

DRAFT SCOPING DOCUMENT

Forge River Watershed Sewer Project

Mastic-Shirley Proposed Sewer District

Town of Brookhaven, New York

FEMA-DR-4085-NY HMGP

December 23, 2015

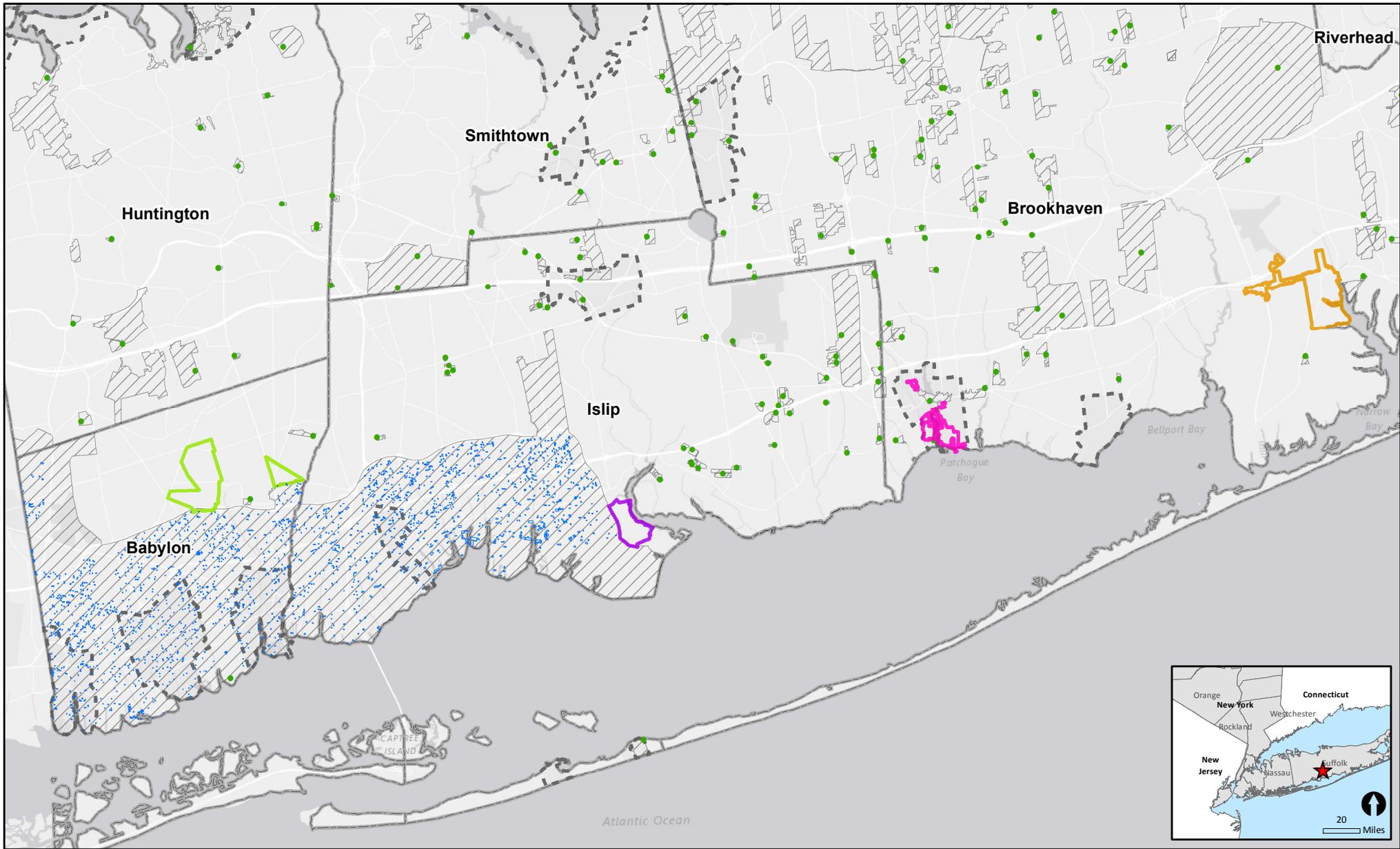
1.0 INTRODUCTION

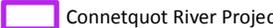
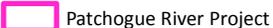
On October 29, 2012, Hurricane Sandy caused storm damage to several areas across the state of New York. President Barack Obama declared Hurricane Sandy a major disaster on October 30, 2012. The declaration authorized the Department of Homeland Security-Federal Emergency Management Agency (FEMA) to provide assistance to New York State per federal disaster declaration DR-4085-NY and in accordance with Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 United States Code [USC] 5170c), as amended; the Sandy Recovery Improvement Act of 2013; and the accompanying Disaster Relief Appropriations Act of 2013. Suffolk County, (the subgrantee), has applied to the FEMA Hazard Mitigation Grant Program (HMGP) for funding of the Suffolk County Coastal Resiliency Initiative (the Initiative). The New York State Division of Homeland Security and Emergency Services (DSHES) is the grantee partner.

1.1 Suffolk County Coastal Resiliency Initiative

The Initiative seeks to mitigate impacts on human life and property, surface waters, and coastal wetlands associated with on-site wastewater treatment and disposal system (OSWS) failures caused by natural hazards. The natural hazards include rain events, storm surge, and coastal flooding, particularly as they contribute to rising groundwater elevations and septic or cesspool failures for up to 74 percent of homes in Suffolk County that rely on OSWS. The Initiative would be accomplished through five projects in areas that are particularly prone to these conditions: Southwest Sewer District No. 3 (SSD #3), and the Carlls, Connetquot, Forge, and Patchogue River watersheds, as follows (see **Figure 1**).

- *SSD #3*: SSD #3 is south and west of the Southern State Parkway from the Nassau County line to the hamlet of East Islip, in the townships of Babylon and Islip. This project would install service laterals connecting 2,232 residential parcels in SSD #3 to existing collection and conveyance systems terminating at Suffolk County's Bergen Point Wastewater Treatment Plant.
- *Carlls River Watershed*: The Carlls River is located in Babylon, flowing into the Great South Bay on the mainland side of Long Island just north of the Fire Island Inlet. This project comprises three sub-areas: North Babylon, West Babylon, and Wyandanch, and would construct a new collection system to connect 2,601 parcels to existing conveyance and treatment systems.
- *Connetquot River Watershed*: The Connetquot River is located on the south shore of Long Island in Great River and flows into the Great South Bay. This project would construct a new collection system to connect 500 parcels to existing conveyance and treatment systems.



-  Suffolk County Towns
-  Suffolk County Villages
-  Existing Sewer Districts
-  Existing Sewage Treatment Plants
-  Carlls River Project Area
-  Connetquot River Project Area
-  Forge River Project Area
-  Patchogue River Project Area
-  Southwest Sewer District # 3 Project Area (Unconnected Parcels)

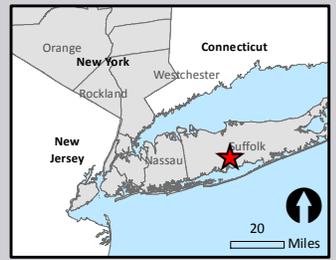
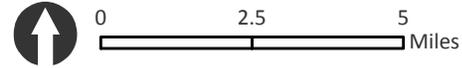


Figure 1

Suffolk County Coastal Resiliency Initiative

Forge River Watershed Sewer Project

Source: Suffolk County GIS (2014); Gayron deBruin; New York State GIS (2013); ESRI Gray Base Map (2014).

- *Patchogue River Watershed*: The Patchogue River is located off of Patchogue Bay on Long Island’s south shore, about 17 miles east of the Fire Island Inlet and 14 miles west of the Moriches Bay Inlet. This project would construct a new collection system to connect 648 parcels to existing conveyance and treatment systems.
- *Forge River Watershed*: Forge River, the most eutrophic waterbody in Suffolk County, is located within the hamlets of Mastic and Shirley in the Town of Brookhaven. This project would construct new collection and conveyance systems, connecting 2,094 parcels to a new advanced wastewater treatment plant (AWTF). Brookhaven Calabro Airport in the Town of Brookhaven is one potential site under consideration for the location of the AWTF.

This document addresses the Forge River Watershed Sewer Project (the proposed action) as described below. The proposed action is functionally, geographically, hydrologically, and hydraulically separate from the four remaining projects discussed above as part of the Initiative and has both independent utility and a distinct schedule for implementation. Therefore, a permissibly separate environmental review process for this project will be completed with a rigorous assessment of cumulative impacts to ensure that the review will be no less protective of the environment.

1.2 Forge River Watershed Sewer Project

FEMA will be the lead agency under the National Environmental Policy Act (NEPA) and related laws for the environmental review of the proposed action. The Governor’s Office of Storm Recovery (GOSR) will be the lead agency pursuant to the State Environmental Quality Review Act (SEQRA) and related laws for the environmental review of the proposed action.

To satisfy environmental review requirements concurrently under NEPA and SEQRA, a coordinated NEPA draft environmental assessment (EA) and SEQRA draft environmental impact statement (EIS) will be prepared that comprehensively addresses the requirements of both laws and regulations, in accordance with both NEPA (42 United States Code [USC] 4321–4370h) and SEQRA (Environmental Conservation Law [ECL] Sections 3-0301(1)(b), 3-0301(2)(m), and 8-0113 with promulgating regulations found at 6 New York Codes, Rules and Regulations [NYCRR] Part 617). These coordinated NEPA/SEQRA documents will evaluate the proposed action and alternatives for the Forge River Watershed Sewer Project—specifically decommissioning OSWS of approximately 2,094 parcels in the project area and connecting the parcels to a new sewer collection system that would flow to a proposed new AWTF.

2.0 PURPOSE AND NEED

Section 404 of the Robert T. Stafford Relief and Emergency Assistance Act of 1974 (42 USC 5170c), as amended, authorizes FEMA to provide funding to eligible grant applicants for activities that have the purpose of reducing or eliminating risks to life and property from hazards and their effects. The primary purpose of the proposed action is to mitigate short-term and repetitive, adverse impacts on human life and property associated with OSWS failures in the Forge River Watershed in Suffolk County, New York, caused by natural hazards. The secondary purpose is to mitigate long-term, adverse impacts associated with such failures on surface waters and coastal wetlands that reduce the ability of these waters and wetlands to provide natural protection against storm surge.

The project is needed because OSWS in the project area are susceptible to both capacity and treatment or disposal failures during flood and heavy rain events. Many systems in the project area failed during Hurricane Sandy.

3.0 PROJECT LOCATION AND BACKGROUND

Forge River, the most eutrophic waterbody in Suffolk County, is located within the hamlets of Mastic and Shirley in the Town of Brookhaven. The proposed project area encompasses approximately 750 acres in the densely developed residential and commercial area bounded by Sunrise Highway to the north, Poospatuck Creek to the south, William Floyd Parkway to the west, and Forge River and its tributaries to the east, as well as a proposed 12.9-acre parcel and a 17.0-acre expansion area parcel located on the Brookhaven Calabro Airport situated north of Sunrise Highway (New York State Route 27) (see **Figure 2**). Existing land uses in the project area include commercial and retail storefronts, offices, and restaurants along the Montauk Highway corridor and primarily residential properties. Groundwater in the area takes two years or less to flow to the Forge River.

The project area is subject to heavy rainfall events that lead to regular surface and groundwater flooding and a combination of both ground and surface water flooding, with varying intensity and frequency. The project area has experienced intense flooding during events such as Hurricane Sandy in 2012, Hurricane Irene in 2011, and other unnamed seasonal storms, nor'easters, and hurricanes. Such flooding conditions are likely to increase as a result of climate change, with rising sea levels, increasing frequency or severity of storm events, and potential changes to floodplain boundaries.

