.03
Galloway Township	-	-	-	-	-
Bayside Natural Upland	0.070809	0.183395	0.000046	0.00012	0.06
Bayside Natural Wetland	28.241116	73.144156	4.126801	10.688365	14.61
Bayside Recreation	0.270319	0.700122	0.000864	0.002238	0.32
Bayside Residential	0.078624	0.203636	0.000964	0.002496	1.23
Bayside Waterbodies	20.323966	52.638829	1.558769	4.037192	7.67
Inland Natural Area	15.240384	39.472414	0.033314	0.086283	0.22
Inland Recreation	1.020304	2.642575	0.006421	0.016631	0.63
Inland Rural	12.434094	32.204156	0.000678	0.001757	0.01
Inland Suburban/Exurban Residential	14.07714	36.459625	0.00496	0.012848	0.04
Nearshore Ocean	10.491951	27.174029	10.491582	27.173074	100.00
Oceanside Beach	0.160693	0.416192	0.136382	0.353227	84.87
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000214	0.000554	0.06
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.848887	8.435694	21.848346	100.00
Oceanside Residential/Commercial	0.296536	0.768025	0.134411	0.348123	45.33
Island Heights Borough	-	-	-	-	-
Bayside Residential	0.248817	0.644434	0.00046	0.001191	0.18
Inland Suburban/Exurban Residential	0.365869	0.947596	0.000515	0.001334	0.14
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000038	0.000099	0.03
Bayside Natural Upland	1.482721	3.84023	0.001029	0.002666	0.07
Bayside Natural Wetland	2.027647	5.251583	0.009965	0.02581	0.49
Bayside Residential	2.301367	5.960513	0.017755	0.045984	0.77
Bayside Waterbodies	15.272406	39.55535	0.058046	0.150338	0.38
Inland Agriculture	0.154952	0.401323	0.000039	0.0001	0.03
Inland Commercial Park	0.67829	1.756763	0.000518	0.001342	0.08
Inland Industrial Resource	4.474981	11.590149	0.001735	0.004494	0.04
Inland Natural Area	64.91341	168.12496	0.006399	0.016575	0.01
Inland Rural	0.410648	1.063573	0.00001	0.000025	0.00

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	7.49792	19.419524	0.008501	0.022018	0.11
Lakewood Township	-	-	-	-	-
Inland Commercial Park	1.806915	4.679889	0.001224	0.003171	0.07
Inland Natural Area	0.783576	2.029453	0.000658	0.001703	0.08
Inland Suburban/Exurban Residential	2.668113	6.91038	0.000811	0.002101	0.03
Lavallette Borough	-	-	-	-	-
Bayside Residential	0.375785	0.97328	0.000149	0.000385	0.04
Nearshore Ocean	4.979553	12.896984	0.196104	0.507906	3.94
Oceanside Residential/Commercial	0.465298	1.205118	0.082556	0.21382	17.74
Seascape Residential	0.090872	0.235356	0.000046	0.000119	0.05
Linwood	-	-	-	-	-
Bayside Waterbodies	1.655856	4.288647	0.000019	0.00005	0.00
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Upland	0.094972	0.245975	0	0	0.00
Bayside Natural Wetland	14.347208	37.159099	2.975186	7.705697	20.74
Bayside Recreation	0.011552	0.02992	0.001746	0.004522	15.11
Bayside Residential	2.109492	5.463559	0.031961	0.082778	1.52
Bayside Waterbodies	24.740858	64.078527	1.557991	4.035179	6.30
Inland Industrial Resource	0.547275	1.417437	0.000019	0.00005	0.00
Inland Military Site	0.029327	0.075957	0.000006	0.000015	0.02
Inland Natural Area	22.847206	59.173991	0.006756	0.017497	0.03
Inland Recreation	0.04628	0.119866	0.000019	0.00005	0.04
Inland Suburban/Exurban Residential	8.850442	22.92254	0.016301	0.042218	0.18
Oceanside Beach	0.079038	0.204708	0.002893	0.007493	3.66
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000335	0.000868	0.03
Bayside Residential	1.853823	4.801379	0.00664	0.017197	0.36
Bayside Waterbodies	17.404871	45.078409	0.250127	0.647826	1.44
Nearshore Ocean	43.727882	113.254696	43.726115	113.250119	100.00
Oceanside Beach	0.676831	1.752985	0.378879	0.981292	55.98
Oceanside Residential/Commercial	2.171806	5.624951	0.825024	2.136802	37.99
Longport Borough	-	-	-	-	-
Bayside Residential	0.21212	0.549388	0.000422	0.001093	0.20
Bayside Waterbodies	0.173929	0.450474	0.000022	0.000056	0.01
Oceanside Residential/Commercial	0.265899	0.688675	0.000639	0.001655	0.24
Manasquan Borough	-	-	-	-	-
Bayside Natural Wetland	0.083164	0.215393	0.000079	0.000204	0.09
Bayside Recreation	0.050631	0.131133	0.000095	0.000246	0.19
Bayside Residential	0.30206	0.782331	0.00001	0.000025	0.00
Bayside Waterbodies	0.078798	0.204085	0.000058	0.00015	0.07
Inland Suburban/Exurban Residential	0.549375	1.422874	0.000279	0.000722	0.05
Inland Urban	0.278898	0.722341	0.000059	0.000153	0.02
Oceanside Residential/Commercial	0.223817	0.579683	0.000029	0.000075	0.01
Manchester Township	-	-	-	-	-
Inland Suburban/Exurban Residential	4.451259	11.528709	0.000019	0.00005	0.00
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000035	0.000092	0.02
Bayside Waterbodies	0.15918	0.412275	0.000032	0.000083	0.02
Nearshore Ocean	7.317539	18.952339	0.00013	0.000337	0.00
Oceanside Residential/Commercial	0.339952	0.880472	0.030554	0.079134	8.99

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	mi ²	km ²	mi ²	km ²	%
Margate City	-	-	-	-	-
Bayside Residential	1.039538	2.692392	0.002176	0.005636	0.21
Bayside Urban	0.050474	0.130728	0.000074	0.000191	0.15
Bayside Waterbodies	0.144981	0.375498	0.000017	0.000043	0.01
Nearshore Ocean	5.471949	14.172282	0.000039	0.0001	0.00
Oceanside Residential/Commercial	0.474007	1.227674	0.003534	0.009153	0.75
Northfield	-	-	-	-	-
Inland Suburban/Exurban Residential	2.320348	6.009674	0.000019	0.00005	0.00
Ocean City	-	-	-	-	-
Bayside Residential	0.17348	0.449312	0.00001	0.000025	0.01
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000019	0.00005	0.01
Inland Suburban/Exurban Residential	0.233087	0.603693	0.000135	0.00035	0.06
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.000223	0.000577	0.11
Bayside Natural Wetland	1.313493	3.401931	0.052012	0.13471	3.96
Bayside Residential	1.039616	2.692594	0.009482	0.024559	0.91
Bayside Waterbodies	10.20872	26.440463	1.979868	5.127835	19.39
Inland Agriculture	0.190638	0.493749	0.00001	0.000025	0.01
Inland Natural Area	16.34245	42.326751	0.001505	0.003897	0.01
Inland Rural	1.022571	2.648446	0.000505	0.001307	0.05
Inland Suburban/Exurban Residential	10.472781	27.124378	0.005827	0.015091	0.06
Pine Beach Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.379676	0.983357	0.000019	0.00005	0.01
Pleasantville	-	-	-	-	-
Bayside Natural Wetland	1.471803	3.811953	0.000106	0.000275	0.01
Bayside Waterbodies	1.73479	4.493086	0.00001	0.000025	0.00
Inland Commercial Park	0.250718	0.649357	0.000116	0.0003	0.05
Inland Suburban/Exurban Residential	3.321798	8.603417	0.001438	0.003724	0.04
Inland Urban	0.284905	0.737899	0.000097	0.000251	0.03
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.000048	0.000125	0.07
Bayside Residential	0.182721	0.473245	0.00006	0.000155	0.03
Bayside Urban	0.075761	0.19622	0.000036	0.000095	0.05
Inland Recreation	0.014755	0.038216	0.000023	0.000058	0.16
Inland Suburban/Exurban Residential	0.631836	1.636447	0.001386	0.003591	0.22
Inland Urban	0.177127	0.458756	0.000248	0.000643	0.14
Nearshore Ocean	5.42523	14.051281	0.000021	0.000055	0.00
Oceanside Residential/Commercial	0.405586	1.050463	0.001342	0.003476	0.33
Oceanside Urban	0.080118	0.207504	0.000097	0.00025	0.12
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.000357	0.000924	0.03
Bayside Waterbodies	0.469913	1.21707	0	0	0.00
Inland Suburban/Exurban Residential	2.428247	6.28913	0.001656	0.004289	0.07
Inland Urban	0.016025	0.041505	0.000005	0.000014	0.03
Port Republic	-	-	-	-	-
Bayside Natural Wetland	2.59482	6.720553	0.000448	0.00116	0.02
Bayside Residential	0.102496	0.265463	0.000562	0.001456	0.55
Bayside Waterbodies	0.718117	1.859915	0.000021	0.000054	0.00
Inland Natural Area	2.487741	6.44322	0.000149	0.000385	0.01
Inland Rural	0.202746	0.525111	0.00001	0.000025	0.00

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	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	2.417496	6.261286	0.000712	0.001845	0.03
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.000181	0.000468	0.06
Nearshore Ocean	4.412353	11.427942	0.000019	0.00005	0.00
Oceanside Residential/Commercial	0.310064	0.803061	0.000106	0.000275	0.03
Seascape Residential	0.238434	0.617542	0.000032	0.000082	0.01
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.00049	0.001268	0.81
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	2.551984	6.609609	68.03
Oceanside Residential/Commercial	0.003488	0.009033	0.001351	0.003498	38.73
Oceanside Urban	0.244074	0.632149	0.061523	0.159345	25.21
Seascape Residential	0.191807	0.496778	0.000924	0.002394	0.48
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.001047	0.002711	1.69
Bayside Residential	0.228865	0.592758	0.001455	0.003769	0.64
Nearshore Ocean	5.723702	14.824319	5.228699	13.542269	91.35
Oceanside Residential/Commercial	0.471132	1.220226	0.141848	0.367386	30.11
Oceanside Urban	0.000014	0.000036	0.000014	0.000036	100.00
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000074	0.000193	0.67
Bayside Residential	0.253949	0.657724	0.000405	0.001048	0.16
Bayside Urban	0.036614	0.09483	0.000705	0.001826	1.93
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000477	0.07
Nearshore Ocean	4.466743	11.568812	4.466529	11.568258	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.115438	0.298983	38.40
Oceanside Urban	0.055995	0.145025	0.02601	0.067365	46.45
Seascape Residential	0.120813	0.312905	0.000456	0.001182	0.38
Seascape Urban	0.017797	0.046095	0.000755	0.001955	4.24
South Toms River Borough	-	-	-	-	-
Inland Natural Area	0.279983	0.725152	0.000106	0.000275	0.04
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.000348	0.000902	5.47
Bayside Natural Wetland	8.789522	22.764757	0.005871	0.015206	0.07
Bayside Recreation	0.099286	0.25715	0.002521	0.00653	2.54
Bayside Residential	2.092265	5.41894	0.018975	0.049144	0.91
Bayside Waterbodies	7.021887	18.186603	0.001188	0.003076	0.02
Inland Commercial Park	1.074364	2.78259	0.006933	0.017957	0.65
Inland Industrial	0.114107	0.295537	0.000454	0.001175	0.40
Inland Industrial Resource	0.829568	2.148571	0.000542	0.001404	0.07
Inland Natural Area	25.321164	65.581513	0.010696	0.027703	0.04
Inland Recreation	0.140441	0.363739	0.000611	0.001581	0.44
Inland Rural	1.073095	2.779304	0.000135	0.00035	0.01
Inland Suburban/Exurban Residential	8.081042	20.929802	0.014975	0.038785	0.19
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.000243	0.000629	0.09
Bayside Waterbodies	0.553974	1.434786	0.000033	0.000085	0.01
Nearshore Ocean	5.320502	13.780037	5.320185	13.779215	99.99
Oceanside Residential/Commercial	0.370025	0.958359	0.123438	0.319704	33.36
Seascape Residential	0.173221	0.44864	0.000169	0.000437	0.10

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.000048	0.000125	0.01
Bayside Recreation	0.80446	2.083541	0.000087	0.000225	0.01
Bayside Residential	3.357036	8.694683	0.002555	0.006618	0.08
Bayside Waterbodies	11.250767	29.139353	0.001412	0.003657	0.01
Inland Commercial Park	2.083064	5.39511	0.000078	0.000201	0.00
Inland Natural Area	4.883689	12.648696	0.000315	0.000815	0.01
Inland Suburban/Exurban Residential	22.29713	57.749303	0.013091	0.033905	0.06
Inland Urban	2.177285	5.639142	0.001974	0.005112	0.09
Nearshore Ocean	7.370257	19.088878	0.545871	1.413799	7.41
Oceanside Residential/Commercial	0.713613	1.848249	0.14378	0.37239	20.15
Oceanside Urban	0.003978	0.010302	0.000077	0.0002	1.94
Seascape Residential	0.262283	0.67931	0.000595	0.001542	0.23
Tuckerton Borough	-	-	-	-	-
Bayside Natural Upland	0.101106	0.261863	0.000212	0.000549	0.21
Bayside Natural Wetland	1.625877	4.211002	0.001642	0.004252	0.10
Bayside Recreation	0.009819	0.025431	0.000081	0.00021	0.82
Bayside Residential	0.371063	0.961048	0.003952	0.010237	1.07
Inland Natural Area	0.213358	0.552595	0.000229	0.000594	0.11
Inland Suburban/Exurban Residential	1.28566	3.329845	0.002895	0.007499	0.23
Ventnor City	-	-	-	-	-
Bayside Natural Wetland	0.60895	1.577174	0.00015	0.000387	0.02
Bayside Recreation	0.024357	0.063084	0.000183	0.000475	0.75
Bayside Residential	1.10774	2.869033	0.002747	0.007116	0.25
Bayside Waterbodies	0.608586	1.576232	0.00005	0.000129	0.01
Nearshore Ocean	5.445494	14.103766	0.000092	0.000237	0.00
Oceanside Residential/Commercial	0.285293	0.738905	0.004754	0.012312	1.67
Wall Township	-	-	-	-	-
Bayside Residential	0.496866	1.286878	0.000097	0.00025	0.02
Bayside Waterbodies	0.417014	1.08006	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	12.955414	33.554367	0.000106	0.000275	0.00
Washington Township	-	-	-	-	-
Bayside Natural Wetland	5.107411	13.228135	0.00001	0.000025	0.00
Bayside Waterbodies	1.111837	2.879646	0.000029	0.000075	0.00
Woodland Township	-	-	-	-	-
Inland Natural Area	13.572946	35.153769	0.000135	0.00035	0.00

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-14 Character Areas within Municipalities and Intersections with the OCS-A 0539 Lease Area 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	0.00001	0.000025	0.02
Bayside Residential	0.212181	0.549547	0.001337	0.003462	0.63
Bayside Waterbodies	0.280443	0.726343	0.094072	0.243644	33.54
Nearshore Ocean	11.089861	28.72261	11.088975	28.72031	99.99
Oceanside Beach	0.173074	0.44826	0.081383	0.210781	47.02
Oceanside Recreation	0.013546	0.035084	0.000204	0.000529	1.51
Oceanside Residential/Commercial	0.565739	1.465257	0.181722	0.470658	32.12
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.34261	0.000048	0.000125	0.00
Bayside Residential	0.278385	0.721015	0.000048	0.000125	0.02
Bayside Waterbodies	5.607529	14.52343	0.000058	0.00015	0.00
Inland Industrial Resource	0.822256	2.129633	0.000029	0.000075	0.00
Inland Natural Area	18.426348	47.72402	0.000771	0.001996	0.00
Inland Rural	0.946237	2.450743	0.000018	0.000048	0.00
Inland Suburban/Exurban Residential	10.180429	26.36719	0.019071	0.049393	0.19
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.000135	0.00035	0.09
Bayside Waterbodies	0.059536	0.154198	0.000019	0.00005	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.000599	0.00155	0.21
Oceanside Residential/Commercial	0.263933	0.683583	0.001989	0.005151	0.75
Beach Haven Borough	-	-	-	-	-
Bayside Residential	0.404854	1.048568	0.001265	0.003275	0.31
Nearshore Ocean	8.179239	21.18413	3.457456	8.95477	42.27
Oceanside Residential/Commercial	0.562577	1.457067	0.138507	0.35873	24.62
Beachwood Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.655336	4.287301	0.000058	0.00015	0.00
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.005899	0.015279	0.21
Bayside Recreation	0.060018	0.155447	0.000624	0.001617	1.04
Bayside Residential	1.629749	4.22103	0.006622	0.017151	0.41
Bayside Waterbodies	10.873353	28.16186	0.065584	0.169862	0.60
Inland Commercial Park	0.277677	0.719181	0.000536	0.001388	0.19
Inland Industrial	1.144983	2.965493	0.000222	0.000575	0.02
Inland Industrial Resource	1.821592	4.717901	0.000212	0.00055	0.01
Inland Natural Area	21.012984	54.42338	0.001828	0.004734	0.01
Inland Recreation	0.036896	0.095561	0.000084	0.000217	0.23
Inland Rural	0.024331	0.063017	0.000011	0.000029	0.05
Inland Suburban/Exurban Residential	12.623688	32.6952	0.008002	0.020725	0.06
Nearshore Ocean	33.900979	87.80313	27.755715	71.88697	81.87
Oceanside Beach	1.847662	4.785421	0.984601	2.550104	53.29
Oceanside Residential/Commercial	0.18328	0.474694	0.042122	0.109096	22.98
Seascape Residential	0.010911	0.02826	0.000094	0.000243	0.86
Brick Township	-	-	-	-	-
Bayside Recreation	0.117899	0.305357	0.000019	0.00005	0.02
Bayside Residential	3.512972	9.098556	0.000877	0.002272	0.02

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Waterbodies	5.877627	15.22298	0.000145	0.000375	0.00
Inland Industrial Resource	0.146033	0.378224	0.000019	0.00005	0.01
Inland Natural Area	3.901053	10.10368	0.000037	0.000097	0.00
Inland Recreation	0.235841	0.610826	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	13.123919	33.9908	0.000407	0.001053	0.00
Nearshore Ocean	6.153921	15.93858	0.000135	0.00035	0.00
Oceanside Residential/Commercial	0.26327	0.681867	0.036682	0.095007	13.93
Brielle Borough	-	-	-	-	-
Bayside Recreation	0.20385	0.52797	0.001053	0.002727	0.52
Bayside Residential	0.501541	1.298985	0.000489	0.001267	0.10
Bayside Waterbodies	0.423917	1.097939	0.000077	0.0002	0.02
Inland Suburban/Exurban Residential	1.102552	2.855597	0.002039	0.005281	0.18
Brigantine	-	-	-	-	-
Bayside Natural Wetland	4.103657	10.62842	0.000256	0.000664	0.01
Bayside Residential	0.799583	2.070909	0.000566	0.001465	0.07
Bayside Urban	0.092944	0.240724	0.000128	0.000331	0.14
Bayside Waterbodies	3.110677	8.056615	0.000031	0.000079	0.00
Nearshore Ocean	24.77845	64.17589	0.00001	0.000025	0.00
Oceanside Beach	0.873285	2.261797	0.000174	0.00045	0.02
Oceanside Residential/Commercial	0.761558	1.972425	0.003252	0.008423	0.43
Seascape Residential	1.025155	2.65514	0.001173	0.003038	0.11
Eagleswood Township	-	-	-	-	-
Bayside Natural Wetland	6.42657	16.64474	0.00008	0.000208	0.00
Bayside Residential	0.191175	0.49514	0.000006	0.000016	0.00
Bayside Waterbodies	2.501679	6.479319	0.000013	0.000034	0.00
Inland Industrial Resource	0.950613	2.462075	0.000447	0.001157	0.05
Inland Natural Area	6.947407	17.9937	0.000772	0.001999	0.01
Inland Suburban/Exurban Residential	1.75839	4.554209	0.001393	0.003607	0.08
Galloway Township	-	-	-	-	-
Bayside Natural Wetland	28.241116	73.14416	0.003448	0.008931	0.01
Bayside Waterbodies	20.323966	52.63883	0.000124	0.000321	0.00
Nearshore Ocean	10.491951	27.17403	0.000899	0.002328	0.01
Oceanside Beach	0.160693	0.416192	0.000384	0.000995	0.24
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000185	0.000479	0.05
Bayside Waterbodies	0.754001	1.952855	0.00001	0.000025	0.00
Nearshore Ocean	8.435902	21.84889	8.435694	21.84835	100.00
Oceanside Residential/Commercial	0.296536	0.768025	0.135269	0.350346	45.62
Island Heights Borough	-	-	-	-	-
Bayside Residential	0.248817	0.644434	0.000431	0.001116	0.17
Inland Suburban/Exurban Residential	0.365869	0.947596	0.000554	0.001434	0.15
Lacey Township	-	-	-	-	-
Bayside Commercial Park	0.149246	0.386545	0.000139	0.000359	0.09
Bayside Natural Upland	1.482721	3.84023	0.000753	0.001951	0.05
Bayside Natural Wetland	2.027647	5.251583	0.000454	0.001176	0.02
Bayside Residential	2.301367	5.960513	0.008057	0.020867	0.35
Bayside Waterbodies	15.272406	39.55535	0.000561	0.001452	0.00
Inland Agriculture	0.154952	0.401323	0.000029	0.000075	0.02
Inland Commercial Park	0.67829	1.756763	0.000696	0.001802	0.10
Inland Industrial Resource	4.474981	11.59015	0.002252	0.005833	0.05

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Natural Area	64.91341	168.125	0.006686	0.017317	0.01
Inland Rural	0.410648	1.063573	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	7.49792	19.41952	0.007807	0.020219	0.10
Lakewood Township	-	-	-	-	-
Inland Suburban/Exurban Residential	2.668113	6.91038	0.00001	0.000025	0.00
Lavallette Borough	-	-	-	-	-
Bayside Residential	0.375785	0.97328	0.000178	0.00046	0.05
Nearshore Ocean	4.979553	12.89698	0.005334	0.013815	0.11
Oceanside Residential/Commercial	0.465298	1.205118	0.073283	0.189803	15.75
Seascape Residential	0.090872	0.235356	0.000053	0.000137	0.06
Little Egg Harbor Township	-	-	-	-	-
Bayside Natural Wetland	14.347208	37.1591	0.00286	0.007408	0.02
Bayside Recreation	0.011552	0.02992	0.000006	0.000017	0.05
Bayside Residential	2.109492	5.463559	0.000029	0.000075	0.00
Bayside Waterbodies	24.740858	64.07853	0.00038	0.000985	0.00
Inland Natural Area	22.847206	59.17399	0.001374	0.003559	0.01
Inland Suburban/Exurban Residential	8.850442	22.92254	0.00463	0.011991	0.05
Oceanside Beach	0.079038	0.204708	0.000131	0.00034	0.17
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000287	0.000743	0.02
Bayside Residential	1.853823	4.801379	0.005934	0.01537	0.32
Bayside Waterbodies	17.404871	45.07841	0.001715	0.004443	0.01
Nearshore Ocean	43.727882	113.2547	23.656905	61.2711	54.10
Oceanside Beach	0.676831	1.752985	0.152205	0.39421	22.49
Oceanside Residential/Commercial	2.171806	5.624951	0.801398	2.075611	36.90
Manasquan Borough	-	-	-	-	-
Bayside Natural Wetland	0.083164	0.215393	0.000117	0.000304	0.14
Bayside Recreation	0.050631	0.131133	0.000124	0.000321	0.24
Bayside Residential	0.30206	0.782331	0.000058	0.00015	0.02
Bayside Waterbodies	0.078798	0.204085	0.000048	0.000125	0.06
Inland Suburban/Exurban Residential	0.549375	1.422874	0.000715	0.001852	0.13
Inland Urban	0.278898	0.722341	0.000221	0.000573	0.08
Oceanside Residential/Commercial	0.223817	0.579683	0.000058	0.00015	0.03
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000035	0.000092	0.02
Bayside Waterbodies	0.15918	0.412275	0.000032	0.000083	0.02
Nearshore Ocean	7.317539	18.95234	0.000082	0.000212	0.00
Oceanside Residential/Commercial	0.339952	0.880472	0.014273	0.036967	4.20
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000039	0.0001	0.02
Inland Suburban/Exurban Residential	0.233087	0.603693	0.000174	0.00045	0.07
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.000179	0.000464	0.09
Bayside Natural Wetland	1.313493	3.401931	0.013045	0.033787	0.99
Bayside Residential	1.039616	2.692594	0.007715	0.019983	0.74
Bayside Waterbodies	10.20872	26.44046	0.6513	1.686859	6.38
Inland Agriculture	0.190638	0.493749	0.001004	0.0026	0.53
Inland Natural Area	16.34245	42.32675	0.001288	0.003335	0.01
Inland Rural	1.022571	2.648446	0.000164	0.000425	0.02
Inland Suburban/Exurban Residential	10.472781	27.12438	0.006108	0.015819	0.06

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Pine Beach Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.379676	0.983357	0.00001	0.000025	0.00
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.000068	0.000175	0.11
Bayside Residential	0.182721	0.473245	0.000218	0.000565	0.12
Bayside Urban	0.075761	0.19622	0.000094	0.000245	0.12
Bayside Waterbodies	0.261104	0.676255	0.00001	0.000025	0.00
Inland Recreation	0.014755	0.038216	0.000054	0.000141	0.37
Inland Suburban/Exurban Residential	0.631836	1.636447	0.001669	0.004322	0.26
Inland Urban	0.177127	0.458756	0.000335	0.000868	0.19
Nearshore Ocean	5.42523	14.05128	0.000021	0.000055	0.00
Oceanside Residential/Commercial	0.405586	1.050463	0.001622	0.004201	0.40
Oceanside Urban	0.080118	0.207504	0.000193	0.0005	0.24
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.000581	0.001505	0.05
Bayside Waterbodies	0.469913	1.21707	0	0	0.00
Inland Recreation	0.025964	0.067245	0.00001	0.000025	0.04
Inland Suburban/Exurban Residential	2.428247	6.28913	0.002731	0.007074	0.11
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.000268	0.000693	0.10
Inland Recreation	0.003151	0.008161	0.000018	0.000045	0.57
Inland Suburban/Exurban Residential	0.31327	0.811364	0.000351	0.000909	0.11
Inland Urban	0.013037	0.033765	0.000027	0.000071	0.21
Nearshore Ocean	4.412353	11.42794	0.000019	0.00005	0.00
Oceanside Residential/Commercial	0.310064	0.803061	0.000183	0.000475	0.06
Seascape Residential	0.238434	0.617542	0.000118	0.000307	0.05
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000507	0.001313	0.84
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	0.105415	0.273023	2.81
Oceanside Residential/Commercial	0.003488	0.009033	0.001423	0.003687	40.80
Oceanside Urban	0.244074	0.632149	0.059674	0.154555	24.45
Seascape Residential	0.191807	0.496778	0.001426	0.003694	0.74
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.001061	0.002747	1.71
Bayside Residential	0.228865	0.592758	0.001703	0.004411	0.74
Nearshore Ocean	5.723702	14.82432	0.976393	2.528847	17.06
Oceanside Residential/Commercial	0.471132	1.220226	0.140261	0.363274	29.77
Oceanside Urban	0.000014	0.000036	0.000006	0.000015	42.86
Ship Bottom Borough	-	-	-	-	-
Bayside Recreation	0.011106	0.028765	0.000019	0.00005	0.17
Bayside Residential	0.253949	0.657724	0.000308	0.000798	0.12
Bayside Urban	0.036614	0.09483	0.000531	0.001376	1.45
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000477	0.07
Nearshore Ocean	4.466743	11.56881	4.466529	11.56826	100.00
Oceanside Residential/Commercial	0.300635	0.778642	0.114386	0.296258	38.05
Oceanside Urban	0.055995	0.145025	0.025798	0.066817	46.07
Seascape Residential	0.120813	0.312905	0.000338	0.000875	0.28
Seascape Urban	0.017797	0.046095	0.00061	0.001579	3.43

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
South Toms River Borough	-	-	-	-	-
Inland Natural Area	0.279983	0.725152	0.000097	0.00025	0.03
Spring Lake Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.453915	1.175635	0.000033	0.000086	0.01
Nearshore Ocean	6.952834	18.00776	0.00001	0.000025	0.00
Oceanside Residential/Commercial	0.583421	1.511054	0.000063	0.000164	0.01
Seascape Residential	0.478515	1.239349	0.000077	0.0002	0.02
Spring Lake Heights Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.307347	3.386014	0.000019	0.00005	0.00
Stafford Township	-	-	-	-	-
Bayside Natural Upland	0.006358	0.016467	0.000298	0.000772	4.69
Bayside Natural Wetland	8.789522	22.76476	0.002665	0.006901	0.03
Bayside Recreation	0.099286	0.25715	0.002092	0.005419	2.11
Bayside Residential	2.092265	5.41894	0.002143	0.005551	0.10
Bayside Waterbodies	7.021887	18.1866	0.001068	0.002765	0.02
Inland Commercial Park	1.074364	2.78259	0.002914	0.007546	0.27
Inland Industrial	0.114107	0.295537	0.000261	0.000675	0.23
Inland Industrial Resource	0.829568	2.148571	0.000397	0.001028	0.05
Inland Natural Area	25.321164	65.58151	0.001716	0.004444	0.01
Inland Recreation	0.140441	0.363739	0.000268	0.000693	0.19
Inland Rural	1.073095	2.779304	0.000087	0.000225	0.01
Inland Suburban/Exurban Residential	8.081042	20.9298	0.008848	0.022917	0.11
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.000151	0.000392	0.06
Bayside Waterbodies	0.553974	1.434786	0.000013	0.000035	0.00
Nearshore Ocean	5.320502	13.78004	5.320185	13.77922	99.99
Oceanside Residential/Commercial	0.370025	0.958359	0.122314	0.316791	33.06
Seascape Residential	0.173221	0.44864	0.000086	0.000224	0.05
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.000039	0.0001	0.01
Bayside Recreation	0.80446	2.083541	0.000048	0.000125	0.01
Bayside Residential	3.357036	8.694683	0.001819	0.00471	0.05
Bayside Waterbodies	11.250767	29.13935	0.00117	0.00303	0.01
Inland Commercial Park	2.083064	5.39511	0.000538	0.001395	0.03
Inland Natural Area	4.883689	12.6487	0.000151	0.00039	0.00
Inland Suburban/Exurban Residential	22.29713	57.7493	0.011469	0.029705	0.05
Inland Urban	2.177285	5.639142	0.000805	0.002085	0.04
Nearshore Ocean	7.370257	19.08888	0.00028	0.000726	0.00
Oceanside Residential/Commercial	0.713613	1.848249	0.105582	0.273457	14.80
Oceanside Urban	0.003978	0.010302	0.000075	0.000194	1.89
Seascape Residential	0.262283	0.67931	0.000758	0.001964	0.29
Tuckerton Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.28566	3.329845	0.000193	0.0005	0.02
Wall Township	-	-	-	-	-
Bayside Residential	0.496866	1.286878	0.000039	0.0001	0.01
Bayside Waterbodies	0.417014	1.08006	0.00001	0.000025	0.00
Inland Suburban/Exurban Residential	12.955414	33.55437	0.000618	0.0016	0.00

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore

ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-15 Character Areas within Municipalities and Intersections with the OCS-A 0538 Lease Area 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New Jersey					
Allenhurst Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.051156	0.132494	0.000102	0.000102	0.20
Oceanside Residential/Commercial	0.100129	0.259334	0.000319	0.000319	0.32
Seascape Residential	0.126647	0.328015	0.000244	0.000244	0.19
Asbury Park	-	-	-	-	-
Inland Suburban/Exurban Residential	0.564887	1.46305	0.00039	0.00039	0.07
Inland Urban	0.338321	0.876247	0.000645	0.000645	0.19
Nearshore Ocean	3.344827	8.663061	0.000019	0.00005	0.00
Oceanside Urban	0.341475	0.884416	0.00112	0.00112	0.33
Seascape Residential	0.294317	0.762279	0.0007	0.0007	0.24
Avon-by-the-Sea Borough	-	-	-	-	-
Bayside Recreation	0.016289	0.042189	0.00004	0.00004	0.25
Bayside Residential	0.032462	0.084076	0.00008	0.00008	0.25
Bayside Waterbodies	0.048591	0.12585	0.000123	0.000123	0.25
Inland Suburban/Exurban Residential	0.066789	0.172982	0.000135	0.000135	0.20
Oceanside Residential/Commercial	0.185097	0.479398	0.000512	0.000512	0.28
Seascape Residential	0.157843	0.408812	0.000502	0.000502	0.32
Barnegat Light Borough	-	-	-	-	-
Bayside Natural Wetland	0.054047	0.13998	4.38E-08	4.38E-08	0.00
Bayside Residential	0.212181	0.549547	0.000589	0.000589	0.28
Bayside Waterbodies	0.280443	0.726343	0.003879	0.003879	1.38
Nearshore Ocean	11.089861	28.722607	0.175446	0.454404	1.58
Oceanside Beach	0.173074	0.44826	0.066912	0.066912	38.66
Oceanside Recreation	0.013546	0.035084	0.000204	0.000204	1.51
Oceanside Residential/Commercial	0.565739	1.465257	0.130982	0.130982	23.15
Barnegat Township	-	-	-	-	-
Bayside Natural Wetland	3.993306	10.342614	0.000029	0.000029	0.00
Bayside Waterbodies	5.607529	14.523434	0.000019	0.000019	0.00
Inland Natural Area	18.426348	47.724023	0.000182	0.000182	0.00
Inland Suburban/Exurban Residential	10.180429	26.367191	0.007472	0.007472	0.07
Bay Head Borough	-	-	-	-	-
Bayside Residential	0.14912	0.386219	0.000252	0.000252	0.17
Bayside Waterbodies	0.059536	0.154198	0.000019	0.000019	0.03
Inland Suburban/Exurban Residential	0.289663	0.750223	0.000878	0.000878	0.30
Oceanside Residential/Commercial	0.263933	0.683583	0.014171	0.014171	5.37
Beachwood Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.655336	4.287301	0.000145	0.000145	0.01
Belmar Borough	-	-	-	-	-
Bayside Commercial Park	0.155636	0.403095	0.00027	0.00027	0.17
Bayside Residential	0.085634	0.221791	0.000174	0.000174	0.20
Bayside Urban	0.246551	0.638563	0.000484	0.000484	0.20
Bayside Waterbodies	0.365347	0.946243	0.000125	0.000125	0.03
Inland Suburban/Exurban Residential	0.015408	0.039906	0.000048	0.000048	0.31
Nearshore Ocean	5.907429	15.300171	0.000039	0.0001	0.00
Oceanside Residential/Commercial	0.426051	1.103467	0.003288	0.003288	0.77
Seascape Residential	0.185078	0.479349	0.000792	0.000792	0.43

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Berkeley Township	-	-	-	-	-
Bayside Natural Wetland	2.848763	7.378261	0.004369	0.004369	0.15
Bayside Recreation	0.060018	0.155447	0.000516	0.000516	0.86
Bayside Residential	1.629749	4.22103	0.003103	0.003103	0.19
Bayside Waterbodies	10.873353	28.161856	0.001144	0.001144	0.01
Inland Commercial Park	0.277677	0.719181	0.000792	0.000792	0.29
Inland Industrial	1.144983	2.965493	0.000135	0.000135	0.01
Inland Industrial Resource	1.821592	4.717901	0.000029	0.000029	0.00
Inland Natural Area	21.012984	54.42338	0.000608	0.000608	0.00
Inland Recreation	0.036896	0.095561	0.000093	0.000093	0.25
Inland Suburban/Exurban Residential	12.623688	32.695203	0.008313	0.008313	0.07
Nearshore Ocean	33.900979	87.803132	1.230203	3.186211	3.63
Oceanside Beach	1.847662	4.785421	0.734679	0.734679	39.76
Oceanside Residential/Commercial	0.18328	0.474694	0.038255	0.038255	20.87
Seascape Residential	0.010911	0.02826	0.000052	0.000052	0.48
Bradley Beach Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.061045	0.158106	0.000097	0.000097	0.16
Inland Urban	0.074287	0.192402	0.000135	0.000135	0.18
Oceanside Residential/Commercial	0.278692	0.72181	0.001019	0.001019	0.37
Seascape Residential	0.249449	0.646071	0.00066	0.00066	0.26
Brick Township	-	-	-	-	-
Bayside Natural Wetland	2.20499	5.710898	0.000019	0.000019	0.00
Bayside Recreation	0.117899	0.305357	0.000212	0.000212	0.18
Bayside Residential	3.512972	9.098556	0.001802	0.001802	0.05
Bayside Waterbodies	5.877627	15.222983	0.000145	0.000145	0.00
Inland Commercial Park	1.505045	3.898049	0.00001	0.00001	0.00
Inland Industrial Resource	0.146033	0.378224	0.000019	0.000019	0.01
Inland Natural Area	3.901053	10.103682	0.000072	0.000072	0.00
Inland Recreation	0.235841	0.610826	0.00001	0.00001	0.00
Inland Suburban/Exurban Residential	13.123919	33.990795	0.002462	0.002462	0.02
Nearshore Ocean	6.153921	15.938583	0.000366	0.000949	0.01
Oceanside Residential/Commercial	0.26327	0.681867	0.057945	0.057945	22.01
Brielle Borough	-	-	-	-	-
Bayside Recreation	0.20385	0.52797	0.006944	0.006944	3.41
Bayside Residential	0.501541	1.298985	0.001974	0.001974	0.39
Bayside Waterbodies	0.423917	1.097939	0.000154	0.000154	0.04
Inland Natural Area	0.002556	0.006619	0	0	0.00
Inland Suburban/Exurban Residential	1.102552	2.855597	0.00508	0.00508	0.46
Deal Borough	-	-	-	-	-
Inland Recreation	0.057955	0.150103	0.000152	0.000152	0.26
Inland Suburban/Exurban Residential	0.307163	0.795549	0.000591	0.000591	0.19
Nearshore Ocean	5.187518	13.435609	0.000135	0.00035	0.00
Oceanside Residential/Commercial	0.49898	1.292352	0.000982	0.000982	0.20
Seascape Residential	0.384947	0.997009	0.001361	0.001361	0.35
Harvey Cedars Borough	-	-	-	-	-
Bayside Residential	0.345408	0.894603	0.000176	0.000176	0.05
Bayside Waterbodies	0.754001	1.952855	0.00001	0.00001	0.00
Nearshore Ocean	8.435902	21.848887	0.000078	0.000201	0.00
Oceanside Residential/Commercial	0.296536	0.768025	0.051308	0.051308	17.30

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Interlaken Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.383504	0.99327	0.000405	0.000405	0.11
Island Heights Borough	-	-	-	-	-
Bayside Residential	0.248817	0.644434	0.000195	0.000195	0.08
Inland Suburban/Exurban Residential	0.365869	0.947596	0.00048	0.00048	0.13
Lacey Township	-	-	-	-	-
Bayside Natural Upland	1.482721	3.84023	0.000375	0.000375	0.03
Bayside Natural Wetland	2.027647	5.251583	0.00011	0.00011	0.01
Bayside Residential	2.301367	5.960513	0.001734	0.001734	0.08
Bayside Waterbodies	15.272406	39.55535	0.000488	0.000488	0.00
Inland Commercial Park	0.67829	1.756763	0.00058	0.00058	0.09
Inland Industrial Resource	4.474981	11.590149	0.001799	0.001799	0.04
Inland Natural Area	64.91341	168.12496	0.003811	0.003811	0.01
Inland Suburban/Exurban Residential	7.49792	19.419524	0.00536	0.00536	0.07
Lake Como Borough	-	-	-	-	-
Bayside Urban	0.086951	0.225202	0.000216	0.000216	0.25
Inland Recreation	0.005635	0.014595	0.000004	0.000004	0.07
Inland Suburban/Exurban Residential	0.109575	0.283798	0.000332	0.000332	0.30
Seascape Residential	0.049721	0.128778	0.000382	0.000382	0.77
Lakewood Township	-	-	-	-	-
Inland Commercial Park	1.806915	4.679889	0.000097	0.000097	0.01
Inland Natural Area	0.783576	2.029453	0.00001	0.00001	0.00
Inland Suburban/Exurban Residential	2.668113	6.91038	0.000261	0.000261	0.01
Lavallette Borough	-	-	-	-	-
Bayside Recreation	0.034809	0.090155	0.000019	0.000019	0.05
Bayside Residential	0.375785	0.97328	0.00016	0.00016	0.04
Nearshore Ocean	4.979553	12.896984	0.005336	0.01382	0.11
Oceanside Residential/Commercial	0.465298	1.205118	0.077145	0.077145	16.58
Seascape Residential	0.090872	0.235356	0.000046	0.000046	0.05
Loch Arbour Village	-	-	-	-	-
Oceanside Residential/Commercial	0.043026	0.111437	0.000039	0.000039	0.09
Seascape Residential	0.060794	0.157454	0.000058	0.000058	0.10
Long Beach Township	-	-	-	-	-
Bayside Natural Wetland	1.266736	3.28083	0.000107	0.000107	0.01
Bayside Residential	1.853823	4.801379	0.001321	0.001321	0.07
Bayside Waterbodies	17.404871	45.078409	0.001171	0.001171	0.01
Nearshore Ocean	43.727882	113.254696	0.000077	0.0002	0.00
Oceanside Residential/Commercial	2.171806	5.624951	0.082352	0.082352	3.79
Long Branch	-	-	-	-	-
Inland Suburban/Exurban Residential	3.366266	8.718588	0.00055	0.00055	0.02
Nearshore Ocean	15.532177	40.228155	0.000019	0.00005	0.00
Oceanside Residential/Commercial	0.267907	0.693876	0.000294	0.000294	0.11
Oceanside Urban	0.634541	1.643454	0.000116	0.000116	0.02
Seascape Residential	0.371897	0.96321	0.000565	0.000565	0.15
Manasquan Borough	-	-	-	-	-
Bayside Military Site	0.00942	0.024398	0.000071	0.000071	0.75
Bayside Natural Wetland	0.083164	0.215393	0.000214	0.000214	0.26
Bayside Recreation	0.050631	0.131133	0.000339	0.000339	0.67
Bayside Residential	0.30206	0.782331	0.001728	0.001728	0.57
Bayside Waterbodies	0.078798	0.204085	0.000221	0.000221	0.28

