**Environmental Assessment Statement**
**and**
**Supplemental Report**

**for**

# Livonia Avenue Rezoning
## Brooklyn, NY

## CEQR No.: 20HPD054K

## ULURP Nos.: 220429ZMK, 220430ZRK, 220428HUK, 220427HAK

**Prepared by:**

**Environmental Studies Corp.**
**55 Water Mill Road**
**Great Neck, NY 11021**

**May 2022**



# City Environmental Quality Review
# ENVIRONMENTAL ASSESSMENT STATEMENT (EAS) SHORT FORM

FOR UNLISTED ACTIONS ONLY • *Please fill out and submit to the appropriate agency* (see instructions)

## Part I: GENERAL INFORMATION

**1. *Does the Action Exceed Any Type I Threshold in 6 NYCRR Part 617.4 or 43 RCNY §6-15(A) (Executive Order 91 of 1977, as amended)?*** ☐ YES ☒ NO

If "yes," **STOP** and **complete the FULL EAS FORM**.

**2. *Project Name*** Livonia Avenue Rezoning

**3. *Reference Numbers***

| CEQR REFERENCE NUMBER (to be assigned by lead agency) | BSA REFERENCE NUMBER (if applicable) |
|---|---|
| 20HPD054K | |
| ULURP REFERENCE NUMBER (if applicable) | OTHER REFERENCE NUMBER(S) (if applicable) (*e.g.*, legislative intro, CAPA) |
| 220429ZMK, 220430ZRK, 220428HUK, 220427HAK | |

| **4a. *Lead Agency Information*** | | | **4b. *Applicant Information*** | | |
|---|---|---|---|---|---|
| NAME OF LEAD AGENCY<br>NYC Department of Housing Preservation & Development | | | NAME OF APPLICANT<br>NYC Department of Housing Preservation & Development | | |
| NAME OF LEAD AGENCY CONTACT PERSON<br>Matthew Juliana, AICP, Director, Environmental Planning Division of Building and Land Development Services | | | NAME OF APPLICANT'S REPRESENTATIVE OR CONTACT PERSON<br>John Strauss for Hiram A. Rothkrug, Environmental Studies Corp. | | |
| ADDRESS 100 Gold St, 7-A3c | | | ADDRESS 55 Water Mill Road | | |
| CITY New York | STATE NY | ZIP 10038 | CITY Great Neck | STATE NY | ZIP 11021 |
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**5. *Project Description***

The Applicant, the New York City Department of Housing Preservation and Development (HPD), is seeking the approval of several actions (the Proposed Actions) from the New York City Planning Commission (CPC) to facilitate the construction of four mixed-use affordable housing buildings located along Livonia Avenue in the Brownsville neighborhood of Brooklyn Community District 16. The four buildings would be located within two Project Areas: Project Area 1 comprises Block 3813, Lot 115; Block 3812, Lots 17 (p/o), 18-22, 24, and 121; Block 3811, Lots 17-21, 23-27, and 124, and Project Area 2 comprises Block 3586, Lots 26 and 40 (p/o), 41-44, 45 (p/o). The majority of tax lots within the Project Areas are City-owned, but also include five privately owned properties within Project Area 1 (Block 3812, Lots 17 (p/o), 18, and 24; Block 3811, Lots 20 and 25), and three privately-owned properties within Project Area 2 (Block 3586, Lots 40 (p/o), 44, and 45 (p/o)). Project Area 2 also includes three lots owned by the New York City Department of Parks and Recreation. Three Development Sites represent a portion of Project Area 1 (Block 3813, Lot 115 (Projected Development Site 1; aka Site C1); Block 3812, Lots 19-22, and 121 (Projected Development Site 2; aka Site C2); Block 3811, Lots 17-19, 21, 23-27, and 124 (Projected Development Site 3; aka Site C3); and one Development Site represents a portion of Project Area 2 (Block 3586, Lot 26 (Projected Development Site 4; aka Site C4). For reasonable worst-case analysis purposes, the Proposed Actions are also assumed to facilitate construction on one property not controlled by the Applicant on Block 3812, Lot 24 (Projected Development Site 5).

The Proposed Actions include the following:
- A zoning map amendment proposed to apply to the block fronts within 200' of Livonia Avenue on Block 3813, and within 100' of Livonia Avenue on Blocks 3812, 3811, and 3586, which is an area nearly coterminous with Project Area 1 and Project Area 2. The amendment would rezone the area nearly coterminous with Project Area 1 from an R6 zoning district with a C2-4 commercial overlay to an R7-2 zoning district with a C2-4 commercial overlay and an area nearly coterminous with Project Area 2 from an R6 zoning district to an R7-2 zoning district with a C2-4 commercial overlay;
- A zoning text amendment to Appendix F to establish Project Areas 1 and 2 as Mandatory Inclusionary Housing (MIH) Areas;

- The designation of the Development Sites as an Urban Development Action Area (UDAA), approval of the project as an Urban Development Action Area Project (UDAAP), and the disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26 (collectively, the Disposition Area) to a developer selected by HPD. Records show that a portion of Block 3813, Lot 115 that was previously thought to be City-owned (the portion formerly known as Block 3813, Lot 14 (the "Acquisition Site")), may be privately-owned and will therefore be acquired by the City. The Acquisition Site is already within the URA, and the authorization to acquire the Acquisition Site will be reapplied along with all other sites within the URA as part of the amendment to the URP; and
- Amendment to the Brownsville II Urban Renewal Plan (URP) to permit residential use on Sites C1 (URA Site 142), C2 (URA Site 141), and C3 (URA Site 140).

