Hempstead Lake State Park
Environmental Assessment

January 21, 2020

Project Name: Hempstead Lake State Park
Project Location: Town of Hempstead, Nassau County, NY
HTFC SHARS #: N/A
Federal Agency: U.S. Department of Housing and Urban Development
Responsible Entity: New York State Homes and Community Renewal
Responsible Agency’s Certifying Officer: Matt Accardi, Assistant General Counsel
Governor’s Office of Storm Recovery
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Project Sponsor: New York State Office of Parks, Recreation and Historic Preservation Long Island Region
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Project NEPA Classification: 24 CFR 58.36 (Environmental Assessment)

Environmental Finding:
☒ Finding of No Significant Impact—The project will not result in a significant impact on the quality of the human environment.
☐ Finding of Significant Impact—The project may significantly affect the quality of the human environment.

Certification
The undersigned hereby certifies that New York State Homes and Community Renewal has conducted an environmental review of the project identified above and prepared the attached environmental review record in compliance with all applicable provisions of the National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.) and its implementing regulations at 24 CFR 58.

Signature

Matt Accardi

Prepared By:
Louis Berger U.S., Inc.
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New York, NY 10014
CERTIFICATION OF NEPA CLASSIFICATION

It is the finding of the New York State Homes and Community Renewal’s Housing Trust Fund Corporation that the activity(ies) proposed in its 2018 NYS CDBG-DR project, Hempstead Lake State Park are:

Check the applicable classification.

☐ Exempt as defined in 24 CFR 58.34 (a).

☐ Categorically Excluded as defined in 24 CFR 58.35(b).

☐ Categorically Excluded as defined in 24 CFR 58.35(a) and no activities are affected by federal environmental statues and executive orders [i.e., exempt under 58.34(a)(12)].

☐ Categorically Excluded as defined in 24 CFR 58.35(a) and some activities are affected by federal environmental statues and executive orders.

☒ "Other" neither exempt (24 CFR 58.34(a)) nor categorically excluded (24 CFR 58.35).

☒ Part or all of the project is located in an area identified as a floodplain or wetland. For projects located in a floodplain or wetland, evidence of compliance with Executive Orders 11988 and/or 11990 is required.

For activities excluding those classified as "Other," attached is the appropriate Classification Checklist (Exhibit 2-4) that identifies each activity and the corresponding citation.

_________________________  01/21/2020
Signature of Certifying Officer  Date

Matt Accardi  Assistant General Counsel
Print Name  Title
CERTIFICATION OF SEQRA CLASSIFICATION

It is the finding of the New York State Housing Trust Fund Corporation that the activity(ies) proposed in its 2017 NYS CDBG-DR project, Hempstead Lake State Park, constitute a:

Check the applicable classification:

- ☑ Type I Action (6 NYCRR Section 617.4)
- □ Type II Action (6 NYCRR Section 617.5)
- □ Unlisted Action (not Type I or Type II Action)

Check if applicable:

- □ Environmental Impact Statement (EIS) Prepared
  - ☐ Draft EIS
  - ☐ Final EIS

__________________________  01/21/2020
Signature of Certifying Officer  Date

Matt Accardi  Assistant General Counsel
Print Name  Title
The Hempstead Lake State Park Project Draft Environmental Assessment (EA) was published on October 5, 2018. A public comment period was held open for 30 days, a public hearing was held on October 17, 2018. Appendix A provides the responses to comments received on the Draft EA and public notices; Appendix B provides the individual comments. Appendix C provides copies of the Public Notices.

Since publication of the Draft EA, the proposed project has been reduced in scope, as further described in Section 5. This reduction in scope retains wetland forests in and around Northeast Pond, resulting in an approximately 30% reduction in tree removal compared to the project described in the October 2018 Draft EA.

The revised Draft EA was published on December 11, 2019. Appendix AA provides the responses to comments received on the December 2019 Draft EA and public notices; Appendix AB provides the individual comments.
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1 EXECUTIVE SUMMARY

Hempstead Lake State Park is located on the northern end of the Mill River Watershed and includes the largest body of fresh water in Nassau County, namely Hempstead Lake, as well as several smaller ponds, including Northeast (NE) Pond, Northwest (NW) Pond, McDonald Pond, South Pond, and Schodack Pond. The Park’s location and unique history offer opportunities to achieve the principles of the Rebuild by Design (RBD) Living with the Bay (LWTB) Proposal and Resiliency Strategy.

The Park, as it is known today, was created in 1873 when Brooklyn Water Works dammed the then Hempstead Creek creating Hempstead Lake and South Pond to develop a reservoir system that would provide water for New York City. Not long after completion, it was realized that the dam at Hempstead Lake was oversized and that the reservoir’s supply would not meet the demand for water. In the early 1900s, Brooklyn Water Works abandoned the reservoir and sold the property to the State of New York. In 1947, Hempstead Lake was divided in two by the construction of the Southern State Parkway. The portion of the reservoir north of the parkway was dug into two ponds, the NW Pond and NE Pond, which were intended to serve as stormwater retention ponds for the parkway.

Today, Hempstead Lake State Park is a 521-acre, multiuse facility that receives more than 350,000 visitors each year, arriving almost exclusively from the surrounding communities. The Park has been designated as an “Important Bird Area” and is one of the most important sites on Long Island for wintering waterfowl beginning in late August and peaking in the late fall and winter.

However, as the recipient of stormwater runoff from a dense urbanized area with a heavily used transportation corridor, the water quality inside the Park is compromised, and its waterbodies are listed on the Section 303(d) List of Impaired Waterbodies pursuant to the Clean Water Act. The weir that forms NW Pond was breached causing the water level of the pond to fall and resulting in acres of valuable mudflats and emergent wetlands. Without stabilizing the water level inside NW Pond, these habitats would eventually dry out and be lost. While the capacity of the dam at Hempstead Lake, along with its associated gatehouse and spillway into South Pond, offers redundancy for future large storms, the five sluice gates on the dam are inoperable. Operation of the dam’s sluice gates is needed to allow for the management of drawdown cycles to benefit emergent wetland plant growth, migratory shorebird and waterfowl use, and invasive aquatic plant control.

The proposed Hempstead Lake State Park Project, which is the subject of this environmental assessment (EA), would comprise four overall components: (1) repair and replacement of dams, restoration of gatehouses, and installation of bridges; (2) installation of floatables and sediment controls within northern ponds; (3) greenway alignment and improvements to trails, gateways, and waterfront access; and (4) establishment of an environmental education and resiliency center.

Replacing the weir at the southern end of NW Pond to an elevation 6 feet lower than the original weir would prevent the pond from drying out. The elevation of the new weir would maintain the valuable mudflats and emergent wetlands that have developed since the original weir failed in 2012. The twin culverts that deliver overflow from NW Pond to Hempstead Lake would be replaced with an open-bottom bridge to accommodate peak flows during storm events. A new pedestrian bridge would replace the existing cross-over.

The current condition of the sluice gates on the Hempstead Lake Dam results in seasonal fluctuations of the lake’s water level. Stabilizing the water level of the lake is necessary to maintain the Park’s
ecological, recreational, educational, and aesthetic values. Restoring the operation of the dam’s sluice gates requires rehabilitation of the dam’s gatehouses, spillway, and embankments. The dam at South Pond would also be restored. Ensuring that the Park’s two historic dams and their associated infrastructure meet modern safety standards would minimize the risk of a future dam failure. This modernization would also include the installation of water level and temperature monitoring equipment that would provide real-time data to inform the best management of the dams in coordination with the U.S. Geological Survey (USGS).

There are three locations in NW Pond and NE Pond where stormwater runoff from a 5-square-mile watershed enters the Park: Mill Creek on the north side of NE Pond, four outfalls along the southern shoreline of NE Pond, and a 96-inch outfall on the west side of NW Pond. Urban development in the watershed over the past 60 years has sent polluted stormwater into the ponds. Installing floatable collectors at Mill Creek and the west side outfall would provide a means to prevent plastic and other floatables from accumulating on the ponds’ shorelines; a one-time cleanup would remove the existing floatables that dispersed along the ponds’ shorelines. Stabilizing the bank of the Mill Creek as it enters NE Pond inside the Park would prevent further erosion of the streambank along the creek.

A berm and emergent wetland would be established along the south side of NE Pond to contain and treat pollutants discharged into the pond by the four outfalls along the pond’s southern shoreline. A detention basin would be installed in the NW Pond to contain and treat pollutants discharged into the west side of the pond by the 96-inch outfall. Both measures are intended to limit the amount of pollutants entering the open-water and mudflats within the ponds. Controlling pollution at the two discharge points would allow the ponds and associated wetlands to more efficiently improve water quality within the Park and downstream at resources such as Smith Pond and Hewlett Bay.

Improvements to the Park’s existing trail system would provide Americans with Disability Act (ADA)-compliant access allowing users to traverse the Park from a gateway in the south near McDonald Pond west along Hempstead Lake to a gateway near Mill Creek at the northern end of the Park. Additional trail improvements would be made through the Park to facilitate recreational use. These internal trail improvements are intended to formalize existing social trails to deter park users from walking off trails and entering areas that should be preserved for natural functions and habitats. A kayak launch, observation deck, and floating dock would be provided on the west shore of Hempstead Lake in an area heavily used for fishing and water access. A formal parking lot would also be established in the small field that is used for parking and access to the northern portion of the Park at Eagle Avenue. The improved parking lot would provide stormwater infrastructure to manage runoff from the parking area.

Hempstead Lake State Park is home to a variety of wildlife habitats and historical water infrastructure that offer learning opportunities. A single-story (with basement) environmental education and resiliency center would be constructed west of Lakeside Drive on a mowed grassy area adjacent to the parking field. The building would provide amenities to facilitate increased and improved educational opportunities and learning spaces.

The EA that follows provides a detailed description of the proposed Hempstead Lake State Park Project. The document describes the intended purpose of the four components of the project, the expected benefits and impacts associated with each component, and an explanation of how impacts are mitigated for or offset by the need and/or benefit of the project. The analysis concludes that the project would not have a significant impact on the environment.
2 REBUILD BY DESIGN

In June 2013, the United States Department of Housing and Urban Development (HUD) initiated RBD, a competition to respond to Superstorm Sandy’s devastation in the northeast region of the United States and promote a design-led approach to pro-active planning for long-term resilience and climate change adaption. The winning proposals would be implemented using Community Development Block Grant-Disaster Recovery (CDBG-DR) funding as well as other public and private-sector funding sources. In June 2014, following a year-long research and design process during which the design teams met and collaborated with regional experts, government entities, elected officials, issue-based organizations, local community groups, and individuals, HUD announced that the Nassau County LWTB was one of the selected projects. As a result, New York State has been allocated $125 million of CDBG-DR program funds to implement the LWTB Project.

The goals of New York State’s RBD implementation plan are to make communities more physically, economically, and socially resilient in the face of intense storm events. RBD is focused on promoting projects that strengthen resiliency throughout all aspects of the community, including ecological, economic, and social elements. The built environment helps maintain the natural ecosystem, which reduces vulnerability to disaster impacts and provides collateral benefits to the economy, public health, overall well-being, and quality of life in the community. RBD resiliency projects strive to implement innovative, flexible, and scalable interventions that could be replicated in other parts of the state, nation, and globally. Diversity, redundancy, networked connectivity, modularity, and adaptability are important features of resiliency projects promoted by RBD.

3 LIVING WITH THE BAY PROJECT AND THE RESILIENCY STRATEGY

The LWTB Project and Resiliency Strategy provides a comprehensive suite of potential projects intended to provide long-term resilience and climate change adaption for Nassau County communities in the Mill River Watershed. The LWTB Project and Resiliency Strategy developed a program of specific projects and potential project locations, consistent with the RBD principles outlined above, to address flooding caused by storm surge and rainfall (flood defense), improve coastal habitat and water quality (ecological restoration), ease public access to the waterfront (access and urban quality), and educate the public on stormwater and environmental management (social resiliency). The LWTB project area comprises approximately 10,000 acres of the Mill River Watershed throughout seven municipalities and jurisdictions: Nassau County, the Town of Hempstead, the Village of East Rockaway, the Village of Hempstead, the Village of Lynbrook, the Village of Malverne, and the Village of Rockville Centre. The LWTB Project and Resiliency Strategy identifies, analyzes, and prioritizes potential resiliency interventions that will best serve the community. The Resiliency Strategy is available at https://stormrecovery.ny.gov/content/living-bay-resiliency-strategy.

The outcome of the LWTB Project and Resiliency Strategy is a program of thematically consistent and prioritized projects.

The Resiliency Strategy documented that flooding problems within the LWTB project area are caused by inadequate drainage collection and conveyance capacity, high tailwater conditions (the level of water downstream of hydraulic structures, i.e., dams, culverts, and outfalls) deeming the existing stormwater systems inadequate for critical storms, and undersized flood control structures prone to overtopping during storm surge events. Other documented problems within the LWTB project area include degradation and loss of habitat and flora and fauna, shoreline degradation, and compromised water
quality. The LWTB Project and Resiliency Strategy considered and incorporated sea level rise projections throughout the development of resiliency interventions.

The LWTB Project and Resiliency Strategy identifies and prioritizes projects and project types with program-specific timeframes and costs for planning, design, permitting, procurement, construction, and project closeout.

Since completion of the Resiliency Strategy, GOSR and the local communities have proposed to proceed with the following projects:

- **Hempstead Lake State Park:** The New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) manages the 521-acre park located in the northern portion of the LWTB project area. This project would repair dams to improve existing water management infrastructure in the Park; restore and construct wetlands and install floatables catchers and sediment basins to improve water quality; and provide new educational and recreational amenities through trails and an environmental education and resiliency center.

- **Smith Pond:** South of Hempstead Lake State Park, Smith Pond is a 22-acre freshwater pond located in the center of the LWTB project area, north of Sunrise Highway in the Village of Rockville Centre. The proposed improvements at Smith Pond would consist of resiliency interventions, such as habitat restoration, stormwater storage, and improved public access.

- **Lister Park:** South of Smith Pond, just north of East Rockaway High School, the Lister Park project would entail improvements to Lister Park, Bligh Field, and Tighe Field, as well as installation of living shoreline and bank stabilization along the Mill River to increase stormwater quality and retention, prevent bank erosion, provide recreational and pedestrian connectivity.

- **East Rockaway High School:** East Rockaway High School is situated along the west bank of the Mill River between Centre Avenue and Pearl Street. Design options under consideration would reduce the school’s vulnerability to flooding by installing green infrastructure and backflow preventers and stabilizing an eroding shoreline.

- **East and West Boulevards Stormwater Retrofits:** This project would reduce stormwater and tidal inundation impacts through installation of porous, replacement of catchment basins, installation of backflow preventers, and installation of bioswales.

- **Long Beach Water Pollution Control Plant (WPCP):** This project would entail the construction of a new force main connection from the existing Long Beach WPCP to the Bay Park Sewage Treatment Plant (STP), conversion of the existing Long Beach WPCP influent pump building into a new flow diversion pump station, and hardening of the new flow diversion pump station to protect it from storm surge and sea level rise. This project was not specifically included in the Resiliency Strategy, but its implementation would contribute to the restoration of the coastal marshes in Hewlett Bay, as identified in the Resiliency Strategy.

- **Mill River Greenway:** The LWTB Project proposes to develop a continuous greenway from Hempstead Lake State Park and Tanglewood Preserve south to Bay Park and Hewlett Bay. The multiuse path would vary in width and, where practical, typically include 10-foot-wide permeable pavement with water storage and infiltration.

The LWTB Project and Resiliency Strategy are configured such that projects could advance independently, subject to availability of funding. As the timelines for project development and
construction vary, each project would consider the cumulative environmental impacts of the previous project(s). The Hempstead Lake State Park Project is the subject of this EA.

On behalf of Grantee the State of New York, the Governor’s Office of Storm Recovery (GOSR), acting under the auspices of the New York State Homes and Community Renewal’s Housing Trust Fund Corporation (HTFC), acting under the authority of the HUD regulations at 24 Code of Federal Regulations (CFR) § 58, and in cooperation with other involved, cooperating, and interested agencies, has prepared this EA to analyze potential impacts of the proposed Hempstead Lake State Park Project, which is a component of the larger LWTB Project and Resiliency Strategy. Pursuant to the HUD National Environmental Policy Act (NEPA) implementing procedures, GOSR, as responsible entity, must certify that it has complied with the related laws and authorities identified by 24 CFR § 58 and must consider the criteria, standards, policies, and regulations of these laws and authorities.

Because of the variety and geographic separation of the projects proposed by the LWTB Project and Resiliency Strategy, GOSR determined that a permissibly separate environmental review process for the Hempstead Lake State Park Project would best inform decision makers and the public of potential environmental impacts presented by the proposed project. Therefore, this EA for the proposed Hempstead Lake State Park Project has been completed with a rigorous assessment of cumulative impacts, provided in Section 11, to ensure that the review would be no less protective of the environment.

4 STATEMENT OF PURPOSE AND NEED FOR THE PROPOSAL
[40 CFR § 1508.9(B)]

As stated in GOSR’s Action Plan Amendment 16, approved by HUD on August 1, 2017, the purpose of the LWTB Project is to mitigate damage from tidal storm surge, manage stormwater to mitigate the damages from common rain events, and improve water quality throughout the Mill River, its watershed and tributaries, and the South Shore Back Bays of Nassau County, primarily the portion of the Back Bays known as Hewlett Bay. The LWTB Project is committed to addressing the core principles of the winning RBD proposal, which include (1) flood defense; (2) ecological restoration; (3) access and urban quality; and (4) social resiliency.

The LWTB Project is needed to increase the resiliency of communities along the Mill River, its watershed and tributaries, and the communities surrounding Hewlett Bay. In 2012, these communities were impacted by Superstorm Sandy. The storm’s 18-foot storm surge damaged 3,000 homes. The storm’s damage to public and private facilities, including bridges, roads, parks, schools, and a wastewater treatment plant located where the Mill River meets Hewlett Bay, created a dangerous environment for residents attempting to evacuate and challenged emergency management efforts by first responders and local officials.

With so much impermeable surface coverage throughout the LWTB project area, flooding along the Mill River is a common occurrence during rainfall events. The area’s antiquated and undersized stormwater conveyance systems deliver stormwater runoff to the nearest surface waters. The runoff overwhelms the capacity of the upstream surface waters leading to the Mill River, carrying pollutants encountered along the way, and then floods waterbodies and the banks of the Mill River. Residences and community assets flood in locations where stormwater runoff volumes exceed the capacity of the existing stormwater conveyance systems. Likewise, as sea level rises, the southern portion of the LWTB project area experiences tidal flooding (also known as sunny day flooding) more frequently. During storm
events, the effects of stormwater flooding converge with the effects of tidal flooding to exacerbate flooding impacts throughout the LWBT project area.

GOSR prepared its Resiliency Strategy in September 2017 to pinpoint locations more susceptible to flooding and identify potential solutions that would be implemented as part of the LWBT Project. The LWBT Project and Resiliency Strategy developed a program of specific projects and potential project locations to address flooding caused by storm surge and rainfall (flood defense), improve coastal habitat and water quality (ecological restoration), ease public access to the waterfront (access and urban quality), and educate the public on stormwater and environmental management (social resiliency). The Resiliency Strategy identified the proposed Hempstead Lake State Park Project as an opportunity to implement interventions that would be consistent with all four principles of HUD’s original RBD proposal and would achieve the purpose of the LWBT Project.

The purpose of the proposed Hempstead Lake State Park Project, as a component of the LWBT Project and Resiliency Strategy, is to build resiliency for neighboring and downstream communities through improved stormwater management, enhanced natural ecosystems, increased connectivity among diverse populations, enhanced access to natural spaces and recreational resources, enhanced safety, and the promotion of environmental education and storm resiliency programs at the Park.

As identified in the Resiliency Strategy, the water impoundment structures within Hempstead Lake State Park provide storage and treatment of stormwater runoff before discharging downstream to the Mill River. The Resiliency Strategy suggests that an assessment of the three impoundment structures in the Park could lead to improved water management to increase flood defense for the surrounding communities and restore ecological resources in the Park, which could benefit downstream resources. As described in more detail below, the proposed project’s dams, gatehouses, and bridges component would implement repairs and corrective measures to ensure that the continued operation of the three water impoundment structures in the Park can be achieved in a manner that minimizes the risk of future dam failure and/or breach and establishes and maintains water levels that support the habitat and ecosystems in and around the Park’s waterbodies.

The Resiliency Strategy also indicates that large amounts of floatables and heavy sediment loads have elevated the level of pollutants in the Park’s northern ponds. In addition, the Resiliency Strategy notes that the spillway along the downstream side of NW Pond is breached and not functional. The Resiliency Strategy suggests that an assessment of the northern ponds could lead to a means to protect these waterbodies from pollutants and restore the ecological benefits that the ponds provide the community and downstream ecosystems. As described in more detail below, the proposed project’s NE and NW Ponds component would construct facilities to collect floatables and sediments and enhance wetlands to filter pollutants from the runoff and increase storage and treatment of stormwater through ecological enhancements to NE and NW Ponds.

Finally, the Resiliency Strategy identifies the potential for the Park to increase and improve the access and urban quality, as well as social resiliency, it provides the communities within the LWBT project area. The Resiliency Strategy suggests that an assessment of the Park’s assets could lead to improvements in the ways the public accesses and learns from the Parks’ diverse natural features and waterfronts. As described in more detail below, the proposed project’s greenway, trails, and waterfront access components would increase the connectivity of the surrounding community to the Park’s features, including the wetlands, waterfront, and upland recreational areas, and the proposed education and
resiliency center would provide a venue for educational programming regarding the Park’s role in the southern Long Island ecosystem.

The four components of the proposed project are described in detail below. These descriptions also include specific statements of purpose and need for each component.

Description of the Proposed Project [24 CFR §§ 50.12 & 58.32; 40 CFR § 1508.25]:

5 HEMPSTEAD LAKE STATE PARK PROJECT

An EA for this project was published in October 2018. Since that publication, the project been refined through continued close coordination among the OPRHP team, the GOSR and HUD team, the U.S. Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC) through the Joint Permitting Process, the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), and other agencies. The EA has been rewritten to describe and analyze the revised project.

Hempstead Lake State Park (the Park) is a 521-acre, multiuse facility in the Town of Hempstead (see Figure 1 and Figure 2). The Park is located on the northern end of the Mill River Watershed and includes the largest body of fresh water in Nassau County, namely Hempstead Lake, as well as several smaller ponds, including Northeast (NE) Pond, Northwest (NW) Pond, McDonald Pond, South Pond, and Schodack Pond. In addition to its water assets, the Park also provides one of the largest green spaces in a highly urbanized area. The Southern State Parkway runs through the Park. Access is available via Lakeside Drive and Peninsula Boulevard. Parking areas are available from both roadways, and trails parallel the two roadways, connecting visitors to amenities throughout the Park.

The Park has more than 350,000 visitors each year, arriving almost exclusively from the surrounding communities. It includes 20 tennis courts; playgrounds; basketball courts, 10 miles of trails supporting horseback riding, biking and hiking; an operating historic carousel; multiple picnic areas, and a carousel. Water resources in the Park are used for fishing, kayaking/canoeing, and birdwatching. The Park hosts year-round programming and events comprising a diverse set of recreational activities, such as yoga classes, soccer, and environmental pursuits. The northern section of the Park, including NE and NW Ponds, is limited to passive recreational uses, while the southern portion of the Park includes both active and passive uses.

The Park is located at the collection point of a 6.5-square-mile (4,160-acres), highly developed watershed. Upstream of the Park, there are only approximately 5 acres of pervious watershed. These pervious areas are limited to several golf courses and school athletic fields. The watershed drains to NE Pond (which is approximately 27 acres in surface area), NW Pond (which is approximately 33 acres in surface area), and Hempstead Lake (which is approximately 142 acres in surface area). South Pond receives water from Hempstead Lake before water leaves the park. The developed nature of the watershed, as well as the age of the existing waterbodies’ infrastructure, are the primary contributors to degraded water and ecological quality in these waterbodies over the past several decades.
Figure 1: Regional Project Location
Figure 2: Local Project Location
While the Park’s location in this highly developed watershed presents challenges, it also offers multiple opportunities to increase community resiliency through better stormwater management (to improve quality and quantity), enhanced natural ecosystems, increased connectivity among diverse populations, greater health and safety, expanded education programs, and improved emergency coordination.

The proposed project consists of four components:

- Repair and replacement of dams, restoration of gatehouses, and installation of bridges;
- Installation of floatables and sediment controls within northern ponds;
- Establishment of an environmental education and resiliency center; and
- Greenway alignment and improvements to trails, gateways, and waterfront access.

The location of each component is shown in Figure 3 and Figure 4. Detailed descriptions and figures are provided below. Appendix D contains design drawings.

The sub-recipient agreement between OPRHP and GOSR requires regular maintenance of the proposed facilities. In its Federal Register notice dated October 16, 2014, HUD required that RBD grantees certify to adequately fund the long-term operation and maintenance of the RBD project (70 Federal Register 200, 62189 (Oct. 16, 2014)). In Action Plan Amendment 16, GOSR certified that sub-recipients will be required to adequately fund long-term operation and maintenance of RBD projects from reasonably anticipated revenue, recognizing that operation and maintenance costs must be provided from sources other than CDBG and CDBG-DR funds. These responsibilities of OPRHP continue in perpetuity and involve the annual appropriation of funding for operation and maintenance.

As the administering agency for the Land and Water Conservation Fund (LWCF) in New York and the sponsor of the project, OPRHP has the authority to undertake this project. The State is authorized to undertake projects within the protected park that are funded by other sources and without the approval of the U.S. Department of the Interior/National Park Service, provided they are projects that would otherwise be eligible for funding under the LWCF (LWCF Manual vol. 69 Chapter 3. C. a. page 3-7). Since the proposed project is for the betterment of the park and in support of public outdoor recreation, it would be eligible for funding.
Figure 3: Site Plan, North
5.1  DAMS, GATEHOUSES, AND BRIDGES

5.1.1  Purpose and Need

The Park has three earthen dams: North Pond Dam, Hempstead Lake Dam and associated infrastructure, and South Pond Dam and associated infrastructure. The purpose of the proposed project’s dams, gatehouses, and bridges component is twofold. First, this component of the proposed project intends to ensure that the continued operation of the three water impoundment structures in the park can be achieved in a manner that minimizes the risk of future dam failure and/or breach. Over time, the growth of trees and other woody vegetation created conditions that prohibit a full and proper inspection of the dams. This vegetation needs to be removed from the dams to facilitate safety and compliance inspections by NYSDEC, which are needed to inform the safe and compliant operation of the dams. Second, the dams, gatehouses, and bridges component intends to improve the flow of water through the park to maintain the habitat and ecosystem services in the park. The proposed activities to replace and repair the dams are needed to establish and maintain water levels that support the habitat and ecosystems in and around the park’s waterbodies.

5.1.1.1  Dam Safety

As described in more detail below, approximately 1,100 trees have grown on Hempstead Lake Dam, South Pond Dam, and NW Pond Dam; these trees can compromise the structural integrity of the dams. A 1981 USACE Phase I Inspection Report for Hempstead Lake Dam is included in the EA as Appendix E. As indicated in section 3.2 (page 7) and section 7.2 (page 13) of the report, all brush, saplings, debris, and coniferous trees should be removed on the downstream slope. The report further indicates that larger hardwood trees should not be removed on the downstream slope, but instead they should be inventoried, and their condition monitored. On the upstream face, all trees and brush should be removed, and periodic mowing and cutting provided. It should be noted that NYSDEC and OPRHP cannot currently fully inspect the dams at Hempstead Lake and South Pond until the trees are removed.

As indicated in the 1981 inspection report’s preface, “It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.”

In 1985 and revised in 1989, NYSDEC prepared “Guidelines for the Design of Dams.” Section 9.4 Vegetation Control – Trees and Brush (9.4.1) states:

- Trees and Brush Trees and brush are not permitted on earth dams because:
  - a. Extensive root systems can provide seepage paths for water.
  - b. Trees that blow down or fall over can leave large holes in the embankment surface that will weaken the embankment and can lead to increased erosion.
  - c. Brush obscures the surface limiting visual inspection, provides a haven for burrowing animals and retards growth for grass vegetation.

Stumps of cut trees should be removed so grass vegetation can be established and the surface mowed. Stumps should be removed either by pulling or with machines that grind them down. All woody material should be removed to about 6 inches below the ground surface. The cavity should be filled with well compacted soil and grass vegetation established.
NYSDEC Dam Safety Regulations are codified in 6 NYCRR Part 673. These regulations require preparation of an inspection and maintenance plan for all dams equal to or greater than 15 feet in height; dams that have been assigned a hazard classification of class B or C; or dams that impose waters that pose, in the event of a failure, a threat of personal injury, substantial property damage, or natural resource damage. Owners of any class B or class C dam must submit to NYSDEC an annual certification of full implementation of the inspection and maintenance plan. Regular safety inspections of such dams are required, and NYSDEC may inspect any such dam without prior notice. See Appendix F for NYSDEC dam safety inspection reports and Appendix G for the tree removal permit application.

Hempstead Lake Dam and South Pond Dam have NYSDEC hazard classifications of Class C and Class A, respectively. NW Pond Dam is unclassified because, as designed, it was below 6 feet in height. NYSDEC hazard classifications are not an indication of the integrity of a dam, but rather they are an indication of the level of downstream consequences if a dam was to fail. Class A dams are characterized as “low hazard,” where failure of the dam is unlikely to result in impacts to utility services, personal injury, or substantial economic loss or environmental damage. Class C dams are characterized as “high hazard,” where failure of the dam could result in widespread serious and substantial damage or loss of life (25).¹

Woody vegetation has several negative impacts on an earthen dam. Extensive tree root systems provide seepage paths for water that can saturate the soil and weaken root structures, which can result in trees that blow down or fall over, leaving large voids that weaken and potentially compromise the embankment. During the winter, water accumulating in seepage paths created by tree root systems expands as it freezes further compromising the subsurface conditions along the embankment. Brush and vegetation also obscure the surface of the dam, limiting visual inspections. The vegetation also provides a home for burrowing animals and inhibits the growth of mowable grassy vegetation.

The presence of trees also prohibits a full visual inspection of the dam. Such an assessment is necessary to determine whether any additional repairs to the dam embankments are needed to ensure the operation of the dam continues in a safe and compliant manner.

The total tree count includes trees of a minimum 3-inch caliper; as such, a high proportion of trees to be removed are immature saplings of this smaller (approximately 3-inch) caliper. Photographs depicting the existing conditions of the dam’s embankments are provided in Figure 5 through Figure 12. Locations of proposed tree removal are illustrated in Figure 13. More detailed drawings are contained in Appendix D. The area of tree removal on the dams would be replanted with herbaceous pollinator habitat and native grasses. These measures would decrease the possibility of dam failure, which could be disastrous to downstream communities. Furthermore, the restoration of dams would allow for seasonal control of stormwater, limiting upper watershed runoff that flows through the NE and NW Ponds and Hempstead Lake from exacerbating downstream peak flood conditions.

¹ A list of sources is provided near the end of this EA. Sources are listed alphabetically and then numbered in order. In the body of the EA, each source is referenced by that number (e.g., “(25)”).
Figure 5: Hempstead Lake Dam, Upstream Embankment Looking East

Figure 6: Hempstead Lake Dam, Upstream Dam Embankment Looking West with Gatehouse at Center
Figure 7: Hempstead Lake Dam, Crest of Dam Looking Southwest to Tree Cover of Downstream Embankment

Figure 8: Hempstead Lake Dam, Tree-Covered Downstream Embankment Looking West
Figure 9: South Pond Dam, Dam Crest Looking West

Figure 10: South Pond Dam, Dam Crest Looking West
Figure 11: South Pond Dam, Original Pond Outlet Structure Looking Southeast

Figure 12: South Pond Dam, Dam Spillway Looking North
Figure 13: Tree Removal Plan
5.1.1.2  Water Flow and Habitat Maintenance

A detailed hydrological and hydraulic assessment of the dams and waterbodies was prepared in 2015 and updated in 2017 (Appendix G); it shows that the watershed area draining to the dam at Hempstead Lake encompasses an approximately 6.5-square-mile area (4,160 acres) (14, 15). The watershed area draining to the dam at NW Pond (which includes NE Pond) is about 5.41 square miles (3,462 acres).

