TECHNICAL MEMORANDUM 001
HP-238 New Anaerobic Digester Facilities
Hunts Point Wastewater Treatment Plant (WWTP)
05DEP023X
November 6, 2020

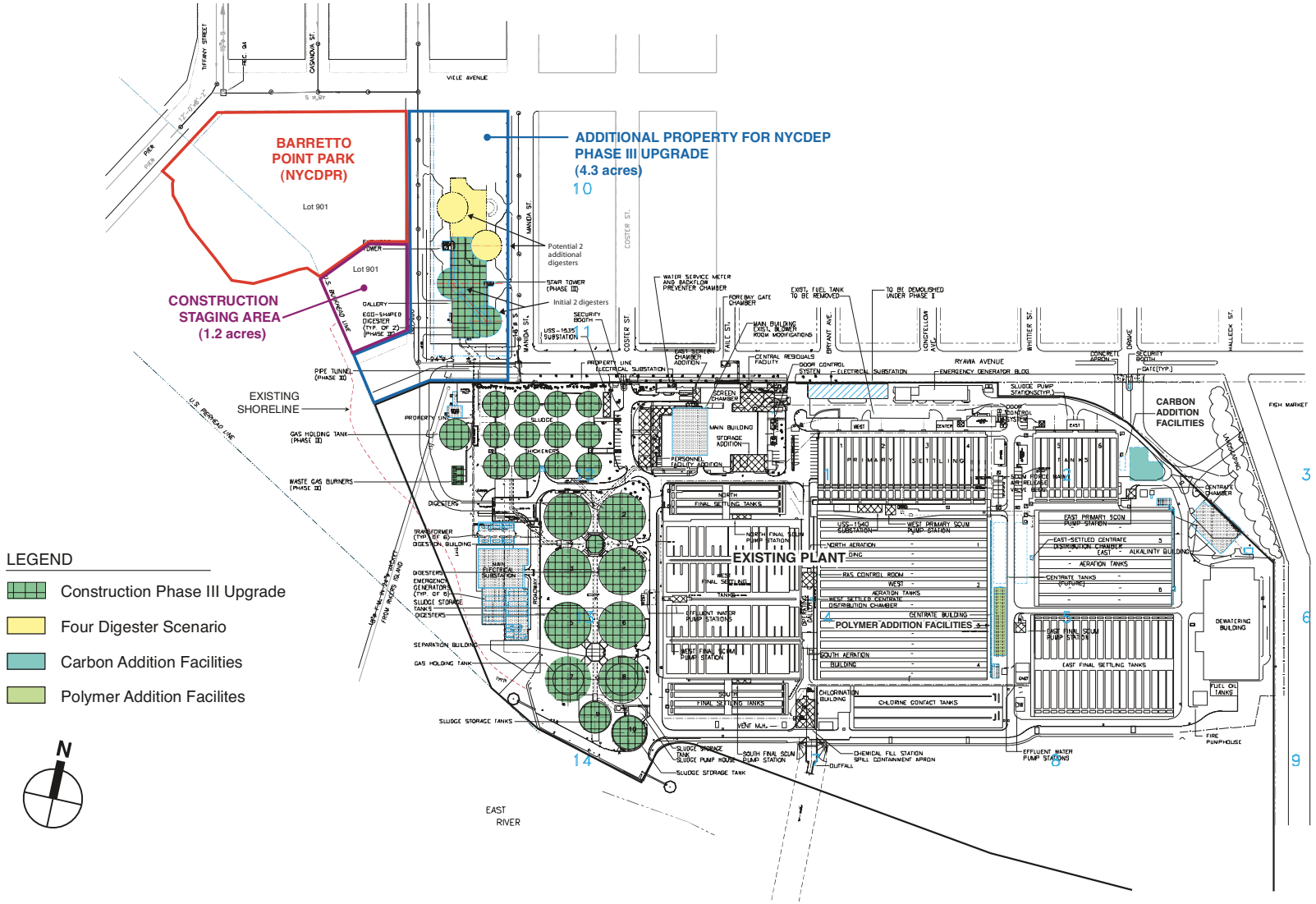
A. INTRODUCTION

The New York City Department of Environmental Protection (NYCDEP) published a Final Environmental Impact Statement (FEIS) for the Hunts Point WWTP Phase III Upgrade on July 12, 2007 (2007 FEIS). The 2007 FEIS included analyses of the existing plant, and the Phase I, II, and III upgrades. The Phase I and Phase II Upgrades were undertaken at Hunts Point WWTP to achieve compliance with regulatory mandated requirements for effluent discharges. The Phase I Upgrade addressed the plant's peak wet weather capacity and the Phase II Upgrade addressed the plant's nitrogen removal capabilities. Phases I and II were completed in June 2008 and June 2009, respectively. The Phase III Upgrade included the construction of the egg-shaped digesters, digester gallery, replacement of sludge thickener collector mechanisms, replacement of a gas holding tank, replacement of existing waste gas flares with three new enclosed waste gas burners, renovation of existing digesters and sludge storage tanks, installation of an emergency generator, and installation of odor controls on the plant's primary effluent channels.

The Phase III Upgrades included construction of sludge thickening facilities, digesters, gas holding tanks, waste gas flares, sludge storage tanks; on-site emergency generators were considered in a state of good repair and not mandated by a regulatory authority. NYCDEP determined that in lieu of completing the entire Phase III scope at once, a less expensive project, Phase 3R, consisting of repairs to the existing digester tank's roofing and steel liner plates; digester cleaning; replacement of valves, mechanical and control equipment; repairs to concrete and brick digester cladding; and installation of new polymer equipment for the centrate system would be undertaken to correct urgent solids handling facility deficiencies and full solids handling facility improvements would be postponed until capital resources were available. Phase 3R was completed in 2014. On September 9, 2016 design of the new anaerobic digester facilities and waste gas flares (the proposed new design) at Hunts Point WWTP began. The remaining improvements to the sludge thickening facilities, digester gas holding, and sludge storage tanks included in the Phase III Upgrade scope are expected to be performed later, independent of the HP-238 contract.

The 2007 FEIS analyzed both a two-digester and four-digester scenario, which included 130-foot tall egg-shaped digesters constructed on the 4.3-acre parcel to the northwest of what was then the plant boundary (**Figure 1**). An adjacent 1.2-acre parcel, which was proposed for construction staging, was identified for transfer to the New York City Department of Parks and Recreation (NYC Parks) for incorporation into the adjacent Barretto Point Park after construction, which has since been completed.

The 2007 FEIS accounted for sensitive receptors in close proximity to the plant boundary, including Barretto Point Park (and the additional 1.2-acre area that has since been incorporated into the Park) and the potential greenway (the South Bronx Greenway Ryawa-Viele Connection) that would run along Ryawa Avenue (on Manida Street) and on Viele Avenue (see **Figure 2**). Since publication, the South Bronx Greenway project has gone through delays. Construction of the Randall's Island Connection was completed in 2016; however, construction for the greenway has not yet begun. While no current plans have been announced for the Ryawa-Viele Connection, the South Bronx Greenway Master Plan still lists the Ryawa-Viele Connection as a planned improvement.



Source: 2007 Hunts Point Water Pollution Control Plant Phase III Upgrade FEIS

2007 FEIS Project Layout

Figure 1

Short Term

Hunts Point Avenue Corridor
Lafayette Avenue Paseo
Hunts Point Landing
Randall's Island Connection
Food Center Drive
North Market Loop
South Market Loop
Ryawa-Viele Connection
Willow Avenue Connection
Bruckner Boulevard (interim)

Mid Term

Lafayette Loop
149th Street and Bungay's Creek Landing
13th Street
Locust Avenue
132nd Street and Stony Point Overlook
East River Landing

Long Term

MTS Site
Oakpoint Avenue
141st Street

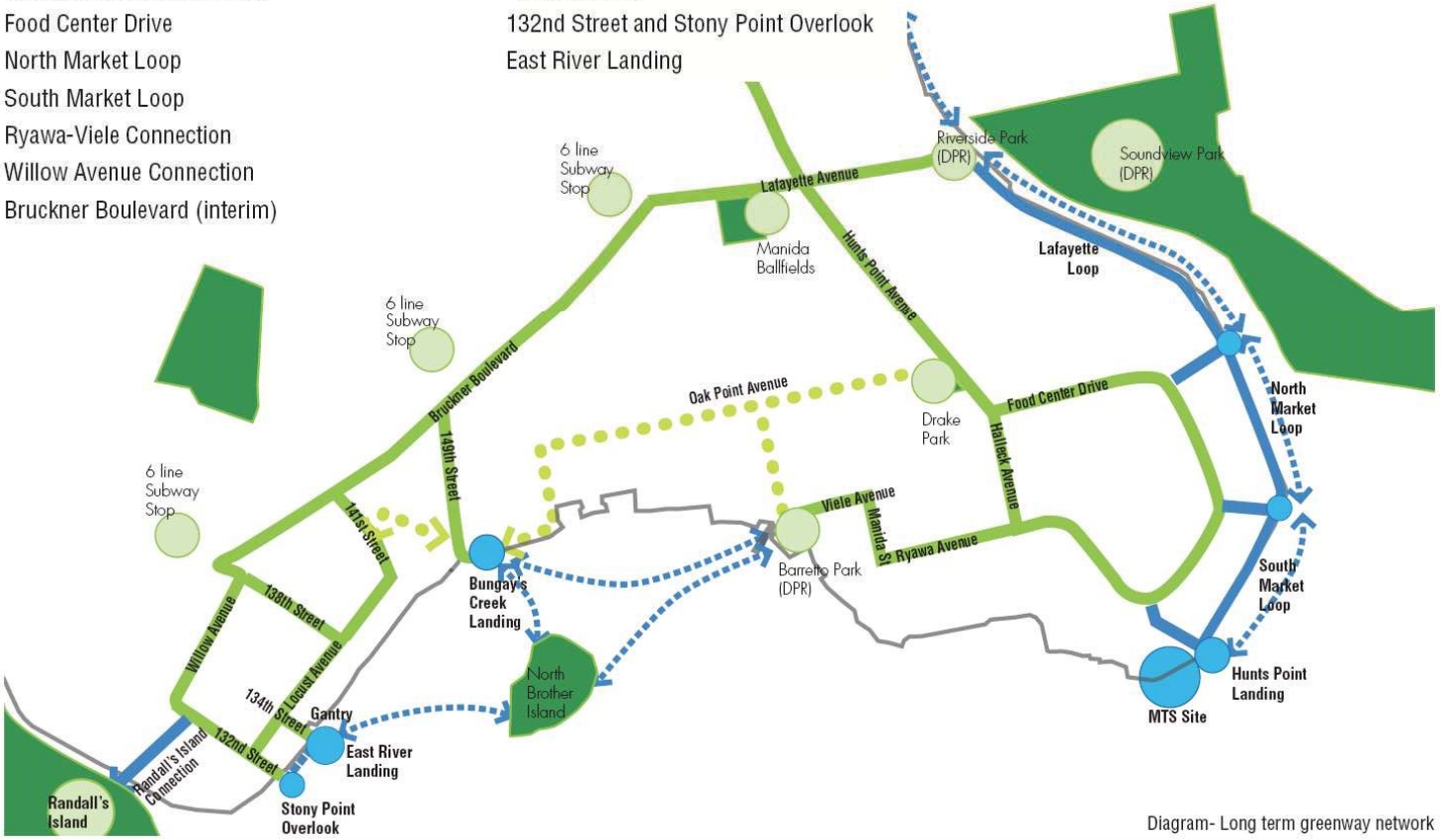


Diagram- Long term greenway network

Source: NYCEDC

South Bronx Greenway Network

Figure 2

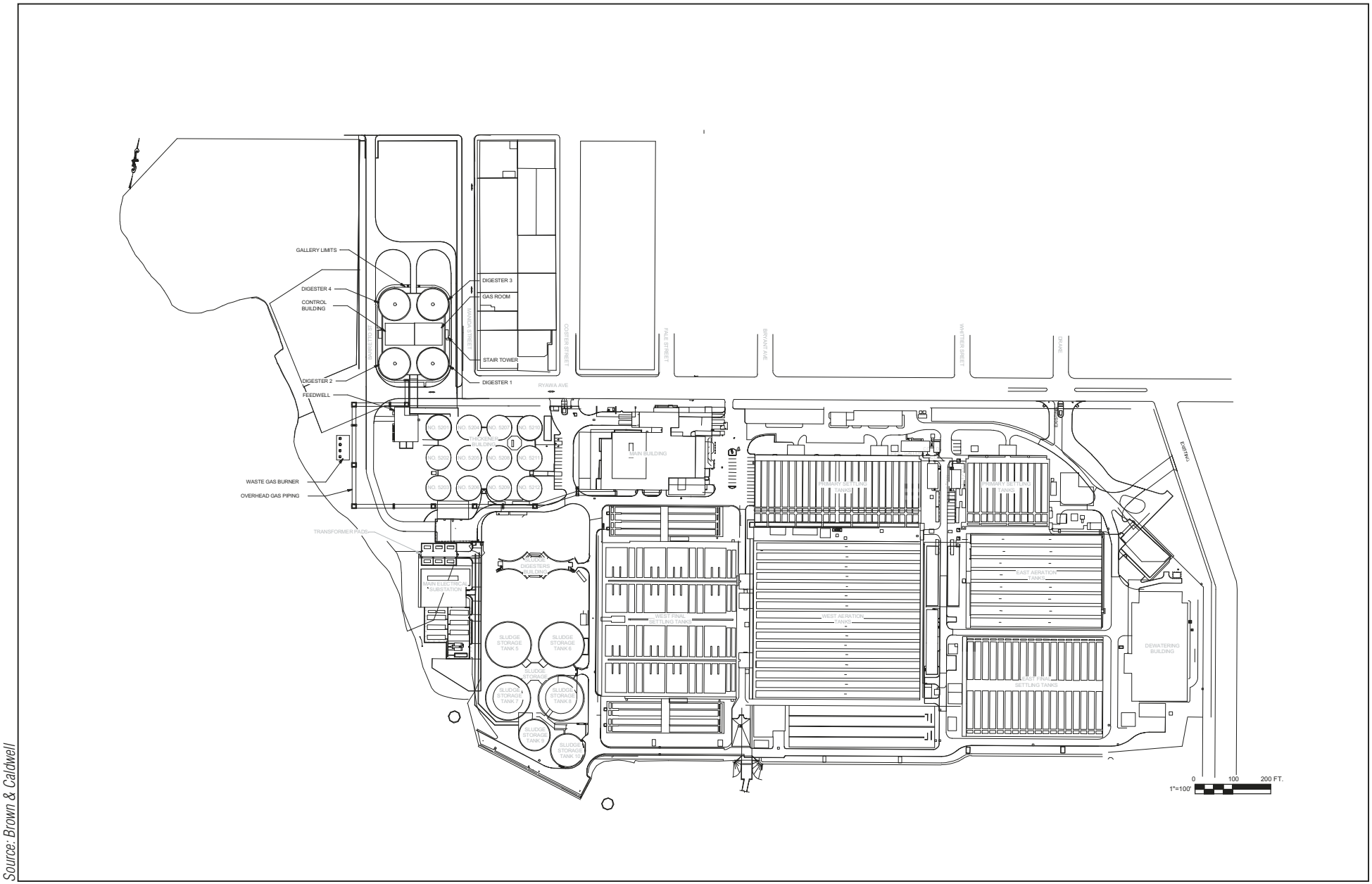
Key technical areas analyzed in the 2007 FEIS included air quality (in particular, an odor modeling analysis); shadows; urban design and visual resources (referred to as a "visual character" analysis in the 2007 FEIS, which followed the methodology of the 2001 *City Environmental Quality Review (CEQR) Technical Manual*); and construction-related impacts. The odor control analysis included the new digesters and all of the existing uncovered, covered, and odor-controlled sources at the plant. Implementation of odor control mitigation measures within the facility showed no significant impacts at nearby receptors from this modeling in the 2007 FEIS. These measures included installation of odor control units for the proposed digesters with a stack exhaust concentration of 50 parts per billion (ppb), covering of the primary effluent channel and the exhaust air (treated with activated carbon through two installed odor control units), and implementation of enclosure modifications to ensure 100 percent capture of fugitive emissions for the primary influent channel, thickener distribution box, and sludge storage tank number 10.

The visual character analysis identified a significant adverse impact at Barretto Point Park for park patrons looking east toward the 4.3-acre parcel on which the digesters would be constructed, and proposed a vegetated buffer to partially screen the digesters along the Barretto Point Park boundary that would provide partial mitigation to the visual impact. The FEIS also identified significant adverse construction-period traffic impacts at one location within the study area at the intersection of Bruckner Boulevard and Tiffany Street. Analysis results showed that with signal timing adjustments the impact would be fully mitigated.

This Technical Memorandum presents a review of critical technical areas and potential impacts of the proposed design within the context of the prior analyses. Key issues include 1) shadows resulting from the proposed digesters; 2) the visual character of the proposed design; 3) local air quality, including potential criteria pollutant impacts; 4) hazardous materials remediation required as part of new digester construction; 5) potential impacts to historic and cultural resources; 6) land use, zoning and public policy, including the Local Waterfront Revitalization Program; and 7) potential construction-period traffic, noise, and air quality impacts. As described below, the proposed new design is not expected to alter the findings of the FEIS.

B. DESCRIPTION OF THE NEW DESIGN

The proposed new design for digesters at the Hunts Point WWTP includes the construction of four (4) new conventional "silo-shaped" digesters designed to digest thickened primary and waste activated solids along with an associated below-grade equipment gallery; digester feed pump station; and wet well area equipped with a small activated carbon adsorption canister used to control potential odors from the transfer of thickened sludge from the gravity thickeners to the new digesters, a control building, guardhouse, gas room, below-grade pipe chase, overhead gas piping bridge, waste gas burners, and three condensate control structures. The proposed new design differs from the design considered in the 2007 FEIS. The proposed new design includes digester structures at a maximum elevation of approximately 145 feet above sea level at the top of elevator tower and a maximum width of 100 feet (10 feet taller and 20 feet wider than the digesters evaluated in the 2007 FEIS) in place of the egg-shaped digesters included in the design for the 2007 FEIS. The digester footprints would be shifted approximately 200 feet south of the egg-shaped digesters design in the 2007 FEIS (**Figure 3**). The digester footprints would include activities within a 20 foot section of the Manida Street roadbed and would be subject to Revocable Consent. An interagency agreement is currently being coordinated between NYCDEP and the New York City Department of Transportation (DOT). Additionally, the proposed new design relocates the enclosed waste gas burners approximately 220 feet to the northwest of the location analyzed in the 2007 FEIS and would not include several elements from the 2007 FEIS design.



Source: Brown & Caldwell

New Design Project Layout

HUNTS POINT WWTP HP-238

Figure 3

Due to the poor condition of the existing digesters and in order to expedite their replacement, this project does not include the following elements that were analyzed in the 2007 FEIS: renovation of existing digesters, replacement of sludge thickener collector mechanisms, replacement of the existing gas holding tank, renovation of the existing sludge storage tanks, installation of a 500-kilowatt (kW) emergency generator for the digester building, and odor control on the primary effluent channels.

Similar to the 2007 FEIS, the proposed new design would provide anaerobic digestion facilities that would improve the reliability of the solids handling process by replacing the existing digesters that have reached the end of their reliable useful life. The proposed new design would provide improved sludge digestion, and more efficient waste gas burners than the existing conditions at the Hunts Point WWTP.

C. ENVIRONMENTAL ASSESSMENT OF THE POTENTIAL MODIFICATIONS

As discussed above, the proposed new design is not expected to alter the findings of the 2007 FEIS in these technical areas: Socioeconomic Conditions; Natural Resources; Water and Sewer Infrastructure; Solid Waste and Sanitation Services; Energy; Transportation; Noise; Public Health; and Neighborhood Character. However, the proposed new design may affect the detailed analyses presented in the 2007 FEIS for the following technical areas and further analyses are provided below: Shadows; Urban Design and Visual Resources; Land Use, Zoning, and Public Policy; Hazardous Materials; Historic and Cultural Resources; Air Quality; and Construction.

SHADOWS

The proposed new design would alter both the design and location of digesters from the design evaluated in the 2007 FEIS. The new design would replace the proposed egg-shaped digesters with silo-shaped digester tanks, increasing the maximum width of each digester from approximately 80 to 100 feet. The digesters would have a maximum elevation of approximately 145 feet above sea level at the top of the elevator tower (10 feet taller than the digesters evaluated in the 2007 FEIS). The digester footprints would be shifted approximately 50 feet to 200 feet south of the egg-shaped digesters design in the 2007 FEIS. Other proposed project design changes would be limited to structures less than 50 feet tall and would not cast shadows long enough to result in significant impacts. Based on the guidance of the *CEQR Technical Manual,* the proposed new design and location of the proposed digesters were assessed for any potential significant adverse shadows impacts not previously identified and addressed in the 2007 FEIS.

2007 FEIS ANALYSIS

The 2007 FEIS determined that the proposed digesters would cast shadows on portions of Barretto Point Park every morning of the year. The durations of incremental shadows on the park from the 2007 FEIS are presented in **Table 1**.

Table 1
Total Shadows Durations—2007 FEIS design

Resource	December 21 8:51 AM-2:53 PM	March 21/September 21 7:36 AM-4:29 PM	May 6/August 6 6:27 AM-5:18 PM	June 21 5:57 AM-8:01 PM
Barretto Point Park	8:51 AM – 10:15 AM Total: 1 hr 24 min (1)	7:36 AM–9:45 AM Total: 2 hr 9 min	6:27 AM – 9:15 AM Total: 2 hr 48 min	5:57 AM – 8:45 AM Total: 2 hr 48 min
Notes: (1) Beyond 10:00 AM, the shadows in the 2007 FEIS are not graphically identifiable.				

As described above, since the completion of the 2007 FEIS, Barretto Point Park has added 1.2 acres of park space adjacent to the intersection of Manida Street and Ryawa Avenue intended for use as a picnic area. The new park area features several picnic tables within a grass field. This area was described as future open space and was included in the 2007 shadows analysis as part of Barretto Point Park in Figure 4-19 of the 2007 FEIS (**Figure 4**).

The 2007 FEIS also evaluated shadows on the proposed Ryawa-Viele Connection of the South Bronx Greenway, a potential bike path that may be constructed in the future in accordance with the South Bronx Greenway Master Plan. As discussed above, construction for the greenway has not yet begun. While no current plans have been announced for the Ryawa-Viele Connection, the South Bronx Greenway Master Plan still lists the Ryawa-Viele Connection as a planned improvement; therefore, consistent with the 2007 FEIS, the greenway is still being considered as a potentially foreseeable project and assessed in the analyses. The 2007 FEIS did not include the total duration of time shadows would fall on the greenway but concluded that shadows would be cast only late in the day and would not result in a significant impact to the active usability of the bike path.

In summer of 2008, the Floating Pool opened on a barge docked to Barretto Point Park. The sunlight-sensitive feature will remain attached to Barretto Point Park through, at least, 2022. The pool is located approximately 575 feet southwest of the proposed new design, too far to be cast in shadows by the proposed digesters.

ANALYSIS WITH THE PROPOSED NEW DESIGN

With the proposed new design, the digesters would have a maximum elevation of approximately 145 feet above sea level at the top of the elevator tower (10 feet taller than the digesters evaluated in the 2007 FEIS). The placement of the digesters would shift from approximately 50 to 200 feet to the south, closer to Ryawa Avenue and adjacent to the 1.2-acre parcel transferred to Barretto Point Park (**Figure 3**). **Table 2** describes how the proposed new design would change the total duration of time that shadows would fall within Barretto Point Park. **Table 2** does not describe changes to the density of shadows falling within Barretto Point Park. Changes to the density of shadows falling within Barretto Point Park are disclosed below.

Table 2
Total Shadows Durations—Proposed New Design

Resource	December 21 8:51 AM-2:53 PM	March 21/September 21 7:36 AM-4:29 PM	May 6/August 6 6:27 AM-5:18 PM	June 21 5:57 AM-8:01 PM
Barretto Point Park	8:51 AM – 10:15 AM Total: 1 hr 24 min Less than + 15 min (1)	7:36 AM–10:45 AM Total: 3 hr 9 min + 1 hour	6:27 AM – 10:30 AM Total: 4 hr 3 min + 1 hour 15 min	5:57 AM – 10:30 AM Total: 4 hr 33 min + 1 hour 45 min

Note: (1) Beyond 10:00 AM, the shadows in the 2007 FEIS are not graphically identifiable.

With the proposed new design, shadows would exit Barretto Point Park later in the morning on three of the four analysis days. The length of time new shadows would fall within Barretto Point Park would increase the most on June 21, the longest day of the year, and would change by less than 15 minutes on December 21, the shortest day of the year. On all days of the year, however, the proposed placement of the digesters would increase the density of shadows falling on the southernmost picnic area within Barretto Point Park (**Figures 5** through **8**).

On the December 21 analysis day, morning shadows cast by the proposed digesters would stretch from the new picnic area to the handball courts located adjacent to Viele Avenue. Shadows on the courts and adjacent playground, however, would remain for less than 30 minutes, from 8:53 AM

6.13.19

Source: Source: 2007 Hunts Point Water Pollution Control Plant Phase III Upgrade FEIS

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2007 FEIS Shadow Diagram

Figure 4

to 9:20 AM. Shadows on other sunlight-sensitive park features, including many of the park's benches, pathways, and landscaping located adjacent to Barretto Street, would remain until 10:15 AM (**Figure 5**).

On the March 21/September 21 analysis day, shadows would fall within the picnic area and on several other adjacent sunlight-sensitive features within the park, including benches, pathways, and landscaping. Shadows cast by the digesters would completely exit the park by 10:45 AM (**Figure 6**).

On the May 6/August 6 and June 21 analysis days, shadows cast by the digesters would fall within Barretto Point Park until 10:30 AM. The majority of shadows would fall within the picnic area, but only in the very early mornings would shadows be long enough to cover the park's beach area. Shadows from the proposed digesters would cover over half of the picnic area until 8:00 AM (**Figures 7** and **8**).

With the proposed new design, the shadows cast by the digesters on Barretto Point Park would not result in significant shadows impacts to the park's usability or its vegetation during any season of the year. As shown in **Figures 4** through **8**, during individual hours of the analysis days, the proposed new design would increase the extent of new shadows falling on Barretto Point Park compared to the 2007 FEIS design no more than 4,000 additional square feet in the peak time period (9:00 AM on December 21). The extents of new shadows from the proposed new design would be less in other time periods, and would result in less coverage compared to the 2007 FEIS in some time periods (6:00 AM on June 21). The additional shadows would not extend to additional features; therefore the additional shadows would not result in a significant impact on the utilization of Barretto Point Park or the vitality of the plant life growing within the resources. When compared to the design evaluated in the 2007 FEIS, within Spring and Summer the proposed design changes would generally increase the density of shadows falling in the southern portion of the resource, including the newly opened picnic area, and generally decrease the density of shadows falling on the resource further to the north. In the Fall, the geographic expanse of shadows would increase in the picnic area and adjacent pathways but would decrease along the park's northern edge. In the Winter, the proposed new design would cast more shadows along the eastern boundary of the park where the design evaluated in the 2007 FEIS would only cast shadows in the park's northeast corner.

The shadows on the picnic area would not significantly alter its usability since shadows cast by the digesters would occur within the picnic area only in the morning, before typical park utilization which would occur in the afternoon. In all seasons, the picnic area would be exposed completely to direct sunlight by 11:00 AM and would remain in direct sunlight for the rest of the analysis day.

Shadows on the park's other sunlight-sensitive open space features, including the beach, landscaping, and several benches and sport courts, would be seasonal and occur only in the morning. None of the shadows from the proposed new design would significantly alter the usability of the features. Summer and Spring shadows on the beach and Winter shadows on the sport courts along Viele Avenue would be cast at the beginning of the day when utilization would be low and would move off the features within one hour. While shadows would fall on a portion of the park's benches, benches located farther west within the park would be cast in direct sunlight.