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Inland Suburban/Exurban Residential	0.549375	1.422874	0.002679	0.002679	0.49
Inland Urban	0.278898	0.722341	0.001147	0.001147	0.41
Nearshore Ocean	4.680765	12.123125	0.000039	0.0001	0.00
Oceanside Residential/Commercial	0.223817	0.579683	0.002321	0.002321	1.04
Mantoloking Borough	-	-	-	-	-
Bayside Residential	0.179515	0.464943	0.000055	0.000055	0.03
Bayside Waterbodies	0.15918	0.412275	0.000032	0.000032	0.02
Nearshore Ocean	7.317539	18.952339	0.000178	0.000462	0.00
Oceanside Residential/Commercial	0.339952	0.880472	0.06192	0.06192	18.21
Neptune City Borough	-	-	-	-	-
Bayside Recreation	0.186156	0.482142	0.000202	0.000202	0.11
Inland Suburban/Exurban Residential	0.472201	1.222994	0.000554	0.000554	0.12
Inland Urban	0.18838	0.487903	0.000159	0.000159	0.08
Neptune Township	-	-	-	-	-
Bayside Recreation	0.150593	0.390035	0.000172	0.000172	0.11
Bayside Residential	0.330337	0.855569	0.00021	0.00021	0.06
Bayside Waterbodies	0.601134	1.556929	0.000145	0.000145	0.02
Inland Recreation	0.445665	1.154266	0.000803	0.000803	0.18
Inland Suburban/Exurban Residential	5.241187	13.574611	0.00388	0.00388	0.07
Inland Urban	0.45881	1.188312	0.000501	0.000501	0.11
Nearshore Ocean	2.426312	6.28412	0.000068	0.000175	0.00
Oceanside Residential/Commercial	0.19484	0.504632	0.001158	0.001158	0.59
Oceanside Urban	0.004327	0.011207	0.00001	0.00001	0.23
Seascape Residential	0.169061	0.437865	0.000574	0.000574	0.34
Ocean Gate Borough	-	-	-	-	-
Bayside Residential	0.215725	0.558725	0.000029	0.000029	0.01
Inland Natural Area	0.001196	0.003097	0.00001	0.00001	0.84
Inland Suburban/Exurban Residential	0.233087	0.603693	0.000174	0.000174	0.07
Ocean Township	-	-	-	-	-
Bayside Natural Upland	0.203991	0.528333	0.000051	0.000051	0.03
Bayside Natural Wetland	1.313493	3.401931	0.001164	0.001164	0.09
Bayside Residential	1.039616	2.692594	0.000347	0.000347	0.03
Bayside Waterbodies	10.20872	26.440463	0.000523	0.000523	0.01
Inland Natural Area	16.34245	42.326751	0.000885	0.000885	0.01
Inland Recreation	0.564168	1.461187	0.000135	0.000135	0.02
Inland Rural	1.022571	2.648446	0.000241	0.000241	0.02
Inland Suburban/Exurban Residential	10.472781	27.124378	0.0055	0.0055	0.05
Pine Beach Borough	-	-	-	-	-
Bayside Residential	0.264736	0.685664	0.00001	0.00001	0.00
Inland Suburban/Exurban Residential	0.379676	0.983357	0.000163	0.000163	0.04
Point Pleasant Beach Borough	-	-	-	-	-
Bayside Natural Wetland	0.064555	0.167198	0.000782	0.000782	1.21
Bayside Residential	0.182721	0.473245	0.001123	0.001123	0.61
Bayside Urban	0.075761	0.19622	0.000654	0.000654	0.86
Bayside Waterbodies	0.261104	0.676255	0.000053	0.000053	0.02
Inland Recreation	0.014755	0.038216	0.000042	0.000042	0.28
Inland Suburban/Exurban Residential	0.631836	1.636447	0.003907	0.003907	0.62
Inland Urban	0.177127	0.458756	0.00056	0.00056	0.32
Nearshore Ocean	5.42523	14.051281	0.000021	0.000055	0.00
Oceanside Residential/Commercial	0.405586	1.050463	0.011891	0.011891	2.93

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Oceanside Urban	0.080118	0.207504	0.001863	0.001863	2.33
Point Pleasant Borough	-	-	-	-	-
Bayside Residential	1.124092	2.911385	0.000902	0.000902	0.08
Bayside Waterbodies	0.469913	1.21707	0	0	0.00
Inland Recreation	0.025964	0.067245	0.000001	0.000001	0.04
Inland Suburban/Exurban Residential	2.428247	6.28913	0.003717	0.003717	0.15
Inland Urban	0.016025	0.041505	0.000005	0.000005	0.03
Sea Girt Borough	-	-	-	-	-
Bayside Military Site	0.278796	0.722077	0.002912	0.002912	1.04
Inland Recreation	0.003151	0.008161	0.000037	0.000037	1.17
Inland Suburban/Exurban Residential	0.31327	0.811364	0.001167	0.001167	0.37
Inland Urban	0.013037	0.033765	0.000051	0.000051	0.39
Nearshore Ocean	4.412353	11.427942	0.000214	0.000554	0.00
Oceanside Residential/Commercial	0.310064	0.803061	0.00282	0.00282	0.91
Seascape Residential	0.238434	0.617542	0.001323	0.001323	0.55
Seaside Heights Borough	-	-	-	-	-
Bayside Recreation	0.060132	0.155741	0.000517	0.000517	0.86
Bayside Residential	0.01777	0.046024	0	0	0.00
Nearshore Ocean	3.751369	9.716001	0.000011	0.000029	0.00
Oceanside Residential/Commercial	0.003488	0.009033	0.001498	0.001498	42.95
Oceanside Urban	0.244074	0.632149	0.056868	0.056868	23.30
Seascape Residential	0.191807	0.496778	0.001394	0.001394	0.73
Seaside Park Borough	-	-	-	-	-
Bayside Recreation	0.061968	0.160496	0.000918	0.000918	1.48
Bayside Residential	0.228865	0.592758	0.001827	0.001827	0.80
Nearshore Ocean	5.723702	14.824319	0.001011	0.002618	0.02
Oceanside Residential/Commercial	0.471132	1.220226	0.133983	0.133983	28.44
Oceanside Urban	0.000014	0.000036	0.000003	0.000003	21.43
Ship Bottom Borough	-	-	-	-	-
Bayside Residential	0.253949	0.657724	0.000241	0.000241	0.09
Bayside Urban	0.036614	0.09483	0.000348	0.000348	0.95
Bayside Waterbodies	0.252445	0.65383	0.000184	0.000184	0.07
Oceanside Residential/Commercial	0.300635	0.778642	0.002932	0.002932	0.98
Oceanside Urban	0.055995	0.145025	0.000708	0.000708	1.26
Seascape Residential	0.120813	0.312905	0.000048	0.000048	0.04
Seascape Urban	0.017797	0.046095	0.000455	0.000455	2.56
South Toms River Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	0.774911	2.007009	0.000019	0.000019	0.00
Spring Lake Borough	-	-	-	-	-
Inland Recreation	0.03185	0.082492	0.000019	0.000019	0.06
Inland Suburban/Exurban Residential	0.453915	1.175635	0.001359	0.001359	0.30
Nearshore Ocean	6.952834	18.007758	0.000135	0.00035	0.00
Oceanside Residential/Commercial	0.583421	1.511054	0.006369	0.006369	1.09
Seascape Residential	0.478515	1.239349	0.002571	0.002571	0.54
Spring Lake Heights Borough	-	-	-	-	-
Inland Suburban/Exurban Residential	1.307347	3.386014	0.004328	0.004328	0.33
Stafford Township	-	-	-	-	-
Bayside Natural Wetland	8.789522	22.764757	0.000154	0.000154	0.00
Bayside Recreation	0.099286	0.25715	0.000598	0.000598	0.60
Bayside Residential	2.092265	5.41894	0.000481	0.000481	0.02

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Bayside Waterbodies	7.021887	18.186603	0.00032	0.00032	0.00
Inland Suburban/Exurban Residential	8.081042	20.929802	0.000414	0.000414	0.01
Surf City Borough	-	-	-	-	-
Bayside Residential	0.258283	0.668951	0.000048	0.000048	0.02
Oceanside Residential/Commercial	0.370025	0.958359	0.006957	0.006957	1.88
Seascape Residential	0.173221	0.44864	0.000039	0.000039	0.02
Toms River Township	-	-	-	-	-
Bayside Natural Upland	0.462288	1.197319	0.000068	0.000068	0.01
Bayside Recreation	0.80446	2.083541	0.000048	0.000048	0.01
Bayside Residential	3.357036	8.694683	0.000855	0.000855	0.03
Bayside Waterbodies	11.250767	29.139353	0.000708	0.000708	0.01
Inland Commercial Park	2.083064	5.39511	0.000926	0.000926	0.04
Inland Natural Area	4.883689	12.648696	0.000192	0.000192	0.00
Inland Suburban/Exurban Residential	22.29713	57.749303	0.011344	0.011344	0.05
Inland Urban	2.177285	5.639142	0.000541	0.000541	0.02
Nearshore Ocean	7.370257	19.088878	0.003065	0.007938	0.04
Oceanside Residential/Commercial	0.713613	1.848249	0.134139	0.134139	18.80
Oceanside Urban	0.003978	0.010302	0.000259	0.000259	6.51
Seascape Residential	0.262283	0.67931	0.000797	0.000797	0.30
Wall Township	-	-	-	-	-
Bayside Natural Wetland	0.210179	0.544361	0.00001	0.00001	0.00
Bayside Residential	0.496866	1.286878	0.000307	0.000307	0.06
Bayside Urban	0.046813	0.121244	0.000213	0.000213	0.46
Bayside Waterbodies	0.417014	1.08006	0.00001	0.00001	0.00
Inland Agriculture	0.367204	0.951055	0.000294	0.000294	0.08
Inland Commercial Park	2.100229	5.439568	0.002206	0.002206	0.11
Inland Natural Area	9.479763	24.552473	0.000068	0.000068	0.00
Inland Recreation	0.989488	2.562762	0.000782	0.000782	0.08
Inland Rural	0.722588	1.871493	0.000521	0.000521	0.07
Inland Suburban/Exurban Residential	12.955414	33.554367	0.010324	0.010324	0.08

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Table D-16 Character Areas within Municipalities and Intersections with the OCS-A 0537 Lease Area 853-ft (260-m) Wind Turbine Height Viewshed of Topography, Structures, and Vegetation

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
New York					
Babylon	-	-	-	-	-
Bayside Natural Wetland	5.5070	14.2631	0.0001	0.0001	0.00
Bayside Residential	2.1331	5.5247	0.0000	0.0000	0.00
Bayside Waterbodies	18.4442	47.7702	0.0002	0.0002	0.00
Nearshore Ocean	30.6022	79.2594	0.000019	0.00005	0.00
Oceanside Beach	1.2136	3.1432	0.0000	0.0000	0.00
Oceanside Recreation	0.5604	1.4513	0.0000	0.0000	0.01
Bellport	-	-	-	-	-
Bayside Natural Upland	0.0079	0.0205	0.0002	0.0002	2.66
Bayside Natural Wetland	0.0269	0.0695	0.0000	0.0000	0.07
Bayside Recreation	0.1814	0.4698	0.0006	0.0006	0.32
Bayside Residential	0.1851	0.4794	0.0016	0.0016	0.85
Inland Suburban/Exurban Residential	1.0314	2.6713	0.0072	0.0072	0.70
Brookhaven	-	-	-	-	-
Bayside Natural Upland	3.0599	7.9252	0.0003	0.0003	0.01
Bayside Natural Wetland	6.7836	17.5695	0.0035	0.0035	0.05
Bayside Recreation	0.0683	0.1770	0.0001	0.0001	0.09
Bayside Residential	5.8954	15.2689	0.0047	0.0047	0.08
Bayside Waterbodies	61.6403	159.6476	0.0021	0.0021	0.00
Inland Industrial	5.1576	13.3582	0.0000	0.0000	0.00
Inland Natural Area	62.5490	162.0012	0.0000	0.0000	0.00
Inland Suburban/Exurban Residential	127.0688	329.1066	0.0276	0.0276	0.02
Nearshore Ocean	79.6694	206.3427	0.000224	0.000579	0.00
Oceanside Beach	2.7937	7.2355	0.0603	0.0603	2.16
Oceanside Recreation	0.3249	0.8414	0.0012	0.0012	0.38
Oceanside Residential/Commercial	1.2083	3.1296	0.0371	0.0371	3.07
Islip	-	-	-	-	-
Bayside Natural Upland	1.4630	3.7891	0.0002	0.0002	0.02
Bayside Natural Wetland	4.3486	11.2628	0.0016	0.0016	0.04
Bayside Recreation	1.8891	4.8929	0.0001	0.0001	0.01
Bayside Residential	4.1936	10.8615	0.0010	0.0010	0.02
Bayside Waterbodies	31.2106	80.8352	0.0006	0.0006	0.00
Inland Commercial Park	2.0970	5.4312	0.0000	0.0000	0.00
Inland Natural Area	8.7583	22.6839	0.0000	0.0000	0.00
Inland Suburban/Exurban Residential	59.0758	153.0055	0.0073	0.0073	0.01
Nearshore Ocean	24.3392	63.0383	0.000029	0.000075	0.00
Oceanside Beach	0.4472	1.1583	0.0006	0.0006	0.13
Oceanside Recreation	0.6899	1.7869	0.0010	0.0010	0.14
Oceanside Residential/Commercial	0.6149	1.5926	0.0094	0.0094	1.53
Ocean Beach	-	-	-	-	-
Oceanside Residential/Commercial	0.1383	0.3582	0.0025	0.0025	1.79
Patchogue	-	-	-	-	-
Bayside Urban	0.2888	0.7480	0.0000	0.0000	0.01
Bayside Waterbodies	0.1898	0.4915	0.0000	0.0000	0.02
Inland Suburban/Exurban Residential	1.5095	3.9096	0.0002	0.0002	0.01

Municipality and Character Areas That Intersect the GAA	Total Character Area		Character Area Affected by Viewshed ^a		
	mi ²	km ²	mi ²	km ²	%
Saltaire	-	-	-	-	-
Oceanside Residential/Commercial	0.2215	0.5737	0.0025	0.0025	1.13
Southampton	-	-	-	-	-
Nearshore Ocean	65.2981	169.1213	0.000061	0.000159	0.00
Oceanside Beach	0.9712	2.5155	0.0008	0.0008	0.08
West Hampton Dunes	-	-	-	-	-
Bayside Waterbodies	0.0114	0.0296	0.0000	0.0000	0.09
Oceanside Beach	0.0622	0.1611	0.0001	0.0001	0.15
Oceanside Recreation	0.2300	0.5957	0.0002	0.0002	0.08

^a Nearshore ocean viewshed intersections were calculated in a two-step process. First, character areas were intersected with the DSM-based viewshed (topography, structures, and vegetation, as presented in Figures 4-3 through 4-16). However, the DSM-based viewshed is clipped to the shoreline, which largely ignores the nearshore ocean and open ocean character areas. To address this, the nearshore ocean character areas that intersect with the rotor blade tip visibility distance ring (as presented in Figures 4-3 through 4-16) are added to the small portion of calculated nearshore ocean intersected with the DSM-based viewshed to create a more comprehensive viewshed analysis on the nearshore ocean character area.

Appendix E: Visual Simulations

Visual simulations are located on BOEM's website.

Appendix F: KOP Forms

Appendix F: Key Observation Point Forms

See Appendix E for the visual simulations (marked with an asterisk in this table of contents) and Appendix G for the photographic log of all key observation points (KOPs).

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Form 1: KOP-01 Ocean City Music Hall (outside the GAA)

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 49.09 mi (79.01 km)
- **Date Visited:** January 24, 2023
- **Time of Visit:** 9:47 AM
- **Weather Conditions and Visibility:** Fair
- **KOP Location:** This photograph was taken from the north end of the historic boardwalk in order to show the context of the Ocean City Music Hall's location along the boardwalk and next to the Ocean. The KOP is located outside of the GAA and is not subject to impacts from the project.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located outside the GAA; therefore, the KOP is not mapped on the character area delineation mapping. However, the KOP is subject to the influence of the neighboring oceanside residential/commercial and nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The overall visual contrast is significant at this KOP. The sheer diversity of colors and shapes on the boardwalk has visual weight over the elevated boardwalk and beach. The busyness of the boardwalk commercial area is significant and acts as a solid backdrop behind the boardwalk and above the beach. The relatively flat, narrow beach adjacent to the wide boardwalk and contiguous buildings of the storefronts have a strong connection to each other. The overall visual context is dynamic with people, sounds and lights. Historic structures such as the music hall and boardwalk are critical features within the foreground views framed by the beach and the nearshore ocean setting. Middle ground and background views are unincumbered open ocean.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Gentle rolling to sloping
Line	Straight, rectilinear
Color	Homogenous, gray to tan sand
Texture	Fine, smooth texture, slight rippling
Horizontal Scale	Low, long horizon plane closed by ocean slightly sloping
Vertical Scale	None
Movement	None
Summary	Landform is homogenous with little visual variety, gentle rolling to sloping landforms, and homogenous gray and tan sand colors. Southern curve of the land to the south closes the ocean horizon line, with fine smooth texture slight rippling along a low horizontal plane.
Open Ocean	
Form	Flat form, minor to major undulation of rolling waves within the ocean swell. Dramatic crashing beach break along the tideline
Line	Long solid expansive horizon line delineating a break between the ocean and the sky
Color	Light to dark gray green to black, noticeable bands of color in sunlight, white to black on horizon and white atmospheric band above horizon
Texture	Fine to stippled to smooth – rippling/shimmering in the light
Horizontal Scale	Long horizon line, vast, industrial elements obscure the horizon to the left
Vertical Scale	None
Movement	Rolling, crashing, swirling. Tidal movement in and out along the beach break
Summary	Open ocean is a flat form with slight undulations, long line at the horizon, and gradient from light gray green to black. Fine to stippled texture of small white ocean waves. Long horizontal horizon line with the ocean rolling front and back in foreground. Middle ground ocean moves in random swirling patterns. Industrial sand dredging elements in view to the north heavy red brown, black large within 3 miles, geometric metal structures silhouetted by sky. Noticeable bands of color in sunlight; white to black of horizon. White band above horizon between the ocean and the sky.
Water/Inland	
Form	N/A
Line	N/A
Pattern	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies within the view of this KOP.

Aesthetic and Perceptual Characteristics	Description
Vegetation	
Form	Vertical angular branching of trees. Sparse dune grasses and shrubs present angular
Line	Erect but short, narrow angular shapes
Color	Light tan to dark brown; sage green
Texture	Fine and irregular grasses, rough, woody erect shrubs, and trees – texture affected by ocean environment and wind
Horizontal Scale	None
Vertical Scale	Short to medium vertical and angled trees in middle distance
Movement	None
Summary	There is minimal vegetation, and what is there is relatively sparse along the dune and with random trees tucked behind the viewpoint along the streets. Textures range from fine and irregular, rough and woody. The forms are characterized as short and angular. They sway with the ocean breeze. The forms of the larger trees exposed to the ocean are formed by weather and wind patterns.
Structures	
Form	Geometric, Cape Cod and Shaker style coastal homes, boardwalk storefronts are geometric and irregular with architectural details and signage. Boardwalk is continuous flat horizontal above the beach; irregular, angular ocean infrastructure
Line	Long wide line, mostly blocky square shapes with irregular lines of signs, hard linearity of boardwalk, ocean infrastructure large, wiry
Color	Green, blue, and gray houses. Bright primary colors of boardwalk. Boardwalk itself is patterned gray-brown wood; infrastructure gray-red-brown
Texture	None
Horizontal Scale	Boardwalk continues down horizon lines; storefronts line horizon to right
Vertical Scale	Structures are short to moderate along the boardwalk with minimal breaks between the buildings. Changes in vertical and volumetric scale happens at the south end of the boardwalk where the structures change from boardwalk commercial to beach residential structures
Movement	None
Summary	Structures are geometric with a coastal/Cape Cod and Shaker style architecture characterized by color themes of gray/blue/green houses and brown boardwalks. Bright primary colors accent the buildings along the boardwalk creating a festive feel to the structures

Form 2: KOP-02 Lucy the Margate Elephant — NHL*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 46.26 mi (74.45 km) (OCS-A 0541)
- **Date Visited:** March 16, 2023
- **Time of Visit:** 2:30 PM
- **Weather Conditions and Visibility:** Cloudy/Overcast
- **KOP Location:** Originally built in 1881 by James Lafferty, Lucy the Margate Elephant is a National Historic Landmark located in Margate City, NJ in Josephine Harron Park. It is a six-story elephant structure with windows peering outside from multiple directions and a 360° observation platform on top. This is a popular tourist destination.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is not strongly influenced by outside character areas aside from the nearshore ocean conditions.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The view of the ocean is expansive due to the elevated view but bookended by structures. The elephant is a large (65-foot) historic roadside attraction and brightly colored, contrasting with the nondescript structures. The visual context is dynamic as reflected in tidal patterns, variability in light and atmospheric conditions, and patterns of the frequency and number of tourists and recreators. The presence of visual clutter results from buildings, overhead utilities, and other built forms, which ultimately provides a separation of the built urban environment to the beach and ocean environment. The view of Lucy the Margate Elephant itself is likely a more sensitive visual resource than the view from the observation platform. At night the view at this KOP contains existing artificial light sources and movement associated with commercial and residential properties and vessel navigational aids.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level¹

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ²	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Gentle rolling to mounded, low, sand dunes leading to flat beach flat beach	Weak	1	N/A	N/A
Line	Curvilinear edge at bottom of dune	Weak	1	N/A	N/A
Color	Sand, tan, gray	Weak	1	N/A	N/A
Texture	Fine to stippled and smooth	Weak	1	N/A	N/A
Horizontal Scale	Continuous, low, long horizon plane closed by ocean slightly sloping	Weak	1	N/A	N/A
Vertical Scale	None	Weak	1	N/A	N/A
Movement	None	Weak	1	N/A	N/A
Summary	Landforms consist of mounded, low, rippled, gentle rolling, and curvilinear sand dunes transitioning to a vast flat beach to sloping tidal edge. The addition of project elements would present a very weak contrast, if any, to the surrounding landform.				
Open Ocean					
Form	Flat form, slight undulation to rolling swells	Weak	1	N/A	N/A
Line	Long solid horizontal	Weak	1	N/A	N/A
Color	Brown-green water, black horizon. Sky is multiple shades of gray	Weak	1	N/A	N/A
Texture	Stippled to rippling	Weak	1	N/A	N/A
Horizontal Scale	Largely unbroken on either end aside from ship infrastructure to edge	Weak	1	N/A	N/A
Vertical Scale	None	Weak	1	N/A	N/A
Movement	Rolling toward	Weak	1	N/A	N/A
Summary	The ocean consists of slight to rolling ocean swells with small to large whitecaps, rippling and swirling in random patterns. Within the tidal zone waves crash into the beach. The addition of project elements would present a very weak contrast to the open ocean.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A

¹ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

² 853-ft (260-m) simulations were not produced for this KOP.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ²	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Structures					
Form	Fine erect short grasses, upright	Weak	1	N/A	N/A
Line	Fine, irregular, mostly vertically angled	Weak	1	N/A	N/A
Color	Yellow-tan to reddish brown	Weak	1	N/A	N/A
Texture	Fine, feathered	Weak	1	N/A	N/A
Horizontal Scale	Choppy, interspersed along dune	Weak	1	N/A	N/A
Vertical Scale	Short	Weak	1	N/A	N/A
Movement	None	Weak	1	N/A	N/A
Summary	Structures are random architectural forms, materials and styles, interrupting utility lines and poles, and elevated views into the service areas of adjacent structures. The structures are boxy and rectilinear with vertical lines with an emphasis of horizontal lines through the balconies. The addition of project elements would present a very weak contrast, if any, to the surrounding structures.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

New York (NY) Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient 0.00 ³						Refraction Coefficient 0.13 ⁴					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid- Tower	Blade Tip	Hub	Mid- Tower	Blade Tip	Hub	Mid- Tower	Blade Tip	Hub	Mid- Tower
Total	46.26 (74.45)	265	0	0	0	0	0	404	0	0	52	0	0
OCS-A 0544	92.66 (149.12)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0537	97.37 (156.70)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	70.13 (112.86)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	56.25 (90.53)	0	0	0	0	0	0	3	0	0	0	0	0
OCS-A 0541	46.26 (74.45)	212	0	0	0	0	0	246	0	0	52	0	0
OCS-A 0542	48.82 (78.56)	53	0	0	0	0	0	155	0	0	0	0	0

³ Turbine counts are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁴ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0541) ⁵	Refraction Coefficient 0.00		Refraction Coefficient 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	933.2 (284.4)	853 (260)	784.5 (239.1)	784.5 (239.1)
Percent Hidden	71%	100%	60%	92%
Amount Visible, ft (m)	378.9 (115.5)	0.0 (0.0)	527.6 (160.8)	68.5 (20.9)
Percent Visible	29%	0%	40%	8%

Description of Projects Appearances in the Context of the Affected Environment from the

KOP: The nearest turbine to this KOP lies approximately 46.26 mi (74.45 km) away in lease area OCS-A 0541. Only blade tips would be theoretically visible of the 1,312-ft (399.9-m) turbines with no atmospheric refraction, which is displayed in the simulation, and 853-ft (260-m) turbines would not be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips of the 1,312-ft (399.9-m) turbines and the 853-ft (260-m) turbines would be seen. With the consideration of atmospheric refraction, a maximum of 40%, or 527.6 ft (160.8 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. Only a maximum of 8%, or 68.5 ft (20.9 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction, which is barely perceptible to the naked eye, especially from an extended distance. Of those that are theoretically visible, wind turbines would be seen on the distant horizon to the left of the viewpoint, with many turbines being blocked by buildings. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016), lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

⁵ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Susceptibility	Medium	Viewers at this KOP are visitors and tourists interested in the historic structure and views from the top. However, due to the presence of visual clutter resulting from buildings, overhead utilities, and other built forms, the KOP would be moderately susceptible to change from the addition of project features.
Value	High	Viewers highly value this KOP as a designated NHL and a popular tourist attraction due to its defining experiential character.
Overall Sensitivity	High	—

Magnitude of Impact ⁶	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ⁷	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Medium	The lease areas would occupy 23.1°, or 19%, of the 124° HFOV but would be mostly screened by tall buildings to the left of the viewpoint.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Size and Scale of Change	Negligible	Project turbines would present no change to the view due to the extended distance of the turbines. The addition of turbines would not compete with key characteristic character area elements at the representative viewpoint.	Negligible	853-ft (260-m) wind turbines would not be visible from this KOP.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Negligible	—	Negligible	—
Overall Visual Impact Level	Negligible	Although viewer receptor sensitivity is high, the project would have no effect on the viewers' experience due to minimal visibility.	Negligible	853-ft (260-m) turbines would not be visible from this KOP; therefore, the visual impact is negligible.

⁶ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

⁷ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient 0.00		Refraction Coefficient 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	10.76 (17.31)	566	564	566	566
OCS-A 0499 (Atlantic Shores South)	14.3 (23.22)	200	200	200	200
OCS-A 0549 (Atlantic Shores North)	22.13 (35.62)	157	155	157	157
OCS-A 0512 (Empire Wind)	—	0	0	0	0
OCS-A 0498 (Ocean Wind 1)	16.01 (25.76)	98	98	98	98
OCS-A 0532 (Ocean Wind 2)	10.76 (17.31)	111	111	111	111

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient 0.00				Refraction Coefficient 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	46.26 (74.45)	265	0	0	0	404	0	52	0
Cumulative Total	10.76 (17.31)	831	564	566	564	970	566	618	566

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 10.76 mi (17.31 km) away in the external lease area OCS-A 0532. Visual impact from cumulative leases would be due to external leases, as they block the 1,312-ft (399.9-m) NY Bight leases in the distance. In the scenario where NY Bight lease turbines are 853 ft (260 m), NY Bight turbines are not visible from this KOP, with only the external leases contributing to the visual impacts. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs would be seen. Rotor movement of the external lease turbines would be apparent due to the closeness of the external leases.

Cumulative Magnitude of Impact ⁸	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ⁹	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 127.6°, over 100% of the 124° HFOV. Some of the turbines would be screened by tall buildings to the left of the viewpoint.	Large	The cumulative lease areas would occupy 127.6°, over 100% of the 124° HFOV. The NY Bight lease areas are not visible from this KOP, so the HFOV is occupied by external lease areas only. Some of the turbines would be screened by tall buildings to the left of the viewpoint.
Size and Scale of Change	Large	Project turbines would present a large change to the visual environment due to the addition of vertical elements to the simple horizon line. The change in the view would be apparent and compete with key characteristic character area elements at this representative viewpoint.	Large	Project turbines would present a large change to the visual environment due to the addition of vertical elements to the simple horizon line. The change in the view would be apparent and compete with key characteristic character area elements at this representative viewpoint.
Cumulative Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The visual impact of the cumulative leases from this KOP is major. The turbines are apparent, hold the viewers' attention, and dominate the view across the simple ocean horizon.	Major	The visual impact of the cumulative leases from this KOP is major, with only the external leases contributing to the visual impact. The turbines are apparent, hold the viewers' attention, and dominate the view across the simple ocean horizon.

⁸ The magnitude-of-impact ratings is based on what is displayed in the simulations, using a 0.0 refraction coefficient.

⁹ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient. However, as the 853-ft (260-m) NY Bight turbines are not visible, the external lease-only simulations are representative of this scenario.

Form 3: KOP-03 John Stafford Hall Boardwalk

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 43.82 mi (70.52 km)
- **Date Visited:** January 24, 2023
- **Time of Visit:** 11:16 AM
- **Weather Conditions and Visibility:** Fair
- **KOP Location:** This beach is located on Ventnor City Beach within the John Stafford Historic District, listed on NRHP in 1988. The neighborhood includes residential homes, condominiums, restaurants, and other commercial buildings. There is a boardwalk that stretched from Ventnor City to Atlantic City that sits at the base of the backside of the dune. This photograph was taken on the boardwalk. Located near the beach between Lucy the Margate Elephant and Atlantic City, this location is a popular tourist area.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is influenced by the neighboring nearshore ocean, but landward adjacent character areas have little influence.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourist/Recreational
- **Visual Context:** The visual context of the KOP, located on the boardwalk, is dynamic, reflected in the frequency and number of tourists and recreators at the site, movements of vessels and recreation boaters along the coastline, the changing tidal patterns, and changing atmospheric conditions reflected in the ocean, bay, and sky. Vertical forms of structures create a strong edge to the view. The boardwalk located behind the beach is elevated but still separated from the beach by sand dunes and vegetation. There is a sense of privacy from the urban residential area despite such close proximity.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Gentle, rolling, undulated dunes
Line	Curvilinear dune edge
Color	Light yellow and tan; white from small rocks
Texture	Very fine
Horizontal Scale	Mostly horizontal scale extending left and right
Vertical Scale	Slightly steep vertical elements separate boardwalk to immediately adjacent dunes
Movement	None
Summary	The gentle rolling and undulating landform is sandy with mostly low horizontal lines but has steep vertical elements of sand dunes adjacent to the boardwalk.
Open Ocean	
Form	Flat, rolling form
Line	Horizontal line
Color	Light green, spots of tan, deep blue
Texture	Stippled
Horizontal Scale	The horizon is visible though mostly obscured by sand and vegetation. Chopped up views of the ocean.
Vertical Scale	None
Movement	Rolling toward
Summary	The open ocean is flat but rolling with slight obscurity and a strong horizontal line element. The northern horizon line is visible though mostly obscured by sand and vegetation. There are choppy views of the ocean creating a small scale of view.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Somewhat sparse tall grasses
Line	Thin, slightly angular vertical elements
Color	Light tan, brown of grasses; dark reddish-brown shrubs
Texture	Low clumping vegetation along dunes – cluster of feathery, wispy tops, elongated stems planted in a grid.
Horizontal Scale	Planted lines of grasses along dune ridge line, low horizontal scale 6 inches to 2 feet tall
Vertical Scale	Separates boardwalk and beach, low vertical scale 6 inches to 2 feet tall
Movement	Undulating tops of grasses swaying/waving in wind

Aesthetic and Perceptual Characteristics	Description
Summary	Vegetation includes somewhat sparse tall grass with erect, thin, linear, and feathery forms creating high vertical elements scattered throughout the landform. They are soft but angular in texture, displaying light tans and browns to dark reddish brown. There are undulating waves of grass due to coastal wind.
Structures	
Form	Coastal architecture and historic brick structures; mostly rectilinear, with large modern curved form
Line	Angular, rectilinear
Color	Brown, red, gray
Texture	Coarse brick, wood, and concrete
Horizontal Scale	Continues along horizon; urban forms seem to continue
Vertical Scale	High vertical elements of adjacent taller structures giving the feeling of sharp end on the other side of the boardwalk
Movement	None
Summary	Structures include coastal architecture as well as larger historic brick with heavy rectilinear forms and occasional curvilinear modern architecture. High vertical elements of adjacent taller structures give the feeling of a sharp edge on the other side of the boardwalk.

Form 4: KOP-04 John Stafford — Beach Entrance*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 43.80 mi (70.49 km) (OCS-A 0541)
- **Date Visited:** January 24, 2023
- **Time of Visit:** 12:08 PM
- **Weather Conditions and Visibility:** Fair
- **KOP Location:** This beach is located on Ventnor City Beach within the John Stafford Historic District, listed on NRHP in 1988. The neighborhood includes residential homes, condominiums, restaurants, and other commercial buildings. There is a boardwalk that stretched from Ventnor City to Atlantic City that sits at the base of the backside of the dune. This photograph was taken at the public beach entrance off South Baton Rouge Avenue, on top of the dune, in front of the boardwalk. Located along the beach between Lucy the Margate Elephant and Atlantic City, this location is a popular tourist area and intersection between the commercial and residential neighborhoods.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside urban area and is subject to the considerable influence of the neighboring bayside urban and nearshore ocean. Oceanside urban environments north and south of this KOP provide considerable influence.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational, Water-Based
- **Visual Context:** The visual context of the KOP is dynamic, reflected in the frequency and number of tourists and recreators at the site, movements of vessels and recreation boaters along the coastline, the changing tidal patterns, and changing atmospheric conditions reflected in the ocean, bay, and sky. Vertical forms of structures create a strong edge to the view. The boardwalk located behind the beach is elevated but still separated from the beach by sand dunes and vegetation. There is a sense of privacy in the urban residential area despite such close proximity. At night the view at this KOP contains existing artificial light sources and movement associated with commercial and residential properties and vessel navigational aids.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level¹⁰

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ¹¹	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Gentle, rolling, undulated dunes	Weak	1	N/A	N/A
Line	Curvilinear dune edge	Weak	1	N/A	N/A
Color	Light yellow and tan; white from small rocks	Weak	1	N/A	N/A
Texture	Very fine	Weak	1	N/A	N/A
Horizontal Scale	Mostly horizontal scale extending left and right	Weak	1	N/A	N/A
Vertical Scale	Slightly steep vertical elements separate boardwalk to immediately adjacent dunes	Weak	1	N/A	N/A
Movement	None	Weak	1	N/A	N/A
Summary	The gentle rolling and undulating landform is sandy with mostly low horizontal lines but has steep vertical elements of sand dunes adjacent to the boardwalk. The addition of project elements would present a weak contrast to the surrounding landform due to the distance and sitting low on the horizon.				
Open Ocean					
Form	Flat, rolling form	Weak	1	N/A	N/A
Line	Horizontal line	Weak	1	N/A	N/A
Color	Light green, spots of tan, deep blue	Weak	1	N/A	N/A
Texture	Stippled	Weak	1	N/A	N/A
Horizontal Scale	The horizon is visible though mostly obscured by sand and vegetation. Chopped up views of the ocean.	Weak	1	N/A	N/A
Vertical Scale	None	Weak	1	N/A	N/A
Movement	In the immediate foreground, the rolling sea moves with tide toward land with waves breaking on the beach. Random movement of waves.	Weak	1	N/A	N/A
Summary	The open ocean flat but rolling with slight obscurity and a strong horizontal line element. The northern horizon line is visible though mostly obscured by sand and vegetation. There are choppy views of the ocean creating a small scale of view. The addition of project elements would present a very weak contrast to the open ocean.				

¹⁰ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

¹¹ 853-ft (260-m) simulations were not produced for this KOP.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ¹¹	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Somewhat sparse tall grasses	Weak	1	N/A	N/A
Line	Thin, slightly angular vertical elements	Weak	1	N/A	N/A
Color	Light tan, brown of grasses; dark reddish-brown shrubs	Weak	1	N/A	N/A
Texture	Feathery	Weak	1	N/A	N/A
Horizontal Scale	Continues along dune ridge line	Weak	1	N/A	N/A
Vertical Scale	Tall grasses atop dunes obscure view of horizon, separates boardwalk and beach	Weak	1	N/A	N/A
Movement	Undulating waving in wind	Weak	1	N/A	N/A
Summary	Vegetation includes somewhat sparse tall grass with erect, thin, linear, and feathery forms creating high vertical elements scattered throughout the landform. They are soft but angular in texture, displaying light tans and browns to dark reddish brown. There are undulating waves of grass due to coastal wind. The addition of project elements would present a very weak contrast, if any, to the surrounding vegetation as the vertical elements of the turbines are minuscule compared to the erect vegetation in the foreground.				
Structures					
Form	Coastal architecture and historic brick structures; mostly rectilinear, with large modern curved form	Weak	1	N/A	N/A
Line	Angular, rectilinear	Weak	1	N/A	N/A
Color	Brown, red, gray	Weak	1	N/A	N/A
Texture	Coarse brick, wood, and concrete	Weak	1	N/A	N/A
Horizontal Scale	Continues along horizon; urban forms seem to continue	Weak	1	N/A	N/A
Vertical Scale	High vertical elements of adjacent taller structures giving the feeling of sharp end on the other side of the boardwalk	Weak	1	N/A	N/A

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ¹¹	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Movement	None	Weak	1	N/A	N/A
Summary	Structures include coastal architecture as well as larger historic brick with heavy rectilinear forms and occasional curvilinear modern architecture. High vertical elements of adjacent taller structures give the feeling of a sharp edge on the other side of the boardwalk. The addition of project elements would present a very weak contrast, if any, to the surrounding structures.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ¹²						Refraction Coefficient: 0.13 ¹³					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	43.80 (70.49)	223	0	0	0	0	0	355	0	0	5	0	0
OCS-A 0544	89.80 (144.51)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0537	94.48 (152.05)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	67.37 (108.42)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	53.52 (86.14)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	43.80 (70.49)	193	0	0	0	0	0	242	0	0	5	0	0
OCS-A 0542	46.66 (75.10)	30	0	0	0	0	0	113	0	0	0	0	0

¹² Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

¹³ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0541) ¹⁴	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	989.7 (301.7)	853 (260)	844.2 (257.3)	844.2 (257.3)
Percent Hidden	75%	100%	64%	99%
Amount Visible, ft (m)	322.3 (98.2)	0.0 (0.0)	467.8 (142.6)	8.8 (2.7)
Percent Visible	25%	0%	36%	1%

Description of Projects Appearances in the context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 43.80 mi (70.49 km) away in lease area OCS-A 0541. Only blade tips would be theoretically visible of 1,312-ft (399.9-m) turbines with no atmospheric refraction, which is displayed in the simulation, and 853-ft (260-m) turbines would not be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips of the 1,312-ft (399.9-m) turbines and the 853-ft (260-m) turbines would be seen. With the consideration of atmospheric refraction, a maximum of 36%, or 467.8 ft (142.6 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. Only a maximum of 1%, or 8.8 ft (2.7 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction, which would not be perceptible to the naked eye from this extended distance. Of those that are visible, project turbines would be seen on the distant horizon and framed between structures. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

¹⁴ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.

<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents and tourists at this KOP may be highly susceptible to changes from the project due to their interest in ocean facing views and the visual environment being an important asset to the community.
Value	High	Viewers highly value this KOP due to the defining experiential character of the expansive open ocean views from the boardwalk and direct access to the beach.
Overall Sensitivity	High	—

Magnitude of Impact ¹⁵	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ¹⁶	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Medium	The lease areas would occupy 24.4°, or 20%, of the 124° HFOV and are located toward the center of the view out toward the ocean.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Size and Scale of Change	Negligible	Project turbines would present no change to the visual environment due to the extended distance of the turbines. The addition of turbines would not compete with key characteristic character area elements at the representative viewpoint.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Negligible	—	Negligible	—
Overall Visual Impact Level	Negligible	Although viewer receptor sensitivity is high, the project would have no effect on the viewers' experience due to minimal visibility.	Negligible	853-ft (260-m) turbines would not be visible from this KOP; therefore, the visual impact is negligible.

¹⁵ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

¹⁶ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	9.62 (15.48)	566	562	566	566
OCS-A 0499 (Atlantic Shores South)	12.47 (20.07)	200	200	200	200
OCS-A 0549 (Atlantic Shores North)	19.27 (31.02)	157	153	157	157
OCS-A 0512 (Empire Wind)	—	0	0	0	0
OCS-A 0498 (Ocean Wind 1)	15.58 (25.07)	98	98	98	98
OCS-A 0532 (Ocean Wind 2)	9.62 (15.48)	111	111	111	111

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	43.80 (70.49)	223	0	0	0	355	0	5	0
Cumulative Total	9.62 (15.48)	789	562	566	562	921	566	571	566

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 9.62 mi (15.48 km) away in the external lease area OCS-A 0532. The majority of visual impact from this KOP is from the external leases due to the closeness of these leases. Only blade tips of the 1,312-ft (399.9-m) NY Bight turbines in the background at an extended distance would be visible. The 853-ft (260-m) NY Bight turbines would not be visible from this KOP with no refraction considered. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs would be seen of the cumulative turbines. Rotor movement of the external lease turbines is likely to be apparent due to the proximity to shore.