Sometime in the winter before January 2012, the NW Pond Dam failed, creating a 35-foot breach of the embankment dam. This breach is expanding, resulting in a decrease in water levels in the NW Pond and NE Pond that impairs the functionality of wetland systems and is effectively converting an open water habitat to an emergent habitat. The embankment dam needs to be repaired to prevent the long-term drying out of wet meadow wetlands in the NW Pond, restore the ecological value of the NW Pond and NE Pond wetland systems, and increase stormwater runoff impoundment during rainfall events.

Downstream of the NW Pond Dam, water flows through corrugated metal pipes have deteriorated over the years and caused numerous sink holes and erosion along the walking trail above, resulting in frequent closures of the trail for repairs. Replacement of the twin culverts with a pedestrian bridge should minimize trail closures. The twin culverts also restrict flow during large storm events between NW Pond and Hempstead Lake.

The Hempstead Lake Dam’s sluice gates are inoperable, thus limiting water flow control through the Mill River system. Replacing the sluice gates and repairing the Hempstead Lake gatehouse are needed to restore the functionality of the sluice gates. Because the sluice gates are currently stuck in the open position, there is no seasonal management of the water levels within Hempstead Lake. Functional gates would allow for the management of drawdown cycles to benefit emergent wetland plant growth, migratory shorebird and waterfowl use, and invasive aquatic plant control.

5.1.2  NORTHWEST POND DAM

5.1.2.1  Existing Conditions

NW Pond Dam is located north of the Southern State Parkway and east of Eagle Avenue at the southern end of NW Pond (see Figure 3). The dam was constructed in the 1960s as an earthen embankment dam featuring two rows of wooden piles filled with semi-pervious materials and topped with an 11-inch concrete slab at an elevation of approximately 27.1 feet. The dam had two 24-inch diameter pipe culverts with valves that extended through and about 15 feet beyond the embankment on both sides. The outer portion of the dam includes concrete and asphalt rubble, although the rubble was possibly added at a later date to prevent erosion.

The valves on the twin culverts ceased to function decades ago, and sometime in the winter prior to January 2012, the NW Pond Dam had been breached. Since that time, the dam’s wooden piles have mostly rotted away underneath the concrete slab, and there are numerous voids where the embankment material has been washed away. The initial breach lead to the conversion of the northern open water habitat to emergent wetland habitat. While the breach continues to grow as the embankment erodes, the water levels of the NE and NW Ponds are lowering. The current water level is approximately elevation 21 feet, but it varies seasonally with the groundwater levels.

The original dam had an elevation of 27 feet, but the dam failed before the winter of 2012. Currently, the breach in the embankment is more than 35 feet wide and expanding (Figure 14). If the dam were
not breached, the modeling results indicate that NW Pond Dam would overtop by 0.89 feet during the 5-year storm and by more than 5.7 feet during the 100-year design storm (13, 14, 37).

The open channel from NW Pond Dam to Hempstead Lake passes under the Southern State Parkway in a 10-foot-high by 20-foot-wide culvert. Water then flows through twin 6-foot-diameter culvert pipes before emptying into Hempstead Lake. Upstream of NW Pond Dam, the NE and NW Ponds comprise a mix of wetland and open water habitats (discussed under Section 5.2, Northeast and Northwest Ponds).

### 5.1.2.2 Proposed Improvements

Under the proposed project, the NW Pond Dam would be replaced (Figure 15). The proposed dam would be a 230-foot-wide steel sheet pile dam with a concrete cap, featuring a 40-foot-wide step weir set at elevation 21 and a top elevation of 25 feet. The proposed weir elevation would provide a stable water elevation to improve and maintain the extensive wetland habitat that has formed in NW Pond since the 2011 breach. The proposed elevation would also provide more effective storage volume within the NW Pond during a major storm event. The dam design would minimize adverse impacts to the existing upstream drainage collection system and to the downstream culvert under the Southern State Parkway. The NW Pond Dam and the downstream outlet channel into Hempstead Lake have been designed to optimize the flow of water into the Hempstead Lake, with the flow of water leaving Hempstead Lake Dam through new control gates.

The proposed dam would not change the water elevations from existing conditions. It would provide a normal impoundment of approximately 17 acre-feet of water over 7 acres of surface area. Water levels would fluctuate naturally at approximately this level of impoundment, similar to existing conditions. This natural fluctuation would provide for the functional benefits of wetlands in the northern ponds. Under an extreme rainfall event (i.e., greater than a 100-year storm), the maximum impoundment would be approximately 70 acre-feet over 25 acres of surface area, which is consistent with existing conditions. See Figure 16. Under an extreme event, the emergent habitat upstream of the dam could be submerged, but this submergence would be temporary. The project would not affect the frequency or duration of such submergence.

Downstream of NW Pond Dam, the twin culverts would be removed, an open channel would be constructed, and the vegetated shoreline would be reestablished; a new pedestrian bridge would be installed over the open channel for trail access (see Section 5.1.5, Bridges, below). The increased channel opening size would improve flow conditions from the NE and NW Ponds into Hempstead Lake and create a small amount of additional open water and wetland shoreline. A major component of the overall project is to improve stormwater flow through the project area. Removing the twin pipe culverts and replacing them with open channel flow would help accomplish this.

The upland disturbances for the proposed twin culvert construction include regrading an existing earth trail for a temporary access road at a grade that would allow construction equipment to access the site. The total area of disturbance would be 0.33 acre, which includes 0.12 acre for the existing compacted earth trail that would be replaced after construction. The remaining disturbed area of 0.21 acre would be revegetated with native woodland tree saplings with a native grass understory seeding. See Figure 17. The plant species to be used are shown in Appendix D. The twin culvert removal and replacement bridge construction would disturb 0.08 acre of upland, most of which is replacement in-kind with impervious stone materials. A small area of the disturbance, about 110 square feet (sf), would be vegetated with native herbaceous plants and grasses.
Figure 14: Northwest Pond Dam, Removal Plan
Figure 15: Northwest Pond Dam, Proposed Dam Plan
Figure 17: Northwest Pond Dam, Planting Plan
5.1.2.3 Northwest Pond Dam Summary

See Table 1 for a summary of the proposed changes at NW Pond Dam.

Table 1: Summary of Proposed Changes at Northwest Pond Dam

<table>
<thead>
<tr>
<th>Description</th>
<th>Existing Condition</th>
<th>Post-Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE Pond Connection</td>
<td>Open channel with debris</td>
<td>Greenway pedestrian bridge crossing</td>
</tr>
<tr>
<td>NW Pond Access Road Disturbance</td>
<td>Foot path bordered by trees</td>
<td>Maintenance path with native grasses and plantings</td>
</tr>
<tr>
<td>NW Pond Dam</td>
<td>Breached dam (elevation 27)</td>
<td>Replacement dam (elevation 21)</td>
</tr>
<tr>
<td>Twin Culvert Access</td>
<td>Bridle path bordered by trees</td>
<td>Crushed stone pedestrian accessway</td>
</tr>
<tr>
<td>Twin Culvert</td>
<td>Existing crossing over 5-foot-diameter culvert pipes</td>
<td>Pedestrian bridge over open channel</td>
</tr>
</tbody>
</table>

Wetlands

The work on NW Pond Dam is within the USACE Wetland Delineation limit of Waters of the United States. (WOTUS). The NW Pond Dam work would result in:

- permanent loss of 0.004 acre of open water and 0.029 acre of emergent wetland as the result of the discharge of dredged and fill material to construct the new dam and rip rap slope;
- additional permanent impacts to 0.037 acre of emergent wetland resulting from conversion to open water; and
- temporary impacts to approximately 0.140 acre of emergent wetland as the result of construction operations and equipment.

The disturbed areas would be re-graded and replanted with native emergent wetland vegetation upon completion of the dam replacement work.

Approximately 0.006 acre of upland within the NYSDEC-regulated adjacent area would be converted to emergent wetland and 0.030 acre of upland would be converted to open water.

The Northwest Pond Dam replacement wetland loss and impacts are shown on Figure 18. The culvert replacement wetland loss and impacts are shown on Figure 19.

Trees

An estimated 59 trees would be removed from NW Pond Dam itself. Additional trees would be removed for construction access to the dam; this area would be revegetated with native woodland tree saplings with a native grass understory seeding. These are included in the tree removal totals provided in Section 5.2.5, Northeast and Northwest Ponds, Tree Removal, below.

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2 Throughout the document the terms “impact” and “loss” are used to described proposed modifications to wetlands. For the purposes of this document, the term “impact” indicates a change from one wetland type to another wetland type; the terms “loss” indicates a permanent loss of wetland area.
Figure 18: Northwest Pond Dam, Wetland Loss and Impacts
Figure 19: Northwest Pond Dam, Twin Culvert Replacement Wetland Loss and Impacts
Impervious Area

Access to the dam to perform the required work would follow an existing footpath that would be modified to create a maximum 15-foot-wide x 515-foot-long access path. Given the site topography, tree removal and clearing of an approximate 100-foot width would be required to create stable slopes and safe access. Once work on the dam is complete, the access way outside the maximum 15-foot corridor would be replanted with woodland vegetation. The 15-foot corridor would be maintained as a new path and reseeded with native grasses to allow park staff to monitor and maintain the dam. This new access corridor would cover approximately 7,725 sf or 0.177 acre. Access to the twin culvert replacement bridge would use an existing bridle path, widened to approximately 12-feet wide x 500-feet long. Post-construction, the path would be semi-pervious because it would be finished with crushed stone to be maintained as an access way to the new bridge.

5.1.3 Hempstead Lake Dam, Outlet Gatehouse, and Pipe Arch

5.1.3.1 Existing Conditions

The Hempstead Lake Dam is located at the southern end of Hempstead Lake (see Figure 1). A portion of Lakeside Drive, located west of Peninsula Boulevard, runs across the crest of the dam (see Figure 4). The dam is a 1,500-foot-long and 17-foot-high earthen embankment with a clay core, and it is classified as a Class C, high hazard dam. It was constructed in 1873 with five sluice gates and an adjacent outlet gatehouse containing outlet controls for the dam’s sluice gates. The outlet gatehouse operates four overflow weirs; five sluice gates direct water flows through twin 36-inch-diameter pipes inside an attached pipe arch running from the dam south along the west side of McDonald Pond to South Pond. Currently, the outlet controls within the gatehouse are not operable, and the five sluice gates have been fixed shut since at least 2002, although two of the sluice gates have been permanently cut open and result in a typical 4- to 5-foot seasonal fluctuation in lake water levels. The openings cut into each sluice gate measure approximately 3 sf, whereas the fully opened sluice gates would each provide an area of 9 sf for surface flow to exit the lake.

The upstream face of Hempstead Lake Dam is protected by an approximately 18-inch-thick layer of cut stones fit tightly together and held in place by gravity. Appendix H includes photos of the dam face and gatehouse. In some areas, particularly near the gatehouse where the slope of the dam steepens from approximately 33% to 45%, the stones are grouted. The stones form an apron at the upstream toe of the dam and extend into the lake. Much of the stone work is covered by sediment, leaf litter, and vegetation, primarily in the form of vines and trees. The trees growing through the upstream face of the dam are sparse, less than 25-feet tall, and include black willow, silver maple, and box elder. No shrub or herbaceous layer is present. The downstream face of the dam is an earthen embankment heavily vegetated with trees, shrubs, and vines. The trees growing through the downstream earthen embankment of the dam include silver maple, black oak, black cherry, and American beech. The understory is sparse and includes a few saplings, poison ivy, red raspberry, and invasive plants (e.g., Japanese knotweed and Asiatic bittersweet).

Under existing conditions, the model indicates that the Hempstead Lake Dam has several feet of freeboard during the 5-year, 25-year, and 100-year storm events. The lake behind the dam is not lined, and the water in the lake is permitted to recharge underground. Thus, when water levels rise, increasing water pressure downward and outward, water also infiltrates the ground. This prohibits water levels from rising such that the lake would achieve full capacity (17). As such, large rain events, such as the historic Long Island flash flooding in 2014, have not filled the lake behind the dam (20). The average annual rainfall for the project area is approximately 45 inches. The dam’s historically over-sized capacity
offers redundancy should a future event exceeding the 100-year storm (7.5 inches over a period of 24 hours) occur. For this redundancy to be available for the communities surrounding the dam, NYSDEC requires that the Class C, high hazard dam must comply with current dam safety regulations.

The existing conditions of the dam’s sluice gates and gatehouse restrict operation of the dam and result in a typical 4- to 5-foot seasonal fluctuation in lake water levels. In order to obtain approval from NYSDEC to implement the proposed Hempstead Lake Water Level Management Plan, provided as Appendix I, which would provide more stable water elevations within the lake, the historic dam must be restored in a manner that complies with current dam safety regulations. Control over the operation of the dam’s sluice gates is needed to minimize the risk of future dam failure and/or breach and to establish and maintain water levels that support the habitat and ecosystems in and around the Park’s waterbodies.

5.1.3.2 Proposed Improvements

The proposed project would restore the Hempstead Lake Dam’s sluice gates, outlet gatehouse, and pipe arch to renew the functionality of the dam’s sluice gates with the objective of managing stormwater flow. The dam restoration would replace all five sluice gates, install an inspection cat walk and water-level monitoring equipment, make internal and exterior repairs to the outlet gatehouse (including floor restoration, roof replacement, window replacement, and masonry repointing), and repair the floor and walls of the pipe arch (see Figure 20).

Pursuant to NYSDEC dam safety regulations, the work would require the removal of an estimated 759 trees and vegetation from the face of the dam, including tree root balls, which would be refilled with clean fill imported to the site (see Figure 21). Trees on the upstream side of the dam that cannot be removed without damaging the stone facing would be cut to a 4-inch stump. Tree removal would protect the structural integrity of the dam and minimize risk of failure. Along the downstream face of the dam, trees would be limbed and cut, and their stumps would be removed. The root ball voids would be filled with compacted and clean, suitable fill. Approximately 350 cubic yards (CY) of fill is anticipated to fill root ball areas on the downstream side of the dam. Tree removal from the dam could occur during roosting or breeding season, and mitigation measures have been identified to avoid potential impacts on northern long-eared bats and migratory birds. The area would be reestablished with pollinator habitat that includes a low-maintenance plant community composed of native flowering plants to support the initiative to protect pollinators in New York State. This habitat type is not common in the Park and would provide a valuable resource to pollinators. It would be located in area that is accessible and visible to Park visitors. Approximately 1,500 CY of sediment (consisting of coarse, sandy material) would be removed from the stone-lined upstream side of the dam and hauled off-site for disposal.

The New York State Historic Preservation Office has found that the project would have no adverse effect on historic resources. Regardless, because the dam comprises historic structures, all design and construction work would strive to maintain historical accuracy and would be completed in accordance with state and federal requirements and with direct guidance from OPRHP. Aesthetic design would be balanced with security concerns and functionality. Interpretive signage would also be installed to inform visitors about the history and function of the Hempstead Lake Dam.
Figure 20: Hempstead Lake Dam, Gatehouse
Figure 21: Hempstead Lake Dam, Tree Removal
Upon completion, the structural integrity of the dam would be improved and would provide a normal (seasonal) impoundment of approximately 198 to 658 acre-feet of water over 64 to 115 acres of surface area, as under existing conditions. The implementation of the proposed restoration of the dam would not increase the dam’s current maximum capacity. The maximum impoundment scenario within the lake would occur with the two top sluice gates open and would be similar to the maximum impoundment scenario under existing conditions (in which the gates are permanently shut but cut partially open).

5.1.3.3 Proposed Sluice Gate Operation

The proposed work at Hempstead Lake Dam is intended to be completed in concert with work at NW Pond Dam (described in Section 5.1.2) and the South Pond Dam and Outlet Weir (described in Section 5.1.4) but is equally as important as a stand-alone project for overall protection of the watershed. Controlling the flow of water through the Hempstead Lake Dam is integral to maintaining the water level of the Hempstead Lake to promote ecological improvements and provide recreational opportunities. Appendix I contains the inspection schedule, maintenance schedule, and operational procedures that would be observed as part of a Hempstead Lake Water Level Management Plan. The operational procedures outlined would apply to water levels in Hempstead Lake only.

From May 1 to September 1, the two top gates, which would be set at invert elevation 20.5 feet, would be open, retaining more water in the lake during the dry season. From October 1 to April 1, the top gates and middle gate, set at invert elevation 16 feet, would be open, allowing water to leave the lake to accommodate the seasonal rise in groundwater from storms and snowmelt and maintain a consistent water level all year. April and September would be transitional periods when the middle gate would be closed or opened at the rate of 9 inches per week to adjust the lake water level. The two lower gates at invert elevation 12 feet would be used for maintenance purposes and would typically remain closed.

Under the draft Operation and Maintenance Plan, the top two sluice gates would remain open at all times. Regardless, the project would reestablish the functionality to partially close the upper gates for the following reasons:

1. If unforeseen issues were to arise downstream of the dam, the two upper gates could be partially closed to recreate existing conditions, making it possible to see if the issues were caused by the dam or some other factor.

2. Upper gates would provide the ability to shut down outflow temporarily to address emergency conditions (outflow blockage, pipe arch damage, downstream problem).

3. Upper gates would make it easier to bypass flow (in conjunction with pumping) to address non-emergency maintenance issues in the outflow chamber and pipe arch.

The Operation and Maintenance Plan and the installation and operation of the gates require NYSDEC approval.

To enhance management of the dam, new water level monitoring and lake temperature gauge equipment would be installed at the gatehouse. This gauge would provide the information needed to assess seasonal and long-term changes in lake conditions and provide real-time data to support the LWTB and Resiliency Strategy rehabilitation and enhancement initiatives to increase and better manage stormwater storage capacity at Hempstead Lake. Monitoring at this station would also provide long-
term benchmarks against which future hydrologic changes could be compared. USGS and others use hydrologic data from this and other cooperative programs across the region to (1) monitor long-term conditions and changes in the underlying Long Island aquifer system; (2) provide the data needed for the production of Island-wide USGS water-level and depth-to-water maps; (3) assist in the calibration of groundwater-flow models; and (4) provide the baseline information needed for other hydrologic studies and research used to properly manage the region’s water resources and ecosystems (44).

In addition, a new catwalk, similar to the catwalk on the original gatehouse, would be installed on the east and north sides of the building to allow for visual inspection and clearing of debris from the gates. These enhancements would also create educational opportunities on climate resiliency relating to storm events and flooding.

Pursuant to NYSDEC dam safety regulations, the 50% probable maximum precipitation (PMP) was also modeled in the hydrological and hydraulic assessment (Appendix G). The model indicates that during a 50% PMP event, the maximum impoundment of the lake would be approximately 2,510 acre-feet of water over 178 acres of surface area, shown in Figure 22. This maximum impoundment would occur with the two top sluice gates open and would be similar to the maximum impoundment under existing conditions (in which the gates are permanently shut but cut partially open). As noted, the 50% PMP model is prepared to meet dam safety compliance requirements, but the reservoir’s unlined sides and bottom allow substantial groundwater infiltration such that filling the lake is not possible.

While the likely maximum capacity of the dam under the proposed project is not expected to differ from the maximum capacity under the current, existing conditions, the proposed project would allow the Hempstead Lake Dam to withstand a modeled 39% PMP event without overtopping, improve the structural integrity of the dam and make the dam compliant with current dam safety requirements.

3 Probable maximum precipitation, or PMP, is a modeled rain event. NYSDEC requires the 50% PMP modeling for dam safety compliance. In Long Island, such an event would entail 33 inches of rainfall in a 72-hour period. Such an event would be well in excess of the 100-year storm and is modeled only for NYSDEC dam safety requirements. In such an event, much of the Town of Hempstead would be flooded, regardless of the existing dam. The average annual rainfall within the project area is approximately 45 inches.
Figure 22: Hempstead Lake Dam, Proposed Impoundment Levels
5.1.3.4 Hempstead Lake Dam Summary

A summary of the changes proposed for Hempstead Lake Dam is shown in Table 2.

Table 2: Summary of Proposed Changes at Hempstead Lake Dam

<table>
<thead>
<tr>
<th>Description</th>
<th>Existing Condition</th>
<th>Proposed Project Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hempstead Lake Dam Upstream Face</td>
<td>Accumulated sediment with trees and stone lining</td>
<td>Stone lining</td>
</tr>
<tr>
<td>Hempstead Lake Dam Downstream Face</td>
<td>Tree growth on downstream face of dam</td>
<td>Pollinator habitat</td>
</tr>
<tr>
<td>Gatehouse and Outlet Controls</td>
<td>Deteriorated and inoperable</td>
<td>Rehabilitated and operable</td>
</tr>
</tbody>
</table>

Wetlands

There would be no permanent losses, permanent impacts or temporary impacts within the USACE Wetland Delineation limit of WOTUS.

Trees

Pursuant to NYSDEC requirements, an estimated 759 trees would be removed from Hempstead Lake Dam.

Plantings/Impervious Area

Access to the dam to perform the required tree removal would be from Lakeside Drive. No new permanent impervious area would be required. Once work on the dam was complete, the downstream face of the earthen embankment, south of Lakeside Drive, would be planted with pollinator habitat.

Cut/Fill

Approximately 1,500 CY of sediment would be removed from the stone-lined upstream side of the dam and hauled off-site for disposal.

5.1.4 South Pond Inlet Gatehouse, Dam, and Outlet Weir

5.1.4.1 Existing Conditions

South Pond is located at the southern end of the Park, just north of Lakeview Avenue. Water flows into the pond via the pipe arch from Hempstead Lake to the north and Schodack Brook to the west (see Figure 4).

The South Pond Dam is an earthen embankment located at the southern end of South Pond. The dam is approximately 750 feet long and 10 feet high and it is classified as a Class A, low hazard dam. The upstream and downstream faces of the dam are covered with trees and shrubs, and portions of the top of the dam (known as the dam crest) have settled (sunken) over time from its use as a footpath. Trees growing through the dam’s earthen embankment include red and white oaks, black walnut, black cherry, red maple and sassafras. The embankment also has an understory consisting of tree saplings and coastal sweet pepperbush.
The South Pond Outlet Weir is located along the dam, approximately 200 feet west of Peninsula Boulevard (see Figure 4 and Figure 23). The stone outlet weir is 25 feet long and set at an elevation of approximately 12 feet; the surrounding earthen embankment is set at an elevation of approximately 17 feet. Water passes over the spillway before entering a culvert under Lakeview Avenue.

South Pond has both an inlet gatehouse and an outlet gatehouse. The pipe arch from the Hempstead Lake Dam outlet gatehouse connects to the South Pond inlet gatehouse, which is located at the northeast edge of South Pond (see Figure 4). The brick South Pond inlet gatehouse is similar in style to, but smaller than, the Hempstead Lake gatehouse. At the south end of the inlet gatehouse is the pipe arch opening to South Pond. The door and windows are closed over, and nothing remains of the original wooden floor. Slots built into the brickwork indicate that wooden flashboards may have been used to adjust the flow coming out of the pipe arch into South Pond. The existing metal roof is in poor condition.

The remains of the original South Pond outlet gatehouse are located at the west end of the South Pond Dam (see Figure 4 and Figure 23). This outlet gatehouse ties into the pipe arch system that runs along the western side of South Pond. It was once connected to the main pipe arch between Hempstead Lake and South Pond at a point approximately 35 feet north of the South Pond inlet gatehouse. The back of the dilapidated South Pond outlet gatehouse ties into the brick pipe arch system that continues southward and is part of the original Ridgewood Reservoir water system. The outlet gatehouse has no roof and partial walls on three sides. A concrete barrier was built in front of the outlet, preventing it from acting as an overflow for South Pond.

Under existing conditions, the modeling indicates South Pond Dam would handle the 100-year design storm and still provide more than 1 foot of freeboard. During the 50% PMP event, the South Pond Dam and Lakeview Avenue immediately downstream of it would be overtopped by several feet (13, 14, 37). Appendix H provides photos of the dam, weir, and outlet gatehouse.

### 5.1.4.2 Proposed Improvements

Pursuant to NYSDEC dam safety requirements, the proposed project would remove an estimated 282 trees and vegetation that have grown on the South Pond Dam embankment, including root balls, which would be refilled with imported clean fill. Pre-construction surveys would be undertaken to avoid potential impacts on northern long-eared bats and migratory birds. If an active nest were encountered, it would be left in place and protected until young hatch and depart, if feasible. If not feasible, the USFWS Field Office and/or NYSDEC Regional Wildlife Office would be contacted for assistance to determine the appropriate plan of action. Additional fill totaling approximately 400 CY would be used for regrading, and approximately 300 CY of topsoil would be used as the bed for native grass seeds/plantings that would be applied to the dam crest to create a uniform crest and width.

The stonework on the historic outlet weir would be rehabilitated to address damage caused by vandalism. The existing 10-foot-high and 750-foot-long dam would be maintained. The dam crest would be graded to make a uniform crest to address NYSDEC comments regarding undulation. Upon completion, the South Pond Dam and Outlet Weir would maintain existing normal and maximum impoundment of approximately 109 acre-feet over 21 acres of surface area and 229 acre-feet over 27 acres of surface area, respectively. See Figure 24.
Figure 23: South Pond Dam, Tree Removal
Figure 24: South Pond Dam, Proposed Impoundment Levels
The inlet gatehouse at the north end of South Pond would be restored in a manner similar to the Hempstead Lake gatehouse with a new door, roof, and windows to replicate the original style. The brickwork at the building’s south end would also be repaired to ensure the structural integrity.

The existing wall of the outlet gatehouse would be removed to a structurally safe height while maintaining a visual accounting of the structure. Some of the bricks may be salvaged to repair the South Pond inlet gatehouse. The historic pipe arch that ties into the south wall of the building would be bulk-headed prior to placement of fill. The remains of the South Pond outlet gatehouse would be photographed prior to any deconstruction.

5.1.4.3 South Pond Dam Summary
Changes proposed for South Pond Dam are shown in Table 3.

<table>
<thead>
<tr>
<th>Description</th>
<th>Existing Condition</th>
<th>Proposed Project Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Pond Inlet Gatehouse</td>
<td>Eroded banks around gatehouse</td>
<td>Native grasses</td>
</tr>
<tr>
<td>South Pond Dam</td>
<td>Tree growth</td>
<td>Level dam crest with native grasses</td>
</tr>
<tr>
<td>South Pond Outlet Gatehouse</td>
<td>Deteriorated</td>
<td>Demolished</td>
</tr>
</tbody>
</table>

Wetlands
Small areas of surface waters along the back side of the side of the dam at the pond outlet channel would be permanently displaced by the dam resurfacing. The impacts are within the USACE Wetland Delineation limit of WOTUS. Wetland losses and impacts associated with the South Pond Dam repair are shown on Figure 25.

Repair of the South Pond Dam would result in the permanent loss of approximately 0.017 acre of open water as the result of fill associated with the re-grading of the downstream dam slopes near the edge of the spillway/open channel where erosion has occurred. There would be no temporary impacts to WOTUS as a result of the work.

Trees
Pursuant to NYSDEC requirements, an estimated 282 trees would be removed from South Pond Dam.

Plantings / Impervious Area
Access to the dam to perform the required tree removal would be from Lakeview Avenue. No new permanent impervious area would be required. Once work on the dam is complete, it would be planted with pollinator habitat.
Figure 25: South Pond Dam, Wetland Loss and Impacts
5.1.5 Bridges

Proposed pedestrian bridges would be installed over Mill Creek near where it enters NE Pond and over the open stream channel between the Southern State Parkway and Hempstead Lake (see Figure 3 and Figure 4). The bridge over Mill Creek would be new; the bridge over the open-channel stream between the Southern State Parkway and Hempstead Lake would replace the existing twin culverts, which would be removed. The bridges would be designed to fit into the Park aesthetic. The bridges would have a width of 11.5 feet, or 1.25 times the bank full width, and would be designed to handle a load of 15,000 pounds to accommodate emergency and maintenance vehicles. The elevation of the bridges would be coordinated with the adjacent multiuse paths and would maintain stormwater flows for most rainfall events. No permanent wetland impacts, tree removal, or new impervious surfaces would be required.

5.1.6 Wetland Acreages, Tree Removal, and Impervious Area Summary

Wetlands
The dams, gatehouses, and bridges component of the project would result in a permanent loss of 0.050 acre of WOTUS, including 0.021 acre of open water and 0.029 acre of emergent wetland.

Trees
An estimated 1,100 trees would be removed for this component of the project. Additional trees would be removed for construction access to NW Pond Dam. These trees are included in the tree removal totals provided in Section 5.2, Northeast and Northwest Ponds, below. This area would be revegetated with native woodland tree saplings with a native grass understory seeding.

Impervious Area
This component of the project would result in 0.201 acre of new impervious area.

Cut/Fill
This component of the project would involve removal of 1,500 CY of sediments.

5.2 Northeast and Northwest Ponds

5.2.1 Purpose and Need

Hempstead Lake is an impaired waterbody that was first listed on the Section 303(d) List of Impaired Waterbodies pursuant to the Clean Water Act in 2002. The waterbody segment includes Hempstead Lake as well as bodies of water within Hempstead Lake State Park that include McDonald Pond, Schodack Pond (also known as South Pond), and NE Pond and NW Pond. As the most upstream open-water resources within the watershed, NE and NW Ponds play a strategically important role in the health of downstream ecosystems along the Mill River. The pollutant, or cause for the 303(d) listing, requiring a total maximum daily load (TMDL) is nutrients, specifically phosphorus. The suspected source of phosphorus is urban/stormwater runoff from a dense urbanized area with a heavily utilized transportation corridor.

The purpose of the NE and NW Ponds component of proposed project is to provide increased storage and treatment of stormwater through ecological enhancements to NE and NW Ponds. The activities

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4 Tree counts are based on trees equal to or greater than a 3-inch diameter at breast height (dbh).
proposed within the NE and NW Ponds are needed to restore and improve water quality in the Park and reduce the amount of pollution impacting downstream waterbodies, which would further the LWTB Resiliency Strategy program objectives to improve habitat and water quality.

Over the years, the waters entering the Park have become more polluted as a result of the increase of impervious surfaces in the Mill Creek Watershed. Unable to cleanse themselves via oxidation, the NE and NW Ponds have low oxygen levels and can be anoxic. Levels of fecal coliform exceed standard values and increase disease risk for aquatic species and may increase biological oxygen demand and eutrophication. Elevated pollutants in the system include nutrients (phosphorous and ammonia), heavy metals, and other anthropomorphic contaminants.

The drainage systems along Mill Creek and other outfalls do not prevent floatables from entering the piped system, and substantial levels of floatables are carried through the system and into and through the Park during each rain event. Floatable debris such as plastic, glass, and other wastes cover and seriously degrade many wetland and upland areas surrounding the ponds. They also break into microplastics and travel downstream to the bay and to the ocean. Removing trash, litter, and garbage from marine and freshwater environments is a goal shared by OPRHP and USEPA (42).

Heavy sediment loads and pollutants are also carried in the runoff and concentrate in the area north of NE Pond and the pond’s shoreline areas at the outfalls. The sediment load has blocked and modified the drainage patterns in the creek and the area north of NE Pond and altered the flow between the ponds.

With nothing in place upstream to capture sediment and floatables, the NE and NW Ponds act as sediment and garbage retention basins. Approximately 3.87 acres of wetland and adjacent areas have heavy accumulation of debris to the extent that vegetation is seriously affected. The Floatables and Debris Investigation Existing Conditions Northwest and Northeast Ponds Hempstead Lake State Park report prepared by Cashin Associates in December 2016 estimated that the volume of debris within the NE and NW Ponds to be 11,000 CF or 17.3 tons. Ultimately, the plastics and garbage end up farther downstream as they break down or are dislodged during storm events, finally affecting the bay and ocean. Pollutants also continue downstream, increasing the pollutant load for downstream communities and waters and ultimately affecting the bay and ocean. Installation of the proposed floatables catchers, detention basin, and enhanced wetland would improve water quality within the Park and throughout the Mill River system south of the Park (7).

5.2.2 Existing Conditions

The NE and NW Ponds are located at the northern end of the Park and are bordered to the north by Hempstead High School and Hempstead Golf and Country Club, to the west by the Lakeview residential neighborhood, and to the south and east by Southern State Parkway and Peninsula Boulevard (Figure 3).

