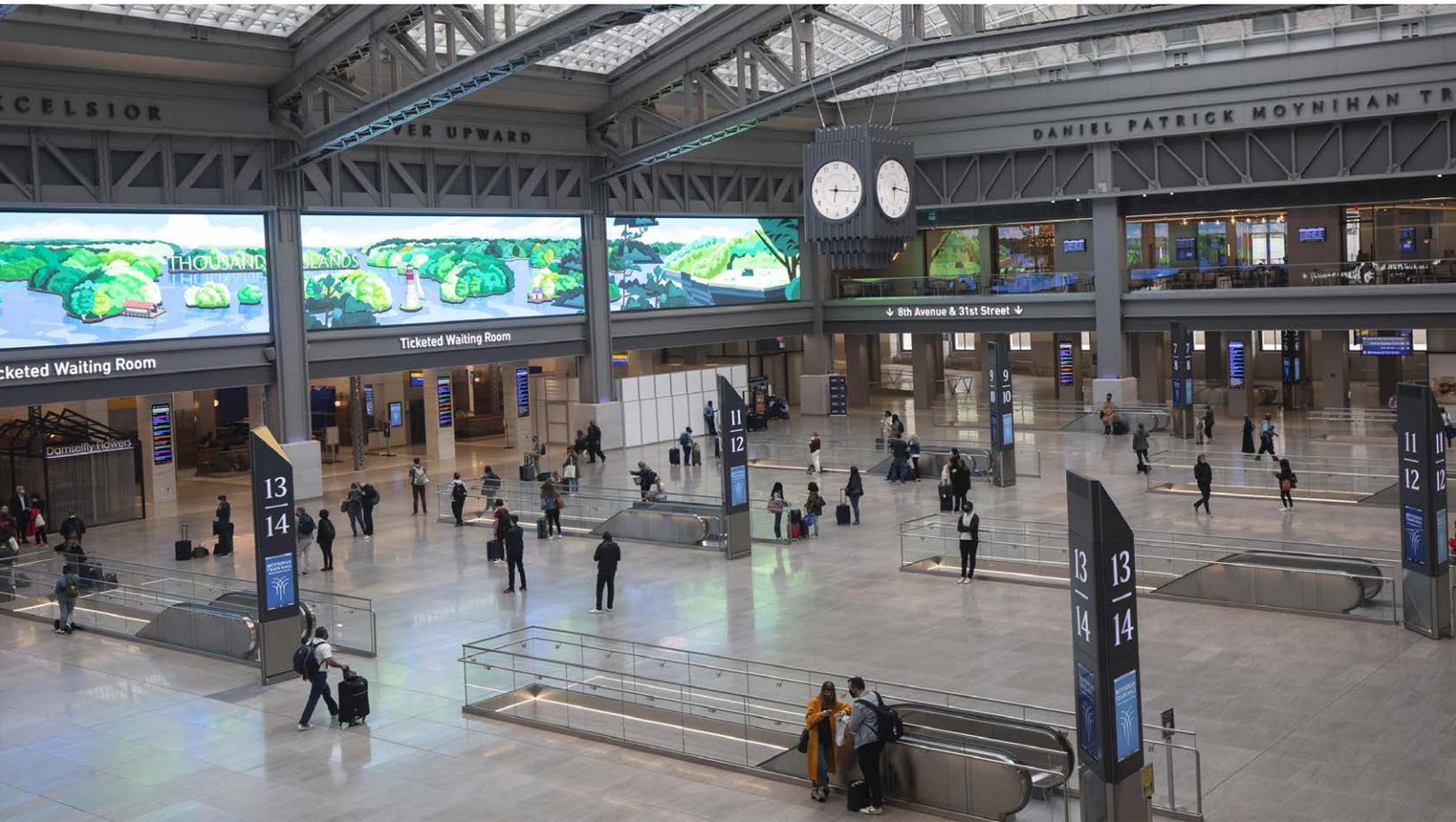




# Moving Forward

Your Region, Connected



**New York Metropolitan Transportation Council  
Regional Transportation Plan  
Adopted on September 9, 2021**

**Appendix E | Environmental Mitigation & New Consultation**

# TABLE OF CONTENTS

- 1 Environmental Mitigation and New Consultation..... E2**
  - 1.1 Federal Requirements ..... E3
  - 1.2 Partner Agencies ..... E3
  - 1.3 Environmental Mitigation ..... E4
  - 1.4 Natural and Historic Resource Conservation ..... E4
  - 1.5 Consultation and Comparison Process ..... E5
  - 1.6 Consultation Analysis and Results ..... E6
  - 1.7 Areawide Environmental Mitigation Goals ..... E8
  - 1.8 New York City ..... E11
  - 1.9 Long Island..... E21
  - 1.10 Lower Hudson Valley ..... E31
  - 1.11 Additional Gis Sources for References ..... E41



# TABLE OF TABLES

<b>Table E-1-1</b> Consultation Agencies.....	E6
<b>Table E-1-2</b> Areawide Environmental Considerations Identified During Consultation .....	E8
<b>Table E-1-3</b> New York City Environmental Plans Identified During Consultation .....	E12
<b>Table E-1-4</b> Long Island Environmental Considerations Identified During Consultation	E22
<b>Table E-1-5</b> Areawide Environmental Considerations Identified During Consultation ....	E32
<b>Table E-1-6</b> Additional Mapping Resources .....	E41



# TABLE OF FIGURES

<b>Figure E-1-1</b> New York City Water Resources .....	E14
<b>Figure E-1-2</b> New York City Critical Environmental Areas.....	E15
<b>Figure E-1-3</b> New York City Wetlands .....	E16
<b>Figure E-1-4</b> New York City Floodplains.....	E17
<b>Figure E-1-5</b> New York City Parkland .....	E18
<b>Figure E-1-6</b> New York City Cultural Resources .....	E19
<b>Figure E-1-7</b> Long Island Water Resources .....	E24
<b>Figure E-1-8</b> Long Island Critical Environmental Areas .....	E25
<b>Figure E-1-9</b> Long Island Wetlands .....	E26
<b>Figure E-1-10</b> Long Island Floodplains .....	E27
<b>Figure E-1-11</b> Long Island Parkland .....	E28
<b>Figure E-1-12</b> Long Island Agricultural Districts .....	E29
<b>Figure E-1-13</b> Long Island Cultural Resources .....	E30
<b>Figure E-1-14</b> Lower Hudson Valley Water Resources .....	E34
<b>Figure E-1-15</b> Lower Hudson Valley Critical Environmental Areas .....	E35
<b>Figure E-1-16</b> Lower Hudson Valley Wetlands .....	E36

**Figure E-1-17**  
Lower Hudson Valley Floodplains .....E37

**Figure E-1-18**  
Lower Hudson Valley Parkland .....E38

**Figure E-1-19**  
Lower Hudson Valley Agricultural Districts .....E39

**Figure E-1-20**  
Lower Hudson Valley Cultural Resources .....E40



## 1

# ENVIRONMENTAL MITIGATION AND NEW CONSULTATION

*Moving Forward (or the Plan), the long-range regional transportation plan of the New York Metropolitan Transportation Council (NYMTC), is a product of extensive coordination and collaboration between NYMTC's member agencies, its partners in the public and private sectors, and the general public. During these consultations, these groups worked together to reconcile long-term transportation planning with region-wide environmental concerns. This appendix describes the background and methodology of the consultation process; it also presents the underlying data, maps, and research that supported interagency consultation on environmental stewardship and mitigation considerations for the Plan.*

## 1.1 FEDERAL REQUIREMENTS

On December 4, 2015, President Obama signed into law the Fixing America's Surface Transportation (FAST) Act, authorizing federal aid to highway and transit programs through September 2020. This law generally continued the transportation planning requirements of its predecessors for metropolitan planning organizations (MPOs).

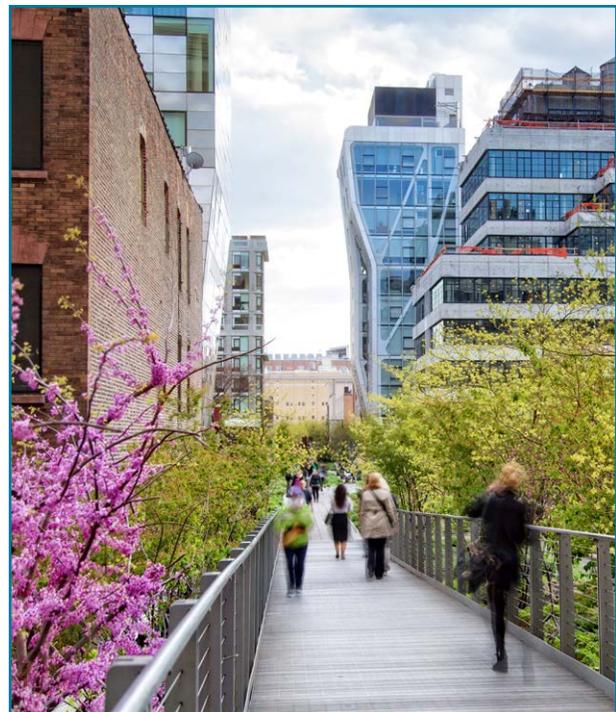
Since the 2005 passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), federal planning regulations require that the development of long-range transportation plans include consultation with federal, state, local, tribal, wildlife, land management, and regulatory agencies. Additionally, NYMTC is required to consult with neighboring MPOs to ensure consistency in planning across regional boundaries. The results of these consultations are presented in this appendix.

In keeping with its operating policies and federal requirements, NYMTC is committed to protecting and enhancing the region's natural resources, promoting energy conservation, improving the quality of life, and promoting consistency between transportation improvements and state and local planned growth. The mitigation of potential environmental, social, and cultural effects of specific transportation improvement projects is handled through the federal and New York State environmental review processes required of each implementing agency. Specific to the development of the 2022–2050 Regional Transportation Plan, environmental stewardship and mitigation support the Plan's Shared Vision and Goals, particularly the Plan's goal of reducing environmental impacts.

## 1.2 PARTNER AGENCIES

NYMTC maintains formal and informal relationships with federal, state, and local partner agencies that provide feedback on environmental and other issues related to transportation plans, programs, projects, and studies undertaken in its planning area. NYMTC formalized the consultation process for *Moving Forward* by directly reaching out to various partner agencies for input on environmental initiatives in the NYMTC region and participation in the various public outreach activities. This outreach identified resource and conservation concerns that informed the development of the Plan.

NYMTC consulted with various county, state, and federal agencies, as well as with the neighboring MPOs and the federally and state-recognized Indian Nations in the NYMTC planning area.



### 1.3 ENVIRONMENTAL MITIGATION

Environmental mitigation is a major consideration in transportation investment and planning efforts throughout the NYMTC planning area. NYMTC and its members are engaged in environmental stewardship and mitigation activities at the planning and project level through the implementation of the National Environmental Policy Act (NEPA) and the State Environmental Quality Review Act (SEQRA) regulations, which ensure that projects are in harmony with the community and preserve the environmental, scenic, aesthetic, historic, and natural resource values of the area in which they are located. *Moving Forward* considered environmental, community, and economic concerns early in the development process. The Plan serves as a foundation for future use of the information, analysis, and products to inform the environmental review process at the planning and project level. In addition, the Plan also identifies environmental stewardship and mitigation opportunities for NYMTC's members to apply in maintaining, improving, and operating transportation systems.

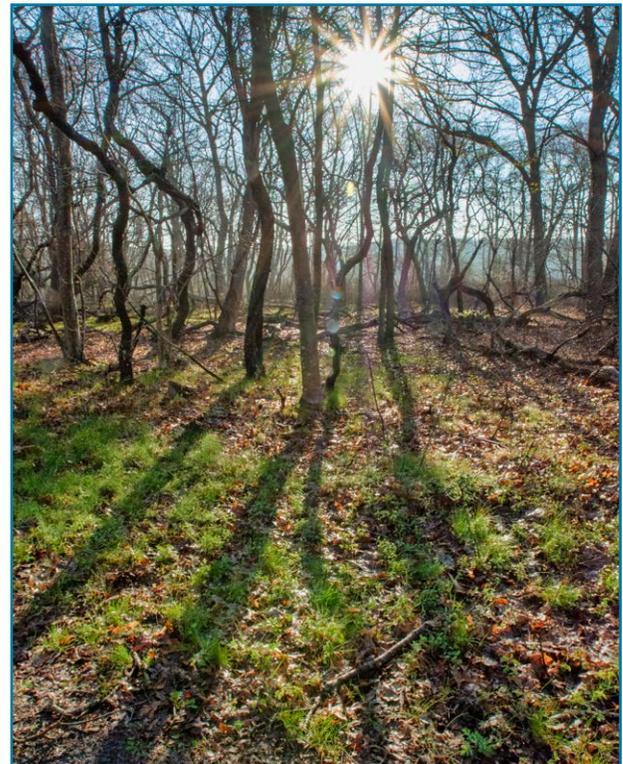
There are numerous ongoing environmental stewardship and mitigation activities in the NYMTC planning area for watersheds, fish and wildlife habitat, and other ecosystems. In addition, various federal agencies, state and regional partnerships, and nongovernmental organizations have developed environmental mitigation plans.

Following the consultation process described in [Section 1.5](#) of this appendix, NYMTC compiled these mitigation plans and activities, and identified environmental and community assets, as well as areas exposed to natural hazards in its planning area. This process has provided NYMTC members with a resource from which they can understand the full impact of proposed projects and the type of mitigation activities they may need to undertake.

### 1.4 NATURAL AND HISTORIC RESOURCE CONSERVATION

In compliance with federal legislation, NYMTC consulted with various resource agencies during the development of the Plan. Key data for identifying regional land use management goals, natural resources, environmental protection and conservation areas, and historic preservation sites were identified during this process.

Much of the information used in this appendix was obtained through partner agencies' websites and other online resources that house publicly accessible data and documents of their plans. One such resource is the New York State Geographic Information System (GIS) Clearinghouse, where several New York State agencies store and share geospatial data. Following research and data collection, agencies and partner organizations were contacted individually to confirm the accuracy of the information and to request suggestions for other data sources as needed.



## 1.5 CONSULTATION AND COMPARISON PROCESS

Information from the consultation process was collected and analyzed using the following methodology:

1. Identify partner agencies to consult regarding natural and cultural resources: To identify the federal, state, and local agencies relevant to the long-range transportation plan, NYMTC compiled a list of agencies in the region responsible for land use management, natural resources, environmental protection and conservation, and historic preservation.
2. Research agencies' goals, objectives, and geographic focus areas: Research was conducted initially through partner agency websites and other internet sources such as the New York State GIS Clearinghouse. The agencies were then contacted individually to confirm the accuracy of the sources and the initial assessment of environmental mitigation priorities and actions. NYMTC's organization includes three geographical Transportation Coordination Committees—New York City, Long Island, and Lower Hudson Valley—that provide subregional forums for transportation planning. The identified environmental mitigations were categorized as either subregional or broadly applicable to the entire planning area.
3. Review planning documents: NYMTC researched partner agency planning documents and compared their goals and objectives with those of NYMTC member agencies. The information obtained from the consultation was used to build on the Plan's Shared Vision and Goals by identifying specific environmental stewardship and mitigation opportunities for member agencies to consider in project planning, development, and delivery.
4. Map resources of the natural and human environment: Maps were created in GIS and graphically using the data available from the New York State GIS Clearinghouse (<https://gis.ny.gov/>) and partner agencies (see [Table E-1-1](#)) to compare projects included in the long-range transportation plan with historic, environmental, and redevelopment areas. When transportation projects are in proximity to these resources and areas, the NYMTC member agency responsible for the project reviews available information and, if needed, undertakes further analysis and review as part of project planning and development.

## 1.6 CONSULTATION ANALYSIS AND RESULTS

Partner agencies identified by NYMTC for consultation, along with the agencies' websites, are listed in [Table E-1-1](#).