Magnitude of Impact ¹⁷	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ¹⁸	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 135.6°, over 100% of the 124° HFOV and are located to the left and center of the horizon.	Large	The cumulative lease areas would occupy 135.6°, over 100% of the 124° HFOV. The NY Bight lease areas are not visible from this KOP, so the HFOV is occupied by external lease areas only.
Size and Scale of Change	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence the viewers' experience and may hold the viewers' attention.	Major	The visual impact of the cumulative leases from this KOP is major, with only the external leases contributing to the visual impact. The turbines are apparent, hold the viewers' attention, and dominate the view across the simple ocean horizon.

¹⁷ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

¹⁸ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient. However, as the 853-ft (260-m) NY Bight turbines are not visible, the external lease-only simulations are representative of this scenario.

Form 5: KOP-05 Jim Whelan Hall — Balcony*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 42.31 mi (68.10 km) (OCS-A 0541)
- **Date Visited:** January 24, 2023
- **Time of Visit:** 1:23 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **KOP Location:** The Jim Whelan Boardwalk Hall, formerly known as the Historic Atlantic City Convention Center, is a multi-purpose event facility surrounded by restaurants, hotels, shopping malls, and other commercial buildings. The Hall was designated as a National Historic Landmark in 1987. The large expanse of boardwalk separates the Hall from the beachfront. This photo was taken from the exterior deck on the second level of the Hall, which is not publicly accessible.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside urban area and is subject to the considerable influence of the neighboring bayside urban area; nearshore ocean is only intermittently visible from this vantage point due to structures blocking the view, but the sheer proximity to the nearshore ocean environment has bearing on the KOP.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** Views from the KOP afford highly contrasting visual elements due to various structures, materials, and colors. There are limited views of the beach and dunes, cut off by a series of stone archways that function as a gate or wall separating the beach from the boardwalk. This strongly limits direct observation of much of the beach and nearshore environment. Mostly structural elements are visible, such as the boardwalk, plaza, adjacent piers, and other large structures. A large pier that serves as a shopping mall has a striking and dominating visual appearance to the rear of the view. The visual context is dynamic in nature due to the frequency and numbers of tourists and recreationists at the site. At night the view at this KOP contains existing artificial light sources and movement associated with urban/commercial infrastructure and vessel navigational aids.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level¹⁹

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Narrow undulating dunes, flat and wide beach to slightly sloping at tidal edge	None	0	None	0
Line	Linear, curvilinear at land edge of beach	None	0	None	0
Color	Sandy tan	None	0	None	0
Texture	Fine	None	0	None	0
Horizontal Scale	Very limited view of landform, obscured heavily by structures	None	0	None	0
Vertical Scale	None	None	0	None	0
Movement	None	None	0	None	0
Summary	There are patches of exposed, undulating dunes and flat beaches behind the structures along the boardwalk. The addition of project elements would present no contrast to the surrounding landform as turbines are not visible.				
Open Ocean					
Form	Flat, vast expanse	None	0	None	0
Line	Horizontal line is strong and apparent	None	0	None	0
Color	Green to dark blue gradient	None	0	None	0
Texture	Fine stippling, wave breaks obscured	None	0	None	0
Horizontal Scale	Horizontal wide line, wide open	None	0	None	0
Vertical Scale	None	None	0	None	0
Movement	Rolling toward	None	0	None	0
Summary	The open ocean presents a wide, horizontal line forming the horizon with rippling and undulating green to dark blue gradient. The addition of project elements would present no contrast to the open ocean as turbines are not visible.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A

¹⁹ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Dense upright grasses	None	0	None	0
Line	Vertical lines are fine and irregular	None	0	None	0
Color	Yellow to tan to gray-brown	None	0	None	0
Texture	Fine, feathered	None	0	None	0
Horizontal Scale	None	None	0	None	0
Vertical Scale	Adds some vertical elements	None	0	None	0
Movement	None	None	0	None	0
Summary	The vegetation is dense but thin upright forms creating vertical lines. The addition of project elements would present no contrast to the surrounding vegetation as turbines are not visible.				
Structures					
Form	Irregular pattern of many vertical elements mostly in a type of Greco-Roman imitation, angular structure of boardwalk	None	0	None	0
Line	Heterogenous architecture makes many forms; curvilinear to geometric	None	0	None	0
Color	Gray-brown of wood, stone, and brick; adjacent structure is deep green	None	0	None	0
Texture	Coarse brick and wood, smooth concrete	None	0	None	0
Horizontal Scale	Long horizontal structures to left obscure ocean horizon	None	0	None	0
Vertical Scale	Severe vertical elements of structures close in the boardwalk	None	0	None	0
Movement	None	None	0	None	0
Summary	The structures are irregular with many contrasting horizontal and vertical structures in both form color and style, some forms presenting a Greco-Roman imitation. The addition of project elements would present no contrast to surrounding structures as turbines are not visible.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ²⁰						Refraction Coefficient: 0.13 ²¹					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	42.31 (68.10)	369	0	0	38	0	0	518	25	0	165	0	0
OCS-A 0544	88.17 (141.90)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0537	92.81 (149.36)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	65.61 (105.58)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	51.93 (83.58)	1	0	0	0	0	0	47	0	0	0	0	0
OCS-A 0541	42.31 (68.10)	244	0	0	38	0	0	246	25	0	157	0	0
OCS-A 0542	45.41 (73.08)	124	0	0	0	0	0	225	0	0	8	0	0

²⁰ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

²¹ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0541) ²²	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	793.0 (241.7)	793.0 (241.7)	667.4 (203.4)	667.4 (203.4)
Percent Hidden	60%	93%	50.9%	78.2%
Amount Visible, ft (m)	519.1 (158.2)	60.0 (18.3)	644.7 (196.5)	185.7 (56.6)
Percent Visible	40%	7%	49.1%	21.8%

Description of Projects Appearances in the Context of the Affected Environment from the KOP: The nearest turbine to this KOP lies approximately 42.31 mi (68.10 km) away in lease area OCS-A 0541. However, the project lease areas are entirely screened by buildings to the left of the view. No turbines would be visible, no matter the conditions.

Receptor Sensitivity	Rating	Rationale
Susceptibility	Medium	The Hall is historic and contains views from the balcony out toward the ocean's horizon. However, the balcony is not publicly accessible; therefore, it is moderately susceptible to changes from project impacts.
Value	High	The Jim Whelan Hall is highly valued for its defining experiential characteristics of having expansive ocean views, the surrounding tourism value of commercial facilities along the beachfront, and its designation as an NHL.
Overall Sensitivity	High	—

²² Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Magnitude of Impact ²³	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Negligible	The data suggests that the lease areas would occupy 25.2°, or 20%, of the 124° HFOV; however, the turbines are entirely screened by buildings to the left of the viewpoint and therefore do not occupy any of the field of view.	Negligible	The data suggests that the lease areas would occupy 21.4°, or 17%, of the 124° HFOV; however, the turbines are entirely screened by buildings to the left of the viewpoint and therefore do not occupy any of the field of view.
Size and Scale of Change	Negligible	Project turbines are not visible from this viewpoint; therefore, no change would occur to the key characteristic character area elements at this representative viewpoint.	Negligible	Project turbines are not visible from this viewpoint; therefore, no change would occur to the key characteristic character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Negligible	—	Negligible	—
Overall Visual Impact Level	Negligible	The project is not visible from this KOP due to interfering structures in the view; therefore, the overall visual impact is negligible.	Negligible	The project is not visible from this KOP due to interfering structures in the view; therefore, the overall visual impact is negligible.

²³ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	9.16 (14.75)	566	566	566	566
OCS-A 0499 (Atlantic Shores South)	11.46 (18.44)	200	200	200	200
OCS-A 0549 (Atlantic Shores North)	17.62 (28.36)	157	157	157	157
OCS-A 0512 (Empire Wind)	-	0	0	0	0
OCS-A 0498 (Ocean Wind 1)	15.41 (24.80)	98	98	98	98
OCS-A 0532 (Ocean Wind 2)	9.16 (14.75)	111	111	111	111

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	42.31 (68.10)	369	0	38	0	518	25	165	0
Cumulative Total	9.16 (14.75)	935	566	604	566	1084	591	731	566

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 9.16 mi (14.75 km) away in lease area OCS-A 0532. The same number of external lease turbines would be seen with and without atmospheric refraction coefficient of 0.13. All NY Bight leases would be blocked by structures in the view. The external leases would present a dominant visual change across the horizon due to the closeness of the external lease areas. Rotor movement of the external lease turbines is likely to be apparent due to proximity to shore.

Magnitude of Impact ²⁴	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 140.2°, over 100% of the 124° HFOV; however, some of the turbines are blocked by existing structures to the left of the viewpoint.	Large	The cumulative lease areas would occupy 140.2°, over 100% of the 124° HFOV; however, some of the turbines are blocked by existing structures to the left of the viewpoint.
Size and Scale of Change	Large	The external lease areas present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The external lease areas present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

²⁴ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 6: KOP-06 Atlantic City Boardwalk — Ocean Casino Boardwalk View

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 41.0 mi (65.99 km)
- **Date Visited:** January 24, 2023
- **Time of Visit:** 3:17 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** This photo is taken from the exterior deck on the third level.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside urban area and is subject to the considerable influence of the neighboring bayside urban and nearshore ocean environment.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** This area is near the northern end of the boardwalk in Atlantic City, providing a calmer, less commercial atmosphere than stretches of the boardwalk further south. This, combined with the large blue glass windows of the structure to the rear, provide a sense of calm that is distinct compared to the rest of the boardwalk, and as such the open views of the nearshore and open ocean in the distance are more apparent due to a lack of diversions in structures and forms.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Gently sloping
Line	Soft curvilinear line
Color	Sand, tan
Texture	Soft, fine
Horizontal Scale	Horizontal scale extends left and right
Vertical Scale	None
Movement	None
Summary	Landform is overall gently sloping with a soft curvilinear line, fine texture, and sandy color. There is not much verticality.
Open Ocean	
Form	Flat, gently rolling
Line	Strong horizontality
Color	Gray and green throughout
Texture	Stippled
Horizontal Scale	Relatively narrow horizon line
Vertical Scale	None
Movement	Rolling toward
Summary	The open ocean is flat and gently rolling toward the viewer. It has a fairly consistent stippled texture and gray-green coloring. The horizontal line is relatively narrow but wide and has no vertical scale.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Short sparse grasses
Line	Individual grasses are thin, mostly vertical
Color	Dark tan, orange, and brown
Texture	Fine feathered
Horizontal Scale	Spread horizontally
Vertical Scale	Short vertical elements
Movement	None
Summary	Fine feather textured vegetation is spread horizontally along the landform and individual grasses stand out with dark tan, orange, and brown colors punctuated across landform. Vegetation has short verticality to it and little to no movement in the wind.

Aesthetic and Perceptual Characteristics	Description
Structures	
Form	Curvilinear forms immediately to left and right, geometric rectilinear forms to south
Line	Steep, strong vertical lines
Color	Gray-blue of windows and glass, gray-brown of boardwalk, tan and yellow of distant structures
Texture	Solid, matte
Horizontal Scale	Broad horizontal lines along the horizon emphasizing the separation between the sky and the ocean
Vertical Scale	Large commercial and residential buildings behind the KOP creating a dominant back drop
Movement	None
Summary	Structures present large curvilinear forms immediately to the left, right, and rear of the view. More geometric rectilinear forms are to the south. Most lines aside from steep verticality emphasize horizontal. The gray-blue of windows and glass and gray-brown of the boardwalk meet tan and yellows of more distant structures. There are vertical elements of light poles punctuated evenly throughout. The vertical scale is large and imposing to the rear, but to south, horizontality aligns with horizon line.

Form 7: KOP-07 Atlantic City Boardwalk — Top of Ocean Casino

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 40.98 mi (65.95 km)
- **Date Visited:** January 24, 2023
- **Time of Visit:** 3:46 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** This photo is taken from the exterior deck on the third level of the Ocean Casino.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside urban area and is subject to the considerable influence of the neighboring Bayside Urban and nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists
- **Visual Context:** Resting above the boardwalk and overlooking much of the nearshore and ocean environment, this KOP has a unique view of the region. Separated, albeit atop, the boardwalk, it allows the viewer to see down the length of the boardwalk and the Oceanside urban environment around it, with its many colors, large blocky structures, and active tourists, as well as far down the coastline of the ocean horizon.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Gently sloping sand toward beach below low rolling dune
Line	Soft curvilinear line at bottom of dune
Color	Sand, tan, brown and gray
Texture	Soft, fine texture of exposed sand landform
Horizontal Scale	Horizontal scale extends left and right
Vertical Scale	Low
Movement	None
Summary	Landform is overall gently sloping with a soft curvilinear line, fine texture, and sandy color. There is not much verticality.
Open Ocean	
Form	Flat, gently rolling
Line	Strong horizontality
Color	Rolling waves and beach breakers are white foam to deep blue
Texture	Stippled whitecaps, smooth rolling, swell.
Horizontal Scale	Long narrow band forming the horizon ending at the intersection of land and sky. Break between the ocean and sky
Vertical Scale	None
Movement	Irregular movement of the ocean rolling, crashing and swirling. The beach break in the tidal zone rolling in and out, forward and backward
Summary	The open ocean is flat and gently rolling toward the viewer. It has a fairly consistent stippled texture and gray-green coloring. The horizontal line is relatively narrow but wide and has no vertical scale.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Short sparse grasses planted in rows with low vertical, angular branching
Line	Individual grasses are thin, mostly vertical and angular
Color	Dark tan, orange, and brown
Texture	Fine feathered, wispy
Horizontal Scale	Spread out horizontally along the dune planted in row
Vertical Scale	Short vertical elements
Movement	None

Aesthetic and Perceptual Characteristics	Description
Summary	Fine feather textured vegetation is spread horizontally along the landform and individual grasses stand out with dark tan, orange, and brown colors punctuated across landform. Vegetation has short verticality to it and little to no movement in the wind.
Structures	
Form	Curvilinear forms immediately to left and right, geometric rectilinear forms to south
Line	Steep, strong vertical lines
Color	Gray blue of windows and glass, gray-brown of boardwalk, tan and yellow of distant structures
Texture	Solid, matte
Horizontal Scale	Horizontality of long structures lines with and blocks horizon
Vertical Scale	Large, imposing scale to rear
Movement	None
Summary	Structures present large curvilinear forms immediately to the left, right, and rear of the view. More geometric rectilinear forms are to the south. Most lines aside from steep verticality emphasize horizontal. The gray-blue of windows and glass and gray-brown of the boardwalk meet tan and yellows of more distant structures. There are vertical elements of light poles punctuated evenly throughout. The vertical scale is large and imposing to the rear, but to the south, horizontality aligns with horizon line.

Form 8: KOP-08 Beach Haven — Night*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 32.64 mi (52.52 km) (OCS-A 0541)
- **Date Visited:** March 16, 2023
- **Time of Visit:** 7:49 PM
- **Weather Conditions and Visibility:** Fair
- **KOP Location:** This KOP is located on the pedestrian entry to the beach atop a dune of the barrier island of Long Beach Island in Beach Haven Borough, NJ. This island is composed of many accommodations for visitors, seasonal and permanent residents, and restaurants, which are located right behind the dune's edge. The photo is taken from the public beach access ramp on top of the dune, at the end of Centre Street.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is subject to the considerable influence of the neighboring nearshore ocean, which is largely unbroken for much of the horizon.
- **Visual Impact Receptors (Viewer Groups):** Residents, tourists/recreational
- **Visual Context:** Lights from structures behind the beach illuminate the top of the dune, the vegetation, signage, and wooden fence line from where the observer is standing. A few distant lights are scattered in the ocean. There is little to no discrepancy between the ocean and the sky where the horizon falls. A faint light horizontal line is visible where the waves crash along the beach.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Tall rolling dune and flat sloping beach	Weak	1	Weak	1
Line	Curvilinear base edge and tidal line	Weak	1	Weak	1
Color	Tan, black	Weak	1	Weak	1
Texture	Coarse sand	Weak	1	Weak	1
Horizontal Scale	Flat	Weak	1	Weak	1
Vertical Scale	Moderately vertical transect of beach dunes	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	The landform consists of rolling dunes with exposed tan sand and curvilinear edges from the base. The addition of project elements would present a weak contrast to the surrounding landform due to the distance and sitting low on the horizon and the dark nighttime conditions limiting the visibility of the surrounding landform.				
Open Ocean					
Form	Flat broad form	Weak	2	Weak	2
Line	Weak dark horizon line, moderate line where waves break	Weak	2	Weak	2
Color	Dark, reflecting the night sky	Weak	2	Weak	2
Texture	Not visible in the dark, appearing smooth	Weak	2	Weak	2
Horizontal Scale	Uninterrupted horizontal line	Weak	2	Weak	2
Vertical Scale	None	Weak	2	Weak	2
Movement	Not visible in the dark	Weak	2	Weak	2
Summary	The open ocean is flat, smooth, broad, and contiguous with a weak unbroken horizon line. It appears dark black, reflecting the night sky. The waves crashing on the beach create a light-colored horizontal band across the view contrasting lightly with the dark sand and night sky. The addition of project elements would present a weak contrast to the open ocean. Distant, irregular red lights would be introduced to the flat horizon; however larger, brighter lighting from ships is much more apparent along the horizon.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A

²⁵ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Short vertical to angular shrubs and grasses	Weak	1	Weak	1
Line	Thin lines in rows, only apparent in the immediate foreground	Weak	1	Weak	1
Color	Muted browns and light tan	Weak	1	Weak	1
Texture	Wispy grass with coarse flower stalks	Weak	1	Weak	1
Horizontal Scale	Planted, organized rows emphasize linearity of dunes	Weak	1	Weak	1
Vertical Scale	Short	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	The vegetation is only apparent in the immediate foreground, consisting of muted browns and light tan shrubs and grasses that are short, vertical, and angular. Softer wispy grass and coarse flower stalks to the south; coarser, roughness of leafing to the north with an emphasis on verticality. The addition of project elements would present a weak contrast, if any, to the surrounding vegetation as the dark conditions do not allow for the noticeability of the vegetation.				
Structures					
Form	Linear, blocky fence in foreground	Weak	1	Weak	1
Line	Strong horizontal line wooden fence	Weak	1	Weak	1
Color	Fence is tan, sign is blue	Weak	1	Weak	1
Texture	Smooth	Weak	1	Weak	1
Horizontal Scale	Long line of wooden fence	Weak	1	Weak	1
Vertical Scale	Low verticality but sense of proximity from beach	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	At night, the structures in view consist only of the fence in the immediate foreground. The fence is long, horizontal, with a short vertical scale, appearing soft but blocky. The addition of project elements would present a weak contrast to the existing structures in the view. Distant, irregular red lights would be introduced to the flat horizon; however larger, brighter lighting from ships is much more apparent along the horizon.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ²⁶						Refraction Coefficient: 0.13 ²⁷					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	32.64 (52.52)	658	85	0	196	0	0	791	176	0	339	0	0
OCS-A 0544	70.76 (113.88)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0537	76.94 (123.82)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	50.85 (81.84)	0	0	0	0	0	0	15	0	0	0	0	0
OCS-A 0539	40.55 (65.26)	162	0	0	0	0	0	271	0	0	31	0	0
OCS-A 0541	32.64 (52.52)	246	85	0	196	0	0	246	176	0	246	0	0
OCS-A 0542	40.93 (65.88)	250	0	0	0	0	0	259	0	0	62	0	0

²⁶ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

²⁷ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0541) ²⁸	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	528.2 (161.0)	528.2 (161.0)	448.9 (136.8)	448.9 (136.8)
Percent Hidden	40.3%	61.9%	34.2%	52.6%
Amount Visible, ft (m)	783.9 (238.9)	324.8 (99.0)	863.2 (263.1)	404.2 (123.2)
Percent Visible	59.7%	38.1%	65.8%	47.4%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 32.64 mi (52.52 km) away in lease area OCS-A 0541. At nighttime, only wind turbines with a height of 1,312 ft (399.9 m) would be seen from OCS-A 0541 due to hub visibility and the placement of lighting. At 853 ft (260 m), no hubs or lighting would be visible; therefore, there would be no visibility of any lease area's turbines at night. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM "Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles" (BOEM 2016), lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents, tourists, and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in ocean-facing views and the visual environment being an important asset to the community.
Value	High	Viewers highly value this KOP for the defining experiential character of the expansive ocean facing views and its adjacency to the designated Historic District in Beach Haven.
Overall Sensitivity	High	—

²⁸ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Magnitude of Impact ²⁹	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease areas would occupy 42.7°, or 34%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Negligible	At night, the project turbines would not be visible and therefore have a negligible geographic extent within the view.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.	Negligible	At night, project turbines would not be visible and therefore have a negligible size and scale of change to the view and surrounding environment.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small		Negligible	
Overall Visual Impact Level	Minor	The project would noticeable but not be visually prominent or attract the viewers' attention due to the existing surrounding nighttime lighting.	Negligible	Blade tips are theoretically visible. However, during dark nighttime conditions, blade tips and turbine lighting are not visible; therefore, the visual impact is negligible.

²⁹ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	9.85 (15.85)	548	443	560	472
OCS-A 0499 (Atlantic Shores South)	13.50 (21.73)	200	200	200	200
OCS-A 0549 (Atlantic Shores North)	9.85 (15.85)	157	157	157	157
OCS-A 0512 (Empire Wind)	-	0	0	0	0
OCS-A 0498 (Ocean Wind 1)	24.49 (39.41)	98	61	98	84
OCS-A 0532 (Ocean Wind 2)	20.24 (32.57)	93	25	105	31

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	32.64 (52.52)	658	85	196	0	791	176	339	0
Cumulative Total	9.85 (15.85)	1206	528	744	443	1351	648	899	472

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 9.85 mi (15.85 km) away in lease area OCS-A 0549. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs of the cumulative turbines would be seen. The external leases would mostly block the NY Bight leases and present a more dominant visual change across the horizon due to the closeness of the external lease areas compared to the far distance of the NY Bight leases.

Magnitude of Impact ³⁰	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 139.7°, over 100% of the 124° HFOV.	Large	The cumulative lease areas would occupy 139.7°, over 100% of the 124° HFOV.
Size and Scale of Change	Large	The cumulative lease areas present a new and dominant characteristic element to the nighttime conditions that draw viewers' attention.	Large	The cumulative lease areas present a new and dominant characteristic element to the nighttime conditions that draw viewers' attention.
Overall Magnitude of Impact Rating	Large		Large	
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence the viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence the viewers' experience and may hold viewers' attention.

³⁰ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 9: KOP-08 Beach Haven*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 32.64 mi (52.52 km) (OCS-A 0541)
- **Date Visited:** January 25, 2023
- **Time of Visit:** 9:44 AM
- **Weather Conditions and Visibility:** Cloudy
- **KOP Location:** This KOP is located on the pedestrian entry to the beach atop a dune of the barrier island of Long Beach Island in Beach Haven Borough, NJ. This island is composed of many accommodations for visitors, seasonal and permanent residents, and restaurants, which are located right behind the dune's edge. The photo is taken from the public beach access ramp on top of the dune, at the end of Centre Street.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is subject to the considerable influence of the neighboring nearshore ocean, which is largely unbroken for much of the horizon.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The ocean and sky feel unbroken, expansive, and large. The dunes create a strong horizontal line northward. The residential homes are mostly similar in Craftsman style, such as having cedar-like shingles and linear balconies. There is a wide view of the ocean and the horizon over a thin beach in front of the dune vegetation and beach fence. The water and beach views are slightly obstructed by man-made objects in the foreground. The early morning view across the pedestrian entry to the beach and greater ocean landscape is pleasant and visually appealing although the foreground railings and beach fencing are both a visual barrier and visual clutter to the initial beach experience. The early morning sky is tinged pink and is heavy with atmospheric haze and spotted cloud cover, causing the colors in the view to be deep hues, and the ocean a mostly monochromatic deep green color. At night the view at this KOP contains existing artificial light sources and movement associated with residential and commercial properties and vessel navigational aids.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level³¹

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Tall rolling dune and flat sloping beach	Weak	1	Weak	1
Line	Curvilinear base edge and tidal line	Weak	1	Weak	1
Color	Yellow, white, cream	Weak	1	Weak	1
Texture	Exceptionally smooth, periodic coarse shells	Weak	1	Weak	1
Horizontal Scale	Flat horizon, contiguous expanse	Weak	1	Weak	1
Vertical Scale	Moderately vertical transect of beach dunes	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	The landform consists of tall rolling dunes with exposed sand and curvilinear edges from the base. The tides create shifting lines. The sand is yellow, white, and cream. Shells are exceptionally smooth with some being periodically coarse. Moderate verticals transect the landform. The addition of project elements would present a weak contrast to the surrounding landform due to the distance and sitting low on the horizon.				
Open Ocean					
Form	Flat broad form	Weak	2	Weak	2
Line	Strong horizon line, curvilinear white bands in sky mimic horizon	Weak	2	Weak	2
Color	Morning sun white yellow light reflecting, gray blue to black ocean. Sky is white band and blue	Weak	2	Weak	2
Texture	Choppy water, wispy clouds	Weak	2	Weak	2
Horizontal Scale	Uninterrupted horizontal line	Weak	2	Weak	2
Vertical Scale	None	Weak	2	Weak	2
Movement	Rolling in and out irregularly	Weak	2	Weak	2
Summary	The open ocean is flat, rolling, broad, and contiguous with a strong unbroken horizon line. The morning sun is white and yellow; the horizon is gray-blue to black. The sky has a white band and pocket of blue with banded gray soft wispy clouds, contrasting with the choppy water. The addition of project elements would present a weak contrast to the open ocean. Minor distant vertical elements would be introduced to the flat horizon, sometimes appearing a dull gray color similar to that of the ocean.				

³¹ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Short vertical to angular shrubs and grasses	Weak	1	Weak	1
Line	Thin lines in rows to north, less organized south	Weak	1	Weak	1
Color	Muted browns and light tan	Weak	1	Weak	1
Texture	Wispy grass with coarse flower stalks	Weak	1	Weak	1
Horizontal Scale	Planted, organized rows emphasize linearity of dunes	Weak	1	Weak	1
Vertical Scale	Short	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	The vegetation, consisting of muted browns and light tan shrubs and grasses, is short, vertical, and angular. Thin linear stalks are arranged linearly in rows to the north, with less orderly arrangements and denser to the south. Softer wispy grass and coarse flower stalks to the south; coarser, roughness of leafing to the north with an emphasis on verticality. The addition of project elements would present a weak contrast, if any, to the surrounding vegetation as the vertical elements of the turbines are minuscule compared to the erect and irregular vegetation in the foreground.				
Structures					
Form	Short but wide multi-family structures at dune’s edge, Cape Cod-like balcony and siding, blocky, geometric, angular. Pagoda to left is angular as well	Weak	1	Weak	1
Line	Strong horizontal line of houses of similar height	Weak	1	Weak	1
Color	Browns, creams, blues, white; fence and ramps are light tan to dark brown and gray	Weak	1	Weak	1
Texture	None	Weak	1	Weak	1

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Horizontal Scale	Long line of housing emphasizes ongoing scale and presence	Weak	1	Weak	1
Vertical Scale	Low verticality but sense of proximity from beach	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	Structures are mostly short but wide with heavy horizontality and uniform in height, multi-family structures at the dune's edge, with Cape Cod style balconies and siding. House balconies and additional framework have creams, browns, blues, and whites, along with pergola timber frame. Ramps and access structures dominate the southern view along the landform; fence and ramps are light tan to dark brown chunky wood texture and railings are smooth dark gray and light gray. Overall blocky angular craftsman. The addition of project elements would present a very weak contrast, if any, to the surrounding structures.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ³²						Refraction Coefficient: 0.13 ³³					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	32.64 (52.52)	658	85	0	196	0	0	791	176	0	339	0	0
OCS-A 0544	70.76 (113.88)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0537	76.94 (123.82)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	50.85 (81.84)	0	0	0	0	0	0	15	0	0	0	0	0
OCS-A 0539	40.55 (65.26)	162	0	0	0	0	0	271	0	0	31	0	0
OCS-A 0541	32.64 (52.52)	246	85	0	196	0	0	246	176	0	246	0	0
OCS-A 0542	40.93 (65.88)	250	0	0	0	0	0	259	0	0	62	0	0

³² Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

³³ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0541) ³⁴	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	528.2 (161.0)	528.2 (161.0)	448.9 (136.8)	448.9 (136.8)
Percent Hidden	40.3%	61.9%	34.2%	52.6%
Amount Visible, ft (m)	783.9 (238.9)	324.8 (99.0)	863.2 (263.1)	404.2 (123.2)
Percent Visible	59.7%	38.1%	65.8%	47.4%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 46.26 mi (74.45 km) away in lease area OCS-A 0541. Blade tips and some hubs of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and some blade tips of the 853-ft (260-m) turbines would be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs of the 1,312-ft (399.9-m) turbines and additional blade tips of the 853-ft (260-m) turbines would be seen. With the consideration of atmospheric refraction, a maximum of 65.8%, or 863.2 ft (263.1 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 47.4%, or 404.2 ft (123.2 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Project turbines would be seen on the distant horizon. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents, tourists, and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in ocean facing views and the visual environment being an important asset to the community.
Value	High	Viewers highly value this KOP for the defining experiential character of the expansive ocean facing views and its adjacency to the designated Historic District in Beach Haven.
Overall Sensitivity	High	—

³⁴ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Magnitude of Impact ³⁵	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 42.7°, or 34%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Medium	The lease area would occupy 27.2°, or 22%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.	Small	Project turbines would present a small change to the visual environment due to the extended distance. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small	—	Small	—
Overall Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from viewers' experience.	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from viewers' experience.

³⁵ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	9.85 (15.85)	548	443	560	472
OCS-A 0499 (Atlantic Shores South)	13.50 (21.73)	200	200	200	200
OCS-A 0549 (Atlantic Shores North)	9.85 (15.85)	157	157	157	157
OCS-A 0512 (Empire Wind)	—	0	0	0	0
OCS-A 0498 (Ocean Wind 1)	24.49 (39.41)	98	61	98	84
OCS-A 0532 (Ocean Wind 2)	20.24 (32.57)	93	25	105	31

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	32.64 (52.52)	658	85	196	0	791	176	339	0
Cumulative Total	9.85 (15.85)	1,206	528	744	443	1351	648	899	472

Description of Cumulative Project Appearances in the Context of the Affected Environment

from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 9.85 mi (15.85 km) away in lease area OCS-A 0549. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs and external turbines of the NY Bight would be seen. The external leases would mostly block the NY Bight leases and present a more dominant visual change across the horizon due to the closeness of the external lease areas compared to the far distance of the NY Bight leases. Rotor movement of the external lease turbines is likely to be apparent due to the proximity to shore.

Magnitude of Impact ³⁶	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 139.7°, over 100% of the 124° HFOV.	Large	The cumulative lease areas would occupy 127.7°, over 100% of the 124° HFOV.
Size and Scale of Change	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

³⁶ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 10: KOP-09 Barnegat Jetty

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 31.17 mi (50.17 km)
- **Date Visited:** January 25, 2023
- **Time of Visit:** 11:43 AM
- **Weather Conditions and Visibility:** Overcast
- **Location:** This viewpoint is from the end of the jetty along the breakwaters that form the Barnegat Inlet, to the east of Barnegat Lighthouse, within Barnegat Lighthouse State Park. The park is located on the northern tip of the barrier island in Ocean County, Long Beach Island, that separates the Atlantic Ocean and Barnegat Bay. Barnegat Lighthouse State Park is used for recreation including hiking, wildlife viewing, and fishing.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside beach area and is subject to the considerable influence of the bayside waterbodies and nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourist/Recreational, Water-Based
- **Visual Context:** The visual context of the KOP is dynamic, reflected in the frequency and number of tourists at the site, movements of vessels and recreation boaters along the coastline, the changing tidal patterns, and changing atmospheric conditions reflected in the ocean, bay, and sky. This is an impressive view along the pier with jetties and barrier islands framing the open ocean, which also provides an impressive and expansive view.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Moderate to steep dune barrier island and flat, sandy beach
Line	Irregular lines next to vegetation and curvilinear near tidal boundary
Color	Very light colored, spackled with light to dark gray
Texture	Soft fine texture, interspersed with coarse shells
Horizontal Scale	Enclosed horizon line near majority of site
Vertical Scale	None
Movement	None
Summary	The barrier island is composed of moderate to steep dunes, flat sandy beaches, with weak pockets of irregularity of vegetation. The landform encloses the horizon line through the majority of the site.
Open Ocean	
Form	Flat form, a framed, narrow stretch of open ocean beyond landforms
Line	Thin but strong line framed
Color	Gradient of deep blue to gray
Texture	Soft rippling to stippled
Horizontal Scale	Eye focused to horizon despite its relative narrowness
Vertical Scale	None
Movement	Swirling tidal movement, elongated
Summary	The ocean is flat with slight rippling effects and swirling with the tidal movements. The eye focuses on the horizon.
Water/Inland	
Form	Flat
Line	Curvilinear to straight banks of the Barnegat Inlet
Color	Deep blue to gray
Texture	Soft rippling to stippled
Horizontal Scale	Angled horizontal inlet out to open ocean
Vertical Scale	None
Movement	Swirling tidal movement, elongated
Summary	The Barnegat Inlet is flat and similar to that of the ocean conditions, with swirling tidal movements, stippled and rippling surface, and is a deep blue to gray color. The breakwaters associated with the inlet create an angular perspective line out toward the ocean.
Vegetation	
Form	Dune grasses and forbs, dense evergreen shrubs and trees to distance
Line	Thin vertical lines of grasses, angular and irregular trees/shrubs
Color	Dark sage to light gray and brown trees, grasses are light tan and yellow
Texture	Feathered grasses; pillowed, irregular shrubs in distance
Horizontal Scale	Encircle dunes and extend beyond
Vertical Scale	Creates a rear backdrop albeit a short one
Movement	Slight movement with the coastal breeze
Summary	Vegetation consists of dune grasses and herbs and dense evergreen shrubs and trees.

Aesthetic and Perceptual Characteristics	Description
Structures	
Form	Short and wide multi-family homes, Cape Cod style balcony and siding, blocky, angular craftsmanship.
Line	Horizontal lines from edges, fences, ramps, and timber pergolas.
Color	Fences and ramps are light tan to dark brown wood. The railings are dark gray and light gray. Houses have creams, browns, blues, and whites of balconies and additional framework.
Texture	Homes are blocky, fences are chunky wooded, and railings are smooth.
Horizontal Scale	Heavy horizontality
Vertical Scale	Fairly short but uniform in height
Movement	None
Summary	Structures, consisting of aesthetically consistent seaside residential homes and lighthouses, are visible to the rear and slightly obscured by vegetation. Ramps and access structures dominate the southern view along the landform.

Form 11: KOP-10 Barnegat Lighthouse*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 32.26 mi (51.92 km) (OCS-A 0541)
- **Date Visited:** January 25, 2023
- **Time of Visit:** 12:29 PM
- **Weather Conditions and Visibility:** Overcast
- **KOP Location:** This KOP is located at the top-level viewing point of the Barnegat Lighthouse, within Barnegat Lighthouse State Park. The lighthouse is located on the northern tip of the barrier island in Ocean County, Long Beach Island, that separates the Atlantic Ocean and Barnegat Bay. The Barnegat Lighthouse State Park is used for recreation including hiking, fishing, wildlife viewing, and fishing. The lighthouse affords 360° views. The lighthouse itself is crucial for vessels traveling to and from NY along the NJ coastline to navigate the shifting sandbars, the currents, and the offshore shoals.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside recreation area and is subject to the considerable influence of the neighboring beach, bayside waterbodies, oceanside residential/commercial and nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The visual context of the KOP is dynamic, reflected in the frequency and number of tourists at the site, movements of vessels and recreation boaters along the coastline and through the inlet, the changing tidal patterns, and changing atmospheric conditions reflected in the ocean, bay, and sky. The overall viewer experience by visiting tourists to the state park is an educational view relating to the vast opponents of the landscape, seascape, and open ocean.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level³⁷

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Dunes appear gently rolling from this elevation; flat, sandy beaches	Weak	2	Weak	2
Line	Irregular lines next to vegetation and curvilinear near tidal boundary and around tidal pond. Sharp angular lines where landform meets the breakwater.	Weak	2	Weak	2
Color	Very light tan/beige, speckled with light to dark gray	Weak	2	Weak	2
Texture	Soft fine texture	Weak	2	Weak	2
Horizontal Scale	Stretches far south and far north	Weak	2	Weak	2
Vertical Scale	Minimal	Weak	2	Weak	2
Movement	None immediately, but sand patterns change with the tides overtime.	Weak	2	Weak	2
Summary	Landform is rolling and mostly composed of sandy tan dunes. The form has been shaped into exaggerated geometric forms due to inland tidal ponds and breakwaters. The addition of project elements would not compete with the surrounding landform due to the distance of the project, presenting a weak contrast.				
Open Ocean					
Form	Flat form, a framed, narrow stretch of open ocean beyond landforms	Moderate	4	Moderate	4
Line	Thin but strong line framed	Moderate	4	Moderate	4
Color	Gradient of deep blue to gray	Moderate	4	Moderate	4
Texture	Soft rippling to stippled	Moderate	4	Moderate	4
Horizontal Scale	Eye focuses on large horizontal line	Moderate	4	Moderate	4
Vertical Scale	None	Moderate	4	Moderate	4
Movement	Swirling tidal movement, elongated	Moderate	4	Moderate	4
Summary	The open ocean presents an exaggerated horizontal line that the viewer is focused on from this elevated view. The addition of project elements would present a moderate degree of contrast. A horizontal white band is apparent along the horizon. The introduction of vertical elements along the simple, flat horizon that the viewer is drawn to would compete on a moderate level with the key characteristic elements of the open ocean.				

³⁷ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

KOP-10 Barnegat Lighthouse

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Water/Inland					
Form	Irregular oval tidal pond; sharp and angular Barnegat Inlet due to breakwaters	Weak	2	Weak	2
Line	Curvilinear tidal pond; straight, linear inlet	Weak	2	Weak	2
Color	Gradient of deep blue to gray	Weak	2	Weak	2
Texture	Soft rippling to stippled	Weak	2	Weak	2
Horizontal Scale	Angled horizontal inlet out to open ocean	Weak	2	Weak	2
Vertical Scale	None	Weak	2	Weak	2
Movement	Swirling tidal movement, elongated	Weak	2	Weak	2
Summary	The irregular inland tidal pond is surrounded by low to moderately sloped raised dunes and reflects the color of the dull blue-gray sky. The breakwaters associated with the inlet create an angular perspective line out toward the ocean. The addition of project elements would not compete with the inlet waters due to the distance of the project, presenting a weak contrast.				
Vegetation					
Form	Dune grasses and forbs, dense evergreen shrubs and trees to distance	Weak	2	Weak	2
Line	Thin vertical lines of grasses, angular and irregular trees/shrubs	Weak	2	Weak	2
Color	Dark sage to light gray and brown trees, grasses are light tan and yellow	Weak	2	Weak	2
Texture	Stippled and feathered grasses; pillowed, irregular shrubs in distance	Weak	2	Weak	2
Horizontal Scale	Encircle dunes and extend beyond	Weak	2	Weak	2
Vertical Scale	Short to moderate pillowing	Weak	2	Weak	2
Movement	None	Weak	2	Weak	2
Summary	The vegetation from this view ranges from stippled, coarse dune grasses with low vertical scale, to irregular massing clumps of pine trees which have a sense of moderate verticality. The addition of project elements would not compete with the vegetation due to the distance of the project, presenting a weak contrast.				

KOP-10 Barnegat Lighthouse

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Structures					
Form	Short and wide multi-family homes, Cape Cod style balcony and siding, blocky, angular craftsmanship.	Weak	2	Weak	2
Line	Horizontal lines from edges, fences, ramps, and timber pergolas.	Weak	2	Weak	2
Color	Fences and ramps are light tan to dark brown wood. The railings are dark gray and light gray. Houses have creams, browns, blues, and whites of balconies and additional framework.	Weak	2	Weak	2
Texture	Homes are blocky, fences are chunky wooded, and railings are smooth.	Weak	2	Weak	2
Horizontal Scale	Heavy horizontality	Weak	2	Weak	2
Vertical Scale	Fairly short but uniform in height	Weak	2	Weak	2
Movement	None	Weak	2	Weak	2
Summary	Structures are blocky, short homes, but not in the immediate vicinity of the view toward the open ocean. The addition of project elements would not compete with the surrounding structures due to the distance of the project, presenting a weak contrast.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ³⁸						Refraction Coefficient: 0.13 ³⁹					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	32.26 (51.92)	1159	789	102	1009	111	0	1197	1017	236	1098	248	13
OCS-A 0544	57.03 (91.79)	23	0	0	0	0	0	61	0	0	0	0	0
OCS-A 0537	66.14 (106.44)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	42.67 (68.67)	260	96	0	161	0	0	260	166	0	222	0	0
OCS-A 0539	37.42 (60.23)	371	272	17	344	20	0	371	346	77	371	83	0
OCS-A 0541	32.26 (51.92)	246	246	85	246	91	0	246	246	159	246	165	13
OCS-A 0542	42.49 (68.37)	259	175	0	258	0	0	259	259	0	259	0	0

³⁸ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

³⁹ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0541) ⁴⁰	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	185.0 (56.3)	185.0 (56.3)	139.6 (42.54)	139.6 (42.54)
Percent Hidden	14.1%	21.6%	10.6%	16.4%
Amount Visible, ft (m)	1,127.5 (343.6)	668.4 (203.7)	1,172.6 (357.4)	713.5 (217.45)
Percent Visible	85.9%	78.4%	89.4%	83.6%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 46.26 mi (74.45 km) away in lease area OCS-A 0541. The elevated view from the lighthouse provides a further expansive view toward the lease areas. Blade tips, hubs, and some mid-towers of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and blade tips and hubs of the 853-ft (260-m) turbines would be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips, hubs, and mid-towers of turbines from both heights would be seen. With the consideration of atmospheric refraction, a maximum of 89.4%, or 1172.6 ft (357.4 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 83.6%, or 713.5 ft (217.45 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. OCS-A 0537 is the only lease area that would not be visible given any condition. Project turbines would be seen on the distant horizon. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

⁴⁰ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

KOP-10 Barnegat Lighthouse

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Viewers from the lighthouse are highly susceptible to changes from the project due to their focus on views toward the open ocean and the surrounding visual environment being an important asset to the community.
Value	High	The lighthouse is highly valued for its designation as a state park, defining experiential character providing elevated views of the open ocean, locally held values, and tourist attraction.
Overall Sensitivity	High	—

Magnitude of Impact ⁴¹	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 91.0°, or 73%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Large	The lease area would occupy 63.0°, or 51%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Medium	In maximum visibility conditions, project turbines would present a noticeable change to the visual environment. The addition of new vertical features including the movement of the blades would contrast against the existing simple horizon line, therefore changing the visual character. The change may compete with key characteristic character area elements at this representative viewpoint.	Small	In maximum visibility conditions, project turbines would present a very small, but indistinguishable, change to the visual environment. Although the seen feature may be difficult to see, it may compete with key character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Medium	—	Small	—

⁴¹ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

KOP-10 Barnegat Lighthouse

Magnitude of Impact ⁴¹	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Overall Visual Impact Level	Moderate	The project would introduce a noticeable level of change to the character of the view, having an effect on the viewer experience, and may hold viewers' attention.	Minor	Although viewer receptor sensitivity is high and the size and scale of change is medium, the project may introduce a small but noticeable level of change to the character of the view, have a small effect on the viewer experience, and may not hold viewers' attention.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	10.07 (16.20)	547	404	653	438
OCS-A 0499 (Atlantic Shores South)	27.33 (43.98)	200	200	200	200
OCS-A 0549 (Atlantic Shores North)	10.07 (16.20)	157	157	157	157
OCS-A 0512 (Empire Wind)	50.19 (80.78)	34	0	106	0
OCS-A 0498 (Ocean Wind 1)	38.63 (62.17)	98	25	98	57
OCS-A 0532 (Ocean Wind 2)	35.43 (57.02)	58	22	92	24

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	32.26 (51.92)	1,159	789	1,009	111	1,197	1,017	1,098	248
Cumulative Total	10.07 (16.20)	1,706	1,193	1,156	515	1,850	1,455	1,751	686

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 10.07 mi (16.20 km) away in lease area OCS-A 0549. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs of the NY Bight and external lease turbines would be seen. The external leases would present a more dominant visual change across the horizon due to the closeness of the external lease areas compared to the far distance of the NY Bight leases. Rotor movement of the cumulative lease turbines is likely to be apparent due to the distance at which the projects would be viewed and elevated viewpoint from the lighthouse.