Sanitary wastewater disposal in the project area is provided by sub- and non-performing OSWS. While the exact number of system failures cannot be quantified, many of the OSWS in the project area failed during Hurricane Sandy and will continue to be subject to failures during future storm events. During Hurricane Sandy, 238 residential systems and 11 commercial systems in the project area experienced surface water inundation.

OSWS failures result when systems are flooded by heavy rainfall or submerged in shallow groundwater that rises during storm events, reducing system capacity and/or inhibiting or eliminating system treatment or disposal capability, as described below.

- *Capacity failure* occurs when tidal inundation of the land surface saturates soils above and around the systems causing water to enter the systems or when groundwater rises into the cesspool or leaching pools, reducing system hydraulic capacity. Capacity failure manifests itself by slow draining domestic plumbing or backup of wastewater into the home or basement of buildings served by the systems. In cases of limited capacity that can linger for weeks or months, the systems are used only for essential wastewater disposal; usually excrement disposal and bathing. Other uses, including dishwashing and laundry wastewater disposal, must be curtailed.

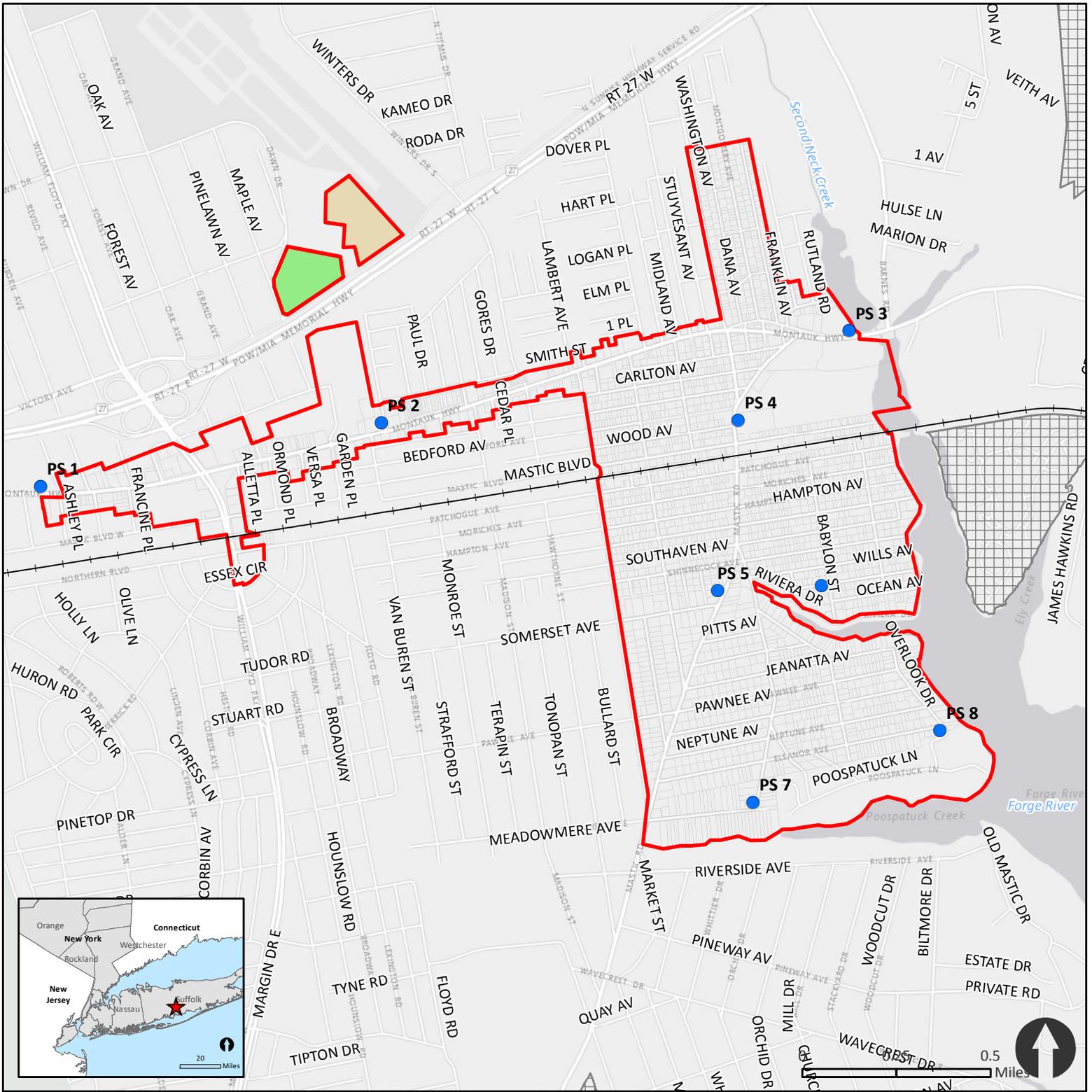


Figure 2

Project Area

Proposed Project

- Proposed Project Area
- Proposed Project Area Parcels
- Proposed Pump Stations

- Proposed Advanced Wastewater Treatment Facility Parcel
- Proposed Advanced Wastewater Treatment Facility Expansion Area

- Private Sewer Areas
- MTA Long Island Railroad

Note: Final number of parcels to be connected would be determined during detailed engineering design.

Forge River Watershed Sewer Project

Source: Suffolk County GIS; NYS Dept. of State; ESRI World Light Gray Map; CP1819 Suffolk County Sewer Capacity Study (CDM Smith, H2M, Browne AE&T Group)

- *Treatment and disposal failure* occurs when groundwater or flood waters inundate the systems or soils immediately beneath the systems, disrupting the biologic treatment activity in the systems. A 2-foot vertical separation between the bottom of the cesspool or leaching pool and the water table is necessary for decomposition of organic compounds, biodegradation of detergents, and die off of bacteria and viruses. For an extended period of months to years following system failures caused by inundation, nutrients (e.g., nitrogen), and pathogens are discharged unabated to groundwater and potentially to nearby surface waterbodies, including the Forge River and Great South Bay.

The failure of OSWS causes public health risks associated with uncontrolled sewage discharges during and after storm events that create pathways for human exposure to harmful pathogens, increase risk to human life and property, and degrade ecosystems that protect Long Island's south shore against storm surge.

Risks to human life and property include raw (untreated) sewage backups into buildings or yards and overflows onto the land or into surface waters; health/safety hazards and costs associated with the cleanup of raw sewage backups; loss of wastewater treatment; and beach closures as a result of non-point source pollution. Nitrogen and pathogen contamination of underlying groundwater and the downgradient surface waters contributes to the deterioration of ecosystem functions in the Great South Bay, including the decline in fisheries and associated job loss. The loss or degradation of coastal wetlands decreases their protective functions of reducing wave energy and amplitude, slowing water velocity, reducing flood height and storm surge, and stabilizing the shoreline through sediment deposition. These effects of capacity failures on human health and coastal wetlands can persist for extended periods of time following flood events.

Suffolk County worked with local community representatives on the Suffolk County Sewer District/Wastewater Treatment Task Force (Task Force) to delineate areas where investment in sanitary sewer and wastewater infrastructure could provide environmental, economic, and/or social benefits, and identify critical need areas where the implementation of sewerage infrastructure may be warranted and should be assessed. The Task Force and 2015 [Suffolk County Comprehensive Water Resources Management Plan](#) identified the connection of parcels in SSD #3, and the Carlls, Connetquot, Forge, and Patchogue River watersheds as key measures to address several water quality and environmental quality issues. Consequently, in 2013, a feasibility study was prepared for the Forge River Watershed to document the sewage collection and treatment/effluent discharge requirements, associated capital and operation costs, and environmental and economic benefits. The feasibility study was followed by the *Forge River Nitrogen Reduction Report* in 2014 (amended 2015), which evaluates engineering alternatives for sewerage the Mastic-Shirley Sewer District.

4.0 ENVIRONMENTAL ANALYSIS FRAMEWORK

4.1 General Scoping Considerations

The process of determining the scope, focus, and content of an environmental document is known as "scoping." Scoping meetings are a useful opportunity to obtain information from the public and governmental agencies. In particular, the scoping process asks agencies and interested parties to provide input on the proposed alternatives, the purpose and need for the project, the proposed topics of evaluation, and potential impacts and mitigation measures to be considered. The scoping process also allows FEMA and GOSR to coordinate with other cooperating (NEPA) or

involved/interested (SEQRA) agencies to reach agreement on relevant issues to minimize the inclusion of unnecessary issues.

FEMA and GOSR will work together to prepare a NEPA draft EA and SEQRA draft EIS, respectively, addressing all items identified in this scoping document. The two documents will be separate but coordinated. The EA will comply with Section 102 of NEPA, as amended. The Council on Environmental Quality (CEQ) Regulations for Implementation of NEPA (40 CFR 1500–1508), FEMA NEPA Desk Reference, and Federal Aviation Administration (FAA) Environmental Desk Reference for Airport Actions will be consulted in preparation of the draft EA. The draft EIS will comply with the SEQRA regulations (6 NYCRR Part 617), and the SEQR Handbook will be consulted for guidance regarding required content and methodology.

In accordance with aforementioned regulations and FEMA regulations for NEPA compliance (44 CFR Part 10), FEMA is required during decision making to fully evaluate and consider the environmental consequences of major federal actions it funds or undertakes. Likewise, SEQRA requires all state and local government agencies to consider environmental impacts equally with social and economic factors during discretionary decision making; assess the environmental significance of all actions they have discretion to approve, fund, or directly undertake; and balance the environmental impacts with social and economic factors when deciding to approve or undertake an action. The draft EA/EIS documents will assemble relevant and material facts to analyze the potential environmental impacts of the proposed action and reasonable alternatives, including a no-action alternative.

The NEPA/SEQRA environmental review documents will be clearly and concisely written in plain language that can be easily read and understood by the public. Unless otherwise specified, all measurement units in the draft EA/EIS documents shall be English units (e.g., feet, acres, miles). The draft EA/EIS documents will be written in the third person without use of the terms I, we, and our. Narrative discussions will be accompanied to the greatest extent possible by illustrative tables and graphics. All graphics will clearly identify the project area. The documents shall contain, as appendices, all plans, reports, and studies; and prevailing federal, state, and town regulations and standards with respect to all disciplines of study. Highly technical material will be summarized and, if included in its entirety, it will be referenced in the draft EA/EIS documents and included as an appendix. In addition, all project correspondence from involved and interested agencies will be included in an appendix to the draft EA/EIS documents. Required appendices are provided at the conclusion of this scoping document.

Hard copies of the draft EA/EIS documents will be provided to allow for public review during normal business hours. In addition, the draft EA/EIS documents will be posted on the FEMA, GOSR, and Suffolk County websites for public review, in accordance with 2005 amendments to SEQRA. A public hearing also will be held to receive comments from agencies and the public on the draft EA/EIS documents.

4.2 Impact Analysis

The customary approach to presenting an impact analysis under NEPA and SEQRA is to start with a baseline of existing conditions in the relevant study areas for each resource topic and then forecast those conditions forward to a time in the future that is appropriate for assessing project impacts.

The draft EA/EIS documents will develop a construction scenario to assist in the analysis of potential short-term impacts. The construction scenario will:

- Identify and describe construction techniques required for installation of sewage conveyance, including equipment requirements. Identify construction techniques associated with the construction of the new AWTF and pump stations or upgrades to existing pump stations
- Identify the proposed construction schedule and hours of construction
- Identify the year of highest construction intensity (i.e., “worst-case” construction scenario) for the analysis of construction impacts
- Calculate and map linear extent of excavation for project activities
- Identify staging and laydown areas for construction equipment and materials (if available)

The analyses of potential long-term impacts will evaluate conditions with and without the proposed action and alternatives for 2022, which represents the first year of operation. Future year conditions with and without the proposed action and alternatives will be compared as a basis for presenting incremental change and identifying impacts. The reference point of conditions without the project is established by adjusting existing conditions to account for other known developments, policy initiatives, and trends that are expected to influence future conditions in the project area. This future condition without the proposed action and alternatives is then modified by overlaying the development and activity expected from the proposal under review to form a depiction of future conditions with the project in place. This comparison of future conditions with and without the project identifies the project impacts and the need, if any, for mitigation. The proposed action and alternatives will be addressed for each resource/area of concern, as discussed in Section 5.2.