Table E-1-1

### Consultation Agencies

Location	Agencies
New York City	Bronx County - Bronx Borough President's Office <a href="http://bronxboropres.nyc.gov/planning-development/">http://bronxboropres.nyc.gov/planning-development/</a>
	Kings County - Brooklyn Borough President's Office <a href="https://www.brooklyn-usa.org/">https://www.brooklyn-usa.org/</a>
	New York County - Manhattan Borough President's Office <a href="https://www.manhattanbp.nyc.gov/land-use/">https://www.manhattanbp.nyc.gov/land-use/</a>
	Queens Borough President's Office <a href="https://www.queensbp.org/">https://www.queensbp.org/</a>
	Richmond County - Staten Island Borough President's Office <a href="https://www.statenislandusa.com/">https://www.statenislandusa.com/</a>
	Mayor's Office, Climate Policy & Programs <a href="https://www1.nyc.gov/site/cpp/index.page">https://www1.nyc.gov/site/cpp/index.page</a>
	Mayor's Office of Sustainability <a href="https://www1.nyc.gov/site/sustainability/index/page">https://www1.nyc.gov/site/sustainability/index/page</a>
	Department of City Planning <a href="https://www1.nyc.gov/site/planning/index.page">https://www1.nyc.gov/site/planning/index.page</a>
	Department of Environmental Protection <a href="https://www1.nyc.gov/site/dep/index.page">https://www1.nyc.gov/site/dep/index.page</a>
	Department of Parks and Recreation <a href="https://nycgovparks.org/">https://nycgovparks.org/</a>
Department of Transportation <a href="https://www1.nyc.gov/html/dot/html/home/home.shtml">https://www1.nyc.gov/html/dot/html/home/home.shtml</a>	
Long Island	Nassau County Planning Department <a href="https://www.nassaucountyny.gov/2856/Planning-Department">https://www.nassaucountyny.gov/2856/Planning-Department</a>
	Suffolk County Division of Planning & Environment <a href="https://www.suffolkcountyny.gov/Departments/Economic-Development-and-Planning/Planning-and-Environment">https://www.suffolkcountyny.gov/Departments/Economic-Development-and-Planning/Planning-and-Environment</a>
Lower Hudson Valley	Putnam County Department of Planning, Development & Public Transportation <a href="https://www.putnamcountyny.com/planningdept/">https://www.putnamcountyny.com/planningdept/</a>
	Rockland County Department of Planning <a href="http://rocklandgov.com/departments/planning/">http://rocklandgov.com/departments/planning/</a>
	Division of Environmental Resources <a href="http://rocklandgov.com/departments/environmental-resources/">http://rocklandgov.com/departments/environmental-resources/</a>
	Westchester County Department of Planning <a href="https://planning.westchestergov.com/">https://planning.westchestergov.com/</a>

Location	Agencies
New York State	<p>Department of Environmental Conservation - Regions 1, 2, and 3 <a href="https://www.dec.ny.gov/">https://www.dec.ny.gov/</a></p> <p>Office of Parks, Recreation and Historic Preservation - State Historic Preservation Office <a href="https://parks.ny.gov/shpo/">https://parks.ny.gov/shpo/</a></p> <p>Office of Parks, Recreation and Historic Preservation - Environmental Management Bureau <a href="https://parks.ny.gov/environment/environmental-management.aspx">https://parks.ny.gov/environment/environmental-management.aspx</a></p> <p>Department of State Office of Planning and Development <a href="https://www.dos.ny.gov/opd/">https://www.dos.ny.gov/opd/</a></p> <p>Department of Agriculture and Markets <a href="https://www.ny.gov/agencies/department-agriculture-and-markets">https://www.ny.gov/agencies/department-agriculture-and-markets</a></p>
Federal	<p>Army Corps of Engineers - New York District <a href="https://www.nan.usace.army.mil/">https://www.nan.usace.army.mil/</a></p> <p>Department of Agriculture, Natural Resource Conservation Service <a href="https://www.nrcs.usda.gov/wps/portal/nrcs/site/ny/home/">https://www.nrcs.usda.gov/wps/portal/nrcs/site/ny/home/</a></p> <p>Department of Commerce, National Oceanic &amp; Atmospheric Administration - Fisheries Mid-Atlantic-New England Region <a href="https://www.fisheries.noaa.gov/region/new-england-mid-atlantic">https://www.fisheries.noaa.gov/region/new-england-mid-atlantic</a></p> <p>Department of Homeland Security, Federal Emergency Management Agency <a href="https://www.fema.gov/region-ii-nj-ny-pr-vi-0">https://www.fema.gov/region-ii-nj-ny-pr-vi-0</a></p> <p>Department of the Interior, Fish and Wildlife Service - Region 5 New York Field Office <a href="https://www.fws.gov/northeast/">https://www.fws.gov/northeast/</a>; <a href="https://www.fws.gov/northeast/ecologicalservices/">https://www.fws.gov/northeast/ecologicalservices/</a></p> <p>Department of the Interior, Geological Survey <a href="https://www.usgs.gov/centers/ny-water">https://www.usgs.gov/centers/ny-water</a></p> <p>Department of the Interior, National Park Service <a href="https://www.nps.gov/orgs/1651/index.htm">https://www.nps.gov/orgs/1651/index.htm</a></p> <p>Department of Transportation, Federal Highway Administration <a href="https://www.fhwa.dot.gov/nydiv/">https://www.fhwa.dot.gov/nydiv/</a></p> <p>Department of Transportation, Federal Transit Administration <a href="https://www.transit.dot.gov/about/regional-offices/region-2/region-2">https://www.transit.dot.gov/about/regional-offices/region-2/region-2</a></p> <p>Environmental Protection Agency - Region 2 <a href="https://www.epa.gov/aboutepa/epa-region-2">https://www.epa.gov/aboutepa/epa-region-2</a></p>
Indian Nations	<p>Shinnecock <a href="https://www.facebook.com/ShinnecockIndianNation/">https://www.facebook.com/ShinnecockIndianNation/</a></p> <p>Unkechaug <a href="https://m.facebook.com/Unkechaug-Indian-Nation-182228627237/">https://m.facebook.com/Unkechaug-Indian-Nation-182228627237/</a></p>
Metropolitan Area Planning (MAP) Forum	<p>Lehigh Valley Planning Commission <a href="https://www.lvpc.org/">https://www.lvpc.org/</a></p> <p>North Jersey Transportation Planning Authority <a href="http://www.njtpa.org/Home.aspx">http://www.njtpa.org/Home.aspx</a></p> <p>Orange County Transportation Council <a href="https://www.orangecountygov.com/961/Transportation-Council">https://www.orangecountygov.com/961/Transportation-Council</a></p> <p>Western Connecticut Council of Governments <a href="https://westcog.org">https://westcog.org</a></p> <p>Naugatuck Valley Council of Governments <a href="https://nvcogct.gov/">https://nvcogct.gov/</a></p> <p>Connecticut Metropolitan Council of Governments <a href="https://ctmetro.org/">https://ctmetro.org/</a></p> <p>South Central Regional Council of Governments <a href="https://scrcog.org/">https://scrcog.org/</a></p> <p>Capital Region Council of Governments <a href="https://crcog.org/">https://crcog.org/</a></p> <p>Lower Connecticut River Valley Council of Governments <a href="https://rivercog.org/">https://rivercog.org/</a></p>

## 1.7 AREAWIDE ENVIRONMENTAL MITIGATION GOALS

The NYMTC planning area encompasses varied and diverse communities, geography, history, topography, and landscapes. Despite the variations, the consultation showed certain common broad environmental stewardship and mitigation considerations throughout the planning area. [Table E-1-2](#) lists the common considerations along with representative overarching plans, programs, and initiatives.

The listed considerations can be applied, as appropriate, to guide environmental stewardship and mitigation in project planning, project design, and environmental review under NEPA and/or SEQRA and project environmental permitting. Certain of the considerations also pertain to environmental mitigation for project construction and transportation system operation and maintenance. The corresponding reference plans, programs, and initiatives, both areawide and subregion specific, provide a basis for integrating transportation and environmental stewardship and mitigation into member agencies' planning, projects, development, construction, and operations and maintenance.

*Table E-1-2*

### **Areawide Environmental Considerations Identified During Consultation**

Considerations	Example Reference Plans, Programs, and Initiatives
Air Quality Improvement/ Clean Energy/ Greenhouse Gas Emission Reduction	Climate Action Plan <a href="https://www.dec.ny.gov/energy/80930.html">https://www.dec.ny.gov/energy/80930.html</a> Regional Greenhouse Gas Initiative <a href="https://www.dec.ny.gov/chemical/rggi.html">https://www.dec.ny.gov/chemical/rggi.html</a> New York State Energy Plan <a href="https://energyplan.ny.gov/">https://energyplan.ny.gov/</a> Air Quality Initiatives <a href="https://www.dec.ny.gov/chemical/281.html">https://www.dec.ny.gov/chemical/281.html</a>
Ecosystem Restoration/ Wetlands Preservation/ Species Recovery	Animals, Plants, Aquatic Life Initiatives <a href="https://www.dec.ny.gov/23.html">https://www.dec.ny.gov/23.html</a> State Wildlife Action Plan <a href="https://www.dec.ny.gov/animals/7179.html">https://www.dec.ny.gov/animals/7179.html</a> Habitat Conservation Programs <a href="https://www.fws.gov/northeast/ecologicalservices/habitatconservation.html">https://www.fws.gov/northeast/ecologicalservices/habitatconservation.html</a> New England & Mid-Atlantic Geographic Strategic Plan 2020-2023 <a href="https://www.fisheries.noaa.gov/webdam/download/106420007">https://www.fisheries.noaa.gov/webdam/download/106420007</a> Environmental Restoration <a href="https://www.nan.usace.army.mil/Ecosystem-Restoration/">https://www.nan.usace.army.mil/Ecosystem-Restoration/</a> Atlantic Flyway and Bird Management Plans <a href="https://www.fws.gov/birds/management/flyways.php">https://www.fws.gov/birds/management/flyways.php</a> Implementing Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects <a href="https://www.environment.fhwa.dot.gov/env_initiatives/eco-logical.aspx">https://www.environment.fhwa.dot.gov/env_initiatives/eco-logical.aspx</a> Pollinator Protection Plan <a href="https://www.dec.ny.gov/docs/administration_pdf/nyspollinatorplan.pdf">https://www.dec.ny.gov/docs/administration_pdf/nyspollinatorplan.pdf</a>
Environmental Justice	Environmental Justice <a href="https://www.transportation.gov/transportation-policy/environmental-justice">https://www.transportation.gov/transportation-policy/environmental-justice</a> <a href="https://www.dec.ny.gov/public/36929.html">https://www.dec.ny.gov/public/36929.html</a>

Considerations	Example Reference Plans, Programs, and Initiatives
Flood Protection/ Infrastructure Resiliency	Community Flood Resiliency Program <a href="https://www.fema.gov/region-ii-mitigation">https://www.fema.gov/region-ii-mitigation</a>
Historic/Landmarks Preservation	New York State Historic Preservation Plan 2015-2020 <a href="https://parks.ny.gov/documents/shpo/preservation-plan/NewYorkStateHistoricPreservationPlan20152020.pdf">https://parks.ny.gov/documents/shpo/preservation-plan/ NewYorkStateHistoricPreservationPlan20152020.pdf</a>
Invasive Species	New York State Invasive Species Comprehensive Management Plan <a href="https://www.dec.ny.gov/docs/lands_forests_pdf/iscmpfinal.pdf">https://www.dec.ny.gov/docs/lands_forests_pdf/iscmpfinal.pdf</a>
Open Space Preservation/ Improvement/ Access and Connectivity	New York State Open Space Conservation Plan <a href="https://www.dec.ny.gov/lands/317.html">https://www.dec.ny.gov/lands/317.html</a> Master Plans <a href="https://parks.ny.gov/inside-our-agency/master-plans.aspx">https://parks.ny.gov/inside-our-agency/master-plans.aspx</a> 2020-2025 Statewide Comprehensive Outdoor Recreation Plan <a href="https://parks.ny.gov/documents/inside-our-agency/20202025StatewideComprehensiveOutdoorRecreationPlan.pdf">https://parks.ny.gov/documents/inside-our-agency/20202025Statewide ComprehensiveOutdoorRecreationPlan.pdf</a>
Shoreline Protection/Coastal Resiliency	Community Risk and Resiliency Act <a href="https://www.dec.ny.gov/energy/104113.html">https://www.dec.ny.gov/energy/104113.html</a> Coastal Resilience Mapping Tool <a href="https://coastalresilience.org/mapping-tool-apps/">https://coastalresilience.org/mapping-tool-apps/</a> New York State Coastal Management Program <a href="https://www.dos.ny.gov/opd/programs/pdfs/NY_CMP.pdf">https://www.dos.ny.gov/opd/programs/pdfs/NY_CMP.pdf</a> Shinnecock Indian Nation Climate Vulnerability Assessment and Action Plan <a href="https://www.peconicestuary.org/wp-content/uploads/2019/10/Shinnecock-Indian-Nation-Climate-Vulnerability-Assessment-and-Action-Plan.pdf">https://www.peconicestuary.org/wp-content/uploads/2019/10/Shinnecock- Indian-Nation-Climate-Vulnerability-Assessment-and-Action-Plan.pdf</a>
Sustainable Development/ Redevelopment/ Revitalization	Approved Local Waterfront Revitalization Programs <a href="https://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP_status.html">https://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP_status.html</a> Brownfield Opportunity Areas Program <a href="https://www.dos.ny.gov/opd/programs/brownFieldOpp/index.html">https://www.dos.ny.gov/opd/programs/brownFieldOpp/index.html</a> Smart Sectors Program <a href="https://www.epa.gov/smartsectors">https://www.epa.gov/smartsectors</a>
Water Quality Improvement/ Water Supply Protection (Surface and Groundwater)	Water Initiatives <a href="https://www.dec.ny.gov/chemical/290.html">https://www.dec.ny.gov/chemical/290.html</a> Groundwater Initiatives <a href="https://www.dec.ny.gov/lands/36064.html">https://www.dec.ny.gov/lands/36064.html</a> Watershed Initiatives <a href="https://www.dec.ny.gov/lands/26561.html">https://www.dec.ny.gov/lands/26561.html</a> Watershed Plans <a href="https://www.dec.ny.gov/lands/26561.html">https://www.dec.ny.gov/lands/26561.html</a> Urban Waters Program <a href="https://www.epa.gov/urbanwaters">https://www.epa.gov/urbanwaters</a> Healthy Watersheds Protection Program <a href="https://www.epa.gov/hwp">https://www.epa.gov/hwp</a>



## 1.8 NEW YORK CITY

The New York City subregion comprises New York City's five boroughs and is generally characterized by highly dense urban development intermixed with relatively large natural areas and extensive shorelines, bays, and coastal waters. The subregion contains many former manufacturing and industrial areas and is rich in historic cultural resources from its long history as a global center of commerce, finance, shipping, transportation engineering and construction, design, and the performing arts.

The subregion contains a variety of waterbody types that drain to the New York–New Jersey Harbor Estuary, also known as the Hudson-Raritan Estuary. Waterbody types include rivers and streams—the most prominent being the Hudson River; tidal straits and bays, inlets, and coves (see [Figure E-1-1](#)). Much of the land surrounding Jamaica Bay is designated as a Critical Environmental Area (see [Figure E-1-2](#)). Major wetland complexes are found on Staten Island and around Jamaica and Little Neck Bays (see [Figure E-1-3](#)). The harbor opens to the New York Bight in the Atlantic Ocean to the southeast and Long Island Sound to the northeast. Efforts are underway to improve water quality and restore the essential fish habitat of protected species in these waters. Environmental mitigation opportunities related to this important resource include applying stormwater best management practices and reducing combined sewer overflows. The subregion also contains the Kings-Queens Counties (Brooklyn-Queens) Aquifer System Sole Source Aquifer that supplies drinking water to portions of eastern Queens.

Coastal flooding and coastal erosion from storm surges also pose risks (see [Figure E-1-4](#)). Environmental mitigation opportunities related to coastal flooding and coastal erosion include implementation of best management practices in design and maintenance to protect infrastructure and nearby communities from these risks.

The subregion contains numerous City parks, comprising approximately 30,000 acres (14 percent of New York City). The largest parks

(by size) are Pelham Bay Park, Greenbelt, Van Cortlandt Park, Flushing Meadows/Corona Park, Central Park, Marine Park, Bronx Park, Franklin D. Roosevelt Boardwalk - South and Midland Beaches, Alley Pond Park, and Forest Park. Meanwhile, the subregion is home to portions of the Gateway National Recreation Area and the Jamaica Bay National Wildlife Refuge. Parkland in the subregion is mapped on [Figure E-1-5](#). Many of the parks contain natural areas and shoreline, water, wetlands, marshes, forest, and other habitat for protected wildlife. Environmental mitigation opportunities related to parkland include avoiding or minimizing the fragmentation of parkland habitat while improving parkland connectivity and access. Right-of-way maintenance best management practices are used to mitigate the potential introduction of invasive species to habitats in parks and other open spaces.

Much of the emphasis of comprehensive planning in the subregion is on increasing the supply of affordable housing, including through rezoning and redevelopment. New York City has an adopted Waterfront Revitalization Program, and several communities have been designated as Brownfield Opportunity Areas (BOAs), including Bronx Harlem River, Cypress Hills, Flushing, Jamaica, North Brooklyn, Port Richmond, Port Morris Harlem Riverfront, Staten Island Richmond Terrace, Sunset Park, and West Shore. Environmental mitigation opportunities related to sustainable development include deploying adaptive land use and zoning tools to reduce New York City's vulnerability to coastal flooding and sea level rise; maximizing the benefits derived from economic development, environmental conservation, and public use of the waterfront (through the Waterfront Revitalization Program), while minimizing potential conflicts among these objectives; promoting sustainable communities throughout New York City by supporting transit-oriented development, alternatives to automobile ownership and use, improved access to healthy, fresh foods, stormwater management, and the quality of streetscapes; and facilitating energy efficient building design to help reduce New York City's energy consumption and its contribution to climate change.

