# PARK AVENUE BROOKLYN REZONING
# Chapter 7: Water and Sewer Infrastructure

## A. INTRODUCTION

This chapter assesses the potential effects of the Proposed Actions on the City's wastewater treatment and stormwater management infrastructure.

As described in **Chapter 1, "Project Description,"** the Proposed Actions would facilitate the redevelopment of nine Applicant-controlled Projected Development Sites within the Project Area. In total, development on the Applicant-controlled Projected Development Sites would include approximately 393 dwelling units (DUs), of which approximately 101 DUs would be permanently affordable pursuant to the Mandatory Inclusionary Housing (MIH) program (assuming the Applicant's proposed Option 1), approximately 65,072 gross-square-feet (gsf) of ground floor local retail space, 244,088 gsf of private school space, and 11,590 gsf of medical office.

In the With-Action reasonable-worst case development scenario (RWCDS), in addition to the Applicant's nine Projected Development Sites described above, the Proposed Actions are expected to facilitate the redevelopment of three additional Projected Development Sites (Block 1716, Lots 59-60 [Projected Development Site 7], Block 1735, Lots 61-62 [Projected Development Site 11] and Block 1717, Lot 2 [Projected Development Site 12]). Together it is assumed that development at these three non-Applicant sites as a result of the Proposed Actions would total approximately 90 DUs, 23 of which would be permanently affordable (assuming the Applicant's proposed Option 1), and approximately 15,083 gsf of ground floor local retail. It is assumed that development on the 12 Projected Development Sites would be completed and operational by 2031.

For RWCDS purposes, the Proposed Actions are also assumed to have the potential to result in development at two other non-Applicant-controlled sites (Block 1736, Lot 68 [Potential Development Site A] and Block 1735, portion of Lot 59 [Potential Development Site B]), which are less likely to occur by the analysis year of 2031. In accordance with the 2025 *City Environmental Quality Review (CEQR) Technical Manual* guidance, the environmental review document will analyze the Projected Development Sites for all technical areas of concern, but will only evaluate the effects of the Potential Development Sites for site-specific effects such as archaeology, shadows, hazardous materials, stationary source air quality, and stationary source noise. Thus, an analysis of water and sewer infrastructure is not provided for the Potential Development Sites.

## B. PRINCIPAL CONCLUSIONS

A preliminary assessment was conducted based on the methodology set forth in the 2025 *CEQR Technical Manual* and determined that the Proposed Actions would not result in any significant adverse impacts on water and sewer infrastructure.

### Water Supply

Compared to the No-Action condition, the Proposed Actions would generate an incremental water demand of approximately 167,400 gallons per day (gpd), including water related to sanitary and domestic uses. While this would represent an increase in demand for the New York City water supply system, it does not meet the 2025 *CEQR Technical Manual* threshold of more than one million gallons per day (mgd), which would require a detailed analysis. Therefore, an analysis of water supply is not warranted since there would be adequate water service to meet the incremental water demand generated by the RWCDS under the Proposed Actions, and there would be no significant adverse impacts on the City's water supply. The New York City Department of Environmental Protection (DEP) indicated that existing water mains should be capable to handle the estimated increase in water demand.

### Wastewater Treatment

The Newtown Creek Wastewater Resource Recovery Facility (WRRF), which is designed to treat a dry weather flow of 310 mgd, handled an average of 177 mgd of sewage flow between September 2023 and August 2024 (the most recent 12-month period for which data are available). Based on rates in the 2025 *CEQR Technical Manual*, the RWCDS associated with the Proposed Actions would generate approximately 166,196 gpd of sanitary sewage, an increase of approximately 140,839 gpd compared to the No-Action condition. This incremental increase in sanitary flow would represent approximately 0.08 percent of the Newtown Creek WRRF's designated State Pollution Discharge Elimination System (SPDES) capacity. Pursuant to CEQR methodology, as the projected increase in sanitary sewage would not cause the Newtown Creek WRRF to exceed its operational capacity or its SPDES-permitted capacity, the Proposed Actions would not result in significant adverse impacts to sanitary sewage conveyance and treatment.

