

# Forge River Watershed Sewer Project Town of Brookhaven, Suffolk County, New York

**FEMA-DR-4085-NY**

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## **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 proposes to 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 proposes to 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 proposes to construct a new collection system to connect 500 parcels to existing conveyance and treatment systems.
- *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 proposes to construct a new collection system to connect 648 parcels to existing conveyance and treatment systems.

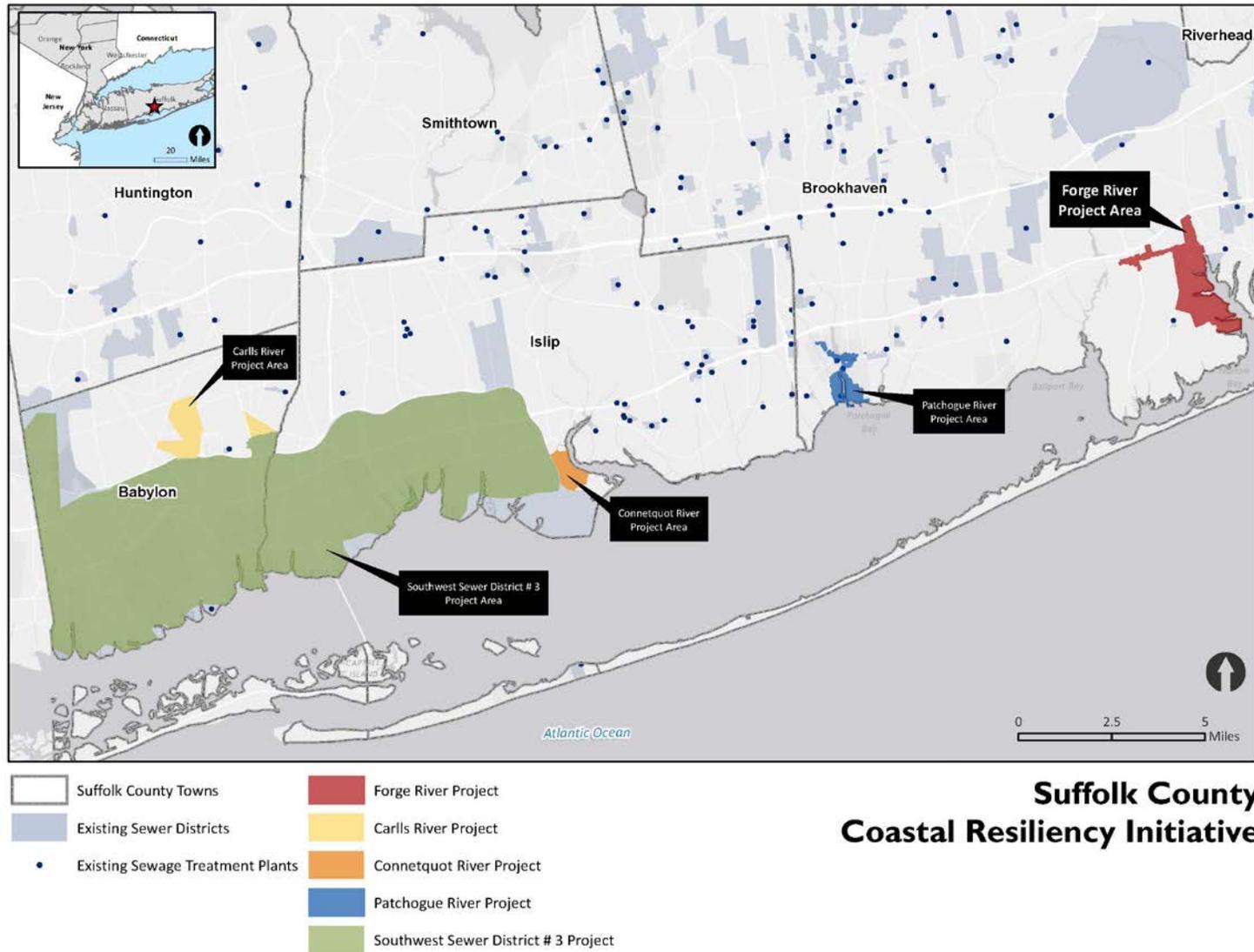


Figure 1. Suffolk County Coastal Resiliency Initiative

- *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 (Suffolk County, 2015). This project proposes to construct new sewer collection and conveyance infrastructure, and an advanced wastewater treatment facility (AWTF). Phases I and II, which are currently proposed for funding, would sewer 2,094 parcels. Phase III, which is planned but not currently included in the application for FEMA HMGP funding, would sewer 1,568 parcels. Calabro Airport in the Town of Brookhaven is one potential site considered for 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.

## **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<sup>1</sup> waterbody in Suffolk County, is located within the hamlets of Mastic and Shirley in the Town of Brookhaven (Suffolk County, 2015). The proposed project area encompasses approximately 1,400 acres in the densely developed residential and commercial area located south of the Sunrise Highway (CDM Smith, 2014). The project area further includes two parcels with a combined area of 30.7 acres located on the Brookhaven Calabro Airport north of Sunrise Highway (New York State Route 27) (see **Figure 2**).

In addition to the proposed site for the AWTF, the project area was initially identified as “Phase I/II” and included 2,094 parcels located on the north and south sides of County Road (CR) 80 (Montauk Highway) between William Floyd Parkway and Forge River. In response to public scoping comments, this project area was expanded to include “Phase III,” which consists of 1,568 primarily residential parcels located along Forge River to the south of the Phase I/II area. As a result, the project area for this draft EA/EIS encompasses Phases I, II, and III. It should be noted that only Phases I and II are currently proposed for funding. Phase III, which is planned but not currently included in the application for FEMA HMGP funding, is included in this review so that it could be constructed if funding becomes available.

The project area is affected by heavy storms that can lead to flooding with varying intensity and frequency. For example, intense flooding occurred during Hurricane Sandy in 2012; Hurricane Irene in 2011; and other unnamed seasonal storms, nor’easters, and hurricanes. Flooding can occur as a result of intense precipitation events (e.g., Hurricane Irene) or coastal surges (e.g., Hurricane Sandy), or a combination of both. Such flooding may increase as a result of climate change accompanied by rising sea levels and increasing frequency and severity of storms.

Approximately 90 percent of the Phase I/II area is located within the Forge River Watershed, and the remaining 10 percent of the area is located within the Carmans River Watershed to the west. The entire Phase III area is located within the Forge River Watershed. Forge River is an estuary along Moriches Bay; Carmans Rivers is an estuary along Bellsouth Bay. Both bays are connected by another bay (Narrow Bay), and all three bays are part of Great South Bay.

The OSWS providing sanitary wastewater disposal in the project area are partially outdated and failing. Failing OSWS cause untreated effluent to be released into the surrounding soil (Suffolk County, 2015). Failure can be caused by hydraulic overloading and flooding. Aged systems are at a higher risk for failing as a result of improper maintenance over time, leading to frequent sewage overflows and sewage backups resulting from clogged systems. 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.

The density of OSWS in the project area is high compared to many other parts of the Forge River Watershed. Approximately 96 percent of the current total nitrogen load from effluent discharged to the groundwater in the Phase I/II area is contributed by residential sources, with the remainder contributed by commercial and institutional sources (CDM Smith, 2015). The relative contribution from residential sources is likely even higher in the Phase III area. OSWS failures result when

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<sup>1</sup> Eutrophic conditions (or eutrophication) consist of an abundant accumulation of nutrients that support a dense growth of algae and other organisms. The decay of these algae depletes shallow waterbodies of oxygen in summer. According to the *Suffolk County Comprehensive Water Resources Master Plan*, Forge River is considered the most eutrophic water body in Suffolk County (Suffolk County, 2015).