The draft EA/EIS documents will group the analysis of each resource topic into Existing Conditions, Potential Impacts, and Mitigation for the proposed action and alternatives. Impacts will be classified as not measurable, adverse, and beneficial. The analysis for each resource topic will first identify whether there are adverse impacts. If adverse impacts are present, any avoidance or mitigation measures that should be applied to minimize those adverse effects will be discussed. The significance of the remaining effects will be determined. Where impacts cannot be mitigated, they will be described as unavoidable adverse impacts.

5.0 CONTENTS OF NEPA DRAFT EA/SEQRA DRAFT EIS DOCUMENTS

The coordinated draft EA/EIS documents will contain:

- A cover page, table of contents, and list of acronyms
- An executive summary
- An introduction and discussion of the purpose and need for the project
- A description of the project location and background
- A discussion of the proposed action and alternatives to the proposed action
- A description of the affected environment and assessment of the environmental impacts of the proposed action, including its short and long-term effects, and typical associated environmental effects; the assessment of short-term environmental impacts will include

potential impacts of the project's construction activities, focusing on pedestrian and vehicular access and circulation, air quality, noise and vibration

- An identification of potential indirect and cumulative effects of the proposed action with other relevant projects
- A description of mitigation measures identified to minimize adverse environmental impacts for the proposed action
- An identification of any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented
- A conclusion with a summary table of impacts and identification of any adverse environmental effects that cannot be avoided if the proposed action is implemented
- A discussion of agency coordination, permits required for project implementation, and public involvement
- List of prepares, references, and appendices

Specific tasks are described below.

5.1 Proposed Action and Alternatives

This section of each document will begin with a discussion of the alternatives screening process. A wide range of alternatives will be identified for consideration in the draft EA/EIS and narrowed to a reasonable range of alternative through a screening process, as discussed in Alternative 3 below. All alternatives carried forward for evaluation will be analyzed at an equivalent level of detail to enable a comparative assessment. The alternatives analysis will be performed to satisfy NEPA and related laws in the EA, SEQRA and related laws in the EIS, and permitting requirements in both documents. This section will conclude with the reasons for determining the preferred alternative.

5.1.1 Alternative 1: No Action

Under the No-action Alternative, no new sewer district would be established and no additional sewer infrastructure or wastewater treatment facilities would be constructed to provide sanitary sewer service to presently unsewered parcels. The unsewered parcels in the project area would continue to use OSWS.

5.1.2 Alternative 2: Proposed Action Alternative

The Proposed Action Alternative would involve establishing a county sewer district that would decommission the OSWS of 2,094 parcels in the project area and connect the parcels to a new sewer collection system that would flow to a proposed AWTF. These parcels would be primarily residential, with fewer commercial and non-residential parcels, and there would be no intent to sewer undevelopable lots, including presently vacant parcels within the proposed Mastic-Shirley Conservation Area. The total wastewater or sanitary flow from the project area is projected to be approximately 1.0 million gallons per day (MGD). The proposed action includes the following components:

- *Collection System.* A combination of gravity sewers and low-pressure sewers would be constructed. Gravity sewers are recommended for areas such as the Montauk Highway

corridor and residential areas where the depth to groundwater is generally greater than 10 feet. Low-pressure sewers would be constructed in those areas where U.S. Geological Survey data estimate that the groundwater is less than 10 feet below grade; such areas primarily include residential properties near the Forge River and its tributaries. In addition, low-pressure sewers would serve properties located on the Poospatuck Reservation because of its proximity to the Forge River, anticipated shallow groundwater conditions, and build-out conditions that do not conform to current building code standards. A grinder pump station would be located on each property served by the low-pressure collection system. These stations would be buried near the existing on-site septic systems or cesspools. Pumping stations also would be required to convey sewage out of low-lying areas.

- *Wastewater Treatment.* Sanitary wastewater from the proposed sewer district would be conveyed to a new AWTF. The proposed site would be a 12.9-acre parcel located at Brookhaven Calabro Airport. A Membrane Bioreactor (MBR) facility is proposed for the AWTF that would provide the best available technology for nitrogen removal (i.e., effluent discharge would be between 3 and 5 milligrams per liter [mg/L]). The proposed action also includes the request for the release of land for an approximate 17.0-acre parcel adjacent to the eastern end of the proposed AWTF location and within the Brookhaven Calabro Airport property boundary to be reserved for future expansion and/or an additional recharge area. The process for disposing of treated effluent and potential impacts also would be described.

If approved, the sewer project could be completed within approximately six years, with the majority of new facilities operational in 2022. A discussion of long-term ownership and maintenance of the proposed sewer infrastructure also would be included.

5.1.3 Alternative 3: Other Action Alternative(s)

One or more other action alternatives will be identified during the alternatives screening process. Screening criteria will be established, such as performance thresholds, engineering design standards, and feasibility considerations, among others. The identified alternatives will be screened against these criteria, and the resulting screening process will narrow the wide range of alternatives down to a reasonable range that will be carried through for analysis in the draft EA/EIS. The screening process will describe the potential alternatives that were identified during screening, the criteria used for screening, and the results of the screening process, including which alternatives were screened out and why, and which were maintained for analysis and why. The alternative(s) maintained for analysis will become the “other action alternative(s)” evaluated in the draft EA/EIS. The other action alternative(s) may include a combination of the following project components:

- *Repairing and/or Replacing On-site Wastewater Treatment and Disposal Systems:* This alternative would repair and/or replace failing cesspools and septic systems in the same project area as Alternative 2 with modern, improved OSWS. In the short term, it would mitigate the health and safety hazards posed by OSWS failure for the same number of parcels, but the design life of new OSWS would be considerably less than centralized sanitary sewer infrastructure.
- *Different Wastewater Treatment Technology:* Rather than the MBR technology considered in Alternative 2, other action alternative(s) may employ a different suspended growth type activated sludge process for nitrogen removal such as the modified Ludzack-Ettinger

process or sequencing batch reactor technology. These different treatment processes would treat the same volume of sanitary wastewater, but may result in higher levels of total effluent nitrogen concentration—10mg/L for the modified Ludzack-Ettinger process and 4 to 6 mg/L for the sequencing batch reactor technology, compared to 3 mg/L for MBR.

- *Different Collection System Infrastructure:* Rather than the combination of gravity and low-pressure sewers considered in Alternative 2, other action alternative(s) may construct another type of collection system infrastructure throughout the same project area (e.g., vacuum sewers) or the same type of collection system infrastructure in a different project area (e.g., a combination of gravity and low-pressure sewers in a smaller or larger project area). These other alternatives may require additional infrastructure, such as the installation of a vacuum station to sustain the required negative pressure on the sewer line, or additional pump stations.
- *Location Alternatives for AWTF:* The other action alternative(s) may use the same MBR technology as Alternative 2 but would analyze different location(s) for the AWTF and leaching area.
- *Different Location for Pump Stations:* The other action alternative may use fewer pump stations than Alternative 2 and/or analyze different location(s) for the pumping stations.

5.2 Affected Environment and Potential Impacts

This section will provide a description of the physical setting and information on the existing environment or baseline conditions for those resources/areas of concern that may be affected by the proposed action or alternatives. For each resource/area of concern that is discussed, the draft EA/EIS will provide the following:

- Description of the general setting and character of the existing proposed action site relevant to the resource/area of concern being discussed.
- Summary of the relevant law(s), executive order(s), or other requirement(s) that may be triggered because of potential impacts to that resource/area of concern.
- Description of the short-term (i.e., construction phase) and long-term (i.e., facility operation) impacts, both positive and negative, on the resource/area of concern for each alternative.
- Identification of mitigation measures or best management practices (BMPs) that would be implemented to reduce or avoid impacts for each alternative.

5.2.1 Geology, Topography and Soils

This section will document surficial geology, bedrock geology, and the presence of contaminated soil within the project area. In terms of geology, Long Island is generally composed of glacial moraine and outwash areas of primarily deposits of rocks, pebbles, till, and sand. Regional, state, and national resources will be used to research the geology of the project area (New York State Geological Survey Regional Bedrock Map and Regional Surficial Geology Map). Current topographic conditions of the project area will be described using existing topographic maps from local, regional, statewide, and/or national resources.

A custom soil resource report for the project area will be obtained from the U.S. Department of Agriculture-Natural Resources Conservation Services, detailing soil types (e.g., percentage of acreage of watershed, composition, properties), soil characteristics (e.g., depth to groundwater, local profiles [if needed]), and soil history (e.g., depositional period, type, class, changes over time). The project area is not located in a designated agricultural district, nor does it contain agricultural lands consisting of highly productive soils classified as prime, unique, or statewide and locally important farmland.

Geotechnical studies that have been conducted in the area will be reviewed. A limited geotechnical investigation will be performed in excavation areas to determine stability and strength of underlying soils and bedrock. The purpose of this investigation is to evaluate the ability of the local geology to support overlying foundations and/or proposed structures such as the AWTF. This investigation will be guided and informed by any existing geotechnical information. In terms of contaminated soil, characterization investigations will be performed in excavation areas to determine whether or not the material is contaminated and must be disposed of, or if it can be beneficially re-used. This investigation will be guided and informed by any existing contamination information. The investigation(s) conducted will be described.

Potential impacts on soil and bedrock as a result of implementation of the proposed action and alternatives will be assessed. Resources to be included in this assessment include those used to evaluate site geological conditions, any results from previously performed geotechnical investigations, and the results of the geotechnical investigation. If potentially significant impacts on site soil and bedrock as a result of project implementation are identified, mitigation activities to minimize or eliminate those potential impacts also will be identified.

5.2.2 Air Quality

Existing regional ambient air quality conditions will be described based on the most recent three years of data available through U.S. Environmental Protection Agency's (EPA) AirData website. The ambient concentrations of the criteria pollutants will be compared to the National Ambient Air Quality Standards. General background information on local meteorological patterns will be provided using available airport or other available weather stations.

The attainment status of Suffolk County will be described based on the EPA *Greenbook of Nonattainment Areas*. Suffolk County is a nonattainment area for the 1997 and 2008, 8-hour ozone standards, and a maintenance area (former nonattainment area) for fine particulate matter (PM_{2.5} [particulate matter less than 2.5 micrometers in diameter]). Federal actions in nonattainment and maintenance areas are subject to conformity requirements under the Clean Air Act; these requirements will be explained in a section regarding the regulatory framework for air quality.

A mobile source air quality impact analysis for the direct impacts of the proposed action and alternatives is not expected to be necessary because the provision of sewer infrastructure would have negligible long-term effects on the trip generation or traffic patterns. The number of truck and employee trips expected at the new AWTF will be examined. Temporary direct emissions from construction activity will be estimated, including fugitive dust and on-site diesel equipment. Potential effects from increases in mobile source emissions of trucks and worker vehicles at nearby sensitive receptors and congested locations and from potential traffic diversions also will be discussed. Potential long-term indirect effects on air quality resulting from induced growth will be examined, based on the hypothetical scenarios for induced growth discussed in the section on

socioeconomic resources. Because one potential site for the location of the AWTF is the Brookhaven Calabro Airport, the FAA *Aviation Emissions and Air Quality Handbook* (Version 3 Update 1) will be consulted for the air quality impact analysis.