KOP-10 Barnegat Lighthouse

Magnitude of Impact ⁴²	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 169.6°, over 100% of the 124° HFOV.	Large	The cumulative lease areas would occupy 169.6°, over 100% of the 124° HFOV.
Size and Scale of Change	Large	The cumulative lease areas would present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

⁴² The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 12: KOP-11 U.S. Life Saving Station 14

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 39.33 mi (63.30 km)
- **Date Visited:** January 26, 2023
- **Time of Visit:** 9:38 AM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** This photo was taken from on top of the dune path. Behind the KOP sits the Seaside Park Borough Office, the beach and lifeguard building, and parking lots.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is subject to the considerable influence of the neighboring oceanside urban and nearshore ocean environments.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourist/Recreational
- **Visual Context:** An elevated position atop a vegetated dune, the KOP provides a vantage over the nearshore environment and down the shore to the south. To the north, the commercial and urban area is dominant and interrupts the horizon line. Behind the viewer are several 1-2 story structures, some historic and some contemporary. The at-grade boardwalk with tall dunes in front of it gives a different perspective than other boardwalks. It feels more like a sidewalk, delivering you from parking lots to the amusement park and commercial area to the north. The expansive beach is accessible consistently from this boardwalk, but ocean views are limited when below the dunes.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Flat sloping beach to tidal edge
Line	Curvilinear edge with topo breaks
Color	Bright uniform light tan and cream
Texture	Fine to smooth
Horizontal Scale	Extensive flat horizontal to the right, left is obscured by beach structures and curves away
Vertical Scale	None
Movement	None
Summary	The landform consists of rolling dunes and flat, sloping beach to the tidal edge. It has a curvilinear edge and breaks in the topography. The sand is finely textured, smooth, bright, light tan and uniform. There is an extensive flat horizontal to the right, and to the left is obscured by beach structures and curves away.
Open Ocean	
Form	Expansive flat horizontal with some swelling
Line	Strong horizon line unbroken, linear light reflections, and breaking rolling waves
Color	Blue-gray to light blue and white ocean (from reflection), very dark horizon. Light gray to bright blue sky, gray scattering clouds and brilliant yellow reflection. Extensive white caps and waves
Texture	Rippling to rough
Horizontal Scale	Expansive view of ocean to front and right, horizon broken by structures to left
Vertical Scale	None
Movement	Swirling and rolling toward
Summary	The open ocean is expansive, flat, and horizontal, with some swelling. There is a strong unbroken horizon line. There are linear, brilliant yellow white light reflections and linear breaking rolling waves. The ocean appears dark blue-gray to light blue-white. The horizon line is very dark against the light gray to bright blue sky and gray scattering clouds. There are rippling white caps and waves. Views are expansive to the right where the horizon continues. The horizon is shorter to the left, broken by structures.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Erect short fine forms
Line	Uniformly angular to vertical
Color	Light tan, yellow, deep brown, gray

Aesthetic and Perceptual Characteristics	Description
Texture	Wispy, fine, soft texture
Horizontal Scale	Horizontal, managed, and planted rows give long sense of perspective along dune
Vertical Scale	Short
Movement	Moving significantly in wind
Summary	The vegetation is moderately dense, fine, erect, and short with medium feathered wispy forms and uniformly angular vertical lines. Vegetation ranges from light tan, yellow to deep brown, and gray. Managed planted rows are ordered and horizontal. There are movements in the wind.
Structures	
Form	Low, beach houses with steep gabled roofs and '50s motel structures behind the road. At-grade boardwalk, repeating split rail fences across dune, boxy geometric structure and amusement park metal wiry forms to left, metal wiry dredge infrastructure.
Line	Behind, uniformly low line, blend of horizontal and steeply angular; left is irregular dominantly boxy with irregular curvilinear lines of amusement parks
Color	Pale grays, blues, and browns of structures behind, yellow to left
Texture	Flat
Horizontal Scale	Bookended view of horizon, short to the left and far distance bookending to right
Vertical Scale	Left view of amusement park has strong horizontal and vertical elements that close beach and ocean from view
Movement	None
Summary	Structures consist of geometric split rail fence and benches, concrete block building with 1950s style arch, steep gabled roofs, mixed with flat box structures. There is a horizontal boardwalk at grade, and repeating fences patterning. Background structures are irregular with an amusement park on beach and a temporary dredge structure. Colors are mostly cream and pale yellow, with some blue, and wood shingles are gray-brown.

Form 13: KOP-12 Seaside Park Beach

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 39.33 mi (63.29 km)
- **Date Visited:** January 26, 2023
- **Time of Visit:** 10:17 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** This photo was taken in front of the dune on Seaside Park Beach, near KOP-11 U.S. Life Saving Station 14.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is subject to the considerable influence of the neighboring oceanside urban and nearshore ocean environment.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourist/Recreational, Water-Based
- **Visual Context:** An elevated position atop a vegetated dune, the KOP provides a vantage over the nearshore environment and down the shore to the south. To the north, the commercial and urban area is dominant and interrupts the horizon line. Behind the viewer are several 1-2 story structures, some historic and some contemporary. There is a lack of visual harmony of the structures, being composed of condominiums, hotels, different styled homes, commercial buildings, and many large parking lots set behind the restored dunes.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Flat beach, rolling dune
Line	Curvilinear edges, horizontal line
Color	Bright, light, uniform, tan sand
Texture	Fine to smooth
Horizontal Scale	Extensive to the right
Vertical Scale	Small
Movement	None
Summary	The landform is a flat sloping beach to the tidal edge, to a rolling dune with curvilinear edges and breaks in topography. The colors are bright light uniform sand tan and textures are fine to smooth. To the right it is extensive, flat, horizontal. To the left the view is obscured by beach structures and curves away.
Open Ocean	
Form	Expansive flat horizontal, some swelling
Line	Linear light reflections, horizon line, linear breaking from rolling waves
Color	Dark blue-gray to light blue, white. Very dark horizon line, light gray to bright blue sky. Gray scattering clouds. Brilliant yellow white reflection.
Texture	Rippling
Horizontal Scale	Expansive flat horizontal
Vertical Scale	None
Movement	Some swelling, rolling waves
Summary	The open ocean is expansive, flat, and horizontal with some swelling, linear breaking from rolling waves and a strong unbroken horizon line. Colors are dark blue-gray to light blue, white, very dark horizon line, light gray to bright blue sky, gray scattering clouds, and brilliant yellow white reflection. There are rippling white caps and waves, expansive views to the right where the horizon continues, and a shorter horizon to the left, broken by structures.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Feathered forms, angular
Line	Uniformly angular line
Color	Light tan, yellow to deep brown, gray.
Texture	Fine, wispy
Horizontal Scale	Horizontal rows, ordered
Vertical Scale	Short

Aesthetic and Perceptual Characteristics	Description
Movement	Movement in wind
Summary	Vegetation is moderately dense, fine, erect, with short to medium feathered forms, uniformly angular vertical lines. The colors are light tan, yellow to deep brown, gray. The textures are fine and wispy. Vegetation is planted as restored, ordered, horizontal, managed rows, and move in the wind.
Structures	
Form	Low, beach houses with steep gabled roofs and '50s motel structures behind the road. At-grade boardwalk, repeating split rail fences across dune, boxy geometric structure and amusement park metal wiry forms to left, metal wiry dredge infrastructure
Line	Behind, uniformly low line, blend of horizontal and steeply angular; left is irregular dominantly boxy with irregular curvilinear lines of amusement parks
Color	Pale grays, blues, and browns of structures behind, yellow to left
Texture	Flat
Horizontal Scale	Bookended view of horizon, short to the left and far distance bookending to right
Vertical Scale	Left view of amusement park has strong horizontal and vertical elements that close beach and ocean from view
Movement	None
Summary	Structures consist of geometric split rail fence and benches, concrete block building with 1950s style arch, steep gabled roofs, mixed with flat box structures. There is a horizontal boardwalk at grade, and repeating fence patterning. Background structures are irregular with an amusement park on beach and a temporary dredge structure. Colors are mostly cream and pale yellow, with some blue, and wood shingles are gray/brown.

Form 14: KOP-13 Mantoloking*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 44.08 mi (70.93 km) (OCS-A 0538)
- **Date Visited:** January 26, 2023
- **Time of Visit:** 11:36 AM
- **Weather Conditions and Visibility:** Mostly cloudy
- **KOP Location:** Mantoloking is a borough situated on a barrier island that separates Barnegat Bay from the Atlantic Ocean. The Mantoloking Bridge connects the barrier island to mainland NJ. The photograph is taken from the public beach access ramp that crosses over a substantial dune, located at the end of Downer Avenue.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial character area and is subject to the considerable influence of the neighboring nearshore ocean environment.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The viewpoint is from a high point of the dune with an accessible ramp down to the beach, with a large sense of size and scale of both the ocean view and the dune and its restored dune grass. There is a strong visual harmony of the structures, being mostly composed of large old and new homes in the Historic District. Dune restoration is a common characteristic along the NJ coast, especially between residential neighborhoods and the beach. The character is distinct in Mantoloking compared to Seaside Park, having a strong visual harmony of structures. At night the view at this KOP contains existing artificial light sources and movement associated with residential and commercial properties and vessel navigational aids.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁴³

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁴⁴	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Narrow line of beach, slight slope of initial dune and exposed sand, rear dune is tall and mildly sloping	Weak	1	None	0
Line	Angled slop of cross section; linear coastal edge	Weak	1	None	0
Color	Uniformly soft, bright tans	Weak	1	None	0
Texture	Very fine sand	Weak	1	None	0
Horizontal Scale	Stretch of beach is narrow but visible extending well to the left and to the right	Weak	1	None	0
Vertical Scale	None	Weak	1	None	0
Movement	None	Weak	1	None	0
Summary	There is a narrow line of beach but it is visible extending well to the left and right, with a slight slope of dune and exposed sand within property lines. The uniform sand is very fine with a soft bright tan color. The addition of project elements at 1,312 ft (399.9 m) would present a weak contrast to the surrounding landform due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements to the view. 853-ft (260-m) turbines would not be visible from this KOP.				
Open Ocean					
Form	Large flat expansive and wavy ocean	Weak	2	None	0
Line	Strong horizon line, large horizontal wave lines in foreground	Weak	2	None	0
Color	Green and gray water gradient up to black horizon; light blue and gray sky with heavy gray clouds all but in a narrow band of blue in the horizon	Weak	2	None	0
Texture	Significant rippling in distance, broken and ridged water closer to viewer, wispy break waters	Weak	2	None	0

⁴³ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

⁴⁴ 853-ft (260-m) simulations were not produced for this KOP.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁴⁴	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Horizontal Scale	Long unbroken horizon from left to right with slight view of tower structures in extreme distance on either end, with a cargo ship sitting along horizon line	Weak	2	None	0
Vertical Scale	None	Weak	2	None	0
Movement	Large waves rolling toward viewer	Weak	2	None	0
Summary	The ocean presents large waves with significant white capping that lead to heavy rippling in midground and background. A strong horizon line extending unbroken from left to right with minor views of tower structures in extreme distance on either end. Large horizontal wave lines in foreground. Green and gray water gradient, black horizon, and light blue and gray sky with heavy gray clouds all but in a narrow band of blue in the horizon. Large scale view. Wisps of breakwaters are strong. The addition of project elements at 1,312 ft (399.9 m) would present a weak contrast to the open ocean due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements to the simple and flat horizon line. The 853-ft (260-m) turbines would not be visible from this KOP.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Dense grouping of grasses, dense vertical form of low to medium height	Weak	1	None	0
Line	Fine lines vertical with irregular angles	Weak	1	None	0
Color	Light yellow and tan to gray-brown	Weak	1	None	0
Texture	Wispy soft	Weak	1	None	0
Horizontal Scale	Extends from left to right uniformly	Weak	1	None	0
Vertical Scale	Low to medium high vertical scale	Weak	1	None	0
Movement	Taller grasses blowing in wind	Weak	1	None	0

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁴⁴	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	The vegetation presents a vertical grouping of dense and wispy soft textured grasses. Light yellow and tan to gray and brown grass extends from left to right. There is movement among the tall grass uniformly blowing in the wind. The addition of project elements at 1,312 ft (399.9 m) would present a weak contrast to the vegetation due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements to the view. The 853-ft (260-m) turbines would not be visible from this KOP.				
Structures					
Form	Large beach homes of similar architectural styles, cedar shingles and balconies of Craftsman/Cape Cod beach homes. Fences and guard rails toward beach; large cargo ship along horizon line.	Weak	1	None	0
Line	2-3 story vertical line, but horizontal elements of balconies and angular lines of roofs. Strong horizontality of split rail fences and handrails	Weak	1	None	0
Color	Browns, grays, and blues of houses; white trimming on houses and on fences, of similar brown and white as buildings	Weak	1	None	0
Texture	Coarse, scaled texture of shingles and wood elements	Weak	1	None	0
Horizontal Scale	Bookended on extreme ends of horizon by larger structures	Weak	1	None	0
Vertical Scale	Though 2-3 stories tall, nestled behind high dune reduce vertical impact but still noticeable verticality	Weak	1	None	0
Movement	Slow moving cargo ship in the open ocean along the horizon	Weak	1	None	0
Summary	Large beach homes of similar architectural style, namely the cedar shingling in balconies of Craftsman or Cape Cod beach houses with angled roofs and white fences and trimming. Colors range from brown to gray to blue. Fences with Trex rails for accessible platform to beach are similarly brown with white elements. Structures on the far ends of the horizon are visible, including large cargo ships in distance moving along the horizon. The addition of project elements at 1,312 ft (399.9 m) would present a weak contrast to the structures due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements to the view. The 853-ft (260-m) turbines would not be visible from this KOP.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁴⁵						Refraction Coefficient: 0.13 ⁴⁶					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	44.08 (70.93)	275	0	0	0	0	0	564	0	0	0	0	0
OCS-A 0544	46.79 (75.31)	21	0	0	0	0	0	53	0	0	0	0	0
OCS-A 0537	61.63 (99.18)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	44.08 (70.93)	103	0	0	0	0	0	165	0	0	0	0	0
OCS-A 0539	44.99 (72.41)	102	0	0	0	0	0	219	0	0	0	0	0
OCS-A 0541	44.65 (71.86)	49	0	0	0	0	0	127	0	0	0	0	0
OCS-A 0542	53.31 (85.79)	0	0	0	0	0	0	0	0	0	0	0	0

⁴⁵ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁴⁶ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0538) ⁴⁷	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	1,000.9 (305.1)	853 (260)	853.7 (260.2)	853 (260)
Percent Hidden	76.3%	100%	65.1%	100%
Amount Visible, ft (m)	311.2 (94.8)	0.0 (0.0)	458.4 (139.7)	0.0 (0.0)
Percent Visible	23.7%	0.0%	34.9%	0.0%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 44.08 mi (70.93 km) away in lease area OCS-A 0538. Only blade tips of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and 853-ft (260-m) turbines would not be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips of the 1,312-ft (399.9-m) turbines would be seen. Still, no 853-ft (260-m) turbines would be seen even with refraction. With the consideration of atmospheric refraction, a maximum of 34.9%, or 458.4 ft (139.7 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. Of those that are visible, project turbines would be seen on the distant horizon and framed between structures. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents, tourists, and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in ocean facing views and the visual environment being an important asset to the community.
Value	High	Viewers highly value this KOP due to the defining experiential character of the expansive open ocean views and direct access to the beach.

⁴⁷ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.

<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Overall Sensitivity	High	—

Magnitude of Impact ⁴⁸	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ⁴⁹	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 80.5°, or 40%, of the 65° HFOV and is located toward the center of the view out toward the ocean.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance, and only blade tips would be visible. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small	—	Negligible	—
Overall Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from viewers' experience.	Negligible	853-ft (260-m) turbines would not be visible from this KOP; therefore, the visual impact is negligible.

⁴⁸ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

⁴⁹ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient.

Form 15: KOP-14 Bayhead

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log
- **KOP Distance to Nearest WTG:** 44.53 mi (71.67 km)
- **Date Visited:** January 26, 2023
- **Time of Visit:** 12:34 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** Bay Head shares similar characteristics to Mantoloking. The photograph is taken from the public beach access ramp that crosses over a substantial dune, located at the end of Bridge Avenue.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is influenced by the neighboring nearshore ocean environment.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourist/Recreational
- **Visual Context:** Seaside structures provide a cohesive backdrop to the wide ocean view. Large dunes and vegetation also provide a sense of the view opening up once reaching the coastline.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Narrow sloped beach, sloping up to steep rolling dunes; similar to Mantoloking but broader and steeper
Line	Curvilinear and rounded edge
Color	Bright clear light tan sand
Texture	Very fine, uniform
Horizontal Scale	Extends toward horizon on both ends
Vertical Scale	High dunes on land's edge down to beach
Movement	None
Summary	The narrow and sloped beach is visible extending well to the left and right, with a steep slope of dune creating a rounded curvilinear form. The uniform sand is very fine with a bright clear tan color.
Open Ocean	
Form	Flat expansive form
Line	Long linear unbroken wave lines
Color	Distinctly green, light olive to gray blue gradient. In sky, large bar of blue until black of horizon
Texture	Ridged
Horizontal Scale	Long unbroken view to left and right
Vertical Scale	None
Movement	Rolling large waves with white caps throughout
Summary	There is a flat expansive change in the beach break. The ocean is distinctly green (light olive to gray blue), to a large bar of blue until a black horizon line. The ocean creates rolling large waves with whitecaps, long linear waves, and a long unbroken view to the left and right.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Shorter, less dense vertical forms as compared to Mantoloking
Line	Fine vertical lines with irregular angles
Color	Light yellow and tan to gray-brown
Texture	Wispy, soft, feathered
Horizontal Scale	Extends both left and right
Vertical Scale	Short
Movement	Slightly windblown

Aesthetic and Perceptual Characteristics	Description
Summary	The vegetation presents a short vertical grouping of wispy soft textured grasses. Light yellow and tan to gray and brown grass extends from left to right.
Structures	
Form	Similar home structure though smaller than Mantoloking, flat and angular jetties, split rail and sand fencing
Line	Horizontal fence elements, linear and slightly angular jetties
Color	Light tan and brown of fencing, black and dark blue jetties
Texture	Coarse jetties and fencing and wood elements of homes
Horizontal Scale	Bookended on extreme ends of horizon by larger structures
Vertical Scale	None for jetties and fences; homes are vertical to medium-high height
Movement	None
Summary	Medium-sized beach homes of similar architectural style, namely the cedar shingling in balconies of Craftsman or Cape Cod beach houses with angled roofs and white fences and trimming. The split rail fencing and sand are light tan and brown colors. Jetties or other rocky beach infrastructure are black, linear, proximate to ocean, and small but regularly spaced. Structures on the far ends of the horizon are visible, including large cargo ships in distance moving along the horizon.

Form 16: KOP-15 Point Pleasant

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 44.98 mi (72.39 km)
- **Date Visited:** January 26, 2023
- **Time of Visit:** 3:13 PM
- **Weather Conditions and Visibility:** Cloudy
- **Location:** This KOP is located in Point Pleasant Beach, located at the boardwalk adjacent to residential buildings and a wide, flat beach.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is influenced only by the neighboring nearshore ocean environment.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourist/Recreational
- **Visual Context:** The space is bounded by structures that make the boardwalk feel very close to the beach, as if the boardwalk is an extension of the homes and commercial area. Enclosed in the space, the beach does not feel natural but rather an extension of the manicured experience. Houses are smaller than previous sites but well maintained and of a collective similar style of beach/Cape Cod inspiration. Visual complexity of boardwalk to the right certainly dominates and sets a tone for the area. At nighttime, artificial lights associated with pedestrian lights along the boardwalk, restaurants, hotels, and other commercial businesses will be present.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Very flat form, wide sandy beach
Line	Flat rectilinear
Color	Cream clean tan sand
Texture	Very fine, smooth
Horizontal Scale	Beach extends far to the left, but is bookended on either end by structures such as boardwalk, piers, and large multiuse developments
Vertical Scale	None
Movement	None
Summary	Landform consists of a wide expanse of very flat beach that extends far to the left and right though is bookended by structures such as boardwalks and piers. The beach is very straight and linear. The sand presents as very clean cream, tan and has a very fine smooth texture. The horizontal elements are blocked by fence structures in the sand, but long nonetheless.
Open Ocean	
Form	Flat expansive form
Line	Linear waves of large breaking waves, horizon line
Color	Light gray blue to dark blue, predominately gray water. Dark horizon line contrasts with light blue and white of cloudy sky, sky is bright blue with white gray clouds
Texture	Stippled, ripping, wispy breaking waves. Soft pillowy clouds
Horizontal Scale	Bookended by structures in distance to left and pier to right
Vertical Scale	None
Movement	Rolling toward viewer
Summary	There are large breaking waves near the front of ocean, though calm elsewhere. The colors are predominantly light gray-blue to dark blue, predominant gray. The dark horizon line contrasts with the light blue and white of cloudy sky. The sky is bright blue with white gray heavy clouds. The texture is stippled, rippling and wispy breaks. There are rolling breaking waves toward viewer.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Slightly angular
Line	Minimal vertical lines
Color	Light gray brown and tan, some green
Texture	Fine, feathered
Horizontal Scale	None

Aesthetic and Perceptual Characteristics	Description
Vertical Scale	Short
Movement	None
Summary	There is little to no vegetation, only beach grass and some palms on private property. The colors are predominantly light gray, brown, and tan. There are slightly angular textures in short vertical forms. Green palm-like leaves are on one private property. The view is almost devoid of vegetation.
Structures	
Form	Chain link fence and at-grade boardwalk, sand fences narrow diagonals, homes small and boxy slight angled features, boardwalk commercial area large, boxy shapes with periodic angled roofs
Line	Horizontal boardwalk elements, strong linearity, sand fences diagonal strong line, solid geometric verticals of commercial, vertical rectilinear of homes
Color	Bright teal and tan of commercial structures, gray and rust red of chain-link fence, gray of boardwalk, gray and brown of sand fence, homes are gray and cream, dark gray structure to far left
Texture	Smooth
Horizontal Scale	Boardwalk at grade gives strong horizontal scale; homes and commercial area are tall and seem to continue along boardwalk
Vertical Scale	Close proximity of structures to boardwalk gives strong sense of enclosure to the rear
Movement	None
Summary	Structures consist of a chain link fence, boardwalk, and wooden bench spanning from left to right, with gray-red and brown colors. Diagonal sand fences are distributed through the entire beach from left to right. Homes behind are small, directly against the boardwalk with angled roofs and shingles. The colors are predominantly grays, creams, browns, and reds, and white trims and additional woodwork. The boardwalk is likely Trex. The structures are large with angled roofs and bright colors of teal and gray. To the left are large gray angular condos or large multifamily units.

Form 17: KOP-16 Ocean Grove

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 42.88 mi (69.01 km)
- **Date Visited:** January 27, 2023
- **Time of Visit:** 10:15 AM
- **Weather Conditions and Visibility:** Fair
- **Location:** This KOP is located within Ocean Grove Beach, owned, and operated by the Ocean Grove Camp Meeting Association.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is influenced by the nearshore ocean environment.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourist/Recreational
- **Visual Context:** Views from this location consist of flat, sandy beaches and small grassy dunes along the coastline to the north and south and the Atlantic Ocean to the east. Vegetation is limited to grass along the dunes and conventional residential landscaping. Human-made modifications include piers and rock structures that extend out into the ocean, lifeguard stations, lights along the boardwalk and the upper stories of homes and commercial buildings that extend above the dunes. Historic homes and hotels landward are visible and of note.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Small rounded dune in front, with wide flat beach, sloping steeply at water edge
Line	Curvilinear horizontal line along dune, convex to sloped line cross section
Color	Very light tan sand
Texture	Very fine, smooth
Horizontal Scale	Dune interrupts horizon line and is bookended by structures to left and right within a few thousand feet
Vertical Scale	Vertical element in front of viewer obscures views of ocean and horizon, separates boardwalk from rest of beach
Movement	None
Summary	The landform consists of small, rounded dunes with a wide flat beach to steep sloped water edge, and curving, convex to sloped. The sand is very light tan with a very fine texture. The dune interrupts the horizon line, bookended by structures extending far to the right.
Open Ocean	
Form	Wide, deep, flat
Line	Very strong horizon line where visible
Color	White yellow glare and gradient from light blue to dark blue. Sky is gradient of white at horizon to sky blue above sparse clouds
Texture	Rippled water, occasionally ridged/rolling
Horizontal Scale	Horizon broken frequently by dune, vegetation, and structures throughout. Inconsistent view.
Vertical Scale	None
Movement	Rolling toward
Summary	The ocean is wide, deep, and flat with a very strong horizon line. There is white-yellow glare and gradient from light blue to dark blue. The sky is a gradient of white at the horizon to blue in the sky with little clouds. The ocean water is rippled and rolling in occasional large waves. The horizon is broken by dune, vegetation, and structures periodically.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	N/A
Vegetation	
Form	Short to medium dune grasses and shrubs dense but periodic, foreground turf
Line	Fine, angular/vertical line
Color	Light tan grass, brown and gray shrubs
Texture	Feathered and soft texture as grass dominates plant composition

Aesthetic and Perceptual Characteristics	Description
Horizontal Scale	Extends along horizontal top of dune but is bookended by structures
Vertical Scale	Short-medium height but exaggerated from boardwalk as it sits on top of dune
Movement	Slight movement in wind
Summary	Vegetation consists of short to medium dune grasses with stretches of sparse and dense planting. The foreground has green and brown turf with soft vertical to angular lines and feathered texture. The occasional shrubs are coarser with more vertical lines. Colors consist of light tan dune grass to brown-gray shrubs. Horizontal lines follow the top of dune, bookended by structures.
Structures	
Form	Historic well-manicured Victorian homes behind; complex mostly geometric forms; blocky, rectilinear infrastructure.
Line	Solid, angular
Color	Homes are white, cream, soft yellows, and greens. Shelter and infrastructure are gray, red, brown; light tan sand fences, and large urban core visible to left has many colors
Texture	Diverse array, coarseness of boardwalk and sand fences dominate
Horizontal Scale	Structures enclose view from left and right; urban core to distance and infrastructure to right close the view
Vertical Scale	Houses are tall (three stories), but far enough away from boardwalk that the verticality is less apparent.
Movement	None
Summary	The historic well-manicured Victorian homes sit behind the view. Trex boardwalk, metal fencing and benches are in front of the view, and a modern picnic shelter is to the left. Homes, especially, have angled roofs, balconies, shingles, columns. The houses are white, cream, and soft yellows and greens. The shelter is white, gray, red, and brown. The boardwalk has gray, polished benches and a metal, light tan fence. Piers are visible to the right and other beach recreational shelters. There is an urban core to the left. Overall, the structures consist of modern and historic contrasting styles.

Form 18: KOP-17 Asbury Park Beach

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 39.33 mi (63.30 km)
- **Date Visited:** January 27, 2023
- **Time of Visit:** 11:49 AM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** Asbury Park is one of many beaches located along the eastern NJ shoreline and is located just north of Ocean Grove Beach. The boardwalk along the beach consists of restaurants, shops, arcade, splash park, mini golf, and playgrounds. The beach is maintained by the City of Asbury Park. This photograph is taken from the beach just below the Asbury Park Convention Hall, which sits directly on the beach.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside urban area and is influenced only by the nearshore urban environment.
- **Visual Impact Receptors (Viewer Groups):** Tourist/Recreational
- **Visual Context:** The visual context of the KOP is dynamic, with frequency and number of tourists at the site, movements of vessels and boaters along the coastline, the changing tidal patterns, and changing atmospheric conditions reflected in the ocean and sky. The urban environment is impressive, historic, and connects the boardwalk and more interior areas of Asbury to the beach and seascape. The noise of the boardwalk and associated commercial infrastructure is set behind this viewpoint. At nighttime, artificial lights associated with pedestrian lights along the boardwalk, restaurants, hotels, vessels, and other commercial businesses will be present.

KOP-17 Asbury Park Beach

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Level stretch of sandy beach
Line	Strong horizontal line to the north and south of the viewpoint where the beach stretches and meets the water's edge. Choppy line where breakwater occurs and jagged line where breakwater meets beach.
Color	Light and medium beige/tan
Texture	Uniformly grainy and stippled from foot tracks
Horizontal Scale	Dominant to the south of the view, horizontal extent is broken up to the north directly in front of the view due to breakwater
Vertical Scale	None
Movement	None
Summary	The landform consists of the beige/tan, sandy beach that is essentially flat with uniformity and is broken up by the breakwater.
Open Ocean	
Form	Thin flat plane
Line	Horizon is a thin dark, straight line. Curvilinear and irregular line where the waves break onto the beach
Color	Medium crisp blue, white tips near shore, and dark blue water near horizon
Texture	Irregular rippling due to currents and shoals
Horizontal Scale	Entire skyline
Vertical Scale	None
Movement	Rolling, in and out, breaking against breakwaters.
Summary	Views to the east are partially obstructed by the breakwaters, but the view remains dominated by the open expanse of the Atlantic Ocean, with the horizon line as a main focal point.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There is no vegetation in the view from this KOP.

Aesthetic and Perceptual Characteristics	Description
Structures	
Form	Breakwaters are angular and blocky. Not in view, but boardwalk is long and linear, convention hall is blocky, columnar, and arching.
Line	Breakwaters create a horizontal line, but individually appear irregular and blocky. Long, horizontal line created by boardwalk. Angular lines on convention hall.
Color	Breakwaters are medium to dark gray with some brown staining. The boardwalk is light brown. The convention hall is mainly brick with white-tan and light green trimming.
Texture	Breakwaters appear coarse. Both smooth and irregular faces of the building.
Horizontal Scale	Breakwaters stretch across nearly the whole horizontal scale of view, until looking directly north or south. The boardwalk has a large horizontal scale. Some horizontal features on the edges of the building. The convention hall is a major horizontal structure on the beach setting.
Vertical Scale	Breakwaters have nearly no vertical scale from this vantage point. None for the boardwalk. The convention hall is a major vertical structure on the beach setting.
Movement	None
Summary	Overall, the breakwaters create an angular and blocky look while also forming a horizontal line of medium to dark gray with some brown staining. Commercial and recreational vessels are visible in the open ocean.

Form 19: KOP-18 Allenhurst Residential Historic District*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 42.53 mi (68.44 km) (OCS-A 0544)
- **Date Visited:** January 27, 2023
- **Time of Visit:** 1:47 PM
- **Weather Conditions and Visibility:** Overcast
- **KOP Location:** This KOP is located near the end of Speir Avenue along a boardwalk within a historic district. The Allenhurst Beach Club is nearby with cabanas and other facilities associated with the club including a pool and restaurants.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is subject to the considerable influence of the nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The beach seems separated from all angles from public access. Stately homes, elevated boardwalks, boat club structures on beach all serve to give strong sensibility that the beach is private, though it is public. The impressive nature of the homes in their square, geometric features on the beachfront and down the street help give a sense of formality and monumentality to the neighborhood. With little between the houses and the beach other than a narrow road and boardwalk, the beach feels similarly monumental. Features like the Asbury Hall Convention Center and other urban structures to the right close the horizon in the last narrow stretch. To the left, the boat club structures specifically close off the beach and while the horizon line of the ocean is visible, beyond most of the structures, it is visually distracting because only a narrow strip of ocean can be seen. At night the view at this KOP contains existing artificial light sources and movement associated with residential and commercial properties and vessel navigational aids.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁵⁰

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁵¹	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Flat wide beach, linear	Weak	1	N/A	N/A
Line	Linear, flat, occasionally sharply angled rocks	Weak	1	N/A	N/A
Color	Light tan, sparsely reddish gray rocks	Weak	1	N/A	N/A
Texture	Smooth texture, occasionally sharp	Weak	1	N/A	N/A
Horizontal Scale	Short horizontal scale to left, nearly immediately obscured by beach structures; extends further to right but obscured by structures (Asbury Hall)	Weak	1	N/A	N/A
Vertical Scale	Flat	Weak	1	N/A	N/A
Movement	None	Weak	1	N/A	N/A
Summary	Flat wide beach bookended by structures to the left (near) and right (far). Linear flat line unto tidal edge, sloping down at that point. Light tan sand and occasional sparse medium sized reddish gray rocks with an overall fine smooth texture. A short horizontal scale to the left extends to a medium distance to the right. The addition of 1,312-ft (399.9-m) project elements would present a weak contrast to the surrounding landform due to the distance, sitting low on the horizon, and small number of blade tips visible.				
Open Ocean					
Form	Flat expanse	Weak	2	N/A	N/A
Line	Large, long, linear horizon lines and parallel waves	Weak	2	N/A	N/A
Color	Light gray to medium blue gray, deep blue and black horizon. Sky is peach/orange to right, dark gray clouds above. Gray blue to medium blue horizon to left; bright white and gray clouds above	Weak	2	N/A	N/A
Texture	Rippled and occasionally ridged	Weak	2	N/A	N/A
Horizontal Scale	Bookended to right by Asbury Hall and structures closer to the viewer, left structures nearly entirely obscure beach and ocean horizon	Weak	2	N/A	N/A

⁵⁰ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

⁵¹ 853-ft (260-m) simulations were not produced for this KOP.

KOP-18 Allenhurst Residential Historic District

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁵¹	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Vertical Scale	None	Weak	2	N/A	N/A
Movement	Rolling toward	Weak	2	N/A	N/A
Summary	The ocean appears as a flat expanse with large, long, linear waves near the beach, though calm elsewhere. The waves mimic the horizon line with strong linearity. There is a light gray gradient to medium blue, gray, deep blue-black horizon. The sky near the horizon is peach to the right with dark gray clouds above. The rest of the horizon is gray blue to medium blue to the left. Bright white and gray clouds directly in front and to the left and gray heavy clouds with spots of sun. The convention center blocks the horizon to the right, and structures to the left distract from the horizon. The rest of the ocean view is undisturbed. The addition of 1,312-ft (399.9-m) project elements would present a weak contrast to the open ocean, introducing minor and distant vertical elements to the flat horizon.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There is no vegetation in the view from this KOP.				
Structures					
Form	Impressive stately neoclassical features, geometric, rectilinear homes. Boat club structures are short, angled roof, simple; urban blocky forms to right. Horizontal elevated boardwalk	Weak	1	N/A	N/A
Line	Rectilinear	Weak	1	N/A	N/A
Color	Homes are mostly cream, gray, terracotta. Metal fence is rusty colored and gray, boardwalk gray	Weak	1	N/A	N/A

KOP-18 Allenhurst Residential Historic District

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁵¹	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Texture	Coarse. Certain houses are smooth in appearance	Weak	1	N/A	N/A
Horizontal Scale	Elevated, horizontal boardwalk gives strong sense of scale, but is blocked by structures and cars to left and right	Weak	1	N/A	N/A
Vertical Scale	Houses are set back but tall enough to lend verticality; above-grade boardwalk sets you distinctly above and away from beach	Weak	1	N/A	N/A
Movement	None	Weak	1	N/A	N/A
Summary	Impressive stately homes mostly mimicking classical features such as round columns and geometric angular structure. The boardwalk is raised and is made of wood with metal fence. White Trex benches sit on the boardwalk behind the fence. The boat club shelters are short, with angled roofs and simple structures. Urban structures and the convention center are visible to the right. Rock jetties are in the water. Homes are mostly cream and gray, with roofs of gray terracotta shingles. Homes are tall and lend to verticality. The addition of 1,312-ft (399.9-m) project elements would present a very weak contrast, if any, to the surrounding structures.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁵²						Refraction Coefficient: 0.13 ⁵³					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	42.53 (68.44)	111	0	0	0	0	0	224	0	0	18	0	0
OCS-A 0544	42.53 (68.44)	80	0	0	0	0	0	110	0	0	18	0	0
OCS-A 0537	61.24 (98.56)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	48.14 (77.48)	31	0	0	0	0	0	104	0	0	0	0	0
OCS-A 0539	53.26 (85.71)	0	0	0	0	0	0	10	0	0	0	0	0
OCS-A 0541	55.88 (89.93)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	63.38 (102.01)	0	0	0	0	0	0	0	0	0	0	0	0

⁵² Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁵³ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁵⁴	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	867.6 (264.4)	853 (260)	735.6 (224.2)	735.6 (224.2)
Percent Hidden	66.1%	100%	56.1%	86.2%
Amount Visible, ft (m)	135.5 (444.4)	0.0 (0.0)	576.5 (175.7)	117.4 (35.8)
Percent Visible	33.9%	0.0%	43.9%	13.8%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 42.53 mi (68.44 km) away in lease area OCS-A 0544. Only blade tips of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and 853-ft (260-m) turbines would not be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips of the 1,312-ft (399.9-m) turbines and the 853-ft (260-m) turbines would be seen. With the consideration of atmospheric refraction, a maximum of 43.9%, or 576.5 ft (175.7 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. Only a maximum of 13.8%, or 117.4 ft (35.8 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction, which is barely perceptible to the naked eye, especially from the extended distance. Of those that are visible, project turbines would be seen on the distant horizon and framed between structures. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents, tourists, and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in ocean facing views, especially given the historic character of this historic district.

⁵⁴ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

KOP-18 Allenhurst Residential Historic District

Receptor Sensitivity	Rating	Rationale
Value	High	Viewers highly value this KOP for the defining experiential character of the expansive ocean facing views and its setting within the designated Historic District in Allenhurst.
Overall Sensitivity	High	—

Magnitude of Impact ⁵⁵	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ⁵⁶	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 48.4°, or 39%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance and only blade tips would be visible. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small	—	Negligible	—
Overall Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from viewers' experience.	Negligible	853-ft (260-m) turbines would not be visible from this KOP; therefore, the visual impact is negligible.

⁵⁵ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

⁵⁶ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient.

Form 20: KOP-19 Navesink Twin Lights—Base

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 44.03 mi (70.86 km)
- **Date Visited:** January 27, 2023
- **Time of Visit:** 4:10 PM
- **Weather Conditions and Visibility:** Cloudy
- **Location:** The Navesink Twins Lights is a non-operational lighthouse and museum located in Highlands, NJ overlooking Sandy Hook Bay, the entrance to NY Harbor, and the Atlantic Ocean. The lighthouse is known as the Twin Lights State Historic Site and is owned and operated by the NJ State Park Service. Tourists visit this site to experience the views from the lighthouse and the historic character of the site.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the bayside residential area and is subject to the considerable influence of the neighboring oceanside residential/commercial area and the nearshore ocean. In the distance, the bayside urban area and inland urban area of NYC provides a compelling view to the north; the elevated height provides a rich view of the open ocean to the east.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The visual context of the KOP view is dynamic, with the changing frequency and number of tourists at the site, movements of traffic along the roads in view and large ships in the distance, and changing atmospheric conditions reflected in the ocean, bay, and sky. Views of the open ocean are coupled with a view of the inlet marinas and a marine coastal residential community, making for many varying visual elements and structures. There are limited views of Long Island and NYC. From this low setting vantage point, the trees in the immediate view partially screen the view toward the ocean and bay. The eye is drawn to the horizontal crisp white fence, and the horizon line in the distance. The Twin Light State Historic Site itself is impressive and distinctive.

KOP-19 Navesink Twin Lights—Base

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Intermittent narrow strip of beach along the peninsula below, and occasional exposed sand within the peninsula. Immediate foreground is mostly flat with some mounding
Line	Curvilinear form along coastline, sloped up to vegetated dune
Color	Gray tan sand
Texture	Smooth at distance
Horizontal Scale	Extends left and right in the distance but is significantly blocked by bare-leaf trees; foreground landform extends far left and right
Vertical Scale	None
Movement	None
Summary	The landforms from this vantage point form two main horizontal lines, one in the immediate foreground and the other that splits the bay from the ocean.
Open Ocean	
Form	Wide flat, open ocean
Line	Flat line
Color	Medium gray to dark blue; gray/pink horizon band of sky with dark gray clouds. Left sky is light to bright blue opens among lighter gray clouds.
Texture	Slight rippling
Horizontal Scale	Sky opens up left and right, but horizon is frequently obscured by trees and structures
Vertical Scale	None
Movement	Very minor rippling from this vantage point
Summary	Much of the view is the open ocean that created a wide flat line with a gradient of medium gray to dark blue and slight rippling. There is a large sky with gray/pink horizon band. The horizon to the north and south is mostly obscured by trees and structures.
Water/Inland	
Form	Narrow curved flat waterbody
Line	Curvilinear
Color	Light gray to blue
Texture	Smooth to slight stippling
Horizontal Scale	Extends left and right but heavily obscured by vegetation and ultimately blocked to right by near structures
Vertical Scale	None
Movement	Mostly still, not moving. Occasional rippling due to coastal breeze or boats
Summary	There is a narrow inlet separated by a narrow peninsula, forming a slightly curvilinear horizontal line that extends left and right but is eventually obscured by vegetation. The peninsula consists of a narrow strip of beach that rises to a vegetated dune that appears smooth at this distance.