### Stormwater and Drainage Management

During wet weather, and depending on the rainfall volume and duration, the total volumes to the combined sewer system produced by the RWCDS associated with the Proposed Actions would range from approximately 0.03 to 0.38 million gallons (MG). Compared to the No-Action condition, this would represent an increase in combined sewer flows of up to approximately 0.14 MG. Based on detention requirements of the City's adopted Unified Stormwater Rule (USWR), as well as the requirements for site connections of Chapter 31 of the Rules of the City of New York, it is concluded that the Proposed Actions would not result in significant adverse impacts to the wastewater treatment and stormwater conveyance infrastructure.

## C. METHODOLOGY

### Water Supply

According to the *CEQR Technical Manual*, a preliminary water supply infrastructure analysis is needed if a project would result in an exceptionally large demand for water (e.g., more than one mgd) or is located in an area that experiences low water pressure (e.g., areas at the end of the water supply distribution system). The Project Area is located in the Bedford-Stuyvesant neighborhood of Brooklyn Community District (CD) 3 and is not located in an area that experiences low water pressure (i.e., it is not located at the end of the water supply distribution system, such as the Rockaway Peninsula or Coney Island). The Proposed Actions would result

in an incremental water demand of approximately 166,690 gpd (including water related to sanitary and domestic uses) compared with the No-Action condition. While this would represent an increase in demand on the New York City water supply system, it does not meet the *CEQR Technical Manual* threshold requiring a detailed analysis. Therefore, an analysis of water supply is not warranted since there would be adequate water service to meet the incremental water demand resulting from the Proposed Actions and there would be no significant adverse impacts on the City's water supply.

### Wastewater and Stormwater Conveyance and Treatment

For wastewater and stormwater conveyance and treatment, a preliminary sewer analysis is warranted if a project site comprises more than five acres and would result in an increase of impervious surfaces on the site, or if a project is located in a combined sewer area and would result in the incremental development of at least 400 residential units or 150,000 sf or more of commercial space in the Bronx, Brooklyn, Staten Island, or Queens or at least 1,000 residential units or 250,000 sf or more of commercial space in Manhattan. As the Project Area is located in a combined sewer area in Brooklyn and the RWCDS associated with the Proposed Actions would exceed the *CEQR Technical Manual* residential unit threshold, a preliminary assessment of wastewater and stormwater infrastructure is provided.

Existing and future sanitary sewage generation is calculated for the Projected Development Sites based on use generation rates set forth in Table 13-2 of the *CEQR Technical Manual*. DEP's Volume Calculation Matrix is then used to calculate the overall combined sanitary sewage and stormwater runoff volume discharged to the combined sewer systems for four rainfall volume scenarios with varying durations. Stormwater runoff volumes are determined by estimating the amount of pervious and impervious surfaces on the Projected Development Sites. The ability of the City's water and sewer infrastructure to handle the estimated demand/generation that is anticipated from the RWCDS development resulting from the Proposed Actions is assessed by estimating existing, No-Action, and With-Action water demand and sewage generation. Future With-Action water demand and wastewater generation is compared to the No-Action condition, and future With-Action combined stormwater runoff and wastewater generation volumes are compared to existing conditions.

## D. EXISTING CONDITIONS

### Regulatory Context

Sanitary wastewater and stormwater within New York City are governed by State Pollutant Discharge Elimination System (SPDES) permits issued by the New York State Department of Environmental Conservation (NYSDEC) in compliance with the Clean Water Act; however, the SPDES program is broader in scope than that required by the Clean Water Act because it controls point source discharges to groundwater as well as surface waters. In addition, New York City is a regulated Municipal Separate Storm Sewer System (MS4) discharging stormwater runoff directly to local waterbodies and has prepared a Stormwater Management Program Plan (SWMPP) identifying approaches for minimizing non-point source (runoff-generated) pollution of waterways from operations of facilities and construction activities.

## Wastewater Conveyance System

According to the *CEQR Technical Manual*, wastewater is considered to include sanitary sewage, wastewater generated by industries, and stormwater. Water used for air conditioning generates a negligible amount of wastewater as it recirculates or evaporates in the cooling and heating process.

The majority of New York City's wastewater treatment system is comprised of the sewer network beneath the streets and the 14 WRRFs located throughout the City. The majority of New York City's sewers are called "combined sewers" as they receive sanitary wastewater and stormwater runoff. However, some areas of the City, primarily in southeast Queens and southwest Staten Island, have separate collection lines for sanitary sewage and stormwater.