The proposed AWTF has the potential to generate odors. Operational impacts will predominantly entail odors created by the bacterial breakdown of sewage in wastewater. The magnitude of air impacts depends on several factors, including the length of wastewater transport time, the level of treatment, the design of the water reclamation facility, and proximity of receptors. Odors could occur at all locations where the wastewater system vents to open air. Odor emissions are most likely to occur during warm weather and at points of turbulence within the collection and treatment processes. The odor impact analysis will include a review of the odor control measures incorporated into the design of the proposed AWTF, the distance of the nearest sensitive receptors, and the available literature on the odor impacts of wastewater treatment systems similar to the proposed action. The odor impacts will be assessed in comparison to the New York City Department of Environmental Protection screening threshold of a 1 parts per billion increase in hydrogen sulfide concentration.

5.2.3 Water Quality

Congress enacted the Federal Water Pollution Control Act in 1948, which was later reorganized and expanded in 1972 and became known as the Clean Water Act (CWA) in 1977. The CWA regulates discharge of pollutants into waters under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and EPA. Section 404 of the CWA establishes USACE permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. USACE regulation of activities within navigable waters also is authorized under the 1899 Rivers and Harbors Act. Under the National Pollution Discharge Elimination System (NPDES), EPA regulates both point and non-point pollutant sources, including stormwater and stormwater runoff. Activities that disturb 1 acre of ground or more are required to apply for an NPDES permit, called a State Pollution Discharge Elimination System (SPDES), in this case through the New York State Department of Environmental Conservation (NYSDEC), as authorized by EPA. The document *Technical and Operational Guidance (TOG) 1.1.6, Interpretation Guidance for Marine Dissolved Oxygen (DO) Standard* released by NYSDEC in 2008 provides water quality standards for the classifications assigned to various bodies of water and will be discussed. In addition, a list of regulations pertaining to water quality for the area will be provided.

SPDES permits for wastewater discharges to groundwater in Suffolk County currently limit effluent nitrogen to less than 10 mg/L, and Suffolk County has recognized that reduction of effluent nitrogen to the lowest levels that can be practically achieved by the current limits of technology is appropriate for the project area. Target effluent concentrations will be identified, treatment technologies and processes for the proposed action and alternatives will be clearly explained, and a discussion will be provided of how each alternative would meet the target effluent concentrations.

The Forge River has been identified as an impaired waterbody and is included in the NYSDEC 303(d) list for pathogens, nitrogen, and dissolved oxygen/oxygen demand. The most significant source of nitrogen loading to the Forge River and its tributaries, according to the *Forge River Watershed Management Plan*, is nitrogen loading from the residential areas that were developed

prior to the establishment of Suffolk County Sanitary Code Article 6 density limitations. Construction and operation of the Mastic-Shirley Sewer District is intended to protect and improve groundwater quality and surface water quality by treating sanitary wastewater to reduce the concentrations of contaminants, such as nitrate, before they are introduced into the environment.

Currently, nitrogen discharge from OSWS is regulated by lot size through the implementation of the Suffolk County Sanitary Code Article 6, which limits development density for these zones to prevent excessive nitrogen loads from reaching the groundwater supply—a sole source aquifer that is the only source of potable water for the roughly 1.5 million residents. To supplement the goal of the density requirements of Article 6 to reduce nitrogen and improve the sustainability of groundwater and surface water resources, sanitary wastewater must be collected and treated prior to being discharged into waterbodies. However, much of the project area was developed prior to implementation of Article 6, and existing development patterns exceed the density established for Groundwater Management Zone VI. In accordance with SEQRA (6 NYCRR 617.9[h]), because the proposed action is in or involves resources in Suffolk County, impacts of the proposed action and its consistency with the Suffolk County *Comprehensive Water Resources Management Plan* for the special groundwater protection area program will be assessed.

Drinking water in this area is provided by underlying groundwater aquifers, which are the sole source of potable water for Nassau and Suffolk counties. The entire project area is within the Nassau-Suffolk Sole Source Aquifer System, designated by EPA as a sole source aquifer on June 21, 1978 (43 CFR Part 26611). Accordingly, EPA will review this project in accordance with Section 1424(e) of the Safe Drinking Water Act. A sole source aquifer screening checklist and supporting documentation will be completed for the proposed action and provided as an appendix. Based on the preliminary information provided, it is anticipated that this project would not create a significant hazard to public health or groundwater resources, and therefore would satisfy the requirements of Section 1424(e) of the Safe Drinking Water Act.

Groundwater wells in the area will be identified, and the design engineer's groundwater model will be used to determine the wells' zones of contribution and areas of influence to ensure that they do not overlap with leaching fields. Based on the modeling results, if the wells' zones of contribution intersect with the leaching field, the potential impacts of each alternative on drinking water supply will be assessed. Simulated nitrogen concentrations in shallow groundwater in the study area under existing conditions with wastewater disposal conducted via on-site septic systems will be documented using the groundwater quality modeling results provided in the *Draft Feasibility Study Map & Plan for Mastic/Shirley* (Suffolk County Sewer District Capacity Study, CP8189). It is currently assumed that the same volume of wastewater would be collected and treated by all alternatives; therefore, no additional model simulations would be required. Should the alternatives vary in collection service area or treatment volume requirements, the design engineer/consultant will run additional model simulations to estimate the improvement in groundwater quality associated with each alternative.

The nature of groundwater in the Forge River area, including hydraulics, aquifer characteristics, and elevation, will be identified using national, regional, and local resources. Because groundwater is a dynamic resource, the area studied will include any streams, creeks, or other waterbodies hydraulically connected to the aquifers. Potential impacts of the proposed action and alternatives on groundwater recharge and elevations will be quantified and discussed. The depth of excavation and corresponding relationship to the water table will be established. If any excavation depths are

below the water table, dewatering and water management will be described. Potential operational issues (e.g., piping breaks or leakage) also will be included. A discussion of BMPs will be provided with regard to mitigating impacts on groundwater during construction within the water table and during repairs.

Construction and operation of a sanitary sewer system aims to help protect groundwater quality and surface water quality by treating sanitary wastewater to reduce the concentrations of contaminants such as nitrate before they are introduced into the environment. Existing nitrogen loading and groundwater quality will be discussed using data from the Baseline Groundwater Quality Assessment included in the *Draft Feasibility Study Map & Plan for Mastic Shirley* (Suffolk County Sewer District Capacity Study, CP8189). The reduction in nitrogen loading to the groundwater that could be expected to result from the proposed action and alternatives will be presented and water quality benefits of nitrogen removal will be explained in detail. The legal framework and programs established by Suffolk County to protect the aquifer system from contaminants will be discussed. A summary of the studies conducted by the county on the topic of nitrate contamination and findings will be presented.

The potential for improvement to groundwater quality resulting from the proposed action and alternatives will be discussed, particularly with regard to reducing nutrient loads. This discussion also will include groundwater and surface water interaction, as well as the influence of cesspools and septic systems. Potential impacts and benefits of the proposed action and alternatives on water quality during construction and after the water treatment facilities go online and are operational will be quantified and discussed.

5.2.4 Wetlands

Wetlands within New York are identified and mapped by NYSDEC as state regulated wetlands, and by the U.S. Fish and Wildlife Service (USFWS) as part of the National Wetland Inventory (**Figure 3**). While useful, these tools do not replace the need for field evaluations and on-site inspection to delineate the actual limits of regulated wetlands during baseline surveys. The NYSDEC Environmental Resource Mapper identifies state-regulated freshwater and tidal wetlands within the vicinity of the project area. These maps only show the approximate location of the actual wetland boundary. One USFWS National Wetland Inventory wetland is mapped in the northeast portion of the project area, in association with Mill Pond. Small portions of state regulated wetlands associated with the Forge River and Poospatuck Creek are mapped within the project area, and the areas surrounding those wetlands and Mill Pond are within Wetland Checkzones, or areas around a mapped wetland in which the actual wetland may occur. Additional freshwater and/or tidal wetlands associated with the Mill Pond, Poospatuck Creek, and the Forge River may be present within the project area. A field delineation of wetlands in accordance with the USACE 1987 Wetland Delineation Method, the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), and the New York State Freshwater Wetlands 1995 Delineation Manual will be conducted to establish wetland regulatory limits within the project area. Confirmation of wetland and regulatory limits will require coordination with USACE and NYSDEC.

Surface waters are not mapped within the project area; however, the eastern boundary of the project area is the Forge River and its tributary, Mill Pond, and the southern boundary is Poospatuck Creek. No designated wild or scenic river corridors are located within the project area. Adverse impacts on wetlands and surface waters are not expected; however, any potential for adverse impacts on wetlands and surface waters as a result of the project will be evaluated. If potential impacts are identified, mitigation measures to avoid, minimize, and compensate for impacts will be developed.

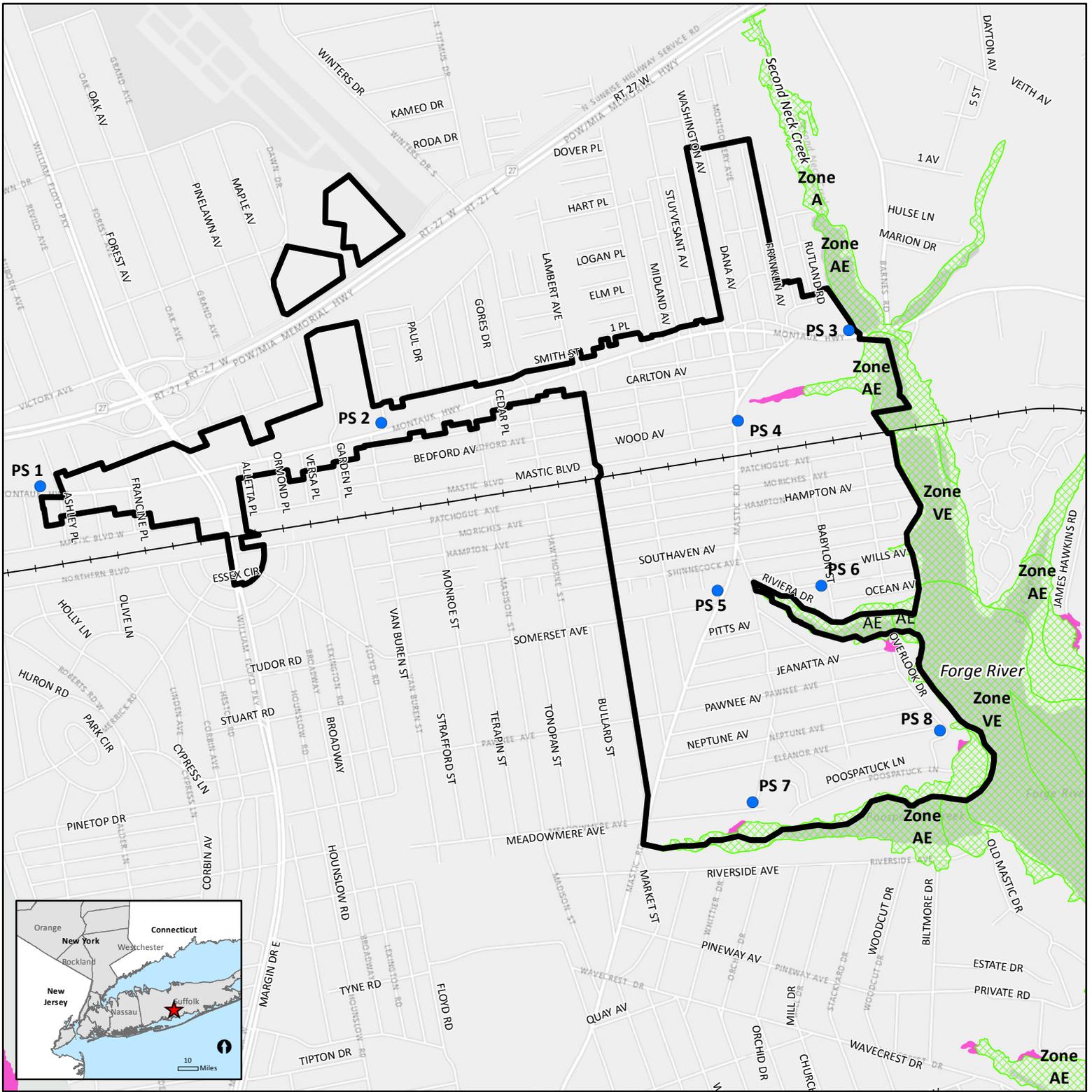
5.2.5 Floodplains

According to available mapping of FEMA special flood hazard areas, parts of the project area are located in the 100- and 500-year floodplain (see **Figure 4**). Watersheds, and waterbodies where the proposed action and alternatives will drain will be identified. Existing run-off patterns, streams and drainage patterns in the project area will be described.