Within the growing season, all of the park's vegetation and landscaping would receive over seven hours of direct sunlight per day. According to the *CEQR Technical Manual*, generally four to six hours of direct sunlight are needed to support a variety of plant life. Therefore, the

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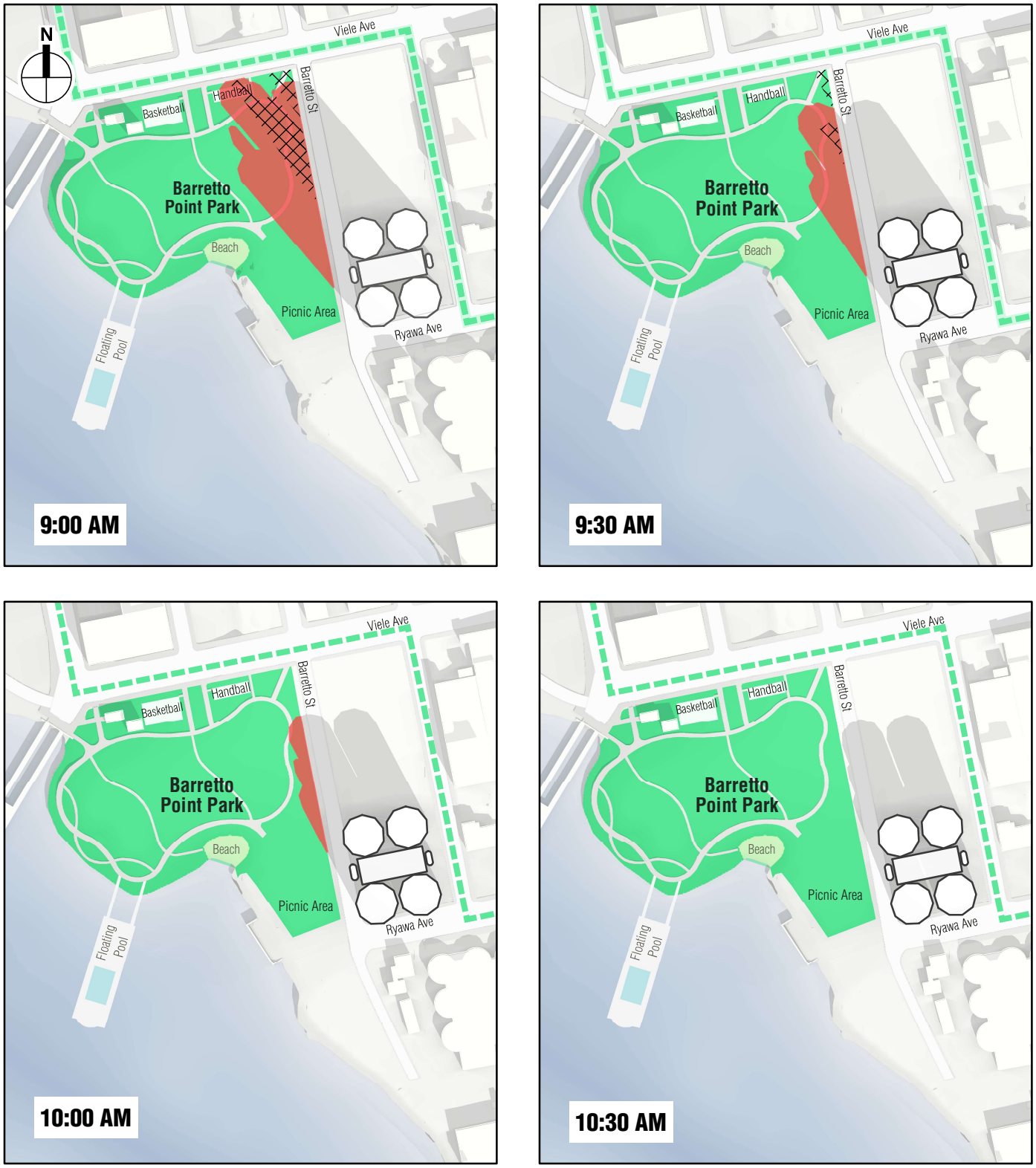

Shadow Diagram - December 21

Hunts Point WWTP HP-238

Figure 5

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Shadow Diagram - March 21/Sept. 21

Hunts Point WWTP HP-238

Figure 6

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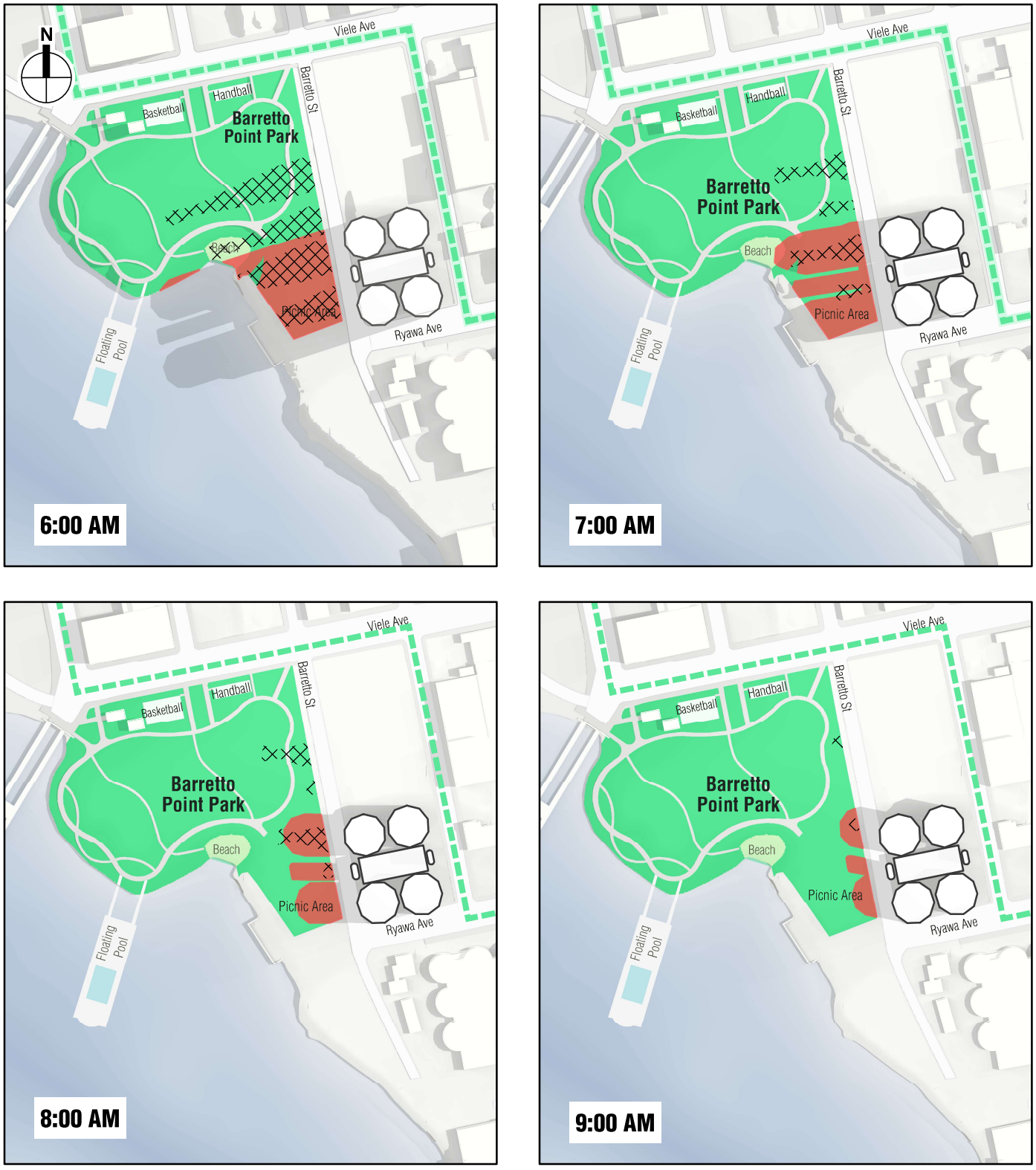
Shadow Diagram - May 6/August 6

Hunts Point WWTP HP-238

Figure 7

2/6/2019



Shadow Diagram - June 21

Hunts Point WWTP HP-238

Figure 8

park's vegetation and landscaping would not be impacted by shadows from the proposed new design

Similar to findings in the 2007 FEIS, in the afternoon hours of all seasons, shadows from the digesters would also fall on the potential South Bronx Greenway Ryawa-Viele Connection. With the proposed digester placement, shadows would be cast on the Manida Street and Ryawa Avenue sections of the connection. Compared to the design evaluated in the 2007 FEIS, shadows would no longer reach the Viele Avenue segment of the connection but the density of shadows falling on the southern portion of the Manida Street segment would increase in all seasons. As in the 2007 FEIS design, the proposed new design would cast shadows on the Ryawa Avenue segment in late Spring and Summer afternoons, but shadows would begin to fall approximately 30 minutes earlier due to the modified location of the digesters farther south on the project site. As concluded in the 2007 FEIS, afternoon shadows on the connection would not significantly alter its usability as a bike path. Users would pass quickly through the digesters' shadows and onto portions of the bike path receiving direct sunlight.

Therefore, as with the 2007 FEIS, the proposed new design would cast limited durations of shadows on the uses and users of open space, landscaping, and vegetation resources, and not impact the usability of the open space resources or the vitality of the plant life they support.

URBAN DESIGN AND VISUAL RESOURCES

The 2007 FEIS concluded that the digesters would result in limited potential significant adverse impacts on visual character for users of Barretto Point Park looking east. Following *CEQR Technical Manual* guidance, the proposed new design and location of the proposed digesters were assessed for their potential to result in significant adverse visual character impacts not previously identified and addressed in the 2007 FEIS.

2007 FEIS ANALYSIS

As discussed in the FEIS, the visual character of the study area is largely defined by the urban design characteristics of the area. The predominant urban design characteristics of the Hunts Point area are low-scale, boxy, and/or rectangular buildings, most of which are faced in brick and built to the lot line, creating a consistent streetscape. The majority of the buildings house active industrial uses. The streets are laid out in a utilitarian grid pattern. The majority of the vehicular traffic is related to the industrial uses; often streets are blocked by vans or large trucks. All of these urban design elements contribute to the overall industrial character of the area.

In keeping with the general urban design of the Hunts Point area, the study area surrounding the WWTP is a predominantly industrial area of low-rise factories, warehouses, and scrap yards that have been developed in a street grid with wide two-way avenues running east–west and narrow one-way streets running north–south. The street grid creates long rectangular blocks. The area's topography is slightly sloped with an observed peak on Viele Avenue around Manida and Barretto Streets where Barretto Point Park is located. There is a softer rise in elevation on East Bay Avenue around Coster Street.

Adjacent to the project site on Viele Avenue is Barretto Point Park, which includes a green open space amidst the otherwise industrial landscape of low-rise masonry buildings. This site was once overgrown and unkempt with tall grasses and some trees, but has been transformed into a park containing basketball courts, play equipment, a natural amphitheater, a boat launch, landscaping, a waterfront promenade, a salt marsh, and an open lawn area. A public pier is located at the

intersection of Tiffany Street with Viele Avenue (the Tiffany Street Pier) adjacent to Barretto Point Park.

The 2007 FEIS determined that the proposed digesters would be prominent additions to the study area and in keeping with the area's industrial character. However, the height and bulk of the egg-shaped digesters would be much greater than the relatively low-lying industrial buildings in the surrounding area and would result in a limited potential significant adverse impact on visual character for park users looking east from Barretto Point Park. No views or access to the waterfront would be affected. Only views looking east from the park would be affected. Views facing east would change from open views of sky with some low-lying buildings in the distance to views of the digesters. The impact would not significantly impact park users' enjoyment of the park.

Since the completion of the 2007 FEIS, Barretto Point Park has added 1.2 acres (transferred from NYCDEP to the City) adjacent to the intersection of Manida Street and Ryawa Avenue. The new area features several picnic tables and a grassed recreation area. The transfer of land from NYCDEP to NYC Parks and the planning for Barretto Point Park were both undertaken in the context of design work for the use of the 4.3-acre parcel for the egg-shaped digesters, with input from the community. The two projects were contemporaneously planned and it was conceived that the design of Barretto Point Park would transition from its industrial surroundings to the waterfront.

Additionally, the 2007 FEIS also evaluated the proposed Ryawa-Viele Connection of the South Bronx Greenway, a potential bike path that may be constructed in the future in accordance with the South Bronx Greenway Master Plan. As discussed above, construction for the greenway has not yet begun. While no current plans have been announced for the Ryawa-Viele Connection, the South Bronx Greenway Master Plan still lists the Ryawa-Viele Connection as a planned improvement; therefore, consistent with the 2007 FEIS, the greenway is still being considered as a potentially foreseeable project and assessed in the analyses.

In addition, the Mayor's Office and NYCDEP worked closely with the Hunts Point community to increase both open space and visually attractive environments in the study area and identified amenities in recognition that the Hunts Point WWTP and its long-term construction places a burden on the community, including the potential visual impact associated with the proposed digesters. Such amenities included the transfer of 1.2 acres to Barretto Point Park, the installation of a converted barge serving as a pool installation at one of the park's piers (opened in 2008), and the proposed Ryawa-Viele Connection of the South Bronx Greenway as described above.

The 2007 FEIS design was determined not to result in potential adverse impacts on other viewscapes.

ANALYSIS WITH THE PROPOSED NEW DESIGN

The proposed new design would alter both the location and design of the digesters that were evaluated in the 2007 FEIS. The digesters would be shifted farther south on the site, and the previously proposed egg-shaped digesters would be replaced with silo-shaped digesters. With the new design, the digesters would flare out slightly from the base building to the roof. The proposed new design would extend to a maximum elevation[1] of 145 feet at the top of the elevator tower (10 feet taller than the digesters evaluated in the 2007 FEIS). The digester tanks would have a maximum elevation of 121 feet at the top of the tanks compared with an elevation of 135.25 feet

[1] All elevations provided refer to elevation above sea level.

at the top of the digester tanks in the 2007 FEIS, and would include an additional 24 feet to the top of the elevator tower. The new design includes cylindrically shaped tanks with 100.33-foot diameters at the top. Digesters evaluated in the 2007 FEIS were egg shaped with 15-foot diameters at the top and 84-foot diameters at their widest location.

Similar to the prior design, the digesters would be connected at the top by walkways accessed by stair towers. The digesters would be clad in aluminum panels that would create a less reflective and more muted appearance than the previously proposed stainless steel panels. The base building and stair towers would be clad in brick. As evaluated in the 2007 FEIS, the site will still be landscaped, with a vegetative buffer planted along the western edge adjacent to Barretto Point Park, including the parcel that has since been incorporated into the park as mitigation for the visual impacts to Barretto Point Park users.

As the height and bulk of the digesters would be similar to the height and bulk of the digesters evaluated in the 2007 EIS, the proposed new design would not alter the conclusion of the 2007 FEIS. The proposed project would still result in a potential significant adverse impact on visual character for Barretto Point Park users looking east toward the project site (see **Figures 9** and **10** for comparative views of the egg-shaped and silo-shaped digesters). To partially mitigate the impact on these views from within the park, the proposed project, like the previously evaluated project, would create a vegetated buffer to partially screen the digesters and create an appearance of the digesters emerging in the distance behind a foreground of dense plantings. The vegetated buffer within the park and bordering the plant would include a mix of trees and shrubs. However, as in the 2007 FEIS, since the digesters would be taller than the vegetated buffer, the significant visual character impact cannot be fully mitigated.

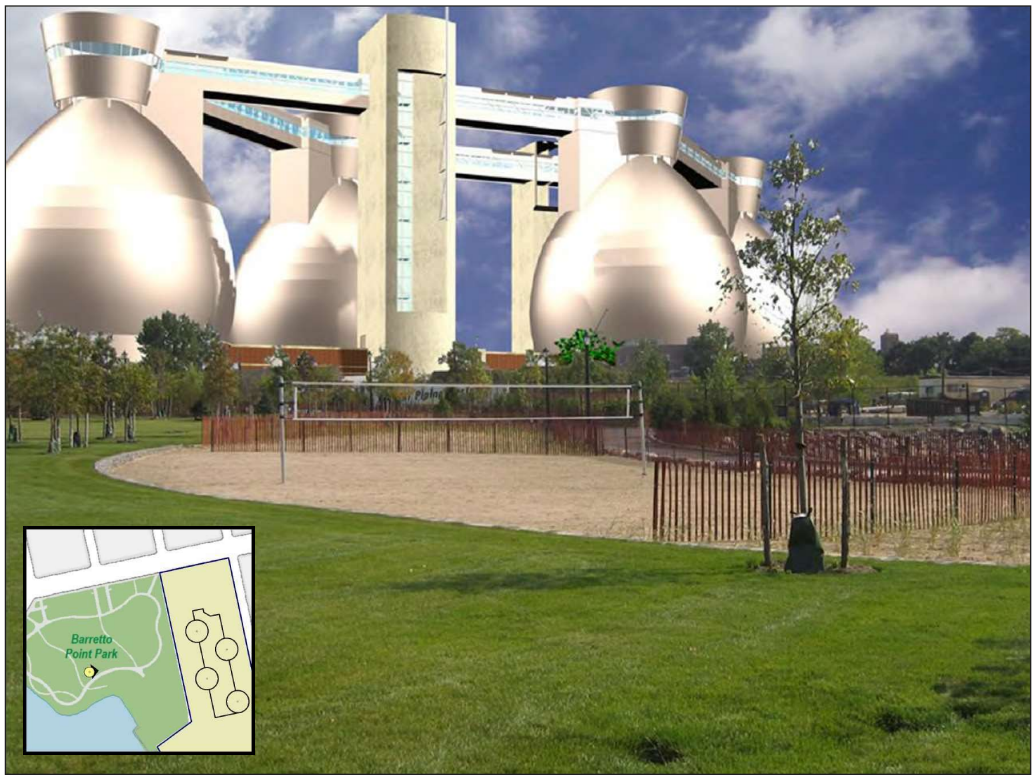
As with the previously proposed project, there would be no significant adverse impact on visual character from the Tiffany Street Pier where views would be at a distance and not intrusive, nor from the potential South Bronx Greenway Ryawa-Viele Connection, from which views would be transient and at a distance from most vantage points. From other locations in the study area, the proposed project would not have an adverse effect on the visual character of the study area or on the pedestrian experience. From within the study area, intervening buildings would partially block views of the digesters, and they would be seen as background objects in a largely industrial landscape, as was concluded in the 2007 FEIS.

Therefore, as with the 2007 FEIS, the proposed new design would result in a potential significant adverse impact on visual character for Barretto Point Park users looking east toward the project site and no new significant adverse impacts on visual character are identified. The landscaping along the western edge of the project adjacent to the park will mitigate, to the best degree possible, these adverse impacts.

LAND USE, ZONING, AND PUBLIC POLICY

The Waterfront Revitalization Program (WRP) is the City's principal coastal zone management tool. It establishes the City's policies for development and use of the waterfront. All proposed actions subject to CEQR, Universal Land Use Review Procedure (ULURP), or other local, state, or federal agency discretionary actions that are situated within New York City's designated Coastal Zone Boundary must be reviewed and assessed for their consistency with the WRP. Since publication of the 2007 FEIS, the WRP policies have been updated.

The Hunts Point WWTP is located within New York City's Coastal Zone Boundary (see **Figure 11**). This section examines the consistency with updated coastal zone policies for the proposed design of four (4) new conventional "silo-shaped" anaerobic digesters at the Hunts Point WWTP

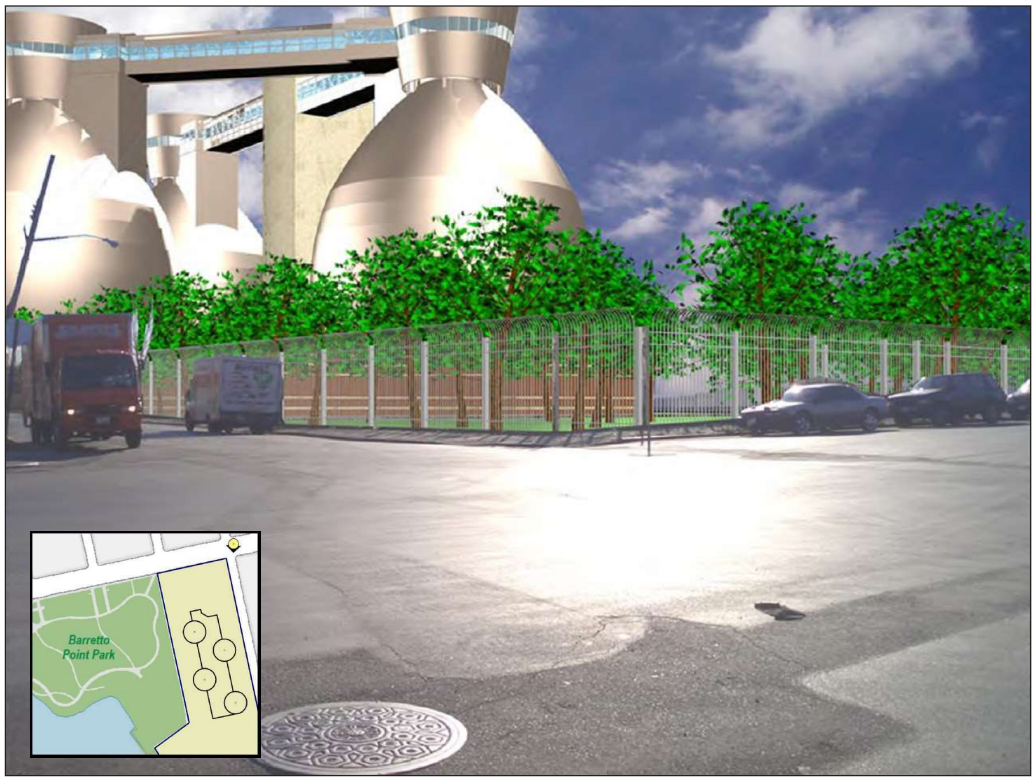


2007 FEIS Project Design Illustrative Rendering: View east from within Barretto Point Park

Source: Brown & Caldwell

Proposed Project Illustrative Rendering: View east from within Barretto Point Park

Visual Character
Comparative Illustrative Renderings
Figure 9



2007 FEIS Project Design Illustrative Rendering: View of the digesters from Manida Street and Viele Avenue

Source: Brown & Caldwell

Proposed Project Illustrative Rendering: View of the digesters from Manida Street and Viele Avenue

Visual Character
Comparative Illustrative Renderings

Figure 10

New York City Coastal Zone Boundary

designed to digest thickened primary and waste activated solids and construction of associated below-grade equipment gallery, control building, gas room, below-grade pipe chase, digester feed pump station, guardhouse, overhead gas piping bridge, waste gas burners, and three condensate control structures.

CONSISTENCY WITH THE WRP POLICIES

New York City's WRP includes 10 principal policies designed to maximize the benefits derived from economic development, environmental preservation, and public use of the waterfront, while minimizing the conflicts among those objectives. For those policies checked "Promote" or "Hinder" in the Consistency Assessment Form (CAF) (see **Attachment 1**), this analysis includes a discussion of the effects of the proposed action on the relevant policies or standards.

Policy 2: Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.

Policy 2.1: Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas.

The Hunts Point WWTP is a water-dependent use located in a Significant Maritime Industrial Area. The WWTP is an existing industrial use with working waterfront infrastructure that is well suited to the industrial development and working waterfront uses in the area. Therefore, the proposed action would promote this policy.

Policy 2.5: Incorporate consideration of climate change and sea level rise into the planning and design of waterfront industrial development and infrastructure, pursuant to WRP Policy 6.2.

As described for Policy 6, below, the proposed action is not located in the current Preliminary Flood Insurance Rate Map (FIRM) (2015) or the Effective FIRM (2007) 1% annual chance floodplains and would remain outside the floodplain under all projections for sea level rise through the 2050s, near the end of the 25-year lifespan for the equipment. Only limited features of the proposed action (i.e., waste gas burners and approximately 50-feet of overhead gas piping) would be constructed within the current 0.2% annual chance floodplain; additionally, the feed pump station would be in the 0.2% annual chance floodplain under projections for sea level rise through the 2050s. To alleviate these risks, these areas of the proposed site would be regraded to be at or above the design flood elevation of EL +22 feet NAVD88, above the 0.2% annual chance floodplain. As such, the proposed digesters would not be susceptible to flooding in the future. Therefore, the proposed action would promote this policy.

Policy 3: Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation centers.

Policy 3.5: In Priority Marine Activity Zones, support the ongoing maintenance of maritime infrastructure for water-dependent uses.

While the plant site boundaries fall within a Priority Marine Activity Zone, the portion of the existing site affected by the proposed action is not in a Priority Marine Activity Zone. The proposed activity would not interfere with maintenance of maritime infrastructure for water-dependent uses, and would promote this policy.

Policy 4: Protect and restore the quality and function of ecological systems within the New York City coastal area.

Policy 4.5: Protect and restore tidal and freshwater wetlands.

The plant site boundaries, including the project site for the proposed action, fall within a small portion of New York State Department of Environmental Conservation (NYSDEC)-mapped littoral zone (LZ) tidal wetlands. An approximately 1-acre area of NYSDEC-mapped Coastal Shoals, Bars, and Mudflats (SM) tidal wetlands, is also located within the boundaries of the plant site but is outside the project area. No NYSDEC-mapped freshwater wetlands are located in the study area. The proposed action would not disturb any NYSDEC mapped tidal wetlands but would result in activities within NYSDEC Tidal Wetland Adjacent Area (TWAA)[2] as determined by NYSDEC. Therefore, the proposed action would require a NYSDEC Tidal Wetlands Permit (Article 25 of the NY Environmental Conservation Law), and a joint permit application has been prepared.

Currently, the area within the project boundary is predominantly impervious surface (concrete, asphalt, gravel) and ranges in elevation from 12' to 18' (see **Figure 12**). Bordering the project area is a 25-50 foot vegetated band containing low growth trees and woody bushes typical of urban environments. An existing security fence separates this area from maintenance roadways and other concrete/paved structures within the WTTP. The proposed activities would include the installation of an eight-foot tall chain link security fence, maintenance roadways, and other concrete/paved structures. These would be of a similar footprint to the existing conditions. The vacant 4.3-acre parcel where the digesters will be located contains highly disturbed fill material and vegetation typical of urban environments.

Existing gravel, concrete, and asphalt surfaces will be permanently removed. A 74' x 47' concrete slab for waste gas burners and one 13' x 13' concrete slab for overhead digester gas piping support will be installed. Grade elevations will be raised from approximately EL. 12.0 (at the lowest point) to EL. 21.0 to level the site to accommodate a portion of access Road B. This change in elevation will not result in any changes to tidal wetlands (LZ, SM, or TWAA). Additionally, the proposed action will remove existing impervious area and create approximately 28,900 square foot of new grassed areas (see **Figure 13**). Therefore, as there will be no impacts on either tidal or freshwater wetlands, the proposed action would promote this policy.

Policy 4.6: In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.

Approximately 1.2 acres used for construction staging in earlier phases of this project was transferred to New York City Department of Parks and Recreation (NYCDPR) for inclusion in Barretto Point Park. Therefore, the proposed action would promote this policy.

Policy 4.7: Protect vulnerable plant, fish, and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.