The New York City subregion is rich in archaeological and historic resources, and many properties are listed on or are eligible for listing on the State and National Registers of Historic Places (see [Figure E-1-6](#)), including certain railroad and subway stations, bridges, and parkways. Many communities served by transportation infrastructure contain historic districts and individually designated historic properties. Environmental mitigation opportunities related to cultural resources include early consultation in the planning of projects.

Table E-1-3

**New York City Environmental Plans Identified During Consultation**

Considerations	Example Reference Plans, Programs, and Initiatives
Affordable Housing	Affordable Housing <a href="https://www.brooklyn-usa.org/wp-content/uploads/2020/03/Housing-Brooklyn-11.24.14.pdf">https://www.brooklyn-usa.org/wp-content/uploads/2020/03/Housing-Brooklyn-11.24.14.pdf</a>
Air Quality Improvement/ Clean Energy/ Greenhouse Gas Emission Reduction	Brooklyn Renewable and Sustainable Energy <a href="https://www.brooklyn-usa.org/reset/">https://www.brooklyn-usa.org/reset/</a> <a href="https://www.brooklyn-usa.org/wp-content/uploads/2016/05/Sustainability-Coordinators_DeskTop.pdf">https://www.brooklyn-usa.org/wp-content/uploads/2016/05/Sustainability-Coordinators_DeskTop.pdf</a> <a href="https://www.brooklyn-usa.org/wp-content/uploads/2017/07/FuelingBrooklynReport_2017-Final.pdf">https://www.brooklyn-usa.org/wp-content/uploads/2017/07/FuelingBrooklynReport_2017-Final.pdf</a> Department of Environmental Protection Strategic Plan <a href="https://www1.nyc.gov/site/dep/about/strategic-plan.page">https://www1.nyc.gov/site/dep/about/strategic-plan.page</a> Staten Island Fast Ferry Planning <a href="https://www.statenislandusa.com/uploads/8/9/8/7/89877849/01_fastferry.pdf">https://www.statenislandusa.com/uploads/8/9/8/7/89877849/01_fastferry.pdf</a>
Ecosystem Restoration/ Wetlands Preservation/ Species Recovery	NY-NJ Harbor and Estuary Program <a href="https://www.dec.ny.gov/lands/31849.html">https://www.dec.ny.gov/lands/31849.html</a> Fish and Wildlife Service Urban Partnerships <a href="https://www.fws.gov/urban/partnerships.php">https://www.fws.gov/urban/partnerships.php</a> Hudson Raritan Estuary Ecosystem Restoration Feasibility Report and Comprehensive Restoration Plan for the Hudson-Raritan Estuary <a href="https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-Raritan-Estuary/">https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-Raritan-Estuary/</a> Hudson River Habitat Restoration <a href="https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-River-Habitat-Restoration/">https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-River-Habitat-Restoration/</a>
Energy Efficiency	Energy Efficient Buildings <a href="https://www1.nyc.gov/site/builttolast/index.page">https://www1.nyc.gov/site/builttolast/index.page</a> <a href="https://www1.nyc.gov/assets/planning/download/pdf/plans/zone-green/zone-green.pdf">https://www1.nyc.gov/assets/planning/download/pdf/plans/zone-green/zone-green.pdf</a>

Considerations	Example Reference Plans, Programs, and Initiatives
Open Space Preservation/Improvement/Access and Connectivity	<p>Bronx River Greenway  <a href="https://www.nycgovparks.org/highlights/bronx-river-greenway/then-and-now">https://www.nycgovparks.org/highlights/bronx-river-greenway/then-and-now</a></p> <p>South Bronx Greenway Plan  <a href="https://edc.nyc/sites/default/files/2019-11/NYCEDC-South-Bronx-Greenway-plan.pdf">https://edc.nyc/sites/default/files/2019-11/NYCEDC-South-Bronx-Greenway-plan.pdf</a></p> <p>Connect the Greenbelt Plan <a href="https://www.statenislandusa.com/initiatives.html">https://www.statenislandusa.com/initiatives.html</a></p> <p>Mid-Island Bluebelt Plan  <a href="https://www1.nyc.gov/site/dep/about/mid-island-bluebelt-drainage-plan.page">https://www1.nyc.gov/site/dep/about/mid-island-bluebelt-drainage-plan.page</a></p>
Public Safety	<p>Public Safety/Streetscape Enhancements  <a href="https://www.brooklyn-usa.org/wp-content/uploads/2018/08/Brooklyn-Borough-President-PX-Forward-FINAL.pdf">https://www.brooklyn-usa.org/wp-content/uploads/2018/08/Brooklyn-Borough-President-PX-Forward-FINAL.pdf</a>  <a href="https://brooklyn-usa.org/wp-content/uploads/2015/09/NYPD-Town-Hall-Report-FINAL.pdf">https://brooklyn-usa.org/wp-content/uploads/2015/09/NYPD-Town-Hall-Report-FINAL.pdf</a></p>
Shoreline Protection/Coastal Resiliency	<p>New York City Resiliency &amp; Sustainability Initiatives  <a href="https://www1.nyc.gov/site/planning/about/dcp-priorities/resiliency-sustainability.page">https://www1.nyc.gov/site/planning/about/dcp-priorities/resiliency-sustainability.page</a></p> <p>Manhattan East Side Coastal Resiliency  <a href="https://www.manhattanbp.nyc.gov/protecting-the-east-side-from-climate-change/">https://www.manhattanbp.nyc.gov/protecting-the-east-side-from-climate-change/</a></p> <p>Queens Hurricane Recovery  <a href="https://www.queensbp.org/sandy-rebuild/">https://www.queensbp.org/sandy-rebuild/</a></p>
Sustainable Development/Redevelopment/Revitalization	<p>OneNYC 2050 <a href="http://onenyc.cityofnewyork.us/">http://onenyc.cityofnewyork.us/</a></p> <p>New York City Waterfront Revitalization Program  <a href="https://docs.dos.ny.gov/opd-lwrp/LWRP/New%20York%20City/Amendment2/Final/NYC%20WRP%202015.pdf">https://docs.dos.ny.gov/opd-lwrp/LWRP/New%20York%20City/Amendment2/Final/NYC%20WRP%202015.pdf</a></p> <p>Sustainable Communities (multi-agency)  <a href="https://www1.nyc.gov/site/planning/plans/sustainable-communities/sustainable-communities.page">https://www1.nyc.gov/site/planning/plans/sustainable-communities/sustainable-communities.page</a></p> <p>Bronx Sustainable Development Policy  <a href="http://bronxboropres.nyc.gov/wp-content/uploads/2018/10/sustainabledevelopmentpolicy.pdf">http://bronxboropres.nyc.gov/wp-content/uploads/2018/10/sustainabledevelopmentpolicy.pdf</a></p> <p>Special Harlem River Waterfront District  <a href="http://bronxboropres.nyc.gov/2014/03/20/the-special-harlem-river-waterfront-district/">http://bronxboropres.nyc.gov/2014/03/20/the-special-harlem-river-waterfront-district/</a></p> <p>Brooklyn Strategic Policy Statement  <a href="https://brooklyn-usa.org/wp-content/uploads/2015/10/StrategicPolicyStatement.pdf">https://brooklyn-usa.org/wp-content/uploads/2015/10/StrategicPolicyStatement.pdf</a></p> <p>Manhattan Sustainability  <a href="https://www.manhattanbp.nyc.gov/category/sustainability/">https://www.manhattanbp.nyc.gov/category/sustainability/</a></p> <p>Queens Strategic Policy Statement 2018  <a href="https://www.queensbp.org/wp-content/uploads/2019/01/Strategic-Policy-Statement-ELECTRONIC-VERSION.pdf">https://www.queensbp.org/wp-content/uploads/2019/01/Strategic-Policy-Statement-ELECTRONIC-VERSION.pdf</a></p>
Water Quality Improvement/Water Supply Protection (Surface and Groundwater)	<p>Environmental Protection Agency Urban Waters Program  <a href="https://www.epa.gov/urbanwaters">https://www.epa.gov/urbanwaters</a></p>





Figure E-1-3  
New York City Wetlands

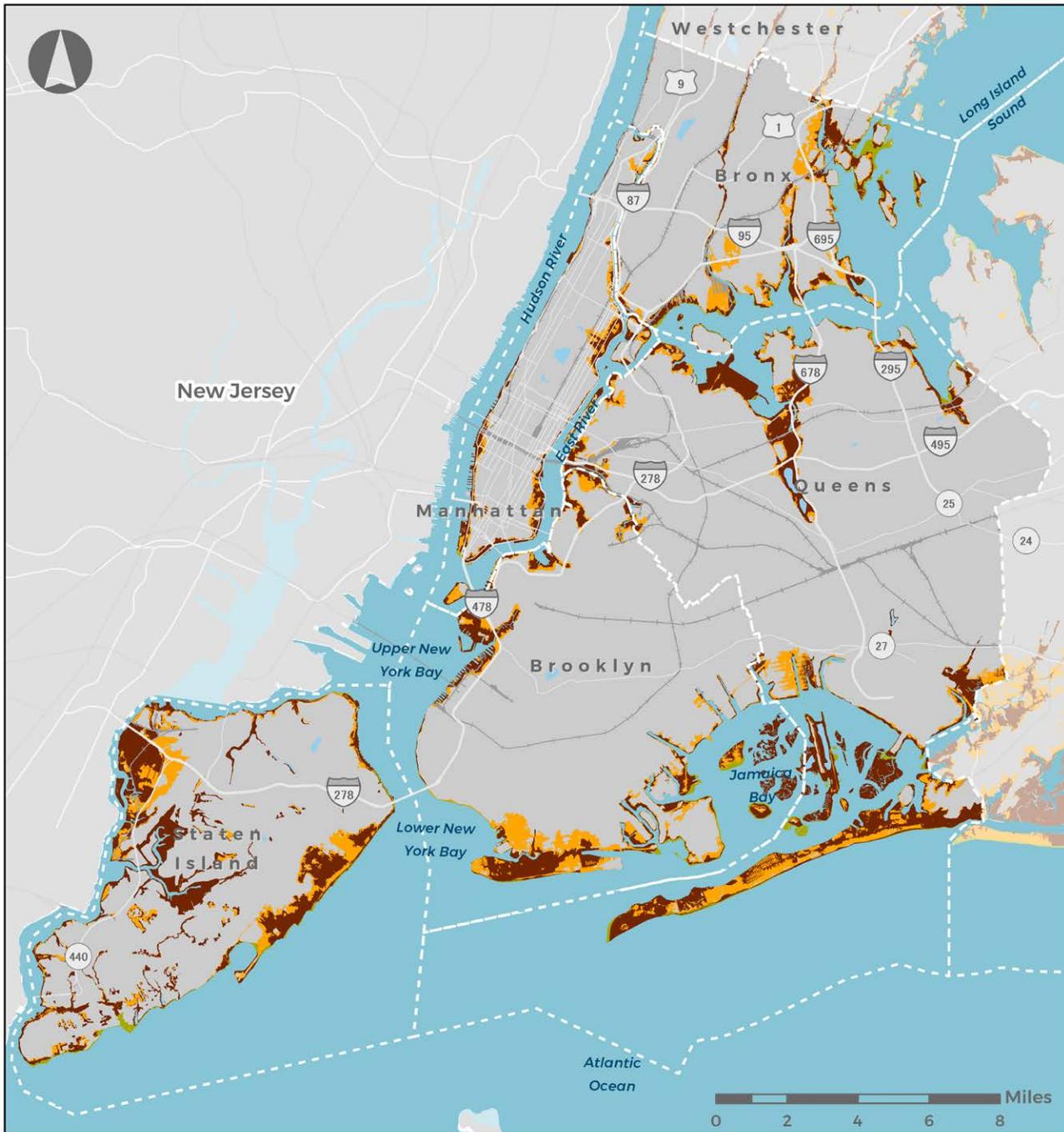


## Legend

- Tidal Wetlands
- Waterbody
- State-regulated Wetlands
- State-regulated Freshwater Wetlands Checkzone

Source: NY State GIS Clearinghouse; U.S. Environmental Protection Agency; U.S. Geological Survey; U.S. Fish and Wildlife Service; NY State Department of Environmental Conservation; Cornell University Geospatial Information Repository

Figure E-1-4  
New York City Floodplains

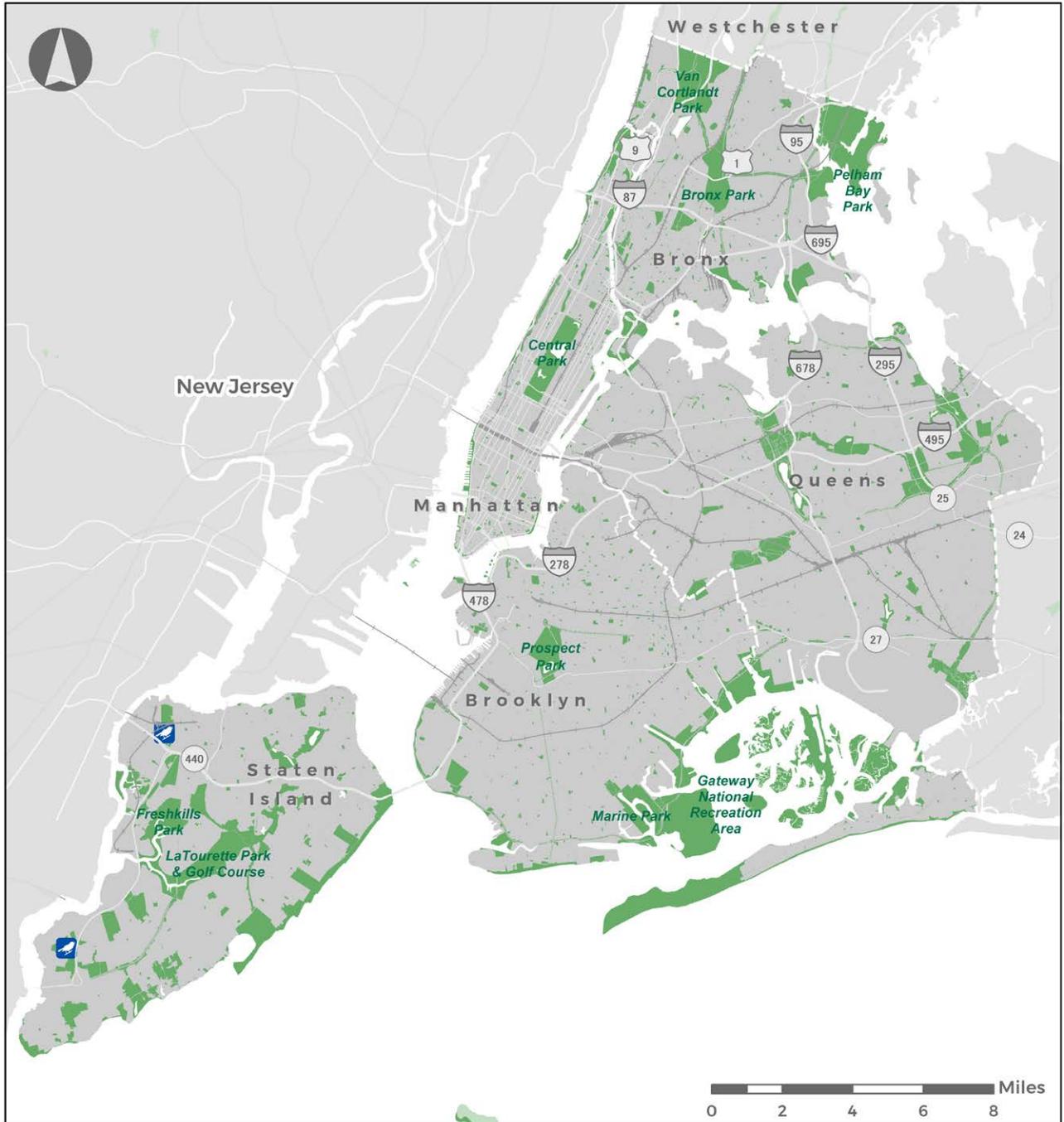


### Legend

-  Special Flood Hazard Area (SFHA, 100-year floodplain)
-  Moderate Flood Hazard Area (500-year floodplain)
-  Coastal Risk Area - High Risk