Potential impacts of the project on stormwater quality and quantity during operation will be quantified and discussed. The increase in impervious surfaces resulting from the AWTF and pumping stations will be quantified. The stormwater management system, drainage facilities, and detention areas also will be described. This analysis will discuss measures to ensure that stormwater from construction activities and under post-development conditions does not adversely affect downstream properties as required by, and according to, the NYSDEC 2010 Stormwater Management Design Manual. An eight-step floodplain review (i.e., Floodplain Management Plan) will be prepared in accordance with Executive Order 11988 and provided as an appendix.

The use of green infrastructure may be necessary to offset any additional impermeable surfaces added as a result of the project. Should green infrastructure be employed, this section of the draft EA/EIS will evaluate potential impacts from proposed green infrastructure BMPs. Green infrastructure measures are not presently proposed as stormwater management practices for this project, but may be recommended as potential mitigation measures for potential groundwater impacts of sewer expansion. Increased use of green infrastructure design methods (e.g., bioswales, rain gardens, permeable pavements/pavers, wetland buffers or street tree trenches) would increase the amount of water being returned to the ground instead of having the runoff flow to drains or open waters.

Specific construction-related techniques and soil erosion and sediment control measures will be developed to reduce the potential for stormwater quality and quantity impacts during construction, based on the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, Permit No. GP-0-15-002, (January 2015). Contents of a Stormwater Pollution Prevention Plan (SWPPP) to be prepared during the engineering design process in accordance with NYSDEC guidance and regulations will be discussed, and additional mitigation measures will be recommended if necessary.



- Legend**
-  Project Area
 -  Pump Stations
 -  Long Island Rail Road

- Flood Hazard Zones**
-  100 Year Flood Zone
 -  500 Year Flood Zone

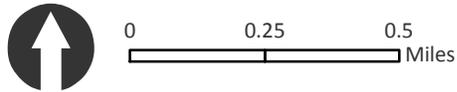


Figure 4
Floodplains

Forge River Watershed Sewer Project

Source: Suffolk County GIS; NYS Dept. of State; ESRI World Light Gray Map;
CP18189 Suffolk County Sewer Capacity Study (CDM Smith, H2M, Browne AE&T Group)

5.2.6 Coastal Resources

The Coastal Zone Management Act is administered by states with shorelines in coastal zones to have a Coastal Zone Management Plan to manage coastal development. Because the project area is partially located within a designated coastal zone (see **Figure 5**), the proposed action and alternatives will be evaluated to ensure they are consistent with the substantive policies of the New York State Department of State (NYSDOS) and NYSDEC. A NYSDOS Federal Consistency Assessment Form will be prepared for the proposed action and provided as an appendix.

Consistency with the policies of the New York State coastal zone management program will be qualitatively assessed for the proposed action and each alternative. The project area is located partially within the “Coastal Zone Area South,” a critical environmental area designated by the Town of Brookhaven. A discussion of existing coastal resources and the relationship of nitrogen pollution to long-term coastal wetland impacts will be provided. Potential impacts on coastal resources from the proposed action and alternatives will be assessed in terms of nitrogen and pathogen pollution, resulting effects on aquatic vegetation and wetlands in the Great South Bay, and the related ability of wetlands to protect the project area from storm surges and floods. Potential impacts on the use of coastal resources for recreational and commercial activities also will be discussed.

The project area is not located within a unit of the coastal barrier resource system; therefore, an assessment of impacts on coastal barrier resources will not be included in the EA/EIS documents.

5.2.7 Vegetation

A desktop review of available resource mapping, previous reports, and species inventories will be conducted to identify vegetation resources within the project area. Executive Order 13112, Invasive Species, requires federal agencies, to the extent practicable, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. The presence of invasive plant species within the project area will be assessed, as well as the potential for opportunistic non-native invasive plant species to spread or become established following ground disturbances associated with construction.

Vegetation within the Forge River and its tributaries would benefit from water quality improvements and positive changes to the benthic environment that may result from project implementation. Water quality improvements may lead to an increase in the distribution of seagrass beds and vegetated saltmarshes along the river. Potential adverse impacts may include disturbance to vegetation during construction, a decrease in size or type of the local plant community, and colonization of invasive plant species in disturbed areas following construction. Any potential adverse impacts on plant communities attributable to the proposed action will be assessed. Efforts to reduce or minimize potential impacts on plant communities will be documented. If significant impacts remain, efforts to mitigate those impacts will be discussed.

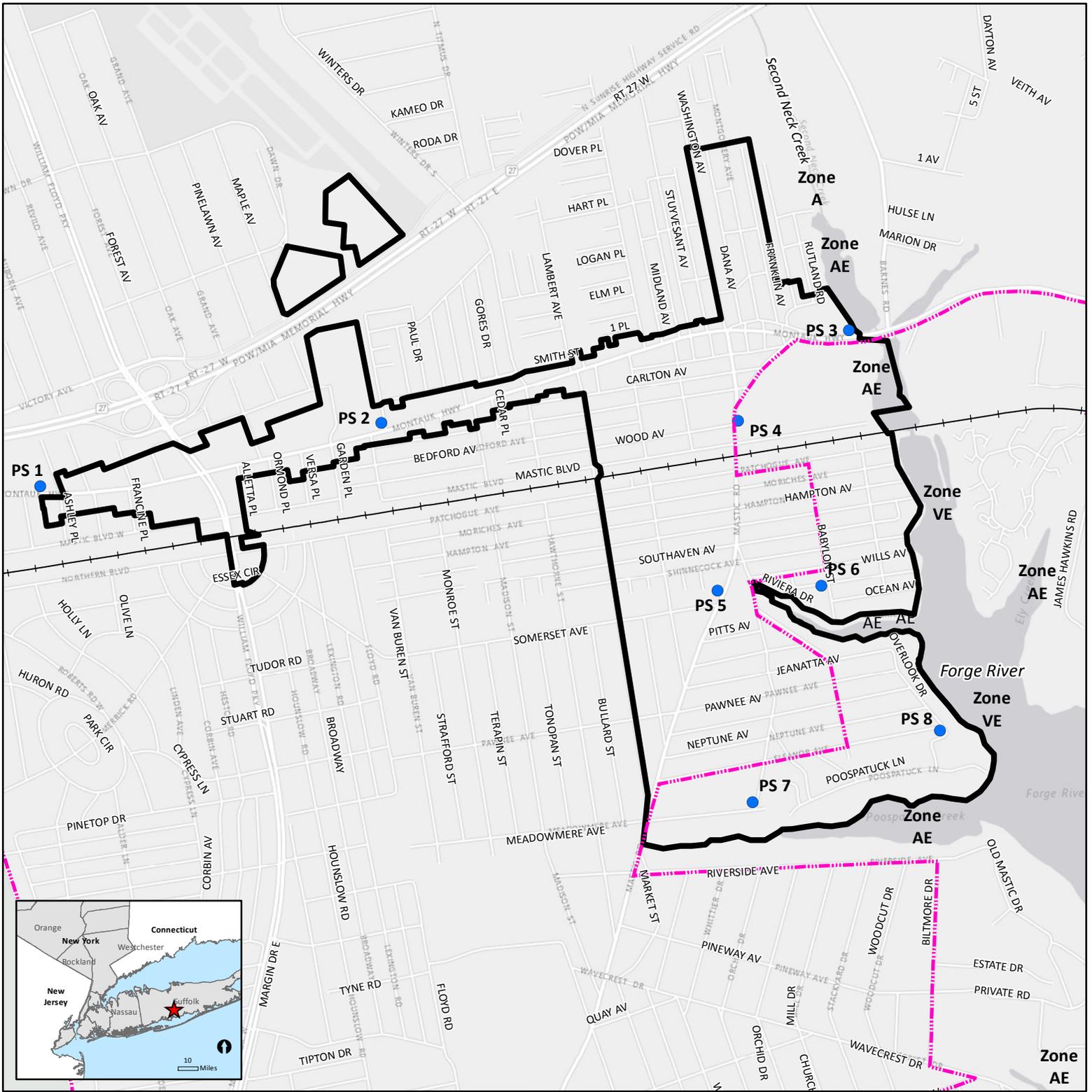


Figure 5

Coastal Zone

- Legend**
- Project Area
 - Pump Stations
 - Long Island Rail Road
 - Coastal Zone

Forge River Watershed Sewer Project

Source: Suffolk County GIS; NYS Dept. of State; ESRI World Light Gray Map; CP8189 Suffolk County Sewer Capacity Study (CDM Smith, H2M, Browne AE&T Group)



5.2.8 *Wildlife and Fish*

Wildlife and fish, including benthic invertebrates and waterfowl that use the Forge River and its tributaries generally would be expected to benefit from water quality improvements and positive changes to the benthic environment that may result from project implementation. Potential adverse impacts may include disturbance to fish and wildlife during construction, a decrease in population size of local wildlife species, or a change in the type or amount of suitable habitat available to wildlife that currently use the project area. Any potential impacts from the proposed action and alternatives on wildlife habitats will be assessed. Efforts to reduce or minimize potential impacts on wildlife will be documented. If significant impacts remain, efforts to mitigate those impacts will be discussed.

Because the Brookhaven Calabro Airport is one location under consideration for the proposed AWTF, conformity with stipulations established by the FAA Advisory Circular for *Hazardous Wildlife Attractants on or Near Airports* (FAA Advisory Circular No. 150/5200-33B dated August 28, 2007) is required. Land uses that may attract wildlife and therefore pose a concern for aviation safety include wastewater treatment facilities. This section will assess the potential for the proposed action and alternatives to attract wildlife hazards and provide recommendations for reducing wildlife hazards to human health and safety. If required by FAA, a Wildlife Hazard Management Plan) will be completed.

5.2.9 *Threatened and Endangered Species and Critical Habitat*

Available resource mapping was accessed to make a preliminary determination as to whether threatened or endangered plant or animal species or critical habitat might be found within the project area. According to the NYSDEC Environmental Resource Mapper, no rare plants, animals, or significant natural communities exist in the project area. A review of USFWS list of federally endangered and threatened species indicates that the following species of plants and wildlife have been documented in Suffolk County: sandplain gerardia (*Agalinis acuta* – endangered); seabeach amaranth (*Amaranthus pumilus* – threatened); green turtle (*Chelonia mydas* – threatened); Hawksbill turtle (*Eretmochelys imbricate* – endangered); leatherback turtle (*Dermochelys coriacea* – endangered); piping plover (*Charadrius melodus* – threatened); roseate tern (*Sterna dougallii dougallii* – endangered); red knot (*Calidrus canatus rufa* – threatened); and northern long-eared bat (*Myotis septentrionalis* – threatened). Based on these species' habitat requirements, it is expected that only the northern long-eared bat may occur within the project area.