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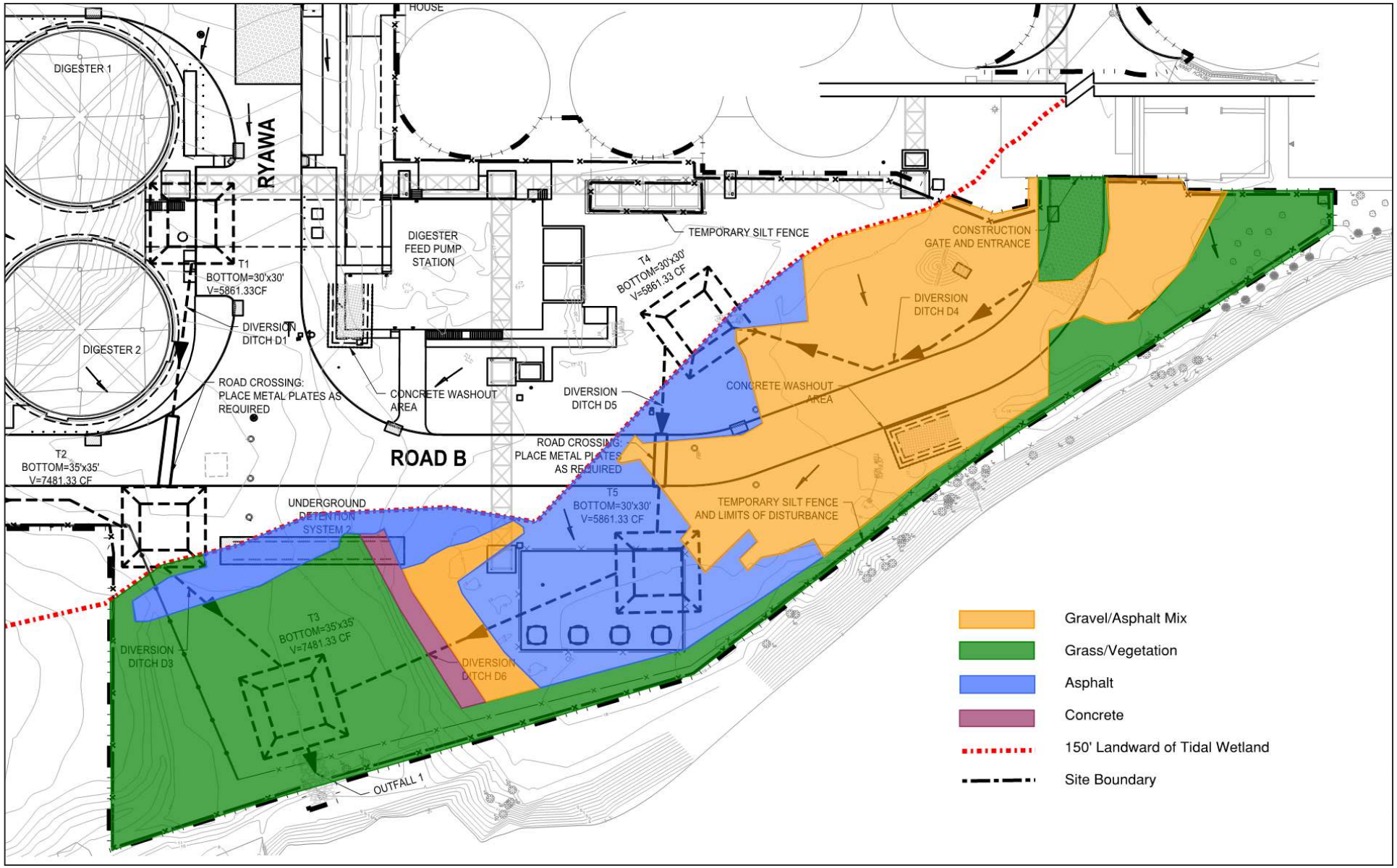
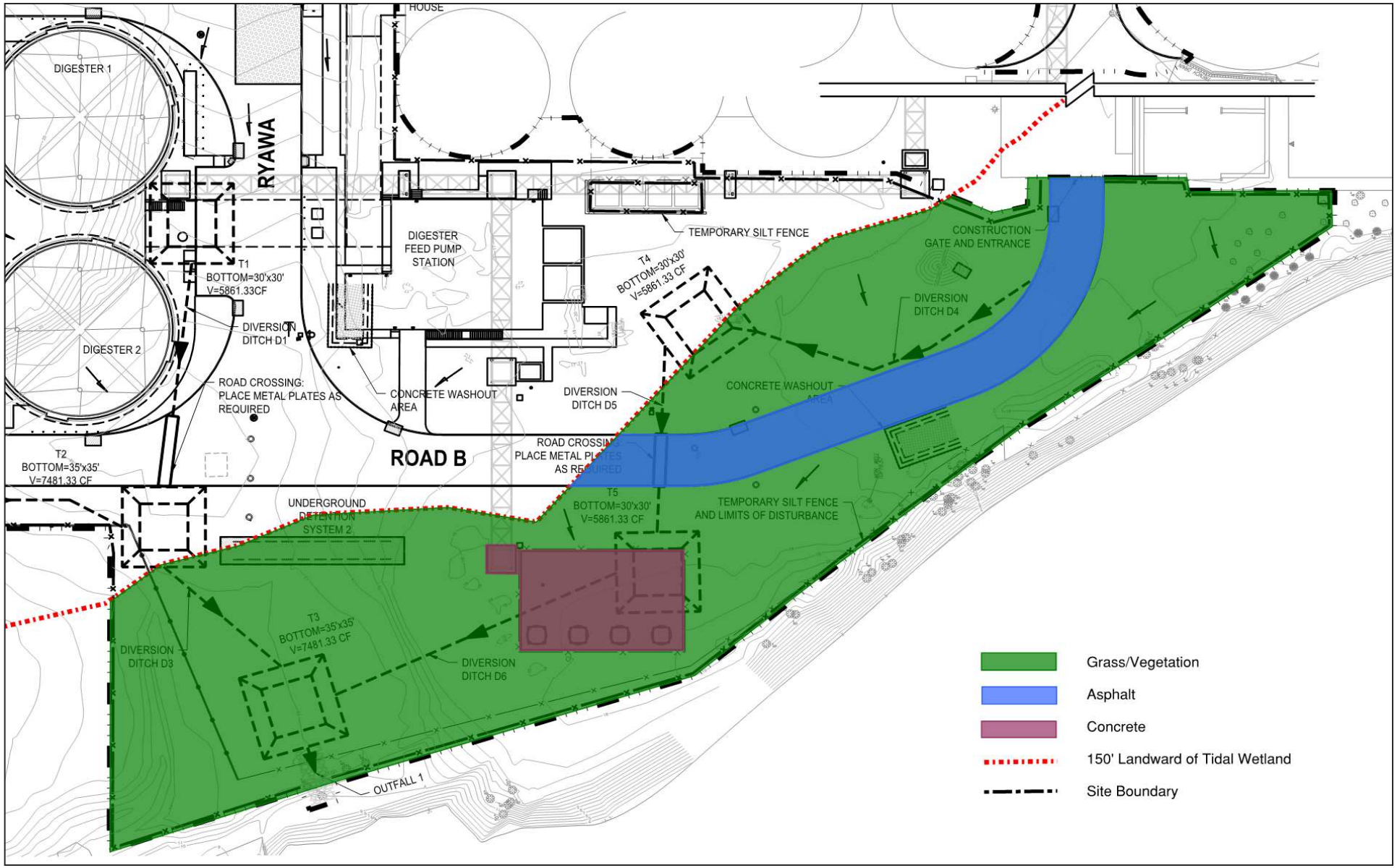
[2] Within New York City, the NYSDEC TWAA extends 150 feet landward of the most landward boundary of a tidal wetland; or to the seaward edge of the closest lawfully and presently existing (i.e., as of August 20, 1977), functional and substantial fabricated structure (including, but not limited to, paved streets and highways, railroads, bulkheads and sea walls, and rip-rap walls) which lies generally parallel to said most tidal wetland landward boundary and which is a minimum of 100 feet in; or to the elevation contour of 10 feet above mean sea level, whichever comes first.



Surface Site Conditions Within 150’ of High Water — Existing



Surface Site Conditions Within 150’ of High Water — Proposed

There are no vulnerable or rare natural resources on either the existing or the expanded WWTP site. In addition, no in-water work is proposed. Soil and erosion control measures would be used during construction to protect water quality. Therefore, there would be no impacts on vulnerable plant, fish, and wildlife species or on rare ecological communities. The proposed action would promote this policy.

Policy 4.8: Maintain and protect living aquatic resources.

No in-water work is being proposed. As discussed in greater detail under Policy 5.2, below, a drainage system would be designed to collect stormwater and overflows in all areas associated with the proposed action. The wastewater from the proposed action sources would be routed to the head of the plant for treatment prior to discharge. Therefore, aquatic resources would not be adversely affected. The proposed action would promote this policy.

Policy 5: Protect and improve water quality in the New York City coastal area.

Policy 5.1: Manage direct or indirect discharges to waterbodies.

The plant upgrade would include a stormwater management plan to address non-point sources on the site. Therefore, the proposed action would promote this policy.

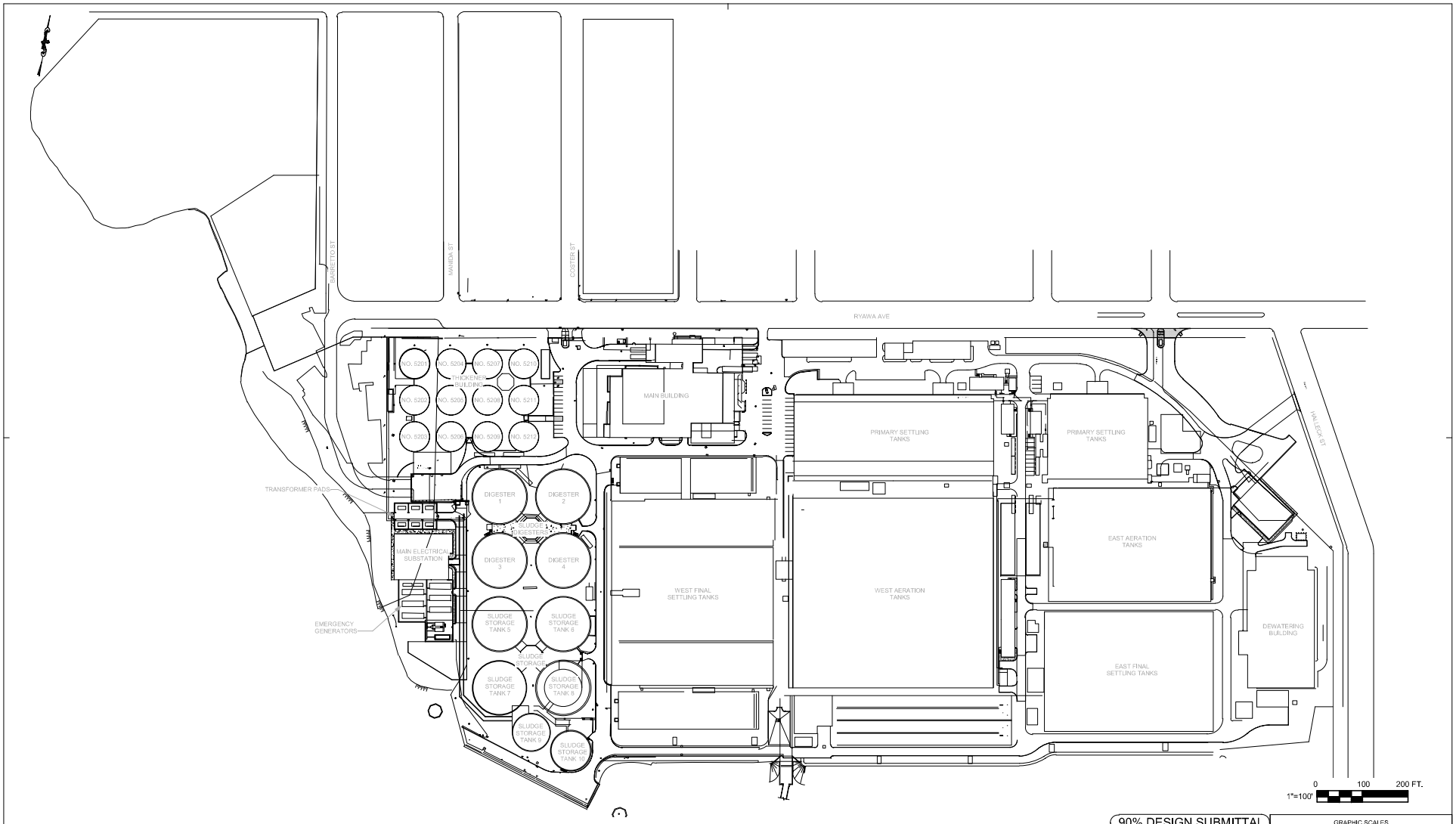
Policy 5.2: Protect the quality of New York City's waters by managing activities that generate non-point source pollution.

As part of the Phase I Upgrade, the WWTP's capacity to provide additional treatment during wet weather events was improved. This plant upgrade would include a stormwater management plan to address non-point sources on the site. As discussed in Chapter 12 of the 2007 FEIS, "Infrastructure and Solid Waste," a drainage system would be designed to collect building floor drainage, wash water drainage, roof drainage, process and tank drains, and overflows in the area around the proposed digesters and all areas associated with the proposed action. Similar to Phases I and II, the wastewater from the proposed action sources would be routed to the head of the plant for treatment prior to discharge. The drainage system would conform with all NYCDEP rules and regulations for sewer design and stormwater management and with the New York City Building Code. Stormwater conveyance facilities would be designed to accommodate a 10-year peak storm flow. New grades at the site would be sloped away from buildings and other structures, and any new roads would be sloped to drain into catch basins and inlets. The stormwater drainage system would be designed to maintain the rate of stormwater runoff from the site. Therefore, the proposed action would promote this policy.

Policy 6: Minimize the loss of life, structures, infrastructure and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.

Policy 6.1: Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area.

While the Hunts Point WWTP site is partially located within the 100-year flood plain, the portion of the existing site where the proposed action would occur is not within the Federal Emergency Management Agency (FEMA) 1% annual chance flood plain and would not be susceptible to flooding under current conditions (see **Figure 14**). Most of the features that would be installed are also outside the 0.2% annual chance floodplain, although the gas burners and approximately 50-feet of the overhead gas piping would be installed within that floodplain. The areas of the proposed



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HP-238 HUNTS POINT WWTP
NEW ANAEROBIC DIGESTER FACILITIES
GENERAL
EXISTING SITE PLAN

DATE: 06/13/2018
SCALE: 1" = 100'-0"
SHEET NO: 5 OF 596
DRAWING NO. G-005

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Existing WWTP Site Plan
Figure 14

site that would support these features would be regraded to be at or above the design flood elevation of EL +22 feet NAVD88, above the 0.2% annual chance floodplain. Additionally, construction of all structures would be consistent with Appendix G of the New York City Building Code, which regulates construction and substantial building improvements within flood hazard areas. Therefore, the proposed action would support this policy.

Policy 6.2: Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms) into the planning and design of projects in the City's Coastal Zone.

Guidance provided by DCP recommends a detailed methodology to determine a project's consistency with Policy 6.2.

> *1. Identify vulnerabilities and consequences: assess the project's vulnerabilities to future coastal hazards and identify what the potential consequences may be.*
>
> *a. Complete the Flood Evaluation Worksheet.*

The information in the following subsections is based on the results of the completed worksheets, which are provided in **Attachment 2**.

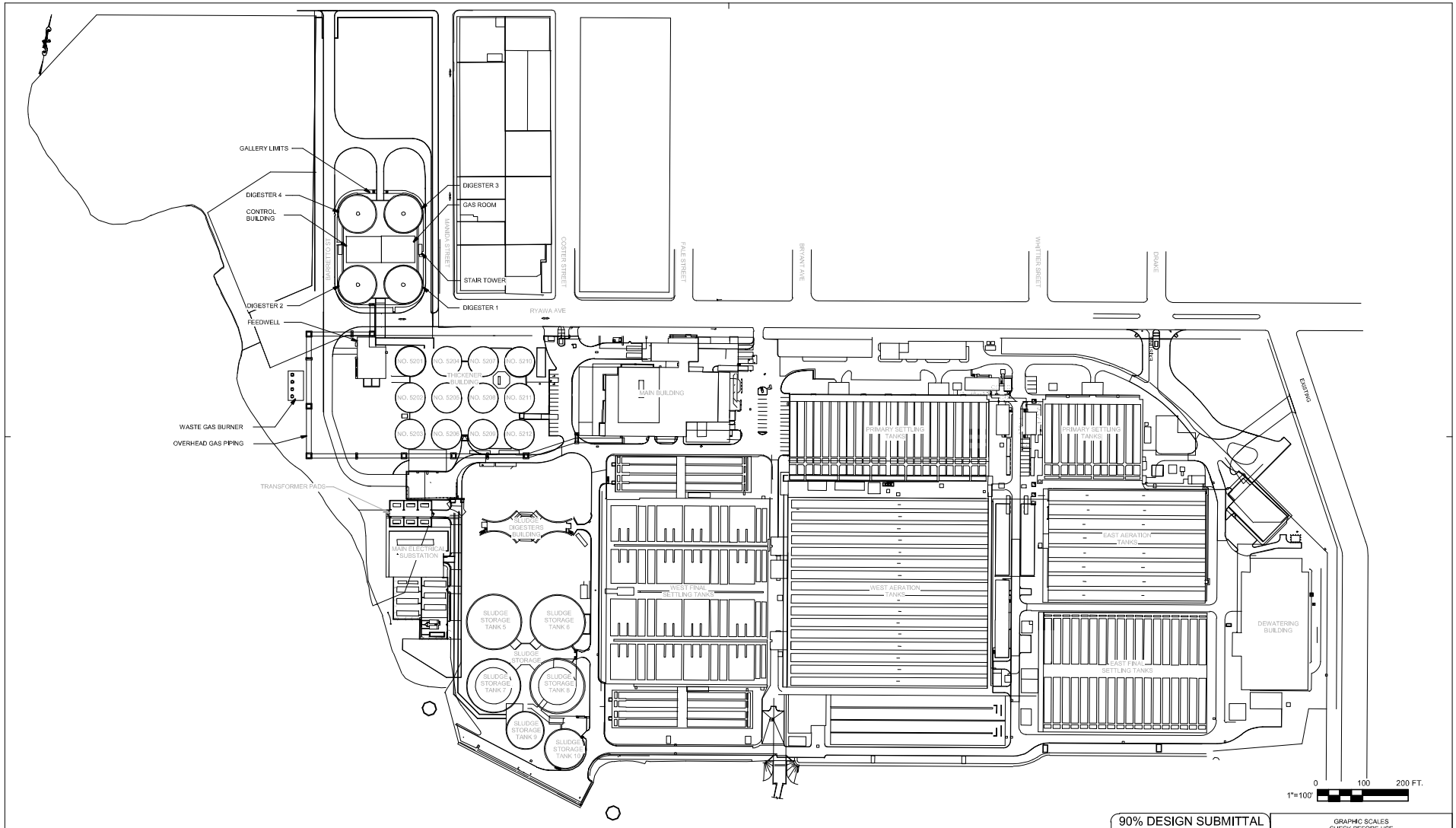
> *b. Identify any project features that may be located below the elevation of the 1 percent floodplain over the lifespan of the project under any sea level rise scenario.*

Key features of the proposed action include the installation of four new digesters, a below-grade equipment gallery, a control building, a gas room, a below-grade pipe chase, a digester feed pump station, a guardhouse, an overhead gas piping bridge, waste gas burners, and three condensate control structures (**Figures 15 and 16**). These features have been designed for a 25-year expected life.

None of these features would be located in the current Preliminary FIRM (2015) or the Effective FIRM (2007) 1% annual chance floodplains (**Figure 11**). While the digesters, control room, gas room, equipment gallery, guard house, and feed pump station would be installed outside the 0.2% annual chance floodplains, the waste gas burners, and overhead gas piping would be within the 0.2% annual floodplain.

The New York City Panel on Climate Change (NPCC) projected that sea levels are likely to increase by up to 10 inches by the 2020s, 30 inches by the 2050s, and up to 75 inches by 2100 under the "High Scenario" projections. By the 2050s, the expected useful life of the proposed action, all features would remain outside of the 1% annual floodplain under the "High Scenario" (**Figure 17**). In addition to the waste gas burners and overhead gas piping, the feed pump station would be within the 0.2% annual floodplain by the 2050s.

The equipment gallery, while not within a floodplain, would be installed below grade and below the elevation of the 1% annual chance flood plain. Necessary design features would be incorporated to minimize flood risks in the equipment gallery including using cast-in-place concrete construction with waterstops at construction joints to minimize groundwater penetration and waterproofing on below grade concrete exterior surfaces.



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HP-238 HUNTS POINT WWTP NEW ANAEROBIC DIGESTER FACILITIES
GENERAL
NEW SITE PLAN

DATE: 09/13/2018
SCALE: 1" = 100'-0"
SHEET NO: 6 OF 596
DRAWING NO. G-006

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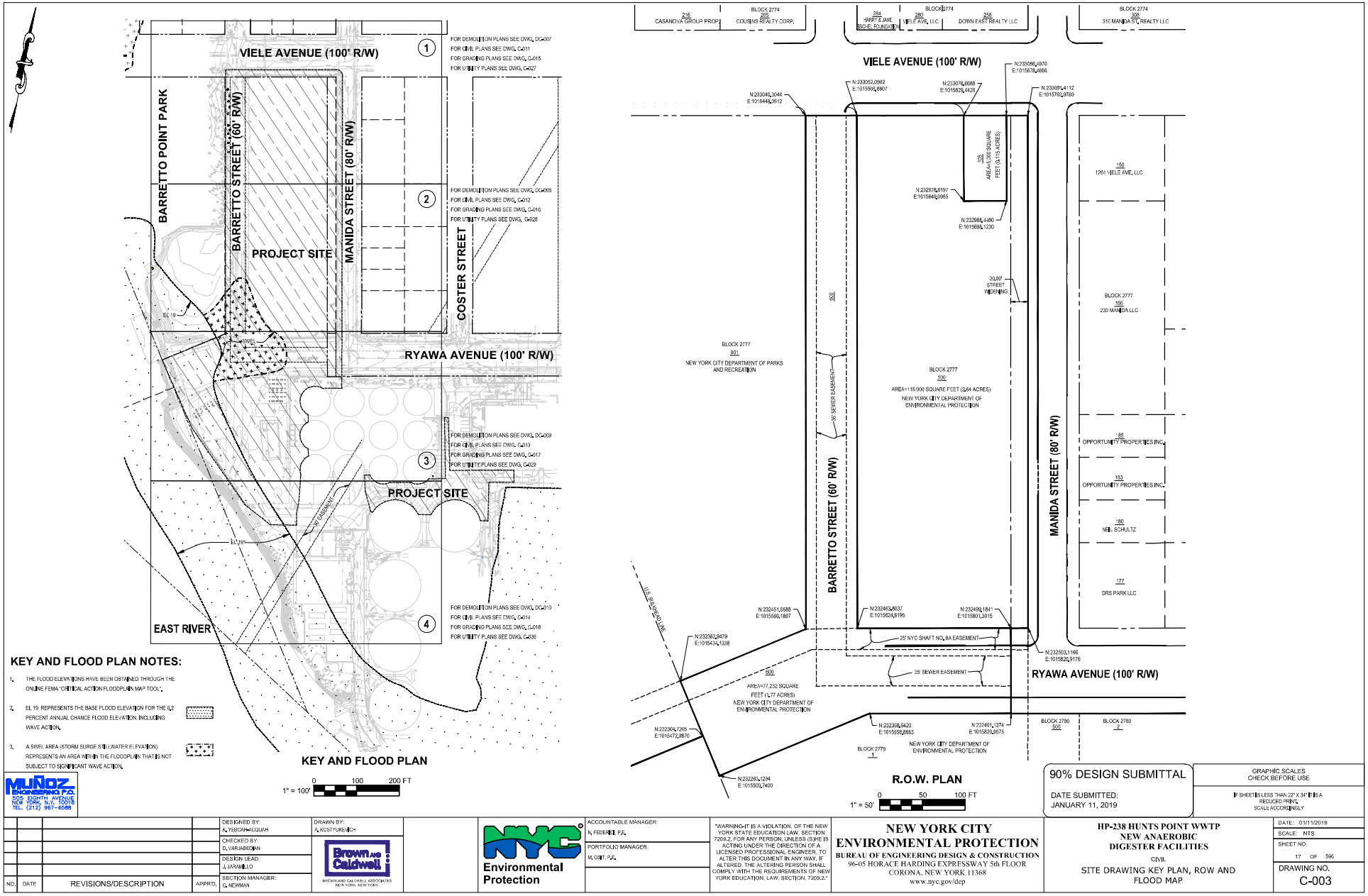
Proposed New Design WWTP Site Plan

HUNTS POINT WWTP HP-238

Figure 15



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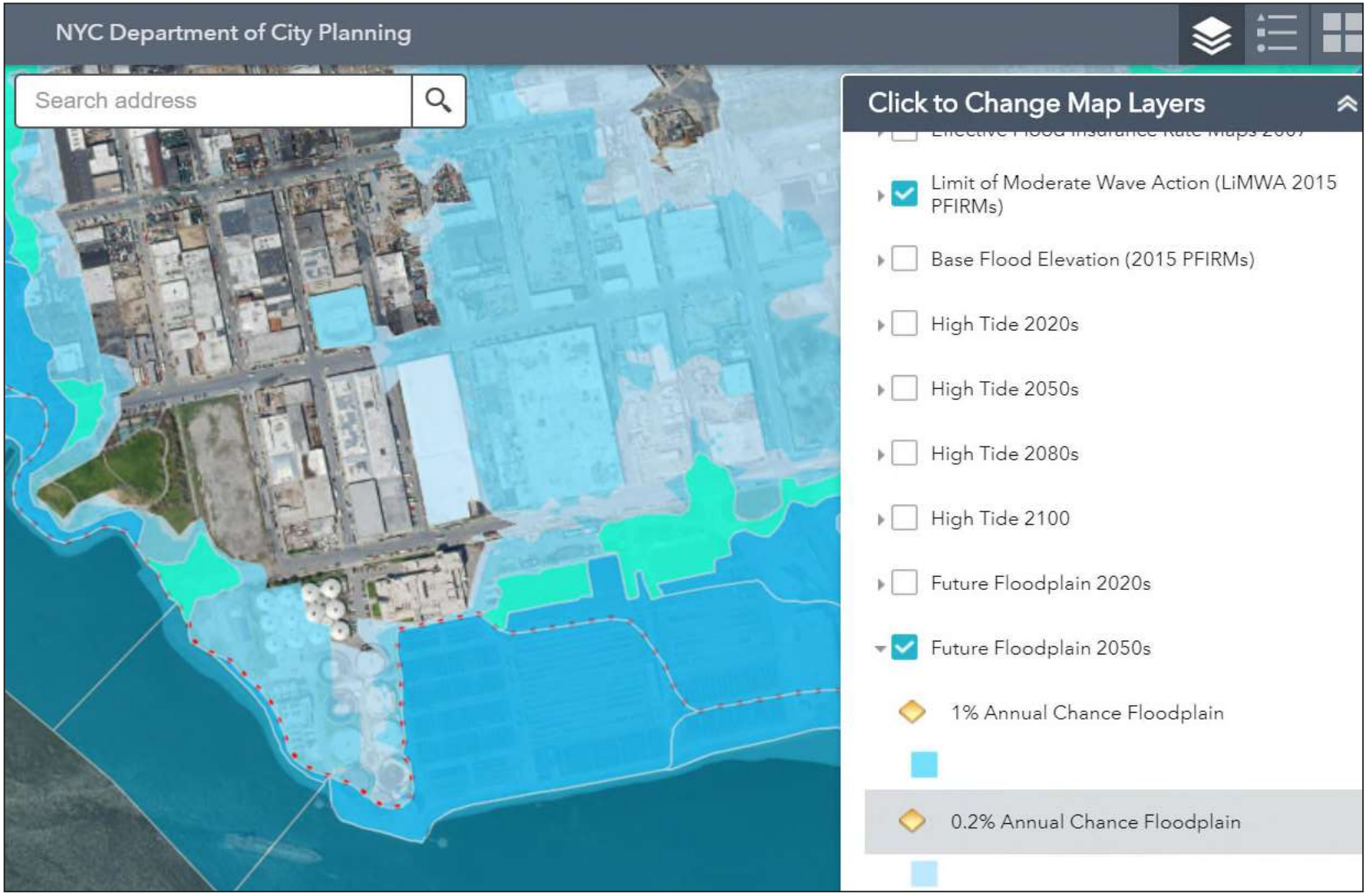
HP-238 HUNTS POINT WWTP NEW ANAEROBIC DIGESTER FACILITIES
CIVIL
SITE DRAWING KEY PLAN, ROW AND FLOOD MAP

DATE: 01/11/2019
SCALE: NTS
SHEET NO: 17 OF 596
DRAWING NO. C-003

Proposed New Design Project Extents



2050s Future Floodplain

Figure 17

c. Identify any vulnerable, critical, or potentially hazardous features that may be located below the elevation of Mean Higher High Water (MHHW) over the lifespan of the project under any sea level rise scenario.

Based on the range of sea level rise predictions described above, MHHW at the NOAA Station nearest the WWTP (currently +3.66 feet NAVD88 at NOAA Station #8518639 at Port Morris, adjusted 0.33 feet to account for changes in sea level since the 1983-2001 tidal epoch) could reach up to +6.16 feet NAVD88 by the 2050s. Maps of projected high tide in the future with sea level rise generated by the NYC Flood Hazard Mapper[3] indicate that no feature of the proposed action would be below the projected high tide by the end of the project's lifespan (see **Figure 18**).

The Flood Evaluation Worksheets provide site-specific evaluations of the vulnerability of buildings and critical equipment based on projected topography in relation to projections of MHHW with sea level rise. As indicated in **Attachment 2**, all grades would remain above the projected high tide through 2050 under all projection scenarios.

d. Describe how any additional coastal hazards are likely to affect the project, both currently and in the future, such as waves, high winds, or debris.

The proposed action would be enacted outside of the 1% annual chance floodplain and outside of the Limit of Moderate Wave Action (LiMWA[4]). By the end of useful life, features of the proposed action would remain outside of the 1% annual chance floodplain. There are no additional coastal hazards likely to affect the project, currently or in the future.

2. Identify adaptive strategies: assess how the vulnerabilities and consequences identified in Step 1 are addressed through the project's design and planning.

a. For any features identified in Step 1(b), describe how any flood damage reduction elements incorporated into the project, or any natural elevation on the site, provide any additional protection. Describe how would any planned adaptive measures protect the feature in the future from flooding?