Source: NY State GIS Clearinghouse; Federal Emergency Management Agency

Figure E-1-5  
New York City Parkland

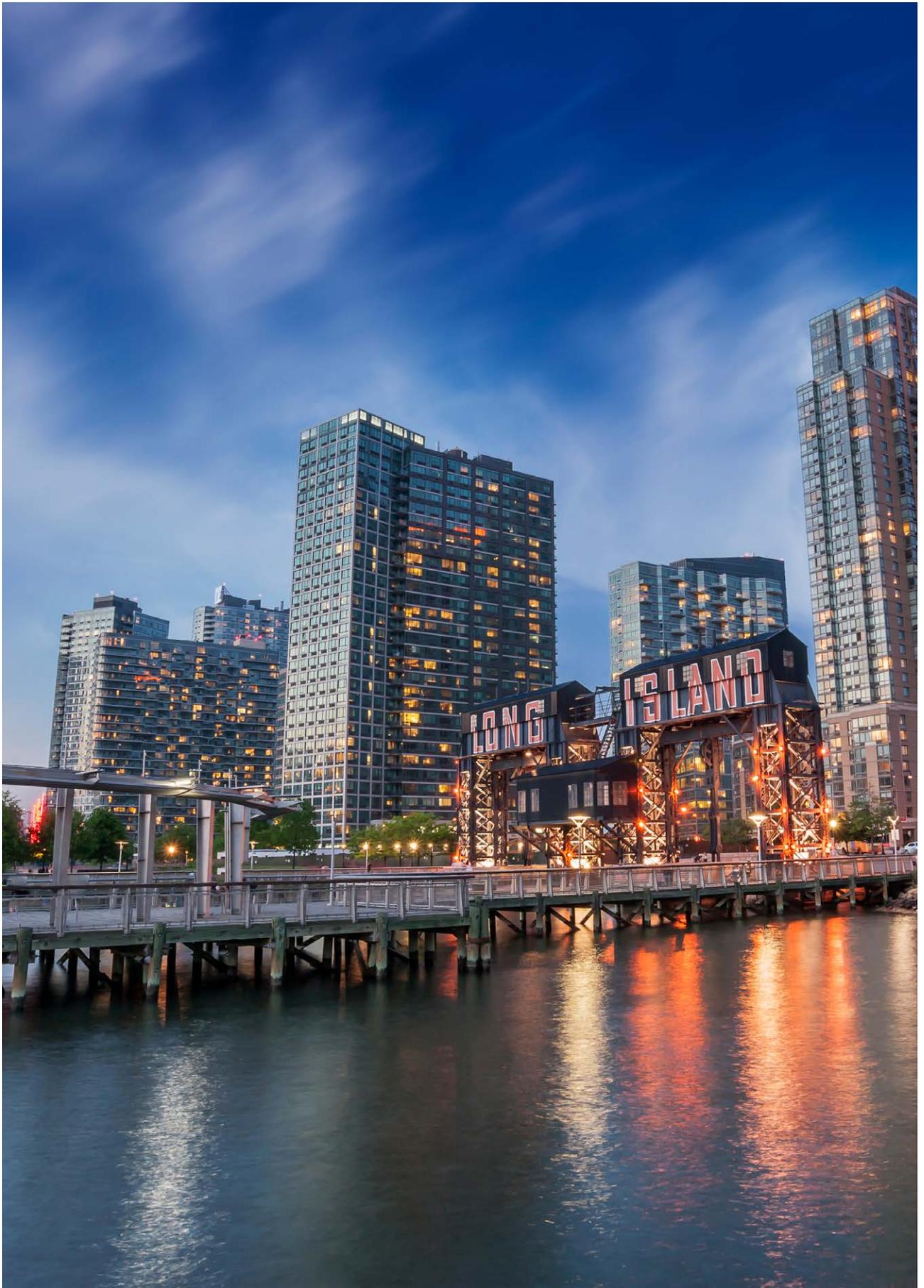


Legend

-  Bird Conservation Area
-  Parks and Recreational Area

Source: NY State GIS Clearinghouse; NY State Department of Environmental Conservation; U.S. National Park Service; U.S. Geological Survey; NYC Open Data





## 1.9 LONG ISLAND

The Long Island subregion comprises Nassau and Suffolk counties and is generally characterized by suburban, exurban, and rural and agricultural environments. The prominent natural resources of the subregion are its extensive coastline, including barrier islands and abutting bays and estuaries, as well as the Long Island Pine Barrens. The subregion has many parks and open spaces, and it is rich in prehistoric and historic cultural resources, especially those that evoke the subregion's historical reliance on fishing, farming, operation of water mills, aviation, and recreational tourism.

The subregion's water resources serve human consumption and aquatic habitat needs. The Nassau-Suffolk Counties Long Island Sole Source Aquifer provides water supply to the entire subregion. Surface waters are relatively dispersed across the island and primarily flow either south to north into Long Island Sound or north to south into the Great South Bay ([Figure E-1-7](#)). Efforts are underway to improve water quality and restore the essential fish habitat of protected species in these waters and in associated bays and estuaries. Meanwhile, specific natural resources and habitat identified for protection include Critical Environmental Areas ([Figure E-1-8](#)) and wetlands ([Figure E-1-9](#)). Environmental mitigation opportunities related to the aquifer and surface waters include minimizing the introduction of new impervious surfaces to the extent possible and applying best management practices to control stormwater runoff pollutant loads, especially the application of nitrogen-based fertilizers.

The subregion also faces risks from coastal flooding and coastal erosion from storm surges (see [Figure E-1-10](#)). Environmental mitigation opportunities related to coastal flooding and coastal erosion include implementation of best management practices in design and maintenance to protect infrastructure and nearby communities from these risks.

The subregion contains numerous state parks and preserves, primarily along the coastline (namely, Jones Beach, Bethpage, Caumsett,

Gilgo, Robert Moses, Belmont Lake, Heckscher, Connetquot, Rocky Point, Wildwood, Napeague, Hither Hills, and Orient Point). Many of these parks are connected by a system of parkways with abutting trails that were developed by the state in conjunction with the parks. Meanwhile, the subregion is home to the Fire Island National Seashore and the Seatuck and Wertheim National Wildlife Refuges, as well as many county and municipal parks and preserves. The subregion's parkland is mapped in [Figure E-1-11](#). The larger parks contain dune, shoreline, marshes, wetlands, water, forest (including unique pine barrens), and other habitat for protected wildlife. Environmental mitigation opportunities related to parkland include avoiding or minimizing the fragmentation of parkland habitat. Meanwhile, right-of-way maintenance best management practices are used to mitigate the potential introduction of invasive species to habitats in parks and other open spaces.

Much of the emphasis of comprehensive planning in the subregion is on concentrating future development in already developed areas to preserve open spaces, coastal areas, and farmland and, generally, to promote sustainability. Many communities, including Bayville, East Hampton, Greenport, Head of the Harbor, Lloyd Harbor, Nissequogue, Ocean Beach, Sag Harbor, Smithton, and Southold, have approved local waterfront revitalization plans. Portions of several Long Island towns have approved Brownfield Opportunity Area (BOA) plans that contain incentives for redevelopment. Approved BOAs include Downtown Riverhead, Huntington Station, New Cassel, Northwest Hicksville, Riverside, Southeast Hicksville, The Orchard, and Wyandanch Downtown. Meanwhile, farmland in portions of the subregion is protected through agricultural districts (see [Figure E-1-12](#)). Environmental mitigation opportunities related to sustainable development include planning projects to be consistent with the policies of approved waterfront revitalization plans and agricultural districts and locating projects within BOAs, where applicable.

The Long Island subregion is rich in archaeological and historic resources, and many properties are listed on or are eligible for listing on the State and National Registers of Historic Places (see [Figure E-1-13](#)). Transportation has played an important role in the development of the subregion (e.g., Long Island Rail Road and parkways), and transportation infrastructure such as railroad stations, bridges, and parkways are historic resources. Additionally, many communities served by transportation infrastructure contain historic districts and individually designated historic properties. Environmental mitigation opportunities related to cultural resources include early consultation in the planning of projects with the Office of Parks, Recreation and Historic Preservation (OPRHP) - State Historic Preservation Office, as well as on the appropriate preservation or adaptive reuse of historic properties.

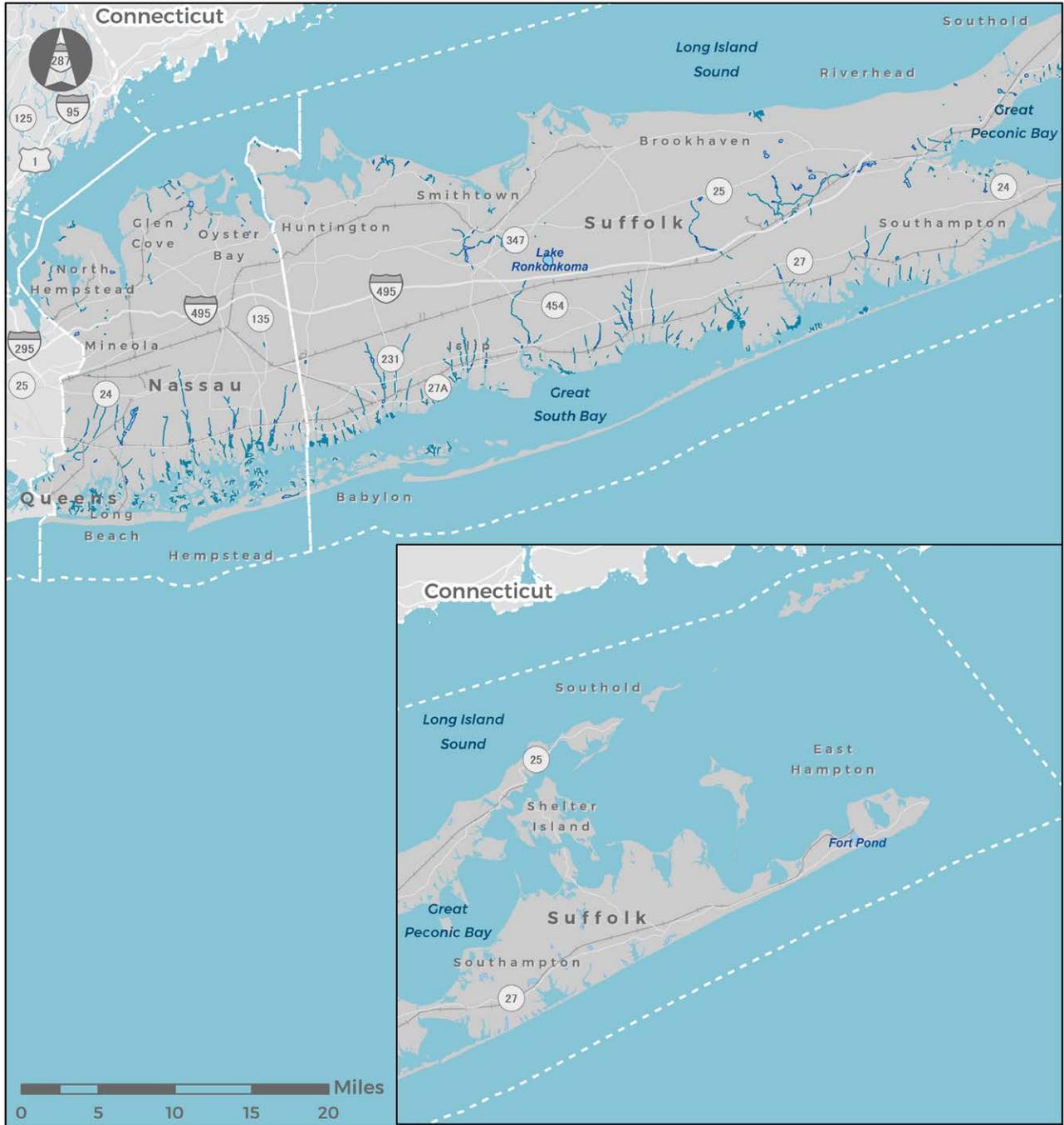
Table E-1-4

**Long Island Environmental Considerations Identified During Consultation**

Considerations	Example Reference Plans, Programs, and Initiatives
Ecosystem Restoration/Wetlands Preservation/Species Recovery	<p>Long Island Sound Study <a href="https://www.dec.ny.gov/lands/31851.html">https://www.dec.ny.gov/lands/31851.html</a></p> <p>South Shore Estuary Reserve Comprehensive Management Plan and Peconic Estuary Conservation &amp; Management Plan <a href="https://www.dec.ny.gov/lands/31847.html">https://www.dec.ny.gov/lands/31847.html</a></p> <p>Coastal Resiliency and Water Quality in Nassau &amp; Suffolk Counties <a href="https://www.dec.ny.gov/docs/water_pdf/lireportoct14.pdf">https://www.dec.ny.gov/docs/water_pdf/lireportoct14.pdf</a></p> <p>New York State Open Space Conservation Plan Groundwater Initiatives <a href="https://www.dec.ny.gov/lands/36064.html">https://www.dec.ny.gov/lands/36064.html</a></p> <p>Nitrogen Action Plan (Long Island Regional Planning Council) <a href="https://lirpc.org/our-work/long-island-nitrogen-action-plan/">https://lirpc.org/our-work/long-island-nitrogen-action-plan/</a></p> <p>South Shore Estuary Reserve <a href="https://www.dos.ny.gov/opd/sser/">https://www.dos.ny.gov/opd/sser/</a></p>
Farmland Protection	<p>Suffolk County Agriculture &amp; Farmland Protection Plan <a href="https://www.suffolkcountyny.gov/Portals/0/formsdocs/planning/OpenSpaceFarmland/Farmland/AFPP_FINAL_TXTMAPS_ADA_12182015r.pdf">https://www.suffolkcountyny.gov/Portals/0/formsdocs/planning/OpenSpaceFarmland/Farmland/AFPP_FINAL_TXTMAPS_ADA_12182015r.pdf</a></p> <p><a href="https://www.suffolkcountyny.gov/portals/0/formsdocs/planning/CompPlan/Comp%20Master%20Plan%202035/10232015_ADA_2014-12-17_SCMP_2035r.pdf">https://www.suffolkcountyny.gov/portals/0/formsdocs/planning/CompPlan/Comp%20Master%20Plan%202035/10232015_ADA_2014-12-17_SCMP_2035r.pdf</a></p> <p>Soil &amp; Water Conservation Committee Strategic Plan <a href="https://agriculture.ny.gov/system/files/documents/2020/01/swccstrategicplan.pdf">https://agriculture.ny.gov/system/files/documents/2020/01/swccstrategicplan.pdf</a></p> <p>Farmland Protection <a href="https://agriculture.ny.gov/land-and-water/farmland-protection">https://agriculture.ny.gov/land-and-water/farmland-protection</a></p> <p>Soil &amp; Water Conservation <a href="https://agriculture.ny.gov/soil-and-water/soil-water-conservation-committee">https://agriculture.ny.gov/soil-and-water/soil-water-conservation-committee</a></p> <p>Agricultural Districts <a href="https://agriculture.ny.gov/land-and-water/agricultural-districts">https://agriculture.ny.gov/land-and-water/agricultural-districts</a></p> <p>Conservation Stewardship Program <a href="https://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/programs/financial/csp/">https://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/programs/financial/csp/</a></p>
Historic/Landmarks Preservation	<p>New York State Historic Preservation Plan 2015-2020 <a href="https://parks.ny.gov/documents/shpo/preservation-plan/NewYorkStateHistoricPreservationPlan20152020.pdf">https://parks.ny.gov/documents/shpo/preservation-plan/NewYorkStateHistoricPreservationPlan20152020.pdf</a></p>