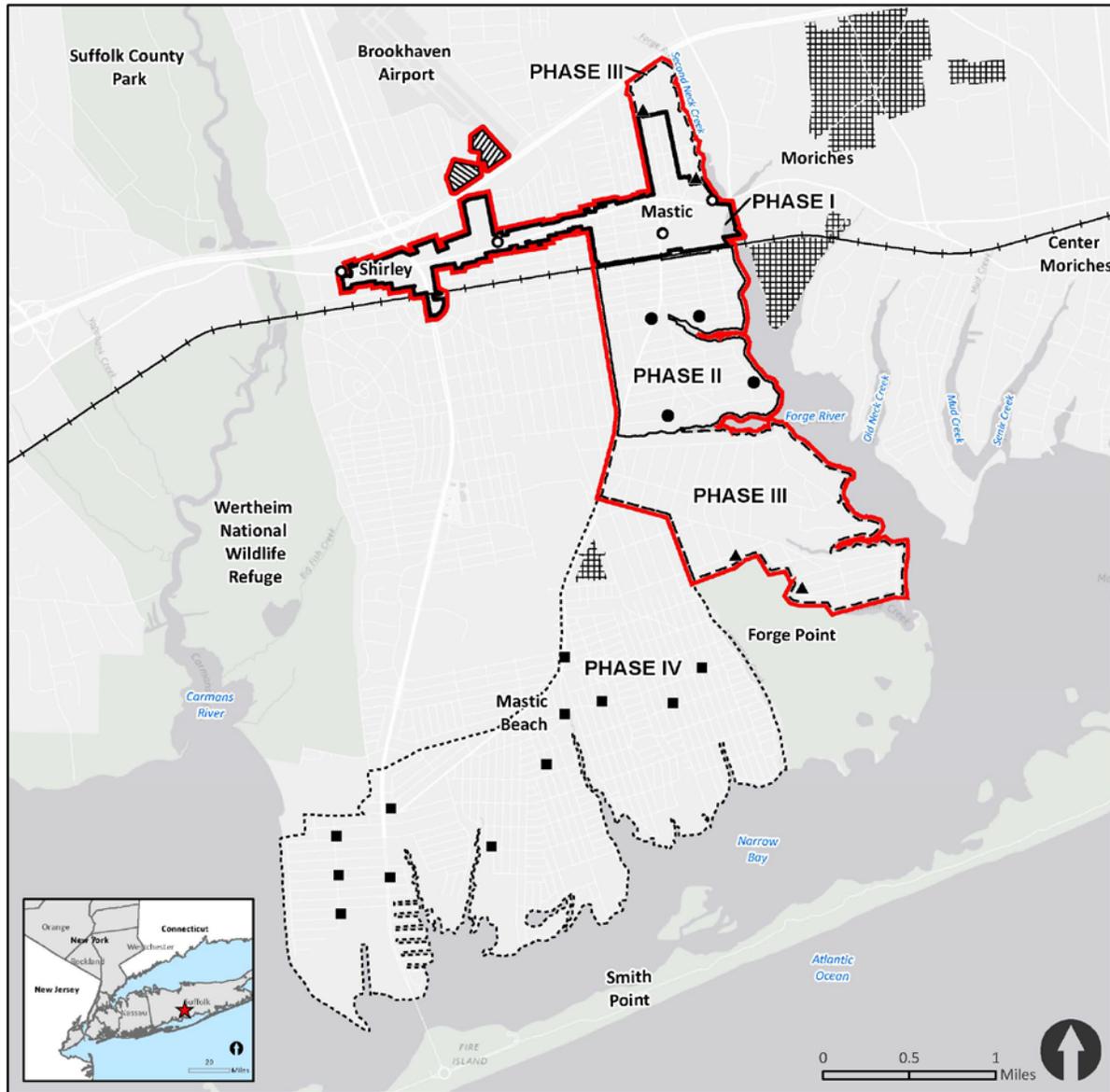
systems are flooded by heavy rainfall or submerged in shallow groundwater that rises during storm events, reducing system capacity and/or inhibiting or eliminating system treatment or disposal capability, as described below.

- *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.
- *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 identified the connection of parcels in the Forge River Watershed as a priority. 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.



- Project Area
- MTA Long Island Rail Road
- Private Sewer Areas
- Proposed Advanced Wastewater Treatment Facility (AWTF)**
- Advanced Wastewater Treatment Facility Parcel
- Advanced Wastewater Treatment Facility Expansion Parcel
- Proposed Sewer District**
- Phase I     Phase I Pump Stations
- Phase II     Phase II Pump Stations
- Phase III     Phase III Pump Stations
- Phase IV     Phase IV Pump Stations

**Project Area**  
 Forge River Watershed  
 Sewer Project

Source: Suffolk County GIS;  
 ESRI World Imagery;  
 CP8189 Suffolk County  
 Sewer Capacity Study  
 (CDM Smith, H2M,  
 Brown AE&T Group)



**Figure 2. Forge River Watershed Sewer Project Area**

Subsequently, the 2015 Suffolk County *Comprehensive Water Resources Management Plan* recommended 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.

#### **4.0 ENVIRONMENTAL ANALYSIS FRAMEWORK**

##### **4.1 Scoping**

###### ***4.1.1 Summary of Scoping Process***

The process of determining the scope, focus, and content of an environmental document is known as “scoping.” Scoping is 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 allowed 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.

In accordance with SEQRA and its implementing regulations under 6 NYCRR Part 617, GOSR transmitted a letter to all interested and involved agencies expressing interest in serving as the lead agency under SEQRA. Receiving no objections from interested and involved agencies, GOSR assumed lead agency status and classified the proposed project as a Type I Action under 6 NYCRR 617.4. GOSR initiated coordinated review of the proposed action by circulating a full Environmental Assessment Form (EAF) Part 1 for review and comment to interested and involved agencies. GOSR evaluated the criteria found under 6 NYCRR 617.7(c) and completed Parts 2 and 3 of the EAF, determining that the proposed action may result in one or more significant environmental impacts and will therefore require the preparation of a SEQRA EIS.

As SEQRA lead agency, GOSR has fulfilled the scoping requirements under 6 NYCRR 617.8. On December 23, 2015, GOSR issued a notice of SEQRA positive declaration, public scoping meeting, and public comment period, which lasted until February 16, 2016. With this notice, GOSR submitted a draft scope to all involved agencies and made the draft scope available to the public. The draft scope was available for public viewing in hard copy at the offices of GOSR, the Town of Brookhaven Clerk, Suffolk County Division of Planning & Economic Development, and Brookhaven Free Library; and digitally via the GOSR and Suffolk County websites. A public scoping meeting was held on January 26, 2016, from 6:00 pm to 8:00 pm at William Paca Middle School, 338 Blanco Drive, Mastic Beach, NY 11951.

All interested parties were provided opportunities to submit written comments at the public scoping meeting; to submit comments in writing via email, fax, or letter; and to provide verbal comments at the public scoping meeting that was recorded by a court reporter. Two SEQRA-involved agencies provided written comments, including the New York State Department of Environmental Conservation (NYSDEC) and the Town of Brookhaven.

This final written scope will be provided to all involved agencies and any individual that has expressed an interest in writing. The final scope will also be made available to the public via the GOSR and Suffolk County websites.