The NYSDEC Natural Heritage Program (NHP) and USFWS will be consulted for more specific information regarding the potential for threatened and endangered plant and wildlife species to occur within the project area and the potential presence of suitable habitat to support these species. The USFWS, Long Island Ecological Services Office, will be contacted through the Information, Planning, and Conservation System (IPaC) regarding the potential presence of wildlife species under the jurisdiction of USFWS within the vicinity of the project area, and an official species list will be requested. The NYSDEC NHP will be contacted requesting information regarding records of any federal and/or state special status species or habitats of special concern documented within the vicinity of the project area. Agency responses will be reviewed, and the potential that each species may occur within the project area will be assessed based on a review of species' life history and habitat preferences. Based on this review, and if necessary, further agency consultation, biological field surveys may be needed to verify the presence of threatened and endangered species

or their habitat. Species specific surveys, if necessary, would be conducted based on seasonal requirements and may be delayed until late summer for some species. Potential adverse impacts may include disturbance of endangered, threatened, or rare plant species or the diminishment of their habitat. The draft EA/EIS will assess the potential for impacts on the northern long-eared bat (*M. septentrionalis*) as well as other special status species if deemed necessary.

5.2.10 Cultural Resources

The Forge River project area is generally characterized by post-World War II housing with some modern commercial buildings along the Montauk Highway. A preliminary review of the New York Office of Parks, Recreation and Historic Preservation (OPRHP) Cultural Resource Information System was conducted to ascertain the extent to which architectural resources in the project area had been identified and evaluated with respect to National Register of Historic Places (National Register) criteria and the presence of archaeological sites within or adjacent to the project area. No previously surveyed properties are located in the project area, according to the information collected from the database. Several areas of archaeological sensitivity are located on the north side of the Montauk Highway as well as the west and east ends of the project area. A cultural resource reconnaissance survey was conducted along New York State Route 27 north of the project area (Survey No. 10SR60344).

A Phase IA Cultural Resources Survey will be conducted for the proposed action. Activities proposed for the Forge River project area include installation of a both gravity and low-pressure sewer systems. The area of potential effect (APE) will likely include the public rights-of-way where sewer mains are proposed to be constructed, as well as residential and commercial parcels where lateral sewer connections and on-site grinder stations are proposed. FEMA/GOSR will consult with OPRHP in delineating the APE for the proposed action. While installation of the sewer system likely would not have a direct effect on architectural resources in the area with the exception of installation of grinder pump stations, its construction may affect significant landscaping and site features that would contribute to any potential historic districts.

Upon completion of the survey and review and concurrence of the results by OPRHP, an assessment of effect will be completed to ascertain what effects, if any, the proposed action and alternatives will have on historic resources. Of particular concern would be direct effects of construction on archaeological resources.

5.2.11 Visual and Aesthetic Resources

This section will examine the potential effects of the proposed action and alternatives on the visual environment of the project area. A visual resource is the connection from the public realm to significant natural or built features, including views of the waterfront, public parks, designated historic structures or districts, otherwise distinct buildings or groups of buildings, or natural resources. The evaluation will adhere to guidance and methodology present in NYSDEC's program policy document, *Assessing and Mitigating Visual Impacts*.

The visual resources assessment will describe the physical character of the project area and identify significant scenic and historic resources, view corridors, or vistas. A description of the physical design (height, bulk, orientation, facade materials) will be provided for the proposed action and alternatives. The proposed AWTF is the only substantial above-ground structure that would be introduced, and as such, will be the focus of the visual resources impact assessment.

Because the proposed AWTF comprises single-story structures, potential impacts are limited, and a digital viewshed analysis is not warranted. The impact assessment will qualitatively identify any potential effects on light emissions and significant visual resources expected to result from construction or operation of the proposed action, aided by field photography.

Neighborhood character describes the various elements that contribute to a community (e.g., land use, socioeconomics, open space, cultural resources, visual resources, traffic, and/or noise) from which an area derives its distinct “personality.” A neighborhood character assessment will be undertaken to evaluate potential impacts of the proposed action and alternatives on the overall context and feeling of the project area. The assessment will begin with a description of the extent to which these elements currently influence the overall personality or character of the project area. This analysis will draw on information contained in other chapters of the draft EA/EIS, including Land Use, Zoning, and Public Policy; Socioeconomics; Open Space and Recreational Facilities; Visual Resources; Cultural Resources; Noise; and Transportation to determine the potential effects of the sewer project on the community character of the project area.

5.2.12 Socioeconomic Resources and Environmental Justice

This section will provide an overview of the socioeconomic conditions of Suffolk County, the Town of Brookhaven, and the immediate affected area consisting of the parcels that will be newly connected to the sewer system. The profile will be based on different data sources including the U.S. Bureau of Census (i.e., 2010 Census, 2008–2012 American Community Survey and the Longitudinal Employer-Household Dynamics Program), the U.S. Bureau of Labor Statistics, New York Office of the State Comptroller, and private data sources such as ESRI Community Analyst. Beyond available data sources, the Suffolk County Planning Department, Long Island Regional Economic Development Council, New York Metropolitan Transportation Council, Long Island Index, and other relevant state and local governmental bodies and research groups will be contacted to acquire other sources of existing research and data for the socioeconomic analysis. The profile will include but will not be limited to: population size, population growth, racial composition, age structure, educational attainment, employment status, journey to work, number of households, average household size, household income, housing tenure and occupancy, housing units by type, housing value, monthly rent, housing affordability, number of businesses, number of employees, and local government expenditures and revenues.

Impacts of the proposed action and alternatives on the study areas (Suffolk County, Brookhaven, and immediate surrounding area) in terms of population and employment levels, property values, and fiscal revenues and expenditures will be assessed. The impact assessment will include short-term effects, which will occur during the construction period as well as permanent effects, which will occur once the project is completed. The short-term effects analyzed will include the creation of construction jobs and other potential construction impacts, such as the disruption of local businesses near the construction site. The direct permanent socioeconomic effects of the proposed action and alternatives are expected to be minimal; however, the proposed action and alternatives may have substantial indirect effects on the local study areas. The following conditions will be assessed:

- *Population:* Available population projections for the county and other study areas will be provided. Potential impacts on population growth will be assessed, as discussed in Section 5.3.

- *Employment:* Available employment projections for the county will be provided. The assessment will quantify the short-term job creation impact for the proposed action and each alternative using an economic input-output modeling system. Using the input/output modeling system, jobs in the construction industry and related industries and jobs at other local businesses that are triggered by construction vendor purchases and construction worker household spending (i.e., multiplier effects) will be estimated. The assessment also will include an estimate of the number of permanent jobs that will be created to maintain the sewer extension.
- *Property Values:* A literature review will be conducted to determine if the proposed action or alternatives are expected to affect property values, and a qualitative assessment will be presented.
- *Fiscal Flows:* The section will assess how the proposed action and alternatives will affect local government expenditures and revenues using available information on the costs of constructing, operating, and maintaining the sewer extension and the potential revenues that would be generated (e.g., user fees) by the extension.

The establishment of sanitary sewer service increases the development potential of an area and provides opportunities for more compact development. Residential cesspools, which are currently used by 74 percent of Suffolk County residents, prohibit density and multifamily development and often create problems for restaurants and other establishments with relatively large quantities of wastewater. The proposed sewer establishment project would provide the foundation for compact mixed use development, affordable housing options, and economic growth. Potential growth inducing or indirect socioeconomic impacts include changes in population and employment levels, types of housing, types of businesses, property values, net fiscal flow (i.e., revenue minus expenditures), as well as residential and business displacement.

As part of this analysis, the potential for induced growth will be assessed based on existing land use using Geographic Information System (GIS) mapping of county parcel data and the regulatory protections afforded to certain resources such as wetlands. Currently undeveloped parcels zoned for residential or commercial will be identified, although the proposed action and alternatives do not intend to provide sewer service to vacant parcels. Review of zoning regulations and discussions with local planners will be held to identify the areas that have the most potential for redevelopment to a higher density. Study area boundaries and a time frame for the analysis will be determined. Indirect effects will be discussed qualitatively for up to two hypothetical scenarios, each of which will be constructed based on series of reasonable assumptions about the future land use, guided by existing plans. For each hypothetical scenario, the potential impact of the proposed action and alternatives on population, employment, housing units, property values, and net fiscal flow will be discussed.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of federal laws, regulations, policies, programs, and projects. Executive Order 12898, Environmental Justice, seeks to avoid environmental discrimination, so that to the greatest extent practicable and permitted by law, all populations are provided an opportunity to comment before decisions are rendered on proposed federal actions.

The environmental justice assessment will present census data and use the EPA Environmental Justice Assessment Tool to identify environmental justice communities within the project area.

Using data from the 2010 census and the 2009–2013 American Community Survey at the census tract or block group level, the racial and income characteristics of the project area will be developed. The environmental justice population will be determined by comparing the census tract or block-group level race and income characteristics to those of a larger reference region. All census tracts or block groups that have proportionally more minorities or low-income persons are identified as environmental justice communities. The environmental justice analysis will consider the adverse effects and potential benefits of the proposed action and alternatives on the identified environmental justice communities.

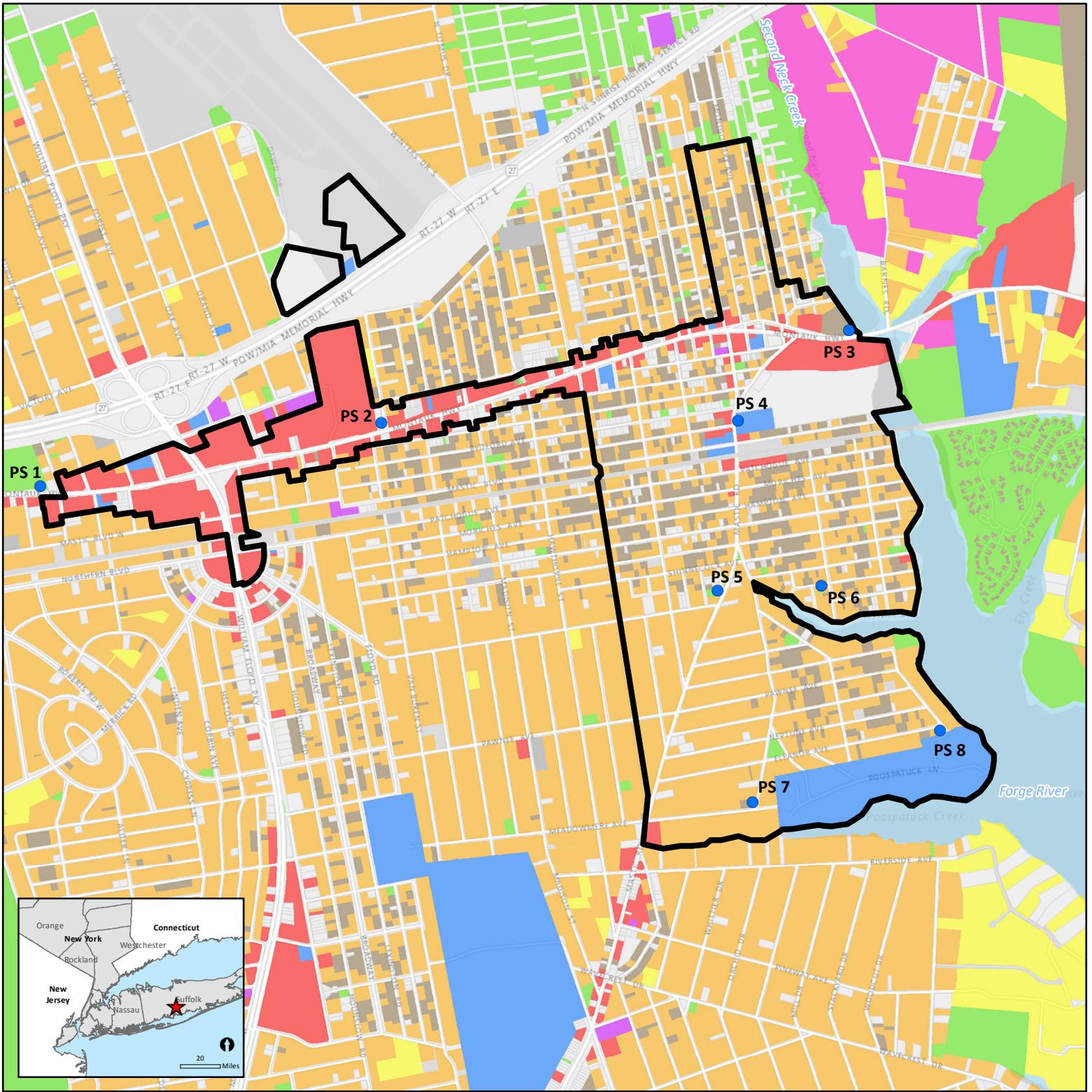
Both temporary construction impacts and long-term operational impacts will be considered. If adverse effects are identified, the analysis will consider whether the effects on environmental justice populations would be disproportionately high or would be borne predominantly by the environmental justice population. The assessment also will consider the benefits to the environmental justice population, including access to the sewer system, avoidance of septic system costs, construction and sewer maintenance jobs, and any indirect effects, which may include improved access to jobs and affordable housing and property value increases. Mitigation, enhancement, and avoidance strategies as well as project benefits will be considered.