Aesthetic and Perceptual Characteristics	Description
Vegetation	
Form	Deciduous and evergreen treetops; irregular, angular form
Line	Irregular, chaotic
Color	Gray, brown trees with occasional olive and deep green of evergreen; distant dune vegetation is brown, red, and gray.
Texture	Coarse, wiry
Horizontal Scale	Interrupts parts of horizon line; does not seem to extend far left to right
Vertical Scale	Obscures view due to height, but is far enough away from viewer that their height does not alter character
Movement	None
Summary	The dominant vegetation consists of jagged deciduous and evergreen trees that frame the view out to the bay and open ocean. Turf and regularly planted shrubs are in the immediate foreground. Grasses and shrubs appear on the dunes on the distant peninsula.
Structures	
Form	Blocky, rectilinear forms behind; white smooth fences immediately in front of viewer. Marine infrastructure and coastal homes/structures form urban areas below viewer. Curved roads and horizontal blocky ships are below viewer.
Line	Geometric but slightly irregular stonework behind; geometric below; significantly sinuous road below; ships are linear forms.
Color	Gray and tan road infrastructure; coastal structures blue, white, green, red; marinas and boats white, gray.
Texture	Smooth
Horizontal Scale	Structures end in limited horizon.
Vertical Scale	Lighthouse has significant height and adjacency. Smaller infrastructure adjacent to roadways and within residential area have a small vertical scale.
Movement	Movement of ships and road traffic is slight at this distance.
Summary	There are stone historic structures behind the view to the west. In the immediate foreground there is a white metal fence. Below the view there are coastal houses, apartments, marinas, and large shops.

Form 21: KOP-20 Sandy Hook Beach

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 46.34 mi (74.58 km)
- **Date Visited:** January 28, 2023
- **Time of Visit:** 10:11 AM
- **Weather Conditions and Visibility:** Fair
- **Location:** This KOP is located on the eastern end of the Sandy Hook section of Gateway National Park, along the beach.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside beach area and is subject to the considerable influence of the neighboring bayside recreation, bayside natural upland, bayside waterbodies, and bayside urban areas, and associated inland urban areas of NYC, as well as nearshore ocean and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** This KOP, located on a flat, natural-appearing, sandy beach holds impressive views of the immediate surrounding natural areas, NYC, the nearshore ocean environment, and the shipping activity related to NY Bay. The verticality and scale of both the freight ships passing through and the skyscrapers of Manhattan are eye-catching and compelling.

KOP-20 Sandy Hook Beach

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Expansive, wide, flat beach with slight dune to rear and slope to tidal edge; ridge in left distance
Line	Curvilinear edge at water and inland edge
Color	Mix of gray and tan sand; white, yellow, black of shells and debris
Texture	Fine sand, irregularly coarse debris
Horizontal Scale	Long expanse horizontal bounded by inlet to left
Vertical Scale	None
Movement	None
Summary	Landform consists of an expansive, wide beach with slight dunes to rear. There is a slight angle to the tidal edge and a curvilinear edge at the water and landslide. There is a mix of tan and gray sand, and white, yellow, and black of various shells and debris. The sand is fine with irregularly coarse shells and debris. The gray-green landform of the ridge to the left is in the distance creating a long line.
Open Ocean	
Form	Flat, wide, open ocean
Line	Flat line, reinforced by sun's reflecting lines
Color	Deep blue, black horizon with reflected white yellow glare
Texture	Stippled to rippling
Horizontal Scale	Bookended by urban structures to left and beach at extreme right
Vertical Scale	None
Movement	Moving horizontally to left
Summary	About $\frac{3}{4}$ of the view is open ocean and $\frac{1}{4}$ is the inlet. The ocean is deep blue with a black horizon. There is reflected solar white-yellow glare, making horizontal lines. The texture is stippled to rippling and water moves horizontally. The horizon line bookended by urban structures to left and beach at extreme right.
Water/Inland	
Form	Flat, wide expanse
Line	Curvilinear
Color	Deep blue
Texture	Slight stippling
Horizontal Scale	Extends left almost to horizon, landform blocks horizon at far edge
Vertical Scale	None
Movement	Swirling
Summary	The inlet is similar color and texture as the ocean but is gentler and has swirling movement. The inlet extends left almost to the horizon.
Vegetation	
Form	Sparse to slightly dense dune grasses; tall line of mixed trees and shrubs
Line	Fine many thin lines of grasses, irregular stippling of tree lines; massing of grasses are curvilinear, massing of trees are linear
Color	Grasses are tan, yellow; trees are varying gray, brown, and deep green.
Texture	Feathery, soft grasses and pillowy hedges of trees
Horizontal Scale	Grasses extend far to left and right; trees line rear but limited in horizon

KOP-20 Sandy Hook Beach

Aesthetic and Perceptual Characteristics	Description
Vertical Scale	Low grasses, though trees give sense of closure and separation from other features in distance
Movement	Slight movement in wind
Summary	Vegetation is sparse to slight density with short dune grasses. The density of vegetation gets very dense in the distance. There is a tall line of mixed trees extending from the right rear to the left rear. There are medium height grasses, with angles but many thin lines. The trees have stippled irregular lines and are similar height. The grasses are tan and yellow with a feathery softness, and trees are gray-brown, green, and some red with coarse tops and a pillowy body. Vast curvilinear grasses extend far left to right. Trees line the rear horizon. Grasses sway in the wind and exaggerate contrast.
Structures	
Form	Blocky, massive rectilinear freighters; urban blocky massing to left and near-center and bridge, geometric beach/Cape Cod style homes and water towers to rear
Line	Horizontal lines of ships, rectilinear urban forms, geometric bridge
Color	Urban structures are mostly gray and brown at this distance; ships up close are deep green, white, red, and blue but mostly blue/gray in distance. Structures to rear are pale cream, yellows, browns
Texture	Smooth
Horizontal Scale	Structures encompass distance; large ships obscure horizon though are transient
Vertical Scale	Height of urban structures is an impressive dominating view; ships may be close enough to block horizon line
Movement	Transience of ships
Summary	Structures consist of large freighters scattered from middle distance to background. Urban structures are evident and block the horizon of the inlet. Buildings exhibit significant verticality and are geometric. Boats are massive and angular. Gray-brown-reddish buildings in the distance turn very blue in the distance. Boats are gray, deep green, white, and red. The bridge is green and extremely vertical. Structures to the rear are quaint beach-esque cottages and sheds. The water tower is rectilinear, and bright blue.

Form 22: KOP-21 Great Kills

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 54.59 mi (87.86 km)
- **Date Visited:** January 28, 2023
- **Time of Visit:** 1:52 PM
- **Weather Conditions and Visibility:** Overcast
- **Location:** The KOP is located in Great Kills Park, just behind Great Kills Beach. This area is part of the Gateway National Recreation Area - Staten Island Unit. Nearby there is a kid's playground within a manicured park, medium sized parking area, walking paths, marshes, and coastal scrub natural areas.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in outside of the GAA.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** There is relatively little beach and mostly recreational area. The view of the ocean is framed by NYC and Sandy Hook ridge. There are impressive views of the Lower Bay, the ocean, and the urban core. Infrastructure is evident in water in the middle and far distance.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Thin beach; eroded cliff face; arcing sand bar
Line	Curvilinear beach edge and sand bar; sinuous cliff edge and irregular broken sand bar line
Color	Tans, brown, and gray
Texture	Smooth/spackled
Horizontal Scale	Eroded edge line extends to horizon and ridged topography in distance; significantly flat
Vertical Scale	Moderate vertical topographic scales
Movement	None
Summary	The beach is thin with an eroded cliff behind. There is exposed soil and a small sand bar just offshore. There is a gray blue topographic ridge along the horizon line to the center and the right. The beach has a curvilinear edge, and the cliff edge is sinuous, irregular, and broken by a sand bar line with tans, browns, and gray. The flat view mimics the eroded edge line to the horizon and topography. The edge of the terrain is significantly flat.
Open Ocean	
Form	Open ocean is flat but with a narrow view
Line	Slightly ridged line
Color	Gray to deep blue, low saturation. Sky is mix of white and light blue at horizon line, medium blue and white/gray above
Texture	Stippled
Horizontal Scale	Limited; focused by NYC and its landforms to the left and Sandy Hook ridge to the right; view is broken periodically by small structures, such as buoys and lighthouses
Vertical Scale	None
Movement	Move toward viewer and slightly to the left
Summary	The view is focused on both ends by NYC and Sandy Hook. The ocean water is flat and slightly ridged, then gray to deep blue and low saturation. The sky is a mix of white and light blue at the horizon. Medium blue and white/gray above. Stippled to rippled movements slowly toward the view and to the left. The horizon is broken periodically by small structures.
Water/Inland	
Form	Flat, wide expanse
Line	Flat, slightly ridged
Color	Right side is light gray with a bright reflection of yellow/white sun, left is deeper blue
Texture	Slightly stippled
Horizontal Scale	Limited view, obstructed by structures
Vertical Scale	None
Movement	Moving toward and to the left
Summary	The inlet is light gray with reflections of sun. To the right is gray-blue and to the left is deeper blue.

Aesthetic and Perceptual Characteristics	Description
Vegetation	
Form	Wiry treetops with no leaves
Line	Irregular, spindly
Color	Gray-brown-red, light green, deep green
Texture	Fine, spindly
Horizontal Scale	Irregular though high enough to obscure visibility
Vertical Scale	Consistent
Movement	None
Summary	The top of the bank is shrub scrub hardwood. There is turf at the viewer position, scattered sparsely with short to medium height trees. There is shrub scrub behind the view and to right. The vertical line is consistent, and the horizontal line at top is irregular though high enough to obscure visibility. The trees and shrubs are gray-brown-red. Evergreens are light green and deep green. The shrubs are fine, and the trees are spindly. The turf is brown and slightly green. The trees frame mid-distance and far distance to the rear to the left and right.
Structures	
Form	Rectilinear erosion fence and cylindrical medium-tall pylons in foreground; far blocky, massed urban structures to left; thin upright lighthouses and infrastructure in distance; massed blocky ships
Line	Vertical and linear pylons and infrastructure in the far ocean. Ships are horizontal and rectilinear; rectilinear fence; geometric urban forms
Color	Brown and gray of pylons, erosion fence; dark gray and blue of distance features. Urban forms multiple colors but consistently brown, black, white, red, cream, and blue
Texture	Smooth
Horizontal Scale	Structures dominant horizon to left, breaks horizon at several points at center horizon, and are noticeable along landform to center right, consistent in most of landform
Vertical Scale	Height of urban structures is impressive, as are ships which dot horizon
Movement	Transience of ships
Summary	There is an erosion fence in the front view and boardwalk poles in the foreground. Marina structures, lighthouses, and other infrastructure are further in the distance and horizon. The city is blocky and geometric. The ships are large geometric masses on the horizon. The marina is mostly white. Distant structures are gray-blue, like the ships. The city displays various shades of white, brown, red, and cream. The nearby pier is shallow and gray, and the boardwalk columns are light and dark gray. Structures dominate the horizon to the left and break the horizon at several points toward the horizon center and are noticeable and consistent along landforms to the center right. Behind the view, the playground equipment is gray and light blue. The facilities are small, cream, and green colored, with angle roofs, and slightly obscured by indistinct shrubs. Very narrow structures are visible in the far distance of the ocean view.

Form 23: KOP-22 Roosevelt Pier

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WT:** 53.32 mi (85.80 km)
- **Date Visited:** January 28, 2023
- **Time of Visit:** 2:51 PM
- **Weather Conditions and Visibility:** Overcast
- **Location:** This KOP is taken from the Ocean Breeze fishing pier off of the Franklin D. Roosevelt Boardwalk and Beach. Nearby there is a public restroom, concession stands, food truck, the boardwalk and beach, and manicured fields.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located outside of the GAA.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The pier guides the viewers' focus to open views of the ocean, the city, and Sandy Hook in the distance. There is a dramatic, open view of the activity of the area.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Thin, slightly angled beach, geometric islands intermittent
Line	Curvilinear beach; rectilinear islands
Color	Dark tan, brown; gray and brown islands
Texture	Fine, smooth; jagged islands
Horizontal Scale	Extends not quite to horizon but provides sense of scale
Vertical Scale	Low
Movement	None
Summary	Landform is slightly angled, curvilinear edges, with a thin beach to the rear of the view. Landform colors are dark tan and brown, with fine and smooth textures. Landforms extends to left and right, but not quite to the horizon but lengthy and a sense of big scale. There are intermittent small islands that appear rounded, dark gray, and brown.
Open Ocean	
Form	Focal view between landforms, flat but thin (1/3 of horizon)
Line	Flat line, slight rippling diagonally
Color	Uniformly gray, slightly blue. Bright reflection of sun; bright medium blue and gray clouds above with orange light to right.
Texture	Rippled and occasionally ridged water; wispy clouds
Horizontal Scale	Horizon is dramatic, but limited and interrupted (1/3 of horizon is open ocean)
Vertical Scale	None
Movement	Rolling toward
Summary	The ocean provides a more focal view between landforms and occupies about 1/3 of the horizon. The water is uniformly gray with slight blue and there is a bright reflection to the right of the view. The horizon is interrupted by several island and structures. The sky is white and light with bright medium blue and gray clouds above, orange to the right. The water is rippled with a diagonal line from right to left in front. There is a dramatic view of horizon albeit limited and interrupted. The clouds are wispy above the horizon and soft as they go up.
Water/Inland	
Form	Flat
Line	Flat line, slight rippling diagonally
Color	Uniformly gray, slight blue. Bright reflection of sun; bright medium blue and gray clouds above with orange light to right.
Texture	Rippled and occasionally ridged water; wispy clouds
Horizontal Scale	Enclosed by adjacent urban land use and urban core along land ridges
Vertical Scale	None
Movement	Rolling toward
Summary	Similar, nearly identical water conditions to open ocean. There is a bright white reflection to the right.

Vegetation	
Form	Pillowed trees, linear grasses
Line	Irregular
Color	Yellow, green, brown, red, and gray
Texture	Soft grass and spindly trees
Horizontal Scale	Consistent with landform
Vertical Scale	Short to medium
Movement	Slight movement with the wind
Summary	There are yellow-green, very short, dense dune grasses beyond the beach and a line of trees beyond that. There are hardwood trees and shrubs on the islands. The trees are vertical with an irregular top line. The grass is soft, and the trees are spindly in a moderate rear distance and appear puffy at front distance. Tree colors are brown, red, and gray.
Structures	
Form	Horizontal, rectilinear pier with curved patterned brickwork; thin, narrow ocean infrastructure; urban blocky dense forms and flat rectilinear forms
Line	Rectilinear, rigid lines of urban areas and piers. Vertical lines slightly rounded for ocean infrastructure
Color	Red, gray and gray blue of pier brickwork; many colors of urban area mostly dull brown, gray, cream, tan; bright red and blue is visible of port structures
Texture	Coarse brickwork; smooth ocean infrastructure; stippled urban environment
Horizontal Scale	Structures dominate the view to left, far right, and behind. Structures occur periodically within the open ocean horizon, limiting ocean horizon line. Urban form seems to be vast from this perspective
Vertical Scale	Pier itself is tall with additional pergola-like structure; vertical elements of lighthouse and other buoys in ocean repeat such vertical views in ocean.
Movement	None
Summary	The pier is horizontal and rectilinear with a brick pattern. Lighthouses and buoys are clearly visible and narrow. The city to the left is geometrical, blocky, and dense with many colors mostly consisting of dull brown-gray, cream, and tan but bright red and blue is visible. There is smaller urban development behind the view which is more angled.

Form 24: KOP-23 Statue of Liberty—Upper Deck

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 55.89 mi (89.95 km)
- **Date Visited:** January 30, 2023
- **Time of Visit:** 8:27 AM
- **Weather Conditions and Visibility:** Overcast
- **Location:** State of Liberty National Monument on Liberty Island, NY.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located outside of the GAA but occurs adjacent to bayside waterbodies area. the surrounding features of bayside urban area, inland urban area, bayside industrial area, and bayside residential area significantly impact this KOP.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** From atop the Statue of Liberty, the view overlooks the landforms and urban structures of Brooklyn and Staten Island. The only visible nearshore ocean and open ocean is seen through the Verrazzano-Narrows Bridge; the narrow stretch of water here is hindered by the bridge itself and the frequent freighters and ferries traveling in the middle- and background of the view, but occasional openings in the horizon appear from this elevated position. The bridge and the landform frame and nearly enclose the horizon, providing an interesting view of the open ocean. Port infrastructure and shipping provide a busy, urban, working sensibility that provides visual interest and often interrupts the view out to the ocean.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Topography of ridge displaces much of horizon, conical graded mounds to left, thin exposed beach to right, both minimal.
Line	Curvilinear beach line; convex horizontal mound; irregular ridgeline.
Color	Gray-brown mound; brown to tan sand; ridgeline gray blue
Texture	Rough texture; smooth beach line
Horizontal Scale	Ridgeline dominates horizon but is bounded by significant vertical urban structures
Vertical Scale	Minimal from elevated viewpoint
Movement	None
Summary	The topography of ridge displaces much of horizon. Minimal conical graded mounds are to the left, with thin exposed beach to right. Mound horizontal and angular, lines curvilinear beach, and a slightly irregular ridgeline. Gray-brown mound and brown to tan sand. Ridgeline dominates horizon but is near structures and land.
Open Ocean	
Form	Flat narrow horizon
Line	Strong, low horizon line with fog line band above
Color	Fog line white to blue; gray water
Texture	Stippled to ridged water
Horizontal Scale	Minimal horizon, bounded by land and urban structures
Vertical Scale	None
Movement	Slight swirling, diagonal movement
Summary	Flat narrow horizon with a strong glow on the horizon line. The fog line band is white to blue with gray water stippled to ridged. There is a very minimal horizon.
Water/Inland	
Form	Curvilinear bay
Line	Flat significant horizontality enforced by waves and wakes
Color	Gray water, light blue, and medium blue gradients sporadic. Bright yellow white reflections of sun
Texture	Stippled to ridged
Horizontal Scale	Enclosed horizontal scale on both ends to medium distance
Vertical Scale	None
Movement	Rolling toward viewer and swirling
Summary	Curvilinear bay, flat but ridged. Horizontal lines of waves and wakes. Gray, light blue, and medium blue gradients in water, horizontal bright yellow white reflections. Stippled to ridged. Enclosed horizontal scale on both ends to medium distance. Rolling toward viewer and swirling.
Vegetation	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A

KOP-23 Statue of Liberty—Upper Deck

Aesthetic and Perceptual Characteristics	Description
Movement	N/A
Summary	N/A
Structures	
Form	Verrazzano-Narrows Bridge at horizon; urban geometric structures surround left and right; angular industry structures; geometric blocky ships
Line	Geometric and blocky structures; wiry, angled port infrastructure
Color	Black, green, white, and red ships; mint green, tan and gray of statue; white port infrastructure; orange ferries and gray-brown-tan-blue of urban structures
Texture	Smooth infrastructure, ships, and statue
Horizontal Scale	Dominant horizon line to rear; ships can interrupt ocean horizon line; bridge directly above horizon line is heavy
Vertical Scale	Immense verticality at all points.
Movement	Slow movement of ships in water
Summary	Verrazzano-Narrows bridge is on the horizon. Urban structures surround left and right. The port infrastructure is tall, angular geometry, white and gray, more distant are dark blue-gray. Many ships are large, blocky masses that can reduce visibility of the horizon and appear black, green, white and red. The Statue of Liberty is significantly vertical with tan, gray, and mint green colors. Tall wiry Port structures significant. Horizontal barges and low urban buildings, vertical cranes. Movement of ships, including ferries.

Form 25: KOP-24 Statue of Liberty—Base

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 55.85 mi (89.88 km)
- **Date Visited:** January 30, 2023
- **Time of Visit:** 9:17 AM
- **Weather Conditions and Visibility:** Overcast
- **Location:** State of Liberty National Monument on Liberty Island, NY.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is not located in the study area but occurs adjacent to bayside waterbodies area. The surrounding features of bayside urban area, inland urban area, bayside industrial area, and bayside residential area significantly impact this KOP.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** From atop the Statue of Liberty, the view overlooks the landforms and urban structures of Brooklyn and Staten Island. The only visible nearshore ocean and open ocean is seen through the Verrazzano-Narrows Bridge; the narrow stretch of water here is hindered by the bridge itself and the frequent freighters and ferries traveling in the middle- and background of the view, but occasional openings in the horizon appear from this elevated position. The bridge and the landform frame and nearly enclose the horizon, providing an interesting view of the open ocean. Port infrastructure and shipping provide a busy, urban, working sensibility that provides visual interest and often interrupts the view out to the ocean.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Topography of ridge displaces much of horizon, conical graded mounds to left, thin exposed beach to right, both minimal.
Line	Curvilinear beach line; convex horizontal mound; irregular ridgeline.
Color	Gray-brown mound; brown to tan sand; ridgeline gray blue
Texture	Rough texture; smooth beach line
Horizontal Scale	Ridgeline dominates horizon but is bounded by significant vertical urban structures
Vertical Scale	Minimal from elevated viewpoint
Movement	None
Summary	The topography of ridge displaces much of the horizon. Minimal conical graded mounds are to the left, with thin exposed beach to right. Mound horizontal and angular, lines curvilinear beach, and a slightly irregular ridgeline. Gray-brown mound and brown to tan sand. Ridgeline dominates horizon but is near structures and land.
Open Ocean	
Form	Flat narrow horizon
Line	Strong, low horizon line with fog line band above
Color	Fog line white to blue; gray water
Texture	Stippled to ridged water
Horizontal Scale	Minimal horizon, bounded by land and urban structures
Vertical Scale	None
Movement	Slight swirling, diagonal movement
Summary	Flat narrow horizon with a strong glow on the horizon line. The fog line band is white to blue with gray water stippled to ridged. There is a very minimal horizon.
Water/Inland	
Form	Curvilinear bay
Line	Flat significant horizontality enforced by waves and wakes
Color	Gray water, light blue, and medium blue gradients sporadic. Bright yellow white reflections of sun
Texture	Stippled to ridged
Horizontal Scale	Enclosed horizontal scale on both ends to medium distance
Vertical Scale	None
Movement	Rolling toward viewer and swirling
Summary	Curvilinear bay, flat but ridged. Horizontal lines of waves and wakes. Gray, light blue, and medium blue gradients in water, horizontal bright yellow white reflections. Stippled to ridged. Enclosed horizontal scale on both ends to medium distance. Rolling toward viewer and swirling.
Vegetation	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A

Aesthetic and Perceptual Characteristics	Description
Vertical Scale	N/A
Movement	N/A
Summary	N/A
Structures	
Form	Verrazzano-Narrows Bridge at horizon; urban geometric structures surround left and right; angular industry structures; geometric blocky ships
Line	Geometric and blocky structures; wiry, angled port infrastructure
Color	Black, green, white, and red ships; mint green, tan and gray of statue; white port infrastructure; orange ferries and gray-brown-tan-blue of urban structures
Texture	Smooth infrastructure, ships, and statue
Horizontal Scale	Dominate horizon line to rear; ships can interrupt ocean horizon line; bridge directly above horizon line is heavy
Vertical Scale	Immense verticality at all points.
Movement	Slow movement of ships in water
Summary	Verrazzano-Narrows bridge is on the horizon. Urban structures surround left and right. The port infrastructure is tall, angular geometry, white and gray, more distant are dark blue-gray. Many ships are large, blocky masses that can reduce visibility of the horizon and appear black, green, white and red. The Statue of Liberty is significantly vertical with tan, gray, and mint green colors. Tall wiry Port structures significant. Horizontal barges and low urban buildings, vertical cranes. Movement of ships, including ferries.

Form 26: KOP-25 Coney Island Boardwalk

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 48.79 mi (78.52 km)
- **Date Visited:** January 30, 2023
- **Time of Visit:** 12:55 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** The boardwalk in front of Coney Island's Cyclone roller coaster

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the bayside urban area and is subject to the considerable influence of the neighboring inland urban area, bayside waterbodies area, and nearshore ocean area.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The boardwalk is incredibly dynamic, with a variety of colors, shapes, and materials set against the boardwalk, coupled with the frequent movement of people through the space. The urban environment further behind the boardwalk structures emphasizes this area as a backdrop against the beach and bayside waterbody.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Wide flat beach slopes sharply at tidal end. Faint ridge line at horizons.
Line	Rectilinear and low flat line
Color	Tan beige cream sand, blue-gray ridgeline.
Texture	Stippled sand
Horizontal Scale	Structures bookend beach to left and right, 200 ft to left 500 ft to right
Vertical Scale	Low, no vertical
Movement	None
Summary	The beach is wide and flat, sloping sharply at the tidal edge and bookended by structures on either side.
Open Ocean	
Form	Flat wide expanse
Line	Weak horizon line, slight horizontal water lines
Color	Light gray-blue, mostly light gray. Sky is a similar color with a hazy darker gray horizon
Texture	Smooth with very light rippling
Horizontal Scale	25% of horizon is open ocean, bounded by land on either side, slightly obscured by ships
Vertical Scale	None
Movement	Rolling toward with slight swirling
Summary	The ocean provides a flat wide expanse and weak horizon line, is light blue-gray, and smooth to very light rippling with swirling and rolling and bounded by land on their side.
Water/Inland	
Form	Flat wide expanse
Line	Curvilinear
Color	Bluer than open ocean
Texture	Very smooth to slight rippling
Horizontal Scale	Bounded by structures to left and right, pier to right.
Vertical Scale	None
Movement	Moving toward and slightly swirling
Summary	The bay water appears bluer than the open ocean, with a flat wide expanse, smooth to slight rippling, and bounded by structures to the left and right, and a pier to the right.
Vegetation	
Form	Rounded short trees
Line	Irregular angular short to medium height trees
Color	Dark green to reddish brown
Texture	Coarse near viewer, fluffy in the distance
Horizontal Scale	Almost none to speak of, irregular urban plantings
Vertical Scale	Does not extend above structures' height
Movement	None

KOP-25 Coney Island Boardwalk

Aesthetic and Perceptual Characteristics	Description
Summary	Vegetation is rounded to angular short to medium height trees appearing dark green to reddish brown. They are planted irregularly within the urban setting and do not exceed the height of buildings.
Structures	
Form	Horizontal flat boardwalk, blocky structures with whimsical forms behind. Rectilinear jetties and piers
Line	Strong horizontal boardwalk, curvilinear irregular lines behind, vertical rectangular solid line behind that
Color	Gray-brown of boardwalk, black jetties, gray brown infra, urban is red brown, bright primary parks
Texture	Boardwalk coarse, diverse architecture ranges from smooth to wiry to coarse
Horizontal Scale	Boardwalk, adjacent structures appear to expend very far in both directions. Bookended least a mile
Vertical Scale	Low structures behind with irregular spires and towers of amusement park. Piers elevated on horizon
Movement	None
Summary	The amusement park architecture and related infrastructure is extremely varied. Not very coherent in styles or colors aside from the bright whimsical nature of rides and concession stands. But a sense of enclosure is not there on either end of the boardwalk. There are ships along the horizon that are large and bulky that obscure the horizon and dominate the view.

Form 27: KOP-26 Fort Tilden—Night*

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log, Appendix E - Visual Simulations
- **KOP Distance to Nearest WTG:** 43.70 mi (70.32 km) (OCS-A 0544)
- **Date Visited:** January 2, 2023
- **Time of Visit:** 7:15 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **KOP Location:** This KOP is located within the Jacob Riis Park Promenade in the Rockaway Peninsula of Queens, NY. Next to the park is Fort Tilden, a Historic District and a former U.S. Army installation. Fort Tilden and Jacob Riis Park are part of the Gateway National Recreation Area owned by the federal government and administered by the NPS. The park consists of a bathhouse in which ranger-led programs and history exhibits exist, along with boardwalks, ball courts, pitch and putt golf course, food concessions, and playgrounds. Visitors frequent the park for a variety of reasons, including to walk along the boardwalk, sunbath at the beaches, enjoy the ocean views, and use the recreation fields.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside recreation character area and is subject to the considerable influence of the neighboring nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** Long sandy beaches and the Atlantic Ocean are to the south, the Neponsit residential neighborhood lies to the east, Jamaica Bay is to the north, and Fort Tilden is to the west. The recreational sandy beach is set in front of the view. There is a wall along the promenade and a busy walkway between intermittent historic structures dating back to pre-World War II. The semi-developed park is set within the natural area. Dunes and armory structures face the ocean. For viewers along the beachfront, views south-southeast toward the lease area are mostly unobstructed and include views of the open ocean, with the horizon line as a main focal point. For boardwalk and promenade viewers, ocean views may occasionally be obstructed by showers, light poles, sand barriers, railings, and the ball courts, pitch and putt golf course, playgrounds, and the large parking lot that line the promenade from the northeast to the southwest. Because the boardwalk is parallel to the beach, boardwalk viewers would see the ocean in the periphery whereas beachgoers would see the ocean directly but in the context of other development (city skyline) in the distance. The overall area is very busy in the summertime. The parks are surrounded by large expansive parking lots with three-lane roads circulating traffic in and behind the beach. During hours of darkness, the key characteristics of the ocean, seascape, and landscape shift as various artificial lighting become part of the view, including streetlamps, lights across the ocean

KOP-26 Fort Tilden—Night

on Fort Hancock, and intermittent lighting from vehicles, planes, vessels, and others alike, creating movement within the nighttime view.

Section B: Existing Conditions, Project’s Degree of Contrast, and Project’s Visual Prominence Level⁵⁷

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Flat, slightly sloping, slightly elevated dunes in the distance, rolling topo 2:1 and 3:1 slopes	None	0	None	0
Line	Ephemeral irregular line connecting ocean to land; irregular horizontal line between beach and vegetation	None	0	None	0
Color	Tan-beige-gray sand; brownish gray toward vegetation	None	0	None	0
Texture	Uneven, smooth toward water line	None	0	None	0
Horizontal Scale	Flat expansive beach, curving elongated beach, parallel to horizon	None	0	None	0
Vertical Scale	None	None	0	None	0
Movement	None	None	0	None	0
Summary	The landform consists of flat, slightly sloping beach and slightly elevated dunes, with irregular lines connecting to the ocean and horizontal lines between beach and vegetation. Colors are muted in the nighttime lighting, but the sand tan/beige/gray and brownish toward the vegetation with an overall smoothness. During the daytime, the addition of 1,312-ft (399.9-m) project elements may present a weak contrast to the surrounding landform due to the distance, sitting low on the horizon, and small number of blade tips visible. At nighttime, the 1,312-ft (399.9-m) turbines and turbine lighting are not visible, therefore have no contrast with the landform. The 853-ft (260-m) turbines would not be visible from this KOP.				
Open Ocean					
Form	Flat and expansive	None	0	None	0
Line	Strong dark horizon, ephemeral line at shoreline, horizontal bands of clouds, flat	None	0	None	0
Color	Gray green to blue, small bits of white in surf in immediate foreground	None	0	None	0
Texture	Calm but uneven, rippling	None	0	None	0
Horizontal Scale	Flat and expansive, 70% of horizon exposed	None	0	None	0
Vertical Scale	None	None	0	None	0
Movement	Ocean moving mostly in, slightly out	None	0	None	0

⁵⁷ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	The open ocean creates a strong horizontal line at the horizon with a dark line separating the ocean from the sky. The open ocean is flat and enclosed by the Sandy Hook Lighthouse spit and Long Island landmass. During the daytime, the addition of 1,312-ft (399.9-m) project elements may present a weak contrast to the open ocean, introducing very minor and distant vertical elements to the flat horizon. At nighttime, the 1,312-ft (399.9-m) turbines and turbine lighting are not visible, therefore have no contrast with the ocean; 853-ft (260-m) turbines would not be visible from this KOP.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Irregular, mostly vertical, some angular, uniform, grasses, few trees middle ground, scrubby trees in the distance	None	0	None	0
Line	Short to medium grasses and shrubs 1–3 ft, sparse pine up to 20 ft, no leaves	None	0	None	0
Color	Tan to yellow grasses, yellow to green pines, brown to yellow gray scrub shrub	None	0	None	0
Texture	Soft feathery, some coarse grasses	None	0	None	0
Horizontal Scale	None	None	0	None	0
Vertical Scale	Sea line field, taller in the background	None	0	None	0
Movement	Wispy grasses move with ocean breeze	None	0	None	0
Summary	Vegetation within the park is limited and primarily landscaped areas associated with the pitch and putt golf course, parking lot islands, and mowed grassy areas adjacent to roadways and sidewalks. During the daytime, the addition of 1,312-ft (399.9-m) project elements may present a weak contrast to the surrounding vegetation due to the distance, sitting low on the horizon, and small number of blade tips visible. At nighttime, the 1,312-ft (399.9-m) turbines and turbine lighting are not visible, therefore have no contrast with the vegetation; 853-ft (260-m) turbines would not be visible from this KOP.				

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Structures					
Form	Pilings, long rectangular seawall, horizontal tubular railings, rectangular roofs, columns, sawtooth edges, long and rectangular fort building, blocky	None	0	None	0
Line	Long consistent horizontal railings, blocky vertical buildings, tall vertical columns	None	0	None	0
Color	White, red-gray, green, brown, creams, browns, grays	None	0	None	0
Texture	Brick, rough, smooth railings	None	0	None	0
Horizontal Scale	Fort building to left is large, obstructs view, beach building small, mostly looking toward land, not facing water	None	0	None	0
Vertical Scale	Single story with a tower	None	0	None	0
Movement	Boats moving around	None	0	None	0
Summary	Large geometric buildings are in view to the far distance at the point where the horizon meets land. During the daytime, the addition of 1,312-ft (399.9-m) project elements may present a weak contrast to the surrounding structures due to the distance, sitting low on the horizon, and small number of blade tips visible. At nighttime, the 1,312-ft (399.9-m) turbines and turbine lighting are not visible, therefore have no contrast with the structures. The 853-ft (260-m) turbines would not be visible from this KOP.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁵⁸						Refraction Coefficient: 0.13 ⁵⁹					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	43.70 (70.32)	85	0	0	0	0	0	110	0	0	0	0	0
OCS-A 0544	43.70 (70.32)	85	0	0	0	0	0	110	0	0	0	0	0
OCS-A 0537	66.00 (106.22)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	60.58 (97.50)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	69.17 (111.32)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	76.16 (122.57)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	82.11 (132.14)	0	0	0	0	0	0	0	0	0	0	0	0

⁵⁸ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁵⁹ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁶⁰	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	1,004.7 (306.2)	853 (260)	858.3 (261.6)	853 (260)
Percent Hidden	76.6%	100%	65.4%	100%
Amount Visible, ft (m)	307.36 (93.68)	0.0 (0.0)	453.8 (138.3)	0.0 (0.0)
Percent Visible	23.4%	0.0%	34.6%	0.0%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 43.70 mi (70.32 km) away in lease area OCS-A 0544. During nighttime conditions, as displayed in the simulations, no turbines would be visible due to placement of the lighting. During daytime conditions, only blade tips of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, and 853-ft (260-m) turbines would not be seen. With an atmospheric refraction coefficient of 0.17, additional blade tips of the 1,312-ft (399.9-m) turbines would be seen during the daytime. Still, no 853-ft (260-m) turbines would be seen even with refraction. With the consideration of atmospheric refraction, a maximum of 34.6%, or 453.8 ft (138.3 m), of the nearest 1,312-ft (399.9-m) turbine would be visible during the daytime. Of those that are visible, project turbines would be seen on the distant horizon and framed between the Sandy Hook Lighthouse spit and Long Island landmass. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Tourists and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to the historically important site as a former U.S. Army installation and the surrounding views of the ocean contributing to the viewer experience.
Value	High	Viewers highly value this KOP for the defining experiential character of the expansive ocean facing views, its setting within the designated Historic District and Gateway National Recreation Area, and the historical significance of the former U.S. Army installation.
Overall Sensitivity	High	—

⁶⁰ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.

<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Magnitude of Impact ⁶¹	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Negligible	At night, the project turbines would not be visible and therefore have a negligible geographic extent within the view.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Size and Scale of Change	Negligible	At night, the project turbines would not be visible and therefore have a negligible size and scale of change to the view and surrounding environment.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Negligible	—	Negligible	—
Overall Visual Impact Level	Negligible	Blade tips are theoretically visible, however during dark nighttime conditions, blade tips and turbine lighting are not visible; therefore, the visual impact is negligible.	Negligible	853-ft (260-m) turbines would not be visible from this KOP; therefore, the visual impact is negligible.

⁶¹ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	21.06 (33.89)	154	53	174	72
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	—	0	0	0	0
OCS-A 0512 (Empire Wind)	21.06 (33.89)	154	53	174	72
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	43.70 (70.32)	85	0	0	0	110	0	0	0
Cumulative Total	21.06 (33.89)	239	53	154	53	284	72	174	72

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 21.06 mi (33.89 km) away in lease area OCS-A 0512. Only turbines from OCS-A 0544 (NY Bight) and OCS-A 0512 (external lease) would be visible during daytime conditions. At night, only lights from OCS-A 0512 would be visible. With an atmospheric refraction coefficient of 0.13, additional lights of the external turbines would be seen. The existing nighttime view contains scattered lights across the ocean on landmasses and within the ocean. The addition of turbine lighting would present a new feature, but not drastically change the existing character in the nighttime view. During the daytime, the external leases would mostly block the NY Bight leases and present a more dominant visual change across the horizon due to the closeness of the external lease areas compared to the far distance of the NY Bight leases. Rotor movement of the external lease turbines is likely to be apparent due to the distance at which the projects would be viewed.

Magnitude of Impact ⁶²	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Medium	The cumulative lease areas would occupy 20.0°, 16% of the 124° HFOV and are located to the left of the horizon.	Medium	The cumulative lease areas would occupy 15.7°, 13% of the 124° HFOV and are located to the left of the horizon.
Size and Scale of Change	Medium	As the NY Bight leases would not be visible at night; the external leases alone would present a moderately prominent new feature along the horizon line but would not compete with key characteristic elements in the view.	Medium	As the NY Bight leases would not be visible at night; the external leases alone would present a moderately prominent new feature along the horizon line but would not compete with key characteristic elements in the view.
Overall Magnitude of Impact Rating	Medium	—	Medium	—
Cumulative Visual Impact Level	Moderate	As the NY Bight leases would not be visible at night, the external leases alone would present a moderate level of change to the view's character due to the addition of turbine lighting in a view that already consists of scattered lighting in a horizontal pattern, moderately influencing viewers' experience.	Moderate	As the NY Bight leases would not be visible at night, the external leases alone would present a moderate level of change to the view's character due to the addition of turbine lighting in a view that already consists of scattered lighting in a horizontal pattern, moderately influencing viewers' experience.

⁶² The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 28: KOP-27 Magnolia Beach

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 35.89 mi (57.76 km)
- **Date Visited:** February 2, 2023
- **Time of Visit:** 1:44 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** Magnolia Beach is located within Long Island City in Long Island, NY.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside urban area, with significant influence from nearshore ocean environments and limited influence from the seascape urban area.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The highly developed, attractive urban environment, including the wide boardwalk and flat, groomed beach evoke a sense of a highly managed landscape, differing from other beaches that may have dunes, slopes, and more natural-appearing features.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Wide swath of flat beach with wide swath of dune area terraced behind it.
Line	Linear marks from beach management; curvilinear line where edge of beach meets horizon
Color	Sand tan cream
Texture	Very flat, smooth, little bit gritty
Horizontal Scale	Wide expanse
Vertical Scale	None
Movement	None
Summary	The terraced dune transitions into the flat wide swath of beach with linear marking from beach management.
Open Ocean	
Form	Flat, wide, expansive
Line	Horizon thin line, slightly thicker and wider to left due to sun angle
Color	Blue gray, sky light blue-gray, light pale clouds, bright and sparkly where light hits the water
Texture	Moving, swirling, rippling peaking waves that are consistent
Horizontal Scale	Wide and expansive, mirrors the horizon, unobstructed
Vertical Scale	None
Movement	Horizontal movement of tides, ocean moving in toward shore, constant rippling
Summary	The ocean is flat and expansive with slight rippling moving and swirling, and grey-blue.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	N/A
Vegetation	
Form	Small amounts of landscaping material, most vegetation is homogenous dense 16-18 in dune grass
Line	Erect and angular (up and out)
Color	Tan yellow-pale brown, brown-gray
Texture	Feathered
Horizontal Scale	Linear mass
Vertical Scale	None
Movement	Sway with the breeze
Summary	There is minimal vegetation consisting of managed vegetated dune grasses, sporadically placed, feathered, and swaying in the coastal breeze.

Aesthetic and Perceptual Characteristics	Description
Structures	
Form	Contiguous fencing along boardwalk, dense residential, blocky, rectangular, flat roofs, predominantly smooth facing, protective fence between dunes and beach, round stainless-steel tubing railing
Line	Perpendicular, right angles, lighting creates a focal perspective down boardwalk
Color	Stainless steel, brick red, gray, white, multicolored, brown
Texture	Mostly smooth, some rougher brick, smooth railings
Horizontal Scale	Broad, buildings line the entire length of the boardwalk, about one fourth of the view width
Vertical Scale	Tall (4–6 stories)
Movement	None
Summary	The boardwalk and fences directly in the view present multiple linear brown-tan and smooth features. Multicolored and textured structures are behind the view, including residential units.