The Proposed Development includes four new buildings on the Applicant controlled Projected Development Sites 1-4 (Sites C1-C4) containing approximately 534,479 gross square feet (gsf) (430,283 zoning square feet (zsf); 5.51 FAR) of total floor area including approximately 373,821 gsf (312,262 zsf) of residential floor area, approximately 34,641 gsf (14,313 zsf) of commercial (retail) floor area, approximately 54,915 gsf (46,747 zsf) of community facility floor area, and approximately 71,102 gsf (56,961 zsf) of community facility with sleeping accommodations floor area. The Proposed Development would contain a total of approximately 498 affordable dwelling units, plus four units for superintendents, and 15 accessory parking spaces.

Community facility uses within the Proposed Development are anticipated to include supportive formerly homeless housing units (treated as community facility with sleeping accommodations per the NYC Zoning Resolution ("ZR")) and 54,915 gsf of other uses, including: an approximately 13,119 gsf rooftop garden with a greenhouse (Site C1); an approximately 5,052 gsf community facility space (Site C2); an approximately 10,000 gsf senior center (Site C3); and an approximately 26,744 gsf youth and family activity center (Site C4). Commercial space in the Proposed Development is anticipated to include an approximately 15,629 gsf supermarket and 13,176 gsf of parking (Site C1) and approximately 5,836 gsf of ground-floor local retail space (Sites C1 and C3).

For reasonable worst-case analysis purposes, this EAS assumes that the Proposed Actions would facilitate the development of one additional development site not controlled by the Applicant, Projected Development Site 5, for which there are no known plans for redevelopment at this time. It is assumed that Projected Development Site 5 would be developed with a total of 46,950 gsf of floor area, including approximately 4,800 gsf of ground floor commercial retail space, 4,800 gsf of community facility space (medical offices), and 37,350 gsf of residential space for 36 dwelling units including 7 affordable dwelling units. For CEQR analysis purposes, it is conservatively assumed that 20% of the residential floor area or 7 dwelling units on Projected Development Site 5 would be affordable at 80% of AMI.

In total, the EAS assumes that the Proposed Actions would facilitate the redevelopment of five Projected Development Sites with five new, mixed use residential, commercial, and community facility developments. The five developments would include approximately 581,429 gsf of floor area including approximately 411,171 gsf of residential floor area, 39,441 gsf of commercial floor area, 59,715 gsf of community facility floor area, and 71,102 gsf of community facility with sleeping accommodations. The five developments would contain a total of approximately 505 affordable dwelling units, 29 market rate housing units, and four dwelling units for superintendents.

***Project Location***

| BOROUGH Brooklyn | COMMUNITY DISTRICT(S) 16 | STREET ADDRESS Livonia Ave betw Powell & Sackman Sts; Livonia Ave betw Christopher Ave & Sackman St; Livonia Ave betw Christopher Ave & Mother Gaston Blvd; Livonia Ave betw Amboy & Thomas S Boyland Sts |
|---|---|---|
| TAX BLOCK(S) AND LOT(S) Block 3813, Lot 115; Block 3812, Lots 17 (p/o), 18-22, 24, 121; Block 3811, Lots 17-21, 23-27, 124; Block 3586, Lots 26, 40 (p/o), 41-44, 45 (p/o) | | ZIP CODE 11212 |
| DESCRIPTION OF PROPERTY BY BOUNDING OR CROSS STREETS Livonia Avenue between Powell Street & Mother Gaston Boulevard; Livonia Avenue between Amboy Street & Thomas S Boyland Street | | |

| EXISTING ZONING DISTRICT, INCLUDING SPECIAL ZONING DISTRICT DESIGNATION, IF ANY R6, R6/C2-4 | ZONING SECTIONAL MAP NUMBER 17b, 17d |
|---|---|

**6. *Required Actions or Approvals*** (check all that apply)

***City Planning Commission*:** ☒ YES ☐ NO ☒ UNIFORM LAND USE REVIEW PROCEDURE (ULURP)

| | | |
|---|---|---|
| ☐ CITY MAP AMENDMENT | ☐ ZONING CERTIFICATION | ☐ CONCESSION |
| ☒ ZONING MAP AMENDMENT | ☐ ZONING AUTHORIZATION | ☒ UDAAP |
| ☒ ZONING TEXT AMENDMENT | ☐ ACQUISITION—REAL PROPERTY | ☐ REVOCABLE CONSENT |
| ☐ SITE SELECTION—PUBLIC FACILITY | ☒ DISPOSITION—REAL PROPERTY | ☐ FRANCHISE |
| ☐ HOUSING PLAN & PROJECT | ☒ OTHER, explain: Amendment to Brownsville II Urban Renewal Plan | |