The proposed action is not considered significantly vulnerable to climate change or sea level rise. The 0.2% floodplain elevation for the site was identified as 15.1-feet (NAVD88). A design flood elevation of EL +22 feet NAVD88 was established that corresponds to 60-inches above the 0.2% floodplain elevation. All features would be installed outside of the 1% annual chance floodplain and would remain outside of the floodplain throughout the expected useful life. For those limited features that would be within the 0.2% annual chance floodplain (e.g., waste gas burner, approximately 50-feet of overhead gas piping, and the feed pump station), the grade would be elevated to be at or above the design flood elevation of EL +22 feet NAVD88, above the 0.2% annual chance floodplain. As necessary, construction would comply with Appendix G of the New York City Building Code, which regulates construction and substantial building improvements in flood hazard areas. Appendix G requires that all proposed new critical infrastructure (i.e., electrical, plumbing, mechanical equipment) be elevated above the design flood elevation in each building, and that equipment installed sub-grade be flood-proofed.

b. For any features identified in Step 1(c), describe how any flood damage reduction elements incorporated into the project, or any natural elevation on the site, provide

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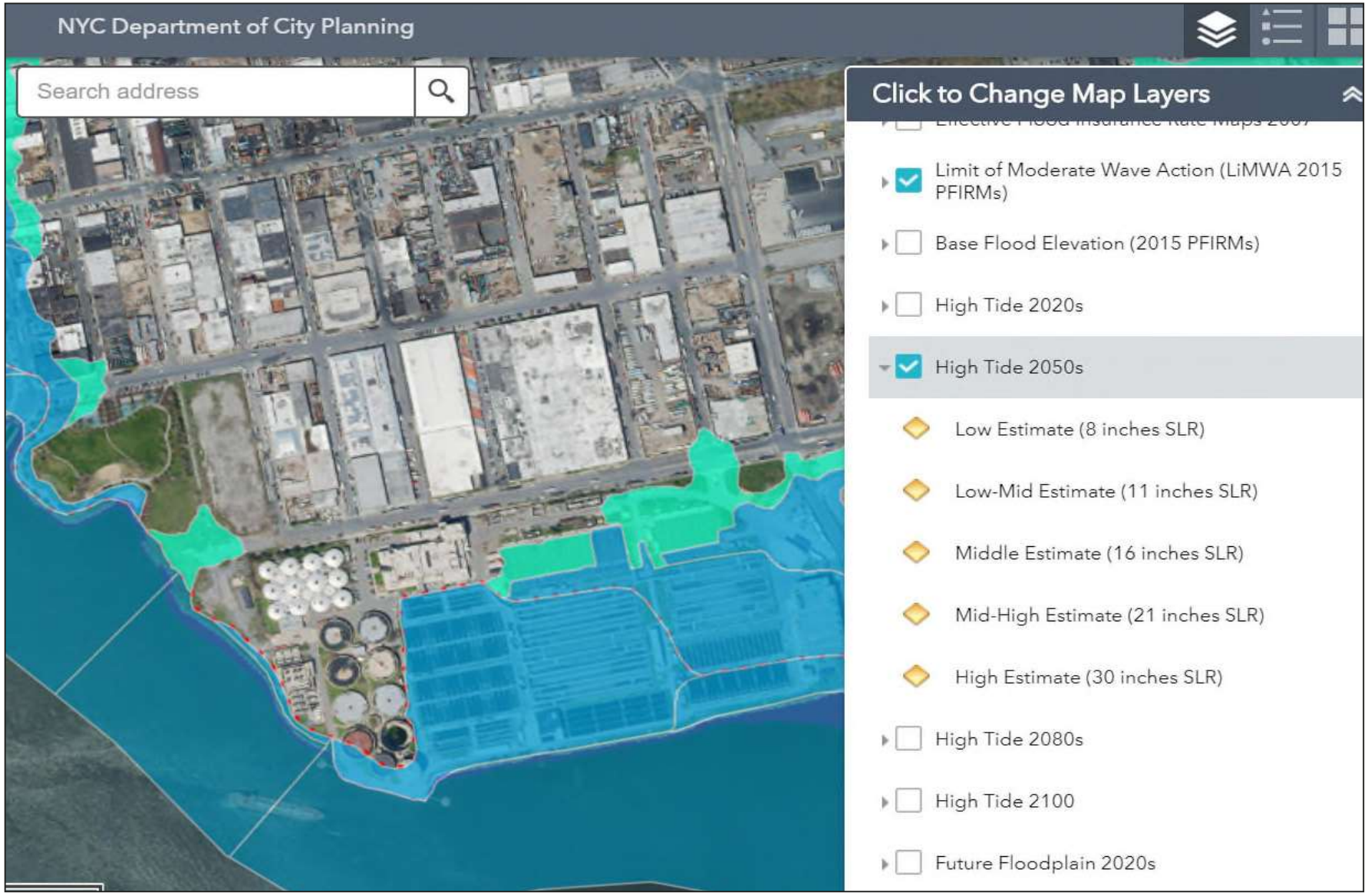
[3] https://www1.nyc.gov/site/planning/data-maps/flood-hazard-mapper.page

[4] Inland limit of the area expected to receive 1.5-foot or greater breaking waves during the 1-percent-annual-chance flood event.



2050s Future High Tide

any additional protection. Describe how would any planned adaptive measures protect the feature in the future from flooding?

As described above, no feature of the proposed action would be below the projected high tide by the end of the project's lifespan (i.e. through the 2050s).

c. Describe any additional measures being taken to protect the project from additional coastal hazards such as waves, high winds, or debris.

As described above, coastal hazards such as waves, high winds, and debris do not pose a substantial risk to the proposed action over the course of the expected useful life.

d. Describe how the project would affect the flood protection of adjacent sites, if relevant.

Because the floodplain within New York City is controlled by astronomic tide and meteorological forces (e.g., nor'easters and hurricanes) and not by fluvial flooding, the projected development would not have the potential to adversely affect the floodplain or result in increased coastal flooding at adjacent portions of the Island.

3. Assess policy consistency: conclude whether the project is consistent with Policy 6.2 of the Waterfront Revitalization Program.

The proposed action would take place outside of the 1% chance floodplain and remain outside of that floodplain throughout the useful life of the project. The individual features are projected to remain above MHHW for the life of the project and are outside of the Limit of Moderate Wave Action. Therefore, the proposed action would promote Policy 6.2.

Policy 7: Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to the environment and public health and safety.

Policy 7.1: Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems.

The Hunts Point WWTP would continue to produce sludge as a by-product of the wastewater treatment process. The proposed action would improve the solids handling capability of the plant. While carbon addition would increase sludge production at the plant; the proposed action would improve sludge handling facilities and would not significantly affect the City's Sludge Management Program, including the handling, transport, and disposal of sludge materials.

All solid waste, hazardous materials, and petroleum products would be stored and transported in accordance with all applicable federal, State, and local regulations. The construction of the proposed action would include measures to address potential impacts from hazardous materials on the portions of the existing WWTP site and the additional 4.3-acre parcel affected by the proposed action. The health and safety plan would protect workers and the public during the construction period. All hazardous materials would be handled and disposed of in accordance with all applicable regulations during demolition, renovation, construction, and operation of the proposed action.

Therefore, the proposed action would promote this policy.

Policy 7.2: Prevent and remediate discharge of petroleum products.

Previous investigations of the project site have indicated the presence of petroleum products, but these are not of significant concern during construction. Should petroleum products be encountered during construction, this material would be handled and disposed of in accordance with all applicable regulations.

Petroleum fuels storage is a necessary component of normal plant operations. Petroleum would be stored on-site for fuel. To minimize the potential impacts related to accidental spillage, secondary containment would be provided for petroleum products and they will be stored in accordance with federal, state, and local regulations.

Therefore, the proposed action would promote this policy.

Policy 7.3: Transport solid waste and hazardous substances and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources.

See Policy 7.1, above.

Policy 8: Provide public access to, from, and along New York City's coastal waters.

Policy 8.1: Preserve, protect, maintain, and enhance physical, visual, and recreational access to the waterfront.

The Hunts Point WWTP project site is located within an industrial area where public waterfront access is limited to the recently completed Barretto Point Park adjacent to the Hunts Point WWTP and the partially restored Tiffany Street Pier. While the digesters would result in a potential adverse visual impact to users of Barretto Point Park looking east toward the digesters, upgrading the plant would not affect waterfront views from or access to Barretto Point Park, Tiffany Street Pier, or the proposed South Bronx Greenway. Barretto Point Park was designed to accommodate its location adjacent to the WWTP and incorporates a vegetative buffer between the park and plant. The analyses conducted for the proposed action take into account the close proximity of the park, a sensitive use. Therefore, the proposed action would promote this policy.

Policy 8.2: Incorporate public access into new public and private development where compatible with proposed land use and coastal location.

While no public access is proposed as part of the proposed action, NYCDEP transferred land to New York City Department of Parks and Recreation (NYC Parks) to build a park at Barretto Point. An additional, 1.2 acres used for construction staging was subsequently transferred to NYCDPR for inclusion in Barretto Point Park. All efforts are being made to make the industrial use of the WWTP compatible with the provision of adjacent open space. Therefore, the proposed action would promote this policy.

Policy 8.3: Provide visual access to the waterfront where physically practical.

The Hunts Point WWTP is an existing use in an industrial area. While the proposed project, including the modification, would result in significant impacts on visual resources, the digesters would not block views of the waterfront vista from within Barretto Point Park or limit the public's enjoyment of those views. In addition, an additional 1.2-acres was transferred to NYC Parks for incorporation into Barretto Point Park. Therefore, the proposed action would promote this policy.

Policy 8.4: Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.

An additional 1.2-acre construction staging area was transferred to NYC Parks to turn into open space as part of the Barretto Point Park. As discussed in Chapter 1 of the 2007 FEIS, "Project

Description," NYCDEP also worked with community members and a HPMC subcommittee to obtain community input in selecting a project that will improve conditions on the Hunts Point peninsula for area residents; many of the possible amenities related to increasing open space and improving visual character could be within in the study area. Therefore, the proposed action would promote this policy.

Policy 8.5: Preserve the public interest in and use of lands and waters held in public trust by the State and City.

The project site would continue to be under the jurisdiction of NYCDEP. Therefore, the action would promote this policy.

Policy 8.6: Design waterfront public spaces to encourage the waterfront's identity and encourage stewardship.

See Policy 8.2, above.

Policy 9: Protect scenic resources that contribute to the visual quality of the New York City coastal area.

Policy 9.1: Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront.

The project lies within an industrial area and would not impair any scenic resource. The Hunts Point WWTP project site would be landscaped once completed. While the digesters would result in a potential significant adverse visual impact for Barretto Point Park users' looking east toward the digesters, waterfront views from within the park would not be affected. Therefore, the proposed action would promote this policy.

Policy 10: Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.

Policy 10.1: Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City.

In letters dated May 12, 2000 and September 8, 2006, the New York City Landmarks Preservation Commission (LPC) determined that there are no historic resources of archaeological or architectural significance located on the WWTP site. In a letter dated November 17, 2006, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) determined that the proposed action will have no impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

Policy 10.2: Protect and preserve archaeological resources and artifacts.

As discussed above, LPC and OPRHP concluded that the Hunts Point WWTP project site, including the additional parcel, does not have the potential to contain archaeological resources. Additional consultation with LPC was completed subsequent to the publication of the FEIS and in a comment letter dated October 20, 2018, LPC identified a potential for a portion of the project site to contain archaeological resources associated with the precontact (Native American) and 19th century occupation of the Hunts Point area and requested the preparation of an Archaeological Documentary Study to further clarify the lot's archaeological sensitivity.

Pursuant to LPC's request, a Phase 1A Archaeological Documentary Study ("Phase 1A Study") of that portion of the project site that was identified by LPC as potentially sensitive—identified as

the Archaeological Area of Potential Effect (APE)—was prepared in March 2019.[5] The report concluded that given past disturbance on the Archaeological APE, there is a low potential for the site to contain intact precontact or historic period archaeological resources and no additional archaeological analysis was recommended. However, the report recommended the preparation of an Unanticipated Archaeological Discoveries Plan that would be in place in the event that archaeological resources are unexpectedly encountered during the construction of the project. The Phase 1A Study was submitted to LPC for review and concurrence. In a following letter dated December 23, 2019, LPC accepted the Phase 1A Study and its conclusions. Therefore, the proposed action would not result in a significant adverse impact on archaeological resources on the Hunts Point WWTP site, and the proposed action would promote this policy.

Conclusion

As discussed above, the proposed new design would not substantially hinder the achievement of any relevant WRP policy or standard. Therefore, the proposed new design would be consistent with the WRP policies. Subsequently, the Waterfront Open Space Division of the New York City Department of City Planning, on behalf of the New York City Coastal Commission, reviewed the waterfront aspect of the proposed new design (WRP #20-104) and issued its concurrence to NYCDEP on July 21, 2020.

HAZARDOUS MATERIALS

The new digester proposal differs in both the design (silo-shaped rather than egg-shaped) and location (further south) from that evaluated in the 2007 FEIS. Construction would involve soil disturbance on a smaller area than that associated with the 2007 design. In order to evaluate the potential for the proposed new design to result in significant adverse hazardous materials impacts not identified in the 2007 FEIS, the analysis presented in 2007 is summarized, followed by a summary of remediation efforts conducted since 2007 and a review of the information on investigations conducted for the new location.

2007 FEIS ANALYSIS

The 2007 FEIS examined potential Hazardous Materials impacts during construction and operation of the proposed action. Soil and groundwater sampling conducted by NYCDEP in 1999 beneath the proposed site confirmed contamination from past site uses that included a paint and varnish manufacturing facility. Recent investigations to evaluate contaminants of concern in soil and groundwater that were conducted in 2018 to support the proposed new design confirmed the presence of contaminants. Trace concentrations of volatile organic compounds (VOCs) were detected in soil sampled from each boring. Acetone was detected in a number of samples exceeding the Imported Backfill Limit specified in 6 NYCRR Part 375-6.8. However, the detection of acetone is likely attributable to an offsite (lab) contamination source and is not considered indicative of site contamination. It should be noted that acetone was not a contaminant of concern in sampling conducted in 1999. Trace concentrations of semi-volatile organic compounds (SVOCs) were detected below the reporting limit in three borings. Additionally, none of the detected SVOCs exceeded Commercial Soil Clean-up Objectives (SCO) or Imported

[5] CAC (2019): "Phase IA Historical Documentary and Archaeological Assessment report for Project: HP-238-DES Hunts Point WWTP – New Anerobic [sic] Digester, Bronx, Bronx County, New York (221 Manida Street, BBL: 202777-0100)." Prepared for: Brown and Caldwell; New York, NY and NYC Department of Environmental Protection; Flushing, NY.

Backfill Limits. It is worth noting that despite the presence of odors and staining in some samples, acetone was the only VOC or SVOC detected at concentrations exceeding the Imported Backfill Limit. Pesticides and PCBs were not detected in any of the composite samples. Some soil samples contained detectable levels of Extractable Petroleum Hydrocarbons (EPH). New York State does not currently have an SCO for EPH. However, detected values were significantly below the New Jersey (NJ) DEP ecological screening level of 1,700 mg/kg. Soil sampled from each boring contained metals, however, none of the metals exceeded Commercial SCOs or Imported Backfill Limits. All groundwater samples met NYCDEP parameters for groundwater discharge to sanitary or combined sewers. Groundwater samples in two wells contained benzene and chloride exceeding the NYS Ambient Water Quality Standards. However, these compounds met the NYCDEP discharge limits.

Based on the limited levels of soil contamination encountered during 2018 sampling NYCDEP and NYSDEC are currently evaluating acceptable on-site soil reuse alternatives for proposed new design.

The 2007 FEIS concluded that due to the asbestos, lead, and PCB contamination identified that construction of the proposed action would include appropriate health and safety and remedial measures that would precede or govern all construction activities with the potential to encounter hazardous materials. This would include cleaning and removal of soil from contaminated locations prior to demolition of existing equipment and structures. With the implementation of these measures, no potential significant adverse impacts were expected during construction.

Remediation Subsequent to the 2007 FEIS

The overall Barretto Point Site (a 13-acre site that includes the 4.3 acre site of construction for the proposed digesters, the additional 1.2 acre transferred to NYC Parks, the western portion of the existing Hunts Point WWTP, and the Barretto Point Park area) is under a December 2003 New NYSDEC Record of Decision (ROD) (Site Number B-00032-2) that requires remedies to address the previous site contamination including excavation of contaminated soil and covering. The proposed new design would not require an amendment of the ROD. Within the Barretto Point Site, a portion of area of the new proposed digesters is within the footprint of the former paint and varnish manufacturing facility. In 2017, NYCDEP completed the remedies required by the ROD for this footprint including excavation of 14,826 cubic yards (cy) of contaminated soil and this area was covered with 2 feet of clean soil, vegetation, asphalt, or gravel. The area remains subject to Institutional Controls including a Site Management Plan (SMP) and Engineering Controls consisting of fencing and a cover system—specifying requirements to be met for intrusive activities that disturb the cover system and underlying soils. The cover systems would be restored/modified following completion of the activities through installation of new digester facilities construction directly on bedrock. Portions of the site outside the footprint of the digester facilities will include additional backfilling with landscape vegetation, and asphalt pavement at the surface. The SMP includes requirements to address any necessary future handling of remaining soil. Construction of the proposed new design would include excavation within this area. Therefore, activities anticipated to impact the Engineering Controls would be subject to the requirements and controls detailed in the Excavation Work Plan included in the SMP. Compliance by contractors with excavation work plan requirements would be required as part of the proposed project.

ANALYSIS WITH THE PROPOSED NEW DESIGN

As part of proposed action with the new digester design, geotechnical and environmental sampling of soil and groundwater was performed in June and July 2018 at the location of the new proposed digesters. Eight soil borings were advanced at locations inside and outside the footprint of the former paint and varnish facility and analytical results were summarized in the October 2018 *Subsurface Investigation Report* for the proposed action with the new digester design.[6]

The soil analysis was performed on composite samples, except for volatile organic compounds (VOCs) generally for Target Compound List/Target Analyte List (TCL/TAL) organics and metals, and for Resource Conservation and Recovery Act (RCRA) hazardous waste characteristics. Two monitoring wells were installed within the future excavation footprint and groundwater samples were analyzed for VOCs, polychlorinated biphenyls (PCBs), metals, phenol/naphthalene, total nitrogen, chloride, methyl tert-butyl ether (MTBE), oil and grease, total suspended solids, total solids, settleable solids, carbonaceous biochemical oxygen demand, and flash point.

Soil analytical results were compared to the 6 NYCRR Part 375-6 Soil Cleanup Objectives (SCOs) for: Unrestricted Use (USCOs), Protection of Human Health - Residential Use (RSCOs), and protection of groundwater SCOs. Finally, the analytical results were also compared to the SMP's Imported Backfill Limits which are usually but not always the lower of RSCOs and groundwater SCOs[7]. With the exception of acetone, which is a common laboratory contaminant, no VOCs were detected above RSCOs or groundwater SCOs. Some metals (cadmium, chromium, copper, iron, lead, nickel, vanadium, zinc) were detected at one or more locations above USCOs but only cadmium (2 samples), chromium (4 samples), iron (15 samples) and vanadium (1 sample) exceeded RSCOs. SVOCs and three pesticides (DDD, DDE and DDT) were detected at only one location above RSCOs and/or groundwater SCOs.

The groundwater analytical results were compared to NYCDEP limits for discharges to sanitary or combined sewers, and also to 6 NYCRR Part 703 Class GA groundwater standards. No exceedances of NYCDEP limits were identified. Benzene was detected at 1.1 µg/L in one sample, slightly above the groundwater effluent maximum allowable concentration of 1 µg/L. Chloride was detected at 1,300 mg/L, above the groundwater effluent maximum allowable concentration of 250 mg/L.

In September and October 2018, a hazardous materials assessment of equipment and substrates that are to be demolished, including four digesters, and associated motors, pumps, heat exchangers, and piping in the existing Digester Building, Thickener Building, Main Building and connecting tunnels was conducted. Analytical results were summarized in the November 2018 *Hazards Mitigation Report for the Hunts Point WWTP*. Samples collected included paint, caulk, tar, grease, oil, and cove base. PCBs were identified in two exterior samples of a black tar/mastic collected from the base of Digester #1 (58,000 ppm) and Digester #4 (517 ppm). Similar tar/mastic materials elsewhere in the structures may also contain PCBs. Earlier sampling in 2010 and 2012 (in support of a previous design) identified caulks and mastics with up to 63,000 ppm of PCBs in various parts of the digesters. Any soil and fill in contact with or surrounding PCB-containing material like the black tar/mastic has a potential to contain PCBs.

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[6] Hunts Point Wastewater Treatment Plant New Anaerobic Digesters Facilities Subsurface Investigation Report; Bidwell Environmental, LLC; November 2018.

[7] The Imported Backfill Limits for Cadmium (4.3 ppm) and Chromium (180 ppm) are higher than the corresponding SCOs for Residential Use.

Conclusion

The 2007 FEIS concluded that construction of the proposed action, with identified appropriate health and safety and remedial measures that would precede or govern all construction activities with the potential to encounter hazardous materials, would not result in significant adverse impacts related to hazardous materials. Since that time, contaminated soils, on the portion of the site where construction is now proposed, were remediated per NYSDEC ROD requirements. Demolition and construction requiring subsurface disturbance would comply with the SMP requirements for intrusive activities that disturb the cover system and underlying soils, and applicable regulatory requirements including NYSDEC regulations regarding the transportation, disposal or reuse of excavated soils and PCB regulations in accordance with USEPA Toxic Substances Control Act requirements. Construction of the proposed new design includes excavation of soils to glacial till or bedrock where the foundation of the proposed new facility would be constructed. Excavation activities are anticipated to impact existing Engineering Controls. Therefore, excavation would be conducted in compliance with the Excavation Work Plan included in the SMP in order to avoid potential environmental impacts. This would include disposal of soils disturbed by the construction in accordance with NYSDEC and backfilled with clean soil in its place. Based on the limited levels of soil contamination encountered during 2018 sampling NYCDEP and NYSDEC are currently evaluating acceptable on-site soil reuse alternatives for proposed new design.

Since the 2007 FEIS, the proposed site has been remediated as required by NYSDEC and the proposed action with the new digester design includes similar appropriate health and safety and remedial measures as those previously anticipated (i.e. soil remediation pursuant to the NYSDEC ROD, management of excavated soils in accordance with all applicable regulations, development of Construction Health and Safety Plans, development of an appropriate testing program for known or suspected groundwater contamination, and the removal and disposal of asbestos-containing materials impacted by renovation work would be performed by a licensed remediation contractor in accordance with regulations). Therefore, with the implementation of the above measures, potential significant adverse impacts are not expected either during or following construction. Therefore, no further mitigation associated with hazardous materials are warranted for the proposed action with the new digester design.

HISTORIC AND CULTURAL RESOURCES

According to the 2014 *CEQR Technical Manual*, a historic resources assessment is required if there is the potential to affect historic and cultural resources, which include both archaeological and architectural resources. Actions that could potentially affect historic archaeological resources that typically require an assessment are those that involve ground disturbance, or below-ground construction and excavation. Actions that trigger an historic architectural resources (e.g., historic resources) assessment include new construction, demolition, or significant alteration to any historic building, structure, or object; a change in scale, visual prominence, or visual context of any historic building, structure, object or landscape feature; construction, including but not limited to excavation, vibration, subsidence, dewatering, and the possibility of falling objects that could damage a historic resource; additions to or significant removal, grading, or replanting of significant historic landscape features; screening or elimination of publicly accessible views of a historic resource; and the introduction of significant new shadows or significant lengthening of the duration of existing shadows over a historic landscape or on a historic structure with sunlight-dependent features.

As described in the *CEQR Technical Manual*, an assessment of archaeological resources is required for projects or actions that would result in in-ground disturbance. Since the proposed

project requires excavation, LPC was contacted for their preliminary determination of the project site's potential archaeological sensitivity (see below for a discussion of archaeological resources).

Study areas for architectural resources are determined based on the area of potential effect for construction period impacts, as well as the larger area in which there may be visual or contextual impacts. The 2014 *CEQR Technical Manual* sets the guidelines for the study area as being typically within an approximately 400-foot radius of the project site. Within the study area, architectural resources analyzed include State and National Register (S/NR)-listed or S/NR-eligible properties, New York City Landmarks (NYCLs), New York City Historic Districts (NYCHDs) and properties pending such designation. In addition, a survey of the study area was conducted to identify any previously undesignated properties that appear to meet S/NR or NYCL eligibility criteria ("potential architectural resources"); no such resources were identified.

Impacts on architectural resources can include both direct physical impacts and indirect impacts. Direct impacts include damage from vibration (i.e., from construction blasting or pile driving) and additional damage from adjacent construction that could occur from falling objects, subsidence, collapse, or damage from construction machinery. Adjacent construction is defined as any construction activity that would occur within 90 feet of an architectural resource, as defined in the New York City Department of Buildings (DOB) *Technical Policy and Procedure Notice* (TPPN) #10/88.[8]

Indirect impacts on architectural resources are contextual or visual impacts that could result from project construction or operation. As described in the *CEQR Technical Manual*, indirect impacts could result from blocking significant public views of a resource; isolating a resource from its setting or relationship to the streetscape; altering the setting of a resource; introducing incompatible visual, audible, or atmospheric elements to a resource's setting; or introducing shadows over a historic landscape or an architectural resource with sun-sensitive features that contribute to that resource's significance (e.g., a house of worship with stained-glass windows).

Consultation was also initiated with the New York Historic Preservation Office (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966. In a comment letter dated November 2, 2018 (see **Attachment 3**), SHPO determined that no historic properties will be affected by the proposed project. The following analysis was prepared in compliance with the *CEQR Technical Manual*.

ARCHAEOLOGICAL RESOURCES

As part of the archaeological resources analysis completed as part of the 2007 FEIS, consultation was initiated with LPC, which determined that the project site—including the additional 4.3-acre parcel and the adjacent 1.2-acre parcel proposed for construction staging area—was not archaeologically significant and therefore no additional archaeological analysis was warranted under CEQR. Additional consultation with LPC was completed subsequent to the publication of the FEIS and in a comment letter dated October 20, 2018, LPC determined that the portion of the project site located on Block 2777, Lot 100 is potentially sensitive for archaeological resources while the remainder of the site—including Block 2777, Lot 600; Block 2779, Lot 1; Block 2780, Lots 2 and 500—were determined to have no archaeological significance (see **Attachment 3**).

[8] TPPN #10/88 was issued by DOB on June 6, 1988, to supplement Building Code regulations with regard to historic structures. TPPN #10/88 outlines procedures for the avoidance of damage to historic structures that are listed on the NR or NYCLs resulting from adjacent construction, defined as construction within a lateral distance of 90 feet from the historic resource.

Specifically, LPC identified a potential for Block 2777, Lot 100 to contain archaeological resources associated with the precontact (Native American) and 19th century occupation of the Hunts Point area and requested the preparation of an Archaeological Documentary Study to further to further clarify the lot's archaeological sensitivity.

Pursuant to LPC's request, a Phase 1A Study of that portion of the project site that was identified by LPC as potentially sensitive—identified as the Archaeological APE—was prepared in March 2019.[9] The report concluded that given past disturbance on the Archaeological APE, there is a low potential for the site to contain intact precontact or historic period archaeological resources and no additional archaeological analysis was recommended. However, the report recommended the preparation of an Unanticipated Archaeological Discoveries Plan that would be in place in the event that archaeological resources are unexpectedly encountered during the construction of the project. The Phase 1A Study has been submitted to LPC for review and concurrence. In a following letter dated December 23, 2019 (see **Attachment 3**), LPC accepted the Phase 1A Study and its conclusions. Therefore, the proposed actions would not result in significant adverse impacts on archaeological resources.

ARCHITECTURAL RESOURCES

Additionally, the 2007 FEIS found that no known architectural resources (i.e., National Historic Landmarks, properties listed on or determined eligible for listing on the State or National Registers of Historic Places, or New York City Landmarks and Historic Districts or properties determined eligible for landmark designation) or potential resources (i.e., properties that appear to meet the criteria for listing on the registers or for landmark designation) were located on the project site or in the immediate area. LPC had determined that the project site had no architectural significance and OPRHP determined that the proposed actions would have no impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places. Therefore, proposed actions would not have any potential significant adverse impacts on historic resources.

AIR QUALITY

As part of the 2007 FEIS, the potential for air quality impacts was assessed for the Hunts Point WWTP (see Chapters 8, 9, and 10 of the FEIS, "Criteria Air Pollutants," "Non-Criteria Air Pollutants," and "Odors," respectively). Emissions were assessed for which the U.S. Environmental Protection Agency (EPA) or New York State had established maximum ambient air concentrations to protect public health—the National Ambient Air Quality Standard (NAAQS) and incremental thresholds specified in the *CEQR Technical Manual*. Dispersion modeling was utilized to assess the impacts of carbon monoxide (CO), particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2) from combustion sources at the WWTP, hydrogen sulfide (H_2S), and various non-criteria pollutants from process sources at the WWTP.

[9] CAC (2019): "Phase IA Historical Documentary and Archaeological Assessment report for Project: HP-238-DES Hunts Point WWTP – New Anerobic [sic] Digester, Bronx, Bronx County, New York (221 Manida Street, BBL: 202777-0100)." Prepared for: Brown and Caldwell; New York, NY and NYC Department of Environmental Protection; Flushing, NY.

2007 FEIS ANALYSIS

The air quality impact assessment performed for the 2007 FEIS included the installation of a 500-kW emergency generator located outside the digester building as well as three enclosed waste gas burners (Figure 8-1 from the 2007 FEIS, included as **Figure 19**). Additionally, in order to assess the total pollutant concentrations associated with the Hunt Point WWTP facility, emissions from existing sources were modeled in the 2007 FEIS analysis, including six 2,000-kW emergency generators, five 750 horsepower (hp) boilers located in the main building, and two 400 hp boilers located in the dewatering building.

Under the 2007 FEIS, NYCDEP committed to the use of ultra-low sulfur diesel (ULSD) fuel in the existing generators, which is a standard practice today. **Tables 3** and **4** present the maximum criteria pollutant impacts from the 2007 FEIS.