Form 29: KOP-28 Jones Beach*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 31.38 mi (50.51 km) (OCS-A 0544)
- **Date Visited:** April 2, 2023
- **Time of Visit:** 3:37 PM
- **Weather Conditions and Visibility:** Fair
- **KOP Location:** Jones Beach State Park is located at the southern end of Jones Island, a barrier island south of Long Island. The island consists of natural areas and some built areas including large, paved parking lots, a boardwalk, and recreation areas that include fields, courts, pools, and recreation facilities.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is in the oceanside recreation character area and is subject to the influence of the neighboring nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The view out to the ocean is undisturbed and affords a large expansive view. There is strong visual contrast between the sandy beach, the ocean, and the sky, all creating their own strong horizontal lines.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁶³

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Slightly sloping edge toward the water, otherwise flat; slight oscillating rolling topography behind viewpoint	Weak	1	Weak	1
Line	Flat, horizontal line at the break between slope of ocean and beach, lines from tire tracks, curvilinear line at edge of view	Weak	1	Weak	1
Color	Sand, tan, cream, whites, and speckles from shells	Weak	1	Weak	1
Texture	Grainy, lots of pieces of shell fragments, but consistent uniform texture	Weak	1	Weak	1
Horizontal Scale	As far as the eye can see, aligned with the horizon	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	Landform consists of the flat, horizontal, grainy but uniform beach, with a slight slope toward the water and curvilinear edges between the wave break and slopes. The addition of project elements would present a weak contrast to the surrounding landform due to the distance, sitting low on the horizon, and introduction of minimal vertical elements.				
Open Ocean					
Form	Massive, unencumbered open ocean, flat, rolling, irregular waves	Weak	2	Weak	2
Line	Horizon line is very thin and even	Weak	2	Weak	2
Color	Deep blue-gray-green	Weak	2	Weak	2
Texture	Rolling, stippled, little peaks	Weak	2	Weak	2
Horizontal Scale	Massive unencumbered	Weak	2	Weak	2
Vertical Scale	None	Weak	2	Weak	2
Movement	Tidal swirling, moving in and out from shore	Weak	2	Weak	2

⁶³ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	The open ocean is massive and creates a strong horizontal line at the horizon with a dark line separating the ocean from the sky. The addition of project elements would present a weak contrast to the open ocean, introducing very minor and distant vertical elements to the flat horizon.				
Water/Inland					
Form	Ephemeral tidal seep tucked between the dunes	None	0	None	0
Line	Sinuuous line at base of the contours/dunes	None	0	None	0
Color	Blue to brown, tan, sediment	None	0	None	0
Texture	Murky, flat, glassy	None	0	None	0
Horizontal Scale	Narrow	None	0	None	0
Vertical Scale	None	None	0	None	0
Movement	None	None	0	None	0
Summary	The view out toward to project does not contain this tidal stream, therefore, the turbines would not contrast with this element.				
Vegetation					
Form	Large broad vegetated dunes, large swath. Dense grouping of grasses, dense vertical form of low to medium height	Weak	1	Weak	1
Line	Fine lines vertical with irregular angles	Weak	1	Weak	1
Color	Light yellow and tan to gray-brown	Weak	1	Weak	1
Texture	Wispy soft	Weak	1	Weak	1
Horizontal Scale	Extends from left to right uniformly	Weak	1	Weak	1
Vertical Scale	Low to medium high vertical scale gives	Weak	1	Weak	1
Movement	Taller grasses blowing in wind	Weak	1	Weak	1
Summary	Vegetation consists of dune grasses behind the view of toward the open ocean. They appear fine, linear verticals, wispy, soft, and light yellow to tan, gray, brown. The addition of project elements would present a weak contrast to the vegetation due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements.				

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Structures					
Form	Rectangular large ships, tall thin smokestack, rectangular buildings near viewpoint designed to blend with natural surroundings, tall narrow rectangular tower in the distance	Weak	1	Weak	1
Line	Vertical, erect, angular (museum roof)	Weak	1	Weak	1
Color	Brownish gray, white, brick red, dark gray	Weak	1	Weak	1
Texture	Smooth (too far away to notice fine details)	Weak	1	Weak	1
Horizontal Scale	Structures occupy a small portion of the viewing space	Weak	1	Weak	1
Vertical Scale	Several tall thin structures in the distance, noticeable but not dominating, other structures (ships, nearer buildings) single story or closer to ground	Weak	1	Weak	1
Movement	Very slow horizontal movement of ships in the distance	Weak	1	Weak	1
Summary	Structures are visible in the distant ocean, consisting of blocky, slow-moving ships, as well as behind the viewpoint, like vertical smokestacks and blocky buildings that blend with the surrounding landscape. The addition of project elements would present a very weak contrast, if any, to the surrounding structures.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁶⁴						Refraction Coefficient: 0.13 ⁶⁵					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid- Tower	Blade Tip	Hub	Mid- Tower	Blade Tip	Hub	Mid- Tower	Blade Tip	Hub	Mid- Tower
Total	31.38 (50.51)	110	88	0	110	0	0	110	110	0	110	0	0
OCS-A 0544	31.38 (50.51)	110	88	0	110	0	0	110	110	0	110	0	0
OCS-A 0537	54.52 (87.75)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	54.62 (87.91)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	64.74 (104.18)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	76.19 (122.62)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	80.17 (129.02)	0	0	0	0	0	0	0	0	0	0	0	0

⁶⁴ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁶⁵ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁶⁶	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	516.7 (157.5)	516.7 (157.5)	441.3 (134.5)	441.3 (134.5)
Percent Hidden	39.4%	60.6%	33.6%	51.7%
Amount Visible, ft (m)	795.4 (242.4)	336.4 (102.5)	870.8 (265.4)	411.7 (125.49)
Percent Visible	60.6%	39.4%	66.4%	48.3%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 31.38 mi (50.51 km) away in lease area OCS-A 0544. Overall, only turbines in OCS-A 0544 would be seen. Blade tips and hubs of the 1,312-ft (399.9-m) turbines would be visible with and without atmospheric refraction. Only blade tips of the 853-ft (260-m) turbines would be seen with and without refraction. With the consideration of atmospheric refraction, a maximum of 66.4%, or 870.8 ft (265.4 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 48.3%, or 411.7 ft (125.49 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon and framed between structures. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Tourists and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in ocean facing views and the visual environment being an important asset to the community.

⁶⁶ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Value	High	Viewers highly value this KOP for the defining experiential character of the expansive ocean facing views, its setting within the designated Jones Beach State Park, and the provision of facilities for viewer enjoyment such as abundant parking and boardwalk access along the beachfront.
Overall Sensitivity	High	—

Magnitude of Impact ⁶⁷	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Medium	The lease area would occupy 23.1°, or 19%, of the 124° HFOV and is located toward the center-left of the view out toward the ocean.	Medium	The lease area would occupy 23.1°, or 19%, of the 124° HFOV and is located toward the center-left of the view out toward the ocean.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance and only blade tips would be visible. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.	Small	Project turbines would present a small change to the visual environment due to the extended distance. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small	—	Small	—
Overall Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from the viewers' experience.	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from the viewers' experience.

⁶⁷ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	14.23 (22.90)	174	170	174	174
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	—	0	0	0	0
OCS-A 0512 (Empire Wind)	14.23 (22.90)	174	170	174	174
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	31.38 (50.51)	110	88	110	0	110	110	110	0
Cumulative Total	14.23 (22.90)	284	258	284	170	284	284	284	174

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 14.23 mi (22.90 km) away in lease area OCS-A 0512. The external leases would mostly block the NY Bight leases and present a more dominant visual change across the horizon due to the closeness of the external lease areas compared to the far distance of the NY Bight leases. Rotor movement of the external lease turbines is likely to be apparent due to the distance at which the projects would be viewed.

Magnitude of Impact ⁶⁸	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 60.5°, over 49% of the 124° HFOV and are located to the center of the horizon.	Large	The cumulative lease areas would occupy 60.5°, over 49% of the 124° HFOV and are located to the center of the horizon.
Size and Scale of Change	Large	The cumulative lease areas would present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

⁶⁸ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 30: KOP-29 Rudolph Oyster House

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 28.42 mi (45.74 km)
- **Date Visited:** February 2, 2023
- **Time of Visit:** 11:24 AM
- **Weather Conditions and Visibility:** Fair
- **Location:** Long Island Maritime Museum

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the bayside recreation area and is subject to the considerable influence of the bayside residential area and bayside waterbodies area. Looking out toward the ocean, the KOP is subject to the influence of the neighboring oceanside residential/commercial area, oceanside beach area, and open ocean area in the far distance.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourist/Recreation
- **Visual Context:** The Rudolf Oyster House is a historic seafood processing building on the grounds of the Long Island Maritime Museum in west Sayville, New York. The structure was built in 1908 and is an example of a typical oyster culling house of the early 20th century, many of which once lined the local waterfront. It is a single-story wood-frame structure, mounted on wooden pilings and measuring 44.5 by 16.5 feet (13.6 m × 5.0 m). Its exterior is finished with wooden clapboards, and it has a gabled roof. The structure is a registered National Historic Landmark and is on the National Registry of Historic Places.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Little bit of beach, long thin barrier island in the distance slightly elevated, bits of exposed landform, graded developed topography adjacent to natural wetlands
Line	Horizontal long uneven line at barrier island
Color	Shadowed, silhouetted against the sun (barrier island)
Texture	Smooth, no textured features
Horizontal Scale	Elongated
Vertical Scale	Moderate
Movement	None
Summary	The landform consists of a small, slightly sloping beach and slightly elevated, long, thin barrier island in the distance with bits of exposed landform and graded developed topography adjacent to natural wetlands.
Open Ocean	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	N/A
Water/Inland	
Form	Flat plane (2D vs. 3D), curvilinear toward edges, big
Line	Strong line at edge of water
Color	Shimmery where the sun hits it. Deep blue, blue gray, royal gray blue where water is deeper
Texture	Small ripples, calm immediately offshore, white silver shimmers glinting
Horizontal Scale	Wide, encompasses much of the view, elongated and enclosed, flat that is exacerbated by landform
Vertical Scale	None
Movement	Small ripples, calm, moving in toward shore, minor movement
Summary	The bay is a flat plane with curvilinear edges, a strong line at the water's edge, and shimmering in the sun, but otherwise deep blue, blue-gray, and gray-royal blue where the water is deeper. The water has small ripples and moves slowly in toward the shore.
Vegetation	
Form	Scattered clump of seaweed, irregular treetops
Line	Vertical lines of grass
Color	Dark brown, green
Texture	Coarse
Horizontal Scale	Scattered
Vertical Scale	Short to none
Movement	None

Aesthetic and Perceptual Characteristics	Description
Summary	Vegetation consists of tall reed canary grass, piles of seaweed along the shoreline edge, clumps of pines and deciduous trees scattered around the site, and short managed grass.
Structures	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	N/A

Form 31: KOP-30 Shinnecock Inlet*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 44.67 mi (71.89 km) (OCS-A 0544)
- **Date Visited:** February 2, 2023
- **Time of Visit:** 1:24 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **KOP Location:** Located at Shinnecock County Park East adjacent to the inlet of the barrier island of Long Island.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside beach character area and is subject to the considerable influence of the neighboring bayside waterbody and nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational, Water-Based
- **Visual Context:** The view out to the ocean is large and undisturbed, with the marina and jetties as the only man-made structures that disturb the beach, dunes, and natural vegetation of the area in any direction. Boats, both for fishing and recreation, move from the middle ground to the background, passing through the inlet; the beach itself is active with people fishing from the shore.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁶⁹

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Slightly sloping beach to water to eroded tall dune edge	none	0	none	0
Line	Tidal edge between tide line and beach, curvilinear, strong line between beach and dunes	none	0	none	0
Color	Sand beige tan, gray	none	0	none	0
Texture	Smooth to irregular	none	0	none	0
Horizontal Scale	Wide, curved	none	0	none	0
Vertical Scale	Rolling topography	none	0	none	0
Movement	None	none	0	none	0
Summary	The landform is flat to slightly sloping toward the ocean and presents a curvilinear edge with the tide. The beach is wide, horizontal, and smooth to irregular. Turbines would not be visible from this KOP and therefore present no contrast to the existing characteristics in the environment.				
Open Ocean					
Form	Broad open plane, expansive	None	0	None	0
Line	Dominant horizon line	None	0	None	0
Color	Deep blue to gray, light gray green at foreground, white tips	None	0	None	0
Texture	Rough. Irregular	None	0	None	0
Horizontal Scale	Expansive, the entire horizon 75% visible	None	0	None	0
Vertical Scale	None	None	0	None	0
Movement	In and out, irregular	None	0	None	0
Summary	The open ocean is horizontal, expansive, creating a strong horizontal line at the horizon with a dark line separating the ocean character from the sky. Turbines would not be visible from this KOP.				
Water/Inland					
Form	Enclosed inlet, narrow entryway. Exposed sloping beaches. Curvilinear dunes.	None	0	None	0
Line	Sinuous edge along bottom, irregular edge where ocean meets landform	None	0	None	0

⁶⁹ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Color	Deep blue with gray and reflective dark patches	None	0	None	0
Texture	Rippling calmer than the ocean	None	0	None	0
Horizontal Scale	Enclosed plane bookended by land	None	0	None	0
Vertical Scale	None	None	0	None	0
Movement	In and out, slight rippling	None	0	None	0
Summary	The Shinnecock Inlet leads to Shinnecock Bay, which sits behind the view toward the ocean. The inlet is narrow, slow moving with slight rippling, and is bookended by breakwaters. Turbines would not be visible from this KOP and therefore present no contrast to the existing characteristics in the environment.				
Vegetation					
Form	Clumps of residential trees, predominantly grassy dunes, with clumps of coastal shrubs and trees	None	0	None	0
Line	None	None	0	None	0
Color	Tan brown-gray, green-gray	None	0	None	0
Texture	Grass wispy and soft, shrub dense and coarse	None	0	None	0
Horizontal Scale	Amassing of homogenous vegetation	None	0	None	0
Vertical Scale	Short	None	0	None	0
Movement	Wispy movements with the wind	None	0	None	0
Summary	Vegetation within the area is limited to the edge of the dunes and along the road; here the vegetation is shrub scrub and medium to tall trees, limiting the view west and northwest, to the rear of the viewer. Turbines would not be visible from this KOP and therefore present no contrast to the existing characteristics in the environment.				
Structures					
Form	Irregular geometric structures, horizontal and angular roof lines, vertical power poles placed at equal intervals, large rectangular ships, strong rock structures	None	0	None	0
Line	Power poles vertical, buildings angular rooflines, vertical narrow lattice tower. Regular line of boulder placement, strong line at jetty	None	0	None	0

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Color	Brown, dark brown-green rocks, white, brown, tan buildings stand out from beach, hazy gray mottled in the distance	None	0	None	0
Texture	No noticeable texture on buildings, rough rocks	None	0	None	0
Horizontal Scale	Irregular, does not take up much of view	None	0	None	0
Vertical Scale	Moderate, structures mostly blend with surroundings, power poles erect	None	0	None	0
Movement	None	None	0	None	0
Summary	There is a variety of structures in this view, from linear, angular rock structures to thin vertical power poles in the distance, similar to that of a turbine. Behind the view are buildings with angular roof lines. Turbines would not be visible from this KOP and therefore present no contrast to the existing characteristics in the environment.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁷⁰						Refraction Coefficient: 0.13 ⁷¹					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	44.67 (71.89)	27	0	0	0	0	0	58	0	0	0	0	0
OCS-A 0544	44.67 (71.89)	27	0	0	0	0	0	58	0	0	0	0	0
OCS-A 0537	55.35 (89.07)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	79.92 (128.62)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	92.27 (148.49)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	110.48 (177.80)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	109.85 (176.78)	0	0	0	0	0	0	0	0	0	0	0	0

⁷⁰ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁷¹ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁷²	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	1,070.2 (326.2)	853 (260)	915.7 (279.1)	853 (260)
Percent Hidden	81.6%	100%	69.8%	100%
Amount Visible, ft (m)	241.9 (73.7)	0.0 (0.0)	369.3 (120.8)	0.0 (0.0)
Percent Visible	18.4%	0.0%	30.2%	0.0%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 44.67 mi (71.89 km) away in lease area OCS-A 0544. No turbines with a height of 853 ft (260 m) would be visible. At 1,312 ft (399.9 m), only 58 blade tips would theoretically be seen from OCS-A 0544; however, even with maximum visibility conditions, no turbine blades are visible in the simulation. The project is unlikely to be visible at night due to theoretical visibility of blade tips only. The addition of a 0.13 refraction coefficient presents several more blade tips; however, the turbines are still likely to not be visible due to the minimal number of turbines and the distance at which they are viewed.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Viewers at this KOP are highly susceptible to changes from the project due to their interest in the open ocean views, the natural-like sense of place, and the visual environment being an important asset to the community.
Value	High	Viewers, including boaters and fishers, highly value this KOP due to the defining experiential character of the open ocean views, the natural-like sense of place, and the opportunity for boating and fishing.
Overall Sensitivity	High	—

Magnitude of Impact ⁷³	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Small	The lease areas would occupy 5.7°, or 5%, of the 124° HFOV.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Size and Scale of Change	Negligible	Even in maximum visibility conditions, the project would not be discernable to the viewer; therefore, there would be a negligible size and scale of change.	Negligible	853-ft (260-m) turbines would not be visible from this KOP.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.

⁷² Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.

<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

⁷³ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

KOP-30 Shinnecock Inlet

Magnitude of Impact ⁷³	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Overall Magnitude of Impact Rating	Negligible	—	Negligible	—
Overall Visual Impact Level	Negligible	Although there is theoretical visibility of blade tips, according to the maximum visibility simulation there is no visibility of the 1,312-ft (399.9-m) turbines therefore a negligible visual impact.	Negligible	853-ft (260-m) turbines would not be visible from this KOP; therefore, there would be no visual impact.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	—	0	0	0	0
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	—	0	0	0	0
OCS-A 0512 (Empire Wind)	—	0	0	0	0
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	44.67 (71.89)	27	0	0	0	58	0	0	0
Cumulative Total	44.67 (71.89)	27	0	0	0	58	0	0	0

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 44.67 mi (71.89 km) away in NY Bight lease area OCS-A 0544. External leases would not be visible from this KOP. Therefore, as discussed in Section C above in the NY Bight analysis, the cumulative impacts would be negligible.

Magnitude of Impact ⁷⁴	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 5.7°, over 5% of the 124° HFOV.	Negligible	Neither 853-ft (260-m) NY Bight turbines nor external lease turbines would be visible from this KOP.

⁷⁴ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Magnitude of Impact ⁷⁴	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Size and Scale of Change	Negligible	Even in maximum visibility conditions, the NY Bight leases would not be discernable to the viewer; therefore, there would be a negligible size and scale of change.	Negligible	Neither 853-ft (260-m) NY Bight turbines nor external lease turbines would be visible from this KOP.
Overall Magnitude of Impact Rating	Negligible	—	Negligible	—
Cumulative Visual Impact Level	Negligible	Although there is theoretical visibility of NY Bight blade tips, according to the maximum visibility simulation there is no visibility of the 1,312-ft (399.9-m) turbines or the external lease and therefore a negligible visual impact.	Negligible	853-ft (260-m) NY Bight turbines nor external lease turbines would be visible from this KOP; therefore, there would be no visual impact.

Form 32: KOP-31 Westhampton Beach*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 33.86 mi (54.49 km) (OCS-A 0544)
- **Date Visited:** February 2, 2023
- **Time of Visit:** 2:35 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **KOP Location:** Cupsoque Beach, west of Westhampton Dunes within the barrier islands of Long Island.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside beach area and is subject to the considerable influence of the neighboring bayside waterbodies, nearshore ocean, and oceanside residential/commercial areas.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The recreational area is situated within a view of the beach, dunes, and related natural areas adjacent to an unbroken open ocean. The view out to the ocean is large and undisturbed, with an extensive natural beach that spans the marina and jetties as the only man-made structures that disturb the beach, dunes, and natural vegetation of the area in any direction. Boats, both for fishing and recreation, move from the middle ground to the background, passing through the inlet; the beach itself is active with people fishing from shore.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁷⁵

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Expansive beach, extends as far as eye can see with slight curve, dunes behind the beach	Weak	1	None	0
Line	Vehicle tracks create curvaceous parallel lines, intermittent lines along base of topography, irregular dunes	Weak	1	None	0
Color	Sand tan beige cream	Weak	1	None	0
Texture	Fine grain, uniform throughout	Weak	1	None	0
Horizontal Scale	Massive flat plane	Weak	1	None	0
Vertical Scale	Slight dune elevation	Weak	1	None	0
Movement	None	Weak	1		0
Summary	The landform consists of a flat, expansive beach that draws the eyes west and east. The beach is wide, horizontal, and smooth to irregular. The addition of project elements would present a weak contrast to the surrounding landform due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements.				
Open Ocean					
Form	Massive flat plane, pockets of clouds, otherwise large open, unobstructed sky	Weak	1	None	0
Line	Horizon is a thin dark line	Weak	1	None	0
Color	Green-gray-blue water near shore, deeper blue gray as water gets deeper, light blue sky, white/gray clouds, white tips near shore	Weak	1	None	0
Texture	Rough, rolling, tumultuous	Weak	1	None	0
Horizontal Scale	Entire skyline	Weak	1	None	0
Vertical Scale	None	Weak	1	None	0
Movement	Rolling, in and out	Weak	1	None	0
Summary	The open ocean is horizontal, expansive, creating a strong horizontal line at the horizon with a dark line separating the ocean character from the sky. The addition of project elements would present a weak contrast to the open ocean due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements.				

⁷⁵ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Clumps of shrubs above swaths of low-lying dune grasses, one lone tree in the middle of the beach	Weak	1	None	0
Line	Some verticals	Weak	1	None	0
Color	Tan brown-gray, green-gray	Weak	1	None	0
Texture	Grass wispy and soft, shrub dense and coarse	Weak	1	None	0
Horizontal Scale	Amassing of homogenous vegetation	Weak	1	None	0
Vertical Scale	Short	Weak	1	None	0
Movement	Wispy movements with the wind	Weak	1	None	0
Summary	Short dune grasses and scrub shrub within sandy areas dominate much of the untended beach. In wetter areas toward the north, to the rear of the viewer, reeds and rushes create a wall of vegetation. The addition of project elements would present a weak contrast to the vegetation due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements.				
Structures					
Form	Triangular-roofed houses, vertical flagpoles and light poles, rectangular buildings	Weak	1	None	0
Line	Angular, tall narrow poles	Weak	1	None	0
Color	Reddish-orange, white, cream, steel, dark gray shingles, blue, light blue, orange signs	Weak	1	None	0
Texture	Smooth	Weak	1	None	0
Horizontal Scale	Visible on the left side of the viewpoint, about one quarter of the entire view, but aligned, close together, extending down to the end of sightline	Weak	1	None	0
Vertical Scale	1-2 stories, uniform	Weak	1	None	0

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Movement	Triangular-roofed houses, vertical flagpoles and light poles, rectangular buildings	Weak	1	None	0
Summary	The structures are large homes that are visible in the distance toward the east, presenting as angular, smooth, various colors. Vertical flag poles and light poles exist in the view. The addition of project elements would present a weak contrast to the structures due to the distance, sitting low on the horizon, and tips of blades adding minor vertical elements.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁷⁶						Refraction Coefficient: 0.13 ⁷⁷					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	33.86 (54.49)	110	23	0	52	0	0	166	47	0	79	0	0
OCS-A 0544	33.86 (54.49)	110	23	0	52	0	0	110	47	0	79	0	0
OCS-A 0537	49.32 (79.37)	0	0	0	0	0	0	56	0	0	0	0	0
OCS-A 0538	69.85 (112.42)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	82.30 (132.45)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	100.32 (161.44)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	100.18 (161.23)	0	0	0	0	0	0	0	0	0	0	0	0

⁷⁶ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁷⁷ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁷⁸	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	563.0 (171.6)	563.0 (171.6)	478.0 (145.7)	478.0 (145.7)
Percent Hidden	42.9%	66.0%	36.4%	56.0%
Amount Visible, ft (m)	749.1 (228.3)	290.1 (88.4)	834.0 (254.2)	375.0 (114.3)
Percent Visible	57.1	34%	63.6%	44.0%

Description of Projects Appearances in the Context of the Affected Environment from the

KOP: The nearest turbine to this KOP lies approximately 33.86 mi (54.49 km) away in lease area OCS-A 0544. Blade tips and hubs would be visible from OCS-A 0544 of the 1,312-ft (399.9-m) turbines with no atmospheric refraction, which is displayed in the simulation, and some blade tips of the 853-ft (260-m) turbines would theoretically be seen, but present no contrast or change. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs of the 1,312-ft (399.9-m) turbines would be seen, including some from OCS-A 0537, and additional blade tips of the 853-ft (260-m) turbines. With the consideration of atmospheric refraction, a maximum of 63.6%, or 834.0 ft (254.2 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 44.0%, or 375.0 ft (114.3 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

⁷⁸ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

KOP-31 Westhampton Beach

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents, tourists, and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in unobstructed ocean facing views, and the visual environment and sense of tranquility being an important asset to the community.
Value	High	Viewers highly value this KOP due to the defining experiential character of the expansive open ocean views and direct access to the beach.
Overall Sensitivity	High	—

Magnitude of Impact ⁷⁹	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Small	The lease area would occupy 11.5°, or 9%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Small	The lease area would occupy 8.9°, or 7%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.	Negligible	Project turbines would not present a change or contrast to the visual environment. The negligible change would not alter the character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small	—	Negligible	—
Overall Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from viewers' experience.	Negligible	Although viewer receptor sensitivity is high, the project would present no change to the visual environment and therefore not affect viewers' experience.

⁷⁹ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	37.92 (61.02)	43	0	104	0
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	—	0	0	0	0
OCS-A 0512 (Empire Wind)	37.92 (61.02)	43	0	104	0
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	33.86 (54.49)	110	23	52	0	166	47	79	0
Cumulative Total	37.92 (61.02)	153	23	95	0	270	47	183	0

Description of Cumulative Project Appearances in the Context of the Affected Environment

from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 37.92 mi (61.02 km) away in lease area OCS-A 0512. The addition of external leases would present no change when assessed in combination with the NY Bight leases due to the distance at which they are viewed. Theoretically, additional blade tips may be seen. Rotor movement of the NY Bight lease turbines may be apparent.

Magnitude of Impact ⁸⁰	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 22.3°, over 18% of the 124° HFOV and are located to the center of the horizon.	Large	The cumulative lease areas would occupy 22.3°, over 18% of the 124° HFOV and are located to the center of the horizon.
Size and Scale of Change	Small	The cumulative project turbines would present a small change to the visual environment due to the extended distance. The small-scale change is unlikely to compete with key characteristic character area elements at this representative viewpoint.	Negligible	The cumulative project turbines would not present a change to or contrast with the visual environment. The negligible change would not alter the character area elements at this representative viewpoint.
Overall Magnitude of Impact Rating	Small	—	Negligible	—
Cumulative Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the cumulative lease areas would not be visually prominent or detract from viewers' experience.	Negligible	Although viewer receptor sensitivity is high, the projects would present no change to the visual environment and therefore not affect viewers' experience.

⁸⁰ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 33: KOP-32 Fire Island Lighthouse — Upper Deck*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulations
- **KOP Distance to Nearest WTG:** 24.23 mi (39.00 km) (OCS-A 0544)
- **Date Visited:** March 2, 2023
- **Time of Visit:** 8:22 AM
- **Weather Conditions and Visibility:** Partly cloudy
- **KOP Location:** The Fire Island Lighthouse is a 168-ft (51.2-m) tall lighthouse located on the southwestern end of Fire Island, NY. Fire Island is a large barrier island off the coast of Long Island. The barrier island separates the Great South Bay and the Atlantic Ocean. Adjacent to the lighthouse is a two-story keepers house. The lighthouse is part of the Fire Island National Seashore, which is managed by the NPS and was listed on the NRHP in 1981 (NPS 2019). The Fire Island Lighthouse Preservation Society operates the lighthouse's visitor services under a cooperative agreement with the NPS. Robert Moses State Park Field 5 is located a short distance southwest from the lighthouse.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside beach area and is subject to the considerable influence of the nearshore and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** This viewpoint represents tourists' views from the observation deck of the lighthouse. The landscape surrounding the lighthouse consists of sandy dunes to the southwest and northeast, the Atlantic Ocean to the southeast and the Great South Bay to the north. The southern coast of the NY mainland is located approximately 5 mi (8 km) to the north. The lighthouse provides 360° unobstructed views.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁸¹

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Level stretch of beach to undulating and mounded dunes with patches of sand.	Weak	1	Weak	1
Line	Strong horizontal line across the whole viewpoint where the beach meets the water's edge and where the vegetated dunes form into the sandy beach.	Weak	1	Weak	1
Color	Light and medium beige/tan.	Weak	1	Weak	1
Texture	Soft, uniform.	Weak	1	Weak	1
Horizontal Scale	Dominant across the entire view.	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	To the south, views consist of rolling coastal dunes and flat beaches extending to the northeast and southwest in the foreground. The addition of project elements would present a weak contrast to the surrounding landform due to the distance of the turbines.				
Open Ocean					
Form	Massive flat plane.	Moderate	3	Moderate	3
Line	Horizon is a thin dark, straight line. Curvilinear and slightly irregular line where the waves break onto the beach.	Moderate	3	Moderate	3
Color	Green-blue water where sun is reflecting most, deeper blue-green-gray further from the sun, white tips near shore.	Moderate	3	Moderate	3
Texture	Homogenous rippling	Moderate	3	Moderate	3
Horizontal Scale	Entire skyline	Moderate	3	Moderate	3
Vertical Scale	None	Moderate	3	Moderate	3
Movement	Rolling, in and out	Moderate	3	Moderate	3
Summary	Views to the south are unobstructed and are dominated by the open expanse of the Atlantic Ocean, with the horizon line as a main focal point. The addition of project elements would present a moderate contrast to the open ocean due to the introduction of vertical elements on the simple, flat horizon line.				

⁸¹ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

KOP-32 Fire Island Lighthouse — Upper Deck

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Masses of vegetation, hugging the roads, patchy atop the dunes.	Weak	1	Weak	1
Line	Dune grasses are erect and angular. Masses of oak and pine trees creating irregular lines up to the beach.	Weak	1	Weak	1
Color	Brown-beige-yellow grasses and shrubs and dark green and brown trees.	Weak	1	Weak	1
Texture	Grasses are wispy, smooth, and soft, while oak and pine trees are coarse and stippled.	Weak	1	Weak	1
Horizontal Scale	Grasses create irregular horizontal lines at the top of the dune that stretch across the whole view.	Weak	1	Weak	1
Vertical Scale	Grass vertical scales range from 6 inches to 2 feet. Clumps of 30 to 40 feet tall oak and pine trees are clumped near structures.	Weak	1	Weak	1
Movement	Slight movement of the grasses and tree tops due to coastal breeze.	Weak	1	Weak	1
Summary	Vegetation, appearing homogenous from the elevated viewpoint, includes short dense shrubs, scattered trees including oak and pitch pine, which typically vary in height from 30 to 40 feet, and short grasses. The addition of project elements would present a weak contrast to the vegetation due to the distance of the turbines.				

KOP-32 Fire Island Lighthouse — Upper Deck

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Structures					
Form	Structures consist of a park ranger station with geometric forms reflecting maritime architecture with rectangular faces and angular roofs. Long stretch of paved roadways.	Weak	1	Weak	1
Line	Angular, gently sloping lines on rooflines. Long, horizontal line created by paved road.	Weak	1	Weak	1
Color	The building is white with a burgundy roof.	Weak	1	Weak	1
Texture	Smooth faces of the building with flat shingle roofs.	Weak	1	Weak	1
Horizontal Scale	Very minor horizontal features on the edges of the building.	Weak	1	Weak	1
Vertical Scale	Minor vertical features due to the building and streetlamps.	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	Human-made modifications include a wooden walking trail boardwalk, gravel access drive, paved roads, parking lot, and a radio tower. A park ranger station building sits below the viewpoint within the vegetation. Commercial and recreational vessels are visible in the open ocean. The addition of project elements would present a weak contrast to the structures in view due to the distance of the turbines and the more prevalent ships visible on the horizon.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁸²						Refraction Coefficient: 0.13 ⁸³					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	24.23 (39.00)	400	223	110	212	110	106	504	218	110	306	110	110
OCS-A 0544	24.23 (39.00)	110	110	110	110	110	106	110	110	110	110	110	110
OCS-A 0537	46.18 (74.33)	235	13	0	102	0	0	235	108	0	196	0	0
OCS-A 0538	55.63 (89.52)	55	0	0	0	0	0	159	0	0	0	0	0
OCS-A 0539	67.14 (108.06)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	82.63 (132.98)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	84.43 (135.87)	0	0	0	0	0	0	0	0	0	0	0	0

⁸² Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁸³ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁸⁴	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	50.9 (15.5)	50.9 (15.5)	33.7 (10.3)	33.7 (10.3)
Percent Hidden	3.9%	6.0%	2.6%	4.0%
Amount Visible, ft (m)	1261.2 (384.4)	802.1 (244.5)	1278.3 (386.9)	819.3 (249.7)
Percent Visible	96.1%	94.0%	97.4%	96.0%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 24.23 mi (39.00 km) away in lease area OCS-A 0544. At both 1,312-ft (399.9-m) and 853-ft (260-m) turbine heights, blade tips, hub and mid-tower would be seen from OCS-A 0544. From OCS-A 0537, blade tip and hub would be seen at 1,312 ft (399.9 m) and blade tip only at 853 ft (260 m). Additionally, blade tips of OCS-A 0537 would be seen at 1,312 ft (399.9 m). With atmospheric refraction, the number of each element visible increases, but no new features would be visible. With the consideration of atmospheric refraction, a maximum of 97.4%, or 1278.3 ft (386.9 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 96.0%, or 819.3 ft (249.7 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon and framed between structures. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Viewers from the lighthouse are highly susceptible to changes from the project due to their focus on views toward the open ocean, and the surrounding visual environment being an important asset to the community.

⁸⁴ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

KOP-32 Fire Island Lighthouse — Upper Deck

Receptor Sensitivity	Rating	Rationale
Value	High	Viewers highly value the view from this lighthouse due to its importance of being part of the designated Fire Island National Seashore, its listing on the NRHP, its defining experiential character of elevated views toward the open ocean, and tourist attraction.
Overall Sensitivity	High	—

Magnitude of Impact ⁸⁵	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 41.1°, or 33%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Medium	The lease area would occupy 34.7°, or 28%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Medium	Project turbines would present a moderate change to the visual environment due to the addition of vertical elements to the simple horizon line. The change in the view would be apparent but unlikely to compete with key characteristic character area elements at this representative viewpoint.	Medium	Project turbines would present a moderate change to the visual environment due to the addition of vertical elements to the simple horizon line. The change in the view would be apparent but unlikely to compete with key characteristic character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Medium	—	Medium	—
Overall Visual Impact Level	Moderate	Although viewer receptor sensitivity is high, the project may introduce a small to moderate and noticeable level of change to the character of the view due to the elevation at the KOP, have a small to moderate effect on the viewer experience, but may not hold viewers' attention.	Moderate	Although viewer receptor sensitivity is high, the project may introduce a small to moderate level of change to the character of the view due to the elevation of the KOP, have a small to moderate effect on the viewer experience, but may not hold viewers' attention.

⁸⁵ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	21.75 (35.00)	174	174	174	174
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	—	0	0	0	0
OCS-A 0512 (Empire Wind)	21.75 (35.00)	174	174	174	174
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	24.23 (39.00)	400	223	212	110	504	218	306	110
Cumulative Total	21.75 (35.00)	574	297	386	284	678	392	480	284

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 21.75 mi (35.00 km) away in lease area OCS-A 0512. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs of the NY Bight turbines would be seen. The external leases would present a visual change across the horizon similar to the NY Bight leases due to the proximity of the external lease. Rotor movement of the cumulative lease turbines is likely to be apparent due to the elevated viewpoint from the lighthouse.

KOP-32 Fire Island Lighthouse — Upper Deck

Magnitude of Impact ⁸⁶	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 82.8°, over 67% of the 124° HFOV.	Large	The cumulative lease areas would occupy 82.8°, over 67% of the 124° HFOV.
Size and Scale of Change	Large	The cumulative lease areas would present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

⁸⁶ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 34: KOP-33 Fire Island Lighthouse—Base

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 24.21 mi (38.97 km)
- **Date Visited:** February 3, 2023
- **Time of Visit:** 9:10 AM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** The Fire Island Lighthouse is a 168-ft (51.2-m) tall lighthouse located on the southwestern end of Fire Island, NY. Fire Island is a large barrier island off the coast of Long Island. The barrier island separates the Great South Bay and the Atlantic Ocean. Adjacent to the lighthouse is a two-story keepers house. The lighthouse is part of the Fire Island National Seashore, which is managed by the NPS and was listed on the NRHP in 1981 (NPS 2019). The Fire Island Lighthouse Preservation Society operates the lighthouse's visitor services under a cooperative agreement with the NPS. Robert Moses State Park Field 5 is located a short distance southwest from the lighthouse.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside beach area and has limited influence related to the view of the nearshore and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourist/Recreational
- **Visual Context:** This viewpoint represents tourists' views from the base of the lighthouse. The landscape surrounding the lighthouse consists of sandy dunes to the southwest and northeast, the Atlantic Ocean to the southeast and the Great South Bay to the north, all of which are visible but highly limited by immediate surrounding vegetation. The southern coast of the NY mainland is located approximately 5 mi (8 km) to the north.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Mounded, rolling to fairly level high points on dunes are consistent with bounds either graded for restoration or natural.
Line	Line is commensurate with the edges of grassy patches; no significant landform line to be seen
Color	Beige, sand, gray to tan
Texture	Soft, uniform, rolling dunes and sloping beach
Horizontal Scale	Landform stretched across majority of the horizontal field of view
Vertical Scale	Intermittent topography, fairly level and low
Movement	Form caused by wind movement of the sand
Summary	The horizontal exposed dune rises from grade, with rolling topography from slope to beach to dune to patches of forested palustrine wetlands. The colors are sand beige gray, angular irregular forms of exposed from platform, landform is visually evident but covered in dune grass.
Open Ocean	
Form	The open ocean forms an elongated flat plane to the south and closed by NYC Long Island buildings along Verrazano Bridge Avenue closing the ocean perspective created to the horizon. The horizon is long and dark.
Line	Strong horizon line
Color	Deep blue to dark horizon backdropped by soft, baby blue sky with white intermittent clouds
Texture	Texture is fairly smooth
Horizontal Scale	The horizontal scale of the ocean to the South is flat and elongated. The horizon is dominant with slight breaks. Ships along the horizon ending at dunes. The landform interrupts the horizon to the south and urban infrastructure interrupts the horizon to the east and north.
Vertical Scale	None
Movement	Ocean movement system intermittent erratic irregular side to side and in and out. It is very difficult to make out any distinct movement from the viewing deck distance range.
Summary	The ocean is a major expanse, flat ocean plane with very dark horizon line, white pillowing clouds with scattered blue skies, dark thick horizon line stark against blue sky, intermittent exposure to the sky through vegetation (east), horizon is blocked by raised dune to the west.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.

Aesthetic and Perceptual Characteristics	Description
Vegetation	
Form	Vegetation form consists of erect dune grasses with angular clumping at the base to scrub shrub vegetation. Leafless conditions extenuate the erect and angular random form of the trees
Line	No vegetative line of significance to report
Color	Tan, yellow, cream-colored grasses with mix of browns and red trees. Leafless trees are gray to green.
Texture	Smooth, soft, wispy grasses. Deciduous trees are extremely coarse and rough. Pine trees are stippled.
Horizontal Scale	Consistent with the scale of the dune. Stretching across the majority of the view.
Vertical Scale	Up to 2 ft tall grasses; 8-15 ft pines
Movement	Grasses and trees move in the wind minimally.
Summary	The immediate foreground contains massing of short scrubby pines and grasses creating irregular horizontal angular lines and branching. There are coarse and rough deciduous shrubs, tall wetlands grasses transitioning to very fine wispy dune grass.
Structures	
Form	Structures include horizontal wooden boardwalks with wood retaining walls along the edges. There are arbors in a maritime style along with viewing deck with wooden railings metal handrail.
Line	Frontline of structures are caused by the boardwalk edges and retaining walls hand railings and geometric edges of the maintenance sheds and secondary buildings associated with the viewing platform
Color	Colors include white to gray, red face brick flatwork, and cedar shingle gray shaker roofs
Texture	Smooth to coarse
Horizontal Scale	Immediate horizontal field of view
Vertical Scale	Lighthouse behind the viewpoint is tall, boardwalk and viewing platform features are relatively short, but are apparent in the view.
Movement	None
Summary	Brick and stone structures, historic maritime character, white with red roof, boxy sloped roofs to the east. Lighthouse is also maritime, steeple entrance, stone facade, red roof, bookended in the east by a modern building, exterior finishings consist of craftsman style benches, wooden boardwalks, stainless steel and wooden railings and gravel roads. Strong vertical lighthouse.