For areas served by combined sewers, wastewater generated in a "drainage basin" (the area served by a WRRF) is conveyed through a network of combined sewers to the WRRF. In periods of dry weather, the combined sewers (sized to convey an amount of sanitary sewage that is based on density levels) convey only sanitary sewage. During and immediately after wet weather, combined sewers can experience increased flow due to stormwater runoff collection. To control flooding at the WRRFs, sewer regulators are built into the system to serve as relief valves, allowing only approximately two times the amount of designed dry weather flow into the interceptors (larger sewers that convey wastewater to the WRRFs). The interceptors then take the allowable flow to the WRRFs, while the excess flow is discharged untreated to the nearest waterbody as combined sewer overflow (CSO). For areas served by separate storm and sanitary sewers, sanitary sewage is sent to WRRFs, and stormwater is sent untreated through separate sewers and outfalls into the nearest waterway. Sanitary sewers can be one to two feet in diameter on side streets and three or four feet in diameter under larger roadways. They connect to trunk sewers, which are generally five to seven feet in diameter. Combined sewers discharge to regulators and the interceptors carry wastewater to the WRRFs for treatment.

The wastewater collection system within the Project Area consists of several combined sewers. A 12-inch combined sewer beneath Park Avenue east of Bedford Avenue connects with a combined sewer on Spencer Street that flows north. East of Spencer Street on Park Avenue, a 12-inch combined sewer flows east towards a combined sewer flowing north on Walworth Street, which measures 15 inches in diameter south of Park Avenue and 18 inches in diameter north of Park Avenue. East of Walworth Street on Park Avenue, a 12-inch combined sewer flows east towards a combined sewer flowing north on Warsoff Place/Sandford Street, which measures 15 inches in diameter south of Park Avenue and 18 inches in diameter on Warsoff Place north of Park Avenue.

The Project Area is served by the Newtown Creek Wastewater Resource Recovery Facility (WRRF), which has the largest permitted design capacity of the City's 14 WRRFs. At WRRFs, wastewater is fully treated by physical and biological processes before it is discharged as effluent. The quality of the effluent is regulated by an NYSDEC-issued SPDES permit, which establishes limits for effluent parameters (i.e., suspended solids, fecal coliform bacteria, and other pollutants). Because the volume of flow to a WRRF affects the level of treatment a plant can provide, the SPDES permit also establishes a maximum permitted capacity. For the Newtown Creek WRRF, the maximum permitted dry weather flow capacity is 310 mgd, and the discharge for the facility is to the East River. The facility, which has been operating since 1967, has a drainage area of 15,656-acres,located in southern and eastern midtown sections of Manhattan, the northeast section of Brooklyn and the western section of Queens. It serves approximately 1,068,012 New Yorkers. As presented in **Table 7-1**, over the most recent 12-month period for which data are

available, the Newtown Creek WRRF handled an average of 177 mgd of flows, which is less than the facility's permitted capacity of 310 mgd.

**TABLE 7-1**
**Existing Newtown Creek WRRF Average Daily Sewer Flows**

| Month | Average Daily Flows (mgd) |
|---|---|
| September 2023 | 131 |
| October 2023 | 111 |
| November 2023 | 106 |
| December 2023 | 117 |
| January 2024 | 221 |
| February 2024 | 203 |
| March 2024 | 230 |
| April 2024 | 212 |
| May 2024 | 195 |
| June 2024 | 192 |
| July 2024 | 194 |
| August 2024 | 209 |
| **12-Month Average** | **177** |

**Source**: DEP "Monthly Operating Efficiency" tables, 2023 and August 2024.

## Sanitary Flows (Dry Weather)

As presented in **Table 7-2**, existing uses in the Project Area are estimated to generate approximately 15,456 gpd of wastewater.

**TABLE 7-2**
**Existing Projected Development Sites Water Consumption and Wastewater Generation**

| Land Use | Rate[1] | Area (SF)/Residents | Domestic Water/ Wastewater Generation (gpd) | A/C (gpd) |
|---|---|---|---|---|
| Residential | 100 gpd/person | 5 residents[2] | 500 | N/A |
| Commercial Office/ Community Facility | 0.10 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 16,590 gsf | 1,659 | 2,820 |
| Retail | 0.24 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 34,653 gsf | 8,317 | 5,891 |
| School | 10 gpd/seat (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 384 seats<br>(42,250 gsf) | 3,840 | 7,183 |
| Light Industrial | 0.10 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning | 11,400 gsf | 1,140 | 1,938 |
| | | **Total Water Consumption** | **33,288** | |
| | | **Total Wastewater Generation** | **15,456** | |

**Notes:**
[1] Consumption rates obtained from the 2025 *CEQR Technical Manual* Table 13-2. Assume commercial/office rate for light industrial uses.
[2] Based on the average household of 2.56 for Brooklyn Community District 3 (2020 Census).