#### **4.1.2 Summary of Scoping Comments**

In total, 14 public comment letters, emails, and comment cards; 2 agency comment letters, emails, and comment cards; and 19 oral comments (heard during the public hearing) were received by the close of the public comment period. Each letter, email, and comment card discussed multiple topics. Comments received after the conclusion of the official comment period were (and will continue to be) reviewed but may not be included in the official record for the scoping period. Comments are still being solicited via the project website. This final scoping document has been revised to reflect public comments and the potential for impacts raised by the public (Section 5.0, *Contents of Draft EA/EIS Documents*).

The comments fit into five topic categories: project purpose and need, costs of the project, environmental impacts, miscellaneous, and new alternatives. The follow sections summarize the public comments received during the scoping period based on the environmental resource categories that will be discussed in the draft EA/EIS.

#### **Public Comments Related to Purpose and Need**

Many comments that were submitted related to the purpose and need and scope of the project. Commenters questioned whether the sewer project was necessary for the area, if other wastewater systems should be considered, and if this was an actual coastal resiliency project.

#### *Response:*

- *The project is needed because the project area is subject to heavy rainfall events that lead to elevated groundwater and regular flooding, which can cause failures of OSWS. When OSWS fail, untreated sewage is discharged into the environment, resulting in immediate hazards to human health and damages to property, as well as long-term degradation of coastal wetlands. The proposed project seeks to mitigate short-term, 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, as well as 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 draft EA will evaluate a third action alternative that considers innovative/alternative (I/A) wastewater treatment systems. This alternative would repair and/or replace existing OSWS with upgraded OSWS to achieve an effluent quality of up to 19 mg/L for total nitrogen.*
- *The proposed project is a coastal resiliency project because it would mitigate short- and long-term impacts associated with OSWS failures in the Forge River Watershed and with failures on surface waters and coastal wetlands. In doing so, it would contribute significantly to the Suffolk County Coastal Resiliency Initiative's goal of mitigating impacts on human life and property, surface waters, and coastal wetlands associated with OSWS failures caused by natural hazards (rain events, storm surge, and coastal flooding).*
- *Mastic-Shirley is one of the seven currently unsewered areas that the Suffolk County Sewer District/Wastewater Treatment Task Force identified as a critical area of need for centralized sewer service. The Draft Mastic-Shirley Feasibility Study (CDM Smith, 2014) and Forge River Nitrogen Reduction Report, Sewering of Mastic/Shirley, EFC Report*

*CI-5140-01-00 (CDM Smith, 2015) documented the needs of the proposed district, including sewage collection and treatment/effluent discharge requirements and various benefits.*

Many commenters indicated that they felt the purpose of the project is economic development, rather than mitigation or water quality, which they felt should be the main purpose. One commenter spoke in contradiction of this point, stating that economic development might be necessary considering the business closures and need in the community for an economic catalyst.

*Response:*

- *As noted in the purpose and need of the Scoping Document, the purpose of this project is not economic development, but rather, to mitigate short- and long-term adverse impacts associated with OSWS failures in the Forge River Watershed and with failures on surface waters and coastal wetlands, respectively. For the purpose of the land use and socioeconomic analyses in the draft EA/EIS, the no-action alternative will include increased development according to the Montauk Highway Corridor Study and Land Use Plan and as permitted by zoning. With the exception of development according to the Montauk Highway Corridor Study and Land Use Plan and as permitted by the zoning, it is assumed that currently vacant parcels will not be developed. However, the analyses in the draft EA/EIS will assess the potential for induced growth and indirect effects on population, employment, housing units, property values, and net fiscal flow based on this existing zoning.*

### **Public Comments Related to the Scope of the Environmental Analysis**

One commenter indicated that the former duck farm along the Upper Forge River was historically the major cause of the nitrogen pollution, rather than failing OSWS. Some commenters spoke specifically to types of analyses that should be conducted, discussing the need for cumulative, indirect, and secondary impact analyses; a build-out analysis of what the district needs; mitigation plans; and an analysis of impacts on new single-family residences in the project area. Other commenters suggested the need for mitigation plans and due process for complying with Suffolk County laws for dealing with tidal wetlands, freshwater wetlands, and State Pollution Discharge Elimination System (SPDES) permits as well as cultural resources.

One commenter outlined certain projects in the project area that should be considered under the cumulative impacts analysis, including: The Town of Brookhaven Multifamily Housing Code, the Advanced OSWS Demonstration in Suffolk County, the Town of Brookhaven (Airport) Perimeter Road Project (OTRPRP), and The Town of Brookhaven's proposal to require decreased nitrogen outflow within 500 feet of the shoreline. The OTRPRP, specifically, was mentioned as a possible project that could result in adverse impacts on visual resources and neighborhood aesthetics/character, which should be addressed in the analysis.

*Response:*

- *As required by the implementing regulations of SEQRA, the impact analysis will evaluate the direct and indirect (including secondary) effects of all alternatives, as well as the contribution of the action alternatives to cumulative impacts when combined with other past, present, and reasonably foreseeable projects in the area.*

- *The draft EA/EIS will outline the proposed mitigation measures for each resource topic, and required mitigation will be discussed in the permits and project conditions chapter.*
- *The draft EA/EIS will evaluate the impacts on single-family residences under the socioeconomics resource topic.*
- *The proposed project will require several approvals, permits, and consultations that will be discussed in the permits and project conditions chapter.*
- *The analysis of water quality in the draft EA/EIS will consider other sources of nitrogen loading beyond failing OSWS, such as agricultural practices.*

Other public comments related to the environmental analysis dealt mostly with contamination, socioeconomics, and impacts on coastal resources and wetlands. The comments entailed inquiries from the public such as how the project would impact estuaries and wetlands, what remediation plans are in place if the sewer backup plan fails, and how neighbors would be compensated for their losses. One commenter further inquired as to what provisions have been made to hide the plant from view on the west side and how the plant would impact the nearby playground and ballfields.

Other commenters indicated that the project would saturate their land and pollute their soil without any benefit. Commenters reiterated the lack of benefit they perceived from this project and said the project would cost them money because it would pollute their soils. One commenter felt the project may impact home prices.

*Response:*

- *The draft EA will include detailed analyses of all possible adverse as well as beneficial impacts on the human and natural environment where potential impacts have been identified, as discussed in Section 5.0, Contents of Draft EA/EIS Documents.*

### **Public Comments Related to the Project Area**

Many commenters suggested the project area, sewer line location, and sewage plant location should be changed to have more beneficial effects on the community. Commenters mentioned the project area should include Mastic Beach, Montauk Corridor, the Lower Peninsula, and the East River. Commenters also suggested the treatment plant should be located on the northwest portion of its current site, within the project area that is being sewerred, or away from residences. One commenter asked why so much of the project area was located outside of the Forge River Watershed.