The NE and NW Ponds are fed by flow from Mill Creek, groundwater, and from the piped stormwater drainage systems that outfall into the ponds and Mill Creek. The surface drainage area that discharges to NE Pond through the associated drainage systems is 3.843 square miles (approximately 3.802 square miles from Mill Creek and 0.041 square mile from the Southern State Parkway outfall); the surface drainage area that discharges to NW Pond through the associated drainage system is 1.2 square miles.

NE Pond is approximately 27 acres in size. The surface water level of NE Pond is approximately 25.9 feet above sea level with a depth of 6 feet. The muck layer in NE Pond ranges from 1 to 1.5 feet, and the pond has steep side slopes around its perimeter that descend to a flat bottom muck layer. There are
1.24 acres of existing emergent wetlands, 2.18 acres of forested wetlands, 2.32 acres of scrub shrub wetlands, and 20.9 acres of open water. The forested and scrub shrub wetlands contain invasive species. In NE Pond, the predominant visible issues are the floatables, sediment, and debris along the shoreline and the creek channel and in the wetland and area north of the pond (see Figure 26 and Figure 27).

NW Pond is approximately 30.5 acres and includes open water, submerged aquatic beds and mudflats, and emergent and scrub shrub vegetated wetlands. The emergent and scrub shrub wetland area was formed as a result of the 2011 dam breach, which exposed the shoreline, pond bottom, and past sedimentation. The surface water level of NW Pond is approximately 22.4 feet above sea level. Water depth typically ranges from 0 to 1.5 feet, but the deepest section within the area impounded by NW Pond Dam is more than 4 feet deep. NW Pond increases in depth from the north to the south. The muck layer in NW Pond is approximately 6 inches thick. The predominant visible issues in NW Pond are the low water level and the breached dam.

Originally the waterbody was modified as part of the human-made Hempstead Lake Reservoir system. When the Southern State Parkway was constructed, the waterbody was divided into the NE and NW Ponds north of the new parkway with Hempstead Lake to the south. The NE Pond was designed to serve as the impoundment area/recharge area for drainage that discharged into the pond from the parkway drainage system outfalls and from Mill Creek at the northern end of the pond. Over time sediment loads and debris have modified the elevations and flow into and through the NE Pond.

Over time, the watershed draining to the NE and NW Ponds has become more developed, increasing the amount of impervious surface and increasing the flow of untreated stormwater runoff into the ponds. There are significant floatables deposits, sediment load, and oil residue apparent near many of the outfalls, and water sampling showed elevated levels of pollutants in the first flush volume after storm events. The high sediment load has filled the creek channel, and the high velocity of the runoff has resulted in significant erosion of the channel depositing sediment in the wetlands and ponds within the Park. Soil and sediment sampling indicate elevated levels of contamination in the sediments throughout the NE and NW Ponds (Appendices J and T).

5.2.3 Proposed Improvements

The proposed project in the NE and NW Ponds would mitigate the pollutant loads that enter the ponds and wetlands by constructing methods to collect floatables and sediments and enhancing wetlands that would filter pollutants from the runoff. Installation of these measures would improve the water quality in the Park and reduce pollutant loading downstream to the bay. The proposed action would result in a permanent loss of 2.310 acres of WOTUS (1.050-acres open water, 0.810-acre scrub shrub, and 0.450-acre emergent) and permanent impacts through habitat conversion to 0.560 acre (0.370-acre emergent and 0.190-acre scrub shrub) within the NE and NW Ponds. The permanent losses and permanent impacts would be substantially offset by the proposed mitigation measures and positive improvements to the overall NE and NW Ponds area, including significant functional amelioration to existing wetlands.
Figure 26: Trash and Floatables 1

Northern Ponds Trash and Floatables Accumulation
Hempstead Lake State Park
Figure 27: Trash and Floatables 2
The *New York State Stormwater Management Design Manual* (Design Manual) was used as the basis for the development of the design criteria. The Design Manual identifies the water quality storm event of the 90% rainfall event (estimated to be 1.5 inches over a 24-hour period) as the ultimate goal for improving water quality. The more-than-5-square-mile watershed area is largely impervious and would not be modified by this project. Given the project’s location within a public park with natural wetlands, as well as other sensitive natural habitats and public use space, there is limited space or opportunity to provide stormwater mitigation. Assessment of the capacity of the permitted design will determine the level of achievement under the 90% storm event treatment goal.

The components of the proposed action are described below. The location of each component is shown in Figure 28. Additional design information is contained on the Design Plans, which are included in Appendix D.

### 5.2.3.1 Northeast Pond – Mill Creek

The primary flow into NE Pond is from the segment of Mill Creek north of the pond adjacent to Peninsula Boulevard. The Mill Creek drainage area is 2,440.46 acres (3.8 square miles) and predominantly urban. The drainage system is predominantly piped and discharges into the open channel beginning at Tyler Avenue approximately 2,000 feet north of NE Pond. The creek flow velocity dissipates after passing a berm as the channel widens and enters NE Pond within the Park causing floatables, debris, and sediment to be deposited and accumulate in this location and be carried throughout the ponds during periods of high water and flooding from larger storm events.

**Channel Bank Stabilization and Erosion Control**

Under the proposed project, the Mill Creek channel would be stabilized immediately upgradient of the proposed floatables catcher construction, and it would be stabilized with open-cell precast concrete grid pavers for approximately 32 linear feet along the channel length. See Figure 29.

The location was previously stabilized with a timber bottom, and the creek would continue to flow through this segment. The grid pavers would extend up the side slopes to the top of slope to protect the slope from erosion during storm events. The lower section of the open grid pavers to 4 feet in height (about 6 inches above the flow height of the 10-year storm event) above the creek bottom would be filled with gravel. Above 4 feet, the open section of the grid pavers would be filled with soil and native grass seed. Vegetation on the existing slopes would be removed for this work; however, much of the slope is unstable and large trees are currently falling into the creek as the shoreline erodes.

Impacts would be within the USACE Wetland Delineation limit for WOTUS and the NYSDEC-regulated 100-foot adjacent area. Areas of disturbance, revegetation, and impervious surfaces for this location are included in Figure 29. Areas of wetland loss and impacts are shown on Figure 30.

The Mill Creek bank stabilization and erosion control work would result in the permanent impacts to approximately 0.018-acre of open water as the result of fill, including the concrete mattress and gravel, placed below the ordinary high-water mark of Mill Creek. There would be no temporary impacts to WOTUS from the Mill Creek bank stabilization and erosion control work.
Figure 28: NE and NW Ponds Component Locations
Figure 29: Mill Creek Bank Stabilization and Erosion Control and Floatables Catcher
Figure 30: Mill Creek Bank Stabilization and Floatables Catcher Wetland Loss and Impacts
Floatables Catcher

The project would include installation of a Trashtrap™ Netting System (floatables catcher) as manufactured by Fresh Creek Technologies, Inc. and distributed by Storm Trap. The floatables catcher would be constructed at the remains of the existing Brooklyn Waterworks brick walls to utilize existing topographic changes that channelize the flow prior to entering NE Pond. See Figure 29. The design would provide channel flow volume from the 1-year storm event to flow through a netting system to collect floatables. The proposed NE Pond floatables catcher would be a stationary double netting system that is 3-feet high by 25-feet wide with two rows of seven nets, each designed for a water quality volume (WQV) flow of 875 cubic feet per second. The nets would have an opening size of 1.5 or 2 inches to capture bottles but allow smaller sized materials (i.e., leaves and organic matter) to pass through.

The floatables catcher would require an access road from Peninsula Boulevard and the staging location to allow a maintenance vehicle with a crane to lift the filled nets from the structure and drop them into a trash disposal vehicle to transport to a disposal location and to allow access to the floatables catcher to install replacement nets. The net system would have a capacity to capture 1,200 CF of material. Capture rates would correlate to rainfall events; however, based on a collection rate of 12 times per year, the annual volume of floatables removed is estimated to be 528 CY. Debris deflector security grating would be installed to reduce the potential for large debris to be wedged in the floatables nets.

The floatables catcher concrete structure would be in the same location and at a size similar to the existing deteriorated brick wall and timber bottom structure constructed as part of the Brooklyn Waterworks facility. The concrete structure and bottom would be necessary for secure installation of the 14-net system and security grating to prevent erosion beneath the nets and allow for installation of a pedestrian bridge to extend the park trail system over the creek to Peninsula Boulevard (see Section 5.1.5, Bridges, above). A precast design of the concrete structure has been developed to reduce the required installation footprint and impacts to vegetation. Like the creek banks, the existing wall and wooded slopes are unstable, and large trees have fallen into the creek section as the wall continues to deteriorate and the slopes erode. The unprotected deteriorating walls and eroding slopes create a potentially dangerous nuisance in this section of the park. Riprap, approximately 25- to 50-feet wide by 50-feet long (0.04 acre), would be placed at the channel outlet.

Impacts would be within the USACE Wetland Delineation limit of WOTUS and the NYSDEC-regulated 100-foot adjacent area. Areas of disturbance, revegetation, and impervious surfaces for this location are included on Figure 29. Areas of wetland loss and impacts are shown on Figure 30.

The floatables catcher would result in permanent impacts to approximately 0.031-acre (1,340 sf) of open water, and the associated riprap would result in a permanent impact to approximately 0.04 acre of open water. Temporary impacts to WOTUS would result from the removal of the existing brick and timber structures and grading/excavation necessary to install the new concrete structure. Disturbed upland areas would be replanted with native vegetation.

During the conceptual design phase, alternate designs and locations for the floatables catcher were reviewed. Direct access for maintenance and the need to collect the floatables prior to sediment deposition limited the locations that were suitable for the system. The proposed location allows reuse of the existing channelized structure location and was the preferred alternate.
Northeast and Northwest Pond Connection Improvements

In its present condition, due to the sediment-filled channel from Mill Creek discussed above and the lack of other flows into the area, the northern segment of NW Pond is stagnant with little interchange with NE Pond except during backwater flooding from large storm events. Currently runoff entering NE Pond exits the southern end of the pond via an existing creek segment that flows through a pipe culvert to NW Pond. The proposed project would construct two additional NE Pond culverts at the same invert elevation as the current culvert connection at the south end of NE Pond. See Figure 31. Hydrologic modeling using TR-55 methodology was used to size the two additional culverts so that all three culverts could equalize flows from the NE Pond when the storm volume surpasses a 5-year storm event. The proposed culvert designs also would be sized to accommodate the flow from a storm event in excess of the 25-year storm at three locations: (1) the existing southern culvert; (2) the reconstructed channel culvert discussed above; and (3) a proposed new culvert between the ponds. The invert elevations would be set at the same elevation of 24.75 feet to equalize the outflow, minimize stagnant pools, and improve water quality within NW Pond. While both the existing and new culverts would convey equivalent flows from NE Pond, the reconstructed culvert would not be directly connected to the NE Pond surface water, and as such, would only flow during larger storm events exceeding a 5-year event. The two additional culverts would both provide additional surface flow through the upper portion of the NW Pond and increase the frequency of surface water flow through the wetland system. However, the additional culvert directly connected to the NE Pond would provide the majority of the flow through the stagnant portion of the NW Pond.

The construction of the culverts would disturb 0.31 acre of upland woodland including an estimated 93 trees, to provide adequate space to excavate earth for the large pipe installation and for equipment to have space to maneuver. The existing earth trail would be replaced in-kind at both pipe crossing locations.

All the impacts would be within the USACE Wetland Delineation limit of WOTUS and the NYSDEC-regulated 100-foot adjacent area. Areas of disturbance, revegetation, and impervious surfaces for this location are included in Figure 31. Culvert A areas of wetland loss and impacts are shown on Figure 32 and Figure 33. Culvert B areas of wetland loss and impacts are shown on Figure 34.

- **Northern Linear Wetland Culvert Replacement (Culvert A)** - The construction of the new culvert in the linear channel to NW Pond would include two 8.5-foot-wide, 5-foot-high, and 125-foot-long elliptical pipes with a gravel bottom beneath an existing trail. This construction would result in a small loss of scrub shrub wetland and a greater conversion of the scrub-shrub wetland to emergent wetland to allow for the accumulated sediments in the channels to be removed and then revegetated with herbaceous species.

The installation of Culvert A would result in the permanent loss of approximately 0.040 acre of scrub shrub wetland as the result of placement of riprap aprons at the inlet and outlet of the culvert. There would be 0.030 acre of temporary impacts to WOTUS from excavation of sediment at pipe inlet to pipe invert elevation.
Figure 31: NE and NW Pond Connection Improvements
Figure 32: NE and NW Pond Connection Improvements, Wetland Loss and Impacts: Culvert A (bottom right)
Figure 33: NE and NW Pond Connection Improvements, Culvert B (left) and Culver A (top right)
Figure 34: NE Pond New Wetland B
• **New Culvert between NE Pond and NW Pond (Culvert B)** - The construction of a new culvert between NE and NW Ponds would improve the stagnant water conditions that currently exist at the northeast corner of NW Pond. The proposed design is a 10.17-foot-wide, 6.42-foot-high, and 150-foot-long elliptical pipe with a gravel bottom.

Installing Culvert B would result in the permanent loss of approximately 0.020 acre of emergent wetland and permanent impacts to 0.020 acre of open water as the result of the placement of riprap aprons and backfill at the inlet and outlet of the culvert. The installation of the pipe would result in temporary impacts to approximately 0.020 acre of emergent wetland.

5.2.3.2 **Northeast Pond – Southern State Parkway Outfalls**

Currently, in the Southern State Parkway watershed area, road runoff from the Southern State Parkway is directed via a piped drainage system in the roads to four outfalls along the southern shoreline of NE Pond. The Southern State Parkway drainage area is 26.30 acres (0.041 mi²) and discharges directly from pipe culverts to stone or concrete spillways to the NE Pond.

**In-Pond Filtering Emergent Wetland (New Wetland B)**

The project would include construction of an in-pond filtering emergent wetland (New Wetland B) along the southeast shores of NE Pond to improve the water quality and create an environment that treats the discharges entering NE Pond to reduce nutrient, sediment, and contaminant loadings. See Figure 34. New Wetland B would be sized to capture and treat 90% of 24-hour rains events and to achieve estimated reductions in phosphorous (by 50%); oil and grease (by 70%); zinc, copper, and lead (by more than 35%); floatables (by 80%); total suspended solids (by 70%); and other anticipated pollutant reductions from the in-pond constructed filtering wetland. NYS Parks would work with established citizen science programs (e.g., the New York State Citizens Statewide Lake Assessment Program) and local universities to establish a routine monitoring plan at the waterbodies to track trends in water quality.

The emergent New Wetland B would be vegetated with native herbaceous wetland species. The construction of the in-pond filtering wetland would include forebays at each outfall location to collect sediments, floatables, and associated oils and hydrocarbons as well as other debris, and allow for removal of these pollutants. Soils excavated during construction and new imported soils would be used to raise the pond bottom elevation in the new wetland area to the elevations suitable for emergent wetland vegetation establishment. Fill to raise the pond bottom within New Wetland B would be used to provide an appropriate substrate for plant growth and provide variable shallow water depths ranging from 0.5 to 1.5 feet, depending on stormwater discharge volumes to maximize plant-water interaction for nutrient uptake and sunlight penetration for coliform bacteria control. Fill would also be needed to create the bermed edges around the wetland to contain the runoff volume in the wetland prior to discharge of the filtered runoff to NE Pond.

The width of the berm would be sized to maintain integrity based on flow capacity and to allow equipment to access the berm for maintenance (mowing/invasives removal, removal of accumulated floatables/debris), inspection, and repair needs. Figure 35 provides and existing soils map, and Figure 36 provides an example the berm profile. To provide maintenance access, as well as enhance this new space and improve the experience of visitors to the Park and specifically within the NE and NW Ponds, a 1,300-linear foot trail is proposed on top of the berm (see Section 5.3, Greenways, Trails, Gateways, and Waterfront Access). This wetland trail would tie into an upland trail along the south side of the ponds.
Figure 35: Northern Ponds Existing Soils
Figure 36: Sample Berm and Slope Profile
The wetland trail would allow visitors to walk between the wetlands and open waters of the pond and provide educational opportunities on the benefits of wetlands to clean water and provide storm resiliency. A 960-SF deck with an open grating surface is proposed off the berm on the pond side to provide overlook space and an area for educational programming and interpretation.

All the impacts are within the USACE Wetland Delineation limit of WOTUS. Areas of disturbance, revegetation, and impervious surfaces for this location are included on Figure 34. In-pond filtering Wetland B areas of wetland loss and impacts are shown on Figure 37 and Figure 38.

The construction of the berm, including the installation of the culvert through the berm, would result in the permanent loss of approximately 1.030 acres of open water and 0.050 acre of emergent wetland. Other permanent impacts include 0.020 acre of open water from the culvert riprap outlet apron, 0.220 acre of existing emergent wetlands now located within the filtering wetland area and approximately 0.460 acre of open water resulting from the construction of the berm. Inside the proposed berm area, fill would be placed in approximately 4.030 acres of open water to raise the elevation of the pond bottom. Approximately 4.200 acres of open water would be converted to emergent wetland as a result of placing fill to raise the bottom elevation of the pond. There would be no temporary impacts to WOTUS as a result of this work.

5.2.3.3 Northwest Pond – Pipe Outfall

Additional drainage flows into NW Pond from the 96-inch pipe outfall located on the west side of the pond. This outfall drains a 787-acre (1.23-square mile), predominantly residential watershed to the west of NW Pond. This system does not include a mechanism to collect sediment and debris prior to discharge into NW Pond, allowing the materials to enter and spread throughout the NW Pond.

Wetland Detention Basin

Detention basins that provide capacity for 10% of the WQV can remove up to 70% of the sediment in the WQV, as well as associated oils and hydrocarbons. The proposed project includes a wetland detention basin downstream of the 96-inch outfall. See Figure 39. This basin collects sediment that would otherwise be carried into the existing wetland. The proposed wetland detention basin would be designed by constructing a berm in the pond to contain the volume from 8.2% (3.25 acre-feet provided) of the 1.5-inch WQV (38.0 acre-feet). The proposed wetland detention basin would cover a 0.93-acre area and would have main section of 3-foot storage depth and secondary section of 2-foot storage depth to the north to allow emergent vegetation to be established within the basin. Flow would enter the 3-foot depth section before overflowing through the 2-foot depth sections into the adjacent wetland areas. The spillway is proposed to be a gabion structure with riprap slopes because velocities indicate the need for slope stabilization. Construction of an access road would allow maintenance vehicles access to the basin. When the storm volume exceeds the 10-year storm, the flow would overtop the basin berm and flow into NW Pond.

The outfall is currently not accessible because of steep shoreline slopes in this location. As a result, there is no ability to collect any debris or sediment entering NW Pond. A native grass access path is proposed on the south side of the detention basin that would allow a maintenance vehicle, such as a small pickup truck, to drive down to the detention basin to remove floatables, trash, debris, and sediment that are collected. Due to the existing steep slope, fill would be required to create the grades for the access path.
Figure 37: New Wetland B Wetland Loss and Impacts Map 1
Figure 38: New Wetland B Wetland Loss and Impacts Map 2
Figure 39: NW Pond Wetland Detention Basin
A floatables catcher would be located within the NW Pond wetland detention basin. The catcher would be a boom system that would collect and direct floatables that are carried through the piped system into the detention basin. By installing a floatation boom with 12-inch skirt angled across the basin directing debris to collect at the shoreline near the proposed basin access ramp, the collected materials could be raked out, bagged, loaded on a pickup truck, and removed from the site on a regular basis. The below detention basin impacts are inclusive of the floatables catcher.

The proposed detention basin and access path would result in upland and NYSDEC-regulated adjacent area disturbances of 0.600 acre of woodland, including an estimated 78 trees, 0.070 acre of upland brush, and 0.020 acre of compacted earth trail. It is estimated that 0.240 acre of the woodland disturbance would be a temporary loss that would be revegetated with native woodland tree saplings with native grass understory, 0.300 acre would be revegetated with native grasses and herbaceous species to increase habitat and allow wetland area views from the west side of the pond, and 0.10 acre would be converted to emergent wetland.

NW Pond Wetland Detention Basin areas of wetland loss and impacts are shown on Figure 40.

The following impacts would be within the USACE Wetland Delineation limit of WOTUS. Construction of the NW Wetland Detention Basin, including the earthen berm and spillway, would result in the permanent loss of a total of approximately 1.050 acres of WOTUS, including 0.020 acre of open water, 0.320 acre of emergent wetland, and 0.130 acre of scrub shrub wetland as the result of the discharge of dredged and fill material to construct the earthen berm; and 0.330 acre of scrub shrub wetland and 0.06 acre of emergent wetland located within the detention basin due to conversion to open water. Construction of the maintenance access ramp, including the turn-around, slope fill, and connection point with the southwest portion of the earthen berm would result in the permanent loss of approximately 0.310 acre of scrub shrub wetlands as the result of placement of fill (1,450 CY). Portions of these areas are part of the approximately 18 acres of wet meadow that was established after the dam breach lowered the surface water elevation. The dam and breach are discussed below. Other permanent impacts to WOTUS would include the conversion of approximately 0.190 acre of scrub shrub wetland to emergent wetland within the basin and 0.150 acre of emergent wetland as the result of being located within the detention basin, which would be dredged periodically. There would be no temporary impacts to WOTUS as a result of this work.

Approximately 0.090 acre of upland would be converted to emergent wetland, and 0.030 acre of upland would be converted to open water within the basin.

Alternate means for collecting debris and sediment prior to outfall into NW Pond were assessed before this design was developed. Installation of a water quality unit on the existing piped system was considered; however, the depth of the pipe at more than 20 feet below grade made maintenance of such a system infeasible. The installation of a sediment basin upstream prior to NW Pond was also considered, but the pipe depth was again a limiting factor.

Northwest Pond New Wetland Channel

Under the proposed project, the existing wetlands to the north of the 96-inch outfall would be reshaped to develop an extended channel from the detention pond spillway to provide additional filtering capacity through the wetlands before reaching open water. The proposed location of the detention basin overflow and channel would allow for increased length of filtering through the existing wetland and would increase flow into the northern emergent wetland. See Figure 39.
The impacts would be within the USACE Wetland Delineation limit of WOTUS. Areas of disturbance, revegetation, and impervious surfaces for this location are included on Figure 39. NW Pond Wetland Detention Basin areas of wetland loss and impacts are shown on Figure 40.

There would no permanent impacts to WOTUS from this work. The creation of the NW Pond New Wetland Channel would result in temporary impacts to approximately 0.460 acre of emergent wetland from excavation and equipment operation. The disturbed area would be replanted with native emergent vegetation upon completion of the new channel. If suitable, vegetation removed to create the channel may also be used to revegetate existing channels.

5.2.4 Cut and Fill

Constructing the proposed improvements in NE and NW Ponds would require a net total of 2,743 CY of excavation/dredging in wetlands and 48,042 cubic yards of fill in wetlands. The improvements would also require 5,608 CY of excavation in uplands and 6,832 CY of upland fill. See Table 4 and Figure 41 for detailed totals of cut and fill in wetland and upland areas.

<table>
<thead>
<tr>
<th>Area</th>
<th>Cut</th>
<th>Fill</th>
<th>Net Cut</th>
<th>Net Fill</th>
<th>Wetland Cut</th>
<th>Wetland Fill</th>
<th>Upland Cut</th>
<th>Upland Fill</th>
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<tr>
<td>NW Pond Sediment Basin / Access Ramp</td>
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<td>4,850</td>
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<tr>
<td>Wetlands B</td>
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<td>43,605</td>
<td>1,055</td>
<td>44,000</td>
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<td>660</td>
</tr>
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<td>NE Pond Access Road</td>
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<td>0</td>
<td>0</td>
<td>2,265</td>
<td>50</td>
</tr>
<tr>
<td>Wetland B Access Trail</td>
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<td>2,728</td>
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<td>0</td>
<td>0</td>
<td>2,760</td>
<td>32</td>
</tr>
<tr>
<td>NE Maintenance Trail and Ramp</td>
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<td>1,043</td>
<td>21</td>
<td>140</td>
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<tr>
<td>Culvert A</td>
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<td>422</td>
<td>n/a</td>
<td>390</td>
<td>2</td>
<td>44</td>
<td>10</td>
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<tr>
<td>Culvert B</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
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<td>5,365</td>
<td>46,793</td>
<td>2,473</td>
<td>48,042</td>
<td>5,608</td>
<td>6,832</td>
</tr>
</tbody>
</table>

Based on the findings in the Sediment Sampling Plan regarding contaminated soils, dredged sediments would be dewatered and trucked off the project site to a landfill located off Long Island (see Appendix J). The excavated soil would be used to construct the wetland and berms within the ponds. The excavated soil would be screened as necessary to remove materials encountered that are unsuitable for reuse within the pond. Unsuitable excavated materials would be disposed off-site in accordance with disposal requirements. An additional approximately 47,000 CY of clean soils would be imported to the site.

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5 Note, this EA provides conservative construction estimates for volumes of dredging, excavation, and imported fill. As such, these values exceed or approximate those shown in Appendix J.
Figure 41: Northeast and Northwest Ponds, Summary of Cut and Fill Locations
5.2.5  Tree Removal

A detailed tree removal and erosion control plan has been prepared for the NE and NW Ponds component of the project, inclusive of the tree removals required for NW Pond Dam. The plan displays the proposed work areas, high density tree areas, and tree removal staging areas. As indicated on the tree removal plan, an estimated 647 trees would be removed for the NE and NW Ponds component of the project, inclusive of the tree removals required for maintenance access and NW Pond Dam construction access. The tree removal and erosion control plants have been included in this EA as Figure 42 through Figure 45. Please also see Appendix D for the detailed design drawings.

5.2.6  Landscape Plan and Invasive Species Management

A detailed landscape plan been prepared for the NE and NW Ponds component of the project. The plan specifies species of trees, shrubs, grasses, and herbaceous plants for each habitat area, including wetland shade, wetland sun, alternatively flooded shade, alternatively flooded sun, upland shade, upland sun, woodland upland, and woodland lowland. The landscape plans have been included in this EA as Figure 46 through Figure 50. See Appendix D for the detailed design drawings, which include a planting schedule listing applicable species under each habitat area.

The draft Invasive Species Management and Post-Construction Monitoring and Reporting Plan, which is provided as Appendix K, has been developed to address the methods by which to monitor success of the installation and the reestablishment of native species in the NE and NW Ponds, as well as to address methods to monitor and remove invasive species in the project planting areas. The plan has been developed to be used in conjunction with the Hempstead Lake State Park Invasive Species Management and Native Species Enhancement Plan, which is described below. It identifies monitoring methods to assess the success of the wetland and upland native plant establishment and outlines control methods to remove invasive species from revegetated project areas.

For areas outside the northern ponds, OPRHP is drafting a Park Invasive Species Management and Native Species Enhancement Plan, which is included in the EA as Appendix L. This draft plan is subject to further refinement but has been included for reference purposes. The plan outlines goals, strategies, interagency cooperation, and follow-up for the Long Island Regional Environmental Office for management efforts at Hempstead Lake State Park. The plan also provides background information about the Park and invasive species concerns, and it outlines a process through which management can be implemented.
Figure 42: Tree Removal and Erosion Control Plan, Key Map
Figure 43: Tree Removal and Erosion Control Plan, Mill Creek Bank Stabilization, NE Pond Floatables Catcher, and New Wetland B
Figure 44: Tree Removal and Erosion Control Plan, Culvert A, NW Pond Sediment Basin, and Staging Areas
Figure 45: Tree Removal and Erosion Control Plan, NW Pond Dam and NE Pond Access
Figure 47: Landscape Plan, Culverts
Figure 48: Landscape Plan, New Wetland B
Figure 49: Landscape Plan, Northwest Pond Sediment Basin
Figure 50: Landscape Plan, Channel Structure & Maintenance Access
5.2.7 Wetland Acreages, Tree Removal, Impervious Area, and Cut/Fill Summary

Wetlands
The NE and NW Ponds component of the project would result in a permanent loss of 2.310 acres of WOTUS (1.049-acres open water, 0.810-acre scrub shrub wetland, and 0.451-acre emergent wetland) and permanent impacts on 0.560 acre (0.370-acre emergent and 0.190-acre scrub shrub) within the NE and NW Ponds. The permanent losses and permanent impacts would be substantially offset by the proposed mitigation measures (see Section 5.6, Wetlands Impacts and Compensatory Mitigation, below) and the positive improvements to the overall NE and NW Ponds area, including significant functional amelioration to existing wetlands. See Appendix M for the detailed table of wetland impacts. See Appendix D for detailed drawings.

Trees
Combined, the proposed construction activities at NE and NW Ponds would require removal of an estimated 647 trees. This total includes tree removals that would be required for construction access to NW Pond Dam and pond maintenance access. Trees removed for access to NW Pond Dam would be revegetated with native woodland tree saplings with a native grass understory seeding.

Impervious Area
The improvements in NE and NW Ponds would result in 0.81 acre of new impervious area associated with the proposed maintenance access for basins.

Cut/Fill
The improvements in NE and NW Ponds would require a net total of 2,743 CY of excavation/dredging in wetlands, and 48,042 CY of fill in wetlands. They would also require 5,608 CY of excavation in uplands and 6,832 CY of upland fill.

5.3 Greenway, Trails, Gateways, and Waterfront Access

5.3.1 Purpose and Need
The purpose of the greenway, trails, gateways, and waterfront access component is to increase the connectivity of the surrounding community to the Park’s features, including the wetlands, waterfront, and upland recreational areas, consistent with the LWTB Resiliency Strategy objective of increasing public access to the water and improving social resiliency. These improvements would enhance access to the Park’s natural resources, and this connectivity would increase the level of understanding local communities have about the Park. The improvements would allow the communities to feel increasingly invested in the Park.

The proposed project would enhance and improve the existing path system in the Park. The proposed greenway and trail system upgrades would enhance connectivity and provide direct access for the public to the natural resources in the Park. Connection points to the surrounding neighborhoods and access to the NE and NW Ponds area would be provided through new gateways and access points. Waterfront access would be enhanced through installation of an elevated walkway and observation deck, an ADA-accessible kayak launch, a fishing dock, and stairs along Hempstead Lake. The trail section would include the existing Eagle Avenue pedestrian path on the bridge over the Southern State Parkway and the bridge over the open stream channel between the Southern State Parkway and Hempstead Lake. Grading and tree removal would be required for these features. See Appendix D for grading plans and drawings. The
greenway and trail improvements would be designed and implemented in a manner that would allow for connection to the pedestrian and cycling pathways under consideration in the larger LWTB Project and Resiliency Strategy.

5.3.2 Greenway and Trails

Following predominantly existing path alignments, a 10-foot-wide, semi-pervious crushed-stone dust, multiuse, ADA-accessible greenway with a 1-foot cleared border on either side would enhance the trail system in the Park. The greenway would begin at Peninsula Boulevard near McDonald Pond in the south and would use a combination of predominantly existing path alignments and formalized trail alignments to pathways along the west side of Hempstead Lake to the trail. It would then cross the Southern State Parkway at Eagle Avenue and connect to an existing parking area that would be formalized. The greenway would continue along the west side of NW Pond before turning east along the northern edge of the ponds to connect to Peninsula Boulevard, north of NE Pond (see Figure 3 and Figure 4). At the southern end of the Park, the greenway would connect to a planned greenway that would run along the Mill River corridor from Hempstead High School in the north to Bay Park in the south (see Section 11, Cumulative Impact Analysis, below). It would be open daily for public recreational use. The greenway would also include educational signage to convey to the public the positive benefits of the LWTB Project and Resiliency Strategy.

Creation of formalized trail sections would be limited to the west side of the field parking area and continue through the Park to a point near the tennis courts (a 1,720-foot x 12-foot section, comprising grass and not requiring any tree removals) where the trail would cross Lakeside Drive and connect to the existing path on the west side of Hempstead Lake. Formalizing an existing social trail would also occur along the north end of the Park to connect Peninsula Boulevard with the existing trail system along NE and NW Ponds. Most of the trails in the park would not be resurfaced.