## Stormwater Flows (Wet Weather)

As outlined in **Chapter 1, "Project Description,"** the 12 Projected Development Sites total approximately 152,741 sf of lot area. **Table 7-3** shows the surface areas and the weighted runoff coefficient (the fraction of precipitation that becomes surface runoff) for each surface type present on the Projected Development Sites.

As indicated in the table, the majority of the Projected Development Sites (approximately 60 percent) is comprised of roofs from existing buildings and the remaining 40 percent is comprised of pavement and walks from vacant sites, surface parking lots, and undeveloped areas of the Projected Development Sites. Based on the existing Projected Development Sites' surface areas, the weighted runoff coefficient of the Projected Development Sites is 0.94.

**TABLE 7-3**
**Existing Projected Development Sites Surface Areas and Runoff Coefficients**

| Surface Type | Roof | Pavement and Walks | Other | Grass and Softscape | Total |
|---|---|---|---|---|---|
| **Area** | 60% | 40% | 0% | 0% | 100% |
| **Surface Area (sf)** | 90,964 | 61,777 | 0 | 0 | 152,741 |
| **Runoff Coefficient** | 1.00 | 0.85 | 0.85 | 0.20 | 0.94 |

**Notes:**
[1] Weighted runoff coefficient calculations based on the DEP Flow Volume Calculation Matrix provided in the *CEQR Technical Manual.*

For this analysis, the runoff coefficients were used to calculate the amount of stormwater runoff during a range of storm events, with rainfall averaging from 0.00 to 2.50 inches over durations of 3.80 to 19.50 hours. **Table 7-4** shows the existing stormwater runoff for the Projected Development Sites. As indicated in the table, the Projected Development Sites currently generate between 0.00 and 0.23 MG of wet weather flows for different rainfall intensities.

**TABLE 7-4**
**Existing Projected Development Sites Stormwater and Sanitary Sewage Flow Volumes**

| Rainfall Volume (in) | Rainfall Duration (hr) | Runoff Volume Direct Drainage (MG) | Runoff Volume to CSS (MG) | Sanitary Volume to CSS (MG) | Total Volume to CSS (MG) |
|---|---|---|---|---|---|
| 0.00 | 3.80 | 0.00 | 0.00 | 0.002 | 0.00 |
| 0.40 | 3.80 | 0.00 | 0.04 | 0.002 | 0.04 |
| 1.20 | 11.30 | 0.00 | 0.11 | 0.007 | 0.12 |
| 2.50 | 19.50 | 0.00 | 0.22 | 0.013 | 0.23 |

**Notes:** CSS = combined sewer system; MG = million gallons

# E. THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO-ACTION CONDITION)

Absent approval of the Proposed Actions, two sites within the Project Area are expected to be redeveloped. At Projected Development Site 2 (49 Spencer Street), the currently vacant site is expected to be redeveloped with a 69,000-gsf mixed-use building containing 28,750 gsf of commercial space (17,969 gsf of office space and 10,781 gsf of local retail space) and 40,250 gsf of medical office space. Development would be consistent with other recent projects on the block

including 18 Spencer Street and 31 Spencer Street (DOB NB Job No. 321458481 and 321516640, respectively). At Projected Development Site 12, the currently vacant site would be redeveloped with a 6,216-gsf one-story commercial building that would allow the property owner to incorporate all required parking on the lot without the increased cost of excavation to put parking below grade. All other sites within the Project Area are expected to remain the same as under existing conditions.

## Wastewater Treatment

In the future without the Proposed Actions, wastewater generated on the 12 Projected Development Sites would total 25,357 gpd (refer to **Table 7-5**). This represents an increase of approximately 9,901 gpd. This additional sanitary discharge to the Newtown Creek WRRF would be well within the 133 mgd of capacity available at the plant on average, and, therefore, the WRRF would continue to operate within its designed capacity (refer to **Table 7-1**).