5.2.13 Land Use and Planning

This section will evaluate and provide a description of existing land use and development patterns within the project area. The Montauk Highway corridor portion of the project area is occupied by a mix of uses, including commercial and retail storefronts, offices, and restaurants. The remainder of the project area is predominantly residential (**Figure 6**). A discussion of future plans for development of the AWTF and pump station sites will be included. The proposed action's compliance with applicable town, county, and state planning documents and policies will be evaluated including, but not limited to: Article 6 of the Suffolk County Sanitary Code; relevant Suffolk County Smart Growth policies; the State's Smart Growth Public Infrastructure Act; 2013 Cleaner Greener Long Island Regional Sustainability Plan; the Suffolk County Comprehensive Water Resources Management Plan; Mastic Beach and Smith Point of Shirley – New York Rising Community Reconstruction Plan; the Montauk Highway Corridor Study and Land Use Plan for Mastic and Shirley, Phase I and II; the 1996 Town of Brookhaven Comprehensive Land Use Plan; and the Suffolk County Master Plan.

Known projects or planned developments and initiatives located within the project area that are scheduled to be completed by 2022 (the first year of operation, subject to change) will be reviewed for inclusion in the future no-action condition analysis and for consideration in the indirect and cumulative effects assessment (see section 5.3). The agencies and organizations that will be contacted to obtain this information may include: the Town of Brookhaven Division of Planning, Suffolk County Department of Planning, Suffolk County Department of Public Works, and New York State Department of Transportation (NYSDOT).

The proposed provision of wastewater services would facilitate the implementation of the town's 2004 vision of the neighborhood town centers along the Montauk Highway corridor. The impact assessment will consider the potential effect of the proposed sewer project on existing and planned land use and development patterns, and compatibility with applicable public policies.



Legend

- Project Area
- Pump Stations
- Existing Landuse**
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Institutional
- Recreation and Open Space
- Agricultural
- Vacant
- Transportation
- Utilities
- Waste Handling and Management
- Underwater Land

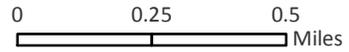


Figure 6
Land Use

**Forge River Watershed
Sewer Project**

Source: Suffolk County GIS; NYS Dept. of State; ESRI World Light Gray Map;
CP8189 Suffolk County Sewer Capacity Study (CDM Smith, H2M, Browne AE&T Group)

5.2.14 Community Facilities and Services

This section will evaluate the need for community services likely to result from the proposed action and alternatives. For the purposes of this assessment, community facilities and services include public or publicly funded schools, libraries, child care centers, health care facilities, fire and police protection, open space, and recreational facilities. Other public services and facilities, such as solid waste and sanitation facilities, will be addressed in subsequent sections of the draft EA/EIS documents. A description of existing community facilities and services in the project area will be provided.

Because demand for community services generally results from the introduction of new residents, the community facilities assessment will use residential population projections from the socioeconomic resources assessment to determine the types of community facilities that may be affected by the proposed action and alternatives, and the need for any specific, detailed impact analyses.

Because the proposed action would not sewer vacant parcels, it is not expected to significantly increase future residential and commercial development. However, redevelopment of existing developed parcels is possible. In the long term, the potential project-induced increase in project area population may increase demand for existing services and facilities, with potential to result in indirect effects on service delivery. Thus the impact assessment will address the potential incremental increase in demand for public services likely to result from induced growth, based on the hypothetical scenarios for induced growth discussed in the analysis of socioeconomic resources.

5.2.15 Noise

Post construction, the flow in any installed sewer lines would be inaudible. There may be a small amount of noise associated with the operation of pump stations. Grinders are not expected to increase noise levels because the units would be buried. Increased noise levels near the proposed AWTF may occur. This section of the draft EA/EIS will identify and map noise-sensitive receptors (including residential areas, places of worship, schools, libraries and parks) in the vicinity of any noise-producing elements of the project. Existing condition noise levels will be monitored at sensitive noise receptors at two representative locations near the proposed AWTF—near the ball fields at Ziegler Park and near the residences at the intersection of Winters Drive and Sunrise Service Road North. Noise monitoring will (1) use a sound level meter that meets or exceeds the requirements set forth in the American National Standards Institute (ANSI) S1.4-1983 Standards for Type 1 and 2 quality and accuracy, and (2) consist of 20-minute measurements conducted at peak morning and peak afternoon traffic hours. Traffic counts conducted during the noise monitoring will identify the number of passenger cars, light trucks, heavy trucks, and buses on the adjacent roadway during construction and operation of the proposed action and alternatives. Noise levels projected to occur during construction will be estimated using the Federal Highway Administration's roadway construction noise model. Manufacturer's specifications and other information regarding noise levels from wastewater treatment facilities and pump stations will be obtained, and using these data, noise levels at sensitive receptors near the proposed AWTF during operation will be projected and compared with existing noise levels to determine any impacts. Noise generated by the pump stations will be compared to estimated ambient noise levels, depending on the location of each station. The draft EA/EIS will use noise impact criteria found

in NYSDEC's *Assessing and Mitigating Noise Impacts* (2001). If impacts are identified, mitigation measures will be provided. Because a potential site under consideration for the location of the proposed AWTF is Brookhaven Calabro Airport, FAA airport noise regulations, guidance, and policies will be consulted. Potential long-term, indirect effects on noise resulting from induced growth will be discussed, based on the hypothetical scenarios for induced growth discussed in the section on socioeconomic resources.

5.2.16 Transportation

A transportation study area will be defined to evaluate the transportation network and the specific time periods and locations that could be affected by construction activity and detour routing. A data collection plan will be developed to obtain data at locations where data are not available within the previous three years. These data will include vehicle turning movement at up to five intersections during the weekday AM and PM peak periods, automatic traffic recorder counts at three locations, intersection inventories, and signal operations within the study area.

Future conditions without the project are essential to determine the relative impacts of the proposed project on surrounding transportation facilities and communities. Future baseline operations will be compared with existing conditions. Appropriate growth factors obtained from relevant agencies (e.g., Suffolk County, NYSDOT, the New York Metropolitan Transportation Council) and vehicular trips expected to be generated by major developments that have been approved, are in the process of being approved for construction, or are expected to be implemented by the first year of project operation (2022) in the study area will be used to determine future no-action condition vehicular traffic volumes. Planned or committed major roadway or infrastructure improvements in the study area also will be considered to determine future traffic flow and transportation system conditions. The construction condition will be analyzed for traffic operations that reflect any detour routing; construction vehicles arriving to and departing from the construction site; and conceptual-level plan for control, maintenance, and protection of traffic.

A level of service analysis, volume/capacity ratios, and stopped delay values for intersection analyses will be computed in accordance with the standard procedure prescribed in the Highway Capacity Manual. A tabular summary of the existing, no action, and construction condition (one alternative) traffic analyses will be presented. Results of the traffic analyses will be compared to determine if any impacts are projected. Mitigation measures will be applied where significant impacts are identified as part of the analyses. The goal is to have any affected traffic movements during construction operate in a similar manner to the no-action condition. Indirect and cumulative effects will be discussed qualitatively to assess the elimination of OSWS with the construction of sewers.

Lastly, given that one potential site under consideration for the location of the AWTF is the Brookhaven Calabro Airport, the transportation chapter will consider short- and long-term impacts related to air navigation in the vicinity of the airport, such as possible constraints to air navigation as a result of construction equipment.

5.2.17 Public Services and Utilities

Wastewater

This section will summarize existing wastewater flows from OSWS and quantify the projected wastewater flows from the proposed action and alternatives, providing a discussion of the methodology and calculations used to derive these projected flow volumes. Based on Suffolk County Department of Health Services' design criteria and zoning, the total wastewater or sanitary flow from the project area is projected to be 1.0 MGD. The average daily flow density for the project area is greater than 1,000 gallon per day per acre, more than three times as much as the 300 gallon per day per acre wastewater flow rate established for Groundwater Management Zone VI.

Primary sources of information will include Available reports on facility planning and nitrogen reduction for the densely developed areas close to the bay and its tributaries and other documents from Suffolk County agencies. In addition, design standards will be reviewed and the need for special materials or approaches will be considered for these areas close to salt-water waterbodies and at low surface elevations.

This section will describe the proposed collection and conveyance system and new sewer district, the siting of the proposed AWTF, hydraulic and organic capacity, technology and design, as well as effluent quality. Given the location the project area within the Forge River Watershed and the community's desire to improve the water quality of the Forge River, the treatment selection will be based largely on the target effluent nitrogen reduction requirements of this environmentally sensitive area. Potential impacts of the proposed action and alternatives will be discussed.

Water Supply

Potential impacts on water supply will be addressed in the water quality section. This section will describe the existing water supply wells and potential impacts on the water quality and quantity of the potable supply from the proposed action and alternatives.

Energy

This section will describe the electrical energy capacity of existing supply network in the project area and identify elements of the proposed action and alternatives that will require energy to operate, including pump stations, grinders, and the new AWTF. An estimate of the energy required to operate these project elements will be provided. The existing capacity will be compared to the project's energy requirements to determine if capacity exists to supply the additional demands.

5.2.18 Public Health and Safety

Agencies that provide police, fire, and emergency medical services to the project area will be identified; however, the project is not anticipated to impact the level of public safety services required by these providers, because parcels to be connected to the new sewer system are already developed.

This section also will discuss the public health concerns related to nitrogen and pathogen pollution associated with failure of OSWS and qualitatively assess the impacts of the proposed action and alternatives on these public health hazards. It will specifically assess the potential for the proposed

action and alternatives to have a disproportionate effect on children's environmental health or safety in accordance with Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. Because the proposed action and alternatives seek to mitigate short-term and repetitive, adverse impacts on human life and property associated with OSWS failures in the Forge River Watershed, it is expected that the project would result in beneficial impacts on public health and safety.

5.2.19 Hazardous Materials

The project area is fully developed and land use is predominantly residential, with some commercial, institutional, and industrial uses. On-site wastewater treatment and disposal systems comprise the majority of the hazardous materials expected to be present in the project area in terms of both existing sources of solid and hazardous waste and waste that will be generated at part of the proposed action and alternatives. Existing solid and hazardous waste in the project area is created by the required periodic pump-out of septic systems by licensed companies that haul and dispose of the septage (scavenger waste) at permitted receiving and treatment facilities on Long Island. Existing solid and hazardous waste volumes will be estimated and disposal processes described.