Considerations	Example Reference Plans, Programs, and Initiatives
Invasive Species	New York State Invasive Species Comprehensive Management Plan <a href="https://www.dec.ny.gov/docs/lands_forests_pdf/iscmpfinal.pdf">https://www.dec.ny.gov/docs/lands_forests_pdf/iscmpfinal.pdf</a>
Shoreline Protection/ Coastal Resiliency	Nassau County Implementation of GOSR Community Reconstruction Program <a href="https://www.nassaucountyny.gov/3886/NYS-GOSR-Community-Reconstruction-Program">https://www.nassaucountyny.gov/3886/NYS-GOSR-Community-Reconstruction-Program</a> Western Bays Resiliency Initiative <a href="https://www.bayparkconveyance.org/about">https://www.bayparkconveyance.org/about</a> Shinnecock Indian Nation Climate Vulnerability Assessment and Action Plan <a href="https://www.peconicestuary.org/wp-content/uploads/2019/10/Shinnecock-Indian-Nation-Climate-Vulnerability-Assessment-and-Action-Plan.pdf">https://www.peconicestuary.org/wp-content/uploads/2019/10/Shinnecock-Indian-Nation-Climate-Vulnerability-Assessment-and-Action-Plan.pdf</a> Coastal Resiliency and Water Quality in Nassau and Suffolk Counties <a href="https://www.dec.ny.gov/docs/water_pdf/lireportoct14.pdf">https://www.dec.ny.gov/docs/water_pdf/lireportoct14.pdf</a>
Sustainable Development/ Redevelopment/ Revitalization	Nassau County Comprehensive Master Plan <a href="https://www.nassaucountyny.gov/2872/Master-Plan">https://www.nassaucountyny.gov/2872/Master-Plan</a> Nassau County Climate Smart Communities <a href="https://opennassau.nassaucountyny.gov/stories/s/ury9-ay3f">https://opennassau.nassaucountyny.gov/stories/s/ury9-ay3f</a> Suffolk County Comprehensive Master Plan <a href="https://www.suffolkcountyny.gov/portals/0/formsdocs/planning/CompPlan/Comp%20Master%20Plan%202035/ADASuffolkCounty_MasterPlanFINAL_07282015.pdf">https://www.suffolkcountyny.gov/portals/0/formsdocs/planning/CompPlan/Comp%20Master%20Plan%202035/ADASuffolkCounty_MasterPlanFINAL_07282015.pdf</a>
Water Quality Improvement/ Water Supply Protection (Surface and Groundwater)	Nitrogen Action Plan (Long Island Regional Planning Council) <a href="https://lirpc.org/our-work/long-island-nitrogen-action-plan/">https://lirpc.org/our-work/long-island-nitrogen-action-plan/</a>

Figure E-1-7  
Long Island Water Resources

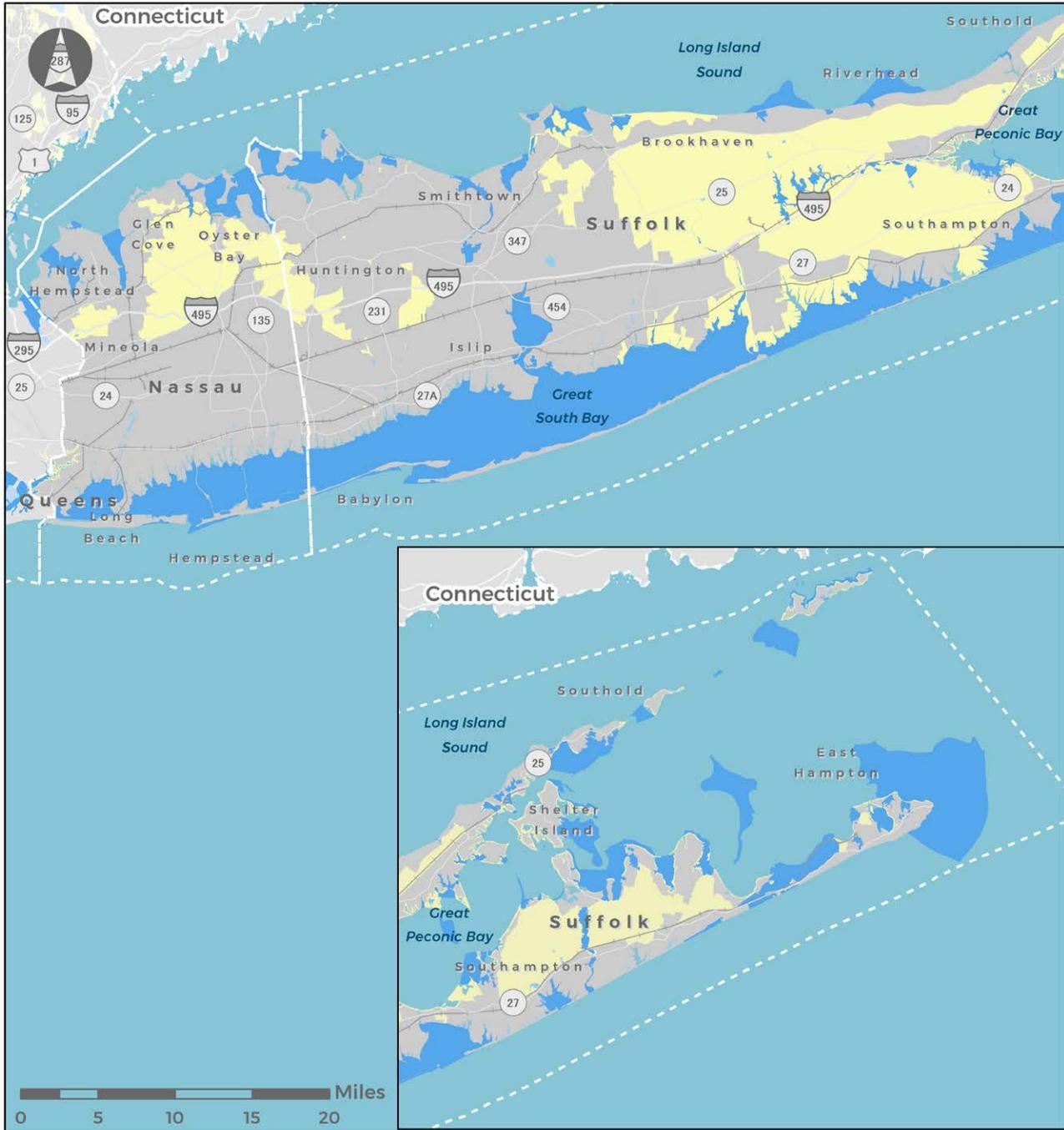


**Legend**

- River/ Stream
- Lake and Reservoir
- Estuary and Open Water

Source: NY State GIS Clearinghouse; U.S. Environmental Protection Agency

Figure E-1-8  
 Long Island Critical Environmental Areas

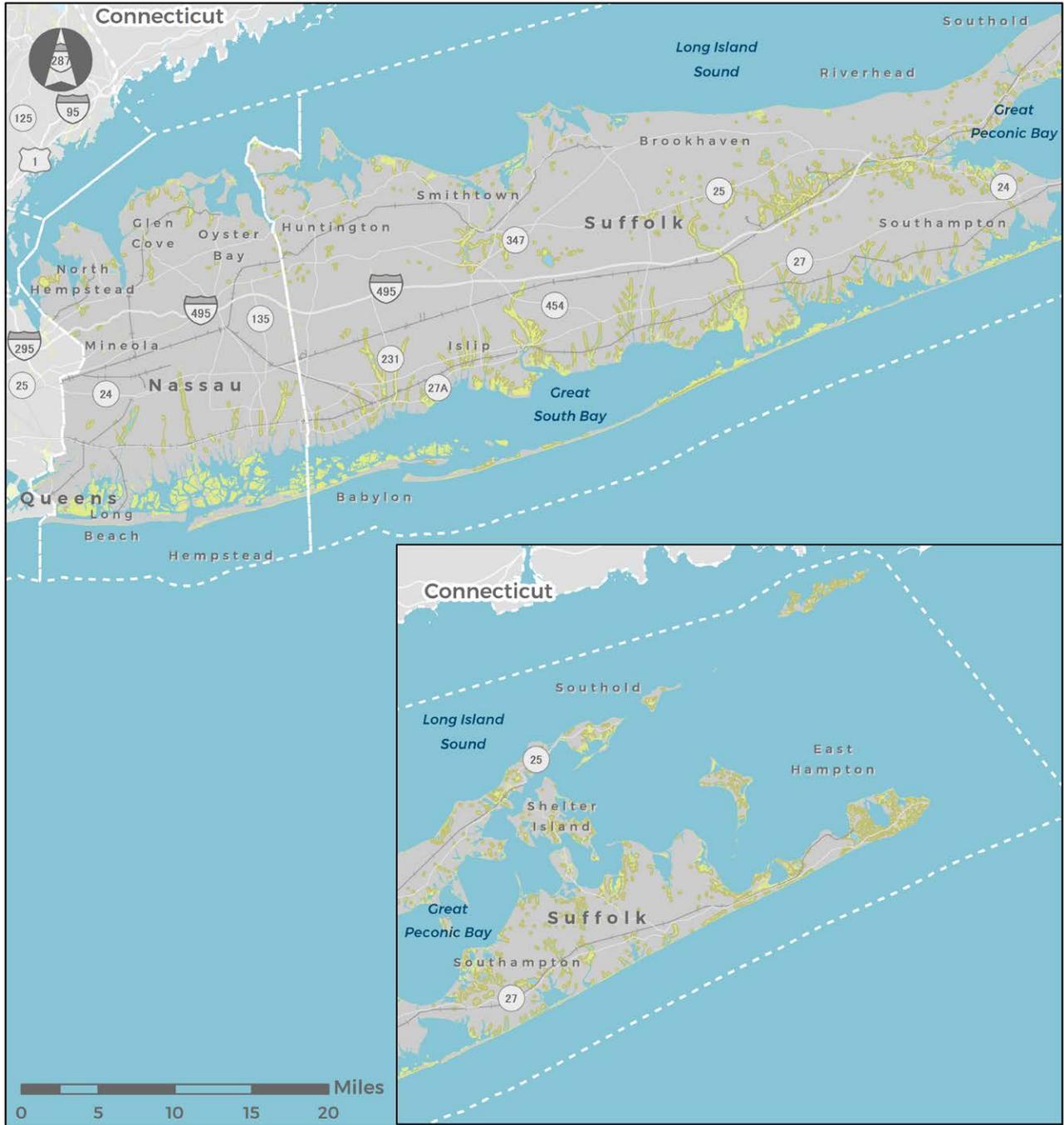


**Legend**

- Critical Environmental Area
- Significant Coastal Fish & Wildlife Boundary
- Waterbody

Source: NY State GIS Clearinghouse; U.S. Environmental Protection Agency; U.S. Geological Survey; U.S. Fish and Wildlife Service; NY State Department of Environmental Conservation; Cornell University Geospatial Information Repository

Figure E-1-9  
Long Island Wetlands

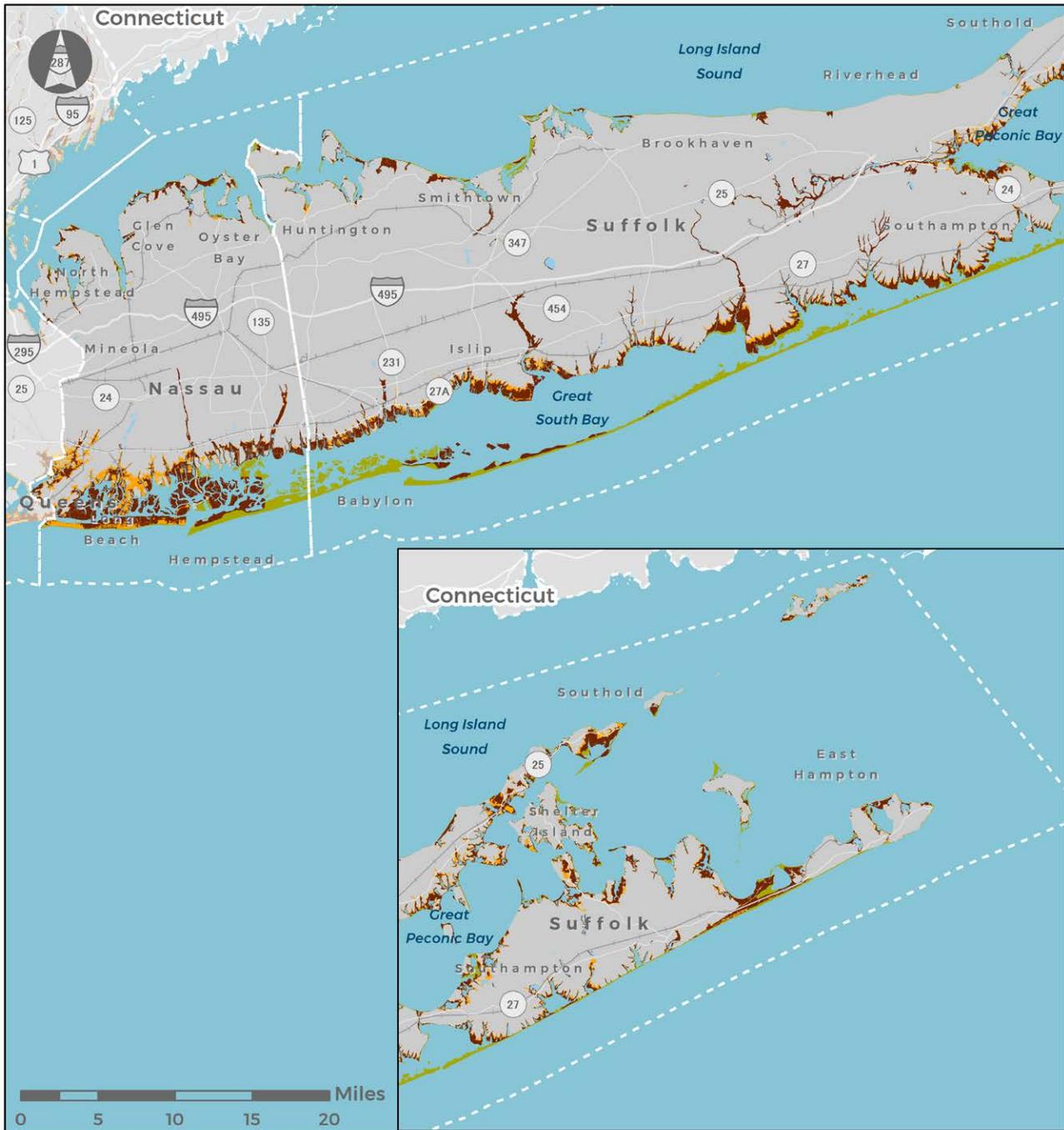


**Legend**

- Tidal Wetlands
- Waterbody
- State-regulated Wetlands
- State-regulated Freshwater Wetlands Checkzone

Source: NY State GIS Clearinghouse; U.S. Environmental Protection Agency; U.S. Geological Survey; U.S. Fish and Wildlife Service; NY State Department of Environmental Conservation; Cornell University Geospatial Information Repository

Figure E-1-10  
 Long Island Floodplains

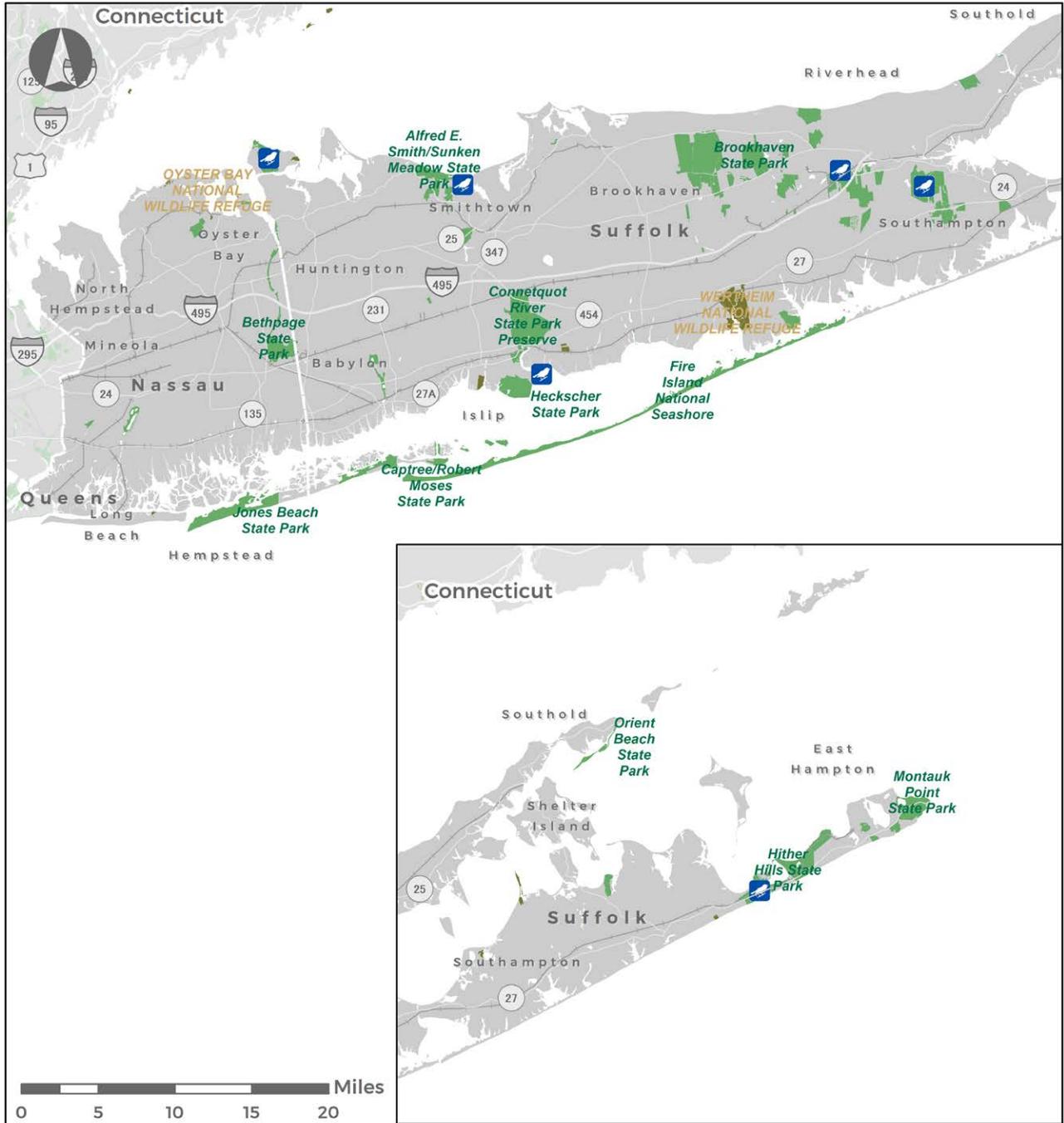


**Legend**

- Special Flood Hazard Area (SFHA, 100-year floodplain)
- Moderate Flood Hazard Area (500-year floodplain)
- Coastal Risk Area - High Risk