**TABLE 7-5**
**Expected Water Consumption and Wastewater Generation on the Projected Development Sites – No-Action Condition**

| Land Use | Rate[1] | Area (SF)/Residents | Domestic Water/ Wastewater Generation (gpd) | A/C (gpd) |
|---|---|---|---|---|
| Residential | 100 gpd/person | 5 residents | 500 | N/A |
| Commercial Office/ Community Facility | 0.10 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 74,809 gsf | 7,481 | 12,718 |
| Retail | 0.24 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 51,650 gsf | 12,396 | 8,781 |
| School | 10 gpd/seat (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 384 seats<br>(42,250 gsf) | 3,840 | 7,183 |
| Light Industrial | 0.10 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning | 11,400 gsf | 1,140 | 1,938 |
| | | ***Total Water Consumption*** | **55,977** | |
| | | ***Total Wastewater Generation*** | **25,357** | |

**Notes:**
[1] Based on water demand rates based on retail stores rate provided in Table 13-2 of the *CEQR Technical Manual.*

## Stormwater and Drainage Management

In the 2031 No-Action condition, stormwater runoff from the Projected Development Sites would continue to be collected and directed through the combined sewer system and then conveyed to the Newtown Creek WRRF for treatment. Development anticipated on Projected Development Sites 2 and 12 would result in an increase of the roof area in the Project Area, with corresponding decreases in the area comprised of pavement and walks. As a result, the amount of stormwater runoff generated on the Projected Development Sites would increase slightly, as compared to existing conditions.

NYCDEP requires stormwater detention for new developments if the developed site's storm flow is expected to exceed the allowable flow. As a result of these requirements, given that the existing development sites most likely do not provide detention, it is expected that there would be a

reduction in uncontrolled runoff on the two Projected Development Sites where new construction is anticipated in the future without the Proposed Actions. However, no significant improvements to stormwater detention or retention, such as green roofs, blue roofs, or seepage basins, are expected on the remaining 10 Projected Development Sites in the No-Action condition.

# F. THE FUTURE WITH THE PROPOSED ACTIONS (WITH-ACTION CONDITION)

In the 2031 future with the Proposed Actions, it is anticipated that development on the 12 Projected Development Sites would consist of approximately 789,646 gsf of total floor area, including 483 DUs, three schools totaling 244,088 gsf of floor area for approximately 2,220 students, 80,155 gsf of local retail uses, and 11,590 gsf of medical office space.

## Wastewater Treatment

### *Sanitary Flows (Dry Weather)*

As described previously, the Projected Development Sites in the Project Area are served by combined sewers. As indicated in **Table 7-6**, the estimated amount of sanitary sewage generated by the RWCDS associated with the Proposed Actions would be approximately 166,196 gpd, an increase of approximately 140,839 gpd compared to the No-Action condition. This incremental amount would represent approximately 0.08 percent of the average daily flow of 177 mgd at the Newtown Creek WRRF and would not result in an exceedance of the plant's permitted capacity of 310 mgd. In addition, per the New York City Plumbing Code (Local Law 33 of 2007), low-flow fixtures would be required to be implemented, which would help to reduce sanitary flows from the development of the Projected Development Sites.

**TABLE 7-6**
**Expected Water Consumption and Wastewater Generation on the Projected Development Sites – With-Action Condition**

| Land Use | Rate[1] | Area (SF)/Residents | Domestic Water/ Wastewater Generation (gpd) | A/C (gpd) |
|---|---|---|---|---|
| Residential | 100 gpd/person | 1,236 residents | 123,600 | N/A |
| Commercial Office/ Community Facility | 0.10 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 11,590 gsf | 1,159 | 1,970 |
| Retail | 0.24 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 80,155 gsf | 19,237 | 13,626 |
| School | 10 gpd/seat (Domestic)<br>0.17 gpd/sf (Air Conditioning) | 2,220 seats<br>(244,088 gsf) | 22,200 | 41,495 |
| Light Industrial | 0.10 gpd/sf (Domestic)<br>0.17 gpd/sf (Air Conditioning | 11,400 gsf | 0 | 0 |
| | | ***Total Water Consumption*** | **223,287** | |
| | | ***Total Wastewater Generation*** | **166,196** | |