The northern ponds wetland trails would measure approximately 6,195 linear feet and be composed of a 6-foot-wide semi-pervious crushed stone dust path. They would cover approximately 0.9 acre (37,170 sf). Of this, approximately 0.2 acre (7,020 sf) would be resurfaced with semi-pervious crushed stone dust on existing trail, and approximately 0.7 acre (7,020 sf) would formalize existing foot paths that vary in width, from 4 to 6 feet, and currently consist of compacted dirt. Most work would occur in existing trail footprints. As a result, less than 0.1 acre of previously undisturbed area would be affected because most of the proposed trail improvements are contained within areas already committed to use as pathways within the northern ponds areas. It is estimated that 24 trees would be removed for the trail connecting NE and NW Ponds.

The Hempstead Lake trail is an existing 10- to 12-foot-wide, compacted dirt trail that circumvents Hempstead Lake. Part of this trail, approximately 3,317 linear feet along the western side of the lake, would be transformed into the greenway described above. The remaining approximately 12,068 linear feet would remain compacted dirt with minimal grading to remove depressions.

Four stairways are proposed along the east side of Hempstead Lake. These stairways would be placed along eroded areas of the trail, where stormwater runoff and foot traffic have resulted in washouts. The washouts would be filled. After the stairs are placed, these areas would be revegetated using erosion control methods friendly to wildlife (not polypropylene mesh) to provide slope stability and safe access to the water. The four stairways would comprise approximately 1,180 sf. Finally, an existing compact dirt bridle path and a portion of the existing roadway along Hempstead Lake Dam would be converted
to a 24-foot-wide bridle path (crushed stone dust) and bike way (existing pavement converted to bike lanes), for 1,100 linear feet totaling approximately 0.6 acre (26,400 sf).

Formalizing trails and adding signage would reduce impacts on the natural environment created by the extensive network of social trails that crisscross the Park; it is also anticipated that trail formalization would encourage Park visitors to use formal trails instead of going off-trail, which could further reduce such impacts. The proposed project would reduce erosion along existing trails, which can give the appearance of—and then be used as—unofficial spur trails. Resurfacing the greenway would also allow more visitors to access these areas.

In total, the proposed trail plan would cover approximately 8 acres (335,947 sf). Of this, 5.2 acres of existing trails would be resurfaced, 2.3 acres of existing trails would be widened, and 0.8 acre of formalized trails would be constructed. Areas of disturbance adjacent to the trails would be replanted with native herbaceous materials. An estimated 28 trees would be removed to allow greenway construction near the northern ponds.

Many invasive and non-native plant species are present along the Park trails. Regional Park staff are developing a comprehensive Park-wide invasive species management and restoration plan to address impacts on the ecology of the Park from an overabundance of invasive species (see Appendix L). Invasive and non-native plants throughout the Park have been identified and mapped, and short- and long-term measures are being developed to manage these populations and restore areas with native plants. This plan is anticipated to unfold over the next 10 to 15 years.

5.3.3 Gateways

The proposed project would replace the existing informal, packed-dirt parking lot north of the Southern State Parkway at Eagle Avenue (see Figure 3) to a 0.91-acre formalized asphalt parking lot with 4 stormwater retention basins, 45 car spaces, and 3 bus spaces. An estimated five trees would be removed for the parking area. The parking lot would contain bioretention features to absorb runoff, which would increase groundwater recharge compared to the existing packed-dirt lot.

Three existing access points into the Park, Eagle Avenue, Graham Avenue, and Peninsula Boulevard, would be formalized as gateways for way-finding purposes. The gateways would be placed in grass areas or areas with compacted dirt and would include signage and direct access to the greenway or trails. The gateways would provide direct pedestrian access from the adjoining neighborhoods, a significant portion of which are low- to moderate-income communities. The Eagle Avenue gateway would also provide additional access points for emergency vehicles. The Eagle Avenue and Graham Avenue gateways would have 1,200 sf of stamped concrete pavement, and the Peninsula Boulevard gateway would have 400 sf of stamped concrete pavement. No tree removal is required to implement the gateways component.

5.3.4 Lake Access Areas, Elevated Walkway and Observation Pavilion, Piers, and Kayak Launches

The greenway and park trails would also provide access to the ponds and lake. A new elevated walkway would extend eastward from Lakeside Drive, intersect the greenway, and run eastward to a new 400-sf observation pavilion atop a peninsula that extends into Hempstead Lake (see Figure 3). The pavilion would be located approximately 20 feet above the surface and at least 50 feet from the shoreline of Hempstead Lake. In addition, a new 416-square-foot, ADA-accessible kayak launch and a 600-sf partially
open grate fishing pier would be built along the Hempstead Lake shore to provide additional access points to the water for educational programing, water quality monitoring, and fishing (see Figure 3). Installation of the elevated walkway, observation pavilion, kayak launch, and fishing pier would require the estimated removal of 13 trees. In total, the piers and launches would cover 0.056 acre of open water.

Four stairways, as noted above, would be provided on the east side of Hempstead Lake, providing access to the lakeshore from the Hempstead Lake perimeter trail. These existing areas experience washouts from stormwater because pedestrians use these locations to access the shore. Stairways would allow the locations to re-stabilize while still providing desired public access. As indicated above, it is anticipated that trail formalization would encourage Park visitors to use formal trails, which would reduce erosion effects from current off-trail/social trail use.

5.3.5 Wetland Acreages, Tree Removal, and Impervious Area Summary

Wetlands

The lake access components would have no effect on WOTUS. See Appendix D for detailed drawings.

Trees

An estimated 41 trees would be removed for the greenway, trails, gateways, and waterfront access component improvements. Note that this number does not include trees that would be removed for maintenance access to NE and NW Ponds.

Impervious Area

The total new impervious surface created for this component of the project would be approximately 6.73 acres, of which 4.28 acres would be semi-pervious crushed stone and stone dust to make existing trails ADA compliant. As such, a total of 2.45 acres of trails would comprise new impervious surfaces.

5.4 ENVIRONMENTAL EDUCATION AND RESILIENCY CENTER

5.4.1 Purpose and Need

The proposed project includes construction of a new environmental education and resiliency center. The purpose of the environmental education and resiliency center is to increase the availability of amenities for educational opportunities, learning spaces, and community gathering; and stimulate public stewardship over the Park, consistent with the LWTB objective to educate the public on stormwater and environmental management. The building would provide a venue for educational programming regarding the park’s role in the southern Long Island ecosystem, including the role that humans play in protecting that ecosystem.

The purpose of the center is also to increase the resilience of the surrounding community during and immediately after storm events. The flexible spaces would allow the building to serve as an information, storage, and gathering space and act as an emergency response hub during and immediately following emergencies and natural disasters.

5.4.2 Proposed Improvements

The proposed project includes construction of a new, single-story (with basement) environmental education and resiliency center west of Lakeside Drive in an existing flat, grassy area adjacent to the
parking field (see Figure 4). The center would be located in a previously disturbed that has been cleared of trees, graded, and maintained as an open field with a mowed lawn scattered with trees. The approximately 8,150-sf (approximately 52 feet x 96 feet, irregular in footprint) center would include a main education room, overlook deck, restrooms, and storage facilities. The 4,075-sf building footprint would be surrounded by exterior hardscape and landscape areas that provide pathways and exterior spaces to visitors. The approximate area of temporary disturbance for the environmental education and resiliency center building would be 54,260 sf. Utilities would be connected to the building through an underground boring and a 24-inch-wide trench, resulting in approximately 7,300 sf of land disturbance that would be backfilled and restored upon project completion. The infiltration basin for the proposed exterior hardscape area would disturb approximately 1,720 sf; this area would be backfilled and restored upon project completion. The approximate overall area of land disturbance, both temporary and permanent, for the environmental education and resiliency center and associated utilities would be 63,280 sf. Once completed, the project would consist of approximately 4,075 sf of building, 7,300 sf of hardscape, and 42,885 sf of landscaping areas. All other disturbed areas would be restored to their pre-construction conditions. The building would be ADA compliant. Table 5 indicates the areas of disturbance. Figure 51 presents a site plan, and Figure 52 and Figure 53 present project elevations. Appendix D presents additional drawings.

Table 5: Summary of Proposed Changes at the Environmental Education and Resiliency Center

<table>
<thead>
<tr>
<th>Description</th>
<th>Area Disturbed During Construction</th>
<th>Final Building Footprint and Hardscape Area</th>
<th>Post-Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Education and Resiliency Center</td>
<td>54,260 sf</td>
<td>11,375 sf</td>
<td>42,885 sf lawn/landscape</td>
</tr>
<tr>
<td>Utility Trenching (Power, Phone and Data)</td>
<td>4,800 sf</td>
<td>-</td>
<td>4,800 sf lawn/landscape</td>
</tr>
<tr>
<td>Stormwater Overflow</td>
<td>1,720 sf</td>
<td>-</td>
<td>1,720 sf lawn/landscape</td>
</tr>
<tr>
<td>Sanitary Force Main</td>
<td>2,500 sf</td>
<td>-</td>
<td>2,500 sf lawn/landscape</td>
</tr>
<tr>
<td>Total</td>
<td>63,280 sf</td>
<td>11,375 sf</td>
<td>51,950 sf lawn/landscape</td>
</tr>
</tbody>
</table>

The facility would provide a centralized destination and connection for visitors to the Hempstead Lake corridor that would directly support environmental education and recreational opportunities. Several spaces within the environmental education and resiliency center are proposed to be designed flexibly, with spaces that would permit a resilient occupancy of the building that can adapt quickly to the varied uses to serve as an information, storage, and gathering space and act as an emergency response hub during and immediately following emergencies and natural disasters affecting the surrounding community. The building would include a full building load emergency generator to provide resiliency during power outages and allow the facility to continue operating as an emergency command center. In addition, the facility would be used as a training space for the Nassau County Law Enforcement Explorers program, which is a volunteer program for young adults to receive basic law enforcement training and learn about law enforcement career opportunities. The center would also be available to local school districts to use as an education space and wet lab for hands-on learning and activities.
Figure 51: Environmental and Education Resiliency Center Site Plan
Figure 52: Education Center Elevations: North and South
Figure 53: Education Center Elevations: East and West
The proposed environmental education and resiliency center would demonstrate environmental sustainability, responsibility, and resilient building practices. Where appropriate, passive design strategies would be implemented in the configuration of the building. The building would include roof-mounted solar (photovoltaic) panels providing up to 30 kilowatts of electricity, which is intended to provide adequate power for 100% of the basic building systems during non-peak loading scenarios. The building would be provided with an automatic emergency diesel generator, located outside the building’s southwestern façade. The generator would have the capacity to provide energy to the entire building in the event of a power outage. Window treatments would be designed to prevent bird collisions. An estimated 11 trees would be removed for this component of the proposed project.

5.4.3 Wetland Acreage, Tree Removal, and Impervious Area Summary

Wetlands
No wetlands would be affected by this component of the project.

Trees
An estimated 11 trees would be removed for the environmental education and resiliency center improvements.

Impervious Area
Approximately 0.26 acre of new impervious area would be created.

5.5 Tree Removal, Impervious Area, and Cut/Fill Summary

Across the entire project, as shown in Table 6, an estimated 1,799 trees would be removed, more than half of which are required to be removed per dam safety requirements. Locations of proposed tree removal are illustrated in Figure 13. This removal represents an approximately 30% reduction from the original estimate included in the October 2018 EA, due in large part to a reduction in the proposed work at NE Pond. As shown in Table 7, the project would result in 8.001 acres of new impervious area, of which 4.28 acres are existing compacted dirt trails that would be overlaid with semi-pervious crushed stone and stone dust. The project’s total dredge disposal, excavation, and clean fill are shown in Table 8.

Table 6: Project Estimated Tree Removal Summary

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Trees to Be Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dams, Gatehouses and Bridges*</td>
<td>1,100</td>
</tr>
<tr>
<td>NE and NW Ponds**</td>
<td>647</td>
</tr>
<tr>
<td>Greenways, Trails, Gateways, and Waterfront Access***</td>
<td>41</td>
</tr>
<tr>
<td>Environmental Education and Resiliency Center</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,799</strong></td>
</tr>
</tbody>
</table>

*Includes the trees removed from NW Pond Dam
**Does not include the trees removed from NW Pond Dam; includes NE and NW Ponds access
***Does not include NE and NW Ponds access
Table 7: Project Impervious Area Summary

<table>
<thead>
<tr>
<th>Project Component</th>
<th>New Impervious Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dams, Gatehouses and Bridges</td>
<td>0.201</td>
</tr>
<tr>
<td>NE and NW Ponds</td>
<td>0.810</td>
</tr>
<tr>
<td>Greenways, Trails, Gateways, and Waterfront Access*</td>
<td>6.73</td>
</tr>
<tr>
<td>Environmental Education and Resiliency Center</td>
<td>0.26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8.001</strong></td>
</tr>
</tbody>
</table>

*4.28 acres of the new impervious area will comprise existing compacted dirt trails that would be overlaid with semi-pervious crushed stone and stone dust

Table 8: Construction Estimate of Net Cut and Fill (Cubic Yards)

<table>
<thead>
<tr>
<th>Activity</th>
<th>NE and NW Pond</th>
<th>Hempstead Lake Dam</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut</td>
<td>5,365</td>
<td>1,500</td>
<td>6,865</td>
</tr>
<tr>
<td>Fill</td>
<td>46,793</td>
<td>-</td>
<td>46,793</td>
</tr>
</tbody>
</table>

5.6 Wetlands Impacts and Compensatory Mitigation

5.6.1 Net Wetland Impacts

The project would result in 2.760 acres of net wetland loss, as shown in Table 9. OPRHP has submitted a joint permit application to USACE and NYSDEC. See Appendix N for the public notice, which includes plans for all impacts to WOTUS. Appendix M includes a detailed table of wetland impacts.

Table 9: Summary of Wetland Impacts Across All Project Components

<table>
<thead>
<tr>
<th>Aquatic Resource Type</th>
<th>Wetland Loss Acres</th>
<th>Wetland Creation Acres (Table 10)</th>
<th>Net Loss Acres Adjusted for Created Wetlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Water</td>
<td>-1.071</td>
<td>+0.070</td>
<td>-1.001</td>
</tr>
<tr>
<td>Emergent Wetland</td>
<td>-0.849</td>
<td>+0.090</td>
<td>-0.759</td>
</tr>
<tr>
<td>Scrub Shrub Wetland</td>
<td>-1.000</td>
<td>0.000</td>
<td>-1.000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>-2.920</strong></td>
<td><strong>+0.160</strong></td>
<td><strong>-2.760</strong></td>
</tr>
</tbody>
</table>
Table 10 summarizes the locations and types of the waters that would be created from existing uplands as a result of the project implementation. The additional emergent wetlands and open waters would partially offset unavoidable impacts on emergent wetlands and open water.

Table 10: Summary of Wetlands and Waters Created Through Project Implementation

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Upland to Emergent (Acres)</th>
<th>Upland to Open Water (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW Pond Dam</td>
<td>0.003</td>
<td>0.027</td>
</tr>
<tr>
<td>NW Pond Sediment Basin</td>
<td>0.090</td>
<td>0.030</td>
</tr>
<tr>
<td>Hempstead Lake Pipe Culvert Removal</td>
<td>0.000</td>
<td>0.014</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.093</strong></td>
<td><strong>0.071</strong></td>
</tr>
</tbody>
</table>

5.6.2 Potential Mitigation Options

OPRHP prepared a draft compensatory mitigation proposal for review and comment by USACE. The proposal underwent a 30-day public review in fall 2019 and is included as Appendix O. This section summarizes the proposal for purposes of impact analysis.

Several sites, as shown in Figure 54, were proposed for mitigation within Hempstead Lake State Park. Table 11 summarizes the proposed activities at each location. All the mitigation sites are on-site and proximate to the wetlands and waters that the proposed project would affect. Due to their proximity to the affected aquatic resources, these sites have a higher potential to offset the loss of functions associated with the affected wetlands and open waters.

The USACE review and response to the compensatory mitigation proposal is included in Appendix O. Of the 2.92 acres of total WOTUS loss, USACE has determined that compensatory mitigation is required for the loss of 1.849 acres of special aquatic sites. USACE has determined that a combination of Sites 1, 1a, 4, 5, 7, and 7a may be sufficient to replace lost aquatic functions resulting from project impacts.

During the 30-day review period, commenters requested an opportunity to review the mitigation plan when completed by USACE. This section presents a summary of the mitigation plan to date. USACE would determine whether any further review by other entities would be undertaken. Commenters also asked whether NW Pond, NE Pond, and Hempstead Lake have been subject to algal blooms. The lakes have not typically been subject to such blooms, which are often related to nutrient (nitrogen) concentrations.

Next, the conceptual mitigation sites would be advanced to develop a complete mitigation proposal that would include a design for each site, a description of the construction approach, planting plan, anticipated wetland functional improvements, and a post-construction monitoring and management plan. Additional field studies would be required to prepare the mitigation proposal, including refining the limits of each mitigation site and the mitigation approach that would be employed. OPRHP would complete the final site selection in consultation with USACE.
Table 11: Summary of Potential Wetland Mitigation Sites

<table>
<thead>
<tr>
<th>Potential Mitigation Site</th>
<th>Location, Acreage, Proposed Wetland</th>
<th>Existing Conditions</th>
<th>Potential Mitigation Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 1: Phragmites (Common Reed) Removal and Native Plant Establishment</td>
<td>NW Pond 0.32-acre scrub shrub</td>
<td>Dense stands of the invasive plant <em>Phragmites australis</em> (common reed), limiting proper wetland functions.</td>
<td><strong>Wetland enhancement</strong> through the replacement of Phragmites with native plants. <strong>Wetland restoration</strong> to an emergent wetland dominated by native wetland plant species; removal of trash and floatables debris.</td>
</tr>
<tr>
<td>Site 1a: Pond Margin Wetland Restoration</td>
<td>NW Pond 0.20-acre scrub shrub wetland</td>
<td>Narrow bands of upland characterized by sand and gravel with sparse vegetation. These areas were formerly shallow open water prior to the dam failure and, with the lower elevation of the proposed dam repair, would remain as upland.</td>
<td><strong>Wetland restoration</strong> through shallow excavation of approximately 1 foot to reestablish wetland hydrology within the upper soil profile and establish native wetland plant species.</td>
</tr>
<tr>
<td>Sites 2/3: Floatables &amp; Sediment Discharge Control, Reduction, and Removal</td>
<td>NW Pond 7.90-acres open water 7.60-acres emergent wetland</td>
<td>Debris crowd out live plants. Degraded plastics transported downstream and trapped in the sediments. Accumulating sediments create drier site conditions within the delineated wetland, potentially allowing for invasive species. Sediments will result in lost wetland habitat through conversion to uplands, and conversion of open water habitat to emergent marsh.</td>
<td><strong>Wetland enhancement</strong> through the installation and long-term operation of a floatables removal device and a sediment detention basin on the existing stormwater outfall.</td>
</tr>
<tr>
<td>Potential Mitigation Site</td>
<td>Location, Acreage, Proposed Wetland</td>
<td>Existing Conditions</td>
<td>Potential Mitigation Activities</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------</td>
<td>---------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Site 4: Invasive Plant Species Control and Prevention</td>
<td>NW Pond 2.46-acres scrub shrub wetland 16.44-acres emergent wetland</td>
<td>Small patches of invasive plants, such as Phragmites, Japanese knotweed (<em>Polygonum cuspidatum</em>), purple loosestrife (<em>Lythrum salicaria</em>), tree of heaven (<em>Ailanthus altissima</em>) and oriental bittersweet throughout the emergent and scrub shrub wetlands on the site periphery.</td>
<td><strong>Wetland enhancement</strong> through immediate removal of these species throughout the site and provisions for future annual inspections and control. As needed, application of native seed mix to establish native plant cover in locations where dense invasive plant cover is removed.</td>
</tr>
<tr>
<td>Site 5/6: Invasive Plant Removal, Floatables Removal and Native Planting</td>
<td>NE Pond 0.70-acre scrub shrub wetland 1.60-acre wetland forest 0.33-acre upland forest buffer</td>
<td>Invasive plants, such as Phragmites, Japanese knotweed, and multiflora rose (<em>Rosa multiflora</em>).</td>
<td><strong>Wetland enhancement</strong> through the replacement of invasive plants with native shrubs, trees, and plants; removal of floatables debris. <strong>Wetland restoration</strong> through debris removal, raking debris buried in accumulated sediment, and replanting with native shrubs and plants. Upland restoration through removal of invasive species.</td>
</tr>
<tr>
<td>Site 7/7a: Debris/Floatables Removal in Pond Shoreline Wetlands</td>
<td>NE Pond 0.30-acre forested wetland 0.10-acre emergent wetland 0.83-acre open water</td>
<td>Accumulated floatable debris reduced / destroyed wetland functions (see Sites 2/3, above).</td>
<td><strong>Wetland enhancement and restoration</strong> through removal of the accumulated debris and seeding of the affected area to promote native plant establishment. Pockets of emergent wetland plants would also be established. Restoration would occur in areas with deeper layers of debris.</td>
</tr>
<tr>
<td>Potential Mitigation Site</td>
<td>Location, Acreage, Proposed Wetland</td>
<td>Existing Conditions</td>
<td>Potential Mitigation Activities</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------</td>
<td>---------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Site 8: Floatables</td>
<td>NE Pond 21.50-acres open water</td>
<td>Accumulated floatable debris reduced / destroyed wetland functions (see Sites 2/3, above).</td>
<td>Wetland enhancement through installation and long-term operation of a floatables removal device on the Mill River where it enters the Park above the NE Pond.</td>
</tr>
<tr>
<td></td>
<td>1.60-acres forested wetland</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.90-acre emergent wetland</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6 EXISTING CONDITIONS AND TRENDS [24 CFR § 58.40(A)]

6.1 LOCATION

The Park is located in West Hempstead, a hamlet located in the Town of Hempstead in Nassau County, New York (see Figure 1 and Figure 2). The population of the Town of Hempstead contains most of the population of Nassau County. Based on the 2010 census, if the Town of Hempstead were to become a city, it would be the second largest city in the state. The communities that surround the Park represent a mix of incomes. Roughly 6% of the population lives below the poverty line, and NYSDEC has identified the areas to the southwest and northeast of the Park as potential environmental justice areas.

The proposed project location is roughly bounded by the Hempstead Golf and Country Club to the north, Lakeview Avenue to the south, Peninsula Boulevard to the east, and Woodfield Road to the west. Mill Creek enters the Park in the northern end and flows into the two northern ponds before flowing into Hempstead Lake and South Pond, before leaving the Park. Schodack Brook also flows into the Park through Schodack Pond and into South Pond. Downstream of the Park, at Smith Pond, several streams join with the Mill River, which continues south, into the bay and ultimately into the ocean.

6.2 LAND USE

The current land use of the proposed project area is recreational. Land uses adjacent to the site are predominantly high density/urban residential, composed of a mix of single- and multi-family units, as well as infrastructure and natural environment. Other land uses surrounding the project area are interspersed and include commercial properties to the east, west, and south, and a combination of recreational, open space, and industrial areas to the north. Hempstead High School and Hempstead Golf and Country Club are located north of the site.

6.3 FLOODPLAIN MANAGEMENT

The proposed project area is located in an area of minimal flood hazard, designated by the Federal Emergency Management Agency (FEMA) as Zone X, which is outside both the 1% and 0.2% annual chance flood hazard zone. It is therefore, not located within a base floodplain (see Figure 55).

However, areas directly downstream of the park are in the 1% and 0.2% flood hazard zones (Zone A and Zone AE).

Freshwater forested/shrub wetlands are present in the northern and southern portions of the project area, and freshwater emergent wetlands are located on the northern portion of Hempstead Lake and the eastern portion of NW Pond.

Hempstead Lake, part of the upper portion of the Mill River Watershed, drains to Hewlett Bay, located on the south shore of Long Island. Mill Creek, a tributary of Hempstead Lake, is located along the northern edge of the proposed project area. Neither Mill Creek nor Mill River are listed on the NYSDEC Wild, Scenic, and Recreational Rivers list (22) or the Nationwide Rivers Inventory (19, 21).
Figure 55: Flood Hazard
6.4 COASTAL ZONE MANAGEMENT AND COASTAL BARRIERS

The Park is located outside the coastal zone, as shown in Figure 56. It is not included in a Coastal Barrier Resource system, as shown in Figure 57.

6.5 CULTURAL AND ECOCLOGICAL RESOURCES

6.5.1 Cultural Resources

Hempstead Lake was originally constructed as part of the Brooklyn Waterworks water supply system to provide water to Brooklyn, New York. The NE and NW Ponds were developed when the Southern State Parkway was constructed in 1947, which separated the northern lake section from the remainder of Hempstead Lake. New York State Department of Transportation design plans for the Southern State Parkway referred to the NE Pond area as an impoundment area, and all drainage from the parkway was piped to this area (1).

After construction of the Southern State Parkway, few improvements were made to the NE and NW Ponds area. This section of the Park saw limited use—mainly for horseback riding and some other trails use. As the watershed continued to develop, runoff volumes and velocities increased, and the drainage system allowed floatables and debris to be carried to the ponds where they have become trapped on the shoreline and in the ponds (2).

The Hempstead Lake Dam, Hempstead Lake gatehouse, and pipe arch were constructed in 1873 (14). The dam is a 1,500-foot-long and 17-foot-high earthen embankment with a clay core, and it was constructed with five sluice gates and an adjacent outlet gatehouse (the Hempstead Lake gatehouse) containing outlet controls for the dam’s sluice gates. The outlet gatehouse and sluice gates direct water flows through twin 36-inch diameter pipes inside the attached pipe arch, running from the dam south along the west side of McDonald Pond to the inlet at the South Pond gatehouse. The dam’s outlet-controls are currently not functional. The five sluice gates have rusted shut, although two of the sluice gates have been permanently cut open and result in a typical 4- to 5-foot seasonal fluctuation in lake water levels.

Hempstead Lake State Park was determined eligible for listing in the National Register of Historic Places by OPRHP on June 5, 2017 (13). The Park meets Criterion A in the areas of recreation, conservation, and park planning as one of a network of state parks established on Long Island in 1924 as part of New York’s comprehensive state park and parkway plan. The Park also meets Criterion C in the area of design (13). Resources in the Park that could be affected by the project include the Hempstead Lake Dam and South Pond inlet gatehouse.
Figure 57: Coastal Barrier Resource System
6.5.2 Ecological Resources

6.5.2.1 Wetlands

Wetlands in the project area have been mapped as part of USFWS’ National Wetland Inventory (NWI). Approximately 396.4 acres of waterbodies and vegetated wetlands have been mapped and classified as part of the NWI (Figure 58) and are summarized in Table 12. Most of the NWI-mapped wetlands are associated with waterbodies. From south to north, the waterbodies are: South Pond, Schodack Brook Pond, McDonald Pond, Hempstead Lake, NW Pond, and NE Pond. Additional waterbodies include Schodack Brook, which is a tributary to the west shore of Hempstead Lake, and an intermittent stream channel between the NE and NW Ponds. Palustrine forested wetlands and emergent wetlands have also been mapped in association with the north end of Hempstead Lake, the NE and NW Ponds, and a portion of Schodack Brook.

NYSDEC-regulated wetland areas are associated with each of the waterbodies and vegetated wetlands in the project area. Each waterbody is a Class 1 wetland and identified as L-1, L-2, and L-3 (Figure 58).

Wetland assessments were conducted at the two northern ponds in fall 2016. NYSDEC staff conducted a wetland delineation at the NE and NW Ponds in May 2017 to establish the limit of NYSDEC-regulated wetlands in this portion of the project area. NYSDEC staff flagged wetland limits in the field, and Cashin Associates surveyed them. The field assessments indicated that there are more extensive vegetated wetlands associated with each pond than were included in the NWI mapping. An updated wetland delineation was completed in November 2018, and USACE issued a Jurisdictional Determination confirming the wetland limits in January 2019 (see Appendix P). Approximately 18.09 acres of emergent wetlands and 2.51 acres of scrub shrub wetlands are associated with NW Pond and 1.24 acres of emergent wetlands, 2.32 acres of scrub shrub wetlands, and 2.01 acres of forested wetland occur at NE Pond, for a total of 26.34 acres of vegetated wetlands.
Figure 58: Existing Wetlands
Table 12: NWI Wetlands within the Project Area

<table>
<thead>
<tr>
<th>Location</th>
<th>NWI Class</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Pond</td>
<td>L1UBHh</td>
<td>42.3</td>
</tr>
<tr>
<td>McDonald Pond</td>
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</tr>
<tr>
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</tr>
<tr>
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Wetland Types

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<td><strong>Total</strong></td>
<td><strong>396.4</strong></td>
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6.5.2.2 Water Quality

The existing wetlands are a collection point for the upper Mill River Watershed and filter floatables and sediments. To determine the effects that stormwater has on the water quality of the pond system, between November 2016 and January 2017, Cashin Associates collected and analyzed 14 surface water samples from 7 sampling locations to characterize the baseline water quality of the NE and NW Ponds. Samples for each parameter were collected during both dry conditions (sampling conducted following an extended drought in which the two ponds were not receiving or discharging any considerable
amounts of surface water or stormwater) and wet weather conditions (sampling conducted during heavy rainfall in which more than 1.5 inches of rain fell). The samples were analyzed for bacteria counts, nutrient concentrations, particle concentrations, volatile organic compounds, semi-volatile organic compounds, heavy metals, and pesticides.

Sampling confirmed the presence of high bacteria levels. Based on the results of the Enterococci testing, stormwater appears to be a major contributor to the high bacteria levels in the pond system. Samples collected from stormwater entering NE Pond from Mill Creek indicated that this area is the major source of these bacteria. Average concentrations of phosphorus levels in both wet and dry conditions were found to be an order of magnitude higher than the NYSDEC guidance value, indicating that the pond system is at risk of becoming, if not already, eutrophic. Dissolved oxygen levels also indicated anoxic and hypoxic conditions in the pond system. Total suspended solids results were observed to increase significantly under wet conditions, and sample results indicated that the average pH across all sample locations and events was 7.0, which falls within the acceptable range of 6.5 to 8.5 for lakes (6).

Toluene was the only volatile organic compound detected during both wet and dry sampling events, and it was detected at very low concentrations. No semi-volatile organic compounds were detected. Some stormwater samples demonstrated concentrations of multiple heavy metals, with the highest metal concentrations observed under wet conditions. Based on these results, heavy metals, particularly total chromium, could be present in aquatically toxic concentrations. However, additional sampling and analysis focusing on the dissolved form of these contaminants would be necessary to make this determination. No polychlorinated biphenyls or pesticides were detected in the samples (6).

Overall, sampling results indicated that the ponds generally exhibit poor water quality characteristics, and that stormwater runoff appears to be a major contributor to contaminants entering the pond system.

6.5.3 Biological Resources

6.5.3.1 Vegetation

A desktop review of available resource mapping, previous reports, and species inventories was conducted to identify vegetation resources in the proposed project area, including significant natural communities and rare or endangered plants. Significant natural communities are rare or high-quality wetlands, forests, grasslands, ponds, streams, and other types of habitats considered significant from a statewide perspective by the NYSDEC Natural Heritage Program (NHP). The results of this review are summarized below.

Significant Natural Communities

According to the NYSDEC Environmental Resource Mapper (23) and correspondence from the NYSDEC NHP (presented in Appendix Q), the proposed project area is near rare plants, and a significant natural community (coastal plain pond shore) lies within a portion of the proposed project area. The NYSDEC NHP correspondence states that the coastal plain pond shore is located just south of the Southern State Parkway and at the northern extent of Hempstead Lake. NYSDEC NHP describes the habitat as a large moderately diverse pond shore with invasive plants along the edge in a small area surrounded by dense urban development. Although mapped as coastal plain pond shore, a visit to the site in 2015 by a State Park Biologist indicated that the area mapped as coastal plain pond shore is predominantly common reed (Phragmites australis), with few elements of a coastal plain pond shore remaining.
Coastal plain pond shore habitats include the gently sloping shores of coastal plain ponds and have highly variable water levels based on seasonal and annual fluctuations in groundwater, precipitation, and evapotranspiration. Substrates are typically composed of sand, gravel, or muck, and the vegetation community varies with the water level. In years with low water levels when the substrate is exposed, the vegetative community is dominated by dense sedges, grasses, and herbs. In years with high water levels and submerged substrate, the vegetative community is dominated by floating-leaved aquatic species and a few emergent species. Coastal plain pond shores are typically divided into four zones: the upper wetland shrub thicket zone; the upper, low herbaceous fringe zone; the sandy exposed pond bottom zone; and the organic exposed pond bottom zone. The upper wetland shrub thicket zone is either pine barrens shrub swamp or the coastal variant of highbush blueberry bog thicket (10).