Form 35: KOP-34 Sandy Hook Observatory

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 46.36 mi (74.62 km)
- **Date Visited:** February 4, 2023
- **Time of Visit:** 10:42 AM
- **Weather Conditions and Visibility:** Fair
- **Location:** This KOP is located on the eastern end of the Sandy Hook section of Gateway National Park, the North Beach Observation Deck that sits just behind the beach.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the bayside recreation area and is subject to the considerable influence of the neighboring oceanside beach, bayside recreation, bayside natural upland, bayside waterbodies, and bayside urban areas, and associated inland urban areas of NYC, as well as nearshore ocean and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** This KOP, located slightly elevated on the observation deck, looks out on the on a flat, natural-appearing, sandy beach that holds impressive views of the immediate surrounding natural areas, NYC, the nearshore ocean environment, and the shipping activity related to NY Bay. The verticality and scale of both the freight ships passing through and the development along the coastal Long Island shore provide a strong horizontal perspective line accentuating the view. The contextual view within the immediate foreground includes historic structures and the Sandy Hook lighthouse and native vegetation and long curvilinear sandy beach. In the background the skyscrapers of NYC urban and port infrastructure provide context to the edge of Sandy Hook Bay, Lower Bay and Raritan Bay with the Verrazzano Narrows Bridge anchoring the view toward Manhattan.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Expansive, wide, flat beach with slight dune to rear and slope to tidal edge; ridge in left distance
Line	Curvilinear edge at water and inland edge
Color	Mix of gray and tan sand; white, yellow, black of shells and debris
Texture	Fine sand, irregularly coarse debris
Horizontal Scale	Long expanse horizontal bounded by inlet to left
Vertical Scale	None
Movement	None
Summary	Landform consists of an expansive, wide beach with slight dunes to rear. There is a slight angle to the tidal edge and a curvilinear edge at the water and landslide. There is a mix of tan and gray sand, and white, yellow, and black of various shells and debris. The sand is fine with irregularly coarse shells and debris. The gray-green landform of the ridge to the left is in the distance creating a long line.
Open Ocean	
Form	Flat, wide, open ocean
Line	Flat line, reinforced by sun's reflecting lines
Color	Deep blue, black horizon with reflected white yellow glare
Texture	Stippled to rippling
Horizontal Scale	Bookended by urban structures to left and beach at extreme right
Vertical Scale	None
Movement	Moving horizontally to left
Summary	About $\frac{3}{4}$ of the view is open ocean and $\frac{1}{4}$ is the inlet. The ocean is deep blue with a black horizon. There is reflected solar white-yellow glare, making horizontal lines. The texture is stippled to rippling and water moves horizontally. The horizon line bookended by urban structures to left and beach at extreme right.
Water/Inland	
Form	Flat, wide expanse
Line	Curvilinear
Color	Deep blue
Texture	Slight stippling
Horizontal Scale	Extends left almost to horizon, landform blocks horizon at far edge
Vertical Scale	None
Movement	Swirling
Summary	The inlet is similar color and texture as the ocean but is gentler and is swirling movement. The inlet extends left almost to the horizon.
Vegetation	
Form	Sparse to slightly dense dune grasses; tall line of mixed trees and shrubs
Line	Fine many thin lines of grasses, irregular stippling of tree lines; massing of grasses are curvilinear, massing of trees are linear
Color	Grasses are tan, yellow; trees are varying gray, brown, and deep green.
Texture	Feathery, soft grasses and pillowy hedges of trees
Horizontal Scale	Grasses extend far to left and right; trees line rear but limited in horizon

Aesthetic and Perceptual Characteristics	Description
Vertical Scale	Low grasses, though trees give sense of closure and separation from other features in distance
Movement	Slight movement in wind
Summary	Vegetation is sparse to slight density with short dune grasses. The density of vegetation gets very dense in the distance. There is a tall line of mixed trees extending from the right rear to the left rear. There are medium height grasses, with angles but many thin lines. The trees have stippled irregular lines and are similar height. The grasses are tan and yellow with a feathery softness, and trees are gray-brown, green, and some red with coarse tops and a pillowy body. Vast curvilinear grasses extend far left to right. Trees line the rear horizon. Grasses sway in the wind and exaggerate contrast.
Structures	
Form	Blocky, massive rectilinear freighters; urban blocky massing to left and near-center and bridge, geometric beach/Cape Cod style homes and water towers to rear
Line	Horizontal lines of ships, rectilinear urban forms, geometric bridge
Color	Urban structures are mostly gray and brown at this distance; ships up close are deep green, white, red, and blue but mostly blue/gray in distance. Structures to rear are pale cream, yellows, browns
Texture	Smooth
Horizontal Scale	Structures encompass distance; large ships obscure horizon though are transient
Vertical Scale	Height of urban structures is an impressive dominating view; ships may be close enough to block horizon line
Movement	Transience of ships
Summary	Structures consist of large freighters scattered from middle distance to background. Urban structures are evident and block the horizon of the inlet. Buildings exhibit significant verticality and are geometric. Boats are massive and angular. Gray-brown-reddish buildings in the distance turn very blue in the distance. Boats are gray, deep green, white, and red. The bridge is green and extremely vertical. Structures to the rear are quaint beach-esque cottages and sheds. The water tower is rectilinear, and bright blue.

Form 36: KOP-35 Twin Lights Lighthouse—Top*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulation
- **KOP Distance to Nearest WTG:** 44.06 mi (70.91 km) (OCS-A 0544)
- **Date Visited:** January 24, 2023
- **Time of Visit:** 4:10 PM
- **Weather Conditions and Visibility:** Cloudy
- **KOP Location:** The Twins Lights is a non-operational lighthouse and museum located in Highlands, NJ overlooking Sandy Hook Bay, the entrance to NY Harbor, and the Atlantic Ocean. The lighthouse is known as the Twin Lights State Historic Site and is owned and operated by the NJ State Park Service. Tourists visit this site to experience the views from the lighthouse and the historic character of the site. The photograph is taken from the southern tower.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the bayside residential area and is subject to the considerable influence of the neighboring oceanside residential/commercial area, oceanside beach area, bayside natural upland area, nearshore ocean, and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** The visual context of the KOP view is dynamic, with the changing frequency and number of tourists at the site, movements of traffic along the roads in view and large ships in the distance, and changing atmospheric conditions reflected in the ocean, bay, and sky. Impressive views of the open ocean are coupled with a view of the inlet marinas and a marine coastal residential community, making for many varying visual elements and structures. There are limited views of Long Island and NYC. From this high and steep vantage point, the trees frame and emphasize the open ocean and the eye is drawn to the ships, along with the curvilinear landforms, vast ocean, and crisp horizon line. The Twin Light State Historic Site itself is impressive and distinctive.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁸⁷

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Intermittent narrow strip of beach along peninsula below, and occasional exposed sand within peninsula	Weak	1	Weak	1
Line	Curvilinear form along coastline, sloped up to vegetated dune	Weak	1	Weak	1
Color	Gray tan sand	Weak	1	Weak	1
Texture	Smooth at distance	Weak	1	Weak	1
Horizontal Scale	Extends left to horizon but significant blocking view from bare-leaf trees; no landform right	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	The landform mainly consists of the peninsula that splits the bay from the nearshore ocean. It is curvilinear, tan and gray sand, and slightly mounded with partially vegetated dunes. The addition of project elements would present a weak contrast to the landform due to the distance and sitting low on the horizon.				
Open Ocean					
Form	Wide flat, open ocean	Weak	2	Weak	1
Line	Flat line	Weak	2	Weak	1
Color	Medium gray to dark blue; gray/pink horizon band of sky with dark gray clouds. Left sky is light to bright blue opens among lighter gray clouds.	Weak	2	Weak	1
Texture	Slight rippling	Weak	2	Weak	1
Horizontal Scale	Sky opens up left and right, but horizon is frequently obscured by trees and structures	Weak	2	Weak	1
Vertical Scale	None	Weak	2	Weak	1
Movement	Very minor rippling from this vantage point	Weak	2	Weak	1

⁸⁷ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

KOP-35 Twin Lights Lighthouse—Top

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	Much of the view is the open ocean that created a wide flat line with a gradient of medium gray to dark blue and slight rippling. There is a large sky with gray/pink horizon band. The horizon to the north and south is mostly obscured by trees and structures. The addition of project elements would present a weak contrast to the open ocean due to the distance, sitting low on the horizon, and the addition of minor vertical elements.				
Water/Inland					
Form	Narrow curved flat waterbody	Weak	1	Weak	1
Line	Curvilinear	Weak	1	Weak	1
Color	Light gray to blue	Weak	1	Weak	1
Texture	Smooth to slight stippling	Weak	1	Weak	1
Horizontal Scale	Extends left and right but heavily obscured by vegetation and ultimately blocked to right by near structures	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	Mostly still, not moving. Occasional rippling due to coastal breeze or boats	Weak	1	Weak	1
Summary	There is a narrow inlet separated by a narrow peninsula, forming a slightly curvilinear horizontal line that extends left and right but is eventually obscured by vegetation. The peninsula consists of a narrow strip of beach that rises to a vegetated dune that appears smooth at this distance. The addition of project elements would present a weak contrast to the inlet and bay due to the distance and sitting low on the horizon.				
Vegetation					
Form	Deciduous and evergreen treetops; irregular, angular form	Weak	1	Weak	1
Line	Irregular, chaotic	Weak	1	Weak	1
Color	Gray, brown trees with occasional olive and deep green of evergreen; distant dune vegetation is brown, red, and gray.	Weak	1	Weak	1
Texture	Coarse, wiry	Weak	1	Weak	1
Horizontal Scale	Interrupts parts of horizon line; does not seem to extend far left to right	Weak	1	Weak	1
Vertical Scale	Obscures view due to height, but is far enough away from viewer that their height does not alter character	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1

KOP-35 Twin Lights Lighthouse—Top

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	The dominant vegetation consists of jagged deciduous and evergreen trees that frame the view out to the bay and open ocean. Turf and regularly planted shrubs are in the immediate foreground. Grasses and shrubs appear on the dunes on the distant peninsula. The addition of project elements would present a weak contrast to the vegetation due to the distance and sitting low on the horizon.				
Structures					
Form	Blocky, rectilinear forms; white smooth fences. Marine infrastructure and coastal homes/structures form urban areas below viewer. Curved roads and horizontal blocky ships are below viewer.	Weak	1	Weak	1
Line	Geometric but slightly irregular stonework behind; geometric below; significantly sinuous road below; ships are linear forms.	Weak	1	Weak	1
Color	Gray and tan road infrastructure; coastal structures blue, white, green, red; marinas and boats white, gray.	Weak	1	Weak	1
Texture	Smooth	Weak	1	Weak	1
Horizontal Scale	Structures end in limited horizon.	Weak	1	Weak	1
Vertical Scale	Lighthouse has significant height and adjacency. Smaller infrastructure adjacent to roadways and within residential area have a small vertical scale.	Weak	1	Weak	1
Movement	Movement of ships and road traffic is slight at this distance.	Weak	1	Weak	1
Summary	The dominant structures in the view consist of blocky, angular white and pale colored homes, marinas, shops, the curving roadway, and the white metal fence in the foreground. In the ocean there are elongated large blocky white and grey ships slowly moving in the distance. Near the horizon line, white, low vertical industrial buildings sit to the left of the view. There are stone historic structures behind the view to the west. Due to the existing presence of structures of similar character near the horizon, the addition of project elements at this distance would present a weak contrast.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁸⁸						Refraction Coefficient: 0.13 ⁸⁹					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	44.06 (70.91)	301	99	0	115	0	0	600	121	18	183	20	0
OCS-A 0544	44.06 (70.91)	110	99	0	110	0	0	110	110	18	110	20	0
OCS-A 0537	64.89 (104.43)	0	0	0	0	0	0	52	0	0	0	0	0
OCS-A 0538	55.08 (88.64)	156	0	0	5	0	0	222	11	0	73	0	0
OCS-A 0539	62.20 (100.10)	35	0	0	0	0	0	193	0	0	0	0	0
OCS-A 0541	66.20 (106.54)	0	0	0	0	0	0	23	0	0	0	0	0
OCS-A 0542	73.17 (117.75)	0	0	0	0	0	0	0	0	0	0	0	0

⁸⁸ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁸⁹ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁹⁰	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	122.35 (37.3)	122.4 (37.3)	84.7 (25.81)	84.7 (25.81)
Percent Hidden	9.3%	14.3%	6.5%	9.9%
Amount Visible, ft (m)	1,189.7 (362.6)	730.7 (222.7)	1,227.4 (374.1)	768.3 (234.18)
Percent Visible	90.7%	85.7%	93.5%	90.7%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 44.06 mi (70.91 km) away in lease area OCS-A 0544. Blade tips and hubs of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and blade tips of the 853-ft (260-m) turbines would be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips, hubs, and some mid-towers of the 1,312-ft (399.9-m) turbines and additional blade tips and hubs of the 853-ft (260-m) turbines would be seen. With the consideration of atmospheric refraction, a maximum of 93.5%, or 1227.4 ft (374.1 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 90.7%, or 768.3 ft (234.18 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

⁹⁰ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

KOP-35 Twin Lights Lighthouse—Top

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Viewers from the lighthouse are highly susceptible to changes from the project due to their focus on views toward the open ocean, and the surrounding visual environment being an important asset to the community.
Value	High	Viewers highly value the view from this lighthouse due to its importance of being part of the Twin Lights State Historic Site, its defining experiential character of elevated views toward the open ocean, and tourist attraction.
Overall Sensitivity	High	

Magnitude of Impact ⁹¹	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 57.8°, or 47%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Large	The lease area would occupy 41.1°, or 33%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance. The small-scale change would not compete with the characteristic character area elements at this representative viewpoint as they are consistent with the industrial and maritime features seen in the distance.	Negligible	Project turbines would not present a change or contrast to the visual environment. The negligible change would not alter the character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small	—	Negligible	—
Overall Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from viewers' experience.	Negligible	Although viewer receptor sensitivity is high, the project would present no change to the visual environment and therefore not affect viewers' experience.

⁹¹ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	22.44 (36.11)	222	174	245	181
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	50.02 (80.50)	48	0	71	7
OCS-A 0512 (Empire Wind)	22.44 (36.11)	174	174	174	174
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	44.06 (70.91)	301	99	115	0	600	121	183	20
Cumulative Total	22.44 (36.11)	523	273	337	174	845	302	428	201

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 22.44 mi (36.11 km) away in lease area OCS-A 0512. With an atmospheric refraction coefficient of 0.13, additional blade tips of the external turbines in OCS-A 0529 would be seen. The external leases would mostly block the NY Bight leases and present a more dominant visual change across the horizon due to the closeness of the external lease areas compared to the far distance of the NY Bight leases. Rotor movement of the external lease turbines is likely to be apparent due to the distance at which the projects would be viewed.

KOP-35 Twin Lights Lighthouse—Top

Magnitude of Impact ⁹²	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 89.5°, over 72% of the 124° HFOV.	Large	The cumulative lease areas would occupy 89.5°, over 72% of the 124° HFOV.
Size and Scale of Change	Large	The cumulative lease areas would present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The cumulative lease areas present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

⁹² The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 37: KOP-36 Asbury Park Hall Balcony*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulation
- **KOP Distance to Nearest WTG:** 42.62 mi (68.60 km) (OCS-A 0544)
- **Date Visited:** April 4, 2023
- **Time of Visit:** 1:32 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **KOP Location:** Asbury Park is one of many beaches located along the eastern NJ shoreline and is located just north of Ocean Grove Beach. The boardwalk along the beach consists of restaurants, shops, arcade, splash park, mini golf, and playgrounds. The beach is maintained by the City of Asbury Park. This photograph is taken from the Asbury Park Convention Hall balcony, which sits directly on the beach.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside urban character area and is subject to the considerable influence of the nearshore ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The visual context of the KOP is dynamic, with frequency and number of tourists at the site, movements of vessels and boaters along the coastline, the changing tidal patterns, and changing atmospheric conditions reflected in the ocean and sky. Due to the elevated view, the vast ocean and crisp horizon line dominate the view along with the large breakwater directly in the foreground. At nighttime, artificial lights associated with pedestrian lights along the boardwalk, restaurants, hotels, vessels, and other commercial businesses will be present.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level⁹³

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁹⁴	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Level stretch of sandy beach	Weak	1	N/A	N/A
Line	Strong horizontal line to the north and south of the viewpoint where the beach stretches and meets the water’s edge. Choppy line where breakwater occurs	Weak	1	N/A	N/A
Color	Light and medium beige/tan	Weak	1	N/A	N/A
Texture	Smooth, uniform	Weak	1	N/A	N/A
Horizontal Scale	Dominant to the north and south of the view, chopped up directly in front of the view due to breakwater	Weak	1	N/A	N/A
Vertical Scale	None	Weak	1	N/A	N/A
Movement	None	Weak	1	N/A	N/A
Summary	The long stretch of beach extends to the north and south of the convention hall. The addition of project elements would present a weak contrast to the surrounding landform due to the distance of the turbines.				
Open Ocean					
Form	Massive flat plane	Weak	1	N/A	N/A
Line	Horizon is a thin dark, straight line. Curvilinear and irregular line where the waves break onto the beach	Weak	1	N/A	N/A
Color	Medium blue with some green for majority of the ocean water, white tips near shore, and dark blue water near horizon	Weak	1	N/A	N/A
Texture	Irregular rippling due to currents and shoals	Weak	1	N/A	N/A
Horizontal Scale	Entire skyline	Weak	1	N/A	N/A
Vertical Scale	None	Weak	1	N/A	N/A
Movement	Rolling, in and out, breaking against breakwaters.	Weak	1	N/A	N/A

⁹³ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

⁹⁴ 853-ft (260-m) simulations were not produced for this KOP.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁹⁴	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	Views to the east are unobstructed and are dominated by the open expanse of the Atlantic Ocean, with the horizon line as a main focal point. The addition of project elements would present a weak contrast to the open ocean due to the distance at which the project is viewed. Although vertical elements would be introduced on the flat horizon line, they are extremely difficult to see.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There is no vegetation in the view from this KOP.				
Structures					
Form	Breakwaters are angular and blocky. Not in view, but boardwalk is long and linear, convention hall is blocky, columnar, and arching.	Weak	1	Weak	1
Line	Breakwaters create a horizontal line, but individually appear irregular. Long, horizontal line created by boardwalk. Angular lines on convention hall.	Weak	1	Weak	1
Color	Breakwaters are medium to dark gray with some brown staining. The boardwalk is light brown. The convention hall is mainly brick with white-tan and light green trimming.	Weak	1	Weak	1
Texture	Breakwaters appear coarse. Both smooth and irregular faces of the building.	Weak	1	Weak	1

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height ⁹⁴	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Horizontal Scale	Breakwaters stretch across nearly the whole horizontal scale of view, until looking directly north or south. The boardwalk has a large horizontal scale. Some horizontal features on the edges of the building. The convention hall is a major horizontal structure on the beach setting.	Weak	1	Weak	1
Vertical Scale	Breakwaters have nearly no vertical scale from this vantage point. None for the boardwalk. The convention hall is a major vertical structure on the beach setting.	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	Overall, the breakwaters create an angular and blocky look while also forming a horizontal line of medium to dark gray with some brown staining. Commercial and recreational vessels are visible in the open ocean. The addition of project elements would present a weak contrast to the structures in view due to the distance of the turbines.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ⁹⁵						Refraction Coefficient: 0.13 ⁹⁶					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	42.62 (68.60)	188	0	0	11	0	0	361	11	0	44	0	0
OCS-A 0544	42.62 (68.60)	99	0	0	11	0	0	110	11	0	43	0	0
OCS-A 0537	61.12 (98.36)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0538	47.73 (76.82)	85	0	0	0	0	0	155	0	0	1	0	0
OCS-A 0539	52.63 (84.69)	4	0	0	0	0	0	87	0	0	0	0	0
OCS-A 0541	55.10 (88.67)	0	0	0	0	0	0	9	0	0	0	0	0
OCS-A 0542	62.67 (100.86)	0	0	0	0	0	0	0	0	0	0	0	0

⁹⁵ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

⁹⁶ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ⁹⁷	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	763.6 (232.8)	763.6 (232.8)	639.8 (195)	639.8 (195)
Percent Hidden	58.2%	89.5%	48.8%	75.0%
Amount Visible, ft (m)	548.4 (167.2)	89.4 (27.3)	672.3 (204.9)	213.2 (64.99)
Percent Visible	41.8%	10.5%	51.2%	25.0%

Description of Projects Appearances in the Context of the Affected Environment from the

KOP: The nearest turbine to this KOP lies approximately 42.62 mi (68.60 km) away in lease area OCS-A 0544. Only blade tips of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation. Theoretically, several blade tips of 853-ft (260-m) turbines may be seen; however, these likely would not be perceptible. With an atmospheric refraction coefficient of 0.13, additional blade tips and several hubs of the 1,312-ft (399.9-m) turbines and additional blade tips of 853-ft (260-m) turbines would be seen. With the consideration of atmospheric refraction, a maximum of 51.2%, or 672.3 ft (204.9 m) of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 25.0%, or 213.2 ft (64.99 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

⁹⁷ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Many tourists visit this KOP to enjoy the views and experience the historic elements of the convention hall, making it highly susceptible to changes from the project.
Value	High	Viewers highly value this KOP for the defining experiential characteristic of a facility providing direct views of the expansive open ocean, the surrounding tourism value of commercial facilities along the beachfront, and its historical significance and listing on the NRHP.
Overall Sensitivity	High	

Magnitude of Impact ⁹⁸	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ⁹⁹	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 61.9°, or 50%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Small	The lease area would occupy 6.1°, or 5%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Negligible	The project turbines would not present a change to or contrast with the visual environment. The negligible change would not alter the character area elements at this representative viewpoint.	Negligible	The project turbines would not present a change to or contrast with the visual environment. The negligible change would not alter the character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Negligible	—	Negligible	—
Overall Visual Impact Level	Negligible	Although viewer receptor sensitivity is high, the project would present no change to the visual environment; therefore, not affecting viewers' experience.	Negligible	Although viewer receptor sensitivity is high, the project would present no change to the visual environment; therefore, not affecting viewers' experience.

⁹⁸ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

⁹⁹ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	24.87 (40.03)	216	76	244	109
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	38.15 (61.39)	48	2	70	7
OCS-A 0512 (Empire Wind)	24.87 (40.03)	168	74	174	102
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	42.62 (68.60)	188	0	11	0	361	11	44	0
Cumulative Total	24.87 (40.03)	404	76	227	76	605	120	288	109

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 24.87 mi (40.03 km) away in lease area OCS-A 0512. The external leases would present a more dominant visual change across the horizon due to the closeness of the external lease areas compared to the far distance of the NY Bight leases, which present a negligible change, as noted in Section C. Rotor movement of the external lease turbines is likely to be apparent due to the distance at which the projects would be viewed.

Magnitude of Impact ¹⁰⁰	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines ¹⁰¹	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 117.8°, over 95% of the 124° HFOV and are located on the left half of the horizon.	Large	The cumulative lease areas would occupy 117.8°, over 95% of the 124° HFOV and are located on the left half of the horizon.
Size and Scale of Change	Medium	The cumulative leases would present a moderately prominent new feature along the horizon line but would not compete with key characteristic elements in the view.	Medium	The cumulative leases would present a moderately prominent new feature along the horizon line but would not compete with key characteristic elements in the view.
Overall Magnitude of Impact Rating	Medium	—	Medium	—
Cumulative Visual Impact Level	Moderate	The cumulative leases would present a moderate level of change to the character of the view, moderately influencing viewers' experience.	Moderate	The cumulative leases, mostly external leases, would present a moderate level of change to the character of the view, moderately influencing viewers' experience.

¹⁰⁰ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

¹⁰¹ A 853-ft (260-m) simulation was not produced for this KOP; therefore, ratings are based on the GIS data using the 0.0 refraction coefficient. However, as the 853-ft (260-m) NY Bight turbines present no visual change; therefore, the external lease-only simulations are representative of this scenario.

Form 38: KOP-37 Point O' Woods*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulation
- **KOP Distance to Nearest WTG:** 24.07 mi (38.74 km) (OCS-A 0544)
- **Date Visited:** June 2, 2023
- **Time of Visit:** 11:25 AM
- **Weather Conditions and Visibility:** Fair
- **KOP Location:** Point O' Woods is a hamlet consisting of a private vacation retreat located on Fire Island, NY. Fire Island is a large barrier island off the coast of Long Island. The barrier island separates the Great South Bay and the Atlantic Ocean. This viewpoint is from a private residential deck sitting behind and above a sand dune. The viewpoint is representative of the historic context found within the community.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside residential/commercial area and is subject to the considerable influence of the nearshore ocean and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** This specific viewpoint is from a private residential home; however, the view can be representative of those walking along the beach and from other homes or buildings that have ocean-facing views from behind the dunes. During hours of darkness, the character of the ocean, seascape, and landscape may be influenced by artificial lighting from nearby homes, streetlights, cars, and glimpses of scattered lighting across the ocean surface associated with vessels, navigation aids, and moonlight reflections on the water.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level¹⁰²

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Flat rolling dune above beach. Gently sloping beach toward ocean edge.	Weak	2	Weak	2
Line	Strong line along the base of dune. Tire marks dug into sand creating strong curvilinear line. Proper beach break from tidal to edge.	Weak	2	Weak	2
Color	The color consists of mostly beige to gray gradients being very soft in color. Traditional sand with no variation to speak of.	Weak	2	Weak	2
Texture	Very smooth flat pillowy sand	Weak	2	Weak	2
Horizontal Scale	Horizontal scale of the landform reflects horizon as far as the eye can see along each edge.	Weak	2	Weak	2
Vertical Scale	None	Weak	2	Weak	2
Movement	None	Weak	2	Weak	2
Summary	The landform consists of the gently sloping beach and the flat, rolling dune creating a vast horizontal scale across the view. The sand appears tan-beige and smooth to fine grained. The addition of project elements would present a weak contrast to the surrounding landform due to the distance of the turbines.				
Open Ocean					
Form	Ocean forms a vast horizontal scale, flat plane, and no interrupted views	Moderate	3	Moderate	3
Line	Very strong horizon line of a contiguous band of gray.	Moderate	3	Moderate	3
Color	True colors are radiance of gray and where the sun reflects off the ocean surface waters; linear and irregular edges are created.	Moderate	3	Moderate	3
Texture	Consistent area of light rolling swell to inland beach break. Rippling waves very small and regular.	Moderate	3	Moderate	3
Horizontal Scale	Vast horizontal plane and uninterrupted at the horizon.	Moderate	3	Moderate	3
Vertical Scale	None	Moderate	3	Moderate	3

¹⁰² Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Movement	Ocean tide breaks in and out from the shore back to the ocean. The ocean itself is moving sideways following the current.	Moderate	3	Moderate	3
Summary	The open ocean forms a vast horizontal scale, flat plane, and no interrupted views with a strong, dark grey-blue horizon line, reflections from the sun, and movement rolling toward the beach. The addition of project elements would present a moderate contrast to the open ocean due to the introduction of vertical elements on the flat horizon line.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Vegetation form consists of wispy upright vegetative grasses, some small inland pine trees, and shrubs along the faces of buildings. They are erect and irregularly stippled.	Weak	2	Weak	2
Line	Dune grasses are erect and angular. Linear pine trees are vertical and have irregular branching creating some horizontal lines. Some trunks are angular and linear at bases around buildings and homes.	Weak	2	Weak	2
Color	Color consists of mainly beige to yellow and some gray to dark green pine trees.	Weak	2	Weak	2
Texture	Grasses are wispy, smooth, and soft, while pine trees are coarse and stippled.	Weak	2	Weak	2
Horizontal Scale	Grasses are planted in rows on a 2 foot grid growing into masses creating horizontal lines at the top of the dune.	Weak	2	Weak	2

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Vertical Scale	Grass vertical scales range from 6 inches to 2 feet. Clumps of 8 to 15 feet tall pine trees are spaced irregularly.	Weak	2	Weak	2
Movement	Slight movement of the grasses due to coastal breeze.	Weak	2	Weak	2
Summary	Vegetation consists of dune grasses that have been strategically planted into rows for restoration purposes. The plantings create organized horizontal lines. The addition of project elements would present a weak contrast to the vegetation due to the distance of the turbines.				
Structures					
Form	Structures consist of residential beach community geometric forms reflecting maritime architecture. The beach homes consist of square faces with irregular angular roofs. Gently sloping flat faces of the building to the beach.	Weak	2	Weak	2
Line	Irregular angular roofs gently sloping lines at ridgelines.	Weak	2	Weak	2
Color	Color of the buildings are consistent with cedar raised to natural tans and browns.	Weak	2	Weak	2
Texture	Smooth, flat shingle roofs.	Weak	2	Weak	2
Horizontal Scale	Very minor horizontal features on the edges of the view.	Weak	2	Weak	2
Vertical Scale	Minor vertical features due to residential homes, erect flagpoles, and other minor infrastructure.	Weak	2	Weak	2
Movement	None	Weak	2	Weak	2
Summary	Structures are mostly to the edge of the view, consisting of residential beach community with geometric forms reflecting maritime architecture, beach homes consisting of square faces with irregular angular roofs, and gently sloping flat faces of the building to the beach. There are some minor vertical features such as flagpoles. The addition of project elements would present a weak contrast to the structures in view due to the distance of the turbines and location of the existing structures outside of the direct viewpoint.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ¹⁰³						Refraction Coefficient: 0.13 ¹⁰⁴					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	24.07 (38.74)	227	110	70	110	73	0	316	110	96	111	99	6
OCS-A 0544	24.07 (38.74)	110	110	70	110	73	0	110	110	96	110	99	6
OCS-A 0537	45.09 (72.56)	117	0	0	0	0	0	206	0	0	1	0	0
OCS-A 0538	57.08 (91.86)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	68.83 (110.77)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	85.13 (137.01)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	86.41 (139.07)	0	0	0	0	0	0	0	0	0	0	0	0

¹⁰³ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

¹⁰⁴ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ¹⁰⁵	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	207.1 (63.1)	207.1 (63.1)	170.8 (52.06)	170.8 (52.06)
Percent Hidden	15.8%	24.3%	13.0%	20.0%
Amount Visible, ft (m)	1,105.0 (336.8)	645.9 (196.9)	1,141.1 (347.8)	682.2 (207.93)
Percent Visible	84.2%	75.7%	87.0%	80.0%

Description of Projects Appearances in the Context of the Affected Environment from the

KOP: The nearest turbine to this KOP lies approximately 24.07 mi (38.74 km) away in lease area OCS-A 0544. Blade tips, hubs, and mid-towers of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and blade tips and hubs of the 853-ft (260-m) turbines would be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips, hubs, and mid-towers of both turbine heights would be seen. With the consideration of atmospheric refraction, a maximum of 87.0%, or 1141.1 ft (347.8 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 80.0%, or 682.2 ft (207.93 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM "Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles" (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

¹⁰⁵ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents, tourists, and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in ocean facing views, especially given the historic character, and the surrounding visual environment being an important asset to the community.
Value	High	Viewers highly value this KOP due to the defining experiential character of the expansive open ocean views and direct access to the beach.
Overall Sensitivity	High	—

Magnitude of Impact ¹⁰⁶	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 38.2°, or 31%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Medium	The lease area would occupy 25.7°, or 21%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Medium	Project turbines would present a moderately noticeable change to the visual environment. A new feature would be added to the existing simple horizon line. The change may compete with key characteristic character area elements at this representative viewpoint.	Small	Project turbines would present a small, but noticeable, change to the visual environment. A new feature would be added to the existing simple horizon line. The change may compete with key characteristic character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Medium	—	Small	—

¹⁰⁶ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Magnitude of Impact ¹⁰⁶	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Overall Visual Impact Level	Moderate	Although viewer receptor sensitivity is high, the project may introduce a moderate but noticeable level of change to the character of the view, have a moderate effect on the viewer experience, and may hold viewers' attention.	Minor	Although viewer receptor sensitivity is high, the project may introduce a small but noticeable level of change to the character of the view, have a small effect on viewers' experience, and may not hold viewers' attention.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	23.91 (38.47)	174	174	174	174
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	—	0	0	0	0
OCS-A 0512 (Empire Wind)	23.91 (38.47)	174	174	174	174
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	24.07 (38.74)	227	110	110	73	316	110	111	99
Cumulative Total	23.91 (38.47)	401	284	284	247	490	284	285	273

Description of Cumulative Project Appearances in the Context of the Affected Environment

from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 23.91 mi (38.47 km) away in lease area OCS-A 0512. The external leases would present an additional dominant visual change to the NY Bight leases across the horizon due to the closeness of the cumulative leases. Rotor movement of the cumulative lease turbines are likely to be apparent due to the distance at which the projects would be viewed.

Magnitude of Impact ¹⁰⁷	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 82.3°, over 66% of the 124° HFOV and are located to the center of the horizon.	Large	The cumulative lease areas would occupy 69.8°, over 56% of the 124° HFOV and are located to the center of the horizon.
Size and Scale of Change	Large	The cumulative lease areas would present a new and dominant characteristic element to the view toward the simple horizon line.	Large	The cumulative lease areas would present a new and dominant characteristic element to the view toward the simple horizon line.
Overall Magnitude of Impact Rating	Large	—	Large	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

¹⁰⁷ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 39: KOP-38 Robert Moses Field 5

Section A. KOP Information

- **Photo Reference:** Appendix G — Photographic Log
- **KOP Distance to Nearest WTG:** 24.21 mi (38.97 km)
- **Date Visited:** May 8, 2023
- **Time of Visit:** 11:05 AM
- **Weather Conditions and Visibility:** Partly cloudy
- **Location:** Robert Moses State Park is a popular recreation ocean beachfront facility located on the westernmost point of Fire Island. Popular activities include swimming, surfing, fishing, sunbathing, picnicking, and walking. A nearby field contains a pitch and putt golf course. Onsite facilities consist of public restrooms, beach shops, concessions, first aid offices, and outdoor showers. There is a large, paved parking lot and handicapped accessible beachfronts.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside recreation area and is subject to the considerable influence of the nearshore ocean and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The view of the ocean is expansive and unbroken. Behind the viewer are nondescript structures for recreation facilities and a large parking lot. From the beach, the short grasses and wildflowers of the dunes limit the views of these structures and parking lots but do not conceal them entirely. The view of the water and beach is impressive.

Aesthetic and Perceptual Characteristics	Description
Landform	
Form	Large wide sloping beach to the top of tide backdropped by rolling dunes
Line	Line is defined by and irregular edge at the top of the tide
Color	Sand beige tans and brown
Texture	Smooth slightly granular sand, pieces of small to large shells and gravel, soft pillows of windswept sand at base of fences
Horizontal Scale	Broad open plane of beach bounded by tall dunes on each side; the view is framed between the tall dunes
Vertical Scale	None
Movement	None
Summary	The long stretch of beach extends to the west and east, largely unbroken in its view.
Open Ocean	
Form	Large expansive plane to the horizon
Line	Strong gray horizon line between the pale blue sky and the gray blue ocean. The line is visually prominent, contrasting against the sky
Color	Deep blue gray to light green to reflective sun on the top of the ocean surface, jagged irregular edge along sunline contrasting with the blue ocean
Texture	Rolling swells of 2–3 ft with gentle beach break, evidence of gently sloping beach angle
Horizontal Scale	Wide expansive plane with no visual breaks or intrusions. The view to the expansive ocean is focused through the dunes to the horizon
Vertical Scale	None
Movement	The ocean moves with the tides in and out; irregular swirling of the currents can be seen from the viewpoint
Summary	The ocean is open, expansive, and significant.
Water/Inland	
Form	N/A
Line	N/A
Color	N/A
Texture	N/A
Horizontal Scale	N/A
Vertical Scale	N/A
Movement	N/A
Summary	There are no inland waterbodies in the view from this KOP.
Vegetation	
Form	Vegetation consists of sparse dune grass mainly on top of the dunes, evidence of shrubs and trees sporadic behind the dune away from the viewpoint next to parking areas
Line	There is no evidence of any linear form of the vegetation other than large massing of dune grass; irregular edges and breaks between the masses contrast with the color of the grasses and the landform sand
Color	Color is tan-yellow to gray green
Texture	Grasses wispy, angular and irregular

Aesthetic and Perceptual Characteristics	Description
Horizontal Scale	Horizontal scale in massing with intermittent breaks
Vertical Scale	Grasses are relatively short: 6 in. to 2 ft tall, angular and erect
Movement	Grasses move with the ocean winds
Summary	Vegetation consists of sparse dune grass mainly on top of the dunes and evidence of shrubs and trees sporadic behind the dune away from the viewpoint next to parking areas. Vegetation behind the viewpoint keeps the viewer focused on the natural features of this view.
Structures	
Form	The viewpoint is at the foot of the main recreation area for Robert Moses Beach lot 5 where there is an elongated brick rectangular structure
Line	Long linear edges to the buildings and metal tubing handrails and barriers along paths, edge of concrete slab in front of concession has linear edge curved between sand and concrete
Color	Structures are colored red-gray with white edges, brown shingles, metal arbors where concessions start
Texture	Brick texture along the main concession building with wood lap siding on secondary structures metal vertical uprights bordering the arbor and outdoor concession area
Horizontal Scale	Main concession area is a large horizontal building scaled for large crowds, and other public beach structures and small maintenance buildings are scaled to support
Vertical Scale	Low
Movement	None
Summary	Structures consist of the main concession building, smaller maintenance buildings, and handrails and barriers along the edge of pathways. There is a large horizontal scale, with long linear edges and colored red and gray with white edges, brown shingles, and metal arbors.

Form 40: KOP-39 Empire State Building*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulation
- **KOP Distance to Nearest WTG:** 55.78 mi (89.77 km) (OCS-A 0544)
- **Date Visited:** March 16, 2023
- **Time of Visit:** 9:25 AM
- **Weather Conditions and Visibility:** Overcast
- **KOP Location:** The Empire State Building is a 102-story skyscraper in Midtown Manhattan standing approximately 1,454 ft (443.2 m) tall. The building is owned by Empire State Realty Trust and was listed on the NRHP in 1982 and granted NHL status in 1986. Tickets are available to tourists to visit the 86th floor observatory or the 102nd floor observation deck. The 86th floor provides 360° views of all of NYC, and the 102nd floor provides views supposedly stretching up to 80 miles on a clear day. The building also serves as offices for many businesses. This photograph was taken from the 102nd floor observation deck of the building.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the inland urban area and is subject to the influence of the nearshore and open ocean characters visible in the far distance.
- **Visual Impact Receptors (Viewer Groups):** Residents, Tourists/Recreational
- **Visual Context:** Viewers come to visit this NHL to experience its impressive and unobstructed views of NYC. The land surrounding the Empire State Building consists of dense urban development. During hours of darkness, the key characteristics of the ocean, seascape, and landscape shift as various artificial lighting becomes the point of focus from this viewpoint. Intermittent lighting from vehicles, planes, vessels, and others alike creates movement within the nighttime view. The sky remains lit due to the presence of abundant artificial lights.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level¹⁰⁸

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Appearing flat	Weak	1	Weak	1
Line	Curvilinear edges due to the river systems	Weak	1	Weak	1
Color	Muted gray-brown	Weak	1	Weak	1
Texture	Smooth from this distance	Weak	1	Weak	1
Horizontal Scale	Stretches across most of the view near the horizon line	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	The landform is not visible due to the dense structures in the highly urbanized environment. There are less urbanized landforms visible beyond Manhattan near the horizon line appearing curvilinear and gray-brown. Details are not visible. The addition of project elements would present a weak contrast to the surrounding landform due to the distance of the turbines.				
Open Ocean					
Form	Flat	Weak	2	Weak	2
Line	Thin, strong horizon line	Weak	2	Weak	2
Color	Muted gray-blue	Weak	2	Weak	2
Texture	Smooth	Weak	2	Weak	2
Horizontal Scale	Extends with the horizon	Weak	2	Weak	2
Vertical Scale	None	Weak	2	Weak	2
Movement	None	Weak	2	Weak	2
Summary	The Atlantic Ocean is visible in the background, with occasional recreational and commercial vessels traveling primarily to and from NY Harbor. The addition of project elements would present a weak contrast to the open ocean due to the distance to the turbines.				
Water/Inland					
Form	Flat	Weak	1	Weak	1
Line	Curvilinear edges due to the river systems	Weak	1	Weak	1
Color	Muted gray-blue-brown	Weak	1	Weak	1
Texture	Smooth to light rippling	Weak	1	Weak	1
Horizontal Scale	Stretches across most of the view but	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	Slow flowing	Weak	1	Weak	1

¹⁰⁸ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Summary	There is a curvilinear boundary that the East River and Hudson River form. The East River and the Hudson River are visible, breaking up Manhattan from the Queens and Brooklyn land masses to the east and southeast. The addition of project elements would present a weak contrast to the rivers due to the distance of the turbines.				
Vegetation					
Form	Irregular	Weak	1	Weak	1
Line	None	Weak	1	Weak	1
Color	Dark grey	Weak	1	Weak	1
Texture	Stippled	Weak	1	Weak	1
Horizontal Scale	None	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	Vegetation is limited primarily to rooftop gardens, urban parks, and on the islands within the riverway. There is no distinct coloring from this viewpoint. The addition of project elements would present a weak contrast to the vegetation due to the distance of the turbines.				
Structures					
Form	Blocky, angular	None	0	None	0
Line	Vertical, ridges	None	0	None	0
Color	Mostly differing shades of grays and browns, some reddish, burgundy, gold, and black	None	0	None	0
Texture	Individual buildings appear smooth as a whole due to the distance, but the texture appears overall rigid due to the collection of extremely dense angular buildings.	None	0	None	0
Horizontal Scale	Structures extend across the entire horizontal field of view	None	0	None	0
Vertical Scale	Irregular, many scales due to differing building heights	None	0	None	0
Movement	Slow moving ships along the river	None	0	None	0
Summary	The dominant visual elements from this viewpoint include the mass of blocky, angular, and vertical structures that sit below and extend beyond the viewpoint. The addition of project elements would present no contrast to the structures in this viewpoint due to the distance of the turbines and the existing highly urbanized and busy environment.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ¹⁰⁹						Refraction Coefficient: 0.13 ¹¹⁰					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	55.78 (89.77)	264	125	110	186	110	0	987	268	110	439	110	110
OCS-A 0544	55.78 (89.77)	110	110	110	110	110	0	110	110	110	110	110	110
OCS-A 0537	78.62 (126.53)	202	0	0	6	0	0	235	45	0	136	0	0
OCS-A 0538	74.43 (119.79)	219	15	0	70	0	0	260	113	0	177	0	0
OCS-A 0539	83.11 (133.75)	92	0	0	0	0	0	332	0	0	16	0	0
OCS-A 0541	89.69 (144.34)	0	0	0	0	0	0	50	0	0	0	0	0
OCS-A 0542	95.91 (154.34)	0	0	0	0	0	0	0	0	0	0	0	0

¹⁰⁹ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

¹¹⁰ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ¹¹¹	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	96.0 (29.3)	96.0 (29.3)	45.3 (13.8)	45.3 (13.8)
Percent Hidden	7.3%	11.3%	3.5%	5.3%
Amount Visible, ft (m)	1,216.1 (370.6)	757.0 (230.7)	1,266.8 (386.1)	807.8 (246.2)
Percent Visible	92.7%	88.7%	96.5%	94.7%

Description of Projects Appearances in the Context of the Affected Environment from the KOP:

The nearest turbine to this KOP lies approximately 55.78 mi (89.77 km) away in lease area OCS-A 0544. Blade tips, hubs, and mid-towers of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and blade tips and hubs of the 853-ft (260-m) turbines would be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips, hubs, and mid-towers of both turbine heights would be seen. With the consideration of atmospheric refraction, a maximum of 96.5%, or 1266.8 ft (386.1 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 94.7%, or 807.8 ft (246.2 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon and framed between structures. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The introduction of new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered may make the project apparent at night. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

¹¹¹ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Tourists are highly susceptible to changes to the view from the Empire State Building due to their focus on the iconic expansive views across the city and out toward the open ocean and horizon.
Value	High	The Empire State Building, designated as a NHL, provides iconic views focused on the expansive city and horizon line, making it a highly valued tourist attraction.
Overall Sensitivity	High	—

Magnitude of Impact ¹¹²	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The lease area would occupy 42.4°, or 34%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Medium	The lease area would occupy 33.5°, or 27%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Small	Project turbines would present a small change to the visual environment due to the extended distance. The small-scale change would not compete with key characteristic character area elements at this representative viewpoint.	Negligible	Project turbines would present no change to the visual environment. The project would not compete with key characteristic character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Small	—	Negligible	—
Overall Visual Impact Level	Minor	Although viewer receptor sensitivity is high, the project would not be visually prominent or detract from viewers' experience in the existing highly urbanized environment.	Negligible	Although viewer receptor sensitivity is high, the project would not detract from viewer's experience and would be barely discernable in the existing highly urbanized environment. Additionally, the direction of the project is not the direction of the primary lookout location of the building.