Connecting to the City's sewer system requires certification from DEP as part of the building permit process, which is not a discretionary approval. The developer for each Projected Development Site would be required to file a site connection proposal for approval from DEP to tie into the sewer system. To obtain a sewer connection permit from DEP, the Projected Development Sites in the Project Area would be required to demonstrate that the existing sewer system could handle the increased flows due to operation of the future buildings. As part of the site connection approval process, a hydraulic analysis of the existing sewer system would likely be required to determine whether the existing sewer system is capable of supporting higher density development and the related increase in wastewater flows, or whether there will be a need to upgrade the existing sewer system. In addition, there may be a need to amend the existing drainage plan based on the hydraulic analysis. As part of the site connection approval, the Applicant may also be asked to conduct a flow monitoring analysis for the downstream DEP regulator and coordinate with the Bureau of Wastewater Treatment before the final sewer connection is made. These analyses would be undertaken prior to construction of the future buildings on the Projected Development Sites in the Project Area and would be coordinated with DEP for review and approval. In addition, in accordance with the New York City Plumbing Code (Local Law 33 of 2007), while not accounted for in the quantitative analysis, the future buildings on the Projected Development Sites in the Project Area would be required to utilize low-flow plumbing fixtures, which would reduce sanitary flows to the Newtown Creek WRRF. Therefore, the Proposed Actions would not result in a significant adverse impact to the City's wastewater treatment infrastructure.

Further, in 2022, the City adopted the Unified Stormwater Rule (USWR) which updated the requirements for all new developments and redevelopments (over 20,000-sf) that discharge to New York City sewers. As a result of these amendments, stormwater construction permits now require stormwater management practices which can include on-site stormwater reuse, retention or detention, and developers are required to comply with updated stormwater retention and release rates. These changes were designed to reduce the impacts of combined sewer overflows and promote the development of green infrastructure as a solution to water waste and runoff. Any lot over 20,000-sf in size within the Project Area would be expected to comply with the USWR.

### *Stormwater Flows (Wet Weather)*

As presented in **Table 7-7**, below, the Proposed Actions would result in an increase in the amount of roof area present in the Project Area (increasing to approximately 96 percent), while decreasing the area comprised of pavement and walks (decreasing from 40 percent to four percent of the Project Area)[1]. Based on these anticipated changes in the Proposed Development Site's surface areas, the weighted runoff coefficient of the Proposed Development Site would increase from 0.94 to 0.99 in the future with the Proposed Actions.

[1] For conservative analysis purposes, it is assumed that each of the Projected Development Sites would have 100 percent roof coverage. The exception to this assumption is Projected Development Site 12. Approximately 7,599 sf of the larger 13,613 sf Projected Development Site 12 falls within the Project Area, therefore, for this lot, a maximum roof size of 7,599 sf is assumed.

**TABLE 7-7**
**Development Site Runoff Coefficient – With-Action Condition**

| Surface Type | Roof | Pavement and Walks | Other | Grass and Softscape | Total |
|---|---|---|---|---|---|
| **Area** | 96% | 4% | 0% | 0% | 100% |
| **Surface Area (sf)** | 146,727 | 6,014 | 0 | 0 | 152,741 |
| **Runoff Coefficient[1]** | 1.00 | 0.85 | 0.85 | 0.20 | 0.99 |

**Notes:**
[1] Weighted runoff coefficient calculations based on the DEP Flow Volume Calculation Matrix provided in the *CEQR Technical Manual*.

Using these sanitary and stormwater flow calculations, the DEP Flow Volume Calculation Matrix was completed for the future With-Action condition and compared to the existing conditions presented in **Table 7-4**, above. The calculations from the Flow Volume Calculation Matrix help to determine the change in wastewater flow volumes to the combined sewer system from existing conditions to With-Action conditions, based on four rainfall volume scenarios with varying durations. The drainage analysis assumes that all stormwater runoff from the Projected Development Sites would flow via the existing combined sewer infrastructure within the Project Area. The summary table, taken from the DEP Flow Volume Calculation Matrix, is presented in **Table 7-8**.