☐ SPECIAL PERMIT (if appropriate, specify type: ☐ modification; ☐ renewal; ☐ other); EXPIRATION DATE:

SPECIFY AFFECTED SECTIONS OF THE ZONING RESOLUTION Appendix F

***Board of Standards and Appeals*:** ☐ YES ☒ NO

☐ VARIANCE (use)

☐ VARIANCE (bulk)

☐ SPECIAL PERMIT (if appropriate, specify type: ☐ modification; ☐ renewal; ☐ other); EXPIRATION DATE:

SPECIFY AFFECTED SECTIONS OF THE ZONING RESOLUTION

***Department of Environmental Protection*:** ☐ YES ☒ NO If "yes," specify:

***Other City Approvals Subject to CEQR*** (check all that apply)

| | |
|---|---|
| ☐ LEGISLATION | ☒ FUNDING OF CONSTRUCTION, specify: discretionary construction financing from HPD |
| ☐ RULEMAKING | ☐ POLICY OR PLAN, specify: |
| ☐ CONSTRUCTION OF PUBLIC FACILITIES | ☐ FUNDING OF PROGRAMS, specify: |
| ☐ 384(b)(4) APPROVAL | ☐ PERMITS, specify: |
| ☐ OTHER, explain: | |

***Other City Approvals Not Subject to CEQR*** (check all that apply)

| | |
|---|---|
| ☒ PERMITS FROM DOT'S OFFICE OF CONSTRUCTION MITIGATION AND COORDINATION (OCMC) | ☐ LANDMARKS PRESERVATION COMMISSION APPROVAL |
| | ☒ OTHER, explain: Dept. of Buildings buildings permit |

***State or Federal Actions/Approvals/Funding*:** ☒ YES ☐ NO If "yes," specify: Potential HUD (Section 8) funding

**7. *Site Description:*** *The directly affected area consists of the project site and the area subject to any change in regulatory controls. Except where otherwise indicated, provide the following information with regard to the directly affected area.*

***Graphics*:** *The following graphics must be attached and each box must be checked off before the EAS is complete. Each map must clearly depict the boundaries of the directly affected area or areas and indicate a 400-foot radius drawn from the outer boundaries of the project site. Maps may not exceed 11 x 17 inches in size and, for paper filings, must be folded to 8.5 x 11 inches.*

| | | |
|---|---|---|
| ☒ SITE LOCATION MAP | ☒ ZONING MAP | ☒ SANBORN OR OTHER LAND USE MAP |
| ☒ TAX MAP | ☐ FOR LARGE AREAS OR MULTIPLE SITES, A GIS SHAPE FILE THAT DEFINES THE PROJECT SITE(S) | |
| ☒ PHOTOGRAPHS OF THE PROJECT SITE TAKEN WITHIN 6 MONTHS OF EAS SUBMISSION AND KEYED TO THE SITE LOCATION MAP | | |

***Physical Setting*** (both developed and undeveloped areas)

Total directly affected area (sq. ft.): 101,091 Waterbody area (sq. ft) and type: 0

Roads, buildings, and other paved surfaces (sq. ft.): 16,000 Other, describe (sq. ft.): 85,091 unpaved surfaces

**8. *Physical Dimensions and Scale of Project*** (if the project affects multiple sites, provide the total development facilitated by the action)

SIZE OF PROJECT TO BE DEVELOPED (gross square feet): 581,429

NUMBER OF BUILDINGS: 5 GROSS FLOOR AREA OF EACH BUILDING (sq. ft.): Site 1: 256,150; Site 2: 69,176; Site 3: 123,451; Site 4: 85,702; Site 5: 46,950

HEIGHT OF EACH BUILDING (ft.): Site 1: 130'; Site 2: 115'; Site 3: 125'; Site 4: 129'; Site 5: 95' NUMBER OF STORIES OF EACH BUILDING: Site 1: 12; Site 2: 11; Site 3: 12; Site 4: 12; Site 5: 9

Does the proposed project involve changes in zoning on one or more sites? ☒ YES ☐ NO

If "yes," specify: The total square feet owned or controlled by the applicant: 78,075

The total square feet not owned or controlled by the applicant: 23,016

Does the proposed project involve in-ground excavation or subsurface disturbance, including, but not limited to foundation work, pilings, utility lines, or grading? ☒ YES ☐ NO

If "yes," indicate the estimated area and volume dimensions of subsurface permanent and temporary disturbance (if known):
AREA OF TEMPORARY DISTURBANCE: 84,075 sq. ft. (width x length) VOLUME OF DISTURBANCE: 46,707 cubic ft. (width x length x depth)
AREA OF PERMANENT DISTURBANCE: 84,075 sq. ft. (width x length)