Table 3
Maximum Predicted Total Concentrations—2007 FEIS

Pollutant	Averaging Period	Total Maximum Predicted Concentration ($\mu g/m^3$) (1) (2)	NAAQS / Threshold
NO_2	Annual	63	100
SO_2	3-hour	490	1,300
	24-hour	182	365
	Annual	36.5	80
PM_{10}	24-Hour	58	150
CO	1-Hour	5,983	40,000
	8-Hour	3,211	10,000

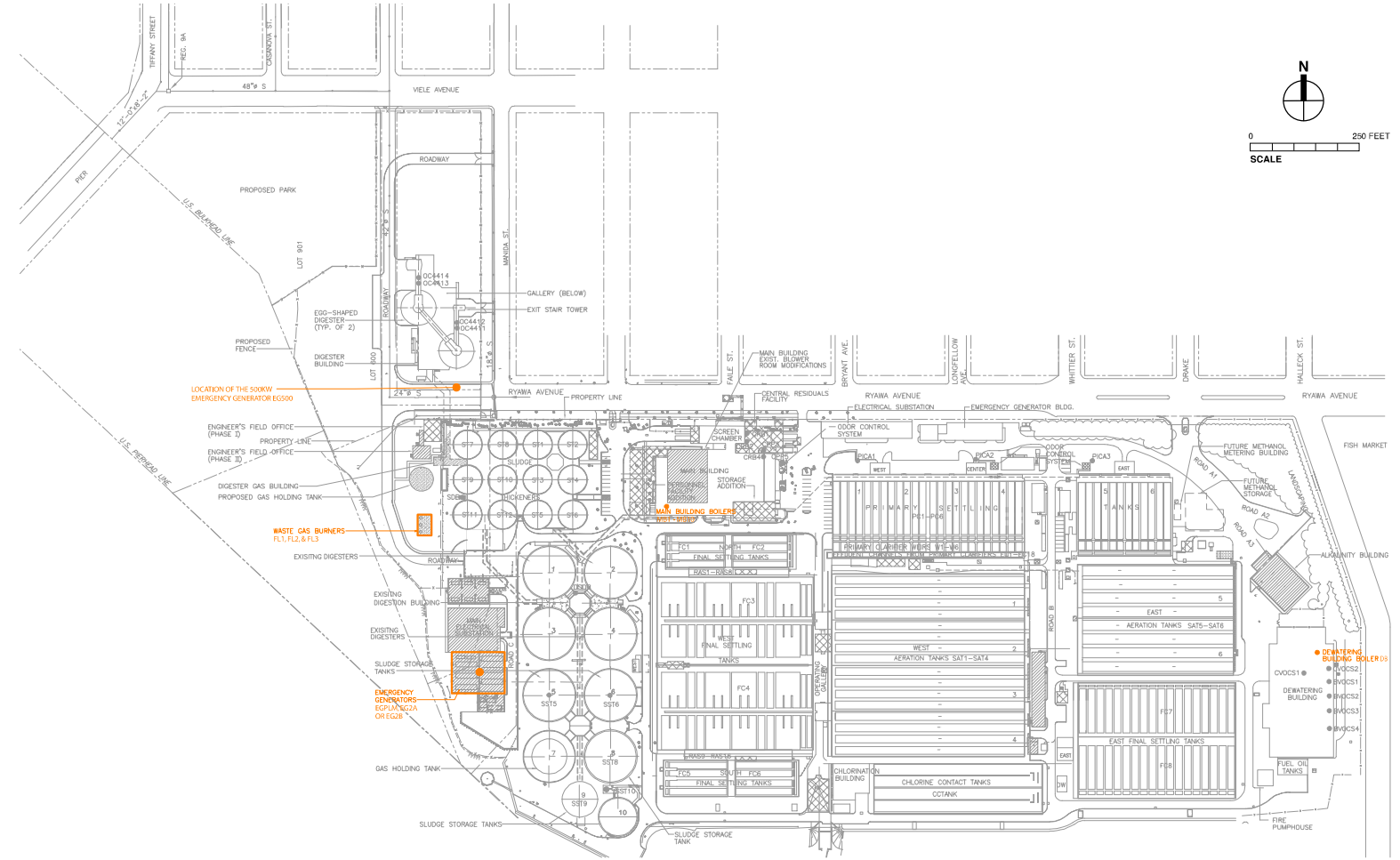
Notes:
(1) The impacts present are the total impacts from the entire plant including both existing and sources proposed in the 2007 FEIS.
(2) Maximum concentrations include background values from the nearest NYSDEC ambient air monitoring stations at the time of publication of the 2007 FEIS.

Table 4
Maximum Predicted $PM_{2.5}$ Increments—2007 FEIS

Pollutant	Averaging Period	Maximum Modeled Impacts ($\mu g/m^3$)	Interim Guidance (1) ($\mu g/m^3$)
$PM_{2.5}$	24-hour	1.86	2.0
	Annual – Discrete	0.15	0.3
	Annual—Neighborhood	0.04	0.1

Note:
(1) Following publication of the 2007 FEIS, The $PM_{2.5}$ interim guidance criteria was superseded on June 5, 2013. The 24-hour average interim guidance criteria for $PM_{2.5}$ were as follows: 24-hour average concentrations greater than 2 $\mu g/m^3$ (5 $\mu g/m^3$ not-to-exceed value), and assessed for potential impacts based on the magnitude, frequency duration, location, and size of the area of the predicted concentrations above the threshold. Annual average increments greater than 0.3 $\mu g/m^3$ at a discrete receptor location or 0.1 $\mu g/m^3$ at the neighborhood scale would be considered potential air quality impacts.

The maximum predicted 24-hour and annual average incremental $PM_{2.5}$ concentrations were 1.86 $\mu g/m^3$ and 0.15 $\mu g/m^3$, respectively, and occurred at receptors along Ryawa Avenue. These concentrations were below the interim guidance threshold (at the time) of 2 $\mu g/m^3$ and 0.3 $\mu g/m^3$ for the 24-hour and annual average periods, respectively. Additionally, the annual $PM_{2.5}$ neighborhood impact was 0.04, well below the 0.1 $\mu g/m^3$ neighborhood threshold.



Source: 2007 Hunts Point Water Pollution Control Plant Phase III Upgrade FEIS

2007 FEIS Modeled Combustion Sources

Figure 19

The results of the 2007 analysis found that the thresholds and standards for analyzed pollutants and averaging times would not be exceeded; therefore, no significant adverse air quality impacts would occur.

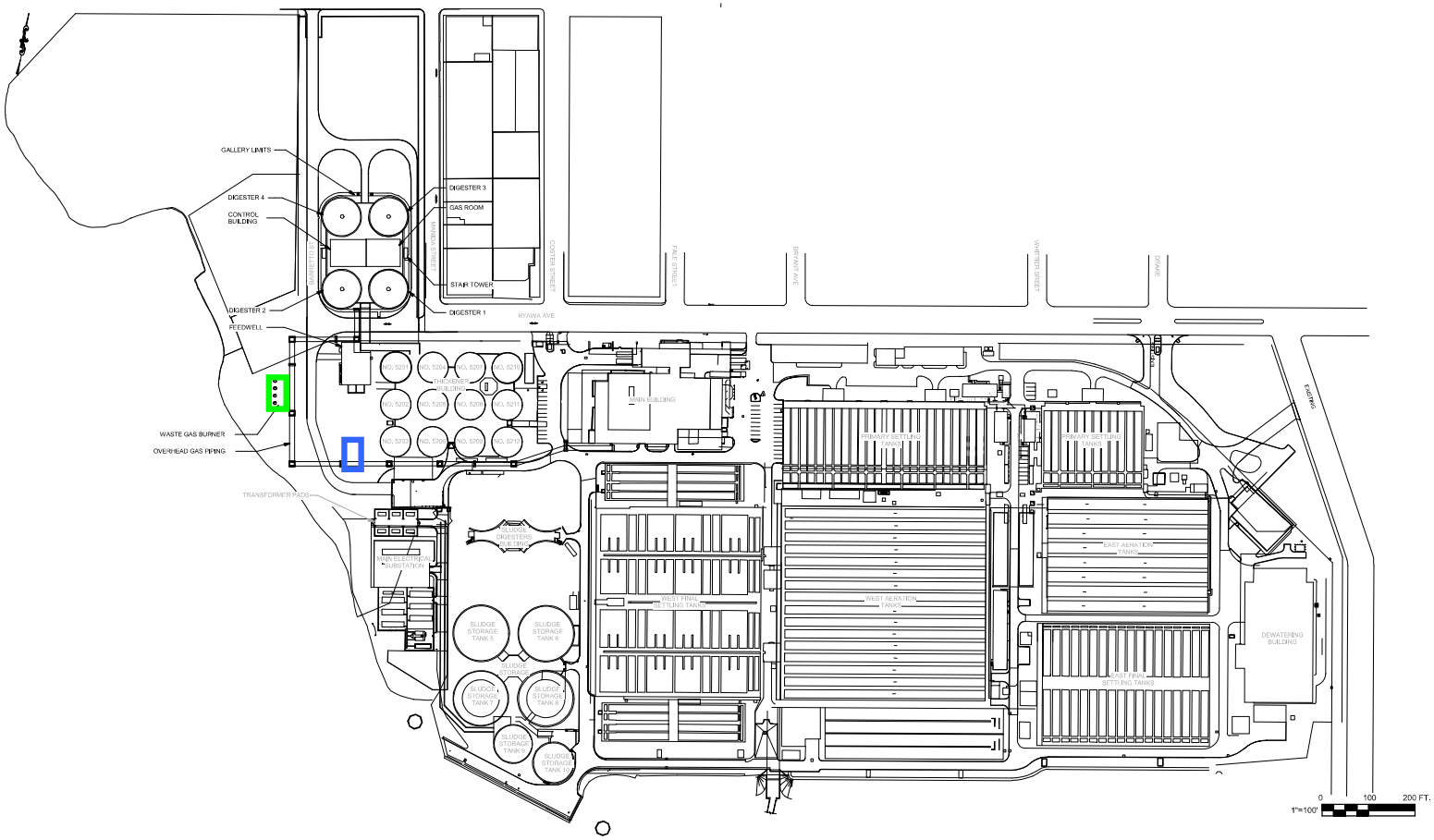
ANALYSIS WITH THE PROPOSED NEW DESIGN

Criteria Pollutants

As discussed above, the proposed new design would no longer include the 500-kW emergency generator. Additionally, the number of enclosed waste gas burners installed at the plant would increase from three units in the 2007 FEIS design to four units in the proposed new design. The units would be relocated from the location analyzed for the 2007 FEIS to approximately 220 feet to the northwest (**Figure 20**) and would exhaust at similar heights (approximately 45 feet above grade). As part of the proposed new design, the amount of digester gas produced by Hunts Point WWTP under existing conditions and conditions analyzed in the 2007 FEIS is expected to remain the same. While the number of waste gas burners increased from three to four, there are currently no planned increases in digester gas production. Therefore, the anticipated amount of excess digester gas to be flared in the proposed waste gas burners is expected to remain the same as the amount analyzed in the 2007 FEIS. The other existing combustion sources included in the 2007 FEIS air quality modeling analysis for criteria pollutants would remain unchanged by the proposed new design. Moreover, while the number of flares is increasing, an analysis of the increase in gas production was not warranted for this proposed project because it would not increase production of digester gas; additional flare usage will be analyzed for any future project which increases gas production.

Maximum predicted criteria pollutant concentrations from the entire plant were well below the NAAQS and below the $PM_{2.5}$ interim guidance concentrations. Since publication of the 2007 FEIS, EPA has established a 1-hour NO_2 standard. The 2007 FEIS conservatively assumed all NO_x emissions as NO_2 (typically about 10 percent of the exhausted NO_x are NO_2). After adjusting for NO_2/NO_x concentrations, exceedance of the 1-hour NO_2 standard is not anticipated. The proposed new design would reduce NO_2 emissions from the elimination of the 500-KW emergency generator. The NO_2 impacts of the new design would be similar or lower than those of 2007 FEIS. In addition, since the waste gas burners would not represent a major source of NO_2 emission and NO_2 concentrations for the annual averaging period were well below the annual standard, there are no anticipated exceedances of the 1-hour NO_2 standard. Therefore, $PM_{2.5}$ was the key pollutant of concern and potential concentrations of $PM_{2.5}$ from waste gas burners analyzed in the 2007 FEIS are reviewed to assess the potential for impacts from the new waste gas burners.

The results of the 2007 FEIS predicted that emissions from the waste gas burners would result in concentrations less than half of the maximum concentrations predicted for the entire plant. The areas of highest impacts from the modeled waste gas burners would be to the northeast and southwest of the exhaust stacks—at locations along Ryawa Avenue and on the East River, respectively (**Figures 21** and **22**), with the dominant wind direction blowing from the southwest to the northeast. Maximum concentrations from the waste gas burners in the 2007 FEIS analysis were predicted to be at most 0.06 $\mu g/m^3$ and 0.52 $\mu g/m^3$ for the annual and 24-hour average time periods, respectively—less than 50 percent of the maximum predicted for the entire Hunts Point WWTP. Similarly, concentrations at receptor locations to the northwest of the waste gas burners (i.e. Barretto Point Park) were predicted to be at most 0.02 $\mu g/m^3$ and 0.35 $\mu g/m^3$, respectively—less than 15 percent of the maximum predicted concentrations.

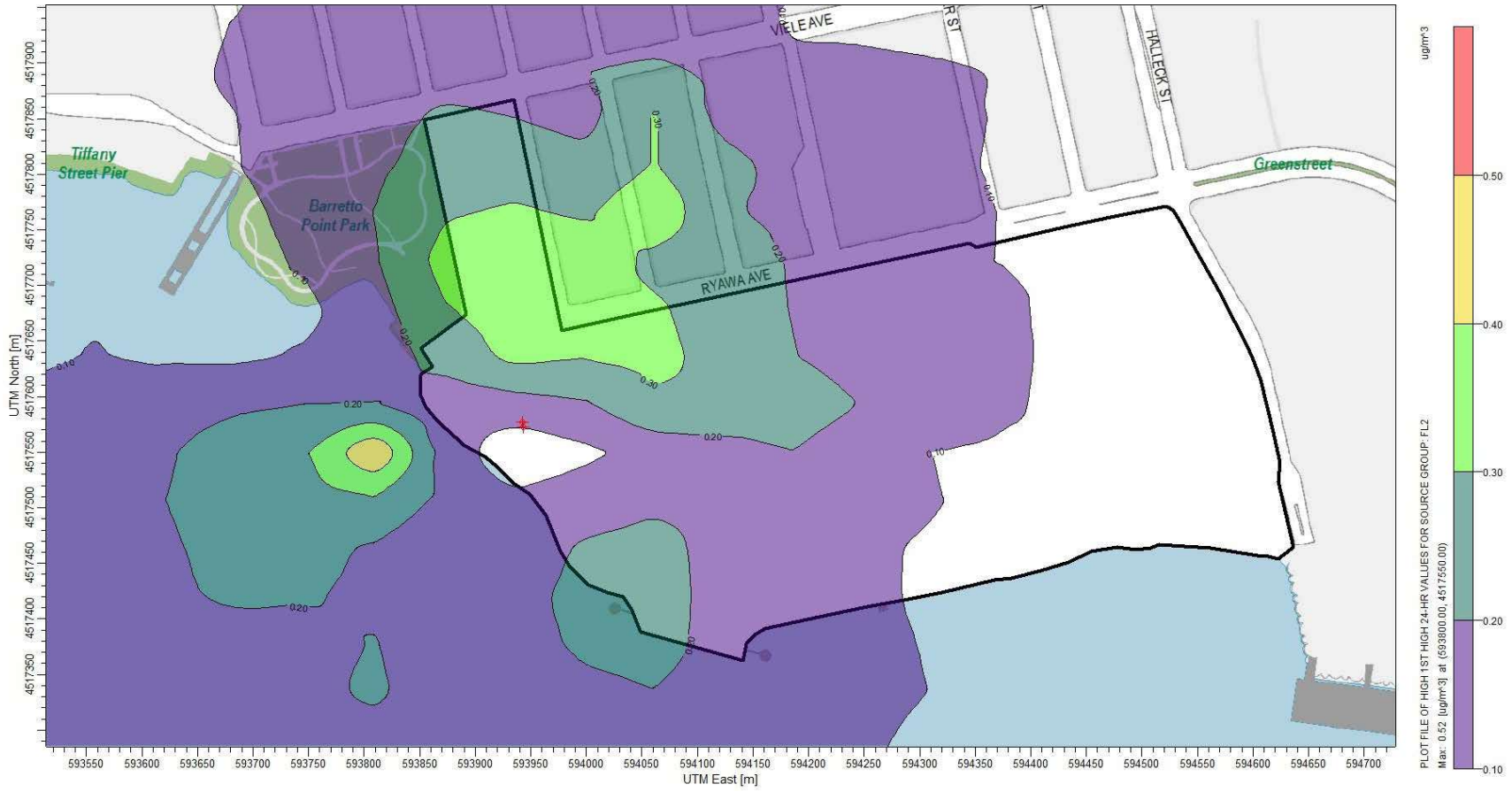


Source: Brown & Caldwell

HUNTS POINT WWTP HP-238

Waste Gas Burner Location

Figure 20



Source: AKRF, Inc.

2007 FEIS Waste Gas Burner PM2.5 24-Hour Isopleth

Source: AKRF, Inc.

2007 FEIS Waste Gas Burner PM2.5 Annual Isopleth

HUNTS POINT WWTP HP-238

Figure 22

The proposed new location for the waste gas burners would result in an increased distance between the waste gas burners and receptors along Ryawa Avenue from approximately 290 feet to 360 feet. Therefore, the contribution of the waste gas burners to concentrations at these receptors are anticipated to be less than those predicted for the 2007 FEIS, and the maximum predicted concentrations along Ryawa Avenue are anticipated to be similar to or less than those predicted for the 2007 FEIS.

In the proposed new design, the waste gas burners would be located minimally closer (approximately 220 feet) to receptor locations to the northwest within Barretto Point Park. Due to the decreased distance, concentrations associated with the waste gas burners may increase from those predicted in the 2007 FEIS. However, receptors within the park were not predicted to be the areas of highest impact from the waste gas burners (**Figures 21** and **22**). Maximum $PM_{2.5}$ concentrations may increase by approximately 0.01 $\mu g/m^3$ and 0.04 $\mu g/m^3$ for the annual and 24-hour average time periods, respectively. Therefore, potential increased concentrations within Barretto Point Park are anticipated to be minor. In addition, the contribution to the maximum $PM_{2.5}$ impacts in Barretto Point Park were mainly from the six existing 2,000-kW emergency generators; therefore, the maximum predicted concentrations within Barretto Point Park are anticipated to be similar to those predicted for the 2007 FEIS and below the regulatory standards and thresholds.

Odors

The 2007 FEIS design included an odor control system designed to treat odors from the egg-shaped digesters at a maximum of 1,200 cubic feet of air per minute (cfm). The proposed new digester design is sealed so that there would not be any off-gas emissions vented from the silo-shaped digesters; therefore, the new design would eliminate the odors from venting and the associated odor control system.

However, the new digester feed pump station includes a vented wet well used to transfer thickened sludge from the existing gravity thickeners to the proposed new digesters. The vented wet well would be equipped with a small activated carbon adsorption canister, designed according to industry standards[10] to treat a maximum of 500 cfm, and specified with an exhaust concentration meeting 25 parts per billion (ppb) H_2S, consistent with many NYCDEP activated carbon odor control systems. Potential odor concentrations from this small system are expected to be well below the 1 ppb odor threshold at sensitive areas and the 10 ppb NYSAAQS in ambient air.

All other existing process sources at the WWTP would remain unchanged; therefore the proposed project would not be expected to alter non-criteria pollutant and odor emissions from the 2007 FEIS. In addition, since the only source of potential odors in the proposed new design would be the small activated carbon adsorption canister, and it would be controlled to have negligible odor emissions, potential odor concentrations from the WWTP would not be expected to change as a result of this project.

Conclusions

As discussed above, potential changes to criteria pollutant, non-criteria pollutant, and odor concentrations associated with the proposed new design are anticipated to be minor. Therefore, as in the 2007 FEIS, the proposed new design would not result in a significant air quality impact.

[10] Carbon adsorbers can commonly achieve 99 percent and greater H_2S removal.

CONSTRUCTION

Potential construction impacts were analyzed in detail for the action proposed in the 2007 FEIS. The 2007 FEIS construction impact analysis examined the potential effects of Project construction on a number of technical areas, including land use, socioeconomic conditions, community facilities, open space, historic resources, hazardous materials, traffic and transportation, air quality, noise and vibration, infrastructure, and neighborhood character.

2007 FEIS ANALYSIS

The construction schedule in the 2007 FEIS was planned to minimize disruption to the wastewater treatment operations at the plant. Overall, construction was expected to occur over a period of approximately seven years and assumed a typical operating schedule of 7:00 AM to 3:00 PM (one 8-hour shift per day), five days per week. Construction was not expected and therefore construction activities were not analyzed for weekend or after hour work periods. Mobilization of equipment was expected to begin in the third quarter of 2008 and construction activities would continue until 2014. The construction activities in the 2007 FEIS included the following:

- Renovation of the existing digesters and sludge storage tanks;
- Renovation of the existing sludge thickeners;
- Construction of the egg-shaped digesters; and
- Construction of the carbon addition facility.

Because construction of the proposed action was projected to overlap with the remediation of Barretto Point and some additional construction activities for the Phase II Upgrade, such as the construction of polymer addition facilities, construction of the Full Step Feed Biological Nutrient Reduction Facilities, and updates to the plant's electrical power system, these additional construction activities were also included in the 2007 FEIS.

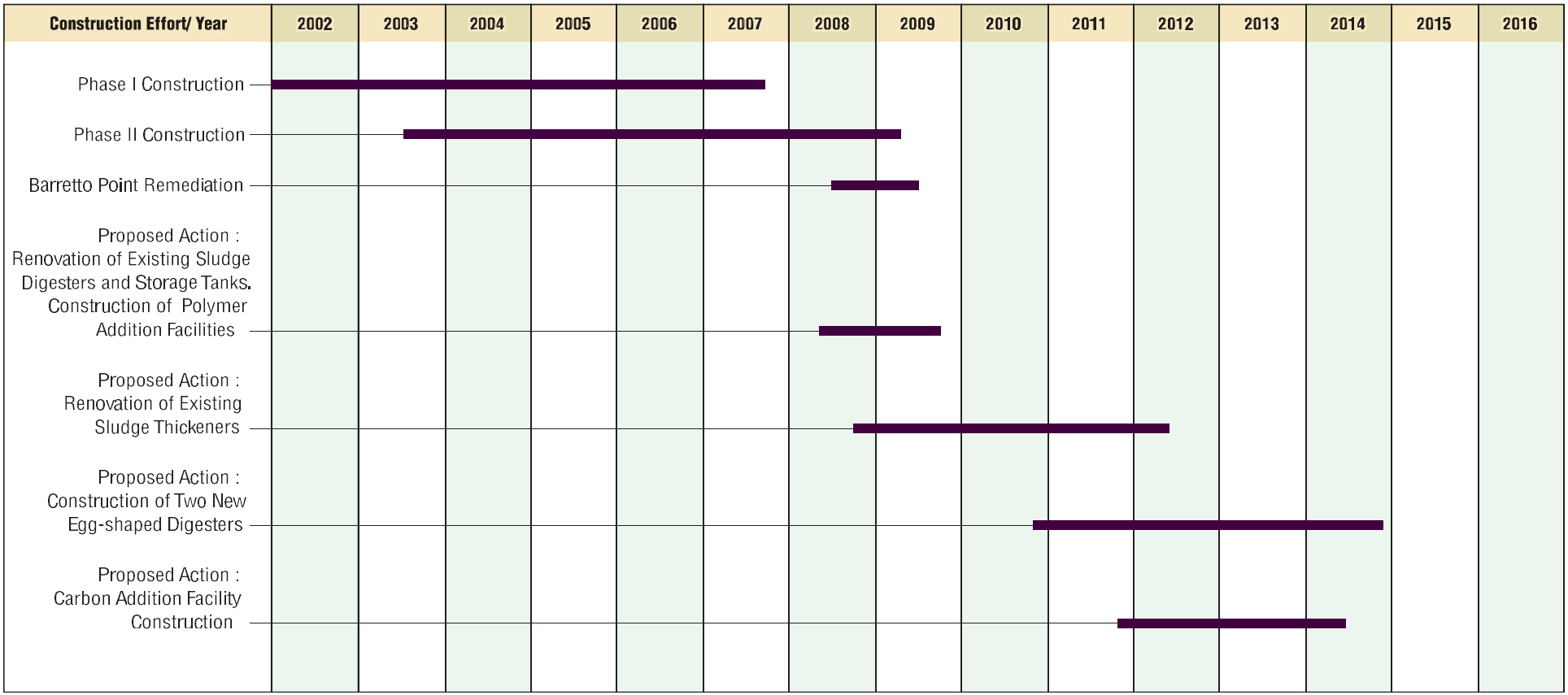
A detailed construction schedule breakdown from the 2007 FEIS is provided (see **Figure 23**).

Renovation of the Existing Digesters and Sludge Storage Tanks

The renovation of the existing digesters and sludge storage tanks was scheduled to occur early in the construction period to enable continued and reliable service while the new egg-shaped digesters were under construction. Renovation of the existing digesters and sludge storage tanks was expected to occur on the existing plant site. Phase II construction activities (construction of polymer addition facilities) were projected to occur at the same time as the digester renovation and within the existing centrate building. Overall, there was minimal overlap between Phase II construction activities and the proposed action. As construction of the Phase II Upgrade would be nearing completion, the mobilization of equipment for the proposed action was scheduled to begin; therefore, most of the heavy construction for the Phase II Upgrade was assumed to be finished prior to commencement of construction of the proposed action.

Renovation of the Existing Sludge Thickeners

The sludge thickeners were expected to be renovated in sequence, one at a time, to allow for maximum continued operation and was scheduled to occur throughout the first half of the construction duration (over the period between 2008 through 2012). Later stages of construction included the construction of the egg-shaped digesters and the carbon addition facility.



An additional two digesters, analyzed as the "four-digester scenario" in the different chapters of the FEIS, would be constructed at some date after the completion of the Upgrade described in the above schedule, when the rehabilitated digesters reach the end of their useful life.

2007 FEIS Construction Schedule

Construction of the Egg-Shaped Digesters

The FEIS analyzed two scenarios: a two digester scenario and a four digester scenario. The first two new egg-shaped digesters were scheduled to be constructed from the fourth quarter of 2010 to the fourth quarter of 2014, and operational by the end of 2014. The additional two digesters would be constructed afterwards between 2015 and 2018 dependent on the condition of the renovated existing digesters.

Construction of the Carbon Addition Facility

The carbon addition facility was scheduled to be constructed between 2011 and 2014. In parallel to this work, the remaining construction elements were scheduled to occur.

As demonstrated in the summary of 2007 FEIS analyses below, the determination of significant adverse impacts during construction was considered mainly on the intensity of construction activities and their potential effects on the environment. Since these activities would move through the development area as elements were to be constructed, they would not have prolonged effects on individual uses in the area.

PROPOSED NEW DESIGN

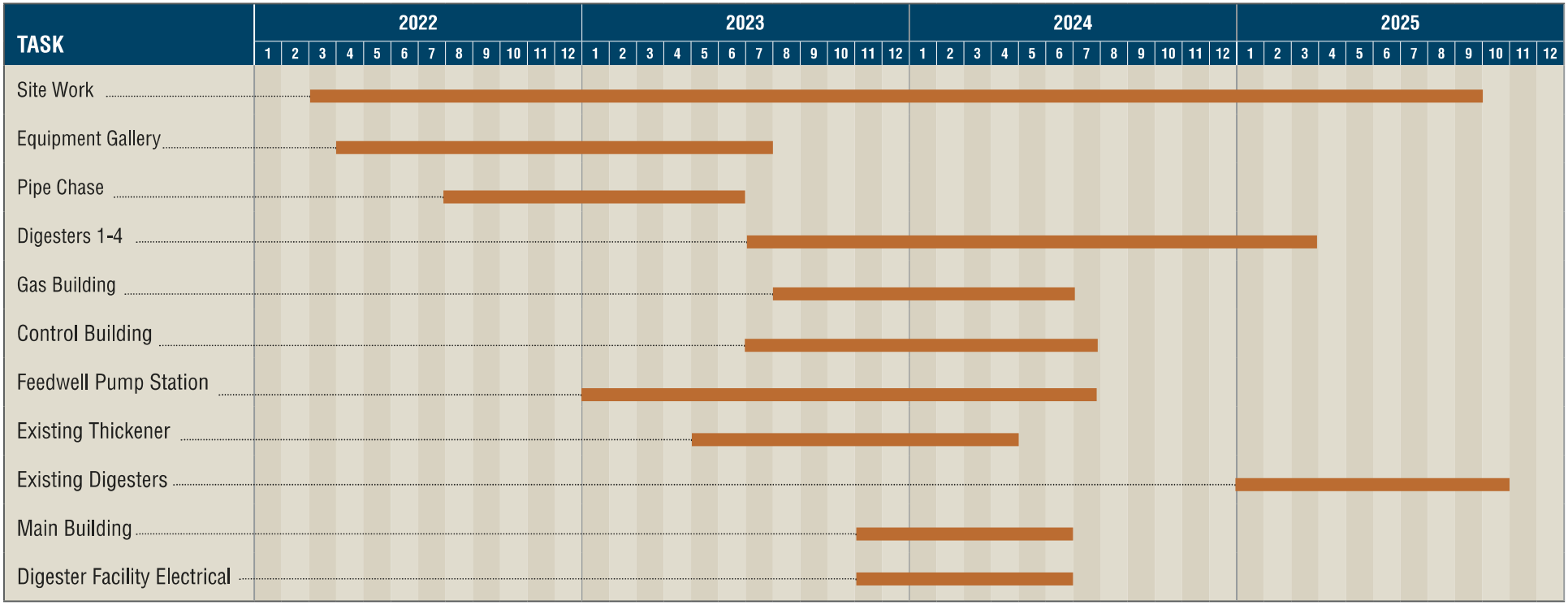
Comparisons to the findings presented in the 2007 FEIS with respect to traffic and transportation, air quality, and noise are summarized below.