Source: NY State GIS Clearinghouse; Federal Emergency Management Agency

Figure E-1-11  
 Long Island Parkland

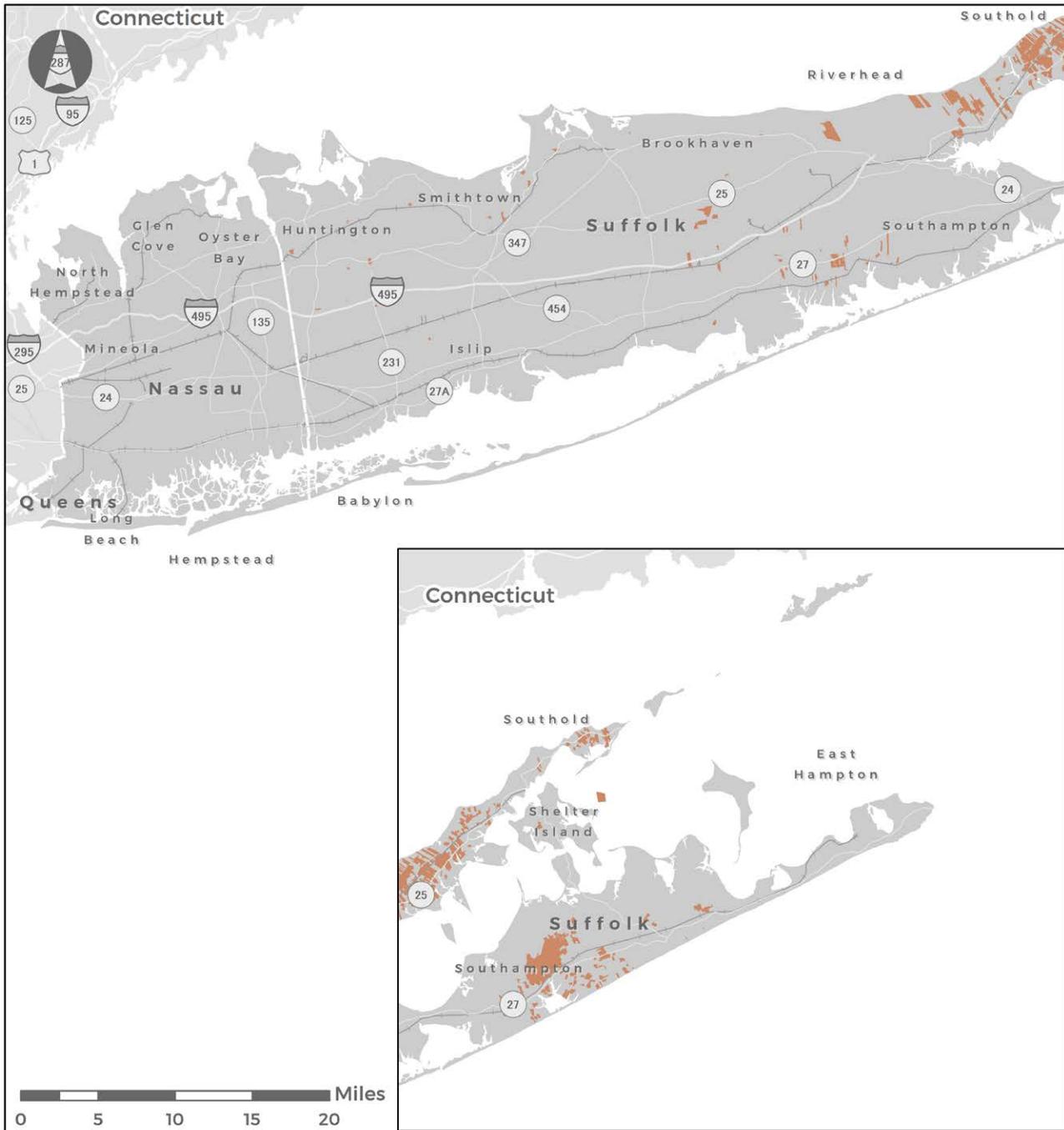


**Legend**

-  Bird Conservation Area
-  Parks and Recreational Area
-  National Wildlife Refuge

Source: NY State GIS Clearinghouse; U.S. National Park Service; U.S. Fish and Wildlife Service; NY State Department of Environmental Conservation; U.S. Geological Survey

Figure E-1-12  
 Long Island Agricultural Districts

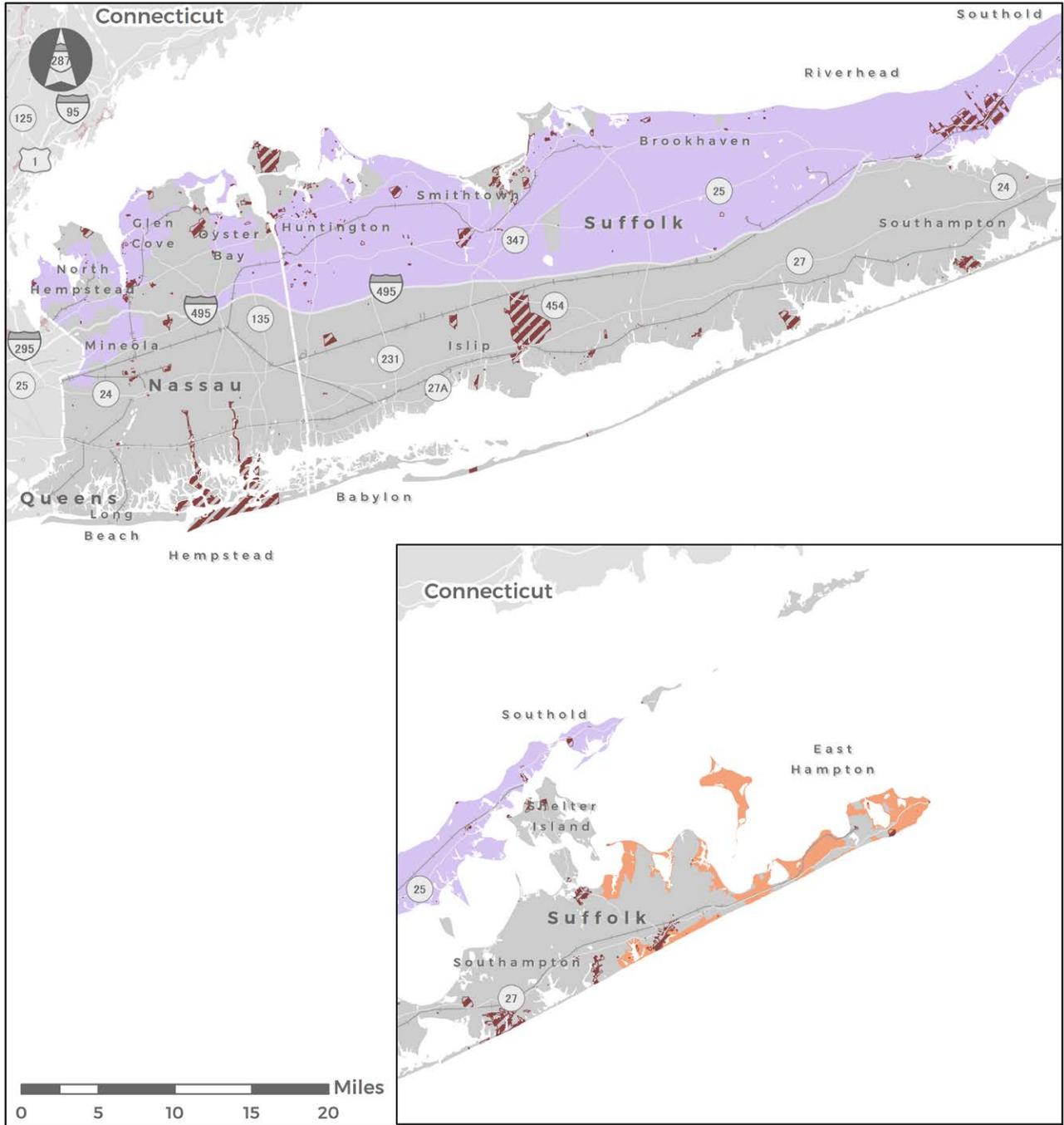


**Legend**

 Agricultural Districts

Source: NY State GIS Clearinghouse

Figure E-1-13  
Long Island Cultural Resources



**Legend**

-  National Register Site
-  State Heritage Area - Urban
-  State Heritage Area - Other
-  Scenic Areas of Statewide Significance

Source: NY State GIS Clearinghouse

## 1.10 LOWER HUDSON VALLEY

NYMTC's Lower Hudson Valley subregion comprises Putnam, Rockland, and Westchester counties. The subregion is a mix of urban areas such as the cities of Yonkers, Mount Vernon, and New Rochelle; suburban and exurban environments, and rural and agricultural environments. Natural resources of the subregion include waterways, reservoirs, shorelines, parks, and open spaces. The subregion is also rich in prehistoric and historic cultural resources, especially near Native American trails and settlements along waterways that evolved into many of the early roads and then railroads, and the locations of mills and early European settlements.

The subregion's water resources serve human consumption and aquatic habitat needs. [Figure E-1-14](#) shows the subregion's principal water resources. The reservoirs supply drinking water to many of the subregion's residents and to much of New York City and Bergen County, New Jersey. In addition, the subregion contains the Ramapo River Basin Aquifer System Sole-Source Aquifer (see [Figure E-1-14](#)). Specific natural resources and habitat identified for protection include Critical Environmental Areas ([Figure E-1-15](#)) and wetlands ([Figure E-1-16](#)). The subregion's waterways drain to the Hudson River and Long Island Sound, both of which are the subject of efforts to improve water quality and restore the essential fish habitat of protected species. Environmental mitigation opportunities related to water resources and wetlands include avoiding and minimizing the placement of fill in such resources, restoring previously degraded resources, minimizing the introduction of new impervious surfaces to reservoir watersheds to the extent possible, and applying best management practices to control stormwater runoff pollutant loads and sedimentation, especially in areas of steep slopes.

Flooding and flood risks are a concern along the many routes where transportation infrastructure is proximate to waterways (see [Figure E-1-17](#)). Environmental mitigation opportunities related to waterways and flooding include implementation of best management practices for the design and maintenance of drainage infrastructure and waterway structures.

The subregion contains all or portions of several relatively large state parks (namely, Harriman,

Bear Mountain, and Hudson Highlands), Palisades Interstate Park, and the Appalachian National Scenic Trail, as well as many county and municipal parks. The subregion's parkland is mapped on [Figure E-1-18](#). The larger parks contain forested and other habitat for protected wildlife. Environmental mitigation opportunities related to parkland include avoiding or minimizing the fragmentation of parkland habitat while improving parkland connectivity and access. Meanwhile, right-of-way maintenance best management practices are used to mitigate the potential introduction of invasive species to habitats in parks and other open spaces and provide opportunities for habitat for grassland birds and pollinators.

Much of the emphasis of comprehensive planning in the subregion is on concentrating future development in already developed areas to preserve open spaces and farmland and, generally, to promote sustainability. Many communities, including Croton-on-Hudson, Dobbs Ferry, Haverstraw, Larchmont, Mamaroneck, Nyack, Ossining, Peekskill, Piermont, Port Chester, Rye, Sleep Hollow, and Stony Point, have approved local waterfront revitalization plans. Farmland in portions of the subregion is protected through agricultural districts (see [Figure E-1-19](#)). Environmental mitigation opportunities related to sustainable development include planning projects to be consistent with the policies of approved waterfront revitalization plans and agricultural districts, where applicable.

The Lower Hudson Valley subregion is rich in archaeological and historic resources, and many properties are listed on or are eligible for listing on the State and National Registers of Historic Places (see [Figure E-1-20](#)). Transportation has played an important role in the development of the subregion (e.g., the New York Central Railroad and parkways), and transportation infrastructure such as railroad stations, bridges, and parkways are historic resources. Additionally, many communities served by transportation infrastructure contain historic districts and individually designated historic properties. Environmental stewardship and mitigation opportunities related to cultural resources include early consultation in the planning of projects with OPRHP - State Historic Preservation Office, as well as on the appropriate preservation or adaptive reuse of historic properties.