*Response:*

- *During the public scoping meeting, FEMA and GOSR indicated that the draft EA/EIS will provide a detailed analysis of the project area, defined as Phases I and II of the project area identified in the Draft Mastic-Shirley Feasibility Study. In response to public comments received during scoping, Phase III will also be included in the project area for detailed analysis. Phase IV will be evaluated as a reasonably foreseeable future project in the assessment of cumulative impacts.*
- *Several studies considered alternative locations for the AWTF outlined in an Alternatives Screening Report prepared by GOSR. The alternative locations for locating the AWTF facility included the Brookhaven Calabro Airport and the “Links at Shirley Golf Course.”*

*The golf course site was eventually eliminated as an alternative site because of the much higher costs associated with constructing a force main from the master pump station. As a result, the airport site was chosen for the AWTF because it was much closer to the master pump station, would require a shorter force main, and would be less costly. Moreover, at the end of 2009, the Links at Shirley Golf Course was sold for private residential development. After the property was rezoned and subdivided, the developer dedicated 98 acres of the property as open space to the Town of Brookhaven for active recreational purposes (CDM Smith, 2014). Furthermore, the site has a comparatively shallow depth of only 12 feet to groundwater, which limits its treatment potential. In addition, the site is located outside of the Forge River watershed; groundwater would flow either to Great South Bay in the south and/or to Carmans River in the west (through the Wertheim National Wildlife Refuge).*

- *Approximately 90 percent of the Phase I/II area is located within the Forge River Watershed; the remaining 10 percent of the area is located within the Carmans River Watershed to the west. The entire Phase III area is located within the Forge River Watershed. The Phase IV area is located in the watershed of Narrow Bay to the south and Bellport Bay in the west—both bays are part of Great South Bay. For Phases I to IV, 46 percent of the project area is located in the Forge River Watershed, 2 percent is located in the Carmans River Watershed, and 52 percent is located in the Great South Bay Watershed.*

Other concerns expressed by commenters included:

- The sewer district should not be located near the airport where there are numerous plane crashes yearly.
- The Brookhaven lab had contaminated groundwater and should be addressed.
- The project should build 3.5 miles of pipeline down Neighborhood Road and up Mastic Road to be ready to connect when the project is completed because the county cannot afford to wait 15 to 20 years.

*Response:*

- *Because the Brookhaven Calabro Airport is one potential site under consideration for the location of the wastewater treatment plant, the draft EA/EIS will evaluate the proposed actions under NEPA and applicable “special purpose laws” pursuant to the Federal Aviation Administration (FAA) order 5050.4b, NEPA Implementing Instructions for Airport Actions, and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures. While none of the project alternatives are anticipated to interfere with aviation navigation, potential construction impacts related to aviation navigation will be evaluated in the draft EA/EIS. In addition, FAA is a cooperating agency for the review of this project under NEPA, and FEMA is coordinating with both FAA and the Town of Brookhaven.*
- *The draft EA/EIS will discuss existing groundwater contamination and the potential for nearby contaminated sites under both the water quality resource topic and the geology, topography, and soils resource topic.*

- *The project area to be evaluated in the draft EA/EIS will include Phase III, while the Phase IV area will be evaluated in the analysis of cumulative effects. Together, Phases III and IV encompass the area of Neighborhood Road and Mastic Road.*

### **Public Comments Related to Alternatives**

Many commenters inadvertently expressed support for the No-action Alternative by either voicing opposition to the project or suggesting it was not necessary. One commenter opposed the project and indicated that sewerage had failed the community in many categories, including creating untenable costs and drinking water drawdown. Other commenters were in support of sewerage, and therefore the action alternatives, expressing that the current infrastructure was antiquated and long overdue for improvements and updates.

*Response:*

- *The draft EA/EIS will evaluate the potential costs of the project alternatives to residential and commercial property owners under the socioeconomics resource topic.*
- *The draft EA/EIS will evaluate the potential impacts of the project alternatives to drinking water supply and quality under the water quality resource topic.*

One commenter suggested additional alternatives should be considered that abandon the idea of sewerage and focus instead on implementing waterless, closed, on-site wastewater systems that would avoid contamination or pollution and reuse waste as a fertilizer.

*Response:*

- *The use of a bathroom-only solution addresses only part of the pollution problem; the majority of the household volume of water is grey and must be conveyed for treatment. Kitchen waste would have to be brought to the bathroom for disposal. Although minor, there would also be homeowner attention (fan, pump, and a liquid cartridge) and compost usage. Local regulations would require revision related to “fertilizer” use.*

### **Public Comments Related to Costs**

Commenters who discussed the costs of the project asked how this would affect local taxes and suggested that the Sandy Relief Fund be used to build the sewer. One commenter requested a full cost analysis of the project, including the costs of the construction or retrofit, costs of deteriorating infrastructure, a full analysis for storm scenarios, and the long-term maintenance costs.

*Response:*

- *While a full benefit-cost analysis is beyond the analysis required by NEPA/SEQRA to evaluate the potential for significant impacts related to the project alternatives, the draft EA/EIS will consider costs in the socioeconomics resource topic. In addition, a benefit-cost analysis was prepared as part of the Hazard Mitigation Grant Application to FEMA.*

## **4.2 NEPA Draft EA and SEQRA Draft EIS**

FEMA and GOSR will work together to prepare a NEPA draft EA and SEQRA draft EIS, respectively, addressing the various 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 federal Council on Environmental Quality (CEQ) Regulations for Implementation of NEPA

(40 CFR 1500–1508), FEMA NEPA Desk Reference, and FAA Environmental Desk Reference for Airport Actions also 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 the 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, or 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. Digital copies of the draft EA/EIS documents will be posted online 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.

### **4.3 Environmental 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.
- 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 during the foreseeable design life of the proposed action and alternatives. 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, *Affected Environment and Potential Impacts*.

The draft EA/EIS 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 DRAFT EA/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
- A list of preparers, 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 was 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 draft EA/EIS will assume a project life span of up to 60 years (i.e., up to year 2082, with a start date of 2022). 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 establish a county sewer district that would decommission the OSWS of 2,094 parcels for Phase I/II and 1,568 parcels for Phase III, connecting 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 Phase I/II is projected to be approximately 1 million gallons per day (MGD), with a total estimated sanitary flow of 1.4 MGD for Phase I/II and III. 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. Pump 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 13.7-acre parcel located at Brookhaven Calabro Airport. The AWTF would comprise either a Membrane Bioreactor (MBR) facility to provide the best available technology for nitrogen removal (i.e., effluent discharge would be between 3 and 5 milligrams per liter [mg/L]) or Sequencing Batch Reactor (SBR) facility. 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: Replacing On-site Wastewater Treatment and Disposal Systems with Innovative/Alternative Systems***

FEMA and NEPA cooperating agencies, as well as GOSR and SEQRA cooperating agencies, identified “other action alternatives” during a rigorous alternatives screening process. Screening criteria were established, including: treatment performance, performance during flood events, performance under projected sea level rise and climate change conditions, acquisition of land, and costs. The range of alternatives were screened against these criteria, and the resulting screening process narrowed the wide range of alternatives down to a reasonable range that will be carried through for analysis in the draft EA/EIS. An alternatives screening report will be provided as an appendix to the draft EA/EIS that discusses the identified alternatives, screening process, and results, including which alternatives were screened out and why, and which alternative is maintained for analysis in the draft EA/EIS and why.

This alternative would replace failing cesspools and septic systems with I/A OSWS for the same number of parcels as Alternative 2. In 2014, Suffolk County began a demonstration project for I/A OSWS. Several systems are currently being tested. In fall 2016, SCDHS approved two of the systems, both of which employ extended aeration activated sludge treatment, for provisional use. The County plans to have all pilot systems installed by the end of 2016, and the County anticipates that several more systems could be eligible for provisional use by September 2017. Systems that perform properly under provisional use could then be certified for general use approval as long as there are no significant environmental or public health concerns. The effluent from these systems shall contain no more than 19 mg/L total nitrogen (Suffolk County, 2014) because this is the limit for effluent from residential dwellings in Massachusetts where the system was originally tested and which serves as a reference for efficacy (H2M, 2013). This alternative will be further developed and described in detail in the draft EA/EIS.

## **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) 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. 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).

A limited geotechnical investigation will be performed for the project area during the design process 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<sub>2.5</sub> [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 analysis of induced growth discussed in the land use and socioeconomic resources sections. 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 and pump stations have the potential to generate odors. Operational impacts could 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, level of treatment, design of the water reclamation facility, and proximity of receptors; conversely, available resources to respond and experience of operations staff could minimize impacts. Odors could occur at all locations where the wastewater system vents to open air. Odor emissions are most likely 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 and pump stations (including the enclosure of the plant and pump stations), 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 because no similar local odor regulations exist in the project area.