***Description of Proposed Uses*** (please complete the following information as appropriate)

| | ***Residential*** | ***Commercial*** | ***Community Facility*** | ***Industrial/Manufacturing*** |
|---|---|---|---|---|
| ***Size*** (in gross sq. ft.) | 482,273 (includes supportive unit gsf) | 39,441 | 130,817 | N/A |
| ***Type*** (*e.g.,* retail, office, school) | 538 (including supportive) units | 15,629 gsf supermarket, 5,836 gsf local retail space, 13,176 gsf parking for 15 parking spaces accessory to the supermarket. | 90 supportive housing units, rooftop garden, senior center, community facility space, youth & family activity center, medical offices | N/A |

Does the proposed project increase the population of residents and/or on-site workers? ☒ YES ☐ NO
If "yes," please specify: NUMBER OF ADDITIONAL RESIDENTS: 1,379 NUMBER OF ADDITIONAL WORKERS: 138
Provide a brief explanation of how these numbers were determined: Residents: Based on average household size of 2.76 residents per dwelling unit (2020 data) in Census Tract 918 for 478 family and supportive community facility DUs + 1 occupant per unit for 60 single-occupancy units located at Projected Development Site 2; Workers: Based on 3 workers/1,000 gsf of local retail & supermarket space (64 workers), 10 rooftop garden/greenhouse workers, 10 senior center workers, 15 community facility space workers, 5 formerly homeless housing workers, 15 youth and family activity center workers, and 4 workers/1,000 gsf medical office space (19 workers), and 3 workers/1,000 gsf of existing church floor area.

Does the proposed project create new open space? ☒ YES ☐ NO If "yes," specify size of project-created open space: 61,435 sf proposed including 35,261 sf on Site C1, 4,147 sf on Site C2, 11,720 sf on Site C3, and 5,507 sf on Site C4; open space consists of a combination of rooftop space, terraces, yards, courtyards, and plaza areas sq. ft.

Has a No-Action scenario been defined for this project that differs from the existing condition? ☐ YES ☐ NO
If "yes," see Chapter 2, "Establishing the Analysis Framework" and describe briefly:

**9. *Analysis Year*** CEQR Technical Manual Chapter 2

ANTICIPATED BUILD YEAR (date the project would be completed and operational): 2026

ANTICIPATED PERIOD OF CONSTRUCTION IN MONTHS: 36

WOULD THE PROJECT BE IMPLEMENTED IN A SINGLE PHASE? ☐ YES ☒ NO IF MULTIPLE PHASES, HOW MANY? 2

BRIEFLY DESCRIBE PHASES AND CONSTRUCTION SCHEDULE: Projected Development Sites 1 through 4 would be constructed simultaneously over a period of 24 months while Projected Development Site 5 is anticipated to be developed and occupied over a period of 12 months.

**10. *Predominant Land Use in the Vicinity of the Project*** (check all that apply)

☒ RESIDENTIAL ☒ MANUFACTURING ☒ COMMERCIAL ☒ PARK/FOREST/OPEN SPACE ☒ OTHER, specify: Community facility, parking

## Part II: TECHNICAL ANALYSIS

**INSTRUCTIONS**: For each of the analysis categories listed in this section, assess the proposed project's impacts based on the thresholds and criteria presented in the CEQR Technical Manual. Check each box that applies.

- If the proposed project can be demonstrated not to meet or exceed the threshold, check the "no" box.
- If the proposed project will meet or exceed the threshold, or if this cannot be determined, check the "yes" box.
- For each "yes" response, provide additional analyses (and, if needed, attach supporting information) based on guidance in the CEQR Technical Manual to determine whether the potential for significant impacts exists. Please note that a "yes" answer does not mean that an EIS must be prepared—it means that more information may be required for the lead agency to make a determination of significance.
- The lead agency, upon reviewing Part II, may require an applicant to provide additional information to support the Short EAS Form. For example, if a question is answered "no," an agency may request a short explanation for this response.