As discussed above, the proposed new design for digesters at the Hunts Point WWTP includes the construction of four (4) new conventional "silo-shaped" digesters designed to digest thickened primary and waste activated solids along with an associated below-grade equipment gallery, control building, gas room, below-grade pipe chase, digester feed pump station, guardhouse, overhead gas piping bridge, waste gas burners, and three condensate control structures. Similar to the 2007 FEIS, the proposed new design would provide anaerobic digestion facilities that would improve the reliability of the solids handling process by replacing the existing digesters that have reached the end of their reliable useful life. The proposed new design would provide improved sludge digestion and more efficient waste gas burners than the existing conditions at the Hunts Point WWTP. Construction for the proposed new design includes:

- Construction of new silo-shaped digesters (similar in volume to the egg-shaped digesters proposed in the 2007 FEIS);
- Construction of supporting buildings and infrastructure (i.e., control building, gas building, waste-gas burners, etc.) for the digesters;
- Piping connections to the existing sludge thickeners; and
- Demolition of the existing digesters.

Construction of the Silo-Shaped Digesters and Support Buildings

Anticipated notice to proceed for HP-238 is October 2021, and includes an approximate four year construction period (two years less than the 2007 FEIS construction schedule) with field mobilization expected in early-2022 and field work continuing through late-2025 (see **Figure 24**). Similar to the 2007 FEIS, construction activities for the proposed new design would occur between 7:00 AM to 3:00 PM (one 8-hour shift per day), five days per week, and would not include construction over weekend or nights. If construction activities are required outside of these time periods, the construction manager will notify and request approval from NYCDEP.



Proposed New Design Construction Schedule

Demolition and earthwork activities would begin in the first quarter of 2022. Following this initial site work, construction of the equipment gallery and pipe chase would also begin in the second and third quarters of 2022, respectively, and would be completed by the third quarter of 2023. Additionally, construction of the digester feed pump station would occur over the period beginning in the first quarter of 2023 through the third quarter of 2024. In parallel, construction of the four digesters would begin in the third quarter of 2023 and would be completed in the first quarter of 2024. Construction of the digesters would occur in sequence, with construction of the first digester followed by construction of the second digester, then the third and fourth. Construction of the control building, the gas rooms adjacent to the digesters, and waste-gas burners would also occur during this time-frame, with construction beginning within the third quarter of 2023 and ending in the third quarter of 2024.

Piping Connections to the Existing Sludge Thickeners

Connections to the sludge thickeners are expected to occur in sequence, one at a time, to allow for maximum continued operation and was scheduled to occur throughout the first half of the construction duration (over the one-year period between 2023 through 2024).

Demolition of the Existing Digesters

Unlike the 2007 FEIS, the proposed new design would not include the renovation of the existing digesters. However, the proposed new design would include demolition of these structures. The new digesters, waste gas burners, gas rooms, and gas-detection systems would be online before demolition of the existing digester structures would begin. Demolition of the existing digesters is scheduled to being in the first quarter of 2025 and be completed in the fourth quarter of 2025.

Since publication of the 2007 FEIS, the adjacent 1.2-acre parcel proposed for construction staging area in the 2007 FEIS has been transferred to NYC Parks for incorporation into the adjacent Barretto Point Park. While the construction analyses for the 2007 FEIS did not explicitly consider the environmental impacts at locations within this parcel, the effects at receptors within the remaining Barretto Point Park—including locations similarly adjacent to the construction area—were considered. The environmental impacts at the Barretto Point Park locations would be representative of those that would be anticipated within the 1.2-acre parcel and are discussed in more detail below.

The impact analyses from construction activities have been separated into the specific sections below, which include the following:

- Traffic and transportation;
- Air quality; and
- Noise.

TRAFFIC AND TRANSPORTATION

Construction vehicles generated by the proposed new design include construction worker vehicles and truck deliveries. The 2007 FEIS assessed whether the projected construction activities at the time would have the potential to impact traffic conditions, parking availability, pedestrian activities, and public transportation usage surrounding the Hunts Point WWTP. That assessment predicted that construction traffic associated with construction would result in significant adverse traffic impacts at one study intersection—Bruckner Boulevard and Tiffany Street—that could be mitigated with adjustment to existing signal timings.

The project's construction has been delayed and the design and alternatives previously considered for the plant have evolved since the 2007 FEIS. Anticipated peak construction activities are currently projected to be lower than those assessed in the 2007 FEIS; however, background conditions and anticipated construction periods have changed, thereby necessitating reevaluation of impact conclusions previously made. As detailed below, this reevaluation resulted in consistent impact findings as those presented in the 2007 FEIS (that construction traffic associated with construction would result in significant adverse traffic impacts at one study intersection—Bruckner Boulevard and Tiffany Street), with some modifications to the recommended mitigation measures (adjustment to signal timings) that would be undertaken as part of the current proposed new design.

2007 FEIS Analysis—Summary

The 2007 FEIS assessment evaluated whether construction-related traffic from the proposed new design would significantly impact traffic conditions, parking availability, pedestrian activities, and public transportation usage near the Hunts Point WWTP. To address the potential construction transportation impacts, the peak quarter of projected construction activities was conservatively considered for analysis. That analysis period was expected to take place during the third quarter of 2011, during which there would be, on average, 177 daily construction workers and 51 daily truck deliveries. Only approximately 10 percent of project-generated construction trips, all of which were associated with construction worker automobiles, were projected to traverse the Hunts Point Avenue and Coster Street corridors. Other construction trips were projected to access the Hunts Point peninsula via Tiffany Street and Leggett Avenue, which are both DOT-designated truck routes.

Based on the assignment of peak hour construction trips for the 2007 FEIS, seven (7) intersections in the Hunts Point peninsula (listed below and depicted in **Figure 25**) were selected for a detailed analysis of potential construction traffic impacts.

1. Bruckner Boulevard and Hunts Point Avenue;
2. Bruckner Boulevard and Tiffany Street;
3. Garrison Avenue and Hunts Point Avenue;
4. Garrison Avenue and Leggett Avenue;
5. Lafayette Avenue and Tiffany Street;
6. Randall Avenue and Tiffany Street; and
7. Garrison Avenue and Tiffany Street.

The 2007 FEIS analysis concluded that vehicle-trips attributed to the peak construction activities would result in significant adverse impacts at the westbound left-turn movement of the Bruckner Boulevard and Tiffany Street intersection during both the construction AM and PM analysis peak hours. For that impacted movement, the highest number of incremental vehicle-trips projected was 86 vehicles during the construction AM peak hour in the third quarter of 2011. The estimated traffic on this turning movement would be considerably less (averaging fewer than 40 vehicles) during other periods of construction. However, because the length of time during which the impacts could occur was expected to span over numerous years, they were deemed significant adverse impacts.

To address the identified construction AM and PM peak hour traffic impacts, the 2007 FEIS recommended the implementation of signal timing adjustments (see 2007 FEIS for details).

In addition, the 2007 FEIS provided assessments of the area's parking, public transportation, and pedestrian conditions, as well as vehicular-pedestrian safety. In summary, because there would

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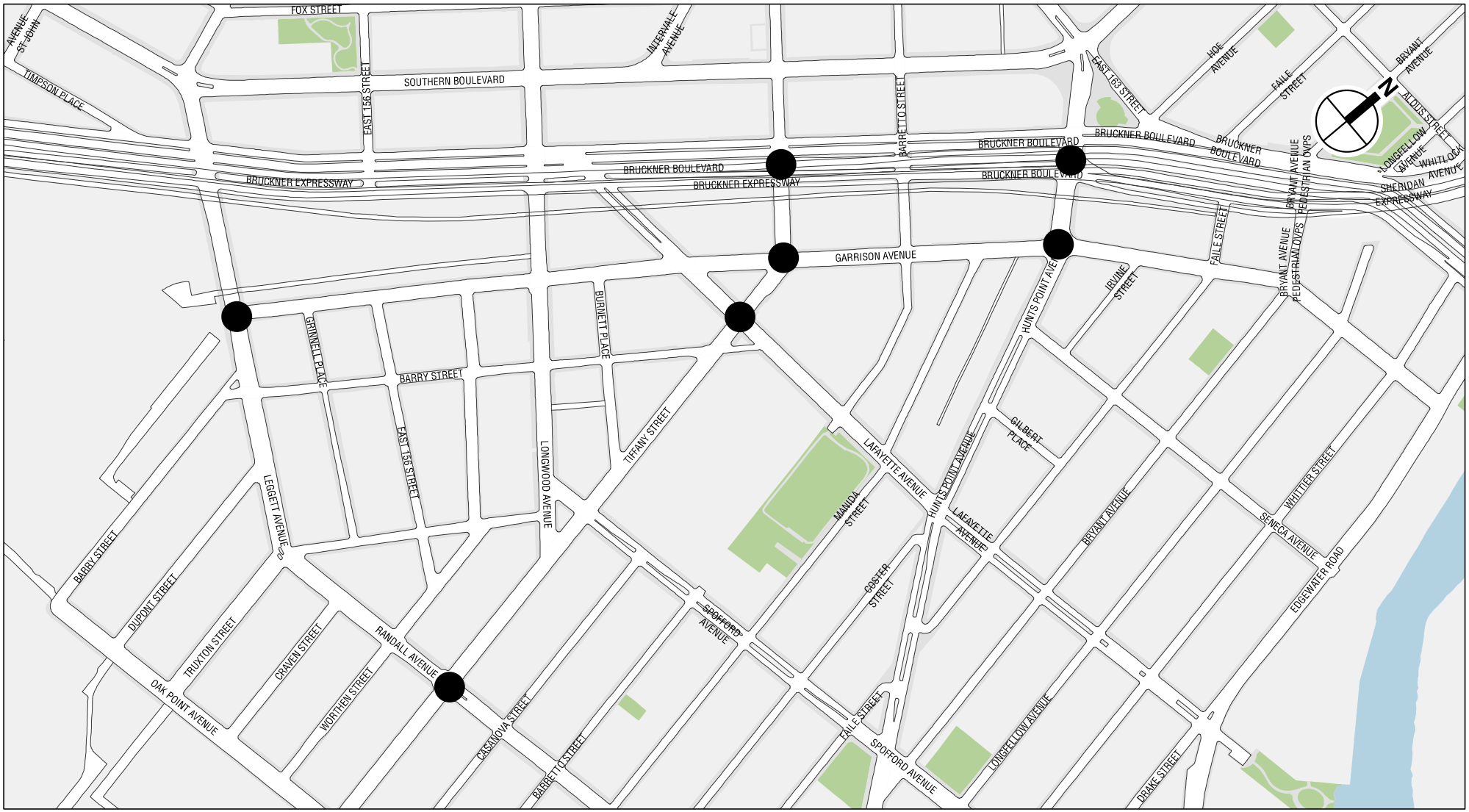

Signalized Intersections

Study Intersections

HUNTS POINT WWTP HP-238

Figure 25

not be any off-site queuing of truck deliveries and there was an abundance of nearby on-street parking supply, all construction-related parking demand was projected to be fully accommodated. Further, since the projected construction activities were predominantly vehicular-related, there would not be any notable construction-related transit or pedestrian trips added to the area's transit services and pedestrian facilities. Regarding vehicular-pedestrian safety, although historical data showed a high frequency of crashes and pedestrian injuries for the intersection of Bruckner Boulevard and Hunts Point Avenue, DOT had subsequently implemented safety measures, encompassing signal head and lane marking modifications, to ameliorate unsafe conditions.

Proposed New Design and Background Conditions Update

As discussed above, since the 2007 FEIS, the project's construction has been delayed and the design and alternatives previously considered for the plant have evolved. Applying the same methodology as in the FEIS, peak construction activities associated with the proposed new design were determined to occur in the third quarter of 2022[11], during which 133 daily construction worker vehicles and 43 daily truck deliveries were projected. These worker vehicles and truck projections are overall 10 percent lower than the peak 2011 values analyzed in the 2007 FEIS. Construction traffic was routed to, from, and within the Hunts Point peninsula using the same volume distributions described in the 2007 FEIS. Therefore, the proposed new design results in similar decreases to project-generated construction traffic volumes at study intersections.

However, background conditions, both present and anticipated in the new future peak construction year, would also be different from those studied in the 2007 FEIS. To assess the traffic-related construction impacts of the proposed new design, traffic data were collected in November 2018 to establish an updated baseline for comparison to the traffic volumes analyzed in the 2007 FEIS. Based on automatic traffic recorder (ATR) counts and turning movement counts (TMC) collected at the same locations as previously undertaken for the 2007 FEIS, the 2018 traffic data showed an overall 2.8 percent higher traffic volume in the construction AM peak hour and 3.7 percent higher traffic volume in the construction PM peak hour than the 2006 existing traffic volumes presented in the 2007 FEIS.

In addition to the slightly higher baseline traffic volumes, as compared to what was presented in the 2007 FEIS, signal timing and roadway geometry at several of the study intersections have changed. Bicycle lanes were added along numerous travel corridors through the majority of the study intersections. These include protected bicycle lanes along the Bruckner Boulevard median; conventional striped bicycle lanes along Hunts Point Avenue, Garrison Avenue, Lafayette Avenue, Tiffany Street, Leggett Avenue, and Randall Avenue; and shared bicycle lanes (sharrows) along Lafayette Avenue, Leggett Avenue, and Tiffany Street. These roadway changes resulted in lane width reductions and turn lane designations/restriping at numerous intersections on the Hunts Point peninsula. However, because there have not been any notable changes in the area's general traffic patterns, roadway travel directions, or DOT-designated truck routes, a reevaluation of the potential for traffic impacts was performed for the same seven study intersections listed above.

Existing Conditions Analysis

Based on the anticipated construction vehicle peak hours, traffic volumes were developed for the study intersections for the morning 6:30 to 7:30 AM and the afternoon 3:00 to 4:00 PM peak analysis hours, as shown in **Figures 26** and **27**. As discussed above, the 2018 traffic data showed an overall 2.8 percent higher traffic volume in the AM peak hour and 3.7 percent higher traffic

[11] Traffic analysis is based on anticipated construction start date. Actual construction start date may vary.

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2018 Existing Traffic Volumes
Weekday Construction AM Peak Hour

HUNTS POINT WWTP HP-238

Figure 26

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2018 Existing Traffic Volumes
Weekday Construction PM Peak Hour

HUNTS POINT WWTP HP-238

Figure 27

volume in the PM peak hour compared to the 2006 existing traffic volumes presented in the 2007 FEIS.

Level of Service (LOS) analyses were prepared using the *Highway Capacity Software+ Version 5.5 (HCS+)* for all study intersections. As shown in **Table 5**, most traffic movements at the seven study intersections currently operate at overall acceptable levels of service (mid-LOS D or better with no more than 45 seconds of average delay for signalized intersections) during the two construction peak analysis hours. Study intersections and lane groups currently operating at unacceptable levels with greater than 45 seconds of average delay are listed below.

Table 5

2018 Existing Conditions Level of Service Analysis

Intersection / Approach	AM Peak Hour				PM Peak Hour			
	Lane Group	V/C Ratio	Delay (sec)	LOS	Lane Group	V/C Ratio	Delay (sec)	LOS
Bruckner Boulevard Westbound & Hunts Point Avenue								
Westbound (main)	T	0.78	18.6	B	T	0.39	12.2	B
Westbound (service)	TR	0.65	16.1	B	TR	0.64	16.0	B
Northbound	LT	0.16	25.3	C	LT	0.26	26.6	C
Southbound	TR	0.39	28.1	C	TR	0.38	28.0	C
Intersection			19.9	B			18.6	B
Bruckner Boulevard Eastbound & Hunts Point Avenue								
Eastbound (main)	LT	0.38	25.8	C	LT	0.65	30.5	C
Eastbound (service)	TR	0.28	24.7	C	TR	0.48	27.7	C
Northbound	TR	0.52	49.5	D	TR	0.73	57.0	E
	R	1.01	132.1	F	R	1.05	142.4	F
Southbound	L	0.67	46.8	D	L	0.91	62.4	E
	T	0.27	16.0	B	T	0.02	13.3	B
Intersection			33.4	C			35.3	D
Bruckner Boulevard & Tiffany Street								
Eastbound (main)	T	0.48	37.6	D	T	0.53	20.7	C
Eastbound (service)	TR	0.18	32.9	C	TR	0.52	20.4	C
Westbound (main)	L	0.72	39.1	D	L	0.84	77.6	E
	T	0.49	3.8	A	T	0.35	4.6	A
Westbound (service)	TR	0.64	5.5	A	TR	0.62	7.4	A
Northbound	LTR	0.45	43.6	D	LTR	0.62	44.7	D
Southbound	LTR	0.37	43.0	D	LTR	0.81	57.9	E
Intersection			17.8	B			23.3	C
Garrison Avenue & Hunts Point Avenue								
Eastbound	L	0.20	38.4	D	L	0.37	44.1	D
	TR	1.05	113.2	F	TR	1.05	105.8	F
Westbound	L	0.08	36.3	D	L	0.34	51.1	D
	TR	0.35	40.3	D	TR	0.47	43.9	D
Northbound	L	0.10	19.5	B	L	0.14	20.0	B
	TR	0.51	26.3	C	TR	0.74	35.5	D
Southbound	L	0.15	8.7	A	L	0.23	10.4	B
	TR	0.30	9.0	A	TR	0.17	7.8	A
Intersection			41.6	D			48.5	D
Garrison Ave & Leggett Avenue								
Westbound	LR	0.29	33.4	C	LR	0.25	32.5	C
Northbound	TR	0.33	12.1	B	TR	0.28	11.4	B
Southbound	L	0.20	11.5	B	L	0.36	14.9	B
	T	0.64	18.5	B	T	0.67	20.1	C
Intersection			16.9	B			17.1	B
Lafayette Avenue & Tiffany Street								
Eastbound	LTR	0.21	34.8	C	LTR	0.40	38.7	D
Westbound	LTR	0.43	39.3	D	LTR	0.60	43.9	D
Northbound	LT	0.29	10.5	B	LT	0.26	9.9	A
Southbound	LTR	0.56	14.9	B	LTR	0.61	16.7	B
Intersection			20.1	C			24.4	C
Randall Avenue & Tiffany Street								
Eastbound	LTR	0.46	15.6	B	LTR	0.54	17.6	B
Westbound	LTR	0.84	33.7	C	LTR	0.68	21.0	C
Northbound	L	0.41	17.3	B	L	0.35	14.9	B
	TR	0.37	14.7	B	TR	0.41	14.7	B
Southbound	L	0.29	13.7	B	L	0.44	17.3	B
	TR	0.57	17.9	B	TR	0.64	21.1	C
Intersection			21.0	C			18.6	B
Garrison Avenue & Tiffany Street								
Eastbound	L	0.05	25.5	C	L	0.13	26.7	C
	TR	0.15	26.8	C	TR	0.35	30.0	C
Westbound	L	0.15	27.1	C	L	0.20	28.0	C
	TR	0.33	30.2	C	TR	0.39	31.2	C
Northbound	LTR	0.11	12.6	B	LTR	0.23	13.8	B
Southbound	LT	0.72	26.3	C	LT	0.47	17.9	B
	R	0.16	13.5	B	R	0.05	12.1	B
Intersection			23.4	C			21.5	C

Notes: L = Left Turn; T = Through; R = Right Turn; V/C = Volume to Capacity; LOS = Level of Service

Bruckner Boulevard Eastbound and Hunts Point Avenue

During the AM peak hour, the northbound shared through/right-turn lane group operates beyond mid-LOS D with a volume-to-capacity (v/c) ratio of 0.52 and an average delay of 49.5 seconds per vehicle (spv), the northbound right-turn lane group operates at LOS F with a v/c ratio of 1.01 and an average delay of 132.1 spv, and the southbound left-turn lane group operates beyond mid-LOS D with a v/c ratio of 0.67 and an average delay of 46.8 spv.

During the PM peak hour, the northbound shared through/right-turn lane group operates at LOS E with a v/c ratio of 0.73 and an average delay of 57.0 spv, the northbound right-turn lane group operates at LOS F with a v/c ratio of 1.05 and an average delay of 142.4 spv, and the southbound left-turn lane group operates at LOS E with a v/c ratio of 0.91 and an average delay of 62.4 spv.

Bruckner Boulevard and Tiffany Street

During the PM peak hour, the westbound left turn lane group operates at LOS E with a v/c ratio of 0.84 and an average delay of 77.6 spv and the southbound shared left-turn/through/right-turn lane group operates at LOS E with a v/c ratio of 0.81 and an average delay of 57.9 spv.

Garrison Avenue and Hunts Point Avenue

During the AM peak hour, the eastbound shared through/right-turn lane group operates at LOS F with a v/c ratio of 1.05 and an average delay of 113.2 spv.

During the PM peak hour, the eastbound shared through/right-turn lane group operates at LOS F with a v/c ratio of 1.05 and an average delay of 105.8 spv and the westbound left-turn lane group operates beyond mid-LOS D with a v/c ratio of 0.34 and an average delay of 51.1 spv.

No Action Condition Analysis

Future No Action traffic volumes, shown in **Figures 28** and **29,** were developed for the future peak analysis year, 2022,[12] using a background growth rate in accordance with CEQR guidelines and incorporating incremental changes in traffic resulting from other projects in the area. No physical or operational changes are anticipated to be implemented independent of the proposed new design.

Several projects are anticipated to be either nearing completion or completed by 2022. These projects consist of manufacturing facilities at 510 Hunts Point Avenue and 528 Drake Street and residential developments at 975 Tiffany Street, 1000 Fox Street, 985 Bruckner Boulevard, and 700 Manida Street. The No Action project volumes were developed based on travel demand factors presented in the *CEQR Technical Manual*[13] and in the 2018 *Spofford Campus FEIS*.[14]

Additionally, the New York State Department of Transportation's (NYSDOT) Hunts Point Interstate Access Improvement is anticipated to be competed in 2025—following the analyzed 2022 peak construction year 2022 for the HP-238 project. The purpose of the project is to provide improved access between the Hunts Point Peninsula and the Sheridan and Bruckner Expressways for automobiles and trucks traveling to and from the commercial businesses located on the peninsula. The improvement project will also address structural and operational deficiencies related to the existing infrastructure within the established project limits. Furthermore, the

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[12] Traffic analysis is based on anticipated construction start date. Actual construction start date may vary.

[13] New York City. *CEQR Technical Manual*. Chapter 16, section 311.1, Table 16-2. March 2014

[14] New York City Economic Development Corporation. *Spofford Campus Final Environmental Impact Statement*. CEQR No. 17DME001X. February, 2018.

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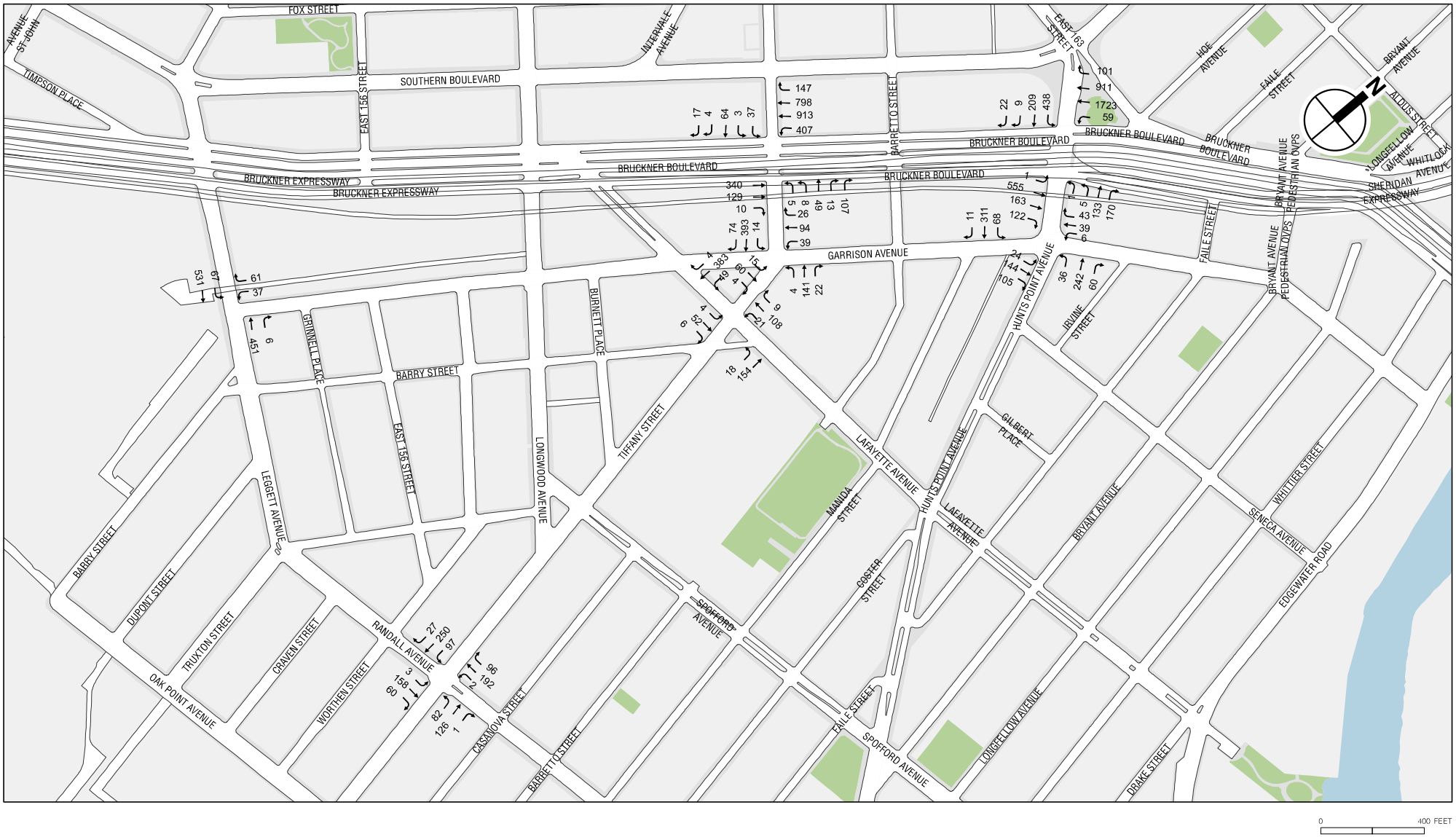

2022 No Action Traffic Volumes
Weekday Construction AM Peak Hour

HUNTS POINT WWTP HP-238

Figure 28

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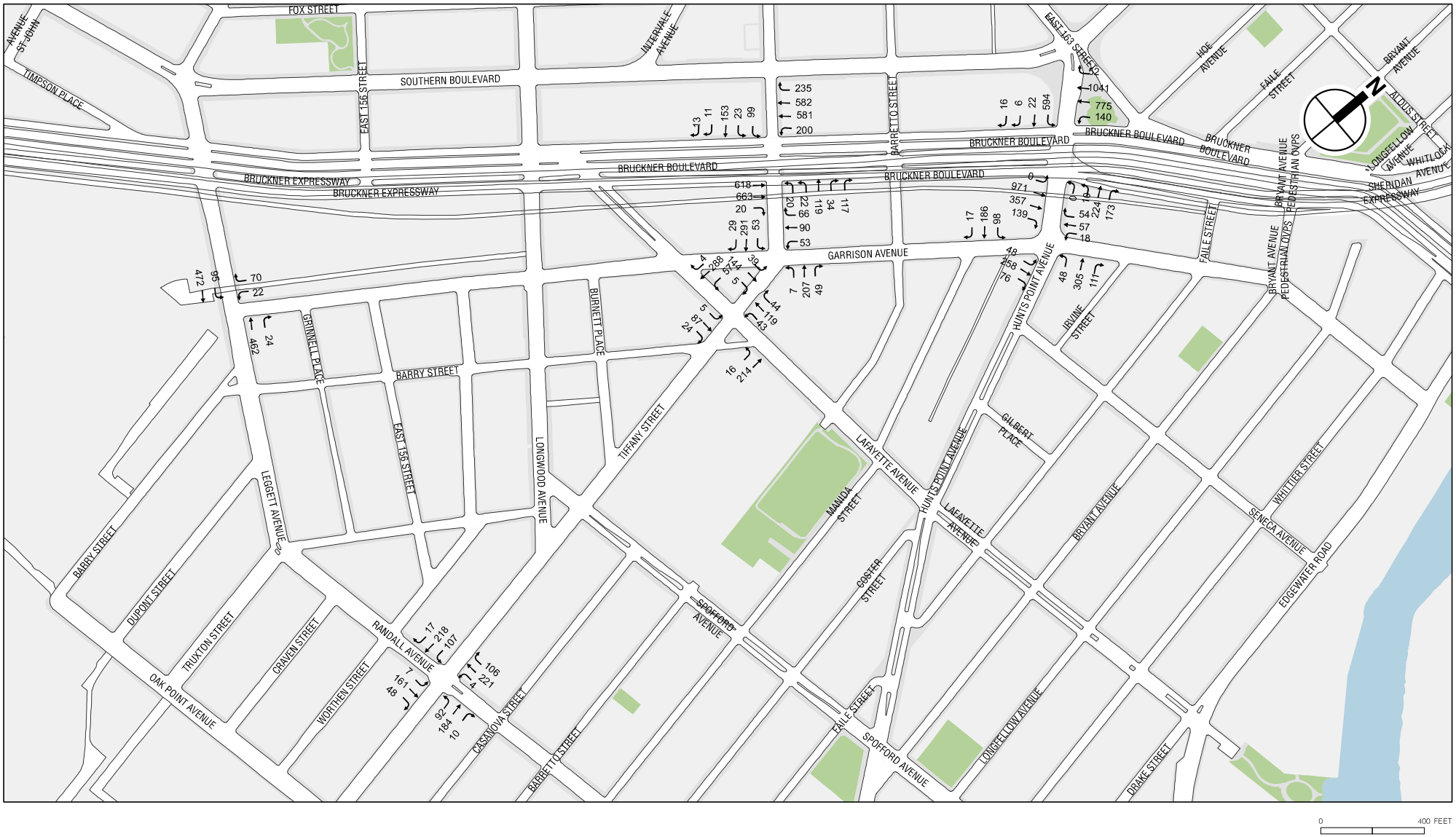

2022 No Action Traffic Volumes
Weekday Construction PM Peak Hour

HUNTS POINT WWTP HP-238

Figure 29

majority of the construction work associated with the NYSDOT project would be located east of the HP-238 traffic analysis intersections. Therefore, the HP-238 traffic analysis does not consider the improvements for the analysis.