Upland Vegetative Communities

Upland vegetated communities in the project area consist of upland forest, managed lawns, and vegetated edges along trails and roadways. In addition, the faces of the existing dams are vegetated with trees, shrubs, and vines. Between February 22 and 23, 2017, Cashin Associates conducted a tree density survey in the upland areas adjacent to the NE and NW Ponds (5). Twenty-six random sample sites were selected within six sub-sample areas of the proposed project area. The six sub-sample areas included the road edge of NW Pond (dominated by cherry trees [Prunus spp.]); the upland oak forest north of NW Pond; the upland oak forest between NE and NW Ponds; the red maple swamp; disturbed upland forest area south of NE Pond channel (dominated by locusts [Robinia spp.] and maples [Acer spp.]); and the upland forest strip southwest of NE Pond (dominated by oaks [Quercus spp.]). Invasive plant species observed during the survey included Japanese honeysuckle (Lonicera japonica), English ivy (Hedera helix), common reed, Japanese knotweed, and tree of heaven. The mean tree density of the site area averaged between 289 and 316 trees per acre, and the estimated number of trees identified at each area ranged from 89 to 3,963.

In December 2016, Cashin Associates prepared a design report that includes a field and desktop plant and wildlife survey (1, 31). Numerous exotic or invasive plant species were observed in the project area in both upland and wetland locations. Plants identified as New York State invasive species found in the proposed project area included Norway maple (Acer platanoides), garlic mustard (Alliaria petiolata), oriental bittersweet (Celastrus orbiculatus), autumn olive (Elaeagnus umbellata), Japanese knotweed, privet (Ligustrum sinense), Japanese honeysuckle, purple loosestrife, common reed, Japanese stilt grass (Microstegium vimineum), locust, and multiflora rose.

The majority (61%) of the proposed tree removals would be associated with NW Pond Dam, Hempstead Lake Dam, and South Pond Dam, which are narrow, linear strips of woodland bordered by existing and well-traveled two-lane roads. These areas are not part of larger, contiguous woodlands and do not represent wide forest corridors linking adjacent woodlands. Likewise, the proposed tree removals in the northern ponds area would occur in different discontinuous patches and would not result in discontinuity and fragmentation of adjoining woodlands. In addition, the proposed tree removals would not alter the character of the remaining vegetative communities and their habitat value to the wildlife that use them.

Wetland and Aquatic Vegetative Communities

Wetland and aquatic vegetative communities in the project area include aquatic zone, emergent wetland, and riparian forest (red maple swamp). As part of the design report, a preliminary wetland
delineation and assessment was completed for the proposed project area on November 4 and 5, 2016, that describes the plant composition within each community, as discussed below (4).

Dominant vegetation observed in emergent wetlands included beggarticks (*Bidens* spp.), spikerushes (*Eleocharis* spp.), common three-square (*Schoenoplectus pungens*), and common reed. Other species observed in the emergent wetlands included jewelweed (*Impatiens capensis*), bog goldenrod (*Solidago uliginosa*), flatsedges (*Cyperus* spp.), Japanese stilt grass, cattails (*Typha* spp.), and willows (*Salix* spp.).

Woody vegetation observed in the red maple swamp included red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), American holly (*Ilex opaca*), American beech (*Fagus grandifolia*), blackgum (*Nyssa sylvatica*), northern red oak (*Quercus rubra*), swamp white oak (*Quercus bicolor*), sassafras (*Sassafras albinum*) and spicebush (*Lindera benzoin*). Native understory species included jewelweed and sensitive fern (*Onoclea sensibilis*). The assessment notes that the red maple swamp was densely overrun by invasive species such as common reed, Japanese knotweed, oriental bittersweet, multiflora rose, and Japanese honeysuckle.

Common aquatic macrophytes observed during an August 2015 plant survey of Hempstead Lake Park ponds included slender naiad (*Najas flexilis*), common bladderwort (*Utricularia vulgaris*), and the non-native curly-leaved pondweed (*Potamogeton crispus*) (31).

6.5.3.2 Wildlife and Fish

The project area contains a variety of habitat types available to wildlife and fish, including open water, riparian wetland, emergent wetland, mudflat, and upland forest. Terrestrial wildlife expected to use the project area includes squirrels, chipmunks, muskrats, mice, raccoons, reptiles, and resident and migratory birds. Owls, osprey (*Pandion haliaetus*), bald eagles (*Haliaeetus leucocephalus*), herons, egrets, and waterfowl, as well as migratory birds such as warblers, flycatchers, and vireos use various habitats in the proposed project area. Forested area provides breeding habitat for species such as great horned owls, woodpeckers, and migratory songbirds. Avian species documented in the project site are described below.

According to the National Audubon Society (18), Hempstead Lake has been designated as an “Important Bird Area” and is one of the most important sites on Long Island for wintering waterfowl beginning in late August and peaking in the late fall and winter. At peak times, the numbers run into the many thousands with the following species present: gadwall (*Anas strepera*), American wigeon (*Anas americana*), American black duck (*Anas rubripes*), mallard (*Anas platyrhynchos*), northern shoveler (*Anas clypeata*), northern pintail (*Anas acuta*), green-winged teal (*Anas carolinensis*), canvasback (*Aythya valisineria*), lesser scaup (*Aythya affinis*), common merganser (*Mergus merganser*), hooded merganser (*Lophodytes cucullatus*), and ruddy duck (*Oxyura jamaicensis*). Of these, the most numerous are the American black duck, mallard, and lesser scaup. Hempstead Lake is also one of the most important sites for migrant landbirds on Long Island, and approximately 17 species of shorebirds have been observed foraging at the north end of the lake when water levels go down. Large numbers of terns use the area as a feeding and bathing site in late summer.

The park is considered a “hot spot” by eBird, with 163 species recorded in the northern ponds and 219 species recorded in Hempstead Lake as of November 2019 (8). Canada goose (*Branta canadensis*), mallards, and various gull species are the most frequently documented by eBird in NE and NW Ponds, while common grackle (*Quiscalus quiscula*), American black duck, and European starling (*Sturnus vulgaris*) are the most frequently documented species by eBird in Hempstead Lake.
Recent surveys conducted in support of the proposed project by Seatuck Environmental Association have documented a diversity and abundance of birds using the shallow open water, mudflats, and emergent wetlands in the NW Pond (35). Species included freshwater shorebirds (e.g., least sandpiper [Calidris minutilla], spotted sandpiper [Actitis macularius], solitary sandpiper [Tringa solitaria], semipalmed plover [Charadrius semipalmatus], greater yellowlegs [Tringa melanoleuca], and lesser yellowlegs [Tringa flavipes]), wading birds (e.g., great blue heron [Ardea herodias], great egret [Ardea alba], snowy egret [Egretta thula], green heron [Butorides virescens], black-crowned night heron [Nycticorax nycticorax], and glossy ibis [Plegadis falcinellus]), and dabbling ducks (e.g., American black duck, blue-winged teal [Anas discors], northern shoveler, green-winged teal, American wigeon, gadwall, and northern pintail).

Fish, reptiles, and amphibians use aquatic habitat in the project area, including Hempstead Lake and its adjacent waterbodies that are connected to the Mill River and eventually flow to Hewlett Bay. Reptiles expected to occur include northern water snake (Nerodia sipedon), painted turtle (Chrysemys picta), and common snapping turtle (Chelydra s. serpentine). Amphibians expected to occur include spotted salamander (Ambystoma maculatum), bullfrog (Rana catesbeiana), and green frog (Rana clamitans melanota).

Note, the waterbodies of Hempstead Lake State Park are within the Mill River complex, but fish cannot swim upstream from areas downstream of the Park. Existing weirs and dams create obstacles to fish passage. As such, there are no naturally occurring fish populations in the Park. According to NYSDEC Division of Fish, Wildlife & Marine Resources, Bureau of Fisheries, NYSDEC stocked Hempstead Lake in 2003 with the following species: chain pickerel (Esox niger), golden shiner (Notemigonus crysoleucas), brown bullhead (Ameiurus nebulosus), banded killifish (Fundulus diaphanus), pumpkinseed (Lepomis gibbosus), bluegill (Lepomis macrochirus), black crappie (Pomoxis nigromaculatus), and yellow perch (Perca flavescens). In 2004, NYSDEC stocked the lake with largemouth bass (Micropterus salmoides). Subsequent surveys documented survival and reproduction of all species stocked, except golden shiner. Two species that were not stocked but are known to occur in the lake are common carp (Cyprinus carpio), a non-native species that was illegally introduced into the lake by an unknown source, and American eel (Anguilla rostrata). Largemouth bass is the most numerous species documented in the lake (24, 27, 28). McDonald Pond is annually stocked with trout in the fall (30).

6.5.3.3 Threatened and Endangered Species

The NYSDEC NHP was also contacted for information on any known occurrences of state endangered, threatened, proposed, or candidate species of flora and fauna or any critical habitats known to support those species near the project area. The NYSDEC NHP has records of three plants listed as state threatened or endangered within the project area: chain pickerel (Esox niger), golden shiner (Notemigonus crysoleucas), brown bullhead (Ameiurus nebulosus), banded killifish (Fundulus diaphanus), pumpkinseed (Lepomis gibbosus), bluegill (Lepomis macrochirus), black crappie (Pomoxis nigromaculatus), and yellow perch (Perca flavescens). In 2004, NYSDEC stocked the lake with largemouth bass (Micropterus salmoides). Subsequent surveys documented survival and reproduction of all species stocked, except golden shiner. Two species that were not stocked but are known to occur in the lake are common carp (Cyprinus carpio), a non-native species that was illegally introduced into the lake by an unknown source, and American eel (Anguilla rostrata). Largemouth bass is the most numerous species documented in the lake (24, 27, 28). McDonald Pond is annually stocked with trout in the fall (30).

Slender crabgrass is considered extirpated in western Long Island and therefore is presumed to be absent from the project area. Although no recent records of the fringed boneset and weak rush exist, suitable habitat for these species is present within the project area. Coastal plain pond shores provide
suitable habitat for both species, and the weak rush also occurs in red maple swamps, mudflats, and shallow emergent marshes.

A request was made to USFWS for information regarding the potential presence of species under its jurisdiction in the proposed project area via the ECOS-IPaC project planning tool. The official list of federally threatened and endangered species and candidate species known or likely to occur in the proposed project area is provided in Appendix R. This list indicates that the following six listed species may occur in the proposed project area and/or may be affected by the proposed project: sandplain gerardia (Agalinis acuta—endangered), seabeach amaranth (Amaranthus pumilus—threatened), piping plover (Charadrius melodus—threatened), red knot (Calidris canutus rufa—threatened), roseate tern (Sterna dougallii—endangered), and northern long-eared bat (Myotis septentrionalis—threatened). These species’ habitat requirements include:

- Sandplain gerardia: pine-barrens grasslands; remnant grasslands
- Seabeach amaranth: sparsely vegetated upper beach zone
- Red knot: mudflats with abundant food such as horseshoe crab eggs
- Piping plover: wide, flat, open, sandy beaches with limited vegetation and limited human disturbance
- Roseate tern: open water for fishing and barrier-island nesting colony areas free of predators and human disturbance
- Northern long-eared bat: abundant stands of trees with sufficient bark crevices and snags for roosting

Based on these habitat requirements, sandplain gerardia, seabeach amaranth, red knot, piping plover, and roseate tern are not expected to occur in the project area. Forested areas in the project area may provide potential summer habitat for northern long-eared bats. Summer habitat for northern long-eared bats consists of a wide variety of forested habitats where they roost, forage, and travel. If present in the project area, northern long-eared bats would likely use the large, intact woodlands along the south shore of Hempstead Lake. The project area is not located near any known or assumed northern long-eared bat hibernacula or maternity roosts according to NYSDEC NHP data (see Appendix Q). Based on information from the USFWS Long Island Field Office, the nearest known maternity roost is located on Brookhaven National Lab property, located more than 40 miles east of the project area.

The USFWS Trust Resources Report also indicates that 27 species of migratory birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act that could potentially be affected by the proposed project, including bald eagles. Bald eagles have been observed in the project area, but no breeding eagles have been documented in the area.

7 FUNDING INFORMATION

Estimated Total HUD Funded Amount: $35,000,000.00

Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR § 58.32(d)]: $35,000,000.00
8 COMPLIANCE WITH 24 CFR 58.5, AND 58.6 LAWS AND AUTHORITIES

8.1 STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 58.6

This section details compliance requirements for the following:

- Airport hazards as defined in 24 CFR Part 51 Subpart D
- Coastal barrier resources as defined in the Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]
- Flood insurance as defined by the Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]

8.1.1 Airport Hazards

8.1.1.1 Citation: 24 CFR § 51, Subpart D

Based on guidance provided by HUD in Fact Sheet #D1, the National Plan of Integrated Airport Systems was reviewed for civilian, commercial service airports near the Hempstead Lake State Park Project area because projects within 2,500 feet of a civil airport require consultation with the appropriate civil airport operator. John F. Kennedy (JFK) Airport and LaGuardia Airport in Queens, New York, are the nearest airports to the project area, at approximately 8.5 and 20 miles away, respectively. The Hempstead Lake State Park Project parcel is not within 2,500 feet of either of these airports. No known military airports are within 15,000 feet of the project area, and the project site is not located in an Airport Runway Clear Zone. No additional action is needed (11).

8.1.2 Coastal Barrier Resources

8.1.2.1 Citation: Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 United States Code (USC) 3501]

The Hempstead Lake State Park Project site is not within a Coastal Barrier Resources area as defined by the State’s Coastal Management Zone Program (see Figure 57). Accordingly, HUD funding can be applied to this project (43).

8.1.3 Flood Insurance

8.1.3.1 Citation: Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001–4128 and 42 USC 5154a]

The project site is not in a Special Flood Hazard Area. According to the FEMA Flood Insurance Rate Map (FIRM) No. 36059C0217G, dated September 9, 2011, the project site is located outside the 0.2% annual-chance (or 500-year) flood hazard zone (12). See Figure 55. Therefore, the proposed project does not require the purchase of flood insurance. Proposed work on the dams, NE Pond, and NW Pond areas would improve water quality conditions downstream and provide improved stormwater management in the upper LWTB project area to reduce impacts downstream.
8.2 STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 AND 58.5

This section details compliance requirements for the following:

- Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93
- Coastal Zone Management sections 307(c) & (d)
- Contamination and Toxic Substances as defined at 24 CFR Part 58.5(i)(2)
- Endangered Species as defined by the Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402
- Explosive and Flammable Hazards as defined at 24 CFR Part 51 Subpart C
- Farmlands Protection as defined by the Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658
- Floodplain Management as defined in Executive Order 11988, particularly section 2(a); 24 CFR Part 55
- Historic Preservation as defined by the National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800
- Noise Abatement and Control as defined in the Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B
- Sole Source Aquifers as defined in the Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149
- Wetlands Protection as defined in Executive Order 11990, particularly sections 2 and 5
- Wild and Scenic Rivers as defined in the Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)
- Environmental Justice as defined in Executive Order 12898
- Fish and Wildlife Coordination Act of 1934, as amended

8.2.1 Clean Air Act

8.2.1.1 Citation: Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR §§ 6, 51, 93

Nassau County is a moderate nonattainment area for the 2008 8-hour ozone standard and a maintenance area for the 1971 maximum carbon monoxide, 1997 annual average fine particulate matter (PM2.5), and 2006 24-hour average PM2.5 standards (41).

Construction air quality impacts would be short term and localized. Peak-year construction emissions (during 2020) would be less than the de minimis thresholds for all pollutants for which Nassau County is designated as a non-attainment or maintenance area. See Appendix S for detailed calculations. The proposed project would not substantively affect the NY State Implementation Plan because standard best management practices (BMPs) that control dust and other emissions during construction would be implemented.

The 100-kilowatt generator operating only for testing or during emergency situations would not result in combined emissions of hazardous air pollutants in excess of 25 tons per year. As such, the proposed generator at the environmental education and resiliency center would be exempt from prevention and
control of air contamination and air pollution permitting requirements pursuant to 6 CRR-NY 201-3.2(c)(6). Regardless, generator emissions would be well below de minimis thresholds. Consequently, it would not qualify as a major source, and the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE MACT) would not apply. See Appendix S.

As explained under Section 9.3.9, Transportation and Accessibility, below, the proposed project would not result in substantial new vehicle trips or result in changes to traffic patterns. Therefore, a mobile source air quality impact analysis for the direct impacts of the proposed project is not necessary. Removal of an estimated 1,799 trees would not substantially affect air quality because replacement trees would be planted in approximately 3.5 noncontiguous acres around the two ponds, and hundreds of acres of existing vegetation within the Park would remain. See Appendix D for planting plans and planting schedules.

8.2.2 Coastal Zone Management

8.2.2.1 Citation: Coastal Zone Management Act, sections 307(c) & (d)

The project area is not located in the Long Island Coastal Zone as defined by the State’s Coastal Zone Management Program (32). See Figure 56.

8.2.3 Contamination and Toxic Substances

8.2.3.1 Citation: 24 CFR §§ 50.3(i) & 58.5(i)(2)

HUD policy requires that the proposed site and adjacent areas be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances where a hazard could affect the health and safety of occupants of the property or conflict with the intended use of the property. The responsible entity must use qualified professionals to undertake investigations deemed necessary. Because the project will involve dredging sediments and excavating soils, an analysis of contamination and toxic substances was conducted.

The project site has been developed as a reservoir system since the 1870s, and it has been natural open space since construction of the Southern State Parkway in the 1940s. As such, there are no known historical uses on the site that would have contributed to upland soil contaminants. The project area contains no sites listed on the NYSDEC Environmental Site Remediation Database (see Figure 59) (28).

As shown in Figure 59, the nearest site listed on the NYSDEC database is 0.2-mile north of the project site, along Sycamore Avenue. Based on field investigations conducted in 1994, trace amounts of pesticides are present at the site. The NYSDEC file indicates that concentrations do not constitute disposal of a hazardous waste, and they are not present in groundwater (28). As such it is highly unlikely that concentrations would have migrated more than 0.2 mile to the area of excavation for the proposed project.

The next-nearest site in the NYSDEC database is more than 0.5-mile north of the Park. The site had been contaminated with chromium and nickel in soil and groundwater. Remedial actions, including soil excavation and removal, have successfully achieved soil cleanup for commercial use, and residual nickel and chromium contamination is being managed under a Site Management Plan. Any contaminated soils remain at the site below the concrete or clean backfill (28).
8.2.3.2 Sediments

The NE and NW Ponds are the collection point for a highly developed suburban watershed. As such, low levels of contaminants associated with such development have entered the ponds over several decades (3). Samples of the sediments in NE and NW Ponds were analyzed, and the results are summarized in Appendix J. Samples indicate high concentrations of contamination in sediment. In particular, metals were found to be beyond NYSDEC’s Class C contamination thresholds. The only other Class C classification was for 4,4-DDD at one sample site in the northeast area of NE Pond. Class C sediments, as described in NYSDEC’s Technical & Operation Guidance Series, Section 5.1.9, are expected to be acutely toxic to aquatic biota and would likely be subject to more stringent dredging, management, and disposal requirements.

Approximately 2,473 CY of wetland cut (dredging or excavation) would be required in the NE and NW Ponds. Dredging would increase turbidity and expose nutrient-rich sediments. If disturbed, these sediments could cause the contaminants to become suspended in the water column of NE Pond, which could cause the contamination to spread to other areas of NE and NW Ponds, Hempstead Lake State Park, and farther downstream throughout the Mill River Watershed. Such disturbance presents a potential impact of exposing aquatic biota to acute toxic effects associated with potentially contaminated sediments suspended in the water column.

OPRHP submitted the Sediment Sampling Findings Report to NYSDEC for review, pursuant to the NYSDEC permitting process (further discussed below). NYSDEC’s response is included in Appendix J. NYSDEC stated that if it were to allow dredged and excavated material to remain on-site, the presence of contamination above Class C, and in some cases Class B, thresholds, would require additional testing for contaminant mobility. In addition, if dredged and excavated material were to remain on-site, NYSDEC would require submission of a Toxicity Characteristic Leaching Procedure analysis for any samples in which lead exceeded 420 parts per million to determine whether the proposed dredged and excavated material would exceed the hazardous waste thresholds of the Identification and Listing of Hazardous Wastes (6 NYC RR Part 371).

However, NYSDEC also indicated that OPRHP could forego further testing if all dredged sediments were disposed at an upland facility off Long Island to protect groundwater resources. OPRHP has committed to such disposal, and further testing for purposes of on-site usage of dredge material is therefore not proposed. OPRHP would conduct additional testing if required by the facility receiving the material or if such testing would otherwise be required during the permitting process. NYSDEC has indicated that such testing could occur while the materials are temporarily stored on-site (prior to disposal).

An additional 1,500 CY of sediment would be dredged from the upstream face of Hempstead Lake Dam. The sediment proposed to be dredged from this area consists of coarse sand material that is unlikely to contain contaminants because of its more recent deposition (unlike historical sediments deposited during periods of greater contaminant potential) and the lower potential for coarse sand to contain contaminants. Disturbance of the sediment could cause suspension of solids. These sediments would also be included with the off-site disposal procedure as described above.

8.2.3.3 Soils

The construction of the NE and NW Ponds component of the project would require the excavation of approximately 6,832 CY of upland soil. The excavated soil would be used to construct the wetland and berms within the ponds. The excavated soil would be screened as necessary to remove materials...
encountered that are unsuitable for reuse within the pond. Unsuitable excavated materials would be disposed off-site in accordance with disposal requirements.

Although the project area contains no sites listed on the NYSDEC Environmental Site Remediation Database, a screening-level assessment was completed to evaluate if the excavated soils could be used on-site or if further testing was warranted. Soil sample borings were collected in areas of excavation. Sampling results identified only minor instances of lead (one sample) and mercury (three samples) that exceeded their applicable Unrestricted Use/Protection of Ecological Resources Soil Cleanup Objectives. However, they did not exceed Residential Soil Cleanup Objectives. When site-wide averages were used to compare against NYSDEC Technical & Operation Guidance Series, Section 5.1.9 Thresholds, the upland soils achieved Class A Thresholds, indicating that no appreciable contamination was present. As such, the soil should be suitable for reuse on-site. Further detail can be found in Appendix T.

However, accidental discovery of contaminated soils cannot be entirely ruled out. As such, to ensure that humans and wildlife would not be exposed to contaminated sediments during upland excavation, mitigation to address accidental discovery of contaminants would be addressed through the NYSDEC permitting process, discussed below.

8.2.3.4 Permitting

To mitigate the potential impacts that could be caused by the disturbance of potentially contaminated sediments and soils through dredging and excavation, the approval of all dredging and excavation activities is conditioned upon issuance of a permit from NYSDEC in accordance with a NYSDEC Use and Protection of Waters Permit (6 NYCRR Part 608.2(a)); Freshwater Wetlands Permit (6 NYCRR Part 663); State Pollutant Discharge Elimination System (SPDES) Permit (6 NYCRR Part 751.3(a)(6)); and Clean Water Act § 401 Water Quality Certification. OPRHP is committed to implementing any further analysis, construction restrictions, or permit conditions that NYSDEC would require under its jurisdiction in issuing the above permits.

Under the permitting process, all dredging and excavation activities would be reviewed and approved by NYSDEC and conducted in accordance with the NYSDEC Technical & Operational Guidance Series, Section 5.1.9. BMPs would include: construction methods for removing sediments and soils, handling and movement of sediments and soils to a temporary dewatering location in the project area to be determined during the permitting process, and methods to minimize transport of sediments during dredging beyond the dredge area such as through the use of turbidity curtains. Should temporary dewatering be necessary to conduct the dredging or excavation, the dewatered area would be minimized to the extent practicable and is not expected to substantially interrupt stream flow. Dredging and excavation would also consider potential seasonal restrictions on in-water work to avoid or minimize impacts on life-cycle periods of aquatic organisms. BMPs would minimize the potential for contaminants in the sediments to migrate during dredging and once the dredged materials are stored on-site in an appropriate containment location prior to transport to an off-Long Island permitted disposal facility. These controls would ensure that construction activities would not affect the health and safety of occupants or conflict with the intended use of the property, and use of the site as wetlands would not be adversely affected by hazards (24 CFR Part 50.3(i)(1,2)). These mitigation measures are included in Section 13, Mitigation Measures and Conditions.

With implementation of BMPs, the proposed dredging and excavation would result in minimal downstream increases in turbidity, sedimentation, or nutrient/contaminant inputs; limited impediments to flow or aquatic organism movements in tidal or non-tidal waterways; limited displacement or
degradation of aquatic resources, including benthic communities; and would not adversely affect special-status species and their habitats. Biological resources in the dredging/excavation area would only be altered/diminished for a short, finite period but would recover. Short-term impacts would be localized in specific areas and would not substantially affect or diminish biological resources throughout the site. The proposed dredging and excavation would be temporary and result in short-term, less-than-significant, adverse effects.

Once completed, most of the new pond bottom in the dredging and excavation locations would be covered by riprap, which would prevent scour of the new sediment bed and resuspension of sediments. The post-dredging environment would result in biological resources benefits as a result of permanent removal of contaminated sediments. Upland areas would be planted with native species. See Appendix D for the planting plans and planting schedules.

8.2.4 Endangered Species

8.2.4.1 Citation: Endangered Species Act of 1973, particularly section 7; 50 CFR § 402

The USFWS IPaC Official Species List (see Appendix R) indicates that the following species protected under the Endangered Species Act may occur in the proposed project area: sandplain gerardia (endangered), seabeach amaranth (threatened), piping plover (threatened), red knot (threatened), roseate tern (endangered), and northern long-eared bat (threatened). Of these, only the northern long-eared bat has suitable habitat present in the project area and may occur within the project site. No designated critical habitats occur within the project site.

The NYSDEC NHP (see Appendix Q) has records of three state-listed species within the project area: fringed boneset (threatened), weak rush (endangered), and slender crabgrass (endangered). Based on the records of these species within the project area and the presence of suitable habitat in the project area, a qualified biologist would survey suitable habitat within the proposed areas of disturbance prior to construction to note the presence or absence of these species. If found in an area that would be disturbed, the plant(s) would be relocated to a similar nearby habitat outside the area of disturbance to avoid adverse impacts.

Twenty-seven species of migratory birds may be present near the project site, including bald eagles (non-breeding). The project has been modified since October 2018, resulting in a 30% reduction in the number of trees that would be removed. Regardless, removing approximately 1,799 trees associated with the project would result in a loss of some forest habitat for migratory birds. Approximately 1,100 of the trees would be removed from the dams, as required by the NYSDEC dam safety requirements, and 647 trees would be removed for wetland enhancement activities at NE and NW Ponds. Replacement trees would be planted in approximately 3.5 noncontiguous acres around the two ponds. See Appendix D for planting plans and planting schedules. Therefore, the impact would be considered minor based on the nature of the trees to be removed and the hundreds of acres of similar habitat within the Park that would remain available to migratory birds and other species that use forested habitat. As described above, most of the proposed tree removals are associated with the narrow, linear dams on Hempstead Lake and South Pond. The proposed tree removals in the northern ponds area would occur in different discontinuous patches and would not create discontinuity and fragmentation of adjoining woodlands. Despite the proposed tree removals, the habitat character of the remaining forest communities and their value to wildlife would remain essentially unaltered and would continue to support existing wildlife populations. In addition, the proposed meadows that would replace the woodlands on the Hempstead Lake and South Pond dams would also serve as wildlife habitat.
Migratory birds are expected to temporarily leave the area during construction because of noise and disturbance. Because of a November 1 to March 31 tree-clearing window proposed to protect northern long-eared bats, trees would not be removed during the migratory bird breeding season, which occurs between April 1 and August 31. Limiting tree removal activities to between November 1 and December 31 would further minimize impacts on migratory bird species.

Tree removal associated with the project would result in a loss of potential northern long-eared bat summer roosting, foraging, and travel habitat. The permanent loss of potential summer habitat would result in a minor, adverse impact on northern long-eared bats because similar habitat would remain available elsewhere in the Park. These impacts would be minimized by limiting tree removal during the active/roosting season of April 1 to October 31 to only those trees required to be removed for dam improvements and bridge installation. A qualified biologist would survey trees for bat activity prior to and during all tree removal activities, using the USFWS guidelines for Indiana bat surveys, which are also applicable to northern long-eared bats. The remainder of all tree removal activity would occur between November 1 and March 31 while northern long-eared bats are in hibernation and would not be directly affected by tree removal activities, thereby avoiding any prohibited incidental take. If tree removal were required during active/roosting season in other areas, OPRHP would coordinate with NYSDEC to implement the necessary surveys. However, there are no known occurrences of northern long-eared bats in the Park, and northern long-eared bats are not expected to occur there despite the availability of potentially suitable habitat. Due to time constraints, trees associated with the Hempstead Lake and South Pond Dams may need to be removed outside the tree-clearing window. A qualified biologist would survey trees for migratory bird activity prior to and during all tree removal activities. If an active nest were encountered, it would be left in place and protected until young hatch and depart, if feasible. If not feasible, the USFWS Field Office and/or NYSDEC Regional Wildlife Office would be contacted for assistance to determine the appropriate plan of action.

In July 2017, GOSR initiated consultation with USFWS regarding potential impacts on species protected under the Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act, including northern long-eared bats. At the request of USFWS, a Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form was submitted to USFWS. USFWS concurred with the determination that the project may affect but is not likely to adversely affect species protected under USFWS jurisdiction. Specific mitigation measures may be implemented as identified during the permitting process by federal and state agencies. In subsequent correspondence in October 2017, USFWS stated that GOSR has met its section 7 obligations regarding the northern long-eared bat, and that no consultation was required regarding migratory birds other than that the project should not result in a take. In February 2019, GOSR submitted an updated consultation and Northern Long-eared Bat 4(d) Rule Streamlined Consultation Form to inform USFWS of changes in the timing of proposed tree clearing for specific project components. As stated on the form, if USFWS does not respond within 30 days from submittal of the form, the action agency (GOSR) may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the northern long-eared bat are fulfilled through the USFWS January 5, 2016, Programmatic Biological Opinion. Therefore, GOSR presumes that its determination is informed by the best available information and its project responsibilities under section 7 of the ESA have been fulfilled.

On May 7, 2019, an updated USFWS IPaC Official Species List was obtained for the proposed project site. The information provided is consistent with that previously reviewed; therefore, GOSR maintains its determination that the project may affect but is not likely to adversely affect species protected under USFWS jurisdiction. See Appendix R. It should be noted that other species that USFWS is currently
evaluating for listing under the Endangered Species Act—little brown bat (Myotis lucifugus), tri-colored bat (Perimyotis subflavus), monarch butterfly (Danaus plexippus), and yellow-banded bumble bee (Bombus terricola)—may be present in the project area. Although these species are not being considered under the Endangered Species Act for this project, GOSR notes that the measures described above that would be employed to minimize impacts on northern long-eared bats would also protect little brown and tri-colored bats, if present. The proposed project would result in the establishment of pollinator habitat that includes native flowering plants to support the initiative to protect pollinators in New York State. Establishment of pollinator habitat would help support monarch butterfly and yellow-banded bumble bee populations.

8.2.5 Explosive and Flammable Hazards

8.2.5.1 Citation: 24 CFR § 51, Subpart C

A search of available aerial imagery and the NYSDEC Bulk Storage Program Database identified the following chemical or petroleum aboveground storage tanks within 1 mile of the project site. Where applicable, the HUD Acceptable Separation Distance is provided for each tank. Note that some sites may have more than one tank.