Potential impacts on solid and hazardous waste for the proposed action and alternatives will be described, including waste associated with decommissioning the existing septic systems and cesspools, removing tanks and tank vaults, draining and removing pools, and the excavating any nearby soils contaminated by sewage waste. In addition, volumes of any solid (but not necessarily hazardous) material to be removed as part of sewer line installation activities will be estimated and re-used or disposal processes described.

This section will quantify the number of septic systems and cesspools in the project area, the amount of waste produced by each one per year under current conditions, and, based on the age and size of the units, estimate the amount of solid and hazardous waste that will be generated during the decommissioning process. The appropriate disposal method(s) also will be described.

5.2.20 Climate Change

As recommended by CEQ guidance for considering climate change in environmental review, the draft EA/EIS will consider the following when addressing climate change: (1) the potential effects of a proposed action on climate change as indicated by its greenhouse gas emissions; and (2) the implications of climate change on a proposed action.

Gravity and low-pressure sewer mains would not result in long-term greenhouse gas emissions. The only stationary air emission source associated with the proposed action and alternatives is the new AWTF. Wastewater treatment processes can produce greenhouse gas emissions in the form of methane and nitrous oxide. For the proposed action alternative, methane and nitrous oxide emissions from the AWTF will be estimated using the general equations for centrally treated aerobic systems from EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2012. The EPA methodology is not specific to the proposed MBR technology, but provides a conservative order of magnitude emissions estimate. A literature review was conducted and no emissions estimate methodologies specific to MBR were located. For the No-action alternative, the EPA equations for septic system emissions will be used to assess the incremental impact of

areas currently using septic systems switching to the new central treatment plant. Emissions associated with the ultimate disposal of sludge will be discussed.

Greenhouse emissions associated with electricity consumption by the AWTF will be quantified consistent with the methodology recommended by NYSDEC in the document *Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements*. The methodology is based on the annual electricity consumption of the facility and the average carbon dioxide-equivalent emissions factor for the applicable utility provider.

A review of relevant climate projections will be provided from scientific sources, including the Intergovernmental Panel on Climate Change and National Research Council. The anticipated effects of climate change on the region will be discussed, and potential effects on the proposed action and alternatives will be assessed. The potential for anticipated climate change effects such as sea level rise, changes in temperature, or precipitation to impact the facilities proposed under the proposed action and alternatives will be assessed.

5.3 Cumulative Impacts

In this section, the contribution of the proposed action to cumulative impacts will be considered. A discussion of past, present, and reasonably foreseeable projects will be provided. Examples of such projects include those previously discussed in section 1.1 as part of the Initiative. The assessment of cumulative effects will consider the total of all impacts on a particular resource that have occurred, are occurring, and will likely occur as a result of the proposed action and these other identified projects.

This section will identify the significant cumulative effects issues associated with the proposed action, including issues related to water quality, ecosystem health, and socioeconomic conditions. The direct benefits of the sewer extension on water quality will be assessed, along with the negative effect of increased impervious surface cover that would result from potential new development facilitated by the sewer extension and other potential actions that would affect water quality.

At the start of the assessment, the geographic scope and timeframe for the analysis will be established. Other public and private actions, including other Hurricane Sandy-related initiatives, affecting the key resources, ecosystems, and communities will be identified based on a discussion with local planners and developers and review of local plans. The resources, ecosystems, and communities of concern will then be characterized in terms of their response to change and capacity to withstand stresses. Important cause and-effect relationships between human activities and resources, ecosystems, and human communities will be identified. Finally, the magnitude and significance of the cumulative effects will be determined for each of the key resources/areas of concern.

5.4 Irreversible and Irretrievable Commitment of Resources

This chapter will discuss any irreversible or irretrievable commitment of resources as a result of the proposed action in terms of loss of environmental resources, both in the immediate future and in the long term. The extent to which the proposed action involves trade-offs between short-term environmental gains and long-term losses will be addressed. In addition, potential short-term losses will be compared with long-term benefits.

5.5 Permits and Project Conditions

This section will provide a description of permits, reviews, consultations, and approvals that would typically be required for the proposed action.

A majority of property owners within the project area will be required to approve the creation of a Mastic-Shirley Sewer District by public referendum. The final design contract will include modification of and/or development of a map and plan leading to the formation the proposed county sewer district according to Article 5-A, Section 256 of New York State County Law. Following acceptance of the map and plan, the county will be required to file a copy with and receive approval from the Suffolk County Department of Health Services, and obtain approval from the New York State Comptroller to ensure the costs of the improvement do not increase the tax impacts on property owners within the district above the New York State Comptroller's predetermined threshold amount.

Other regulatory requirements for the Forge River Watershed Sewer Project would include compliance with Section 14.09, New York State Historic Preservation Act, and Section 106, National Historic Preservation Act/Tribal Consultation; Section 7, Threatened/Endangered Species Coordination; SPDES permit and compliance with and Suffolk County Article 6 and Article 7 requirements; SPDES General Permit for Stormwater Discharges from Construction Activity, including preparation of an SWPPP; approval from Suffolk County Department of Health Services, and compliance with Suffolk County Department of Health Services and Suffolk County Department of Public Works sewage treatment plant design and space requirements.

Because the Brookhaven Calabro Airport is one potential site under consideration for the location of the wastewater treatment plant, the draft EA will evaluate the proposed action and alternatives under NEPA and applicable "special purpose laws" pursuant to FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

Other construction-related permits or approvals that the proposed action may require include the road opening permits and/or easements through NYSDOT and building permits from the Town of Brookhaven; a State Highway Access and/or State Highway Road Permit from NYSDOT; a Water Withdrawal Permit from NYSDEC for dewatering activities; and compliance with Suffolk County Sanitary Code Article 9 and Article 12 for use and storage of construction chemicals and petroleum products. Permits would be required from the Metropolitan Transit Authority Long Island Railroad in locations where sewer infrastructure would need to cross under railroad tracks. Because a portion of the project area is located within the boundaries of the coastal zone, the proposed action requires a consistency assessment for compatibility with the State's Coastal Management Program and coastal policies. In addition, an inter-municipal agreement with the Town of Brookhaven would be required to site the AWTF at the airport.

5.6 Agency Coordination and Public Involvement

This section will provide an overview of efforts to ensure effective public participation and access to information, a description of any public involvement that occurred regarding the proposed action (i.e., newspaper notices and public meetings) and a list of federal, state, and local agencies and offices or other stakeholders that were contacted and asked to review the project.

Cooperating agencies identified under NEPA include FAA, EPA, and potentially others. The draft EA will be prepared to meet all environmental and other relevant regulatory requirements of these

agencies. Involved agencies identified under SEQRA include the New York State Environmental Facilities Corporation; DSHES; New York State Office of State Comptroller, Division of Legal Services; NYSDEC – Region 1; New York Office of Parks, Recreation and Historic Preservation; New York State Department of State Division of Coastal Resources; NYSDOT; Metropolitan Transportation Authority – Long Island Rail Road; Suffolk County; Suffolk County Planning Commission; Town of Brookhaven, and Town of Brookhaven Planning Board. As such, this section would provide an overview of the various consultations required from these agencies and with tribal governments in and around the area pertaining to requirements under regulation such as Section 106 of the National Historic Preservation Act of 1966 or the Endangered Species Act of 1973.

5.7 Other Sections

An executive summary and conclusion also will be provided for each document. The executive summary will be a clear, concise, and complete summary of the specific document. The summary will provide a description of the proposed action, the purpose and need for the proposed action, the required approvals, the project location, anticipated impacts, proposed mitigation measures, and alternatives. The executive summary will follow the general outline of the tasks outlined above, or those tasks deemed appropriate during the draft EA/EIS scoping process. The executive summary will be one of the last tasks and will be completed once the other analyses described above are finalized.

The conclusion will identify the preferred alternative and discuss why the preferred alternative is the best alternative to meet the project purpose and need, and summarize the potential impacts on the human environment in the vicinity of the project area. Impacts will be summarized as short term and long term by resource/area of concern, with a discussion of intensity for significant adverse or beneficial impacts. A summary table of impacts will be provided by resource/area of concern.

The conclusion will include a summary table that summarizes potential impacts and proposed mitigation for each resource topic.

A list of preparers will be provided following the conclusion of each document.

References will be provided at the conclusion of the EA/EIS in an accepted citation style and parenthetical citations will be used throughout EA.

5.8 Suggested Appendices

Appendices to the draft EA/EIS shall include, but not be limited to the following documents:

- Alternatives screening process
- U.S. Department of House and Urban Development environmental assessment checklist
- New York State Department of State Coastal Zone Management Program federal consistency assessment form
- Sole source aquifer screening
- Eight-step floodplain and wetlands review process
- Phase IA cultural resources survey

Draft Scoping Document

Forge River Watershed Sewer Project, Town of Brookhaven, NY

- SEQRA and NEPA documentation including Positive Declaration, Notice of Intent EIS and final scoping document
- Correspondence with regulatory agencies

5.9 Scoping Document References

CDM Smith in association with H2M and Bowne Art Group

2014 *Mastic-Shirley Drainage Zones.*

2014 *Phase I and Phase II: Mastic-Shirley Proposed Sewer District.*

2014 *Forge River Nitrogen Reduction Report, Sewering of Mastic/Shirley, EFC Report C1-5140-01-00.* August.

2014 *Suffolk County. Feasibility Study, Map and Plan for: Mastic/Shirley, Suffolk County Sewer District Capacity Study, CP 8189.* March.

Keystone Aerial Surveys

nd Geomaps 15-229-4_UCFp Aerial Survey.

Nelson, Pope & Voorhis, LLC

2009 *Montauk Highway Corridor Study & Land Use Plan for Mastic & Shirley Phase II, Final Draft.*

2010 *Draft Generic Environmental Impact Statement for the Montauk Highway Corridor Study & Land Use Plan for Mastic & Shirley Phase II, April.*

New York City Mayor's Office of Environmental Coordination

2014 *New York City Environmental Quality Review [CEQR] Technical Manual - Chapter 7, Open Space, March 2014 Edition.*

New York Office of Parks, Recreation and Historic Preservation

2015 *New York State Cultural Resource Information System.*

New York State Department of Environmental Conservation

2001 *Assessing and Mitigating Noise Impacts, February.*

2009 *Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements.* Accessed at:
http://www.dec.ny.gov/docs/administration_pdf/eisghgpolicy.pdf

New York State Division of Homeland Security and Emergency Services

2015 *Confidential. FEMA-DR-4085-NY HMGP Application State #2486. Sub-applicant: Suffolk County. Project Title: Suffolk County Coastal Resiliency Initiative. April.*

Draft Scoping Document
Forge River Watershed Sewer Project, Town of Brookhaven, NY

New York State Governor's Office of Storm Recovery

2014 NY Rising Community Reconstruction Plan for Mastic Beach/Smith Point of Shirley, March.

NYS 2100 Commission

2013 Recommendations to Improve the Strength and Resilience of the Empire State's Infrastructure.

Suffolk County

2015 *Comprehensive Water Resources Management Plan*. April.

2015 *Forge River Nitrogen Reduction Report, Sewering of Mastic/Shirley, EFC Report C1-5140-01-00*. Prepared by CDM Smith in association with H2M and Bowne AE&T Group. August 2014. Amended by Suffolk County, June.

Suffolk County Department of Public Works

2015 Request for Proposal for planning and design assistance for Forge River Watershed Sewer Project (Parts 1-5, Addendum 1-2, Responses to Questions and Clarifications), July.

Town of Brookhaven

2012 *Forge River Watershed Management Plan*. Prepared by Cameron Engineering & Associates, LLP. March.

2013 *The Carmans River Conservation and Management Plan*. Town of Brookhaven, Long Island.