### **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. Section 402 of the CWA requires the National Pollution Discharge Elimination System (NPDES) permits for activities that disturb 1 acre of ground or more. Under

NPDES, EPA regulates both point and non-point pollutant sources, including stormwater and stormwater runoff. EPA has authorized New York State Department of Environmental Conservation (NYSDEC) to administer the NPDES program, referred to in the state as the State Pollution Discharge Elimination System (SPDES). 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, which 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 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. The analysis of water quality in the draft EA/EIS will consider other sources of nitrogen loading beyond failing OSWS, such as agricultural practices.

Currently, nitrogen discharge from OSWS is regulated by lot size through the implementation of the Suffolk County Sanitary Code Article 6, which limits the 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, 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. Impacts of the proposed action and its consistency with the Suffolk County *Comprehensive Water Resources Management Plan* 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.

Community groundwater wells and registered private wells in the area will be identified, and a groundwater model will be used to determine if the wells would be influenced by the effluent from

the leaching fields. Based on the modeling results, if the wells are affected by the leaching field, the potential impacts of each alternative on drinking water supply will be assessed. Estimated nitrogen concentrations in shallow groundwater in the study area under existing conditions with wastewater disposal conducted via on-site septic systems will be documented for the project area using the groundwater quality modeling results provided in the *Draft Feasibility Study Map & Plan for Mastic/Shirley* (CDM Smith, 2014).

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. The legal framework and programs established by Suffolk County to protect the aquifer system from contaminants will be discussed. 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. Water conservation measures or other sustainability considerations will be described. A discussion of BMPs will be provided with regard to mitigating impacts on groundwater during construction within the water table and during repairs. The reduction in nitrogen loading to the surface water will also be assessed and water quality benefits of nitrogen removal will be explained in detail.

#### **5.2.4 Wetlands and Coastal Resources**

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 (see **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. 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. 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. Surface waters along the eastern boundary of the project area consist of 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.

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 4**), 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 (NYS DOS) and NYS DEC. A NYS DOS 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, based on a review of available literature. Potential impacts on coastal resources from the proposed action and alternatives will be assessed qualitatively 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 draft EA/EIS.

### **5.2.1 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 5**). Watersheds, and waterbodies where the proposed action and alternatives will drain will be identified. Existing runoff patterns, streams and drainage patterns in the project area will be described.

Potential impacts of the project on stormwater runoff during operation will be quantified and discussed. The increase in impervious surfaces resulting from the AWTF and pump 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 NYS DEC 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 design engineer will conduct an engineering analysis to determine if the project will increase flood heights, and prepare a No-rise Certification supported by technical data for review and approval by the local Floodplain Manager.

The Town of Brookhaven Town Code Chapter 33, Flood Damage Prevention, regulates construction and other development within special flood hazard areas of the Town of Brookhaven to protect human health and safety; minimize damage and loss of public and private property, infrastructure, and businesses; and reduce the necessity for flood-related rescue and relief efforts.

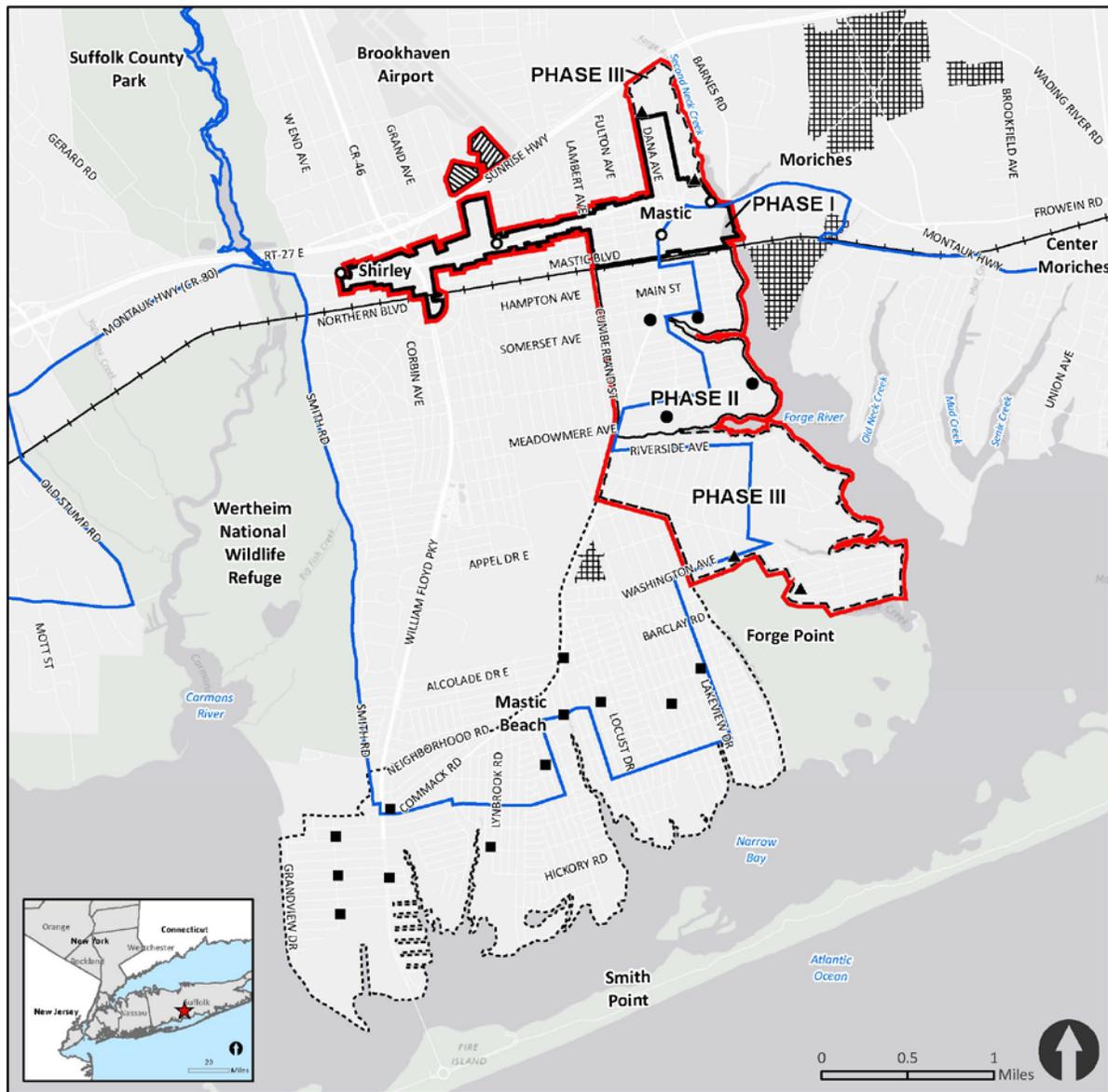


**Wetlands**  
 Forge River Watershed  
 Sewer Project

Source: Suffolk County GIS;  
 ESRI World Imagery;  
 CP8189 Suffolk County  
 Sewer Capacity Study  
 (CDM Smith, H2M,  
 Browne AE&T Group)