0.25 mile from project site:
- Site 1-000226 (tank information withheld from public disclosure)

0.5 mile from the project site:
- Site 1-000253 (tank information withheld from public disclosure)

Between 0.5 and 1 mile from the project site:
- Site 1-000213 (acceptable separation distance of 215 feet)
- Site 1-000275 (two aboveground storage tanks, tank information withheld from public disclosure)
- Site 1-000227 (tank information withheld from public disclosure)
- Site 1-000267 (tank information withheld from public disclosure)
- Site 1-000497 (tank information withheld from public disclosure)
- Site 1-000498 (tank information withheld from public disclosure)
- Site 1-000517 (tank information withheld from public disclosure)
- Site 1-000586 (tank information withheld from public disclosure)
- Site 1-000648 (tank information withheld from public disclosure)

Note: Italics indicate that tank(s) were converted to non-regulated use. Non-regulated use per NYSDEC is defined as a tank storing something other than a regulated petroleum product.

The generator for the environmental education and resiliency center would have a dedicated aboveground diesel fuel tank, containing approximately 309 gallons of fuel. The tank would be double-walled to allow for 110% of the storage tank's capacity to provide for sufficient secondary containment.
Additionally, the tank would be constructed with a concrete lining to mitigate the risk of fire and/or explosion and satisfy HUD’s separation distance requirements (29).

8.2.6  Farmlands Protection

8.2.6.1  Citation: Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR § 658

Based on the soil classifications presented in the National Resources Conservation Service report obtained for the proposed project area in May 2017, approximately 40% of the land in the project area is classified as important farmland. However, because all the land in the project area is committed to urban development, it is not subject to the Farmland Protection Policy Act (39).

8.2.7  Floodplain Management

8.2.7.1  Citation: Executive Order 11988, particularly section 2(a); 24 CFR § 55

The Hempstead Lake State Park Project site is not in a Special Flood Hazard Area. The project area is located outside the 0.2% annual-chance (or 500-year) flood hazard zone, based on review of the FEMA FIRM (Map No. 36059C0217G), for Hempstead, New York (12). See Figure 55. Proposed work on the dams and NE and NW Ponds would improve water quality. Seasonal operation of the Hempstead Lake Dam sluice gates would provide improved stormwater management in the northern LWTB project area to reduce impacts downstream through seasonal operation. From October through March, the dam’s middle sluice gate would be closed. This would provide additional storage in the lake and attenuate riverine flows during periods of coastal storm surge.

8.2.8  Historic Preservation

8.2.8.1  Citation: National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR § 800; Tribal notification for new ground disturbance.

Examination of the project area in Cultural Resource Information System (CRIS) indicates that Hempstead Lake State Park was determined eligible as a historic district by OPRHP on June 5, 2017, and 10 individual resources have been determined to be contributing or eligible within the district. Prior to this determination, the carousel at the Park was determined to be eligible for the National Register of Historic Places (5901.000078). No other previously surveyed sites are in the project area. The project area is not in an archaeological sensitive area as depicted in CRIS.

The gatehouses and associated dams that are slated for improvement at the Park have not been evaluated with respect to National Register criteria, and they are not identified as contributors or eligible within the district. The South Pond outlet gatehouse, which would be demolished as part of the project, has diminished integrity because three walls and the roof collapsed. The potential for the project to affect architectural resources is limited because rehabilitation of the existing gatehouses and dams would be completed according to the Secretary of the Interior’s Standards and under direction from OPRHP.

Ground-disturbing activities for the project would occur only in previously disturbed areas. The activities would include cut (dredging/excavation) in the wetlands and uplands, removal of trees, construction of bridges, installation of trails, and construction of the proposed environmental education and resiliency center. Based on available records, there is no indication that the areas of ground disturbance contain archaeological resources.
On June 21, 2017, the New York State Historic Preservation Office found that the proposed project would have No Adverse Impact on the Park (Appendix U).

The Unkechaug, Shinnecock Nation, Stockbridge-Munsee Community Band of Mohicans, Delaware Tribe of Indians, and Delaware Nation were notified of the project on July 5, 2017. Comments were received from every tribe except the Unkechaug Tribe. All the tribes, except for Stockbridge-Munsee agreed with the No Effect determination but wanted to be kept informed about the project’s progress. The Stockbridge-Munsee Community Band of Mohicans stated that the project was not in its area of interest (Appendix V).

8.2.9 Noise Abatement and Control

8.2.9.1 Citation: *Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR § 51, Subpart B*

During construction, the proposed project would cause temporary increases in noise levels that would be mitigated by complying with the Town of Hempstead local noise prohibitions. These prohibitions limit most construction activities to between 7:00 a.m. and 6:00 p.m. on weekdays and require use of mufflers on generators and motor vehicles (Town of Hempstead Code 144-3). Construction noise would be dispersed among the project components across the Park’s 521 acres.

The proposed project involves repairs and improvements to elements in the Park. It would result in one new facility: the environmental education and resiliency center, which would not generate substantial new noise on the project site.

Generally, vehicular traffic, as measured in passenger car equivalents, must double in order to result in a perceptible increase in mobile source noise. As indicated in Section 9.3.9, Transportation and Accessibility, the proposed project would not substantially increase vehicular trips. As such, it would not generate substantial new mobile-source noise.

Therefore, no significant noise impacts are expected to occur as a result of the proposed project.

8.2.10 Sole Source Aquifers

8.2.10.1 Citation: *Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR § 149*

The proposed project is located on the Nassau/Suffolk Sole Source Aquifer system (see Figure 60). The proposed project would not result in substantial net new water demand or increased groundwater pumping. The improved wetlands are anticipated increase groundwater recharge. The project would not introduce new contaminants into the aquifer and would aid in filtering out stormwater contaminants through the sediment basins and enhanced wetland areas.

An Initial Screen/Preliminary Review was conducted as per the Memorandum of Understanding between USEPA and HUD dated August 24, 1990. By letter dated August 22, 2017, USEPA determined that the project would satisfy the requirements of Section 1424(e) of the Safe Drinking Water Act (see Appendix W).
Figure 60: Sole Source Aquifers

Sole Source Aquifers
Hempstead Lake State Park

Source: FRMA, NYS GIS Clearinghouse, NYS Department of Environmental Conservation, ESRI World Imagery; ESRI Street Map

Louis Berger
8.2.11 Wetlands Protection

8.2.11.1 Citation: Executive Order 11990, particularly sections 2 and 5

The NE and NW Ponds' portions of the project site include freshwater wetlands and open water (ponds) that would be disturbed by the proposed project, and on-site wetland restoration and enhancement is proposed to mitigate impacts. The extent of construction activities/disturbance to wetlands and ponds was quantified. See Section 5.2, Northeast and Northwest Ponds, for a description of the northern ponds' components of the project.

An alternatives design analysis and wetland functional assessment was prepared and is included in Appendix X. During the design process, multiple design options for different aspects of the design were considered. The design options were developed through discussions with project partners, input from community members, and feedback from field meetings with NYSDEC wetland representatives. The design team presented concepts at public meetings and at meetings with NYSDEC and modified designs based on location, design concept, limitations and constraints, and agency input. The proposed project as presented has avoided and minimized impacts to the extent possible, while remaining functional to meet the project purpose and need. The wetland functional assessment was performed to evaluate potential changes to wetland functions within four separate wetland systems affected by the proposed project. Upon USACE review of the joint permit application, as well as receipt of comments on the October 2018, EA from USEPA, USFWS, and USACE, the design team collaborated with these agencies to further refine the proposed design of the wetland creation and rehabilitation in the NE and NW Ponds. The resulting project design further reduced the extent of construction and associated impacts.

The project would result in 2.76 acres of net wetland loss, including 1.00 acre of open water, 0.76 acre of emergent wetland, and 1.00 acre of scrub shrub wetland. Table 8 above, provides a summary of the existing and proposed open water and wetland areas and the net change by wetland type. An 8-step wetlands analysis is included in Appendix Y.

OPRHP prepared a draft compensatory mitigation proposal for review and comment by USACE. The proposal underwent a 30-day public review in fall 2019 and is included as Appendix O. All the mitigation sites are on-site and proximate to the wetlands and waters that the proposed project would affect. Due to their proximity to the affected aquatic resources, these sites have a higher potential to offset the loss of functions associated with the affected wetlands and open waters. Table 13 provides an analysis of the impacts of implementation of the draft compensatory mitigation proposal.

<table>
<thead>
<tr>
<th>Mitigation Site</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 1: Phragmites (Common Reed) Removal and Native Plant Establishment</td>
<td>Enhancing these wetlands would result in a gain in wetland functions for wildlife habitat and water quality.</td>
</tr>
<tr>
<td>Site 1a: Pond Margin Wetland Restoration</td>
<td>Reestablishing these former wetland areas would return the natural and historical functions to the former aquatic resource and result in an overall gain in wetland functions.</td>
</tr>
<tr>
<td>Mitigation Site</td>
<td>Impacts</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td>Site 2/3: Floatables &amp; Sediment Discharge Control, Reduction, and Removal</td>
<td>Enhancing the wetlands and open waters would result in a gain in nutrient storage and transformation, water quality, and wildlife habitat functions by increasing the functional capacity for these functions through additional plant growth, plant-water interactions, soil biochemical processes, and wildlife foraging habitat. In addition, the enhancement would provide for the long-term protection of these improved functions.</td>
</tr>
<tr>
<td>Site 4: Invasive Plant Species Control and Prevention</td>
<td>Replacing and controlling invasive plant species with native plant species would result in an immediate gain in wetland functions for wildlife habitat and biodiversity, while long-term management of invasive plants would remove a current threat to the diverse wetlands habitat.</td>
</tr>
<tr>
<td>Site 5: Invasive Plant Removal, Floatables Removal, and Native Planting</td>
<td>Enhancing the forested and emergent wetland under 5A and 5B would result in a gain in nutrient storage and transformation, water quality, biodiversity, and wildlife habitat functions through replacing the invasive plant species that dominate the area with native species and removing accumulated debris and trash. Restoring the wetland area associated with area 5C would result in the gain in aquatic resource area and functions through removing the dense layer of floatables and the restoration of wetland hydrology and native plant community.</td>
</tr>
<tr>
<td>Site 7/7a: Debris/Floatables Removal in Pond Shoreline Wetlands</td>
<td>The wetland enhancement actions would result in a gain in wetland functions for water quality and wildlife habitat. The proposed restoration would result in a gain in aquatic resource area and functions.</td>
</tr>
<tr>
<td>Site 8: Floatables Discharge Control</td>
<td>This project would protect the wetland enhancement and restoration gains obtained under Site 5 and Site 7/7a described above.</td>
</tr>
</tbody>
</table>

Following review and preliminary acceptance by USACE, the conceptual mitigation sites would be advanced to develop a complete mitigation proposal.

A Freshwater Wetlands Permit, Protection of Waters Permit, and 401 Water Quality Certification from NYSDEC would be required to physically disturb the wetlands. Prior to construction, the project sponsor
would be required to secure Clean Water Act Section 404 Authorization from USACE. The alternatives analysis and impact assessment are required as part of the permit applications to compare a no-build alternative with design alternatives that were considered to avoid and minimize impacts and still accomplish the goals of project.

8.2.12 Wild and Scenic Rivers

8.2.12.1 Citation: *Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)*

Nassau County contains no wild and scenic rivers as designated by the U.S. Department of the Interior and NYSDEC (9).

8.2.13 Environmental Justice

8.2.13.1 Citation: *Executive Order 12898*

Based on data from the 2000 U.S. Census, the project area is in a potential environmental justice area, as defined by NYSDEC (40). See Figure 61.

As presented in the Clean Air, Noise Abatement and Control, and Transportation and Accessibility analyses in this EA, construction impacts would be temporary and not significant.

Once complete, the Hempstead Lake State Park Project would have no potential for new or continued disproportionately high or adverse human health and environmental effects on minority or low-income populations. The project would benefit local residents, including environmental justice populations, through the construction of additional greenways and trails, which would improve connectivity and community Park access. The environmental education and resiliency center would benefit local residents by serving as a centralized destination with opportunities for participation in environmental education programs and other uses such as serving as an information, storage, and a gathering space during and immediately following emergencies and natural disasters affecting the surrounding community.
Figure 61: Potential Environmental Justice Communities
8.2.14 Fish and Wildlife Coordination Act

8.2.14.1 Citation: *Fish and Wild Life Coordination Act of 1934, as amended, particularly sections 661–667(e)*

The amendments enacted in 1946 require consultation with USFWS and fish and wildlife agencies of states where the “waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified” by any agency under a federal permit or license. Consultation is to be undertaken for the purpose of “preventing loss of and damage to wildlife resources.” The USFWS provided comments on the draft EA pursuant to the Fish and Wildlife Coordination Act in its letter dated November 2, 2018 (Appendix R). The comments have been addressed within this document. In compliance with this Act, an analysis of the baseline conditions and the potential impacts of the proposed project on fish and wildlife and existing habitats are described in Sections 6.5.2, 6.5.3, 8.2.4 and 9.4. Consultations with USFWS and NYSDEC are provided in Appendix R and Q. A summary of the key findings is outlined below.

- Approximately 396.4 acres of waterbodies and vegetated wetlands have been mapped and classified as part of the NWI in the Park. Approximately 18.09 acres of emergent wetlands and 2.51 acres of scrub shrub wetlands are associated with NW Pond and 1.24 acres of emergent wetlands, 2.32 acres of scrub shrub wetlands, and 2.01 acres of forested wetland occur at NE Pond, for a total of 26.34 acres of vegetated wetlands.

- Upland vegetated communities in the project area consist of upland oak forest, managed lawns, and vegetated edges along trails and roadways. Invasive plant species occur throughout the Park and include observed plant species such as Norway maple, tree of heaven, garlic mustard, Oriental bittersweet, autumn olive, Japanese knotweed, privet, Japanese honeysuckle, purple loosestrife, common reed, Japanese knotweed, Japanese stilt grass, English ivy, locust, and multiflora rose.

- Proposed tree removals will have minimal impact on existing forest communities and wildlife habitat and will not result in fragmentation of forests.

- The installation of two floatables catchers, a sediment basin on the NW Pond, an in-pond filtering emergent wetland in the NE Pond, repair of the existing dams and other minor drainage improvements (Section 5.6) will result in the net permanent loss of 2.76 acres of emergent and scrub shrub wetlands and open waters and the conversion of 4.030 acres of open water to emergent wetlands and 0.460 acre of upland berms. These impacts will be mitigated through the restoration and enhancement of wetlands within the Park (Section 5.6.2).

- Implementation of the project will improve water quality in the northern ponds, which will be beneficial to fish and wildlife. In addition, wildlife habitat will be further improved through the restoration of wetland and upland habitat through floatables removal and the treatment and removal of invasive plant species.

- The project will not affect federal- or state-listed species of special concern.

- Mitigation measures will include tree removal restrictions (undertaken during the November 1 to March 31 window) to avoid impacts on northern long-eared bats and migratory birds. To avoid impacts on resident raptor species, raptor surveys will be conducted prior to and during construction by qualified OPRHP biologists to address the possible presence of raptors, including the great-horned owl. If an active nest were encountered, it would be left in place and protected until young hatch and depart, if feasible. If not feasible, the USFWS Field Office and/or
NYSDEC Regional Wildlife Office would be contacted for assistance to determine the appropriate plan of action. Tree removal areas at the dams will be replanted with pollinator habitat and native grass mixes.

9 ENVIRONMENTAL ASSESSMENT FACTORS [24 CFR 58.40; REF. 40 CFR 1508.8 & 1508.27]

Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features, and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable, and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed, and applicable permits or approvals have been obtained or noted.

9.1 LAND DEVELOPMENT

9.1.1 Conformance with Plans, Compatible Land Use and Zoning, Scale and Urban Design

There would be no change to designated land uses or use of the existing project site. OPRHP manages Hempstead Lake State Park, and the Park is not subject to local plans or zoning requirements. The proposed project would occur entirely within the Park’s boundaries and would not result in inconsistencies with the Nassau County Master Plan or any other local plans and policies.

The Southern State Parkway is designated as a New York State scenic byway (see Figure 62). No substantial changes in scale or height of the existing project components are planned, and as such, the dam and pond improvements would be consistent with, and conform to, the surrounding natural landscape. The environmental education and resiliency center and greenway would be built to complement the natural topography of the Park and provide scenic views. The project would provide increased access to surrounding areas.

There is no existing master plan for Hempstead Lake State Park. OPRHP considers undertaking discretionary master planning processes at the request of a Parks Region/Park Manager generally when significant new property has been acquired, a park is newly established, or when a park has been completely repurposed. The master planning process can range from 18 months to several years to complete and is not undertaken when a park is renovated, redeveloped, or when infrastructure is upgraded. The proposed project would not trigger a master planning process.
Figure 62: Scenic Areas
9.1.2 Soil Suitability, Slope, Erosion, Drainage, Stormwater Runoff

9.1.2.1 Soil Suitability/Slope

The proposed project would rehabilitate existing dams. Because the soils previously or currently support these structures, they would be suitable for the rehabilitated dams.

The environmental education and resiliency center would be located in an area with negligible slope.

At the NE and NW Ponds, slopes would be constructed to provide structural stability for wetlands containment while minimizing the surface area (and associated environmental impacts) of the berms. In locations where slopes would exceed these ratios, coir mat or fiber logs would be installed to ensure structural stability. A sample berm profile is provided in Figure 36.

There are no known historical uses on the site that would have contributed to upland soil contaminants. However, as indicated above, the samples of the sediments in NE and NW Ponds indicate high concentrations of contamination. Based on the findings in the Sediment Sampling Plan, the dredged or excavated sediments would be dewatered and trucked off the project site to a landfill located off Long Island.

9.1.2.2 Erosion/Drainage/Stormwater Runoff

During construction, tree removal, dredging, excavation, and grading activities could increase erosion. The proposed project would disturb more than 1 acre of land and as such must obtain coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity. The SPDES General Permit requires the use of New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, as well as preparation of a Stormwater Pollution Prevention Plan (SWPPP) to incorporate appropriate BMPs during construction activities.

Dredging would increase turbidity and expose nutrient-rich sediments. Pre-construction sediment testing could confirm the suitability of dredged spoils for reuse on-site. Silt curtains would be installed around the dredging area or at the outlets of each pond to prevent turbidity downstream of the dredging areas. Additionally, any specific mitigation measures identified during the permitting process by federal and state agencies will be implemented accordingly. See Appendix Z for the preliminary sediment management plan.

Trees on the upstream side of the dams that cannot be removed without damaging the stone facing would be cut to a 4-inch stump. On the dams, areas of tree removal would be reestablished with pollinator habitat. These actions would reduce erosion effects.

Removal of trees on the dams could provide new habitat for Canada geese if planted with grass that is kept short through regular mowing. However, new pollinator habitat on dams would not be mowed lawns, but instead tall grasses, which are not attractive to geese. Moreover, multiple established open-space design approaches and post-construction management practices would be implemented to limit Canada geese habitat. Design approaches include the type and spacing of planting on the exposed surfaces, length of maintained grass, and fences; post-construction management practices include length of maintained grass or other types of vegetation, dogs, nest destruction, and lethal control. Currently, the U.S. Department of Agriculture independently implements a geese management program in the Park. This program would continue with the project. In addition, Park staff has been trained in geese management techniques.
Overall, the open area added by the removal of the trees from the dams to the Mill River Watershed would be comparatively small. Two golf courses and sport fields in the vicinity of the two dams are substantially larger than the newly exposed area. In addition, there are multiple other sources of nutrients to Hempstead Lake, South Pond, and Mill River, such as stormwater runoff, leaking sewer lines, dog waste, or nutrients recycling from the sediments in the impoundment. Therefore, with appropriate design and Canada geese management practices, the impact on the impoundments and Mill River from tree cutting on the two dams would be minimal.

Once construction is completed, the rehabilitated wetlands would improve water quality. Sediment basins and floatables capture mechanisms would remove these materials. Stormwater would also be slowed and filtered through the wetlands in the NE and NW Ponds, which would reduce erosion and increase water quality, including reducing nitrogen. Removing the twin pipes under Southern State Parkway and repairing the dams would better regulate overall stormwater flows and reduce erosion compared to existing conditions.

The proposed project would result in approximately 8 acres of net new impervious surfaces. These impervious surfaces would be distributed among the Park’s 521 acres, most of which are pervious and, thus, would not result in substantial new stormwater flows. Stormwater runoff from these surfaces would be directed to bioswales in the new parking area and into vegetated areas along trails. Trails would be composed of stone dust over a semi-pervious crushed stone drainage layer, and they would be designed to retain the dust within the trail and limit overland sedimentation and runoff. (To provide for a conservative analysis, this trail cover was counted towards impervious surface area although it allows infiltration.)

9.1.3 Hazards and Nuisances (Including Site Safety and Noise)

9.1.3.1 Dam Safety and Flood Risk

An overall hydrological model was prepared for the Mill River Watershed to determine the flows coming into Hempstead Lake State Park at NE Pond, NW Pond, Hempstead Lake, Schodack Brook, and South Pond. Additional flows were determined at Smith Pond, south of the project area, because of the potential backwater effects on the Hempstead Lake Dam. Flows were determined for 5-year 24 hour, 25-year 24 hour, and 100-year 24-hour storm events.

NW Pond Dam

The existing NW Pond Dam would be breached. However, if the dam were not breached, the modeling results indicate that under existing conditions, NW Pond Dam would overtop by 0.89 feet during the 5-year storm and by more than 5.7 feet during the 100-year design storm.

With the proposed project, the new lower dam top would result in slightly lower peak flow elevations that may reduce backwater conditions on upstream drainage facilities.

Hempstead Lake Dam

Under existing conditions, the model indicates that the Hempstead Lake Dam has several feet of freeboard during the 5-year, 25-year, and 100-year storm events. With implementation of the proposed project, the Hempstead Lake Dam would have several feet of freeboard during the 5-year, 25-year, and 100-year storm events. The improved structural integrity of the dam would provide for the safe operation of the dam and prevent downstream impacts.
The Hempstead Lake gatehouse contains five existing sluice gates that serve as the outlets from the lake. These gates have been non-functional for decades. The project proposes to replace all five existing non-functional gates with similar cast iron manually operated sluice gates at the same elevations. Replacing these gates would restore functionality to the outlet control of the lake, allowing the increase or decrease of flow exiting Hempstead Lake.

At the completion of the project, the upper two gates of the dam would remain open year-round and would only be closed and reopened for maintenance/exercising purposes. The middle gate would be opened in the fall and closed in the spring. Opening the middle gate would increase the outflow of water from Hempstead Lake during the time of year when there is typically a rise in groundwater from snowmelt runoff, thus maintaining a more consistent water surface elevation in the lake over the course of the year. Attempting to lower the water surface from its current high winter levels also would provide room for additional runoff storage in the lake.

Operability of all five sluice gates would allow for the most flexibility in addressing unforeseen downstream issues. For example, if an unforeseen issue were to arise downstream of the dam, the two upper gates could be partially closed to recreate existing conditions, making it possible to see if the issues were caused by the dam or some other factor. The upper gates would provide the ability to temporarily shut down outflow to address emergency conditions (outflow blockage, pipe arch damage, downstream problem). Also, the upper gates would make it easier to bypass flow (in conjunction with pumping) to address non-emergency maintenance issues in the outflow chamber and pipe arch.

Trees on the upstream side of the dam that cannot be removed without damaging the stone facing would be cut to a 4-inch stump. On the dams, areas of tree removal would be reestablished with pollinator habitat. These actions would reduce erosion effects and enhance dam structural integrity.

South Pond Dam

Under existing and proposed conditions, the modeling indicates South Pond Dam would handle the 100-year design storm and still provide more than 1 foot of freeboard (13, 14, 36).

Changing the outflow at Hempstead Lake would also affect the South Pond inflow. This increase/decrease of flow to South Pond through the brick pipe arch between the outlet gatehouse of Hempstead Lake and the inlet gatehouse of South Pond is not anticipated to have any measurable effect on the areas surrounding the pond. South Pond is fed by flow from Hempstead Lake as well as flow from Schodack Pond and groundwater base flow. The water surface elevation in South Pond is primarily affected by the fixed outlet weir of the pond and the groundwater elevation. The size and capacity of South Pond provides surface area and storage to attenuate any normal flow changes caused by gate operations at Hempstead Lake Dam.

9.1.3.2 Site Safety

The proposed environmental education and resiliency center could serve as an emergency services command center during storm events. The facility would be equipped with a generator that could serve as an energy source for the local community during a power outage.

The dam, pond, and greenway improvements would entail tree removal that would open views to Park features, thus improving safety. Gateways would provide additional access points and views into the Park, further increasing security. Similar to existing conditions, the Park would be open dawn to dusk, all year. Park access would be controlled during off hours. The proposed bridge and greenway
improvements would improve pedestrian and cyclist safety and further separate pedestrian/vehicular traffic. The bridges and greenway would be designed to accommodate emergency vehicles, and greenway section designs would be context sensitive and delineate between the pedestrian/cyclist portion of the path and the equestrian portion in most sections to minimize conflicts between users. Within the most heavily used part of the Park, along Lakeside Drive and near the environmental education and resiliency center, the proposed greenway would be divided by a 4-foot buffer between the pedestrian/cyclist section and the equestrian section to eliminate conflicts.

9.1.3.3 Noise
During construction, the proposed project would cause temporary increases in noise levels caused by construction equipment and vehicles that would be mitigated by complying with the Town of Hempstead’s local noise prohibitions.

Operation of project components would not result in a substantial increase in vehicular trips or Park visitors, so it would not generate new nuisance noise.

9.1.4 Energy Consumption
The environmental education and resiliency center would be constructed with roof-mounted solar photovoltaic panels with 30,000 kilowatts of electricity, which would provide power for 100% of basic building systems during non-peak loading scenarios. Where appropriate, passive design strategies would be included in the configuration of the building to control solar heat loss and minimize active HVAC requirements.

The addition of lighting along the proposed greenway and the mechanical system of the dam would not require substantial power to operate. The proposed greenway would not require electricity.

9.2 Socioeconomics

9.2.1 Employment and Income Patterns
According to the 2015 ACS five-year averages, the median household income in the Town of Hempstead was $94,999 compared to the median income in the State of New York of $59,269. The estimated median value of owner-occupied housing units from 2011–2015 was $407,200, compared to $283,400 for the State of New York.

Employment in the Town of Hempstead is distributed among several key industries and occupations. Approximately 23.5% of the population is employed in public administration, 20.8% in health care and social assistance services, 12.9% in retail trade, 9.6% in educational services, 7.4% in accommodation and food services, and 4.9% in construction and manufacturing (38).

The proposed project would improve the existing Park and associated existing dam and pond infrastructure. Because the Hempstead Lake State Park Project would not result in any population changes, it would not alter employment or income patterns. The project could create temporary construction jobs. Permanent employment increases would include several full-time staff at the environmental education and resiliency center.
9.2.2 Demographic Character Changes, Displacement

According to 2016 U.S. Census estimates, the population of the Town of Hempstead was 770,367. This represents a population increase of 1.4% since 2010. In 2010, approximately 68.3% of the population identified as Caucasian, 16.5% as Black or African American, 5.2% as Asian, 2.6% as two or more races, and 0.3% as American Indian or Alaskan Native. Approximately 17.4% of the population identified as Hispanic or Latino of any race.

The proposed project would improve the existing dam and pond infrastructure at the Park and provide improved trails and a new environmental education and resiliency center; it would not result in physical barriers or create access difficulties that would isolate or concentrate any particular population group.

The proposed Park improvements would enhance connections throughout the Park and among adjacent communities.

The existing project site is recreational; therefore, no residents would be displaced.

9.3 Community Facilities and Services

9.3.1 Educational and Cultural Facilities

Using the proposed CDBG-DR funding for repairs and improvements to Hempstead Lake State Park and repairs and new construction of associated Park infrastructure would not result in adverse effects on local schools in the Hempstead, West Hempstead, Rockville Centre, or Malverne Union Free School districts. There would be no adverse effects on educational facilities because the project area is uninhabited, and no population changes associated with repairs to existing Park structures and construction of new Park infrastructure would occur.

New construction associated with the project includes an environmental education and resiliency center, a greenway (with bridges), trails, and a new ADA-accessible kayak launch, all of which would provide educational opportunities related to Park infrastructure, stormwater quality and quantity, biological resources, and recreation.

9.3.2 Commercial Facilities

The proposed project would not result in adverse effects on or significantly increase the demand for existing commercial establishments.

Visitor use of the Park would not substantially increase patronage of local businesses in the Town of Hempstead.

9.3.3 Health Care and Social Services

The project area is uninhabited, and no population changes would be associated with the project; therefore, there would not be a significant increase in demand for health care and social services. There would be no adverse effects on the nearby Safe Ways Daycare, Perfect Touch Daycare, or other elderly care locations or existing social services. The proposed project would not adversely affect area medical care providers, including Freeport-Roosevelt Center and South Nassau Family Medicine Center.
9.3.4 Solid Waste Disposal and Recycling

Construction debris would primarily comprise materials associated with the repairs of the dams and gatehouses and construction of the environmental education and resiliency center. These materials include brick, stone, wood, concrete, trees/root balls, and other materials commonly found in construction. Collection, transportation, and disposal of garbage and recycling would be managed in compliance with all applicable local, state, and federal policies and permitted facilities.

Upon completion of construction, the proposed project would not result in substantial increases of solid waste. Litter and trash removal would continue pursuant to existing protocols. The installation of floatables catchers at pond inlets included in the project would capture bottles and other water-borne litter and debris currently traveling through the Park and downstream through the watershed. The newly constructed environmental education and resiliency center could include an education program on stormwater runoff, litter, and watershed quality for visitors, which could indirectly benefit the project area.

9.3.5 Wastewater and Sanitary Sewers

Wastewater treatment in Nassau County is provided by the Nassau County Department of Public Works. Wastewater is processed at the Bay Park STP and is collected through a combination of sewers and treatment plants operated by county and local sewage districts. The project would connect to the county’s sanitary sewers and wastewater treatment system (34).

The environmental education and resiliency center would result in approximately 122 gallons per day of net new sanitary wastewater. The capacity of existing collection systems in the Park connected to the Bay Park STP would be sufficient to accommodate this minor increase.

9.3.6 Water Supply

The Park obtains its drinking water from the West Hempstead Water District. The source of water is groundwater pumped from wells from the Long Island Aquifer system (45).

The environmental education and resiliency center would result in water demand of approximately 122 gallons per day. The existing water supply in the Park from the West Hempstead Water Department would be sufficient to meet this minor increase in demand.

The proposed project would improve the management of stormwater throughout the watershed. As part of these improvements, the lake and pond capacities would be increased, thereby increasing groundwater recharge. Because groundwater is used as water supply in Nassau County, the improved hydraulic connectivity in the watershed could result in indirect benefits to Nassau County.

9.3.7 Public Safety (Police, Fire, and Emergency Medical)

The proposed project would not result in a substantial increase in demands on local police, fire, or emergency medical services, which include the New York State Park Police, Rockville Center Fire Department, Lakeview Fire Department, Hempstead Fire Department, and West Hempstead Fire Department.

The proposed project would construct three new pedestrian bridges located (1) over Mill Creek near NE Pond, (2) over the open stream channel between the Southern State Parkway and Hempstead Lake, and
(3) over Schodack Brook where it enters South Pond. The new pedestrian bridges would be designed to accommodate emergency vehicles and thus could indirectly benefit local emergency services.

During the public comment period, responses were received from the New York State Park Police (Long Island Region), Rockville Police Department, and West Hempstead Fire Department. These local emergency providers requested that GOSR consider the following emergency service elements: providing a back-up generator in the Park, making paths suitable and wide enough for response vehicles, ensuring adequate cell phone reception is available to make emergency calls, and creating sufficient and well-maintained points of access on all existing or newly constructed fencing or gates. Additionally, commenters requested a structure at the lake and a small boat to allow for in-lake rescues and automated external defibrillators (AEDs) in the Park.

The environmental education and resiliency center would also serve as an emergency command station during storm emergencies and as an information center for residents after a storm event. As part of the proposed project, the environmental education and resiliency center would install an emergency generator adjacent to the building for use during power outages. The proposed greenway would be designed to accommodate emergency vehicles. Points of access and egress on all fencing and gates, either existing or newly installed, would be incorporated and/or maintained. Pursuant to Chapter 510 of the Laws of 2004 and Part 3030 of Title 9 of the NYCRR, an AED would be maintained in the environmental education and resiliency center once constructed (33). In addition, the facility would be used as a training space for the Nassau County Law Enforcement Explorers program, which is a volunteer program for young adults to receive basic law enforcement training and learn about law enforcement career opportunities. The center would also be available to local school districts to use as an education space and wet lab for hands-on learning and activities.