**TABLE 7-8**
**Projected Development Sites' Stormwater and Sanitary Sewage Flow Volumes – With-Action vs. Existing Conditions**

| Rainfall Volume (in) | Rainfall Duration (hr) | Runoff Volume Direct Drainage | Runoff Volume to CSS | Sanitary Volume to CSS (MG) | Total Volume to CSS (MG) | Incremental Volume to CSS over Existing Conditions (MG)[1] |
|---|---|---|---|---|---|---|
| 0.00 | 3.80 | 0.00 | 0.00 | 0.03 | 0.03 | 0.02 |
| 0.40 | 3.80 | 0.00 | 0.04 | 0.03 | 0.07 | 0.02 |
| 1.20 | 11.30 | 0.00 | 0.11 | 0.08 | 0.19 | 0.07 |
| 2.50 | 19.50 | 0.00 | 0.24 | 0.14 | 0.38 | 0.14 |

**Notes:**
CSS = combined sewer system; MG = million gallons
[1]Refer to **Table 7-4**.

As shown in **Table 7-8**, in the future With-Action condition, approximately 0.00 to 0.24 MG of stormwater and approximately 0.02 to 0.14 MG of sanitary sewage would be conveyed to the existing combined sewers, for a total of 0.02 to 0.38 MG of combined volumes to the combined sewer system. Compared to existing conditions, the total wet weather flows from the Projected Development Sites would increase by 0.02 to 0.14 MG, depending on rainfall duration and intensity.

The Project Area is located in an area that is well-served by combined sewer infrastructure. A 12-inch combined sewer beneath Park Avenue east of Bedford Avenue that connects with a combined sewer on Spencer Street that flows north. East of Spencer Street on Park Avenue, a 12-inch combined sewer flows east towards a combined sewer flowing north on Walworth Street. The combined sewer on Walworth Street measures 15 inches in diameter south of Park Avenue and 18 inches in diameter north of Park Avenue. East of Walworth Street on Park Avenue, a 12-inch combined sewer flows east towards a combined sewer flowing north on Warsoff Place/Sandford Street. The combined sewer on Sandford Street measures 15 inches in diameter south of Park Avenue and 18 inches in diameter on Warsoff Place north of Park Avenue. Given the size of the existing combined sewer facilities in the vicinity of the Projected Development Sites

in the Project Area, it is anticipated that there is ample capacity in the adjacent sewer infrastructure to accommodate the additional combined flows generated by the Proposed Actions. It should also be noted that the site development would need to meet the requirements for site connections of Chapter 31 of the Rules of the City of New York.

### *Stormwater Best Management Practices*

The DEP Flow Volume Matrix calculations presented above do not reflect the use of any stormwater and sanitary source control Best Management Practices (BMPs) to reduce stormwater runoff volumes and sanitary flows to the combined sewer system. It should also be noted that DEP has published a Unified Stormwater Rule ("USWR") that increases the amount of stormwater to be managed on-site as part of new development. For sites within combined sewer (CSS) areas, the release rate will be limited to 0.1 cubic feet per second (cfs) per acre or 0.046 cfs, whichever is greater. The new rules became effective on February 15, 2022, and will apply to the Projected Development Sites in the Project Area.

Stormwater BMPs would be required as part of the DEP site connection approval process in order to bring the future buildings on the Projected Development Sites in the Project Area into compliance with the required stormwater release rate in effect at the time of construction. Specific BMP methods will be determined with further refinement of the design of the future buildings and in consultation with DEP.

The implementation of low-flow fixtures, as required per the New York City Plumbing Code, Local Law 33 of 2007, and the U.S. Environmental Protection Agency's WaterSense Program, would help control sanitary flows from the Projected Development Sites in the Project Area. In addition, the following typical BMP measures could be used to help manage stormwater flows: the implementation of BMPs described in the New York City Green Infrastructure Plan and/or green technologies, such as blue and green roofs, subsurface detention and infiltration, porous pavement, enhanced tree pits, and rain cisterns, depending on conditions at each Projected Development Site.

Therefore, with the incorporation of appropriate BMPs that would be required as part of the site connection approval process to be reviewed and approved by DEP, the overall volumes of sanitary sewer discharge and stormwater runoff, as well as the peak stormwater runoff rate, would be reduced. Sewer conveyance near the Projected Development Sites in the Project Area and the treatment capacity at the Newtown Creek WRRF is sufficient to handle wastewater flows that would result from the RWCDS associated with the Proposed Actions. Therefore, the Proposed Actions would not result in significant adverse impacts to the wastewater treatment and stormwater conveyance infrastructure.