Figure 3. Wetlands



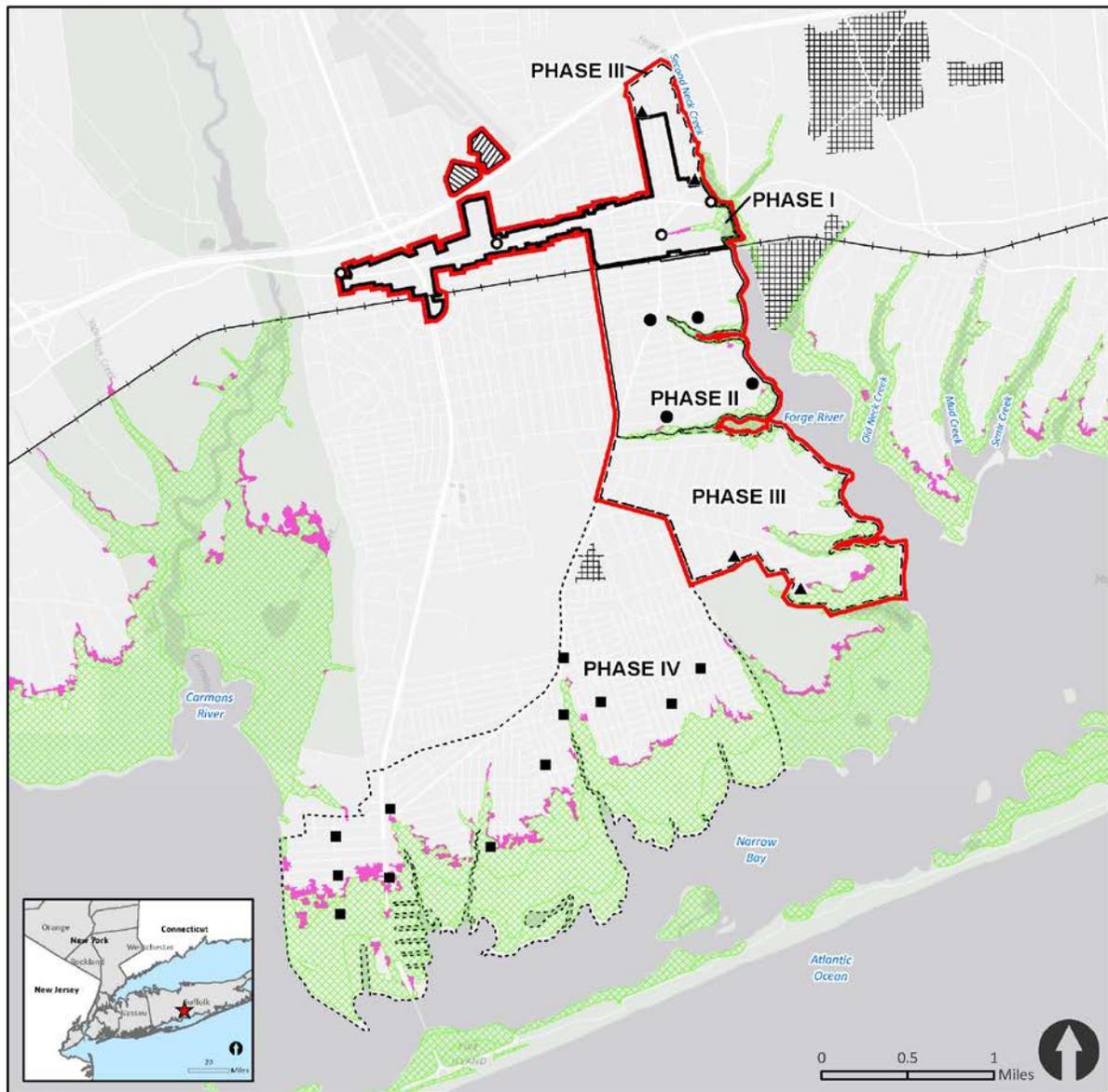
- Project Area
- Coastal Zone
- MTA Long Island Rail Road
- Private Sewer Areas
- Proposed Advanced Wastewater Treatment Facility (AWTF)**
- Advanced Wastewater Treatment Facility Parcel
- Advanced Wastewater Treatment Facility Expansion Parcel
- Proposed Sewer District**
- Phase I
- Phase II
- Phase III
- Phase IV
- Phase I Pump Stations
- Phase II Pump Stations
- Phase III Pump Stations
- Phase IV Pump Stations

**Coastal Zone**  
 Forge River Watershed  
 Sewer Project

Source: Suffolk County GIS;  
 ESRI World Imagery;  
 CP8189 Suffolk County  
 Sewer Capacity Study  
 (CDM Smith, H2M,  
 Browne AE&T Group)



**Figure 4. Coastal Zone Boundary**



Source: Suffolk County GIS;  
 ESRI World Imagery;  
 CP8189 Suffolk County  
 Sewer Capacity Study  
 (CDM Smith, H2M,  
 Browne AE&T Group)



Figure 5. Floodplains

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.

### **5.2.1 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. An on-site inspection will be conducted to confirm presence and approximate extent of plant species and ecological communities in the project area.

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. 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.

### **5.2.2 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. An on-site inspection will be conducted to confirm presence of and characterize species and suitable habitat in the project area. 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 the 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. The impact analysis will include a review of the

measures incorporated into the design of the proposed AWTF (including the enclosure of the plant and) that would reduce wildlife attraction. 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.

### **5.2.3 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 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.

### **5.2.4 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 (CRIS) database 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 project area. 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.

### **5.2.5 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 (see **Figure 6**). A land use analysis will characterize the use and development trends within the project area that may be affected by the proposed action and its alternatives and to determine if they are compatible or would be affected by the proposed action and its alternatives. The analysis will also consider existing uses and zoning designations in the study area, the policies and regulations mentioned above that affect the area, and any changes anticipated to occur by the time the proposed action or its alternatives would be constructed.

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. Existing plans that will be reviewed to determine land use effects include, but are not limited to:

- *Town of Brookhaven, Comprehensive Land Use Plan (1996)*
- *Town of Brookhaven, Montauk Highway Corridor Study & Land Use Plan for Mastic & Shirley: Phases I and II (2004, 2009)*
- *Generic Environmental Impact Statement for the Montauk Highway Corridor Study & Land Use Plan for Mastic & Shirley Phase II as a supplement to the Generic Environmental Impact Statement for the Montauk Highway Corridor and Land Use Plan for Mastic and Shirley, NY (2010)*
- *Cleaner Greener Long Island Regional Sustainability Plan (2013)*
- *Suffolk County Comprehensive Water Resources Management Plan (2015)*
- *Mastic Beach and Smith Point of Shirley – New York Rising Community Reconstruction Plan (2014)*

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 No-

action Alternative will include increased development according to the Montauk Highway Corridor Study and Land Use Plan and as permitted by zoning. The analyses in the draft EA/EIS will assess the potential for induced growth and indirect effects on land use because the proposed sewer mains would pass vacant parcels and could potentially sewer vacant, in-fill parcels in developed areas.

Known projects or planned developments and initiatives located within the project area that are scheduled, funded, approved via permits, or otherwise committed will be reviewed for inclusion in the future No-action Alternative analysis and for consideration in the cumulative effects assessment. 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 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. The potential for project-related induced growth will be assessed through a geographic information systems (GIS) analysis, in consultation with local planners in the Town of Brookhaven, Village of Mastic Beach, and Suffolk County. It will begin with a GIS analysis that will assess the potential for development and redevelopment on both non-vacant and vacant parcels, as well as potential constraints to development, such as zoning and wetland hydrology. Consultation with local planners will refine the findings of this GIS analysis for inclusion in the draft EA/EIS. Indirect effects on population, employment, housing units, property values, and net fiscal flow will be discussed qualitatively based on existing zoning.