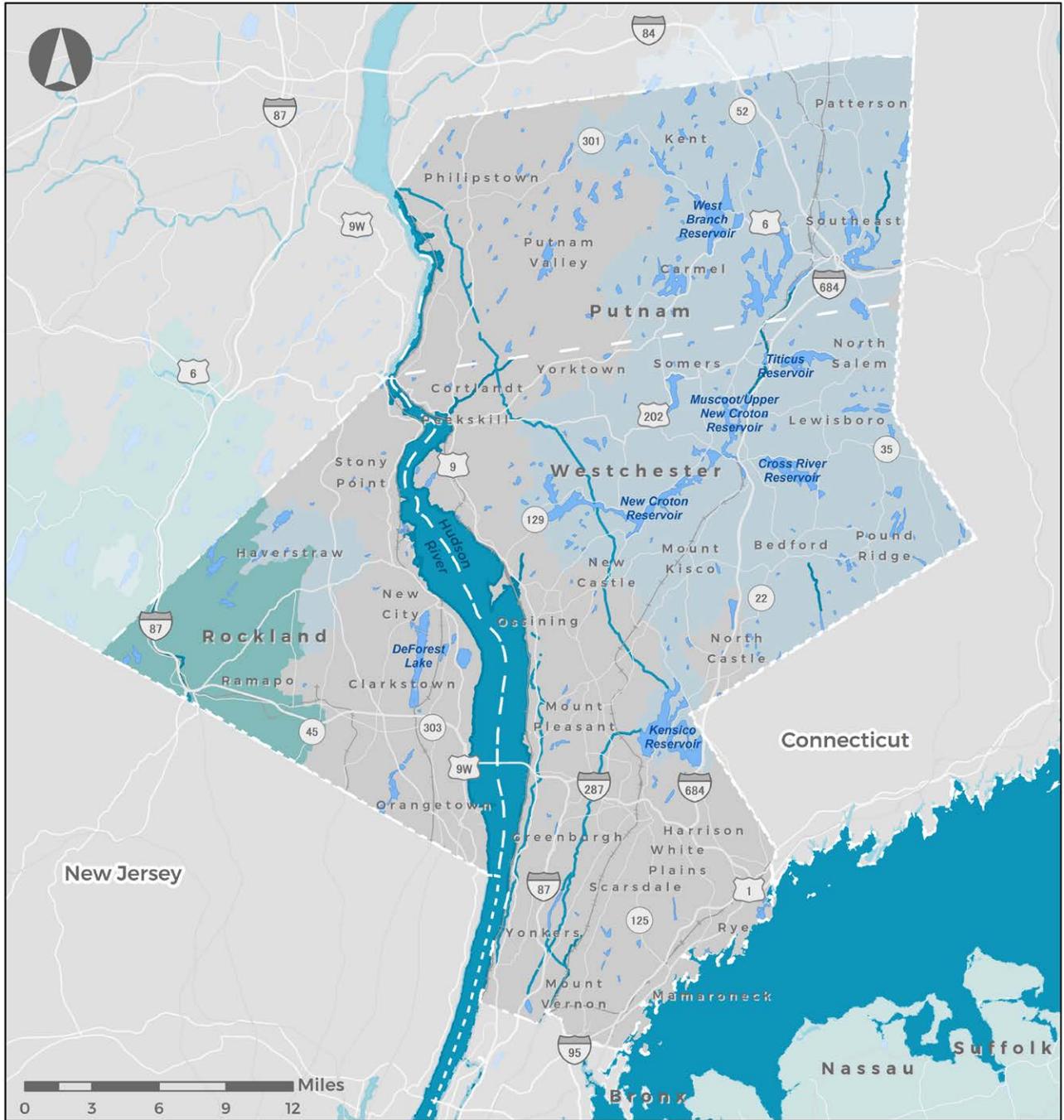
Table E-1-5

**Areawide Environmental Considerations Identified During Consultation**

Considerations	Example Reference Plans, Programs, and Initiatives
Air Quality Improvement/ Clean Energy/ Greenhouse Gas Emission Reduction	Putnam County Climate Smart Communities Initiative <a href="https://www.putnamcountyny.com/putnam-county-executive-maryellen-odell-has-appointed-lauri-taylor-as-coordinator-of-the-countys-new-climate-smart-communities-initiative/">https://www.putnamcountyny.com/putnam-county-executive-maryellen-odell-has-appointed-lauri-taylor-as-coordinator-of-the-countys-new-climate-smart-communities-initiative/</a>
Ecosystem Restoration/ Wetlands Preservation/ Species Recovery	Westchester County Aquatic Habitat Restoration <a href="https://planning.westchestergov.com/environment/aquatic-restoration">https://planning.westchestergov.com/environment/aquatic-restoration</a> Hudson River Estuary Program <a href="https://www.dec.ny.gov/lands/4920.html">https://www.dec.ny.gov/lands/4920.html</a> Long Island Sound Study <a href="https://www.dec.ny.gov/lands/31851.html">https://www.dec.ny.gov/lands/31851.html</a> Hudson Raritan Estuary Ecosystem Restoration Feasibility Report <a href="https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-Raritan-Estuary/">https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-Raritan-Estuary/</a> Comprehensive Restoration Plan for the Hudson-Raritan Estuary <a href="https://www.nan.usace.army.mil/Missions/Environmental/Comprehensive-Restoration-Plan-for-the-Hudson-Raritan-Estuary/">https://www.nan.usace.army.mil/Missions/Environmental/Comprehensive-Restoration-Plan-for-the-Hudson-Raritan-Estuary/</a> Hudson River Habitat Restoration <a href="https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-River-Habitat-Restoration/">https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Restoration/Hudson-River-Habitat-Restoration/</a>
Farmland Protection	Agricultural & Farmland Protection Plan for Putnam County <a href="http://www.putnamcountyny.com/wordpress/wp-content/uploads/2012/06/Final-Plan-08-04.pdf">http://www.putnamcountyny.com/wordpress/wp-content/uploads/2012/06/Final-Plan-08-04.pdf</a> Keep Putnam Farming <a href="https://www.putnamcountyny.com/keepputnamfarming/">https://www.putnamcountyny.com/keepputnamfarming/</a> <a href="http://www.putnamcountyny.com/wordpress/wp-content/uploads/2014/08/KPF_REPORT_FINAL-May92016.pdf">http://www.putnamcountyny.com/wordpress/wp-content/uploads/2014/08/KPF_REPORT_FINAL-May92016.pdf</a> Westchester County Agriculture and Farmland Protection Plan <a href="https://planning.westchestergov.com/images/stories/reports/wcagplan.pdf">https://planning.westchestergov.com/images/stories/reports/wcagplan.pdf</a> Soil & Water Conservation Committee Strategic Plan <a href="https://agriculture.ny.gov/system/files/documents/2020/01/swccstrategicplan.pdf">https://agriculture.ny.gov/system/files/documents/2020/01/swccstrategicplan.pdf</a> Farmland Protection <a href="https://agriculture.ny.gov/land-and-water/farmland-protection">https://agriculture.ny.gov/land-and-water/farmland-protection</a> Soil & Water Conservation <a href="https://agriculture.ny.gov/soil-and-water/soil-water-conservation-committee">https://agriculture.ny.gov/soil-and-water/soil-water-conservation-committee</a> Agricultural Districts <a href="https://agriculture.ny.gov/land-and-water/agricultural-districts">https://agriculture.ny.gov/land-and-water/agricultural-districts</a> Conservation Stewardship Program <a href="https://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/programs/financial/csp/">https://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/programs/financial/csp/</a>

Considerations	Example Reference Plans, Programs, and Initiatives
Flood Protection/ Infrastructure Resiliency	<p>Westchester County Flood Management <a href="https://planning.westchestergov.com/initiatives/flooding-and-recon-plans">https://planning.westchestergov.com/initiatives/flooding-and-recon-plans</a></p> <p>Westchester County Hazard Mitigation Planning <a href="https://planning.westchestergov.com/hazard-mitigation-planning">https://planning.westchestergov.com/hazard-mitigation-planning</a> <a href="https://planning.westchestergov.com/environment/2016-01-28-16-16-46/hazard-mitigation-plan">https://planning.westchestergov.com/environment/2016-01-28-16-16-46/hazard-mitigation-plan</a></p>
Historic/Landmarks Preservation	<p>New York State Historic Preservation Plan 2015-2020 <a href="https://parks.ny.gov/documents/shpo/preservation-plan/NewYorkStateHistoricPreservationPlan20152020.pdf">https://parks.ny.gov/documents/shpo/preservation-plan/NewYorkStateHistoricPreservationPlan20152020.pdf</a></p>
Open Space Preservation/ Improvement/ Access and Connectivity	<p>Keep Putnam Green <a href="https://www.putnamcountyny.com/keepputnamgreen/">https://www.putnamcountyny.com/keepputnamgreen/</a></p> <p>Hudson River Valley Greenway - Rockland County <a href="https://rocklandgov.com/departments/planning/land-use/hudson-river-valley-greenway/">https://rocklandgov.com/departments/planning/land-use/hudson-river-valley-greenway/</a></p> <p>Rockland County Open Space Acquisition Program <a href="http://rocklandgov.com/departments/environmental-resources/open-space-acquisition-program/">http://rocklandgov.com/departments/environmental-resources/open-space-acquisition-program/</a></p> <p>Westchester County Greenway Compact Plan <a href="https://planning.westchestergov.com/land-use-development/greenway-compact/sustainable-future-greenprint">https://planning.westchestergov.com/land-use-development/greenway-compact/sustainable-future-greenprint</a></p> <p>Westchester County Open Space Policy <a href="https://planning.westchestergov.com/initiatives/open-space/policy">https://planning.westchestergov.com/initiatives/open-space/policy</a></p>
Shoreline Protection/ Coastal Resiliency	<p>Climate-adapted Communities in the Hudson River Estuary <a href="https://www.dec.ny.gov/lands/39786.html">https://www.dec.ny.gov/lands/39786.html</a></p>
Sustainable Development/ Redevelopment/ Revitalization	<p>Putnam County Vision 2010 <a href="http://www.putnamcountyny.com/wordpress/wp-content/uploads/2012/06/vision2010.pdf">http://www.putnamcountyny.com/wordpress/wp-content/uploads/2012/06/vision2010.pdf</a></p> <p>Rockland County Comprehensive Plan <a href="http://rocklandgov.com/departments/planning/comprehensive-plan/">http://rocklandgov.com/departments/planning/comprehensive-plan/</a></p> <p>Westchester County Comprehensive Plan <a href="https://planning.westchestergov.com/initiatives/westchester-2025">https://planning.westchestergov.com/initiatives/westchester-2025</a></p>
Water Quality Improvement/ Water Supply Protection (Surface and Groundwater)	<p>Putnam County Groundwater Protection and Utilization Plan <a href="http://www.putnamcountyny.com/wordpress/wp-content/uploads/2012/06/Putnam-GW-Report_Full-Copy.pdf">http://www.putnamcountyny.com/wordpress/wp-content/uploads/2012/06/Putnam-GW-Report_Full-Copy.pdf</a></p> <p>New York City Watershed Program <a href="https://www.dec.ny.gov/lands/25599.html">https://www.dec.ny.gov/lands/25599.html</a></p> <p>Westchester County Watershed Planning and Protection <a href="https://planning.westchestergov.com/watershed-protection">https://planning.westchestergov.com/watershed-protection</a></p> <p>Croton Plan <a href="https://planning.westchestergov.com/initiatives/croton">https://planning.westchestergov.com/initiatives/croton</a></p> <p>Bronx River Plan <a href="https://planning.westchestergov.com/bronx-river">https://planning.westchestergov.com/bronx-river</a></p> <p>Long Island Sound Watershed <a href="https://planning.westchestergov.com/long-island-sound">https://planning.westchestergov.com/long-island-sound</a></p>

Figure E-1-14  
**Lower Hudson Valley Water Resources**



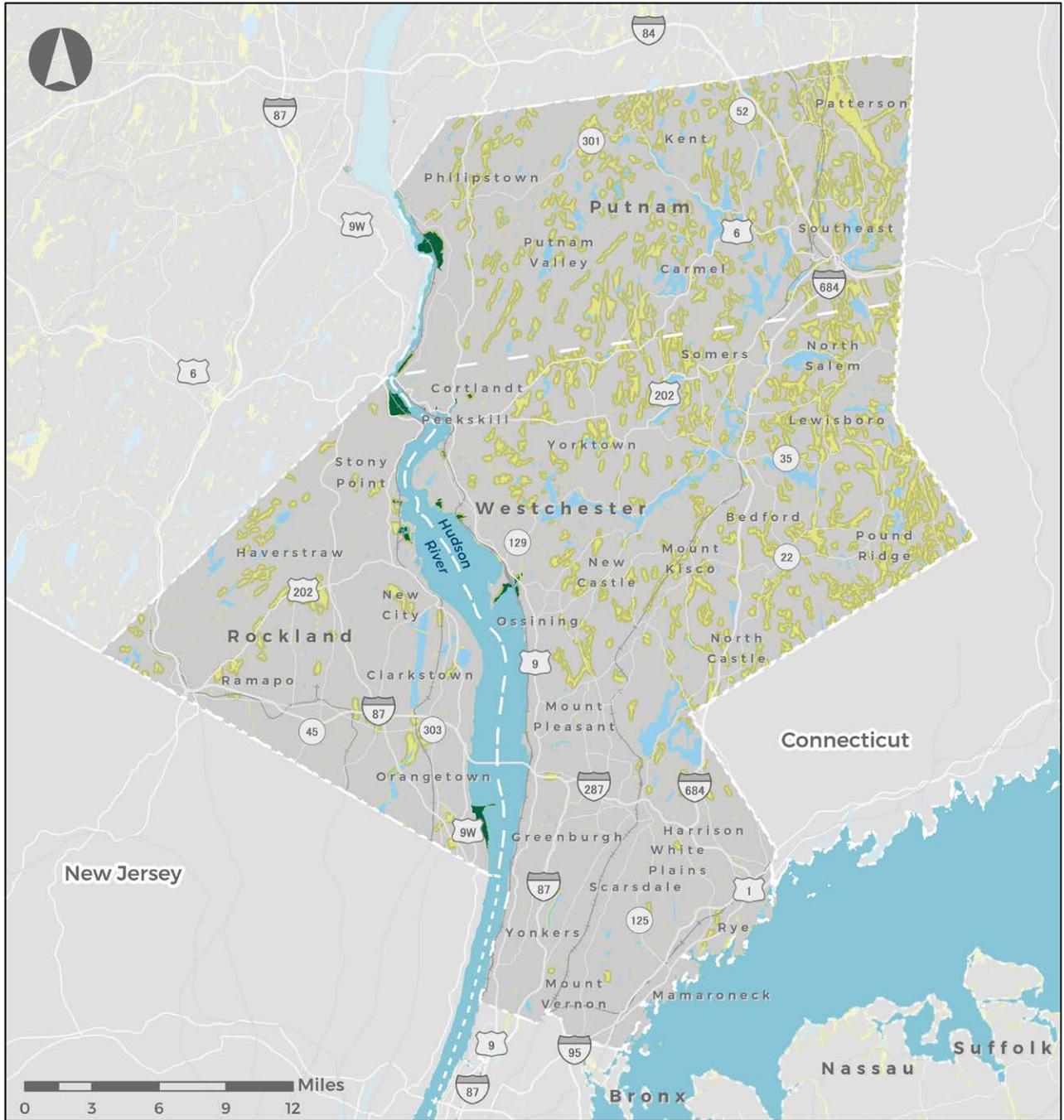
**Legend**

- Lake and Reservoir
- Estuary and Open Water
- Class AA and AAs Watershed
- Sole Source Aquifers
- River, Stream, and Aqueduct

Source: NY State GIS Clearinghouse; U.S. Environmental Protection Agency



Figure E-1-16  
Lower Hudson Valley Wetlands



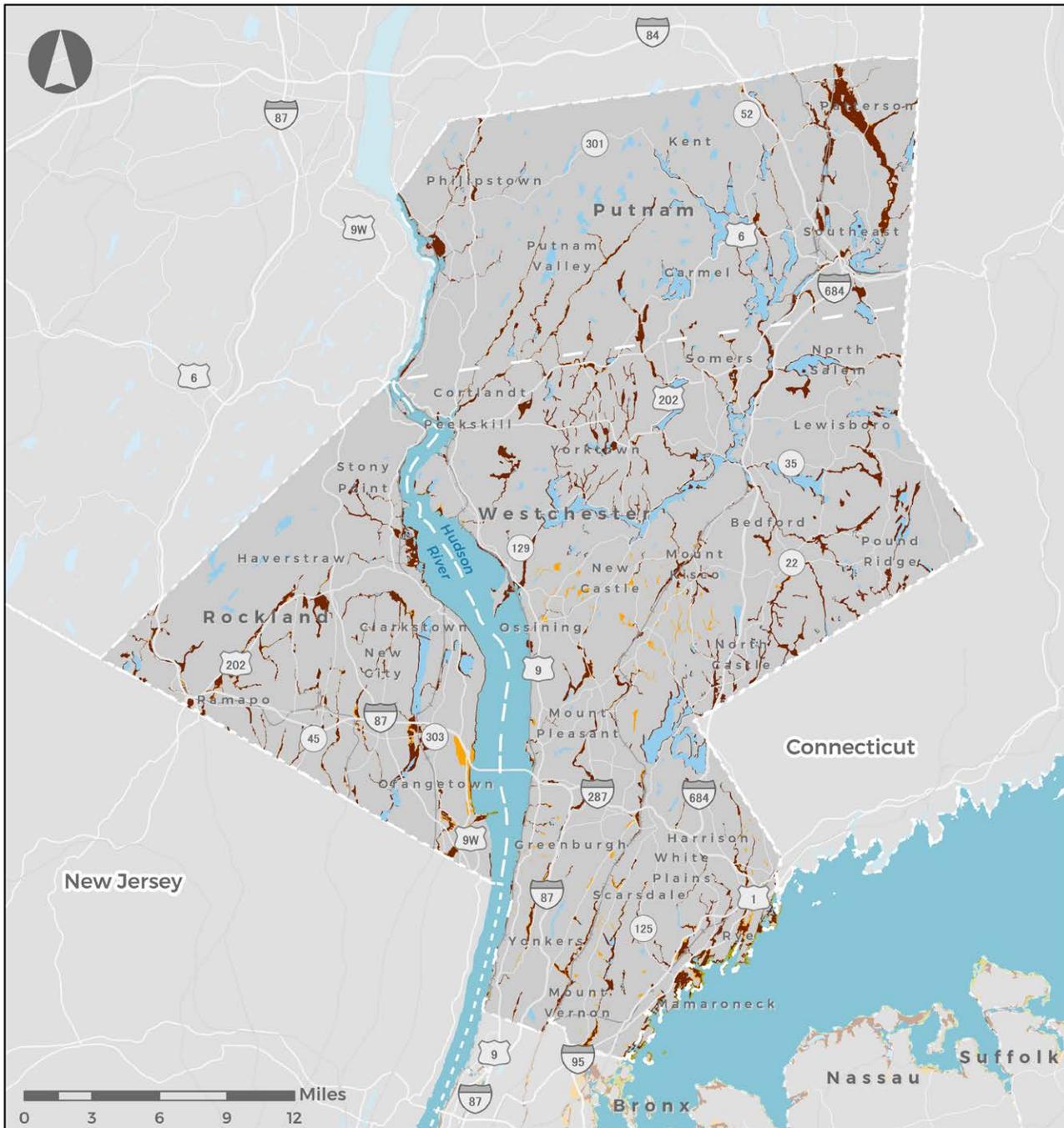
**Legend**

- Tidal Wetlands
- Waterbody
- State-regulated Wetlands
- State-regulated Freshwater Wetlands Checkzone

Source: NY State GIS Clearinghouse; U.S. Environmental Protection Agency; U.S. Geological Survey; U.S. Fish and Wildlife Service; NY State Department of Environmental Conservation; Cornell University Geospatial Information Repository