| | YES | NO |
|---|---|---|
| **1. *LAND USE, ZONING, AND PUBLIC POLICY***: CEQR Technical Manual Chapter 4 | | |
| **(a)** Would the proposed project result in a change in land use different from surrounding land uses? | ☒ | ☐ |
| **(b)** Would the proposed project result in a change in zoning different from surrounding zoning? | ☒ | ☐ |
| **(c)** Is there the potential to affect an applicable public policy? | ☒ | ☐ |
| **(d)** If "yes," to (a), (b), and/or (c), complete a preliminary assessment and attach. See attached report | | |
| **(e)** Is the project a large, publicly sponsored project? | ☐ | ☒ |
| ○ If "yes," complete a PlaNYC assessment and attach. | | |
| **(f)** Is any part of the directly affected area within the City's Waterfront Revitalization Program boundaries? | ☐ | ☒ |
| ○ If "yes," complete the Consistency Assessment Form. | | |
| **2. *SOCIOECONOMIC CONDITIONS***: CEQR Technical Manual Chapter 5 | | |
| (a) Would the proposed project: | | |
| ○ Generate a net increase of 200 or more residential units? | ☒ | ☐ |
| ○ Generate a net increase of 200,000 or more square feet of commercial space? | ☐ | ☒ |
| ○ Directly displace more than 500 residents? | ☐ | ☒ |
| ○ Directly displace more than 100 employees? | ☐ | ☒ |
| ○ Affect conditions in a specific industry? | ☐ | ☒ |
| **3. *COMMUNITY FACILITIES***: CEQR Technical Manual Chapter 6 | | |
| **(a) Direct Effects** | | |
| ○ Would the project directly eliminate, displace, or alter public or publicly funded community facilities such as educational facilities, libraries, hospitals and other health care facilities, day care centers, police stations, or fire stations? | ☐ | ☒ |
| **(b) Indirect Effects** | | |
| ○ **Child Care Centers:** Would the project result in 20 or more eligible children under age 6, based on the number of low or low/moderate income residential units? (See Table 6-1 in Chapter 6) | ☒ | ☐ |
| ○ **Libraries:** Would the project result in a 5 percent or more increase in the ratio of residential units to library branches? (See Table 6-1 in Chapter 6) | ☐ | ☒ |
| ○ **Public Schools:** Would the project result in 50 or more elementary or middle school students, or 150 or more high school students based on number of residential units? (See Table 6-1 in Chapter 6) | ☒ | ☐ |
| ○ **Health Care Facilities and Fire/Police Protection:** Would the project result in the introduction of a sizeable new neighborhood? | ☐ | ☒ |
| **4. *OPEN SPACE***: CEQR Technical Manual Chapter 7 | | |
| **(a)** Would the proposed project change or eliminate existing open space? | ☐ | ☒ |
| **(b)** Is the project located within an under-served area in the Bronx, Brooklyn, Manhattan, Queens, or Staten Island? | ☐ | ☒ |
| ○ If "yes," would the proposed project generate more than 50 additional residents or 125 additional employees? | ☐ | ☐ |
| **(c)** Is the project located within a well-served area in the Bronx, Brooklyn, Manhattan, Queens, or Staten Island? | ☐ | ☒ |
| ○ If "yes," would the proposed project generate more than 350 additional residents or 750 additional employees? | ☐ | ☐ |
| **(d)** If the project in located an area that is neither under-served nor well-served, would it generate more than 200 additional residents or 500 additional employees? | ☒ | ☐ |

| | YES | NO |
|---|---|---|
| **5. *SHADOWS***: CEQR Technical Manual Chapter 8 | | |
| **(a)** Would the proposed project result in a net height increase of any structure of 50 feet or more? | ☒ | ☐ |
| **(b)** Would the proposed project result in any increase in structure height and be located adjacent to or across the street from a sunlight-sensitive resource? | ☒ | ☐ |
| **6. *HISTORIC AND CULTURAL RESOURCES***: CEQR Technical Manual Chapter 9 | | |
| **(a)** Does the proposed project site or an adjacent site contain any architectural and/or archaeological resource that is eligible for or has been designated (or is calendared for consideration) as a New York City Landmark, Interior Landmark or Scenic Landmark; that is listed or eligible for listing on the New York State or National Register of Historic Places; or that is within a designated or eligible New York City, New York State or National Register Historic District? (See the GIS System for Archaeology and National Register to confirm) | ☐ | ☒ |
| **(b)** Would the proposed project involve construction resulting in in-ground disturbance to an area not previously excavated? | ☒ | ☐ |
| **(c)** If "yes" to either of the above, list any identified architectural and/or archaeological resources and attach supporting information on whether the proposed project would potentially affect any architectural or archeological resources. See attached report | | |
| **7. *URBAN DESIGN AND VISUAL RESOURCES***: CEQR Technical Manual Chapter 10 | | |
| **(a)** Would the proposed project introduce a new building, a new building height, or result in any substantial physical alteration to the streetscape or public space in the vicinity of the proposed project that is not currently allowed by existing zoning? | ☒ | ☐ |
| **(b)** Would the proposed project result in obstruction of publicly accessible views to visual resources not currently allowed by existing zoning? | ☐ | ☒ |
| **8. *NATURAL RESOURCES***: CEQR Technical Manual Chapter 11 | | |
| **(a)** Does the proposed project site or a site adjacent to the project contain natural resources as defined in Section 100 of Chapter 11? | ☐ | ☒ |
| ○ If "yes," list the resources and attach supporting information on whether the proposed project would affect any of these resources. | | |
| **(b)** Is any part of the directly affected area within the Jamaica Bay Watershed? | ☒ | ☐ |
| ○ If "yes," complete the Jamaica Bay Watershed Form, and submit according to its instructions. See attached | | |
| **9. *HAZARDOUS MATERIALS***: CEQR Technical Manual Chapter 12 | | |
| **(a)** Would the proposed project allow commercial or residential uses in an area that is currently, or was historically, a manufacturing area that involved hazardous materials? | ☐ | ☒ |
| **(b)** Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to hazardous materials that preclude the potential for significant adverse impacts? | ☐ | ☒ |
| **(c)** Would the project require soil disturbance in a manufacturing area or any development on or near a manufacturing area or existing/historic facilities listed in Appendix 1 (including nonconforming uses)? | ☐ | ☒ |
| **(d)** Would the project result in the development of a site where there is reason to suspect the presence of hazardous materials, contamination, illegal dumping or fill, or fill material of unknown origin? | ☒ | ☐ |
| **(e)** Would the project result in development on or near a site that has or had underground and/or aboveground storage tanks (*e.g.*, gas stations, oil storage facilities, heating oil storage)? | ☒ | ☐ |
| **(f)** Would the project result in renovation of interior existing space on a site with the potential for compromised air quality; vapor intrusion from either on-site or off-site sources; or the presence of asbestos, PCBs, mercury or lead-based paint? | ☐ | ☒ |
| **(g)** Would the project result in development on or near a site with potential hazardous materials issues such as government-listed voluntary cleanup/brownfield site, current or former power generation/transmission facilities, coal gasification or gas storage sites, railroad tracks or rights-of-way, or municipal incinerators? | ☐ | ☒ |
| **(h)** Has a Phase I Environmental Site Assessment been performed for the site? | ☒ | ☐ |
| ○ If "yes," were Recognized Environmental Conditions (RECs) identified? Briefly identify: See attached report | ☒ | ☐ |
| **10. *WATER AND SEWER INFRASTRUCTURE***: CEQR Technical Manual Chapter 13 | | |
| **(a)** Would the project result in water demand of more than one million gallons per day? | ☐ | ☒ |
| **(b)** If the proposed project located in a combined sewer area, would it result in at least 1,000 residential units or 250,000 square feet or more of commercial space in Manhattan, or at least 400 residential units or 150,000 square feet or more of commercial space in the Bronx, Brooklyn, Staten Island, or Queens? | ☒ | ☐ |
| **(c)** If the proposed project located in a separately sewered area, would it result in the same or greater development than the amounts listed in Table 13-1 in Chapter 13? | ☐ | ☒ |
| **(d)** Would the proposed project involve development on a site that is 5 acres or larger where the amount of impervious surface would increase? | ☐ | ☒ |
| **(e)** If the project is located within the Jamaica Bay Watershed or in certain specific drainage areas, including Bronx River, Coney Island Creek, Flushing Bay and Creek, Gowanus Canal, Hutchinson River, Newtown Creek, or Westchester Creek, would it involve development on a site that is 1 acre or larger where the amount of impervious surface would increase? | ☒ | ☐ |