The future 2022 No Action LOS analysis was conducted for the same intersections analyzed for the existing conditions and the 2007 FEIS. Detailed summaries of findings and comparisons with existing levels are presented in **Table 6**.

Bruckner Boulevard Eastbound and Hunts Point Avenue

During the AM peak hour, the northbound shared through/right-turn lane group will continue to operate beyond mid-LOS D with a v/c ratio of 0.53 and an average delay of 49.9 spv, the northbound right-turn lane group will continue to operate at LOS F with a v/c ratio of 1.04 and an average delay of 141.1 spv, and the southbound left-turn movement will continue to operate beyond mid-LOS D with a v/c ratio of 0.68 and an average delay of 47.0 spv.

During the PM peak hour, the northbound shared through/right-turn lane group will continue to operate at LOS E with a v/c ratio of 0.78 and an average delay of 60.0 spv, the northbound right-turn lane group will continue to operate at LOS F with a v/c ratio of 1.12 and an average delay of 164.9 spv, and the southbound left-turn movement will continue to operate at LOS E with a v/c ratio of 0.92 and an average delay of 63.7 spv.

Bruckner Boulevard and Tiffany Street

During the PM peak hour, the westbound left turn lane group will continue to operate at LOS E with a v/c ratio of 0.85 and an average delay of 72.9 spv and the southbound shared left-turn/through/right-turn lane group will continue to operate at LOS E with a v/c ratio of 0.82 and an average delay of 59.1 spv. The northbound shared left-turn/through/right-turn lane group will operate beyond mid-LOS D with a v/c ratio of 0.64 and an average delay of 45.5 spv.

Garrison Avenue and Hunts Point Avenue

During the AM peak hour, the eastbound shared through/right-turn lane group will continue to operate at LOS F with a v/c ratio of 1.06 and an average delay of 115.5 spv.

During the PM peak hour, the eastbound shared through/right-turn lane group will continue to operate at LOS F with a v/c ratio of 1.06 and an average delay of 110.1 spv and the westbound left-turn lane group will continue to operate beyond mid-LOS D with a v/c ratio of 0.35 and an average delay of 52.3 spv.

With Action (Construction) Condition Analysis

The With Action (Construction) analysis was conducted for the peak construction activities in the third quarter of 2022, during which 133 daily construction worker vehicles and 43 daily truck deliveries were projected. The most recent available census data on construction worker travel characteristics were used as the basis for estimating construction worker vehicle-trips. The same procedures used in the 2007 FEIS were then applied to develop the construction vehicle-trip increments for analysis. The 2022 construction-generated auto trips were assigned to the study area traffic networks, as shown in **Figures 30** and **31**. The 2022 construction-generated truck trips were also assigned to the study area traffic networks, as shown in **Figures 32**. The 2022 construction-generated auto and truck trips were combined with the future No Action traffic volumes to create the future With Action construction traffic analysis volume networks, as shown in **Figures 33** and **34**.

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Incremental Auto Trips
Weekday Construction AM Peak Hour

HUNTS POINT WWTP HP-238

Figure 30

6.9.20

Incremental Auto Trips
Weekday Construction PM Peak Hour

Figure 31

HUNTS POINT WWTP HP-238

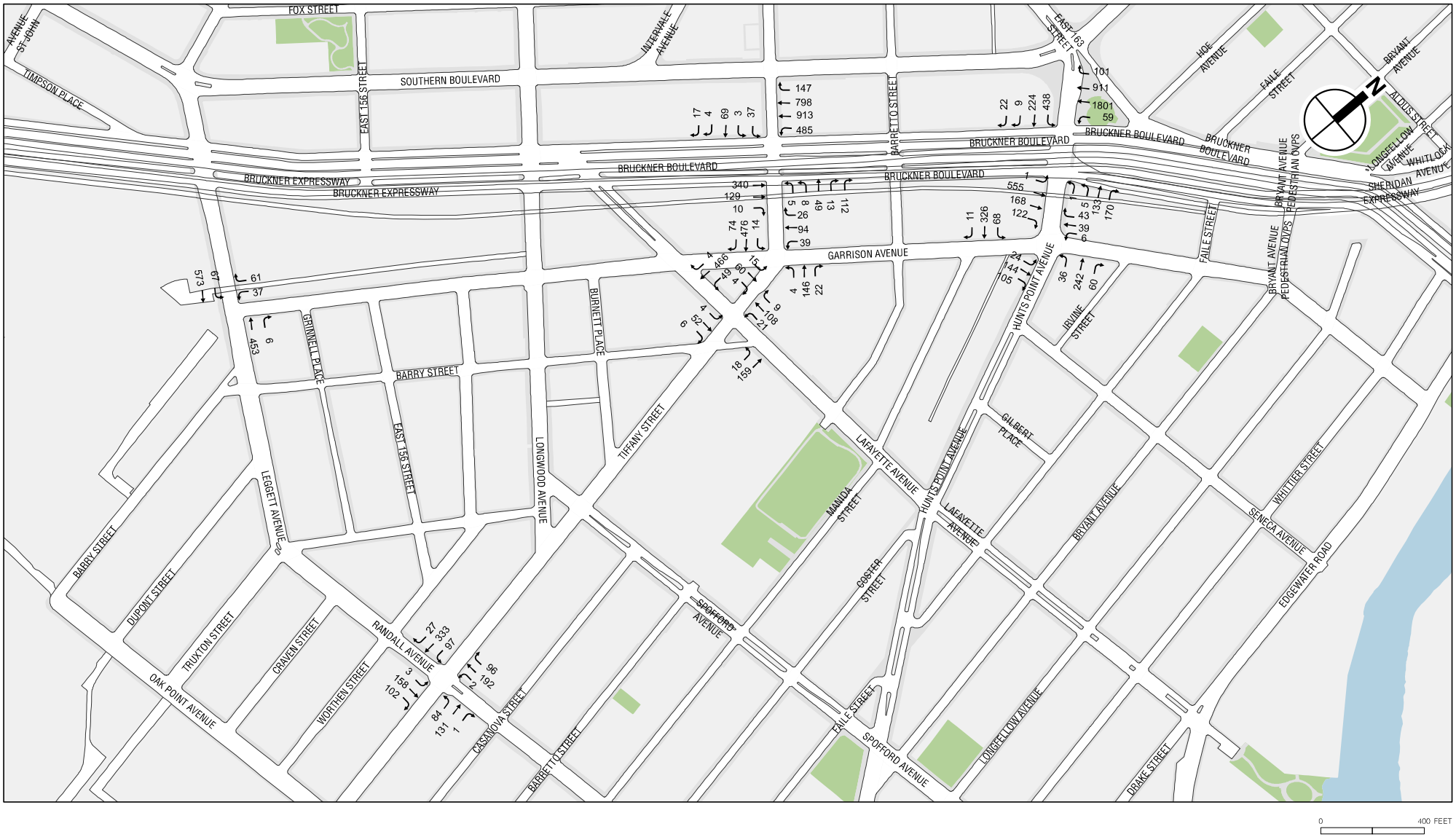
6.9.20

Incremental Truck Trips
Weekday Construction AM & PM Peak Hours

HUNTS POINT WWTP HP-238

Figure 32

6.9.20



2022 With Action Traffic Volumes
Weekday Construction AM Peak Hour

HUNTS POINT WWTP HP-238

Figure 33

6.9.20

2022 With Action Traffic Volumes
Weekday Construction PM Peak Hour

HUNTS POINT WWTP HP-238

Figure 34

Table 6

2018 Existing and 2022 No Action Conditions Level of Service Analysis

Intersection / Approach	AM Peak Hour								PM Peak Hour							
	2018 Existing				2022 No Action				2018 Existing				2022 No Action			
	Lane Group	V/C Ratio	Delay (sec)	LOS	Lane Group	V/C Ratio	Delay (sec)	LOS	Lane Group	V/C Ratio	Delay (sec)	LOS	Lane Group	V/C Ratio	Delay (sec)	LOS
Bruckner Boulevard Westbound & Hunts Point Avenue																
Westbound (main)	T	0.78	18.6	B	T	0.79	18.8	B	T	0.39	12.2	B	T	0.39	12.2	B
Westbound (service)	TR	0.65	16.1	B	TR	0.73	17.9	B	TR	0.64	16.0	B	TR	0.65	16.1	B
Northbound	LT	0.16	25.3	C	LT	0.17	25.4	C	LT	0.26	26.6	C	LT	0.29	27.1	C
Southbound	TR	0.39	28.1	C	TR	0.40	28.2	C	TR	0.38	28.0	C	TR	0.39	28.1	C
Intersection			19.9	B			20.6	C			18.6	B			18.7	B
Bruckner Boulevard Eastbound & Hunts Point Avenue																
Eastbound (main)	LT	0.38	25.8	C	LT	0.38	25.8	C	LT	0.65	30.5	C	LT	0.66	30.7	C
Eastbound (service)	TR	0.28	24.7	C	TR	0.29	24.8	C	TR	0.48	27.7	C	TR	0.48	27.8	C
Northbound	TR	0.52	49.5	D	TR	0.53	49.9	D	TR	0.73	57.0	E	TR	0.78	60.0	E
	R	1.01	132.1	F	R	1.04	141.1	F	R	1.05	142.4	F	R	1.12	164.9	F
Southbound	L	0.67	46.8	D	L	0.68	47.0	D	L	0.91	62.4	E	L	0.92	63.7	E
	T	0.27	16.0	B	T	0.28	16.2	B	T	0.02	13.3	B	T	0.03	13.3	B
Intersection			33.4	C			34.4	C			35.3	D			37.8	D
Bruckner Boulevard & Tiffany Street																
Eastbound (main)	T	0.48	37.6	D	T	0.49	37.7	D	T	0.53	20.7	C	T	0.54	20.9	C
Eastbound (service)	TR	0.18	32.9	C	TR	0.19	33.0	C	TR	0.52	20.4	C	TR	0.52	20.5	C
Westbound (main)	L	0.72	39.1	D	L	0.73	39.8	D	L	0.84	77.6	E	L	0.85	79.2	E
	T	0.49	3.8	A	T	0.49	3.8	A	T	0.35	4.6	A	T	0.35	4.7	A
Westbound (service)	TR	0.64	5.5	A	TR	0.65	5.6	A	TR	0.62	7.4	A	TR	0.62	7.5	A
Northbound	LTR	0.45	43.6	D	LTR	0.46	43.9	D	LTR	0.62	44.7	D	LTR	0.64	45.5	D
Southbound	LTR	0.37	43.0	D	LTR	0.39	43.4	D	LTR	0.81	57.9	E	LTR	0.82	59.1	E
Intersection			17.8	B			18.3	B			23.3	C			23.8	C
Garrison Avenue & Hunts Point Avenue																
Eastbound	L	0.20	38.4	D	L	0.20	38.4	D	L	0.37	44.1	D	L	0.37	44.3	D
	TR	1.05	113.2	F	TR	1.06	115.5	F	TR	1.05	105.8	F	TR	1.06	110.1	F
Westbound	L	0.08	36.3	D	L	0.08	36.0	D	L	0.34	51.1	D	L	0.35	52.3	D
	TR	0.35	40.3	D	TR	0.35	40.3	D	TR	0.47	43.9	D	TR	0.48	44.1	D
Northbound	L	0.10	19.5	B	L	0.11	19.6	B	L	0.14	20.0	B	L	0.14	20.0	B
	TR	0.51	26.3	C	TR	0.52	26.7	C	TR	0.74	35.5	D	TR	0.79	38.5	D
Southbound	L	0.15	8.7	A	L	0.15	8.8	A	L	0.23	10.4	B	L	0.24	11.0	B
	TR	0.30	9.0	A	TR	0.33	9.3	A	TR	0.17	7.8	A	TR	0.18	7.9	A
Intersection			41.6	D			41.5	D			48.5	D			50.2	D
Garrison Ave & Leggett Avenue																
Westbound	LR	0.29	33.4	C	LR	0.29	33.4	C	LR	0.25	32.5	C	LR	0.25	32.5	C
Northbound	TR	0.33	12.1	B	TR	0.34	12.2	B	TR	0.28	11.4	B	TR	0.28	11.5	B
Southbound	L	0.20	11.5	B	L	0.20	11.6	B	L	0.36	14.9	B	L	0.37	15.2	B
	T	0.64	18.5	B	T	0.66	19.1	B	T	0.67	20.1	C	T	0.68	20.7	C
Intersection			16.9	B			17.2	B			17.1	B			17.3	B
Lafayette Avenue & Tiffany Street																
Eastbound	LTR	0.21	34.8	C	LTR	0.21	34.8	C	LTR	0.40	38.7	D	LTR	0.40	38.8	D
Westbound	LTR	0.43	39.3	D	LTR	0.44	39.5	D	LTR	0.60	43.9	D	LTR	0.60	44.0	D
Northbound	LT	0.29	10.5	B	LT	0.30	10.6	B	LT	0.26	9.9	A	LT	0.28	10.1	B
Southbound	LTR	0.56	14.9	B	LTR	0.59	15.5	B	LTR	0.61	16.7	B	LTR	0.63	17.3	B
Intersection			20.1	C			20.3	C			24.4	C			24.5	C
Randall Avenue & Tiffany Street																
Eastbound	LTR	0.46	15.6	B	LTR	0.49	16.1	B	LTR	0.54	17.6	B	LTR	0.56	18.2	B
Westbound	LTR	0.84	33.7	C	LTR	0.86	36.1	D	LTR	0.68	21.0	C	LTR	0.72	22.5	C
Northbound	L	0.41	17.3	B	L	0.43	18.2	B	L	0.35	14.9	B	L	0.36	15.2	B
	TR	0.37	14.7	B	TR	0.38	14.9	B	TR	0..41	14.7	B	TR	0.44	15.2	B
Southbound	L	0.29	13.7	B	L	0.33	14.2	B	L	0.44	17.3	B	L	0.46	17.7	B
	TR	0.57	17.9	B	TR	0.61	19.1	B	TR	0.64	21.1	C	TR	0.66	22.0	C
Intersection			21.0	C			22.1	C			18.6	B			19.4	B
Garrison Avenue & Tiffany Street																
Eastbound	L	0.05	25.5	C	L	0.05	25.5	C	L	0.13	26.7	C	L	0.13	26.7	C
	TR	0.15	26.8	C	TR	0.16	26.8	C	TR	0.35	30.0	C	TR	0.35	30.0	C
Westbound	L	0.15	27.1	C	L	0.15	27.1	C	L	0.20	28.0	C	L	0.20	28.0	C
	TR	0.33	30.2	C	TR	0.33	30.2	C	TR	0.39	31.2	C	TR	0.40	31.3	C
Northbound	LTR	0.11	12.6	B	LTR	0.12	12.7	B	LTR	0.23	13.8	B	LTR	0.24	13.9	B
Southbound	LT	0.72	26.3	C	LT	0.75	28.0	C	LT	0.47	17.9	B	LT	0.48	18.2	B
	R	0.16	13.5	B	R	0.16	13.5	B	R	0.05	12.1	B	R	0.05	12.1	B
Intersection			23.4	C			24.2	C			21.5	C			21.6	C

Notes: L = Left Turn; T = Through; R = Right Turn; V/C = Volume to Capacity; LOS = Level of Service
Traffic analysis is based on anticipated construction start date. Actual construction start date may vary.

Intersection capacities and LOS were analyzed to determine whether there could be a potential for significant adverse traffic impacts due to the projected construction-generated traffic. Comparisons of the 2022 No Action and With Action conditions for the study intersections are presented in **Table 7** for both the construction AM and PM analysis peak hours. Significant adverse traffic impacts attributed to the proposed new design's construction-generated vehicle-trips are anticipated for movements at only one study intersection—Bruckner Boulevard and Tiffany Street—during both the construction AM and PM analysis peak hours. The 2007 FEIS also disclosed significant adverse traffic impacts at only this intersection in the construction AM and PM analysis peak hours. Movements that would experience significant adverse traffic impacts as a result of the proposed new design are listed below.

Bruckner Boulevard and Tiffany Street

During the AM peak hour, the westbound left-turn movement would continue to operate at LOS D, and experience increases in v/c ratio from 0.73 to 0.87 and in average delay from 39.8 spv to 50.4 spv. During the PM peak hour, the westbound left-turn movement would deteriorate from LOS E to LOS F, and experience increases in v/c ratio from 0.85 to 0.87 and in average delay from 79.2 spv to 82.8 spv. The northbound approach would deteriorate from LOS D to LOS E, and experience increases in v/c ratio from 0.64 to 0.83 and in average delay from 45.5 spv to 55.8 spv.

When compared to the conclusions made in the 2007 FEIS, the proposed new design would result in the same westbound Bruckner Boulevard left-turn movement at this intersection being impacted during the construction AM and PM analysis peak hours. In addition, the intersection's northbound Tiffany Street approach would be impacted during the construction PM analysis peak hour only. Although the degree of vehicle delay changes and the number of traffic movements determined to be impacted would differ, the overall impact findings from the reevaluation are, for purposes of environmental review, consistent with those made in the 2007 FEIS.

Public Transportation, Pedestrians, Parking, and Safety

The proposed new design is anticipated to generate fewer daily construction worker trips and truck deliveries than previously disclosed in the 2007 FEIS and there have not been any notable changes to the area's public transportation, pedestrian, and parking infrastructure. Because favorable conditions were concluded in the 2007 FEIS for these transportation elements, the proposed new design would likewise be expected to result in the same favorable conditions and, consistent with the findings of the 2007 FEIS, would not have the potential to result in significant adverse impacts to public transportation, pedestrians, and parking.

Regarding vehicular and pedestrian safety, DOT has, since the 2007 FEIS, implemented various safety improvements, including new bicycle lanes and related roadway stripings, throughout the Hunts Point peninsula as part of the Vision Zero Action Plan to improve vehicle, pedestrian, and bicycle safety. In 2014, DOT also created the Hunts Point Clean Trucks Program, which included initiatives for truck safety enhancements, to further enhance vehicle, pedestrian, and bicycle safety in Hunts Point. With the proposed new design also yielding lower construction activities as compared to those projected in the 2007 FEIS, consistent with findings made in that previous environmental review, there would not be the potential for any safety impacts.

Table 7

2022 No Action and 2022 Construction Conditions Level of Service Analysis

Intersection / Approach	AM Peak Hour								PM Peak Hour							
	2022 No Action				2022 Construction				2022 No Action				2022 Construction			
	Lane Group	V/C Ratio	Delay (sec)	LOS	Lane Group	V/C Ratio	Delay (sec)	LOS	Lane Group	V/C Ratio	Delay (sec)	LOS	Lane Group	V/C Ratio	Delay (sec)	LOS
Bruckner Boulevard Westbound & Hunts Point Avenue																
Westbound (main)	T	0.79	18.8	B	T	0.82	20.1	C	T	0.39	12.2	B	T	0.39	12.3	B
Westbound (service)	TR	0.73	17.9	B	TR	0.66	16.3	B	TR	0.65	16.1	B	TR	0.65	16.1	B
Northbound	LT	0.17	25.4	C	LT	0.17	25.5	C	LT	0.29	27.1	C	LT	0.31	27.3	C
Southbound	TR	0.40	28.2	C	TR	0.20	28.3	C	TR	0.39	28.1	C	TR	0.39	28.1	C
Intersection			20.6	C			20.8	C			18.7	B			18.8	B
Bruckner Boulevard Eastbound & Hunts Point Avenue																
Eastbound (main)	LT	0.38	25.8	C	LT	0.38	25.8	C	LT	0.66	30.7	C	LT	0.67	30.9	C
Eastbound (service)	TR	0.29	24.8	C	TR	0.29	24.9	C	TR	0.48	27.8	C	TR	0.55	29.0	C
Northbound	TR	0.53	49.9	D	TR	0.53	49.9	D	TR	0.78	60.0	E	TR	0.81	62.9	E
	R	1.04	141.1	F	R	1.04	141.1	F	R	1.12	164.9	F	R	1.12	164.9	F
Southbound	L	0.68	47.0	D	L	0.68	47.0	D	L	0.92	63.7	E	L	0.92	63.7	E
	T	0.28	16.2	B	T	0.30	16.5	B	T	0.03	13.3	B	T	0.03	13.3	B
Intersection			34.4	C			34.3	C			37.8	D			38.1	D
Bruckner Boulevard & Tiffany Street																
Eastbound (main)	T	0.49	37.7	D	T	0.49	37.7	D	T	0.54	20.9	C	T	0.54	20.9	C
Eastbound (service)	TR	0.19	33.0	C	TR	0.19	33.0	C	TR	0.52	20.5	C	TR	0.52	20.5	C
Westbound (main)	L	0.73	39.8	D	**L**	**0.87**	**50.4**	**D+**	L	0.85	79.2	E	**L**	**0.87**	**82.8**	**F+**
	T	0.49	3.8	A	T	0.49	3.8	A	T	0.35	4.7	A	T	0.35	4.7	A
Westbound (service)	TR	0.65	5.6	A	TR	0.65	5.6	A	TR	0.62	7.5	A	TR	0.62	7.5	A
Northbound	LTR	0.46	43.9	D	LTR	0.47	44.2	D	LTR	0.64	45.5	D	**LTR**	**0.83**	**55.8**	**E+**
Southbound	LTR	0.39	43.4	D	LTR	0.41	43.8	D	LTR	0.82	59.1	E	LTR	0.82	59.1	E
Intersection			18.3	B			20.6	C			23.8	C			25.7	C
Garrison Avenue & Hunts Point Avenue																
Eastbound	L	0.20	38.4	D	L	0.20	38.4	D	L	0.37	44.3	D	L	0.37	44.3	D
	TR	1.06	115.5	F	TR	1.06	115.5	F	TR	1.06	110.1	F	TR	1.06	110.1	F
Westbound	L	0.08	36.0	D	L	0.08	36.0	D	L	0.35	52.3	D	L	0.35	52.3	D
	TR	0.35	40.3	D	TR	0.35	40.3	D	TR	0.48	44.1	D	TR	0.48	44.1	D
Northbound	L	0.11	19.6	B	L	0.11	19.6	B	L	0.14	20.0	B	L	0.14	20.0	B
	TR	0.52	26.7	C	TR	0.52	26.7	C	TR	0.79	38.5	D	TR	0.82	40.4	D
Southbound	L	0.15	8.8	A	L	0.15	8.8	A	L	0.24	11.0	B	L	0.24	11.3	B
	TR	0.33	9.3	A	TR	0.34	9.5	A	TR	0.18	7.9	A	TR	0.18	7.9	A
Intersection			41.5	D			41.2	D			50.2	D			50.7	D
Garrison Ave & Leggett Avenue																
Westbound	LR	0.29	33.4	C	LR	0.29	33.4	C	LR	0.25	32.5	C	LR	0.25	32.5	C
Northbound	TR	0.34	12.2	B	TR	0.34	12.2	B	TR	0.28	11.5	B	TR	0.31	11.8	B
Southbound	L	0.20	11.6	B	L	0.20	11.6	B	L	0.37	15.2	B	L	0.39	16.0	B
	T	0.66	19.1	B	T	0.71	20.9	C	T	0.68	20.7	C	T	0.68	20.8	C
Intersection			17.2	B			18.2	B			17.3	B			17.3	B
Lafayette Avenue & Tiffany Street																
Eastbound	LTR	0.21	34.8	C	LTR	0.21	34.8	C	LTR	0.40	38.8	D	LTR	0.40	38.8	D
Westbound	LTR	0.44	39.5	D	LTR	0.44	39.5	D	LTR	0.60	44.0	D	LTR	0.60	44.0	D
Northbound	LT	0.30	10.6	B	LT	0.31	10.7	B	LT	0.28	10.1	B	LT	0.37	11.2	B
Southbound	LTR	0.59	15.5	B	LTR	0.69	18.7	B	LTR	0.63	17.3	B	LTR	0.65	18.2	B
Intersection			20.3	C			21.6	C			24.5	C			23.9	C
Randall Avenue & Tiffany Street																
Eastbound	LTR	0.49	16.1	B	LTR	0.60	18.9	B	LTR	0.56	18.2	B	LTR	0.57	18.4	B
Westbound	LTR	0.86	36.1	D	LTR	0.86	36.1	D	LTR	0.72	22.5	C	LTR	0.72	22.5	C
Northbound	L	0.43	18.2	B	L	0.55	24.5	C	L	0.36	15.2	B	L	0.53	19.5	B
	TR	0.38	14.9	B	TR	0.40	15.2	B	TR	0.44	15.2	B	TR	0.63	19.4	B
Southbound	L	0.33	14.2	B	L	0.33	14.2	B	L	0.46	17.7	B	L	0.55	22.3	C
	TR	0.61	19.1	B	TR	0.79	26.9	C	TR	0.66	22.0	C	TR	0.68	22.5	C
Intersection			22.1	C			24.9	C			19.4	B			20.9	C
Garrison Avenue & Tiffany Street																
Eastbound	L	0.05	25.5	C	L	0.05	25.5	C	L	0.13	26.7	C	L	0.13	26.7	C
	TR	0.16	26.8	C	TR	0.16	26.8	C	TR	0.35	30.0	C	TR	0.35	30.0	C
Westbound	L	0.15	27.1	C	L	0.15	27.1	C	L	0.20	28.0	C	L	0.20	28.0	C
	TR	0.33	30.2	C	TR	0.33	30.2	C	TR	0.40	31.3	C	TR	0.40	31.3	C
Northbound	LTR	0.12	12.7	B	LTR	0.12	12.7	B	LTR	0.24	13.9	B	LTR	0.31	14.8	B
Southbound	LT	0.75	28.0	C	LT	0.90	41.8	D	LT	0.48	18.2	B	LT	0.50	18.7	B
	R	0.16	13.5	B	R	0.16	13.5	B	R	0.05	12.1	B	R	0.05	12.1	B
Intersection			24.2	C			31.6	C			21.6	C			21.4	C

Notes: L = Left Turn; T = Through; R = Right Turn; V/C = Volume to Capacity; LOS = Level of Service; **+** = Sig. Adverse Impact
Traffic analysis is based on anticipated construction start date. Actual construction start date may vary.

Mitigation

Similar to the 2007 FEIS, potential significant adverse traffic impacts were identified for the Bruckner Boulevard and Tiffany Street intersection. The 2007 FEIS proposed signal timing adjustments to fully mitigate the impacts for the AM and PM peak hours. Traffic impacts identified for the proposed new design were also assessed to determine if these impacts could be fully mitigated. For the 2022 construction scenario, analysis results showed that signal timing adjustments similar to those proposed for the 2007 FEIS would also be required to fully mitigate the construction AM and PM peak hour traffic impacts identified.