### ***5.2.1 Socioeconomics***

This section will provide an overview of the socioeconomic conditions of Suffolk County, the Town of Brookhaven, the Village of Mastic Beach, and the immediate affected area consisting of the parcels that will be newly connected to the sewer system.

The socioeconomic 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 socioeconomic 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.



Figure 6. Land Use

Impacts of the proposed action and alternatives on the study areas (Suffolk County, Brookhaven, Mastic Beach, 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.
- *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 infrastructure and the potential revenues that would be generated (e.g., user fees) by the extension. If the assessment reflects local government expenditures exceeding local government revenues, the housing affordability and displacement effect of increased local property tax on the local community will also be assessed.

The proposed sewer establishment project would provide the foundation for economic growth related to increased development. 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. Indirect effects on population, employment, housing units, property values, and net fiscal flow will be discussed using the results of the induced growth analysis, as discussed in Section 5.2.10, *Land Use and Planning*.

### **5.2.2 Environmental Justice**

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 in this section 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.

### ***5.2.3 Community Facilities and Services***

This section will evaluate the need for community services likely to result from the proposed action and alternatives; 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.

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. 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.

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 analysis in socioeconomic resources.

### ***5.2.4 Noise***

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, where the project's operational noise would be most prevalent: one near the proposed AWTF at the ball fields at Ziegler Park, and another near a proposed pump station in a residential neighborhood, at the intersection on Jay Street near Willis Avenue. 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 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.

Post construction, the flow in any installed sewer lines would be inaudible. Grinders are not expected to increase noise levels because the units would be buried. There may be a small amount of noise associated with the operation of pump stations; however, the proposed design would enclose all pump stations within buildings, with sound attenuating enclosures surrounding emergency generators. Increased noise levels near the proposed AWTF may occur; however, the proposed design would enclose all facilities at the AWTF.

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.

### **5.2.5 Transportation**

This section of the draft EA/EIS will evaluate potential impacts on traffic during construction and operation of the proposed action and alternatives. Traffic impacts during construction and operation are not anticipated to impede access for emergency response vehicles. Potential impacts during operation of the alternatives are not anticipated because there would be few employees at the AWTF and minimal truck trips associated with AWTF operations. Such operational impacts will be described qualitatively.

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. Traffic data will be obtained by conducting vehicle turning movement counts at up to 5 intersections during the weekday AM and PM peak periods, automatic traffic recorder (ATR) counts at up to 3 locations, and intersection inventories and signal operations at up to 5 intersections. The construction condition will be analyzed for traffic operations that reflect any detour routing; construction vehicles arriving to and departing from the construction area; and conceptual-level plan for control, maintenance, and protection of traffic. The construction traffic

analysis will be conducted at up to five intersections during the weekday AM and PM peak periods for the existing condition, and for conditions under the No-action Alternative, and construction of the Proposed Action. Construction traffic analysis results will include levels of service, volume/capacity (V/C) ratios, and stopped delay values for intersection analyses are computed in accordance with the standard procedure prescribed in the Transportation Research Board's 2010 Highway Capacity Manual. Mitigation measures will be applied where significant impacts are identified as part of the analyses.

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 cranes or other construction equipment.

### ***5.2.6 Public Services and Utilities***

#### **Wastewater**

Potential impacts on wastewater will be addressed in the water quality section. This section will describe the existing OSWS and potential impacts on wastewater treatment from the proposed action and alternatives.

#### **Water Supply**

Potential impacts on water supply also 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 and natural gas 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. Energy conservation measures, renewable energy, or other sustainability considerations related to energy efficiency will be described. The existing capacity will be compared to the project's energy requirements to determine if capacity exists to supply the additional demands.

### ***5.2.7 Public Health and Safety***

This section 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.

### **5.2.8 Climate Change**

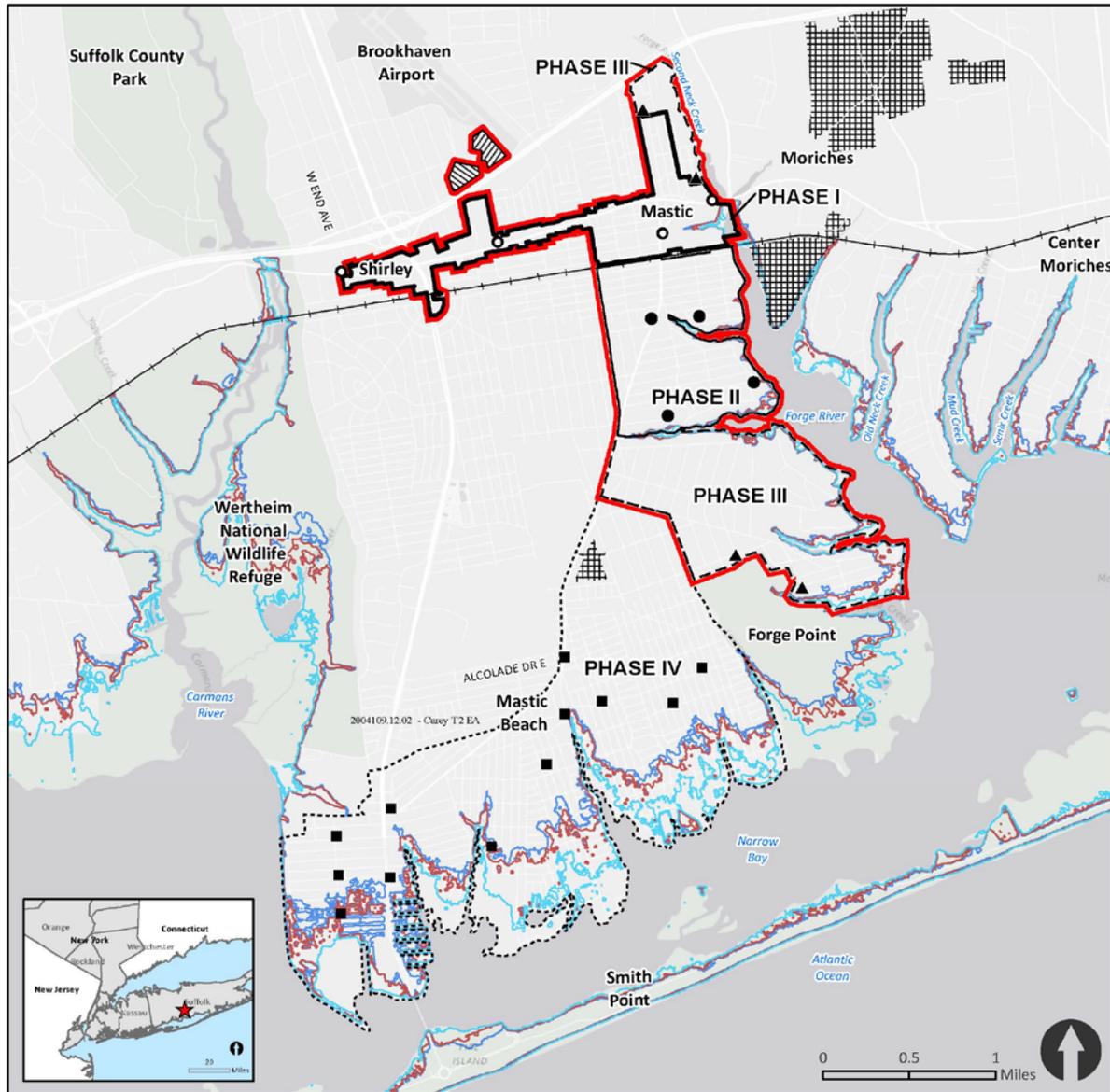
As recommended by federal CEQ guidance for considering climate change in environmental review, the draft EA/EIS will consider the following when addressing climate change: (1) the potential effects of a proposed action on climate change as indicated by its greenhouse gas emissions; and (2) the implications 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, 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 or SBR technologies, but provides a conservative order of magnitude emissions estimate. The analysis will distinguish between open aerobic systems in the EPA methodology because the proposed design would enclose all AWTF facilities. 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, National Climate Assessment (NCA), NYSDEC, and NOAA. Projections for sea level rise vary. The NCA projects a rise in sea level rise of 1 to 4 feet by 2100 (NCA, 2014). Sea level rise inundates low-lying properties more frequently and raises the groundwater table in coastal areas permanently. In addition, more extreme storm events may occur as a result of climate change, resulting in more frequent and intense coastal surges and precipitation events (NCA, 2014).