The Rockville Fire Department has a boat to provide in-lake rescue services. If the NY State Park Police (Long Island Region) needs to make an in-lake rescue, equipment can be requested from Rockville or the Nassau County Marine Borough. All staff have marine training. A paved path is in place around the lake and adequate cell-phone service is available in the Park.

OPRHP presented the project to local emergency service providers and would continue to coordinate with these entities to ensure adequate provision of public safety services.

9.3.8 Parks, Open Space, and Recreation

The proposed project is within Hempstead Lake State Park. New construction associated with the project includes an environmental education and resiliency center, a greenway (with bridges), trails, and a new ADA-accessible kayak launch, which would improve both visitor access to the Park and visitor experience by enhancing public recreation opportunities.

The environmental education and resiliency center would occupy a footprint of approximately 52 feet x 96 feet of open space. Therefore, construction of the facility would result in conversation of approximately 4,075 sf of lawn open space into the education and resilience center.

Although this change would represent a loss of lawn open space, there is ample passive and active outdoor recreational space throughout the park. The proposed environmental education and resiliency center would complement these existing outdoor recreational features, while increasing awareness of the ecology of the Park and the larger, connected, Mill River Watershed. The center’s outdoor areas, such as the overlook, would enhance views and appreciate of the Park’s natural features.
Hempstead Lake State Park is one of 27 state parks managed by OPRHP in Region 9, Long Island. In the State of New York, the alienation and dedication of parkland is governed by the public trust doctrine. Under the public trust doctrine, the State holds municipal parkland in trust for the public and requires specific legislative approval before parkland can be alienated or used for an extended period for non-park purposes. See Friends of Van Cortlandt Park v. City of New York, 750 N.E.2d 1050, 1053-54 (N.Y. 2001).

However, the parkland alienation and dedication processes do not apply to State-owned parkland. Instead, State-owned parkland is governed by the legislative authority granted to State agencies in the Public Lands Law, the Parks Recreation and Historic Development Law, and the Environmental Conservation Law. See the Handbook on the Alienation and Conversion of Municipal Parkland in New York. Because the proposed project comprises improvements located entirely within Hempstead Lake State Park, the public trust doctrine does not apply.

**9.3.9 Transportation and Accessibility**

**9.3.9.1 Traffic**

Principal vehicular access routes to Hempstead Lake State Park include the Southern State Parkway, Peninsula Boulevard, Lakeside Drive, Eagle Avenue, and Lakeview Avenue. Lakeside Drive provides internal circulation within the Park and access to three parking lots from which recreational facilities are accessible. The proposed project would not alter the layout or routing of existing Park roadways. The greenway, trails, gateways, and waterfront access component of the proposed project would replace some existing trails and create new sections of trails or greenway. For a state park in an urbanized area, a change in trail mileage would not attract an appreciable number of new visitors using the trails; therefore, improving existing trails and increasing trail miles are not anticipated to noticeably increase the number of auto-trips to the Park. Instead, existing and future visitors would have greater choice of trails to use within the Park. Furthermore, the improvement of pedestrian and bicycle access to the Park would provide alternative access options for Park users who currently drive to the Park.

The environmental education and resiliency center is expected to draw visitors from existing Park users and school groups. School group visitation would be concentrated on weekdays (when Park attendance is lowest). The environmental education and resiliency center is not expected to significantly increase auto trips to the Park.

Vehicles park at a grassy area located north of the Southern State Parkway. The proposed project would pave this area as a formal parking lot to accommodate current parking demand. Significant new traffic is not anticipated to access the new parking lot.

Operationally, the proposed project would add minimal traffic to the area roads from construction activity, but impacts would not be significant.

During construction, the project would result in approximately 15,600 annual trips during the first year, and approximately 13,000 annual trips the following three years. There would be 60 average daily trips during the first year and 50 average daily trips during the following years. A detailed construction vehicle management plan for each project component has not been developed yet. Construction trucks would access the site via designated truck routes, such as Sunrise Highway and Peninsula Boulevard from the

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south, and Interstate-495 and Glen Cove Road from the north. Construction cars would access the site via the Southern State Parkway, Peninsula Boulevard, and Lakeside Drive. Construction worker trips would generally occur during off-peak hours. A construction vehicle management plan would ensure that any trips during the peak hours would not adversely affect traffic conditions.

9.3.9.2 Pedestrians

Pedestrian access to Hempstead Lake State Park is via the Park access roads, pedestrian bridges across Peninsula Boulevard, and undefined or restricted gateways along the west side of the Park. Within the Park, 4.8 miles of hiking/biking trails and an approximately 2-mile bridle path provide circulation and access to Park facilities. The greenway, trails, gateways, and waterfront access component of the proposed project would increase pedestrian access to the Park and provide new internal circulation on an expanded trail network. A new multiuse greenway along the Mill River corridor through the Park would provide improved access to the interior of Park and to NE and NW Ponds. The greenway would improve pedestrian and bicycle connectivity throughout the greater Mill River corridor through the creation of a continuous low-stress walking/cycling route between Hempstead High School and Bay Park. Greenway section designs would be context sensitive and delineate between the pedestrian/cyclist portion of the path and the equestrian portion in most sections to minimize conflict between users. Within the most heavily used part of the Park, along Lakeside Drive and near the environmental education and resiliency center, the proposed greenway would be divided by a 4-foot buffer between the pedestrian/cyclist section and the equestrian section to eliminate conflicts. The greenway, trails, gateways, and waterfront access component is anticipated to include approximately 5 miles of new or renovated trails within the Park and improved access to the various ecosystems in the Park. Improved gateways at Eagle Avenue and Graham Avenue would improve pedestrian and bicycle access to the Park from neighboring communities. Improvements to access, visibility, and signage of existing gateways would likewise increase connectivity to adjoining neighborhoods. The dams, gatehouses, and bridges component would add three new pedestrian bridges to the greenway/trail network, improving connectivity of the network for all users. The three bridges and the greenway would be designed to accommodate emergency vehicles, enhance emergency access within the Park, and decrease emergency response times. The environmental education and resiliency center would connect to the greenway and a new ADA-accessible kayak launch/viewpoint via a new crosswalk (with speed hump) across Lakeside Drive. The proposed project’s improvements to pedestrian accessibility and connectivity within the Park would likely increase pedestrian volumes within the Park compared to the future without the proposed project. However, this increase would be distributed over time throughout the entire trail network. During construction, contractors may limit or re-route pedestrians around construction activities to continue to provide access to open Park features (those not under construction/rehabilitation).

9.3.9.3 Parking

Currently, three parking facilities serve Hempstead Lake State Park. In addition, an unpaved, informal parking area exists north of the Southern State Parkway on Eagle Avenue. The proposed project would formalize the area on Eagle Avenue by creating a paved 0.91-acre parking lot with 4 stormwater retention basins, 45 car spaces, and a dedicated lane and drop-off area for three buses. Vehicles already parking in this informal lot are expected to use a portion of this new parking lot’s capacity. An existing lot near the proposed environmental education and resiliency center would serve any new vehicles generated by this use. The greenway, trails, and waterfront access component improvements and the dams, gatehouses, and bridges component improvements would likely generate a small increase in auto trips compared to the future without the proposed project. Given the dispersed nature of these
improvements, any increase in parking demand is anticipated to be accommodated by the three existing parking lots and the proposed Eagle Avenue lot. During construction, parking on the currently informal Eagle Avenue lot would not be available. However, parking would continue to be available in the Park’s primary parking lots near the Park office.

9.4 Natural Features

9.4.1 Unique Natural Features, Water Resources

Hempstead Lake is the largest freshwater body in Nassau County, and the NE and NW Ponds’ freshwater wetlands are a unique resource in the County. The Park provides unique social, education, and aesthetic benefits to the surrounding communities. The project would increase the safety of, and accessibility to, this feature. Moreover, the project would improve surface water quality through floatables and sediment capture and disposal and stormwater filtration in new wetlands.

Hempstead Lake, NE and NW Ponds, and the South Pond are not used for water supply. However, retention of water in these surface waterbodies would increase groundwater recharge. Groundwater is the sole source of drinking water in Nassau County.

Per HUD’s EA Factors Guidance, no other unique natural features are on or adjacent to the project site. The project site is a previously developed location, and the project would not preclude access to any such features [9]. The project area is not designated as a NYSDEC Critical Environmental Area [26]. NYSDEC lists Jamaica Bay and its tributaries as the only Critical Environmental Area in Nassau County. Jamaica Bay and its tributaries are located outside the project area, approximately 8 and 2.25 miles west of the project site, respectively. The project would have no impact on this Critical Environmental Area.

9.4.2 Vegetation, Wildlife

The project would affect existing vegetation and wildlife habitat and result in a net loss of 1.00 acre of open water, 0.76 acre of emergent wetland, and 1.00 acre of scrub shrub wetland. Temporary impacts on wetlands would also occur, as documented in Section 5. The ongoing advancement of potential compensatory mitigation sites through the USACE permitting process would offset these net losses. The proximity of the potential compensatory mitigation sites to the affected aquatic resources would have a higher potential to offset the loss of functions associated with the affected wetlands and open waters. The proposed compensatory mitigation includes interventions that would prevent the continued degradation of the wetland and open water habitats from the accumulation of floatables and the uncontrolled spread of invasive plant species, which in turn, would prevent the further decline and loss of quality habitat. In addition, the project would result in a gain in acreage of higher functioning emergent wetlands, the enhancement of 31.0 acres of existing wetlands and 23.7 acres of open waters through floatable and invasive plant removal, and additional native upland meadow and upland forest habitat establishment within the wetland buffers (see Appendix X).

The project has been modified since October 2018, resulting in a 30% reduction in tree removal. However, an estimated 1,799 trees at various locations throughout the project site would be removed for wetland creation/enhancement, dam improvements, and enhancement and expansion of visitor access to the waterfront and trails. Tree removal is primarily proposed along Hempstead Lake Dam and South Pond Dam and in the existing upland forest in the NE and NW Pond areas. Hundreds of acres of habitat within Hempstead Lake State Park would remain intact and available to wildlife. The proposed tree removals would not result in discontinuity and fragmentation of adjoining woodlands, and the
habitat character of the remaining forest communities and their value to wildlife would remain essentially unaltered and would continue to support existing wildlife populations. In addition, the proposed meadows that would replace the woodlands on the Hempstead Lake and South Pond dams would also serve as valuable wildlife habitat.

While larger stands of mature upland forest in Hempstead Lake State Park would remain undisturbed, tree clearing in some locations would result in permanent loss of vegetation and a reduction of this habitat type. The loss of forest cover from pond improvements would be partially offset by the increase in wetlands and water quality improvements that would benefit vegetation and wildlife, as well as plantings of upland forest. No compensation for the loss of forest as a result of trail construction/expansion would occur.

The proposed project would establish pollinator habitat that would include native flowering plants to support the initiative to protect pollinators, including monarch butterflies and yellow-banded bumble bees, in New York State. Native pollinator host plants such as native Joe-pye weed and aster would expand the existing pollinator habitat already present in forested areas of the park, in the form of trees (e.g., red maple) that produce flowers that are important to pollinators. Establishment of pollinator habitat would help support native pollinators, including bee, moth, butterfly, and bird populations.

Additionally, formalizing existing trails near ponds would not have a detrimental effect on the current use of these habitats by waterfowl/waterbird because the presence of vegetated buffers between human activity and the ponds relative to existing conditions would not be reduced. However, increased use of the trails has the potential to reduce waterfowl/waterbird use of the ponds.

Approximately 0.34 acre of mowed grass would be permanently lost as a result of construction of the proposed environmental education and resiliency center, and approximately 0.037 acre of mowed grass would be temporarily disturbed for a utility trench.

Mitigation measures would include tree removal restrictions (undertaken during the November 1 to March 31 window) to avoid impacts on northern long-eared bats and migratory birds. To avoid impacts on resident raptor species, raptor surveys would be conducted prior to and during construction by qualified OPRHP biologists to address the possible presence of raptors, including the great-horned owl. If an active nest were encountered, it would be left in place and protected until young hatch and depart, if feasible. If not feasible, the USFWS Field Office and/or NYSDEC Regional Wildlife Office would be contacted for assistance to determine the appropriate plan of action. Tree removal areas at the dams would be replanted with pollinator habitat and native grass mixes. See Appendix D for planting plans and planting schedules. Vegetation clearing would be kept to the minimum area required to meet the design objectives, and construction fencing or flagging would be used to demarcate the limit of disturbance to avoid unnecessary clearing. An SWPPP, turbidity controls, and other BMPs would be employed to minimize the potential construction impacts. Additionally, specific mitigation measures may be implemented as identified during the permitting process by federal and state agencies, including pre-construction surveys of plant and/or wildlife species. An Invasive Species Management and Post-Construction Monitoring Plan for NE and NW Ponds has been developed (Appendix K), and a comprehensive park-wide Invasive species management plan is being developed to improve ecological resiliency and diversity (Appendix L). Invasive plants have been identified and mapped throughout the park, and planning for both short- and long-term management actions is currently underway.
Operational impacts of the project would be mostly beneficial. The proposed project would not reduce the variety of habitat types available to wildlife (i.e., open water, riparian wetlands, emergent wetlands, mudflats, upland forest) present at the project site under existing conditions. Most trail work would involve formalizing existing trails. Approximately 5.2 acres of existing trails would be resurfaced, 2.3 acres of existing trails would be widened, and 0.8 acre of existing social trails would be formalized in areas already subject to heavy foot traffic. As a result, tree clearing to accommodate the trails would not result in the reduction and fragmentation of mature forest or loss of buffer between human activity and waterfowl/waterbirds. In addition, other project features—such as the education and resiliency center and Hempstead Lake waterfront access areas—are within existing publicly accessible grassy areas. Implementation of the project features in these locations would not fragment habitat. The project would preserve the extensive emergent wetland formed within the NW Pond, enhance wetland habitat through additional shrub and tree plantings, and create upland forest within disturbed mowed grass areas (Appendix X).

Improved water quality (particularly an increase in dissolved oxygen) would also benefit aquatic species. Removing debris and trash during construction and installing sediment basins and floatables catchers would also improve water quality and habitat.

Wetland enhancement would benefit vegetation and wildlife by treating stormwater runoff to reduce and slow the runoff volume and remove debris, floatables, sediments, and nutrients from the pond system and adjacent upland habitat. An operations and management plan would be developed and implemented to avoid detrimental impacts on wildlife. It would stipulate monitoring and reporting requirements for both post-construction and after a period of one year to assess plant density and growth, signs of disease and predation, areas of invasive species, recommended corrective actions, and other measures. A draft of this plan is in Appendix K. Overwintering fish do not occur in the ponds, and no fish were found during surveys conducted at the ponds. The shallow depth at NE Pond is not optimal to support overwintering fish. NW Pond is also shallow, and the even deeper portions may be too shallow for overwintering fish in some years. Regardless, the shallow water depths at both NE and NW Ponds do not provide optimal habitat for overwintering fish.

Enhancing degraded wetlands would also remove invasive species and encourage establishment of native wetland vegetation. However, without annual monitoring and maintenance, invasive plant species are likely to reestablish over time.

Although the project would result in a net loss of wetlands, it would have a minor, beneficial impact on vegetation and wildlife. The project would improve water quality and existing wetland and aquatic habitat. Restoration of wetlands in the two northern channels located between the ponds would reestablish flow and create emergent wetland. Replacing the existing double culvert with a bridge would improve flow and aquatic connectivity. Fish, benthic invertebrates, and waterfowl and waterbirds that use the ponds in Hempstead Lake State Park and the downstream waters of Mill River would benefit from improved water and sediment quality that may result from enhanced wetland filtration, sediment capture, and removal of floatables that come from the upper watershed and flow out to Hewlett Bay. Waterfowl and waterbird use of the NE and NW Ponds may be diminished from an increase in human disturbance related to reduced buffer distances and increased human activity along trails. Additional native planting along trails to provide a living screen between humans and waterfowl/waterbirds could be used to minimize potential impacts.
10 ADDITIONAL STUDIES PERFORMED:

The design team prepared several additional studies in analysis and existing conditions.


H2M prepared the 2016 Hempstead Lake State Park Environmental Education Center: Basis of Design.

Lockwood, Kessler & Bartlett, Inc. prepared the 2015 Hempstead Lake Dam Hydrological and Hydraulic Assessment; the 2016 Design Report: Hempstead Lake State Park Dam Compliance & Bridges; and the 2017 Hempstead Lake Dam Hydrological and Hydraulic Assessment.


10.1 FIELD INSPECTION (DATE AND COMPLETED BY)

The OPRHP design team and the GOSR environmental review team performed several site visits and inspections, beginning in early 2014 and continuing to the present.

10.2 LIST OF SOURCES, AGENCIES AND PERSONS CONSULTED [40 CFR § 1508.9(b)]

Cashin Associates

2016 New York State Office of Parks and Recreation Hempstead Lake State Park Restoration of Northeast and Northwest Ponds Stormwater Remediation Project. (1)

2016 Preliminary Draft Floatables and Debris Investigation, Existing Conditions Northwest and Northeast Ponds, Hempstead Lake State Park. (2)

2016 Preliminary Draft Restoration of Northwest and Northeast Ponds, Hempstead Lake State Park, Nassau County, NY, Baseline Water Quality Sampling Report. (3)

2017 Northeast and Northwest Pond Restoration: Wetland Functions and Values Assessment, Hempstead Lake State Park, Nassau County, NY. (4)

2017 Tree Density Survey Report of Northeast and Northwest Ponds, Hempstead Lake State Park, Nassau County, NY. (5)
2018 Northeast and Northwest Ponds Sediment Sampling Final Report, Hempstead Lake State Park, Nassau County, NY. (6)

2018 Hempstead Lake State Park: Northwest and Northeast Ponds Impact Assessment and Environmental Enhancement Plan. (7)

Cornell Lab of Ornithology

Department of Housing and Urban Development

Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero (editors)

Federal Aviation Administration

Federal Emergency Management Agency

Howe, K.

Lockwood, Kessler & Bartlett, Inc.
2015 Hempstead Lake Dam Hydrological and Hydraulic Assessment. August 2015. (14)


Louis Berger

McElroy, Samuel
National Audubon Society

National Park Service

National Water Service

National Wild and Scenic Rivers

New York State Department of Environmental Conservation


2014 Hempstead Lake Biological Survey Unit Abstract. (27)


New York State Office of Parks, Recreation, and Historic Preservation


New York State Office of Planning and Development


Office of General Services


OnTheMap


Seatuck Environmental Association

2017 Personal Correspondence. May 12, 2017, letter to Laura Munafo, Regarding Comments on the Hempstead Lake Park 60% Design. (35)

Stantec

2017 Living with the Bay – A Rebuild by Design Project. NY State Parks – Hempstead Lake State Park, Hempstead, NY. Design Narrative. April 28, 2017. (36)

Town of Hempstead


U.S. Census Bureau


U.S. Department of Agriculture


U.S. Environmental Protection Agency

10.3 **LIST OF PERMITS OBTAINED OR REQUIRED**

Nassau County Department of Transportation
- Road Opening Permit (for driveway access to floatables container at Peninsula Boulevard)

New York State Department of Environmental Conservation
- Article 15 of Protection of Waters Permit
- Article 24 Freshwater Wetlands Permit
- 401 Water Quality Certification
- SPDES General Permit (GP-0-15-002)
- Dam and Impoundment Structures: Part 68 Use and Protection of Waters

New York State Office of Parks Recreation and Historic Preservation/State Historic Preservation Office
- National Historic Preservation Act, Section 106 Consultation
- New York State Historic Preservation Act of 1980, Section 14.09 Consultation

U.S. Fish and Wildlife Service
- Endangered Species Act, section 7 Consultation
- Migratory Bird Treaty Act Consultation
- Fish and Wildlife Coordination Act Consultation

U.S. Army Corps of Engineers
- Clean Water Act, Section 404 Permit
10.4 **Public Outreach** [24 CFR §§ 50.23 & 58.43]

GOSR published and distributed a Combined Notice of Preparation of a NEPA Draft Environmental Assessment; Early Notice of Early Public Review of a Proposed Activity in a Wetland (EO 11990); Notice of Section 106, National Historic Preservation Act Review (54 U.S.C. 306108); and Announcement of Public Hearing on June 15, 2017. Along with the Combined Notice, GOSR published and distributed a Public Information Document describing the proposed project and existing conditions. The Combined Notice and Public Information Document were published on GOSR’s website; distributed to local, state, and federal agencies; and published in the local newspaper. The Combined Notice solicited comments on the project to be submitted to GOSR by July 17, 2017.

GOSR held a public hearing on July 6, 2017, from 7:00 p.m. to 9:00 p.m. at the Town of Hempstead Town Hall, 350 Front Street, Hempstead, New York 11550.

Publication of the Draft EA occurred on October 5, 2018, and a public hearing was held on October 17, 2018.

Please see Appendix A for a summary of the comments received and responses and Appendix C for a copy of the Public Notice.

11 **Cumulative Impact Analysis** [24 CFR § 58.32]

The Mill River Watershed is the general geographic area considered in the cumulative impact analysis. The Town of Hempstead regularly undertakes roadway maintenance and improvement projects. As of November 2019, no such projects were located near Hempstead Lake State Park such that they would combine with the Hempstead Lake State Park Project to result in cumulative impacts (37). The neighborhoods surrounding the Park are built out and primarily residential; projects in these locations would generally involve rehabilitation or minor expansion of these existing uses. Because of the distance of these uses from the Hempstead Lake State Park Project construction activities, projects in these locations would not combine with the Hempstead Lake State Park Project to result in cumulative effects.

As indicated in the project description, the LWTB Project and Resiliency Strategy identifies and prioritizes projects and project types with program-specific timeframes and costs for planning, design, permitting, procurement, construction, and project closeout. Since completion of the Resiliency Strategy, GOSR and the local communities have determined to proceed with the following projects: Hempstead Lake State Park, Smith Pond, Lister Park, East Rockaway High School, East and West Boulevards Stormwater Retrofits, Long Beach WPCP Consolidation Project, and Mill River Greenway. The Hempstead Lake State Park project is the northernmost and farthest upstream of all the projects, followed by Smith Pond, Lister Park, East Rockaway High School, East and West Boulevards, and the Long Beach WPCP. The Mill River Greenway would run north-south near or through portions of each project site. See Figure 63. These cumulative projects are further described below (16).
Figure 63: Living with the Bay Projects Considered in the Cumulative Analysis
The LWTB Project and Resiliency Strategy are configured such that projects can advance independently. The remainder of the projects have yet to advance. Although, the Hempstead Lake State Park Project is the subject of this EA, each of the other six projects proposed by the LWTB Project and Resiliency Strategy are described below and considered as part of this cumulative impact analysis. The cumulative impact analysis presented in this EA evaluates these projects based on currently available information. Upon submittal of formal funding applications to GOSR for each of these remaining of the projects, environmental review—inclusive of a cumulative impact analysis that considers Hempstead Lake State Park and other past, present, and reasonably foreseeable projects—will be undertaken.

11.1 LWTB PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

11.1.1 Smith Pond

Smith Pond is a 22-acre freshwater pond located in the Village of Rockville Centre, New York, south of Peninsula Boulevard and north of Merrick Road. It is the confluence point of the two primary drainage branches (Pines Brook and Mill River), conveying water from the north end of the Mill River Watershed. As a result, it receives both the flow (water quantity) and the nutrient loads (water quality) for the entire watershed. Smith Pond is also a unique location as the connecting waterbody between the upper freshwater system and the lower tidal and salt water system. There is a historical account of invasive plants in the pond that inhibit sunlight from penetrating the water column and creating anoxic conditions when the plants perish and decompose.

The objectives of the Smith Pond Project are to improve flood control, increase storm runoff attenuation capacity, and improve water quality and habitat quality. The Smith Pond intervention would also provide improved water and debris management to avoid negative impacts downstream on receiving waterbodies, in terms of both water quantity and quality. Smith Pond has been identified as a key site for restoration and intervention.

Several resiliency interventions have been proposed at Smith Pond, including the following:

- Improving the existing weir and installing a fish ladder and eel passage near the southeastern corner of the pond
- Rebuilding a scenic overlook near Peninsula Boulevard
- Constructing a new access drive to access Smith Pond spillway
- Constructing flood walls with flood breaks
- Enhancing existing wetland communities by removing invasive species
- Improving social value within the surrounding community by enhancing recreational activities

The preliminary site plan from the Resiliency Strategy is shown in Figure 64.

Work at Smith Pond would largely focus on improving fish habitat by refurbishing the existing weir and installing a fish ladder and eel passage, both of which would improve habitat for American eel and river herring. The scenic overlook would also be available to recreational fishers. Removal of existing and invasive plant material would support fish habitat. High nutrient loads, silt, sedimentation, and excessive weed growth have adversely affected recreational uses and had negative effects on aquatic life. The Mill River Greenway would also be expanded along the eastern bank of the pond (see Section 11.1.6, Mill River Greenway, below).
Figure 64: Resiliency Strategy Smith Pond Preliminary Site Plan
11.1.2 Lister Park

The objective of the Lister Park Project is to provide flood protection to the surrounding Mill River community, enhance waterfront access, mitigate shoreline erosion, enhance habitat, and provide recreational and pedestrian connectivity along the existing pathways of the Mill River waterfront. The project would help to restore the environmental health and water quality of Mill River, south of Smith Pond. Planting native vegetation would have a net benefit on wetland function and values.

The project site is primarily residential and includes the existing Village of East Rockaway Department of Public Works storage yard and several public parks (Bligh Field, Centennial Field, Lister Park, and Tighe Field). See Figure 65. The project would consist of the following elements:

- Installing Living Shoreline to provide bank stabilization, prevent erosion, and enhance habitat along Mill River
- Constructing a bioretention basin at Tighe Park to increase stormwater quality and retention prior to runoff release to the Mill River
- Reconstructing and repaving the existing parking lot and bioretention basin at Centennial Field to prevent ponding of water in the parking lot and to increase stormwater quality prior to runoff release to the Mill River
- Replacing the overlook at Bligh Park to provide visual access to the waterfront
- Constructing an earthen berm and knee walls at Bligh Field to provide flood protection to homes located on Riverside Road

11.1.3 East Rockaway High School

Just south of Lister Park, East Rockaway High School is located on the west bank of Mill River just north of Pearl Street in East Rockaway. Hurricane Sandy severely damaged the school and its grounds, and the faculty parking lot routinely floods. The excess water inundates the parking lot, and given the limited pervious surfaces and inadequate pitch, is likely to run off untreated into the river. The school building and grounds were repaired after Hurricane Sandy, and a recently approved FEMA project is intended to mitigate the flooding of the school’s buildings. The school’s fields remain vulnerable to frequent tidal flooding and shoreline erosion. Because of ongoing shoreline erosion, the grandstand and two-story storage and press box at the sports field are on the verge of failing as a result of foundation subsidence, creating a hazard to the general public and adjacent Mill River. If left unmitigated, continued erosion could threaten the use of the entire field for both sporting and other school activities.

The proposed project would include an elevated bulkhead that stabilizes the river bank and enhances the conditions for the grandstand. See Figure 65. The construction of the bulkhead would protect the athletic field from future erosion that could affect scheduling of future athletic events. In addition, green infrastructure improvements would improve the faculty parking lot at the high school. The improvement would help eliminate standing water and provide a means for the water to percolate naturally through the ground and prevent pollutants and silt from entering the river system, as well as prevent the spread of pathogens from stagnate water. Two backflow preventers would be installed at outfalls located at Centre Avenue and Roxbury Road. The backflow preventers would stop water from high tides or surge from filling the upstream conveyance system, which would allow more volume of stormwater to be stored and retained below grade, instead of on the surfaces above. Lastly, a generator would be provided to power the entire school facility in the event of power loss due to severe weather events.
Figure 65: East Rockaway High School and Lister Park Projects
11.1.4 East Boulevard and West Boulevards Stormwater Retrofits

During large storm events, water from Hewlett Bay can back up into the stormwater system and cause flooding along East and West Boulevards, which are located in East Rockaway, New York, north of Hewlett Bay. Flooding can occur during non-storm events because of high tides or during storm events when high tides fill the stormwater system and prevent the evacuation of stormwater from the project area. See Figure 66. The project would prevent tidal waters from entering the stormwater system but allow stormwater to exit the system during low tides. The project would also install bioswales and porous pavement to treat stormwater before it enters the bay, thereby improving water quality in the bay.

The project site is primarily residential and includes residences that are located along or adjacent to East and West Boulevards in East Rockaway, New York. The project would consist of the following elements that would reduce stormwater and tidal inundation impacts on the project site:

- Installing porous asphalt shoulder on both sides of the roadway with new stone reservoirs under the roadway pavement
- Replacing catch basins at each stormwater outfall to capture debris and sediment prior to stormwater release to the bay
- Installing or replacing existing backflow preventers at 13 stormwater outfalls to prevent tidal inundation of the stormwater system
- Installing two bioswales to increase stormwater quality prior to runoff release to the bay

Figure 66: East and West Boulevards Existing Drainage Issues
11.1.5 Long Beach Water Pollution Control Plant Consolidation

The Long Beach WPCP Consolidation Project would eliminate the antiquated Long Beach WPCP and its discharge into Reynolds Channel. Sewage from the Long Beach barrier island would be conveyed via a storm-resilient pumping facility to the newly upgraded and storm-hardened Bay Park STP located in the Hamlet of Bay Park, adjacent to the mouth of Mill River. The Bay Park STP has excess treatment capacity and is in the final phases of a recovery and resilience initiative. This project is intended to strengthen the resilience of the wastewater treatment infrastructure against future storm events and improve water quality through improved wastewater treatment to better serve the communities of the City of Long Beach, Lido Beach, and Point Lookout. The following elements are included in the project:

- Constructing a new 24-inch force main connection from the Long Beach WPCP to the Bay Park STP to convey untreated sewage (see Figure 67)
- Converting the existing influent pump building at the Long Beach WPCP into a new flow diversion pump station
- Hardening the new flow diversion pump station to protect it from future storm events and sea level rise

The existing plant would remain in service during construction of improvements to the existing building, installation of new pumping units, replacement of the current screening equipment with grinders, and installation of a 24-inch diameter force main pipe from the existing influent pumping area at Long Beach to an existing sanitary sewer main at the Bay Park STP. The force main would be installed beneath Hewlett Bay, primarily within the existing easement for the Bay Park STP outfall using horizontal directional drilling.

Due to recent and ongoing improvements, including nitrogen-reducing and deammonification projects, the Bay Park STP is equipped with sustainable, state-of-art wastewater treatment technologies. According to a desktop assessment, the nitrogen-reducing and deammonification projects are expected to reduce influent nitrogen by 85% at the Bay Park STP. As such, the project would reduce nitrogen loadings to Hewlett Bay. In addition, the Long Beach WPCP Consolidation Project is one component of the Western Bays Resiliency Initiative. Another component of the initiative is the Bay Park STP Conveyance Project, which includes diverting treated effluent from the Bay Park STP to the Cedar Creek WPCP, where it would be discharged into the Atlantic Ocean via an existing outfall structure. The completion of the Bay Park STP Conveyance Project, expected in 2025, is expected to significantly improve the water quality in Western Bays of Long Island.
Figure 67: Long Beach Water Pollution Control Plant Consolidation Project Alignment
11.1.6 Mill River Greenway

Continuous safe pedestrian pathways from the residential areas to the waterfront in the Mill River area are limited, and if they exist, are fragmented with little connectivity for significant lengths. The overall scale and existing land use of the project area make it ideal for biking, walking, and boating, but existing routes toward or along the river and bay are ad-hoc and discontinuous, and the adjacent neighborhoods' access to the river is poor. Combining this fact with the potential degradation of stormwater management and environmental habitat has created a concern for the sustainable resilience of the community.