Figure E-1-17

Lower Hudson Valley Floodplains

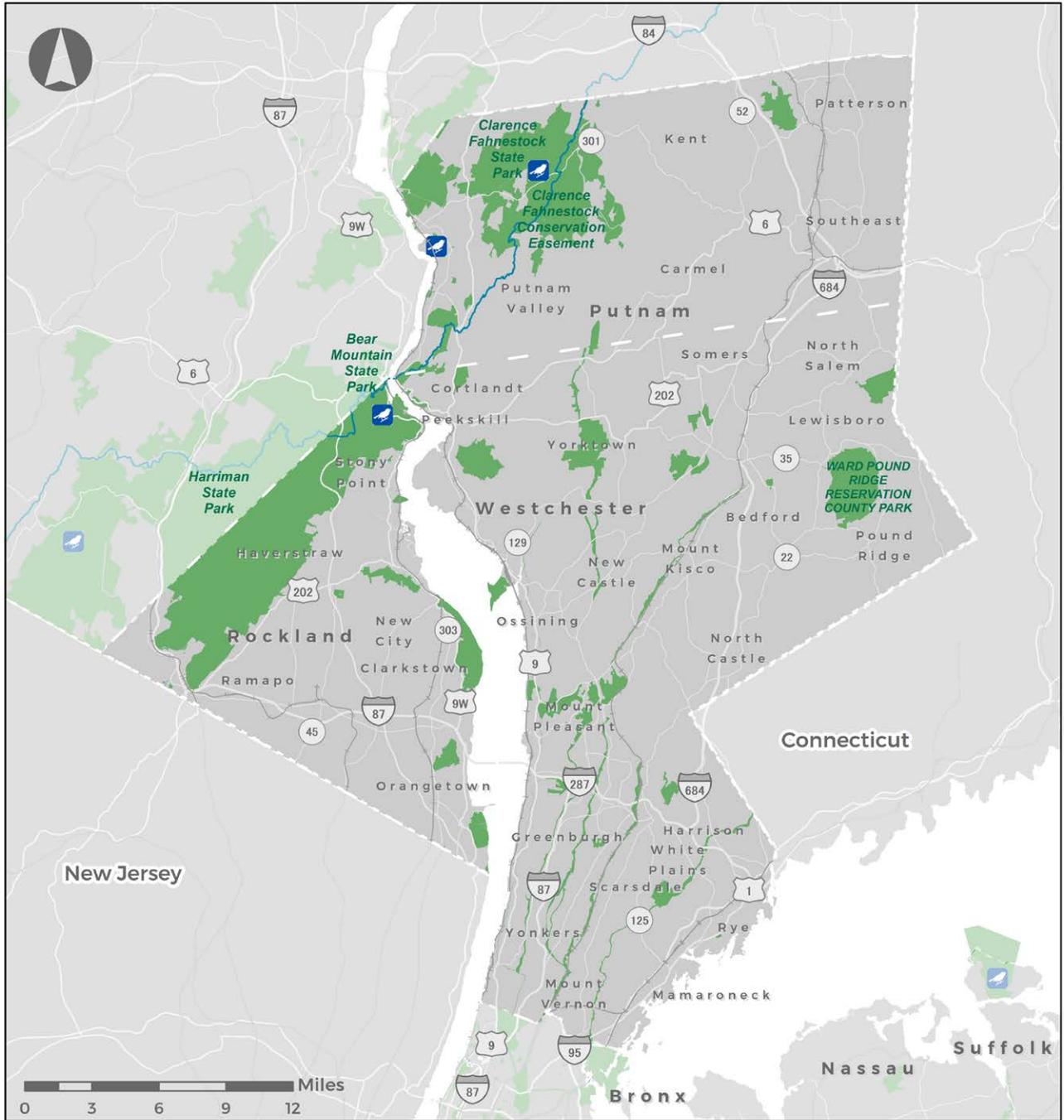


Legend

- Special Flood Hazard Area (SFHA, 100-year floodplain)
- Moderate Flood Hazard Area (500-year floodplain)
- Coastal Risk Area - High Risk

Source: NY State GIS Clearinghouse; Federal Emergency Management Agency

Figure E-1-18  
**Lower Hudson Valley Parkland**



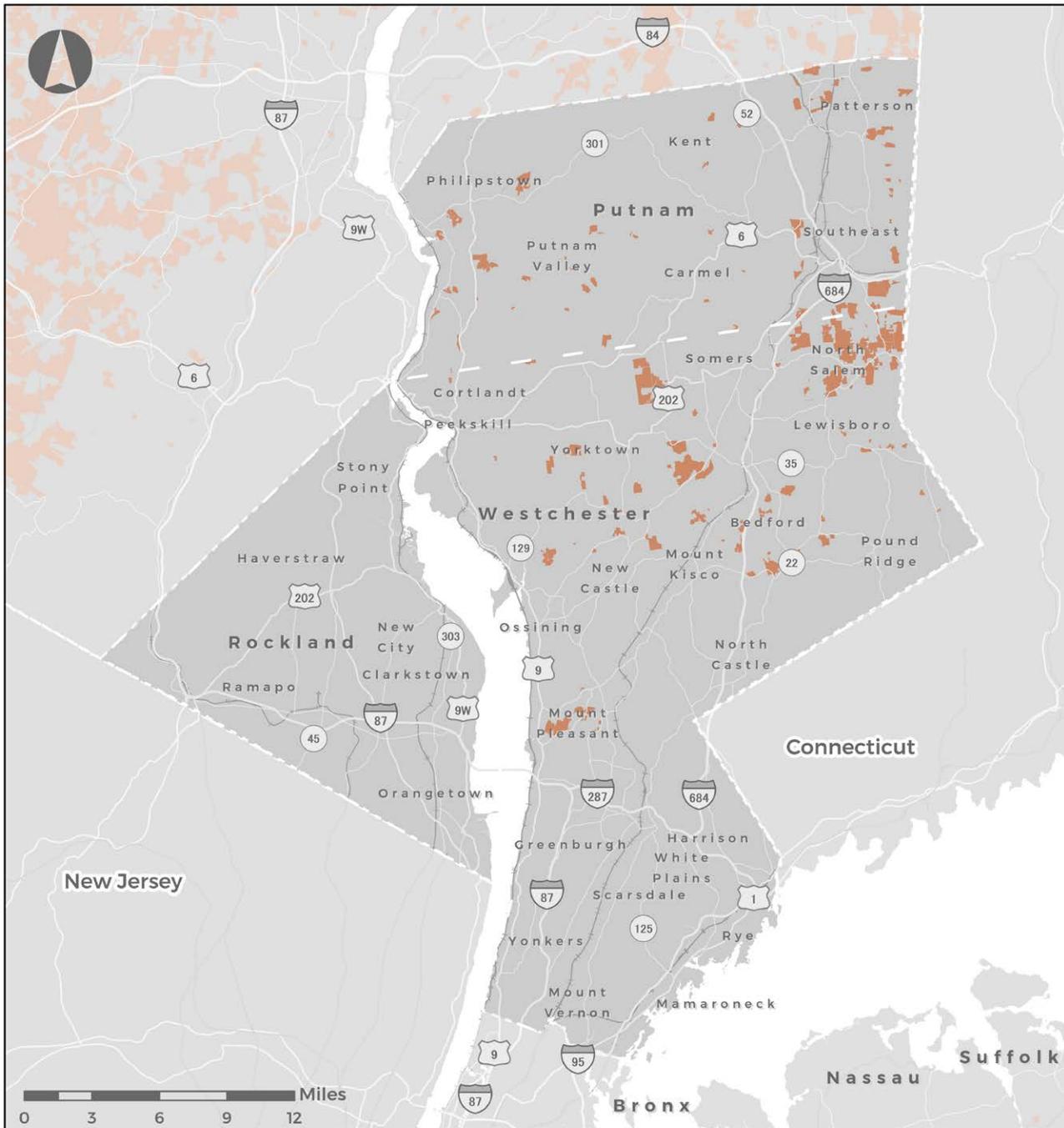
**Legend**

-  Bird Conservation Areas
-  Appalachian Trail
-  Parks and Recreational Areas

Source: NY State GIS Clearinghouse; Westchester County GeoHub; Rockland County GIS Division; Suffolk County Open Data Portal; NYC Open Data; U.S. Geological Survey; Gaia GPS

Figure E-1-19

Lower Hudson Valley Agricultural Districts

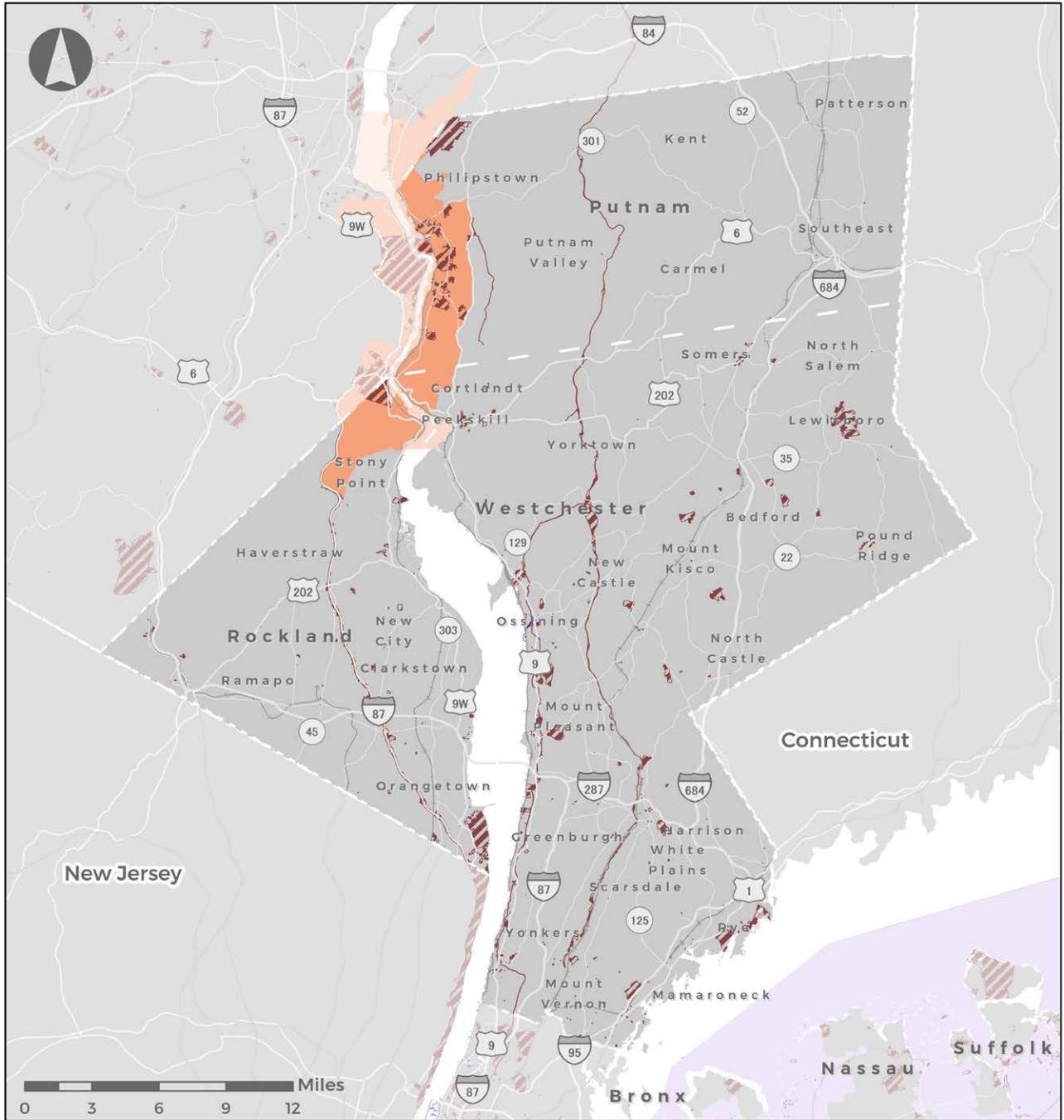


Legend

 Agricultural Districts

Source: NY State GIS Clearinghouse

Figure E-1-20  
Lower Hudson Valley Cultural Resources



**Legend**

-  National Register Site
-  State Heritage Area - Urban
-  State Heritage Area - Other
-  Scenic Areas of Statewide Significance

Source: NY State GIS Clearinghouse

## 1.11 ADDITIONAL GIS SOURCES FOR REFERENCES

Additional partner agency mapping resources to support planning of environmental mitigation are listed in [Table E-1-6](#).

Table E-1-6

### ADDITIONAL MAPPING RESOURCES

Location	Additional Mapping Resources
New York City	<p>New York State GIS Clearinghouse <a href="http://gis.ny.gov/gisdata/">http://gis.ny.gov/gisdata/</a></p> <p>Department of Environmental Conservation - Regions 1, 2, and 3 <a href="https://www.dec.ny.gov/pubs/212.html">https://www.dec.ny.gov/pubs/212.html</a></p> <p>Office of Parks, Recreation and Historic Preservation - State Historic Preservation Office <a href="https://parks.ny.gov/shpo/online-tools/">https://parks.ny.gov/shpo/online-tools/</a></p> <p>Department of State Office of Planning and Development <a href="http://opdgig.dos.ny.gov/#/home">http://opdgig.dos.ny.gov/#/home</a> <a href="https://www.dos.ny.gov/opd/atlas/index.html">https://www.dos.ny.gov/opd/atlas/index.html</a></p> <p>Department of Agriculture and Markets <a href="https://cugir.library.cornell.edu/">https://cugir.library.cornell.edu/</a> <a href="https://agriculture.ny.gov/land-and-water/about-agricultural-districts#geospatial-data">https://agriculture.ny.gov/land-and-water/about-agricultural-districts#geospatial-data</a></p>
Long Island	<p>Nassau County Planning Department <a href="https://lrv.nassaucountyny.gov/map/">https://lrv.nassaucountyny.gov/map/</a></p>
Lower Hudson Valley	<p>Putnam County Department of Planning, Development &amp; Public Transportation <a href="https://www.putnamcountyny.com/itgis/">https://www.putnamcountyny.com/itgis/</a></p> <p>Rockland County Department of Planning <a href="http://rocklandgov.com/departments/planning/mapping-and-gis/">http://rocklandgov.com/departments/planning/mapping-and-gis/</a></p> <p>Westchester County Department of Planning <a href="https://giswww.westchestergov.com">https://giswww.westchestergov.com</a></p>
Federal	<p>Army Corps of Engineers – New York District <a href="https://www.nan.usace.army.mil/Business-With-Us/Geospatial-Data-Systems-Activities/GIS-Links/">https://www.nan.usace.army.mil/Business-With-Us/Geospatial-Data-Systems-Activities/GIS-Links/</a></p> <p>Department of Agriculture, Natural Resource Conservation Service <a href="https://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/technical/dma/gis/">https://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/technical/dma/gis/</a></p> <p>Department of Commerce, National Oceanic &amp; Atmospheric Administration – Fisheries Mid-Atlantic-New England Region <a href="https://www.fisheries.noaa.gov/new-england-mid-atlantic/science-data/maps-and-geographic-information-systems-data-program-new-england-mid-atlantic">https://www.fisheries.noaa.gov/new-england-mid-atlantic/science-data/maps-and-geographic-information-systems-data-program-new-england-mid-atlantic</a></p> <p>Department of Homeland Security, Federal Emergency Management Agency <a href="https://www.fema.gov/risk-map-region-ii-new-york">https://www.fema.gov/risk-map-region-ii-new-york</a></p> <p>Department of the Interior, Fish and Wildlife Service - Region 5 New York Field Office <a href="https://www.fws.gov/northeast/gis/">https://www.fws.gov/northeast/gis/</a></p> <p>Department of the Interior, Geological Survey <a href="https://www.usgs.gov/centers/ny-water/science/geospatial-applications">https://www.usgs.gov/centers/ny-water/science/geospatial-applications</a></p> <p>Department of the Interior, National Park Service <a href="https://www.nps.gov/gis/gis_program/">https://www.nps.gov/gis/gis_program/</a></p> <p>Environmental Protection Agency - Region 2 <a href="https://www3.epa.gov/myem/envmap/find.html">https://www3.epa.gov/myem/envmap/find.html</a></p>

# ACRONYMS AND ABBREVIATIONS

<b>BOAs</b>	Brownfield Opportunity Area
<b>FAST Act</b>	Fixing America’s Surface Transportation Act
<b>GIS</b>	Geographic Information System
<b>MAP Forum</b>	Metropolitan Area Planning Forum
<b>MPO</b>	Metropolitan Planning Organization
<b>NEPA</b>	National Environmental Policy Act
<b>NYMTC</b>	New York Metropolitan Transportation Council
<b>OPRHP</b>	(New York) Office of Parks, Recreation and Historic Preservation
<b>SAFETEA-LU</b>	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
<b>SEQRA</b>	State Environmental Quality Review Act