The anticipated effects of climate change on the region will be discussed, such as sea level rise (see **Figure 7**), rising groundwater elevations, or increased precipitation. The potential for these effects to impact the facilities proposed under the proposed action and alternatives will be assessed. This section will evaluate the ability of the proposed action and alternatives to maintain full performance under projected future climate change through 2080, as the draft EA/EIS will assume a design life of up to 50 years (i.e., up to year 2072 with a start date of 2022), and 2080 climate change projections provide a conservative approximation of changes by 2072 (40 CFR 35(E), Appendix A(6)(g)). Alternatives that perform best would be those that are able to remain fully functional as groundwater levels rise both permanently and during and after a storm event in a future increasingly affected by climate change and sea level rise.



- Project Area
- MTA Long Island Rail Road
- Private Sewer Areas
- Proposed Advanced Wastewater Treatment Facility (AWTF)**
- Advanced Wastewater Treatment Facility Parcel
- Advanced Wastewater Treatment Facility Expansion Parcel
- Proposed Sewer District**
- Phase I
- Phase II
- Phase III
- Phase IV
- Phase I Pump Stations
- Phase II Pump Stations
- Phase III Pump Stations
- Phase IV Pump Stations

- Sea Level Rise (ft)**
- 1
  - 3
  - 4

**Sea Level Rise**  
 Forge River Watershed  
 Sewer Project

Source: Suffolk County GIS;  
 ESRI World Imagery;  
 CP8189 Suffolk County  
 Sewer Capacity Study  
 (CDM Smith, H2M,  
 Brown AE&T Group)



Figure 7. Projected Sea Level Rise

### **5.3 Cumulative Impacts**

In this section, the contribution of the proposed action and alternatives to cumulative impacts will be considered. The primary study area for cumulative impacts is contained within the boundaries of the Forge River project area. Actions beyond the project area that may result in cumulative impacts will also be considered. This secondary study area includes the hamlets of Mastic and Shirley, the Town of Brookhaven, and the neighboring Village of Mastic Beach, as well as the Great South Bay. The temporal scale for the cumulative impacts analysis includes past actions since Hurricane Sandy through reasonably foreseeable future actions.

A discussion of past, present, and reasonably foreseeable projects will be provided. Such projects include the following; however, other reasonably foreseeable projects may be identified during the draft EA/EIS process.

- Phase IV of Forge River Watershed Sewer Project<sup>2</sup>
- Suffolk County Coastal Resiliency Initiative projects, including SSD #3 and Carlls, Connetquot, and Patchogue River watersheds
- Suffolk County Reclaim Our Water Initiative: Mastic Beach Septic Demonstration Program for Single Family Homeowners
- Greater Moriches Comprehensive Zoning Re-evaluation Study of the Montauk Highway Corridor for the Moriches, Center Moriches, East Moriches and Eastport
- Brookhaven Calabro Municipal Airport Obstruction Tree Removal and Perimeter Road Project and Associated Clearing/Planting, Security Fencing and Drainage Structure Installation
- Solar photovoltaic panel project(s) at Calabro Airport
- Mastic Beach and Smith Point of Shirley Stormwater Management Plan

The assessment of cumulative impacts 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. The cumulative impacts analysis for both action alternatives will be limited to cumulative impacts for the following resources: water quality, wetlands and coastal resources, floodplains, wildlife and fish, threatened and endangered species and critical habitat, land use and planning, and socioeconomic resources. Impacts on other resources from all sewerage improvement projects would be localized; hence, cumulative impacts are not anticipated.

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. The assessment of cumulative impacts for water quality will specifically consider any impacts on

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<sup>2</sup> Phase IV was proposed in March 2014 as a result of stakeholder input received during the New York Rising Community Reconstruction planning process. The Phase IV area would include the densely developed residential area south of Neighborhood Road from Carmans River on the west and the area south and east of Commack and Mastic Roads to Great South Bay on the south.

groundwater and surface waters related to the potential treatment of wastewater from areas within the Carmans River and Narrow Bay<sup>3</sup> watersheds and subsequent discharge into the Forge River Watershed.

#### **5.4 Irreversible and Irrecoverable 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 of 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 project will be required to receive approval from the Suffolk County Department of Health Services, and obtain approval from the New York State Comptroller regarding the costs of improvements as they relate to the tax impacts on property owners within the district and 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 the site under consideration for the location of the wastewater treatment plant, the draft EA/EIS 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

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<sup>3</sup> Narrow Bay is a waterbody within Great South Bay, located south of Mastic Beach.

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/EIS 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 (draft EIS) or introduction (draft EA) and conclusion also will be provided. 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 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, as applicable

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

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

## **5.8 Suggested Appendices**

Appendices to the draft EA/EIS may include, but are limited to the following documents:

- Alternatives Screening Report
- NEPA Public Scoping Report

*Final Scoping Document*

*Forge River Watershed Sewer Project, Town of Brookhaven, NY*

- SEQRA documentation including Positive Declaration, Notice of Intent EIS and final scoping document
- New York State Department of State Coastal Zone Management Program federal consistency assessment form and supporting documentation
- Sole source aquifer screening and supporting documentation
- Eight-step floodplain and wetlands review process
- Phase IA Cultural Resources Surveys
- U.S. Department of House and Urban Development 24 CFR Part 58 environmental assessment checklist
- Correspondence with regulatory agencies

**5.9 Scoping Document References**

CDM Smith

- 2014 Mastic Shirley Feasibility Study, Map & Plan for: Mastic/Shirley. Prepared in association with H2M and Bowne AE&T Group. Prepared for Suffolk County. March 2014.
- 2015 Forge River Nitrogen Reduction Report, Sewering of Mastic/Shirley, EFC Report C1-5140-01-00. Prepared in association with H2M and Bowne AE&T Group. Prepared for Suffolk County. August 2014; amended June 2015.

CDM Smith in association with H2M and Bowne AE&T Group

- 2013 *Draft Mastic Shirley Feasibility Study, Map & Plan for: Mastic/Shirley.*
- 2014 *Mastic-Shirley Drainage Zones.*
- 2014 *Phase I and Phase II: Mastic-Shirley Proposed Sewer District.*
- 2014 *Suffolk County. Feasibility Study, Map and Plan for: Mastic/Shirley, Suffolk County Sewer District Capacity Study, CP 8189.* March.
- 2015 *Forge River Nitrogen Reduction Report, Sewering of Mastic/Shirley, EFC Report C1-5140-01-00.* Amended in June 2015.

Keystone Aerial Surveys

No date Geomaps 15-229-4\_UCFp Aerial Survey.

NCA

- 2014 National Climate Assessment. Climate Change Impacts in the United States. Available at: <http://nca2014.globalchange.gov/report>.

Nelson, Pope & Voorhis, LLC

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*Final Scoping Document*

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