The RBD LWTB design calls for the landscapes along Mill River to be interconnected into a strong “blue-green” framework to improve public accessibility and visibility of the Mill River to increase safety and enhance the ecological and landscape value of this historical water course. The design would also increase recreational opportunities for the densely populated communities around the river. The development of a continuous greenway is intended to be a strong feature for the suburban layout along and adjacent to the Mill River, thus transforming it into an attractive public amenity. The intent is to take the currently disconnected recreational and open resources in the LWTB project area, as well as schools, and link them into a coherent system of pedestrian and bike paths to create a new blue-green identity. Another goal of the greenway, trails, gateways, and waterfront access component of the project is to adopt and develop new sites along the Mill River that are currently underutilized and/or not accessible and make these sites productive towards the LWTB objectives. See Figure 68.

The design level of service elements of the multiuse path would, where practical, typically include 10-foot-wide permeable pavement with water storage and infiltration under the path. As a linear element and where space permits, the paths may serve as interceptors of surface stormwater runoff through parallel bioswales.
Figure 68: Mill River Greenway
11.2 CUMULATIVE IMPACTS

The Town of Hempstead regularly undertakes roadway maintenance and improvement projects. As of November 2019, no such projects were located in proximity of Hempstead Lake State Park such that they would combine with the Hempstead Lake State Park Project to result in cumulative impacts \( \text{(37)} \). The neighborhoods surrounding the Park are built out and primarily residential; projects in these locations would generally involve rehabilitation or minor expansion of these existing uses. Because of the distance of these uses from the Hempstead Lake State Park Project construction activities, projects in these locations would not combine with the Hempstead Lake State Park Project to result in cumulative effects.

11.2.1 Land Development

11.2.1.1 Conformance with Plans/Compatible Land Use and Zoning/Scale and Urban Design

The cumulative projects are not anticipated to result in cumulative inconsistencies with the Nassau County Master Plan or other local plans and policies. The projects predominantly involve flood protection, water quality enhancement, and stormwater management improvements. As part of the Long Beach WPCP Consolidation Project, for example, any buildings or structures would be consistent with existing zoning and land use controls, and improvements would be designed to be compatible with the existing topography and built character of the Mill River and Hewlett Bay system.

11.2.1.2 Soil Suitability/Slope/Erosion/Drainage/Stormwater Runoff

Increased erosion could occur during the construction of the multiple LWTB projects located downstream of Hempstead Lake State Park. However, the potential for cumulative impacts from project activities occurring in the same period would be minimized through adherence to construction BMPs. Except for the environmental education and resiliency center and the conversion of the Long Beach WPCP’s headworks and influent pump to a diversion pump station, no new buildings—other than potential utility sheds, vent shafts, or restroom structures—are anticipated to be constructed as part of the proposed project. The multiple LWTB projects located downstream of Hempstead Lake State Park involve predominantly flood protection and stormwater or sewer management improvements. No new buildings would be constructed in areas with steep slopes. Slopes would be designed to conform to engineering standards.

Each project would be subject to permitting review by applicable regulatory agencies, including NYSDEC and USACE. The design teams for each project have, or would, consult with these regulatory agencies during the design development process to address agency concerns regarding grading plans, erosion controls, dewatering (if necessary), and other construction methodologies and specifications.

By completing stormwater management improvements upstream of these projects, the Hempstead Lake State Park Project would result in benefits to at the Mill River at downstream locations. This benefit would combine with the benefits from stormwater retention and treatment features proposed at Lister Park and East Rockaway High School, for instance. As a net cumulative benefit, overall flows to the Mill River would be slowed and reduced, and flows would have less sediment and other pollutants, resulting in decreased erosion and improved water quality in the Mill River and Hewlett Bay. The reduction in nitrogen loadings resulting from the Long Beach WPCP Consolidation Project, and ultimately from the Bay Park STP Conveyance Project, would further improve water quality in the bay.
11.2.1.3 Hazards and Nuisances Including Site Safety and Noise

FEMA interactive flood maps for the watershed area indicate that the Mill River is a special flood hazard area subject to inundation by the 100-year storm event from Smith Pond southward to Hewlett Bay. The inundation area covers the water, vegetated areas, and nearby public and private properties along the river, southward to approximately Atlantic Avenue. South of Atlantic Avenue, the inundation area expands eastward and westward (11, 13, 14).

Under existing conditions, Hempstead Lake Dam and South Pond Dam can accommodate stormwater flows from the 100-year design storm. This capacity during these design storms would continue with implementation of the proposed project, and no roadway overtopping or flooding would occur.

The project would make the Hempstead Lake Dam’s sluice gates operational, which would allow for seasonal adjustment to lake water levels. Adjusting the water level in this manner would provide additional storage in Hempstead Lake to attenuate peak flows from major storm events. These improvements, combined with other envisioned projects in the LWTB Project and Resiliency Strategy—such as the potential increased storage at Smith Pond and the stormwater retrofits throughout the watershed—would attenuate stormwater flows and increase stormwater storage within the Mill River system during major rainfall events (13, 14, 37).

Ocean storm surge affects areas downstream of Hempstead Lake State Park, but the Park is located too far upstream to be inundated by this surge or to attenuate its effects. Depending on the ultimate design of other envisioned LWTB Project and Resiliency Strategy projects, these projects would result in cumulative beneficial impacts in storm surge reduction or absorption. For example, the Long Beach WPCP is protected from a 100-year flood event, but the consolidation project would divert wastewater to the Bay Park STP, which is protected from a 500-year flood event.

Although the cumulative projects are independent of Hempstead Lake State Park, the benefits of the downstream project would be better realized when the Park project is implemented because the project would attenuate flows toward downstream projects.

11.2.1.4 Energy Consumption

Construction of individual LWTB projects located downstream of Hempstead Lake State Park would result in typical consumption of fuels and electrical energy. Operation of stormwater retrofits and other projects may require fuels or electrical energy for pumps or other features. Operation of the new diversion pump station and force main for the Long Beach WPCP Consolidation Project may increase energy consumption, but the increase would be negligible in the context of the energy demands of the communities within the Mill River Watershed.

11.2 Socioeconomic

11.2.2 Employment and Income Patterns

Construction of the proposed project, in combination with LWTB projects, would result in temporary increases in construction-related employment. Upon completion of construction, projects are not anticipated to result in substantial changes in employment, population, or income patterns.
11.2.2.2 Demographic Character Changes, Displacement
Cumulative projects would not result in physical barriers or create access difficulties that would isolate or concentrate any particular population group. The proposed improvements would enhance connections along the Mill River system and among adjacent communities. No residents would be displaced.

11.2.3 Community Facilities and Services

11.2.3.1 Educational and Cultural Facilities
No adverse cumulative impacts on educational or cultural facilities would occur. No population changes would occur as the result of LWTB projects downstream of Hempstead Lake State Park. Projects would provide cumulative educational benefits related to Park infrastructure, stormwater quality and quantity, biological resources, and recreation. In particular, the coastal field station would provide an educational opportunity for local populations and those visiting the southern marshes.

11.2.3.2 Commercial Facilities
Projects would not result in adverse impacts on or significantly increase the demand for existing commercial establishments. No new commercial facilities would be provided.

11.2.3.3 Health Care and Social Services
No population changes would be associated with the projects; therefore, there would not be a significant increase in demand for health care and social services.

11.2.3.4 Solid Waste Disposal/Recycling
Each project would generate some amount of construction and demolition debris. Debris would be disposed in accordance with existing regulations. Once the projects were completed, they would generate a negligible increase in solid waste. The projects would not result in cumulatively adverse impacts on solid waste disposal or recycling.

11.2.3.5 Waste Water/Sanitary Sewers
Once the projects are completed, they would generate—at most—a negligible increase in sanitary wastewater. Conveying wastewater from Long Beach to the Bay Park STP would improve the quality of treated effluent discharged into Reynolds Channel, reducing the concentrations of pollutants, particularly ammonia and nitrogen, in the water. Due to recent and ongoing improvements, including nitrogen-reducing and deammonification projects, the Bay Park STP is equipped with sustainable, state-of-art wastewater treatment technologies. According to a desktop assessment, the nitrogen-reducing and deammonification projects are expected to reduce influent nitrogen by 85% at the Bay Park STP.

In addition, extensive hardening measures were undertaken to ensure that this critical facility is protected from a 500-year flood event. Comparatively, the Long Beach WPCP would be provided with flood protection from a 100-year storm event. As such, this cumulative project would result in a more resilient wastewater treatment system. There would be no adverse cumulative impacts.
11.2.3.6 Water Supply

Once the projects are completed, they would generate a negligible increase in water demand. Projects would be designed to increase stormwater infiltration, which would contribute to the groundwater supply. No cumulative impacts would occur.

11.2.3.7 Public Safety - Police, Fire, and Emergency Medical

The past, present, and reasonably foreseeable future projects, such as LWTB projects located downstream of Hempstead Lake State Park, would not result in increased population or substantial increase in employment. As such, they would not result in a substantial increase in local police, fire, or emergency medical service demand. The planned greenway could attract visitors. In addition, in the long term, the reduction in sediments, nitrogen, and other pollutant loads to Hewlett Bay would improve water quality and local ecosystems, which could attract increased recreational visitors. Combined with the Hempstead Lake State Park Project, these improvements could increase the number of visitors to the Mill River corridor but not to an extent that would impede or overwhelm local public safety services.

11.2.3.8 Parks, Open Space, and Recreation

In combination with the proposed project, cumulative projects would increase opportunities for active and passive recreation by providing new open spaces and a greenway along the river and improving water quality and ecosystems within the river and Hewlett Bay. These projects would also provide additional opportunities for use of alternative transportation modes, such as cycling and walking, by increasing the safety of such modes. Cumulative impacts would be beneficial.

11.2.3.9 Transportation and Accessibility

LWTB projects located downstream of Hempstead Lake State Park would not result in new population or substantial new employment and as such would not generate substantial new trips or parking demand. Traffic operations at each improvement would be evaluated, if necessary, when detailed proposals are presented to GOSR for review.

11.2.4 Natural Features

11.2.4.1 Unique Natural Features, Water Resources

Per HUD’s EA Factors Guidance, no unique natural features or water resources are on or adjacent to the Mill River system. The projects would increase access to, and connectivity along, the Mill River. Envisioned improvements would increase stormwater infiltration and groundwater recharge.

By completing stormwater management improvements, the Hempstead Lake State Park Project would result in benefits to the Mill River at downstream locations. This benefit would combine with the benefits from stormwater retention and treatment features proposed at Lister Park and East Rockaway High School. As a net cumulative benefit, overall flows to the Mill River would be slowed and reduced, and flows would have less sediment and other pollutants, resulting in improved water quality in the Mill River and Hewlett Bay. The reduction in nitrogen loadings resulting from the Long Beach WPCP Consolidation Project, and ultimately from the Bay Park STP Conveyance Project, would further improve water quality in the bay.
11.2.4.2 Vegetation, Wildlife

The cumulative projects would result in beneficial cumulative impacts on vegetation and wildlife in the Mill River system. Freshwater wetlands and coastal marshes would be rehabilitated, and the associated habitat values would be improved. Water quality would be improved through the wetland and marsh enhancements and from reductions in nitrogen loadings through improved wastewater treatment, which would further improve habitat. Wetland creation and rehabilitation would also remove invasive species and increase biological connectivity along the river, which would benefit native vegetation and wildlife populations. Construction of individual projects would result in temporary adverse effects, which would be mitigated through implementation of BMPs.

12 ALTERNATIVES [24 CFR § 58.40(E); 40 CFR § 1508.9]

Section 10, Additional Studies Performed, identifies several analyses prepared by the OPRHP design team documenting the condition of the existing dams and ponds, water quality, sediment quality, floatables pollution, and hydraulic and hydrologic conditions. The OPRHP team developed a metric analysis of alternative project designs of the NW and NW Ponds that established evaluation criteria by which to evaluate the stormwater system, water quality, ecological, and landscape factors that meet the purpose and need of proposed project. In addition to the proposed project as described throughout, GOSR considered a no action alternative as well as an alternative to remove the dams, which was dismissed before further evaluation was considered.

The team also worked with NYSDEC to develop the proposed dam rehabilitations and engaged NYSDEC in a collaborative and iterative process to develop the proposed design of the wetlands creation and rehabilitation in the NE and NW Ponds. These efforts explored design alternatives in response to environmental and operational issues and resulted in the currently proposed design.

Upon USACE review of the joint permit application, as well as receipt of comments on the October 2018 EA from USEPA, USFWS, and USACE, the team collaborated with these agencies to further refine the proposed design of the wetland creation and rehabilitation in the NE and NW Ponds to minimize impacts while supporting the purpose and need of improving water quality. The resulting project design further reduced the extent of construction and associated impacts.

The resulting alternatives analyzed include the proposed project and the No Action Alternative.

Pursuant to permitting requirements, a 404(b)(1) Alternatives Analysis is under preparation.

12.1 NO ACTION ALTERNATIVE [24 CFR § 58.40(e)]

Under the No Action Alternative, no changes would occur to the existing Hempstead Lake State Park Project components. The dams and NE and NW Ponds would remain in their existing conditions, and their flow control would not improve. The Hempstead Lake Dam’s sluice gates would remain inoperable, thus limiting water flow control through the Mill River system. The existing 35-foot breach in NW Pond Dam would continue to expand, further decreasing the water levels in NE and NW Ponds. Trees would continue to grow on the side slopes of the Hempstead Lake Dam and South Pond Dam, which could compromise structural integrity.

The continued decreasing water levels in NE and NW Ponds would further impair the functionality and ecological value of the wetland system, further reducing oxygen levels in the ponds. The already-
deposited sediment, floatables, and garbage would remain in the ponds, and additional materials would accumulate, continuing to compromise water and habitat quality. Levels of fecal coliform would increase, further increasing biological oxygen demand and eutrophication.

Over time, given that a full structural assessment of Hempstead Lake Dam and South Pond Dam would not be possible due to the continued presence of trees on the dam faces, it is anticipated that the structural integrity of the dams would deteriorate.

The environmental education and resiliency center and the greenway, trails, gateways, and waterfront access components would not be constructed. Social resiliency, Park access, and access to Park components would remain as under existing conditions. No new or renovated amenities for educational opportunities, learning spaces, or community gathering spaces would be constructed.

The No Action Alternative would avoid the construction-related impacts on air quality, noise, and transportation and access associated with project construction. It would also avoid the construction-related impacts related to tree-removal, dredging, excavation, and loss of shrub maple wetland. Beneficial impacts from wetland creation or restoration would not be realized.

12.1.1 Dam Removal

Instead of allowing the Hempstead Lake Dam to continue to deteriorate under the No Action Alternative, dam removal could be considered.

Dam removal would result in lower water levels such that the waterbodies would function as a river between the NW Pond Weir and the southern edge of the park. Hundreds of acres of open water, as well as substantial existing wetlands along the edges of these waterbodies, would be converted to uplands. The interior of the lake and ponds would convert to emergent wetlands, which would result in the loss of regionally important migratory shorebird and waterfowl habitat.

Dam removal would have adverse impacts on the existing habitat composition within the park, as well as on the wildlife, including threatened and endangered species, that may currently use the diversity of open water, freshwater meadow, mudflat, and forested wetland habitats associated with Hempstead Lake and South Pond.

The draining of Hempstead Lake and South Pond would alter the land use and recreational use of Hempstead Lake State Park. As indicated above, Hempstead Lake is the largest freshwater body in Nassau County, and the NE and NW Ponds’ freshwater wetlands are a unique resource in the County. The loss of these unique resources would be an irreversible impact on the Park, the Town of Hempstead, Nassau County, and on communities beyond those borders that visit the Park for recreational activities.

Therefore, dam removal would not meet the project purpose and need to provide water impoundment within Hempstead Lake State Park to improve water management and increase flood defense. Moreover, it would not maintain water levels and associated habitat and ecosystems along Hempstead Lake. Further, dam removal would alter the recreational value of the park. As such, dam removal was dismissed from further evaluation.
12.2 **SUMMARY OF FINDINGS AND CONCLUSIONS**

The project would result in an overall loss of wetlands, which will be mitigated through compliance with state and federal permitting agency requirements. The project would also result in loss of trees, which could affect migratory birds or roosting bats. Construction activities would increase surface water turbidity and sedimentation and disturb contaminated sediments. With implementation of identified mitigation measures and adherence to regulatory requirements and permit conditions, the project will not have a significant impact on the quality of the human environment or result in other direct, indirect, or cumulative impacts. The project will comply with all relevant regulations listed in 24 CFR Part 58.

The project would result in benefits to Hempstead Lake State Park, the surrounding community, and visitors from the region. It would build resiliency through improved stormwater management, enhancement of natural ecosystems, and increased connectivity among diverse populations. The project would enhance access to natural spaces and recreational resource, enhance safety, and promote environmental education.

13 **MITIGATION MEASURES AND CONDITIONS [40 CFR § 1505.2(C)]**

13.1 **CLEAN AIR ACT**

All project activities will comply with applicable federal, state, and local laws and regulations regarding construction emissions, including but not limited to NYCRR, NYSDEC Air Quality Management Plan, and the New York State Implementation Plan. All necessary measures would be used to minimize fugitive dust emissions. The preferred method for dust suppression is water sprinkling. To demonstrate compliance, the following specifications will be incorporated into the contract documents:

*Idling Restriction.* On-site vehicle idle time would be restricted to 5 minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.

*Utilization of Newer Equipment.* USEPA’s Tier 1 through 4 standards for nonroad engines regulate the emission of criteria pollutants from new engines, including particulate matter, carbon monoxide, nitrogen oxides and hydrocarbons. All nonroad construction equipment with a power rating of 50 horsepower or greater would meet at least the Tier 2 emissions standard to the extent practicable.

*Best Available Tailpipe Reduction Technologies.* Nonroad diesel engines with a power rating of 50 horsepower or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the project) including but not limited to concrete mixing and pumping trucks would utilize the best available tailpipe (or BAT) technology for reducing diesel particulate matter emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts would specify that all diesel nonroad engines rated at 50 horsepower or greater would utilize DPFs, either installed by the original equipment manufacturer or retrofitted. Retrofitted DPFs must be verified by USEPA. Active DPFs or other technologies proven to achieve an equivalent reduction may also be used.

13.2 **CONTAMINATION AND TOXIC SUBSTANCES**

To ensure no adverse effects on human health and the environment from dredging and excavation activities occur, OPRHP will request a permit from NYSDEC in accordance with a NYSDEC Use and
Protection of Waters Permit (6 NYCRR Part 608.2(a)); Freshwater Wetlands Permit (6 NYCRR Part 663); SPDES Permit (6 NYCRR Part 751.3(a)(6)); and Clean Water Act § 401 Water Quality Certification.

Under the permitting process, all dredging and excavation activities will be reviewed and approved by NYSDEC and conducted in accordance with the NYSDEC Technical & Operational Guidance Series, Section 5.1.9. BMPs that will be employed, including the construction method for removal of sediments and soils, the handling and movement of sediments and soils to a temporary dewatering location within the project area to be determined during the permitting process, and methods to minimize transport of sediments and soils during dredging/excavation beyond the dredge/excavation area, such as using turbidity curtains. Should temporary dewatering be necessary to conduct the dredging or excavation, the dewatered area would be minimized to the extent practicable and would not be expected to substantially interrupt stream flow. Dredging and excavation will also consider potential seasonal restrictions on in-water work to avoid or minimize impacts on life cycle periods of aquatic organisms. The use of BMPs would minimize the potential for contaminants in the sediments to migrate during dredging and once the dredge materials are stored on-site in an appropriate containment location prior to transport to an off-Long Island permitted disposal facility.

Upon USACE review of the joint permit application and receipt of comments on the October 2018 EA from USEPA, USFWS, and USACE, the team collaborated with these agencies to further refine the proposed design of the wetland creation and rehabilitation in the NE and NW Ponds. The resulting project design further reduces the extent of dredging and excavation activities necessary to implement the project. Because of these design modifications, the quantity of material to be removed from the site and subject to the preliminary sediment management plan has been reduced to no more than 9,581 cubic yards.

See the preliminary sediment management plan, included in Appendix Z, for further details regarding dredged materials disposal. NYSDEC would approve this plan prior to any dredging.

13.3 **CONFORMANCE WITH NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION STATE POLLUTION DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY GP-0-15-002**

A SWPPP and notice of intent will be prepared for the project because the amount of ground disturbance at the site would be greater than 1 acre. The project will adhere to the conditions in the SWPPP. BMPs such as silt fences and erosion prevention, will be implemented, as required by permits or agency direction.

13.3.1 **Wetlands Protection (Executive Order 11990, Particularly Sections 2 and 5)**

An Article 24 Freshwater Wetlands Permit will be obtained from NYSDEC and a Section 404 Individual Permit will be obtained from USACE for the placement of fill and other construction activities affecting wetland and open waters. Adherence to the permit conditions will limit construction impacts. Compensatory mitigation, as identified by USACE and OPRHP through the permitting process, will be implemented to offset permanent impacts.

13.3.2 **Drainage/Erosion/Runoff**

Silt curtains will be installed around the dredging area or at the outlets of each pond to prevent turbidity downstream of the dredging areas. Additionally, specific mitigation measures identified during the permitting process by federal and state agencies will be implemented.
13.4 ENDANGERED SPECIES ACT AND MIGRATORY BIRD TREATY ACT

To avoid impacts on northern long-eared bat, efforts will be made to conduct tree removal activities during November 1 to March 31, outside the active season. Northern long-eared bats hibernate between November 1 and March 31 and will not be affected by tree removal activities during that time, which will avoid incidental takes. Tree removal during the active season will be limited to only those trees required to be removed for dam improvements and bridge installation. A qualified biologist will survey trees for northern long-eared bats prior to and during tree removal activities using the USFWS guidelines for Indiana bat surveys, which are also applicable to northern long-eared bats. If tree removal is required during active/roosting season in other areas, OPRHP will coordinate with NYSDEC and (if necessary) with USFWS and GOSR.

To avoid impacts on fringed boneset (threatened), weak rush (endangered), and slender crabgrass (endangered), a qualified biologist will survey suitable habitat within the proposed areas of disturbance prior to construction to note the presence or absence of these species. If found in an area that is proposed to be disturbed, the plant(s) will be relocated to a similar nearby habitat outside the area of disturbance to avoid adverse impacts to these state-listed species in consultation with NYSDEC.

The November 1 to March 31 tree-clearing window for all tree-clearing activity not associated with dam improvements and bridge installation would avoid the migratory bird breeding season, which occurs between April 1 and August 31. Only tree removal associated with the dams, gatehouses and bridges component may occur from April 1 to October 31. A qualified biologist would survey trees for migratory birds prior to and during tree removal activities. Additionally, tree removal would be minimized to the greatest extent practicable, and trees to be protected from cutting would be clearly demarcated to prevent unnecessary clearing.

13.5 VEGETATION AND WILDLIFE

To avoid impacts on resident raptor species, raptor surveys will be conducted prior to and during construction by qualified OPRHP biologists to address the possible presence of raptors. Temporarily disturbed areas would be reseeded following construction. Native plant materials will be used for wetland and upland revegetation. Pollinator habitat and native grasses will be planted on Hempstead Lake Dam, and native grasses will be planted on South Pond Dam. See Appendix D for Planting Plans and Planting Schedules. A comprehensive park-wide invasive species management and restoration plan is being developed for the park to identify short- and long-term actions to improve ecological conditions. Additionally, boating activity associated with the proposed kayak launches will be prohibited during the late fall and winter to avoid disturbing wintering waterfowl.

An operations and management plan would be developed and implemented to avoid detrimental impacts on wildlife in NE and NW Ponds. A first draft is shown in Appendix K. The plan would establish a management plan to identify and remove invasive plant species that degrade existing habitat and provide for post-construction monitoring of the proposed habitat improvements to ensure that the habitat restoration efforts are successfully achieved. The plan would also include a contingency plan for the maintenance period that would secure appropriate funding to cover any necessary replanting and stabilization of the work areas.
13.6 **Noise**

Construction noise mitigation measures will be implemented, including outfitting equipment with mufflers and complying with Town of Hempstead noise ordinances (i.e., time-of-day work limitations).

14 **COMPLIANCE WITH 24 CFR §§ 58.5 AND 58.6 LAWS AND AUTHORITIES**

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

<table>
<thead>
<tr>
<th>Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR § 58.5 and § 58.6</th>
<th>Are formal compliance steps or mitigation required?</th>
<th>Compliance determinations</th>
</tr>
</thead>
</table>
| **Airport Hazards**  
24 CFR § 51, Subpart D | Yes ☑ | Refer to Section 8.1.1 analysis of impacts. |
| **Coastal Barrier Resources**  
Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 United States Code (USC) 3501] | Yes ☑ | Refer to Section 8.1.2 for analysis of impacts. |
| **Flood Insurance**  
### Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §§ 58.5 and § 58.6

<table>
<thead>
<tr>
<th>Statute/Order</th>
<th>Are formal compliance steps or mitigation required?</th>
<th>Compliance determinations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clean Air</strong>&lt;br&gt;Clean Air Act, as amended, particularly section 176(c) &amp; (d); 40 CFR §§ 6, 51, 93</td>
<td>Yes ☑️ No ☐</td>
<td>Refer to Section 8.2.1 for analysis of impacts. See Section 13.1 for mitigation measures.</td>
</tr>
<tr>
<td><strong>Coastal Zone Management</strong>&lt;br&gt;Coastal Zone Management Act, sections 307(c) &amp; (d)</td>
<td>Yes ☐ No ☑</td>
<td>Refer to Section 8.2.2 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>Contamination and Toxic Substances</strong>&lt;br&gt;24 CFR §§ 50.3(i) &amp; 58.5(i)(2)</td>
<td>Yes ☑️ No ☐</td>
<td>Refer to Section 8.2.3 for analysis of impacts. See Section 13.2 for mitigation measures.</td>
</tr>
<tr>
<td><strong>Endangered Species</strong>&lt;br&gt;Endangered Species Act of 1973, particularly section 7; 50 CFR § 402</td>
<td>Yes ☑️ No ☐</td>
<td>Refer to Section 8.2.4 for analysis of impacts. See Section 13.4 for mitigation measures.</td>
</tr>
<tr>
<td><strong>Explosive and Flammable Hazards</strong>&lt;br&gt;24 CFR § 51, Subpart C</td>
<td>Yes ☑️ No ☐</td>
<td>Refer to Section 8.2.5 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>Farmlands Protection</strong>&lt;br&gt;Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR § 658</td>
<td>Yes ☑️ No ☐</td>
<td>Refer to Section 8.2.6 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>Floodplain Management</strong>&lt;br&gt;Executive Order 11988, particularly section 2(a); 24 CFR § 55</td>
<td>Yes ☑️ No ☐</td>
<td>Refer to Section 8.2.7 for analysis of impacts.</td>
</tr>
<tr>
<td>Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR § 58.5 and § 58.6</td>
<td>Are formal compliance steps or mitigation required?</td>
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</tr>
<tr>
<td><strong>Historic Preservation</strong>&lt;br&gt;National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR § 800; Tribal notification for new ground disturbance.</td>
<td>Yes No</td>
<td>Refer to Section 8.2.8 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>Noise Abatement and Control</strong>&lt;br&gt;Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR § 51, Subpart B</td>
<td>Yes No</td>
<td>Refer to Section 8.2.9 for analysis of impacts. See Section 13.6 for mitigation measures.</td>
</tr>
<tr>
<td><strong>Sole Source Aquifers</strong>&lt;br&gt;Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR § 149</td>
<td>Yes No</td>
<td>Refer to Section 8.2.10 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>Wetlands Protection</strong>&lt;br&gt;Executive Order 11990, particularly sections 2 and 5</td>
<td>Yes No</td>
<td>Refer to Section 8.2.11 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>Wild and Scenic Rivers</strong>&lt;br&gt;Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)</td>
<td>Yes No</td>
<td>Refer to Section 8.2.12 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL JUSTICE</strong>&lt;br&gt;Environmental Justice</td>
<td>Yes No</td>
<td>Refer to Section 8.2.13 for analysis of impacts.</td>
</tr>
<tr>
<td>Executive Order 12898</td>
<td>Yes No</td>
<td></td>
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</tbody>
</table>
15 ENVIRONMENTAL ASSESSMENT FACTORS [24 CFR § 58.40; REF. 40 CFR §§ 1508.8 & 1508.27]

Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

**Impact Codes:** Use an impact code from the following list to make the determination of impact for each factor.

(1) Minor beneficial impact
(2) No impact anticipated
(3) Minor Adverse Impact – May require mitigation
(4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement
<table>
<thead>
<tr>
<th>Environmental Assessment Factor</th>
<th>Impact Code</th>
<th>Impact Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LAND DEVELOPMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design</td>
<td>2</td>
<td>Refer to Section 9.1.1 for analysis of impacts.</td>
</tr>
<tr>
<td>Soil Suitability/ Slope/ Erosion/ Drainage/ Stormwater Runoff</td>
<td>3</td>
<td>Refer to Section 9.1.2 for analysis of impacts.</td>
</tr>
<tr>
<td>Hazards and Nuisances including Site Safety and Noise</td>
<td>1</td>
<td>Refer to Section 9.1.3 for analysis of impacts.</td>
</tr>
<tr>
<td>Energy Consumption</td>
<td>2</td>
<td>Refer to Section 9.1.4 for analysis of impacts.</td>
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<tr>
<td><strong>SOCIOECONOMIC</strong></td>
<td></td>
<td></td>
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<tr>
<td>Employment and Income Patterns</td>
<td>2</td>
<td>Refer to Section 9.2.1 for analysis of impacts.</td>
</tr>
<tr>
<td>Demographic Character Changes, Displacement</td>
<td>2</td>
<td>Refer to Section 9.2.2 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>COMMUNITY FACILITIES AND SERVICES</strong></td>
<td></td>
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<tr>
<td>Educational and Cultural Facilities</td>
<td>1</td>
<td>Refer to Section 9.3.1 for analysis of impacts.</td>
</tr>
<tr>
<td>Commercial Facilities</td>
<td>2</td>
<td>Refer to Section 9.3.2 for analysis of impacts.</td>
</tr>
<tr>
<td>Health Care and Social Services</td>
<td>2</td>
<td>Refer to Section 9.3.3 for analysis of impacts.</td>
</tr>
<tr>
<td>Solid Waste Disposal / Recycling</td>
<td>2</td>
<td>Refer to Section 9.3.4 for analysis of impacts.</td>
</tr>
<tr>
<td>Waste Water / Sanitary Sewers</td>
<td>2</td>
<td>Refer to Section 9.3.5 for analysis of impacts.</td>
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<tr>
<td>Water Supply</td>
<td>2</td>
<td>Refer to Section 9.3.6 for analysis of impacts.</td>
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<tr>
<td>Public Safety - Police, Fire and Emergency Medical</td>
<td>1</td>
<td>Refer to Section 9.3.7 for analysis of impacts.</td>
</tr>
<tr>
<td>Environmental Assessment Factor</td>
<td>Impact Code</td>
<td>Impact Evaluation</td>
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<tr>
<td><strong>Parks, Open Space and Recreation</strong></td>
<td>1</td>
<td>Refer to Section 9.3.8 for analysis of impacts.</td>
</tr>
<tr>
<td><strong>Transportation and Accessibility</strong></td>
<td>1</td>
<td>Refer to Section 9.3.9 for analysis of impacts.</td>
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</table>

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<tbody>
<tr>
<td><strong>NATURAL FEATURES</strong></td>
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<tr>
<td>Unique Natural Features, Water Resources</td>
<td>1</td>
<td>Refer to Section 9.4.1 for analysis of impacts.</td>
</tr>
<tr>
<td>Vegetation, Wildlife</td>
<td>1</td>
<td>Refer to Section 9.4.2 for analysis of impacts. See Section 13.5 for mitigation measures.</td>
</tr>
<tr>
<td>Other Factors</td>
<td></td>
<td>The project would not affect other factors.</td>
</tr>
</tbody>
</table>


Determination:

- Finding of No Significant Impact [24 CFR § 58.40(g)(1); 40 CFR § 1508.27]
The project will not result in a significant impact on the quality of the human environment.

- Finding of Significant Impact [24 CFR § 58.40(g)(2); 40 CFR § 1508.27]
The project may significantly affect the quality of the human environment.

Preparer Signature:                Date: 12/11/2019

Name/Title/Organization: Jonathan Carey, Principal Planner, Louis Berger U.S.

Certifying Officer Signature: Date: 12/11/2019

Name/Title: Matt Accardi, GOSR, Assistant General Counsel

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR § 58.38) and in accordance with recordkeeping requirements for the HUD program(s).