| | YES | NO |
|---|---|---|
| **(f)** Would the proposed project be located in an area that is partially sewered or currently unsewered? | ☐ | ☒ |
| **(g)** Is the project proposing an industrial facility or activity that would contribute industrial discharges to a Wastewater Treatment Plant and/or generate contaminated stormwater in a separate storm sewer system? | ☐ | ☒ |
| **(h)** Would the project involve construction of a new stormwater outfall that requires federal and/or state permits? | ☐ | ☒ |
| **11. *SOLID WASTE AND SANITATION SERVICES***: CEQR Technical Manual Chapter 14 | | |
| **(a)** Using Table 14-1 in Chapter 14, the project's projected operational solid waste generation is estimated to be (pounds per week): 33,746 | | |
| ○ Would the proposed project have the potential to generate 100,000 pounds (50 tons) or more of solid waste per week? | ☐ | ☒ |
| **(b)** Would the proposed project involve a reduction in capacity at a solid waste management facility used for refuse or recyclables generated within the City? | ☐ | ☒ |
| **12. *ENERGY***: CEQR Technical Manual Chapter 15 | | |
| **(a)** Using energy modeling or Table 15-1 in Chapter 15, the project's projected energy use is estimated to be (annual BTUs): 93,422,275 | | |
| **(b)** Would the proposed project affect the transmission or generation of energy? | ☐ | ☒ |
| **13. *TRANSPORTATION***: CEQR Technical Manual Chapter 16 | | |
| **(a)** Would the proposed project exceed any threshold identified in Table 16-1 in Chapter 16? | ☒ | ☐ |
| **(b)** If "yes," conduct the screening analyses, attach appropriate back up data as needed for each stage and answer the following questions: | | |
| ○ Would the proposed project result in 50 or more Passenger Car Equivalents (PCEs) per project peak hour? | ☐ | ☒ |
| If "yes," would the proposed project result in 50 or more vehicle trips per project peak hour at any given intersection? ***It should be noted that the lead agency may require further analysis of intersections of concern even when a project generates fewer than 50 vehicles in the peak hour. See Subsection 313 of Chapter 16 for more information.* | ☐ | ☐ |
| ○ Would the proposed project result in more than 200 subway/rail or bus trips per project peak hour? | ☐ | ☒ |
| If "yes," would the proposed project result, per project peak hour, in 50 or more bus trips on a single line (in one direction) or 200 subway trips per station or line? | ☐ | ☐ |
| ○ Would the proposed project result in more than 200 pedestrian trips per project peak hour? | ☐ | ☒ |
| If "yes," would the proposed project result in more than 200 pedestrian trips per project peak hour to any given pedestrian or transit element, crosswalk, subway stair, or bus stop? | ☐ | ☐ |
| **14. *AIR QUALITY***: CEQR Technical Manual Chapter 17 | | |
| **(a)** *Mobile Sources*: Would the proposed project result in the conditions outlined in Section 210 in Chapter 17? | ☐ | ☒ |
| **(b)** *Stationary Sources*: Would the proposed project result in the conditions outlined in Section 220 in Chapter 17? | ☒ | ☐ |
| ○ If "yes," would the proposed project exceed the thresholds in Figure 17-3, Stationary Source Screen Graph in Chapter 17? (Attach graph as needed) See attached | ☒ | ☐ |
| **(c)** Does the proposed project involve multiple buildings on the project site? | ☒ | ☐ |
| **(d)** Does the proposed project require federal approvals, support, licensing, or permits subject to conformity requirements? | ☐ | ☒ |
| **(e)** Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to air quality that preclude the potential for significant adverse impacts? | ☐ | ☒ |
| **15. *GREENHOUSE GAS EMISSIONS***: CEQR Technical Manual Chapter 18 | | |
| **(a)** Is the proposed project a city capital project or a power generation plant? | ☐ | ☒ |
| **(b)** Would the proposed project fundamentally change the City's solid waste management system? | ☐ | ☒ |
| **(c)** If "yes" to any of the above, would the project require a GHG emissions assessment based on the guidance in Chapter 18? | ☐ | ☐ |
| **16. *NOISE***: CEQR Technical Manual Chapter 19 | | |
| **(a)** Would the proposed project generate or reroute vehicular traffic? | ☒ | ☐ |
| **(b)** Would the proposed project introduce new or additional receptors (see Section 124 in Chapter 19) near heavily trafficked roadways, within one horizontal mile of an existing or proposed flight path, or within 1,500 feet of an existing or proposed rail line with a direct line of site to that rail line? | ☒ | ☐ |
| **(c)** Would the proposed project cause a stationary noise source to operate within 1,500 feet of a receptor with a direct line of sight to that receptor or introduce receptors into an area with high ambient stationary noise? | ☐ | ☒ |
| **(d)** Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to noise that preclude the potential for significant adverse impacts? | ☐ | ☒ |
| **17. *PUBLIC HEALTH***: CEQR Technical Manual Chapter 20 | | |
| **(a)** Based upon the analyses conducted, do any of the following technical areas require a detailed analysis: Air Quality; | ☐ | ☒ |