As summarized in **Table 8**, shifting 4 seconds of green time in the AM peak hour and 1 second of green time in the PM peak hour from the eastbound/westbound phase to the westbound lagging phase at the Bruckner Boulevard and Tiffany Street intersection would fully mitigate the westbound left-turn impacts. In addition, shifting 3 seconds of green time from the eastbound/westbound phase to the northbound and southbound phase would fully mitigate the northbound approach impact during the construction PM peak hour. Therefore, these measures would be recommended for implementation in place of the measures proposed for the 2007 FEIS.

Upon completion of the planned construction activities, the measures presented in **Table 8** could be maintained or removed at the discretion of DOT in order to fully mitigate the traffic impacts identified for the proposed new design.

Table 8

2022 No Action, Construction, and Mitigated Conditions Level of Service Analysis

Intersection / Approach	Lane Group	2022 No Action			2022 Construction			2022 Mitigation			Mitigation
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	
Bruckner Boulevard & Tiffany Street: *AM Peak Hour*											
Eastbound (main)	T	0.49	37.7	D	0.49	37.7	D	0.55	42.1	D	Shift 4 seconds of green time from eastbound and westbound phase to westbound lagging phase.
Eastbound (service)	TR	0.19	33.0	C	0.19	33.0	C	0.22	36.4	D	
Westbound (main)	L	0.73	39.8	D	**0.87**	**50.4**	**D+**	0.80	39.5	D	
	T	0.49	3.8	A	0.49	3.8	A	0.49	3.8	A	
Westbound (service)	TR	0.65	5.6	A	0.65	5.6	A	0.65	5.6	A	
Northbound	LTR	0.46	43.9	D	0.47	44.2	D	0.47	44.2	D	
Southbound	LTR	0.39	43.4	D	0.41	43.8	D	0.41	43.8	D	
Intersection			18.3	B		20.6	C		19.5	B	
Bruckner Boulevard & Tiffany Street: *PM Peak Hour*											
Eastbound (main)	T	0.54	20.9	C	0.54	20.9	C	0.58	24.9	C	Shift 1 seconds of green time from eastbound and westbound phase to westbound lagging phase. Shift 3 seconds of green time from the eastbound and westbound phase to northbound and southbound phase.
Eastbound (service)	TR	0.52	20.5	C	0.52	20.5	C	0.57	24.4	C	
Westbound (main)	L	0.85	79.2	E	**0.87**	**82.8**	**F+**	0.83	74.5	E	
	T	0.35	4.7	A	0.35	4.7	A	0.36	6.1	A	
Westbound (service)	TR	0.62	7.5	A	0.62	7.5	A	0.63	9.6	A	
Northbound	LTR	0.64	45.5	D	**0.83**	**55.8**	**E+**	0.76	48.0	D	
Southbound	LTR	0.82	59.1	E	0.82	59.1	E	0.75	50.3	D	
Intersection			23.8	C		25.7	C		25.8	C	

Notes: L = Left Turn; T = Through; R = Right Turn; V/C = Volume to Capacity; LOS = Level of Service; **+** = Sig. Adverse Impact
Traffic analysis is based on anticipated construction start date. Actual construction start date may vary.

Conclusion

Similar to the 2007 FEIS, the updated traffic analysis indicated significant adverse traffic impacts at only the Bruckner Boulevard and Tiffany Street intersection in the construction AM and PM peak hours. Although the updated analysis showed that the northbound approach at this intersection would also be impacted, the impact can be similarly addressed with shifts in signal timing. The recommended shifts in signal timing for the proposed new design are comparable to the 2007 FEIS. These modified signal timing shifts, which are also made routinely by DOT to adjust to changing traffic conditions, can be undertaken as additional improvements associated

with the proposed new design. Therefore, the conclusions of the traffic analysis for the proposed new design are consistent with the findings of the 2007 FEIS.

AIR QUALITY

In general, most heavy construction equipment have diesel-powered engines and produce relatively high levels of nitrogen oxides and particulate matter. Construction activities also generate fugitive dust emissions. In addition, increased traffic from construction vehicles traveling to and from the project site could affect mobile source-related emissions. As a result, an analysis of the potential for air quality impacts was performed for the 2007 FEIS. The air pollutants analyzed for the construction activities included nitrogen dioxide (NO_2), particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), carbon monoxide (CO), and sulfur dioxide (SO_2).

As part of the 2007 FEIS, commitments were made to reduce particulate matter emissions to the extent practicable by employing relatively new equipment and installing diesel particulate filters on diesel-powered equipment greater than 50 hp. Additionally, construction activities for the proposed action were subject to New York City Local Law 77, which required the use of Best Available Technology (BAT). Similar to the 2007 FEIS, these commitments would be maintained for the proposed new design.

2007 FEIS Analysis

As discussed above, construction activities were expected to occur over a period of approximately seven years. A typical operating schedule of 7:00 AM to 3:00 PM, (one 8-hour shift per day), five days per week was assumed for the analysis. Based on multi-year peak daily and average annual $PM_{2.5}$ emissions profiles developed for the 2007 FEIS, a worst-case short-term period and a worst-case year were identified for analysis. The third quarter of 2011 (for short term analyses) and the third quarter of 2011 through the second quarter of 2012 (for the annual analyses) were determined to be the worst-case periods. Maximum air pollutant concentrations were determined for each time period.

The peak periods analyzed in the 2007 FEIS included the renovation of the existing sludge thickeners and the construction of the egg-shaped digesters occurring simultaneously. A list of the operating equipment assumed in the 2007 FEIS is provided below in **Table 9** with the estimated equipment horsepower.

In addition, an analysis of the potential for air quality impacts from project induced traffic was performed. The 2007 FEIS determined that in the peak AM and PM periods 148 automobiles and 8 heavy duty trucks would be used during construction by the proposed action. As with the stationary source analysis, the peak period used in the modeling analysis was the third quarter of year 2011.

As presented in **Table 10,** maximum predicted total concentrations did not exceed any applicable impact criteria therefore the 2007 FEIS determined that no significant adverse air quality impacts were expected to occur.

Table 9
Estimated Construction Equipment Data
2007 FEIS

Equipment for Peak Stages	Engine Size (hp)
Backhoes	87.17
Excavators	137.6
Loaders	87.17
Dozers	136.1
Cranes	237.7
Compressors	83.9
Pile Driver	237.7
Concrete Pumps	137.7
Water Pumps	8.5
Generators	33.4
Graders	231.2
Pavers	134.6
Rollers	84.7
Heavy Trucks	N/A

Table 10
Maximum Predicted Total Concentrations for Construction Activities
2007 FEIS

Pollutant	Averaging Period	Predicted Stationary Impact ($\mu g/m^3$)	Predicted Mobile Impact ($\mu g/m^3$)	Total Max Predicted Conc. ($\mu g/m^3$)	Ambient Standard ($\mu g/m^3$)
NO_2	Annual	11.8	N/A	71.8 (1)	100
SO_2	3-hour	1.1	N/A	211.1 (1)	1,300
	24-hour	0.3	N/A	134.3 (1)	365
	Annual	0.01	N/A	34.0 (1)	80
PM_{10}	24-hour	2.4	4.1	52.5 (1)	150
$PM_{2.5}$	24-hour	1.17	0.03	1.20	7.7 (2)
	Annual	0.002	0.004	0.006	0.1
CO	1-hour	322	687	6,609 (1)	40,000
	8-hour	167	458	3,711 (1)	10,000

Notes:
Maximum total concentrations were conservatively estimated by adding the highest results from the mobile source and the stationary source analyses, which had individual maximum impacts were predicted to occur at separate locations.
(1) Maximum concentrations include background values from the nearest NYSDEC ambient air monitoring stations at the time of publication of the 2007 FEIS.
(2) The $PM_{2.5}$ *de minimis* criteria superseded the $PM_{2.5}$ interim guidance criteria on June 5, 2013. The 24-hour average interim guidance criteria for $PM_{2.5}$ were as follows —24-hour average, > 2 $\mu g/m^3$ (5 $\mu g/m^3$ not-to-exceed value), based on the magnitude, frequency duration, location, and size of the area of the predicted concentrations. The $PM_{2.5}$ increments shown are less than the *de minimis* value. These increments were not considered significant when they were compared with the interim guidance criteria in the 2007 FEIS, and are also not significant when compared to the *de minimis* value of 7.7 $\mu g/m^3$ based on the 24-hour average background value of 19.6 $\mu g/m^3$ from the I.S. 52 NYSDEC ambient air monitoring station.

Since publication of the 2007 FEIS, EPA has established a 1-hour NO_2 standard following publication of the 2007 FEIS. EPA guidance on modeling 1-hour NO_2 discusses intermittent emissions.[15] EPA states that "the intermittent nature of the actual emissions…in many cases, when coupled with the probabilistic form of the standard, could result in modeled impacts being significantly higher than actual impacts would realistically be expected to be for these emission scenarios." Furthermore, EPA "recommends that compliance demonstrations for the 1-hour NO_2 NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations."

For non-road construction sources, the monthly/annual variation in the types of equipment needed on the construction site and the utilization of the equipment would fluctuate on an hourly basis. In addition, the statistical basis of the 1-hour NO_2 standard (a three-year statistical average of modeled concentrations), unlike the other pollutants and the corresponding averaging periods modeled in the construction analysis, such as $PM_{2.5}$ 24-hour and NO_2 annual averaging periods, make it difficult to accurately model construction sources which would move throughout the project area over the entire construction period as opposed to sources that operate on a regular basis in a defined location such as an exhaust stack on a building.

Given the level of existing data and models, there are no clear methods to predict the rate of transformation of NO to NO_2 at ground level for construction sources that would not be anticipated to operate within the immediate vicinity of a single receptor location for an extended period of time. Further, substantial uncertainty still exists as to 1-hour NO_2 background concentrations at ground level, especially near roadways, since these concentrations have not been adequately measured and no attainment determinations have been made by EPA. For these reasons, a 1-hour NO_2 analysis would not have been conducted for construction sources.

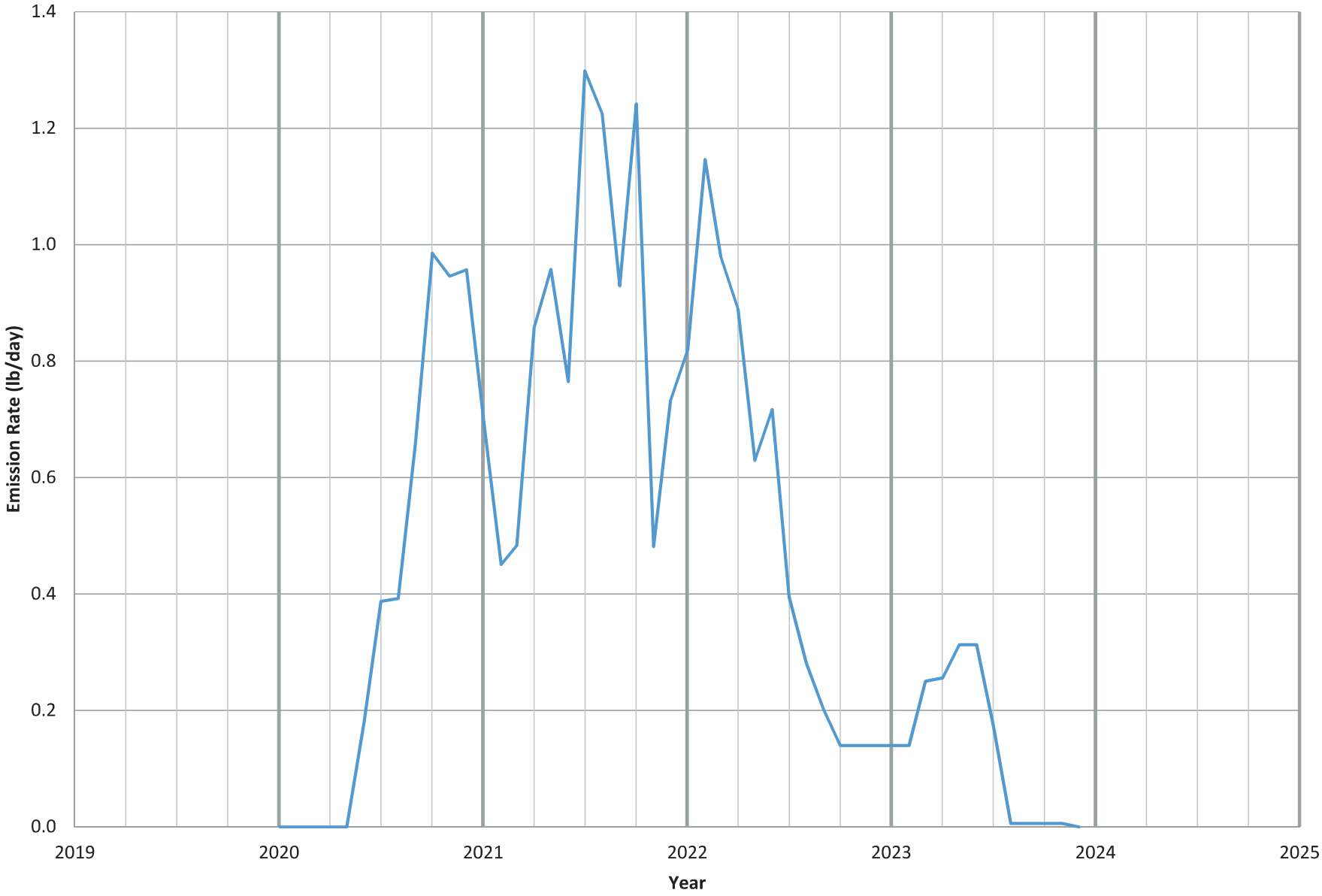
Proposed New Design

Similar to the 2007 FEIS, emission profiles were developed to determine peak construction time periods (see **Figures 35** and **36**). The proposed construction schedule for the proposed new design would be accelerated/compressed compared to the schedule analyzed in the 2007 FEIS, reducing the overall duration of construction from approximately 75 months to approximately 39 months, which is three years less construction time.[16] The worst-case peak construction short-term and annual time periods for the proposed new design would occur within the third quarter of 2022 and the period beginning within the third quarter of 2022 through the second quarter of 2023. During these time periods, construction of the digesters, the adjacent building components (equipment gallery, gas building, and controlled building), and the digester feed pump station would be occurring. On-site construction activities would include earthwork, concrete and masonry operations, and pile driving.

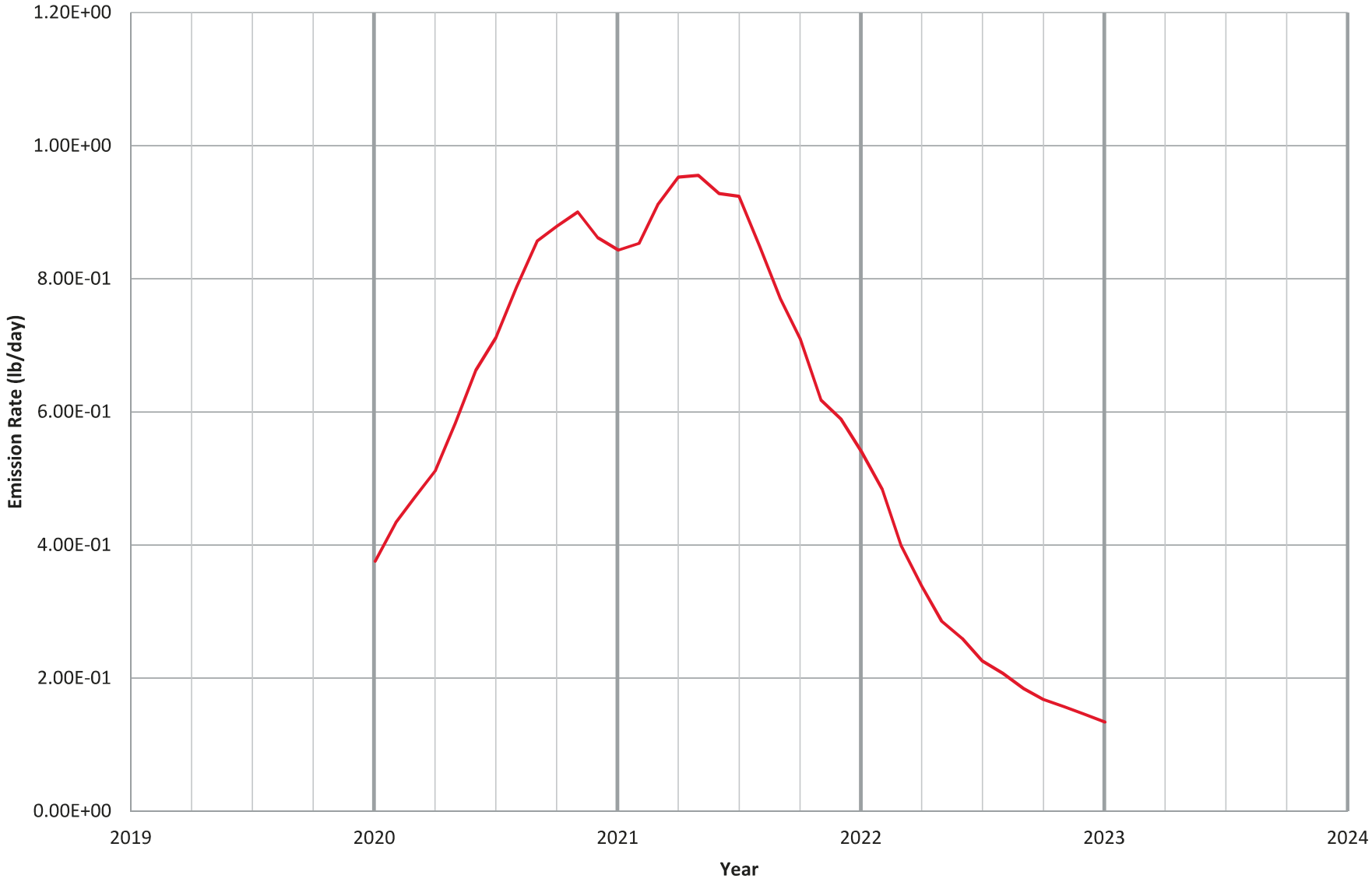
Equipment located on-site would be comparable to those included in the analysis for the 2007 FEIS and would be on-site for a shorter duration due to the accelerated/compressed construction schedule when compared to the FEIS. However, the accelerated/compressed schedule may result

[15] EPA Memorandum, "Additional Clarification Regarding Application of Appendix W, Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard," March 1, 2011.

[16] Air quality analysis is based on anticipated construction start date. Actual construction start date may vary.



Short Term $PM_{2.5}$ Construction Emissions Profile: Proposed New Design



Annual $PM_{2.5}$ Construction Emissions Profile: Proposed New Design

in slightly more equipment operating simultaneously for short-term time periods than was projected for the 2007 FEIS in order for the project to be completed.

Since publication of the 2007 FEIS, the adjacent 1.2-acre parcel proposed for construction staging area in the 2007 FEIS has been transferred to NYC Parks for incorporation into the adjacent Barretto Point Park. While the air quality analysis did not consider the parcel as a receptor location, concentrations at receptors within Barretto Point Park were modeled. The maximum $PM_{2.5}$ incremental 24-hour concentration within Barretto Point Park during the peak construction activities was predicted to be 1.17 $\mu g/m^3$ at the fence line directly west of the location of highest emissions, the digester construction area. Locations within the adjacent 1.2-acre parcel would be similarly located directly adjacent to the digester construction area; therefore, concentrations within Barretto Point Park would be representative of concentrations within the transferred parcel.

Additionally, the number of peak construction-generated trips associated with the proposed new design would be 133 automobiles and 7 heavy duty trucks in the AM and PM peak periods, lower than what was predicted and analyzed in the 2007 FEIS, which were 148 automobiles and 8 heavy duty trucks. Therefore, the pollutant emissions from mobile sources associated with construction of the proposed new design would be less than what was estimated in the 2007 FEIS based on the assumption that the automobiles and trucks would not have different amounts and types of emissions.

As discussed above, construction for the proposed new design would commit to employing newer equipment and the use of diesel particulate filters as emissions controls on diesel equipment greater than 50 hp. Additionally, construction activities for the proposed action would be subject to New York City Local Law 77, which requires the use of BAT, which are more stringent than those considered in the 2007 FEIS.

Furthermore, predicted concentrations for construction of the 2007 FEIS were well below the applicable impact criteria. Considering the shorter duration and emission reduction measures, the construction of the proposed new design is anticipated to result in similar or lower annual average concentrations from stationary construction sources than those predicted in the 2007 FEIS.

As a result of the compressed/accelerated construction schedule, there may be slightly more equipment operating simultaneously at times than was projected for the 2007 FEIS in order to get the project complete in less time, and could result in increased concentrations. Short-term concentrations for construction of the 2007 FEIS were predicted to be less than 20 percent of their applicable standards. Therefore, potential concentrations in an overly conservative assumption that construction equipment would double in the peak construction period would remain to be well below the applicable impact criteria, and the proposed modification would not result in a significant adverse air quality impact.

NOISE

Impacts on community noise levels during construction can result from noise associated with construction equipment operation and from construction vehicles and delivery vehicles traveling to and from the site. Noise levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by construction activities would vary and depend on the phase of construction and the location of the construction relative to receptor locations. The most significant construction noise sources are expected to be equipment such as jackhammers, pile drivers, impact wrenches, and

paving breakers, as well as the movements of trucks and cranes. As with the analyses of traffic and transportation and air quality, the determination of potential impacts is based on predicted escalation of noise levels which are directly correlated with intensity of construction activities.

2007 FEIS Analysis

A quantified construction noise analysis was performed to determine a potential for significant noise impacts by quarter for construction of the proposed action. As part of the 2007 FEIS, construction of the proposed action was required to implement both source and path controls subject to the Noise Control Code. These measures included mandated equipment noise emissions levels and equipment shielding (i.e., a minimum eight-foot construction wall, noise curtain, and/or equipment enclosures).

Predicted noise levels were determined to exceed the 5 dBA CEQR impact criteria within Barretto Point Park during the third quarter of 2011 through the fourth quarter of 2012 (1.5 years), and the fourth quarter of 2014 (quarter of a year). At other locations, noise levels were not projected to exceed the CEQR impact criteria.

The maximum predicted noise impacts and total noise levels within Barretto Point Park were predicted to be a total $L_{eq(1)}$ of 71.4 dBA and were predicted to occur during the third quarter of 2011. This would represent a maximum predicted incremental noise level of 12.9 dBA in any one quarter. The major contributor to these construction noise levels were the scheduled pile driving that would occur over 20 days. Since the pile driving hammer would be more than 25 feet above grade, there would be no shielding barrier between this noise source and the nearby receptor locations. Without pile driving, maximum predicted noise levels during this quarter would be reduced by about 3 dBA. Within half a year, noise levels at this location were expected to drop to a level that would be readily noticeable but would not be expected to disrupt or interfere with park users' activities. Furthermore, construction work would largely occur between the periods of 7 AM to 3 PM on weekdays, and not on weekends when the park would likely be more fully utilized.

Noise levels for almost all time periods were determined to be marginally acceptable within areas that include a variety of sensitive receptor types (i.e., residential, school, museum, etc.). Construction work was assumed to largely occur between the periods of 7 AM to 3 PM on weekdays, and not on weekends when the park would likely be more fully utilized. Consequently, while the on-site construction activities would at times produce readily noticeable noise levels, due to the temporary nature of construction, the predicted noise effects of the 2007 FEIS proposed action would not be significant.

In addition, the 2007 FEIS noise analysis for construction-related vehicle sources considered two (2) sensitive receptor sites: 1) Viele Avenue between Tiffany Street and Casanova Street and 2) Tiffany Street between Garrison Avenue and Lafayette Avenue. The maximum predicted increments for any time period at these sites for construction-related vehicles are shown in **Table 11**. The maximum noise level increase with the proposed action were determined to be 1.9 dBA compared to the future without the proposed action noise levels, well below the 3.0 dBA CEQR noise impact threshold. Increases of this magnitude would be imperceptible and would produce no significant adverse impacts.

Table 11
Construction-related Vehicle Noise Levels ($L_{eq(1)}$ in dBA)
2007 FEIS

Location	Existing	Future Without the Proposed Action	Future With the Proposed Action	Change
Viele Avenue between Tiffany and Casanova Street (Barretto Point Park)	65.5	63.4	65.3	1.9*
Tiffany Street between Garrison Avenue and Lafayette Avenue	74.2	73.4	73.9	0.5
Note: *Less than the CEQR construction noise screening threshold of 3 dBA				

The combined maximum impacts from on-site construction activities and construction-related vehicle sources at either of the intersections were determined to be greater than 3 dBA in only one quarter (the third quarter of 2011). For the remainder of construction, construction noise levels would not exceed than the 3 dBA screening threshold. At locations within Barretto Point Park (distant from on-street background noise sources and where there are planted areas and a walking path), on-site construction activities would at times produce readily noticeable noise levels. However, due to the temporary nature construction, the 2007 FEIS determined that there would be no significant adverse impacts from combined on- and off-site construction noise sources.

Analysis with the Proposed New Design

As discussed above, the 2007 FEIS included a construction noise analysis that considered the potential for construction to produce noise at nearby receptors. The analysis considered activities including pile driving, excavation with a hoe ram, earthwork, and building construction. Construction for the proposed new design is comparable to the construction that was analyzed in the 2007 FEIS, and would not include any additional construction areas, different equipment being used, or different means and methods that would produce greater noise than those considered in the 2007 FEIS analysis. Noise reduction measures specified in the FEIS would be maintained within the scope of the revised project.

Newly measured background noise levels (see **Table 12**) taken on November 20 and November 21, 2018 are within approximately 4 dBA of the baseline noise levels included in the 2007 FEIS analysis, which were measured in 2006

Table 12
Baseline Noise Levels for Construction Analysis Compared between 2007 and 2018 (in dBA)

Location	2007 FEIS Baseline	2018 Monitored Baseline	Change
Manida Street between East Bay Avenue and Viele Avenue (residential receptor)	64.5	68.2	3.7
Viele Avenue between Tiffany and Casanova Street	65.5	69.6	4.1
Barretto Point Park property line	58.5	57.5	-1.0

The proposed construction schedule for the proposed new design would be accelerated/compressed compared to the scheduled analyzed in the 2007 FEIS, reducing the overall duration of

construction from approximately 75 months to approximately 39 months, which is three years less construction time. As a result, there may be slightly more equipment operating simultaneously at times than was projected for the 2007 FEIS in order to get the project complete in less time, and could result in slightly increased construction noise levels outside of periods where the 2007 FEIS assumed pile driving activities (e.g., up to a doubling of equipment, resulting in a 3 dBA increase). Additionally, construction of the proposed new design would utilize vibratory hammers in place of the impact pile driving assumed for the 2007 FEIS. Consequently, the construction of the proposed new design would not result in an increase to the maximum noise levels predicted in the 2007 FEIS analysis during the scheduled pile driving activities as discussed above.

However, the potential slight increase in noise level would be offset by the reduced duration of construction noise due to the accelerated/compressed schedule of the proposed new design. As discussed above, the 2007 FEIS construction noise analysis found no potential for significant adverse impacts due to the short-term nature of the predicted construction noise. Similarly, the levels of noise for the proposed new design would be comparable or slightly increased levels of noise predicted for the 2007 FEIS and would occur over a shorter duration. As described above, the construction activities and tasks with the proposed new design would be comparable to those that were analyzed in the 2007 FEIS, and the proposed schedule is shorter than that analyzed in the 2007 FEIS. Therefore, construction of the proposed new design would result in noise effects similar to those described in the 2007 FEIS.

Since publication of the 2007 FEIS, the adjacent 1.2-acre parcel proposed for construction staging area in the 2007 FEIS has been transferred to NYC Parks for incorporation into the adjacent Barretto Point Park. Locations within the adjacent 1.2-acre parcel would be similarly located directly adjacent to the digester construction area as the locations of Barretto Point Park analyzed for the 2007 FEIS; therefore, noise effects predicted within Barretto Point Park would be representative of those within the transferred parcel.

In addition, the number of peak construction-generated trips associated with the proposed new design would be 133 automobiles and 7 heavy duty trucks in the AM and PM peak periods, and would be lower than what was analyzed in the 2007 FEIS—148 automobiles and 8 heavy duty trucks. Therefore, the increased noise from mobile sources associated with construction of the proposed new design would be less than what was estimated in the 2007 FEIS.

Given that the background levels, types and locations of construction noise sources, and noise control measures comparable to those analyzed in the 2007 FEIS, it is expected that the intensity of noise generated by construction of the proposed new design, including the total noise levels during construction and the construction noise level increments, would be comparable to what was described in the FEIS. Furthermore, noise from construction vehicles would be less than what was estimated in the 2007 FEIS. Consequently, similar to the 2007 FEIS, while the on-site construction activities would at times produce readily noticeable noise levels, the predicted noise effects from the construction of the proposed new design would not result in a significant adverse noise impact.

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