¹¹² The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	34.12 (54.91)	217	174	252	187
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	74.24 (119.47)	43	0	78	13
OCS-A 0512 (Empire Wind)	34.12 (54.91)	174	174	174	174
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	55.78 (89.77)	264	125	186	110	987	268	439	110
Cumulative Total	34.12 (54.91)	840	299	403	284	1239	455	691	297

Description of Cumulative Project Appearances in the Context of the Affected Environment

from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 34.12 mi (54.91 km) away in lease area OCS-A 0512. The cumulative leases would present a moderate visual change across the horizon due to the elevated viewpoint. Rotor movement of the external lease turbines may be apparent.

Magnitude of Impact ¹¹³	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 63.4°, 51% of the 124° HFOV and are located to the left of the horizon.	Large	The cumulative lease areas would occupy 63.4°, 51% of the 124° HFOV and are located to the left of the horizon.
Size and Scale of Change	Medium	The cumulative leases would present a moderately prominent new feature along the horizon line but would not compete with characteristic elements in the view.	Medium	The cumulative leases would present a moderately prominent new feature along the horizon line but would not compete with characteristic elements in the view.
Overall Magnitude of Impact Rating	Medium	—	Medium	—
Cumulative Visual Impact Level	Moderate	The cumulative leases would present a moderate level of change to the urbanized character of the view, moderately influencing viewers' experience.	Moderate	The cumulative leases would present a moderate level of change to the urbanized character of the view, moderately influencing viewers' experience.

¹¹³ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Form 41: KOP-40 Robert Moses Field 5—Night*

Section A. KOP Information

- **Photo Reference:** Appendix G – Photographic Log, Appendix E – Visual Simulation
- **KOP Distance to Nearest WTG:** 24.21 mi (38.97 km) (OCS-A 0544)
- **Date Visited:** May 8, 2023
- **Time of Visit:** 11:05 PM
- **Weather Conditions and Visibility:** Partly cloudy
- **KOP Location:** Robert Moses State Park is a popular recreation ocean beachfront facility located on the westernmost point of Fire Island. Popular activities include swimming, surfing, fishing, sunbathing, picnicking, and walking. A nearby field contains a pitch and putt golf course. Onsite facilities consist of public restrooms, beach shops, concessions, first aid offices, and outdoor showers. There is a large, paved parking lot and handicapped accessible beachfronts.

Affected Environment

- **Ocean/Seascape/Landscape Character Context:** The KOP is located in the oceanside recreation area and is subject to the considerable influence of the nearshore ocean and open ocean.
- **Visual Impact Receptors (Viewer Groups):** Tourists/Recreational
- **Visual Context:** The view of the ocean is expansive and unbroken. Behind the viewer are nondescript structures for recreation facilities and a large parking lot. From the beach, the short grasses and wildflowers of the dunes limit the views of these structures and parking lots, but do not conceal them entirely. The view of the water and beach is impressive.

Section B: Existing Conditions, Project's Degree of Contrast, and Project's Visual Prominence Level¹¹⁴

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Landform					
Form	Large wide sloping beach to the top of tide backdropped by rolling dunes	Weak	1	Weak	1
Line	Line is defined by an irregular edge at the top of the tide	Weak	1	Weak	1
Color	Sand beige tans and brown	Weak	1	Weak	1
Texture	Smooth slightly granular sand, pieces of small to large shells and gravel, soft pillows of windswept sand at base of fences	Weak	1	Weak	1
Horizontal Scale	Broad open plane of beach flanked by tall dunes on each side. The view is framed by the tall dunes	Weak	1	Weak	1
Vertical Scale	None	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	The long stretch of beach extends to the west and east, largely unbroken in its view. At nighttime, the turbine lighting would be consistent with the artificial lighting that currently exists in the view, creating weak contrast.				
Open Ocean					
Form	Large expansive plane to the horizon	Weak	1	Weak	1
Line	Strong gray horizon line between the pale blue sky and the gray-blue ocean. The line is visually prominent, contrasting with the sky.	Weak	1	Weak	1
Color	Deep blue-gray to light green to reflective sun on the top of the ocean surface. Jagged irregular edge along sunline contrasting with the blue ocean.	Weak	1	Weak	1
Texture	Rolling swells of 2–3 ft with gentle beach break, evidence of gently sloping beach angle	Weak	1	Weak	1
Horizontal Scale	Wide expansive plane with no visual breaks or intrusions. The view to the expansive ocean is focused through the dunes to the horizon.	Weak	1	Weak	1

¹¹⁴ Degree of contrast and visual prominence levels are determined based on the simulations, which are produced with a 0.0 refraction coefficient.

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Vertical Scale	None	Weak	1	Weak	1
Movement	The ocean moves with the tides in and out, and irregular swirling of the currents can be seen from the viewpoint	Weak	1	Weak	1
Summary	The ocean is open, expansive, and significant. At nighttime, the turbine lighting would be consistent with the artificial lighting that currently exists in the view along the horizon line, creating weak contrast.				
Water/Inland					
Form	N/A	N/A	N/A	N/A	N/A
Line	N/A	N/A	N/A	N/A	N/A
Color	N/A	N/A	N/A	N/A	N/A
Texture	N/A	N/A	N/A	N/A	N/A
Horizontal Scale	N/A	N/A	N/A	N/A	N/A
Vertical Scale	N/A	N/A	N/A	N/A	N/A
Movement	N/A	N/A	N/A	N/A	N/A
Summary	There are no inland waterbodies in the view from this KOP.				
Vegetation					
Form	Vegetation consists of sparse dune grass mainly on top of the dunes, evidence of sporadic shrubs and trees behind the dune away from the viewpoint next to parking areas	Weak	1	Weak	1
Line	There is no evidence of any linear form of the vegetation other than large massing of dune grass. Irregular edges and breaks between the masses contrast with the color of the grasses and the landform sand	Weak	1	Weak	1
Color	Color is tan-yellow to gray-green	Weak	1	Weak	1
Texture	Grasses wispy, angular, and irregular	Weak	1	Weak	1
Horizontal Scale	Horizontal scale in massing with intermittent breaks	Weak	1	Weak	1
Vertical Scale	Grasses are relatively short: 6 in. to 2 ft tall, angular and erect	Weak	1	Weak	1
Movement	Grasses move with the ocean winds	Weak	1	Weak	1
Summary	Vegetation behind the viewpoint keeps the viewer focused on the natural features of this view. At nighttime, the turbine lighting would be consistent with the artificial lighting that currently exists in the view, creating weak contrast.				

Aesthetic and Perceptual Characteristics	Description of Existing Conditions	1,312-ft (399.9-m) Turbine Height		853-ft (260-m) Turbine Height	
		Degree of Contrast	Visual Prominence Level	Degree of Contrast	Visual Prominence Level
Structures					
Form	The viewpoint is at the foot of the main recreation area for Robert Moses Beach lot 5 where there is an elongated brick rectangular structure	Weak	1	Weak	1
Line	Long linear edges to the buildings and metal tubing handrails and barriers along paths; edge of concrete slab in front of concession has linear edge curved between sand and concrete.	Weak	1	Weak	1
Color	Structures are colored red-gray with white edges, brown shingles, metal arbors where concessions start.	Weak	1	Weak	1
Texture	Brick texture along the main concession building with wood lap siding on secondary structures, metal vertical uprights bordering the arbor and outdoor concession area.	Weak	1	Weak	1
Horizontal Scale	Main concession area is a large horizontal building scaled for large crowds. Other public beach structures and small maintenance buildings are scaled to support.	Weak	1	Weak	1
Vertical Scale	Low	Weak	1	Weak	1
Movement	None	Weak	1	Weak	1
Summary	Structures consist of the main concession building, smaller maintenance buildings, and handrails and barriers along the edge of pathways. There is a large horizontal scale, with long linear edges and colored red and gray with white edges, brown shingles, and metal arbors. At nighttime, the turbine lighting would be consistent with the artificial lighting that currently exists in the view, creating weak contrast.				

Section C. Turbine Visibility, Sensitivity, Magnitude of Impact, and Overall Impact

NY Bight Lease Area	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area											
		Refraction Coefficient: 0.00 ¹¹⁵						Refraction Coefficient: 0.13 ¹¹⁶					
		1,312 ft (399.9 m)			853 ft (260 m)			1,312 ft (399.9 m)			853 ft (260 m)		
		Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower	Blade Tip	Hub	Mid-Tower
Total	24.21 (38.97)	141	110	45	110	50	0	240	110	79	110	85	0
OCS-A 0544	24.21 (38.97)	110	110	45	110	50	0	110	110	79	110	85	0
OCS-A 0537	46.28 (74.49)	31	0	0	0	0	0	130	0	0	0	0	0
OCS-A 0538	55.28 (88.97)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0539	66.76 (107.43)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0541	82.11 (132.14)	0	0	0	0	0	0	0	0	0	0	0	0
OCS-A 0542	83.98 (135.16)	0	0	0	0	0	0	0	0	0	0	0	0

¹¹⁵ Turbine counts with a refraction coefficient of 0.0 are extracted using curvature of the earth only. These turbine counts are reflective of those in the simulations, as no refraction was used in the creation of the simulations.

¹¹⁶ Atmospheric refraction is the deviation of light from a straight line as it passes through the atmosphere due to the variation in air density as a function of altitude. A refraction coefficient of 0.13 is used in an ArcGIS model to determine number of turbines visible from each lease area.

http://walter.bislins.ch/bloge/index.asp?page=Simulation+of+Atmospheric+Refraction#H_Refracton_Coefficient

Amount of Nearest Turbine Visible and Hidden (OCS-A 0544) ¹¹⁷	Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
	1,312 ft (399.9 m)	853 ft (260 m)	1,312 ft (399.9 m)	853 ft (260 m)
Amount Hidden, ft (m)	258.6 (78.8)	258.6 (78.8)	217.6 (66.33)	217.6 (66.33)
Percent Hidden	19.7%	30.3%	16.6%	25.5%
Amount Visible, ft (m)	1053.5 (321.1)	594.4 (181.2)	1094.5 (333.6)	635.5 (193.7)
Percent Visible	80.3%	69.7%	83.4%	74.5%

Description of Projects Appearances in the Context of the Affected Environment from the

KOP: The nearest turbine to this KOP lies approximately 24.21 mi (38.97 km) away in lease area OCS-A 0544. Blade tips, hubs, and mid-towers of the 1,312-ft (399.9-m) turbines would be visible with no atmospheric refraction, which is displayed in the simulation, and blade tips and hubs of the 853-ft (260-m) turbines would be seen. With an atmospheric refraction coefficient of 0.13, additional blade tips, hubs, and mid-towers of 1,312-ft (399.9-m) turbines and additional blade tops and hubs of 853-ft (260-m) turbines would be seen. With the consideration of atmospheric refraction, a maximum of 83.4%, or 1094.5 ft (333.6 m), of the nearest 1,312-ft (399.9-m) turbine would be visible. A maximum of 74.5%, or 635.5 ft (193.7 m), of the nearest 853-ft (260-m) turbine would be visible with atmospheric refraction. Of those that are visible, project turbines would be seen on the distant horizon. Rotor movement is unlikely to be immediately apparent due to the slow rotational speed of turbine blades and the distance at which the project would be viewed. The visibility of the project would be greatest during periods of particularly good visibility and clear skies, and when the turbines are either highlighted or backlit by the sun (e.g., in late afternoon or during the morning) when the turbines would contrast with the color of the clear sky. The project is visible at night, introducing new artificial flashing light sources and the uncoordinated nature of the flashing light due to intermittent screening of lights by rotors offshore when aviation lighting on turbine nacelles is triggered. As described in the BOEM “Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles” (BOEM 2016) lighting should follow the following principles: (1) fewer lights are preferable to more lights, (2) lower intensity lights are preferable to higher intensity lights, (3) white lights are the least favorable choice for lighting structures, and (4) strobing or flashing lights are preferable to steady burning lights. However, the location of the WTGs at the horizon and their associated red colored aviation hazard lighting will generally not be in the direction of stargazing and will not create a light dome like those created by urban area lighting.

¹¹⁷ Using the WaBis Advanced Earth Curvature Calculator, the amount of the nearest turbine visible and hidden is calculated using refraction coefficients of both 0.00 and 0.13.
<http://walter.bislins.ch/bloge/index.asp?page=advanced+earth+curvature+calculator>

Receptor Sensitivity	Rating	Rationale
Susceptibility	High	Residents, tourists, and those engaging in recreation at this KOP may be highly susceptible to changes from the project due to their interest in ocean facing views, the historic character of the area, and the visual environment being an important asset to the community.
Value	High	Viewers highly value this KOP for the defining experiential character of the expansive ocean facing views, its setting within the designated Robert Moses State Park, and the provision of facilities for viewer enjoyment such as abundant parking and boardwalk access along the beachfront.
Overall Sensitivity	High	

Magnitude of Impact ¹¹⁸	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Medium	The lease area would occupy 31.5°, or 25%, of the 124° HFOV and is located toward the center of the view out toward the ocean.	Medium	The lease area would occupy 28.3°, or 23%, of the 124° HFOV and is located toward the center of the view out toward the ocean.
Size and Scale of Change	Medium	Project turbines would present a prominent new feature to the nighttime environment by competing with key characteristic character area elements at this representative viewpoint.	Medium	Project turbines would present a prominent new feature to the nighttime environment by competing with key characteristic character area elements at this representative viewpoint.
Duration and Reversibility	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.	Fair	The proposed project's lifecycle is estimated to be 33 years; however, it will be fully reversible.
Overall Magnitude of Impact Rating	Medium	—	Medium	—
Overall Visual Impact Level	Moderate	The project would be moderately visually prominent and attract viewers' attention due to the introduction of nighttime lighting.	Moderate	The project would be moderately visually prominent and attract viewers' attention due to the introduction of nighttime lighting.

¹¹⁸ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

Section D. Cumulative Impacts Analysis

External Lease Areas	Distance to Nearest Turbine, mi (km)	Number of Turbines Visible per Lease Area			
		Refraction Coefficient: 0.00		Refraction Coefficient: 0.13	
		Blade Tip	Hub	Blade Tip	Hub
External Lease Total	21.27 (34.22)	174	174	174	174
OCS-A 0499 (Atlantic Shores South)	—	0	0	0	0
OCS-A 0549 (Atlantic Shores North)	—	0	0	0	0
OCS-A 0512 (Empire Wind)	21.27 (34.22)	174	174	174	174
OCS-A 0498 (Ocean Wind 1)	—	0	0	0	0
OCS-A 0532 (Ocean Wind 2)	—	0	0	0	0

NY Bight & Cumulative Leases	Distance to Nearest Turbine, mi (km)	Refraction Coefficient: 0.00				Refraction Coefficient: 0.13			
		1,312 ft (399.9 m)		853 ft (260 m)		1,312 ft (399.9 m)		853 ft (260 m)	
		Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub	Blade Tip	Hub
NY Bight Total	24.21 (38.97)	141	110	110	50	240	110	110	85
Cumulative Total	21.27 (34.22)	315	284	284	224	414	284	284	259

Description of Cumulative Project Appearances in the Context of the Affected Environment from the KOP: Of the NY Bight leases and external leases considered, the nearest turbine to this KOP lies approximately 21.27 mi (34.22 km) away in lease area OCS-A 0512. With an atmospheric refraction coefficient of 0.13, additional blade tips and hubs of the cumulative turbines would be seen. The cumulative leases would present a dominant visual change across the horizon.

Magnitude of Impact ¹¹⁹	1,312-ft (399.9-m) Turbines		853-ft (260-m) Turbines	
	Rating	Rationale	Rating	Rationale
Geographic Extent	Large	The cumulative lease areas would occupy 80.4°, over 65% of the 124° HFOV and are located to the center of the horizon.	Large	The cumulative lease areas would occupy 77.1°, over 62% of the 124° HFOV and are located to the center of the horizon.
Size and Scale of Change	Large	The cumulative lease areas present a new and dominant characteristic element to the nighttime conditions that draw viewers' attention.	Large	The cumulative lease areas present a new and dominant characteristic element to the nighttime conditions that draw viewers' attention.
Overall Magnitude of Impact Rating	Large	—	—	—
Cumulative Visual Impact Level	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.	Major	The cumulative lease areas would present a dominant new characteristic to the existing viewpoint which would influence viewers' experience and may hold viewers' attention.

¹¹⁹ The magnitude-of-impact ratings are based on what is displayed in the simulations, using a 0.0 refraction coefficient.

References

- BOEM. 2016. Development of Guidance for Lighting of Offshore Wind Turbines Beyond 12 Nautical Miles. Available at <https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Studies/Renewable-Energy/Offshore-Lighting-Guidance.pdf>
- NPS. 2019. Fire Island National Seashore New York. Available at <https://www.nps.gov/fiis/index.htm>. Accessed September 2024.

Appendix G: Photographic Log



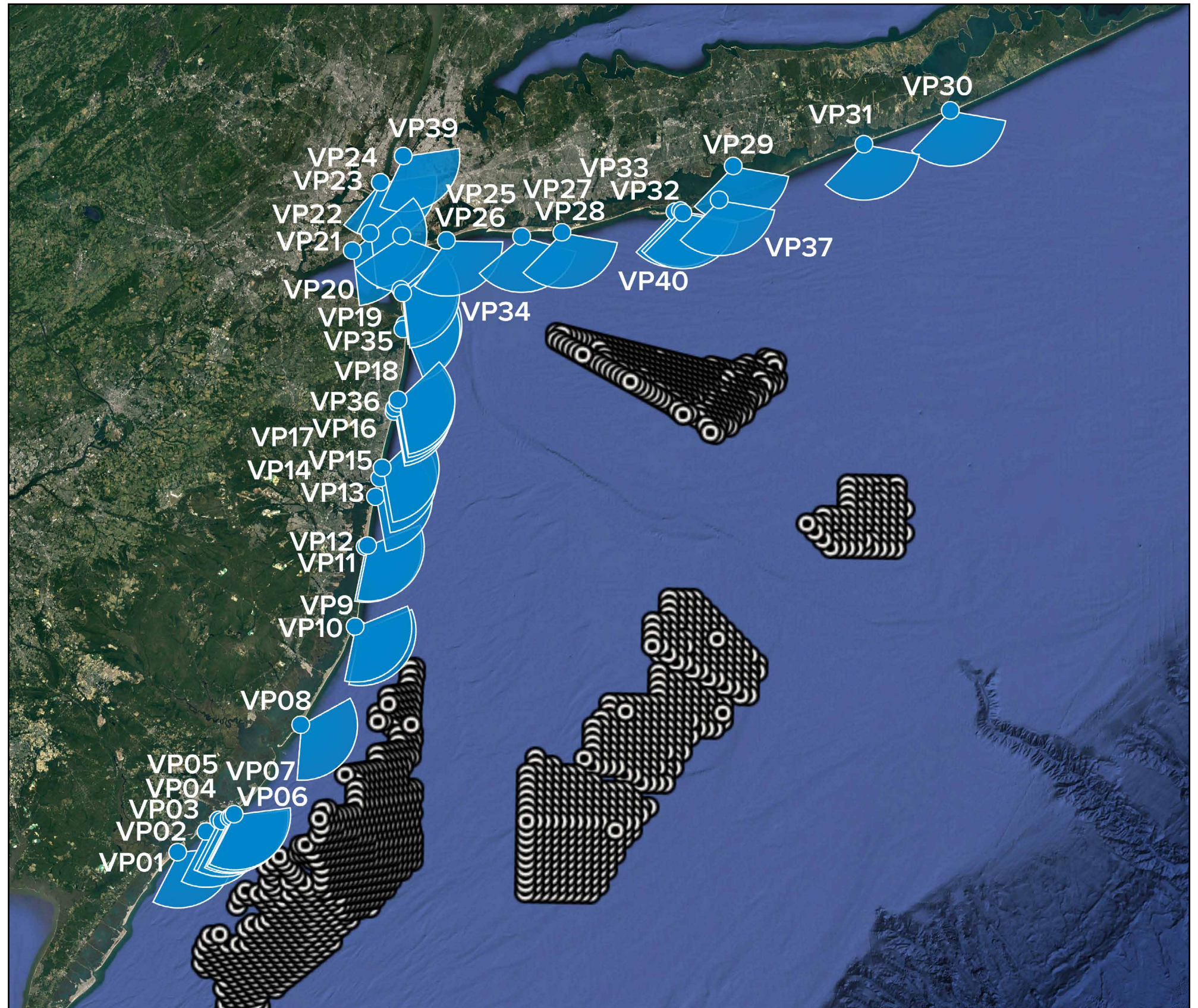
Viewpoint Selection

11 Dec 2023

truescape.com

Viewpoint Locations

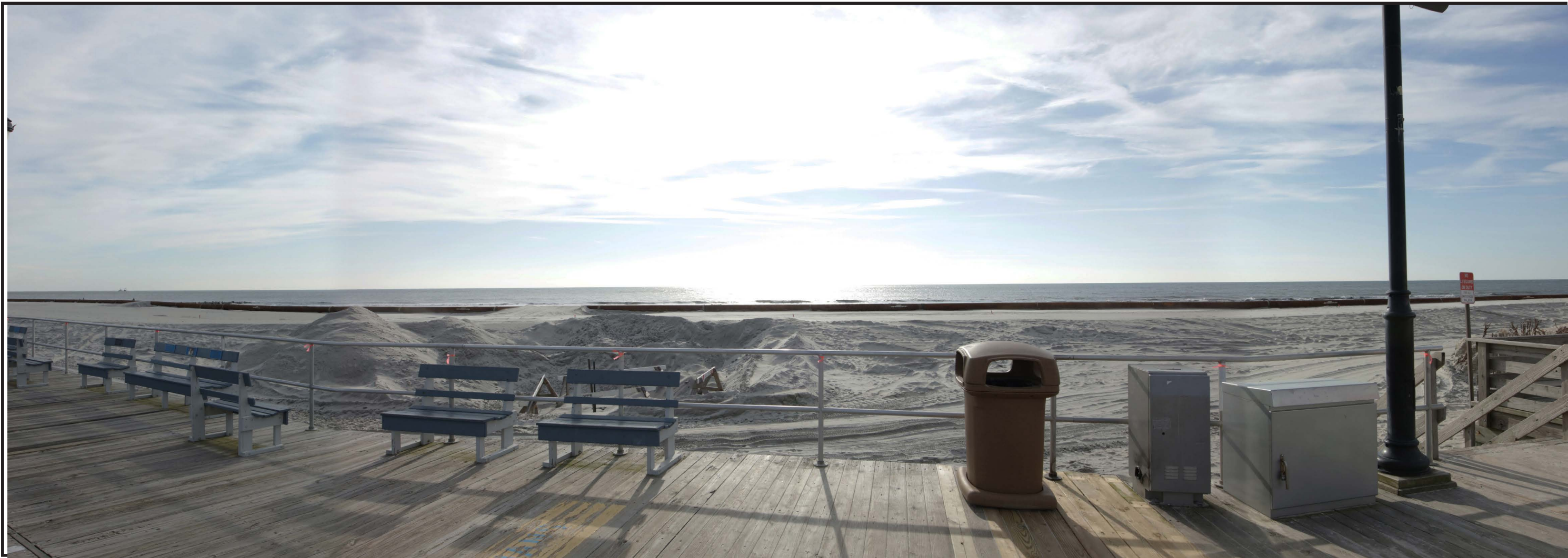
- Viewpoint 01 - Ocean City Music Hall Night
- Viewpoint 01 - Ocean City Music Hall
- Viewpoint 02 - Lucy the Elephant
- Viewpoint 03 - John Stafford Hall - Boardwalk
- Viewpoint 04 - John Stafford Hall - Beach Entrance
- Viewpoint 05 - Jim Whelan Hall - Balcony
- Viewpoint 06 - Atlantic City Boardwalk - Ocean Casino Boardwalk View
- Viewpoint 07 - Atlantic City Boardwalk- Top of Ocean Casino
- Viewpoint 08 - Beach Haven
- Viewpoint 08 - Beach Haven - Night
- Viewpoint 09 - Barnegat Jetty
- Viewpoint 10 - Barnegat Lighthouse
- Viewpoint 11 - US Life Saving Station #14
- Viewpoint 12 - Seaside Park Beach
- Viewpoint 13 - Mantoloking
- Viewpoint 14 - Bayhead
- Viewpoint 15 - Point Pleasant
- Viewpoint 16 - Ocean Grove
- Viewpoint 17 - Asbury Park Beach
- Viewpoint 18 - Allenhurst SHPO Site
- Viewpoint 19 - Navesink Twin Lights
- Viewpoint 20 - Sandy Hook Beach
- Viewpoint 21 - Great Kills
- Viewpoint 22 - Roosevelt Pier
- Viewpoint 23 - Statue of Liberty - Upper
- Viewpoint 24 - Statue of Liberty - Base
- Viewpoint 25 - Coney Island Boardwalk
- Viewpoint 26 - Fort Tilden
- Viewpoint 26 - Fort Tilden - Night
- Viewpoint 27 - Magnolia Beach
- Viewpoint 28 - Jones Beach
- Viewpoint 29 - Rudolphs Oyster House
- Viewpoint 30 - Shinnecock Inlet
- Viewpoint 31 - Westhampton Beach
- Viewpoint 31 - Westhampton Beach - Night
- Viewpoint 32 - Fire Island Lighthouse - Top
- Viewpoint 33 - Fire Island Lighthouse - Bottom
- Viewpoint 34 - Sandy Hook Observatory
- Viewpoint 35 - Twin Lights Lighthouse - Top
- Viewpoint 36 - Asbury Park Hall - Top
- Viewpoint 37 - Point O' Woods
- Viewpoint 39 - Empire State Building
- Viewpoint 40 - Robert Moses Field 5





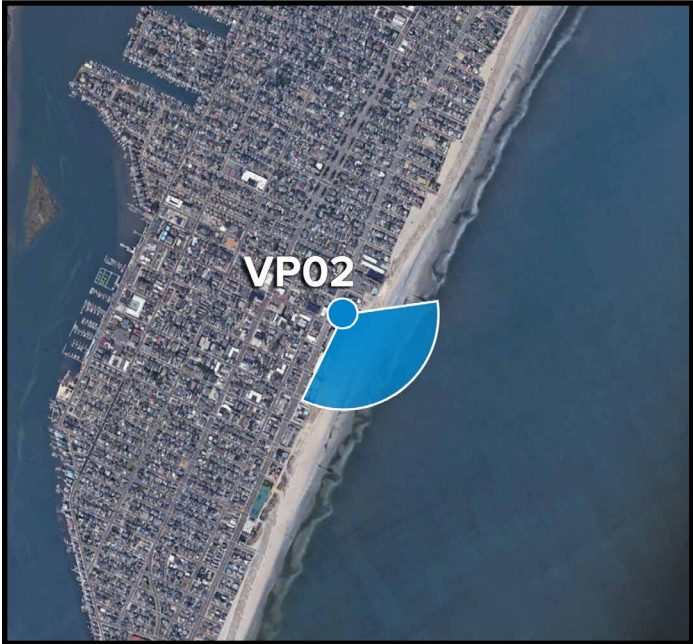
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Viewpoint 01 - Ocean City Music Hall



Handheld GPS:
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Longitude: -74.565456°

Viewpoint 02 - Lucy the Elephant



Handheld GPS:
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Longitude: -74.5116°

Viewpoint 03 - John Stafford Hall - Boardwalk



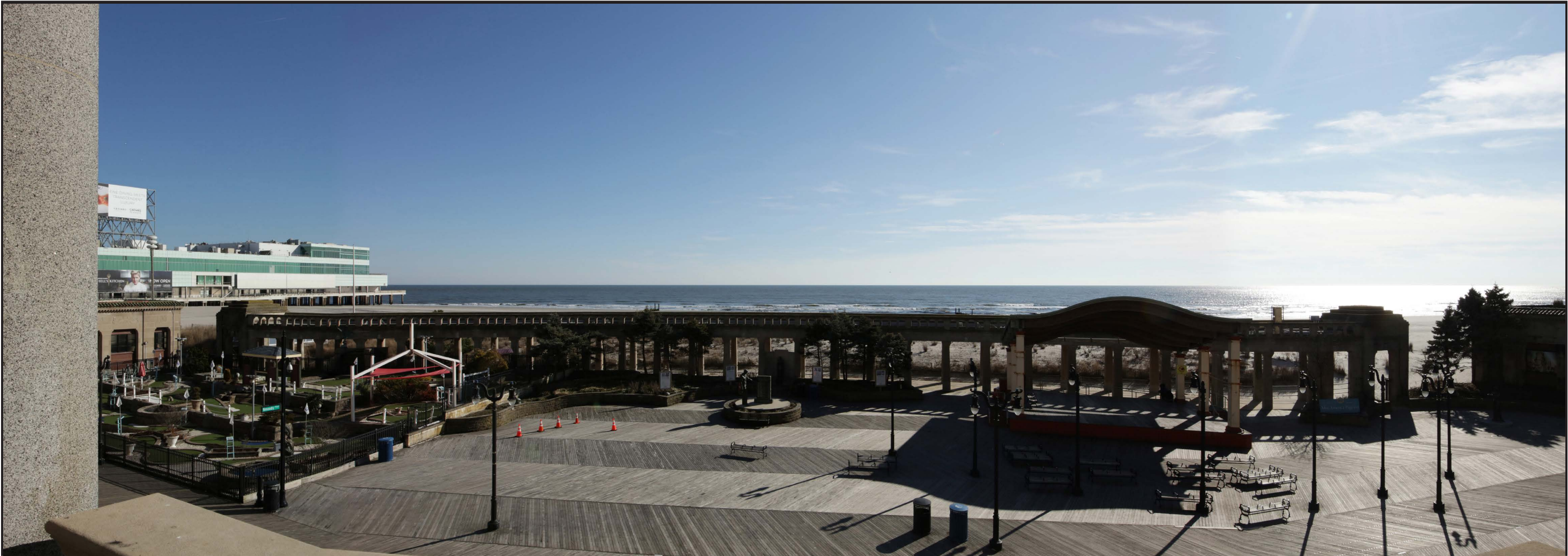
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Viewpoint 04 - John Stafford Hall - Beach Entrance



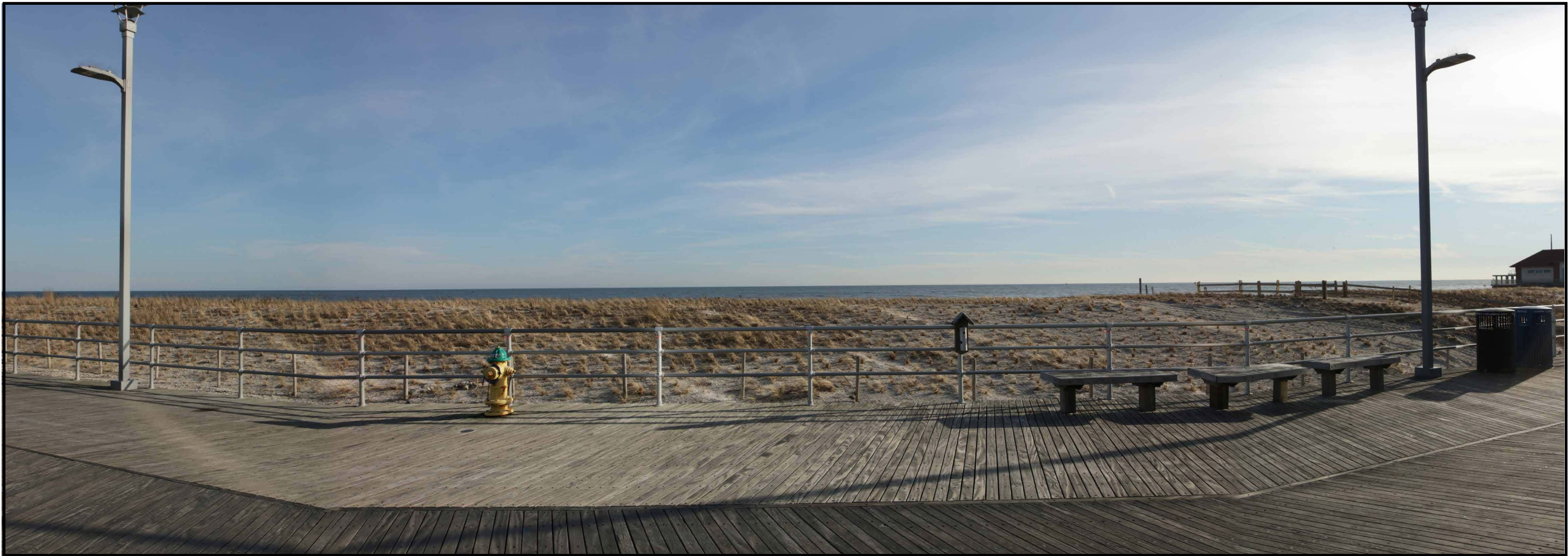
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Viewpoint 05 - Jim Whelan Hall - Balcony



Handheld GPS:
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Longitude: -74.437968°
Elevation: 19ft

Viewpoint 06 - Atlantic City Boardwalk - Ocean Casino Boardwalk View



Handheld GPS:
Latitude: 39.361718°
Longitude: -74.413738°



Handheld GPS:
Latitude: 39.362044°
Longitude: -74.413452°

Viewpoint 08 - Beach Haven



Handheld GPS:
Latitude: 39.561888°
Longitude: -74.235487°

Viewpoint 08 - Beach Haven - Night



Handheld GPS:
Latitude: 39.56188°
Longitude: -74.23548°

Viewpoint 09 - Barnegat Jetty



Handheld GPS:
Latitude: 39.763707°
Longitude: -74.103035°
Elevation: 1ft

Viewpoint 10 - Barnegat Lighthouse



Handheld GPS:
Latitude: 39.764363°
Longitude: -74.106185°
Elevation: 170ft

Viewpoint 11 - US Life Saving Station #14



Handheld GPS:
Latitude: 39.932907°
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Elevation: 15ft

Viewpoint 12 - Seaside Park Beach



Handheld GPS:
Latitude: 39.933060°
Longitude: -74.071935°
Elevation: 4ft

Viewpoint 13 - Mantoloking



Handheld GPS:
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Viewpoint 14 - Bayhead



Handheld GPS:
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Viewpoint 15 - Point Pleasant



Handheld GPS:
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Longitude: -74.035518°

Viewpoint 16 - Ocean Grove



Handheld GPS:
Latitude: 40.212682°
Longitude: -74.002915°

Viewpoint 17 - Asbury Park Beach



Handheld GPS:
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Viewpoint 18 - Allenhurst SHPO Site



Handheld GPS:
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Longitude: -73.995145°

Viewpoint 19 - Navesink Twin Lights



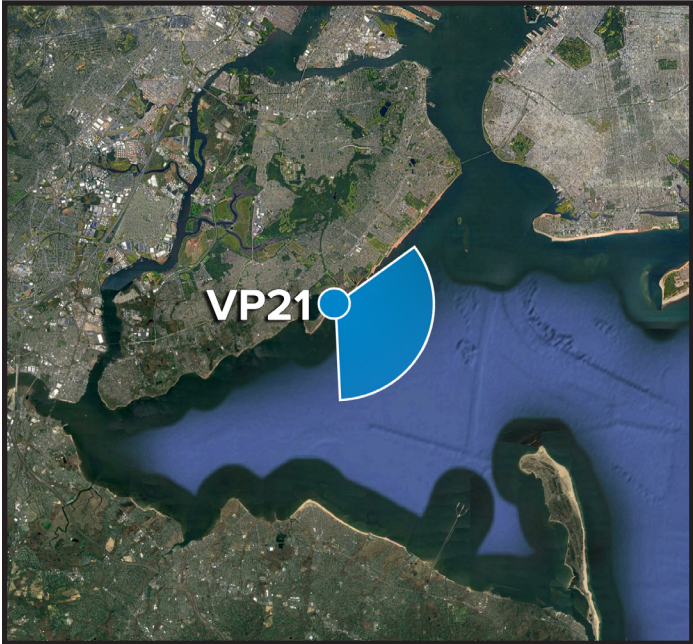
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Viewpoint 20 - Sandy Hook Beach



Handheld GPS:
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Viewpoint 21 - Great Kills



Handheld GPS:
Latitude: 40.544847°
Longitude: -74.123545°

Viewpoint 22 - Roosevelt Pier



Handheld GPS:
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Viewpoint 23 - Statue of Liberty - Upper



Handheld GPS:
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Elevation: 135ft

Viewpoint 24 - Statue of Liberty - Base



Handheld GPS:
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Elevation: 11ft

Viewpoint 25 - Coney Island Boardwalk



Handheld GPS:
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Viewpoint 26 - Fort Tilden



Handheld GPS:
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Longitude: -73.873200°

Viewpoint 26 - Fort Tilden - Night



Handheld GPS:
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Longitude: -73.873200°

Viewpoint 27 - Magnolia Beach



Handheld GPS:
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Longitude: -73.672650°

Viewpoint 28 - Jones Beach



Handheld GPS:
Latitude: 40.580080°
Longitude: -73.556652°

Viewpoint 29 - Rudolfs Oyster House



Handheld GPS:
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Longitude: -73.094612°

Viewpoint 30 - Shinnecock Inlet



Handheld GPS:
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Longitude: -72.478510°

Viewpoint 31 - Westhampton Beach



Handheld GPS:
Latitude: 40.770358°
Longitude: -72.732835°

Viewpoint 31 - Westhampton Beach - Night



Handheld GPS:
Latitude: 40.770358°
Longitude: -72.732835°

Viewpoint 32 - Fire Island Lighthouse - Top



Handheld GPS:
Latitude: 40.632443°
Longitude: -73.218586°
Elevation: 167ft

Viewpoint 33 - Fire Island Lighthouse - Bottom



Handheld GPS:
Latitude: 40.632158°
Longitude: -73.218458°

Viewpoint 34 - Sandy Hook Observatory



Handheld GPS:
Latitude: 40.467889°
Longitude: -73.997542°

Viewpoint 35 - Twin Lights Lighthouse - Top



Handheld GPS:
Latitude: 40.396605°
Longitude: -73.985851°
Elevation: 255ft

Viewpoint 36 - Asbury Park Hall - Top



Handheld GPS:
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Viewpoint 37 - Point O' Woods



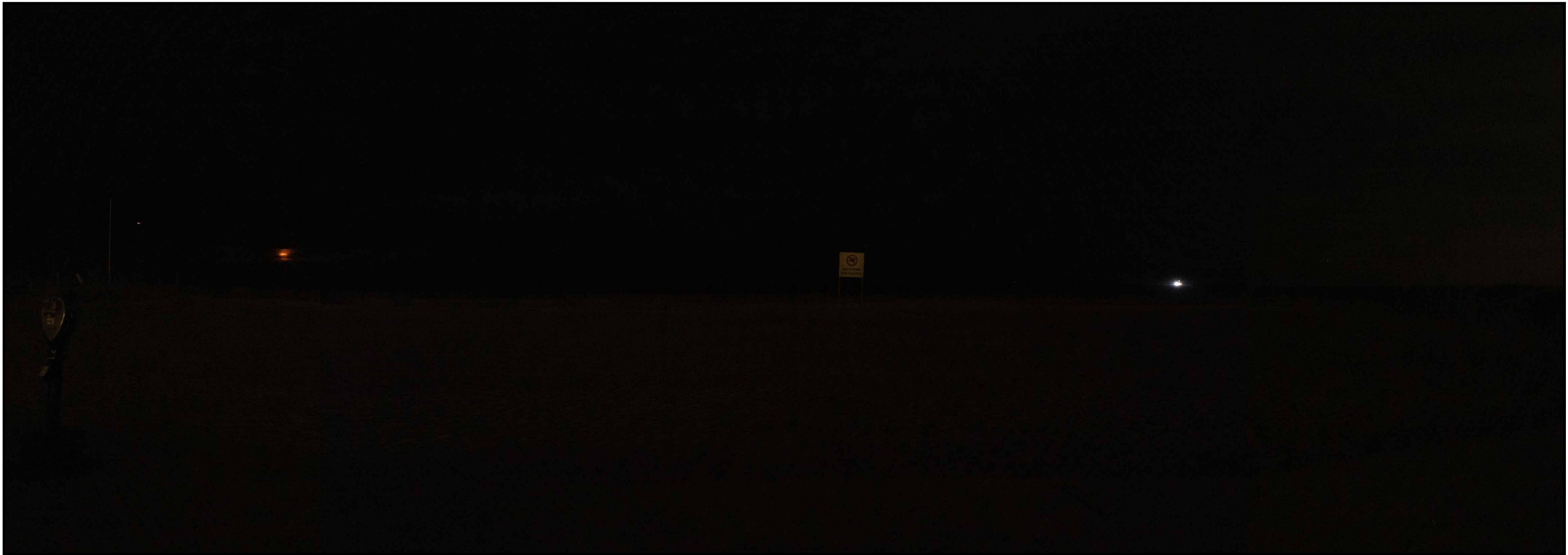
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Viewpoint 39 - Empire State Building



Handheld GPS:
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Viewpoint 40 - Robert Moses Field 5



Handheld GPS:
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