| | YES | NO |
|---|---|---|
| Hazardous Materials; Noise? | | |
| **(b)** If "yes," explain why an assessment of public health is or is not warranted based on the guidance in Chapter 20, "Public Health." Attach a preliminary analysis, if necessary. | | |
| **18. *NEIGHBORHOOD CHARACTER*:** CEQR Technical Manual Chapter 21 | | |
| **(a)** Based upon the analyses conducted, do any of the following technical areas require a detailed analysis: Land Use, Zoning, and Public Policy; Socioeconomic Conditions; Open Space; Historic and Cultural Resources; Urban Design and Visual Resources; Shadows; Transportation; Noise? | ☒ | ☐ |
| **(b)** If "yes," explain why an assessment of neighborhood character is or is not warranted based on the guidance in Chapter 21, "Neighborhood Character." Attach a preliminary analysis, if necessary. See attached report | | |
| **19. *CONSTRUCTION*:** CEQR Technical Manual Chapter 22 | | |
| **(a)** Would the project's construction activities involve: | | |
| ○ Construction activities lasting longer than two years? | ☒ | ☐ |
| ○ Construction activities within a Central Business District or along an arterial highway or major thoroughfare? | ☐ | ☒ |
| ○ Closing, narrowing, or otherwise impeding traffic, transit, or pedestrian elements (roadways, parking spaces, bicycle routes, sidewalks, crosswalks, corners, *etc.*)? | ☐ | ☒ |
| ○ Construction of multiple buildings where there is a potential for on-site receptors on buildings completed before the final build-out? | ☒ | ☐ |
| ○ The operation of several pieces of diesel equipment in a single location at peak construction? | ☒ | ☐ |
| ○ Closure of a community facility or disruption in its services? | ☐ | ☒ |
| ○ Activities within 400 feet of a historic or cultural resource? | ☒ | ☐ |
| ○ Disturbance of a site containing or adjacent to a site containing natural resources? | ☐ | ☒ |
| ○ Construction on multiple development sites in the same geographic area, such that there is the potential for several construction timelines to overlap or last for more than two years overall? | ☒ | ☐ |
| **(b)** If any boxes are checked "yes," explain why a preliminary construction assessment is or is not warranted based on the guidance in Chapter 22, "Construction." It should be noted that the nature and extent of any commitment to use the Best Available Technology for construction equipment or Best Management Practices for construction activities should be considered when making this determination. See attached report | | |

**20. *APPLICANT'S CERTIFICATION***

I swear or affirm under oath and subject to the penalties for perjury that the information provided in this Environmental Assessment Statement (EAS) is true and accurate to the best of my knowledge and belief, based upon my personal knowledge and familiarity with the information described herein and after examination of the pertinent books and records and/or after inquiry of persons who have personal knowledge of such information or who have examined pertinent books and records.

Still under oath, I further swear or affirm that I make this statement in my capacity as the applicant or representative of the entity that seeks the permits, approvals, funding, or other governmental action(s) described in this EAS.

| APPLICANT/REPRESENTATIVE NAME | DATE |
|---|---|
| John Strauss, Environmental Studies Corp | May 18, 2022 |

SIGNATURE John Strauss

***PLEASE NOTE THAT APPLICANTS MAY BE REQUIRED TO SUBSTANTIATE RESPONSES IN THIS FORM AT THE DISCRETION OF THE LEAD AGENCY SO THAT IT MAY SUPPORT ITS DETERMINATION OF SIGNIFICANCE.***

## Part III: DETERMINATION OF SIGNIFICANCE (To Be Completed by Lead Agency)

**INSTRUCTIONS:** In completing Part III, the lead agency should consult 6 NYCRR 617.7 and 43 RCNY § 6-06 (Executive Order 91 or 1977, as amended), which contain the State and City criteria for determining significance.

**1.** For each of the impact categories listed below, consider whether the project may have a significant adverse effect on the environment, taking into account its (a) location; (b) probability of occurring; (c) duration; (d) irreversibility; (e) geographic scope; and (f) magnitude.

| IMPACT CATEGORY | Potentially Significant Adverse Impact YES | NO |
|---|---|---|
| Land Use, Zoning, and Public Policy | ☐ | ☒ |
| Socioeconomic Conditions | ☐ | ☒ |
| Community Facilities and Services | ☐ | ☒ |
| Open Space | ☐ | ☒ |
| Shadows | ☐ | ☒ |
| Historic and Cultural Resources | ☐ | ☒ |
| Urban Design/Visual Resources | ☐ | ☒ |
| Natural Resources | ☐ | ☒ |
| Hazardous Materials | ☐ | ☒ |
| Water and Sewer Infrastructure | ☐ | ☒ |
| Solid Waste and Sanitation Services | ☐ | ☒ |
| Energy | ☐ | ☒ |
| Transportation | ☐ | ☒ |
| Air Quality | ☐ | ☒ |
| Greenhouse Gas Emissions | ☐ | ☒ |
| Noise | ☐ | ☒ |
| Public Health | ☐ | ☒ |
| Neighborhood Character | ☐ | ☒ |
| Construction | ☐ | ☒ |

**2.** Are there any aspects of the project relevant to the determination of whether the project may have a significant impact on the environment, such as combined or cumulative impacts, that were not fully covered by other responses and supporting materials? ☐ YES ☒ NO

If there are such impacts, attach an explanation stating whether, as a result of them, the project may have a significant impact on the environment.

**3.** Check determination to be issued by the lead agency:

☐ **Positive Declaration**: If the lead agency has determined that the project may have a significant impact on the environment, and if a Conditional Negative Declaration is not appropriate, then the lead agency issues a *Positive Declaration* and prepares a draft Scope of Work for the Environmental Impact Statement (EIS).

☐ **Conditional Negative Declaration:** A *Conditional Negative Declaration* (CND) may be appropriate if there is a private applicant for an Unlisted action AND when conditions imposed by the lead agency will modify the proposed project so that no significant adverse environmental impacts would result. The CND is prepared as a separate document and is subject to the requirements of 6 NYCRR Part 617.

☒ **Negative Declaration:** If the lead agency has determined that the project would not result in potentially significant adverse environmental impacts, then the lead agency issues a *Negative Declaration*. The *Negative Declaration* may be prepared as a separate document (see template) or using the embedded Negative Declaration on the next page.

**4.** ***LEAD AGENCY'S CERTIFICATION***

| TITLE | LEAD AGENCY |
|---|---|
| Director, Environmental Planning - HPD | City of New York - Department of Housing Preservation and Development |
| NAME | DATE |
| Matthew Juliana, AICP | 05/19/2022 |

SIGNATURE 

**NEGATIVE DECLARATION (Use of this form is optional)**

**Statement of No Significant Effect**

Pursuant to Executive Order 91 of 1977, as amended, and the Rules of Procedure for City Environmental Quality Review, found at Title 62, Chapter 5 of the Rules of the City of New York and 6 NYCRR, Part 617, State Environmental Quality Review, City of New York - Department of Housing Preservation and Development assumed the role of lead agency for the environmental review of the proposed project. Based on a review of information about the project contained in this environmental assessment statement and any attachments hereto, which are incorporated by reference herein, the lead agency has determined that the proposed project would not have a significant adverse impact on the environment.

**Reasons Supporting this Determination**

The above determination is based on information contained in this EAS, which finds that the proposed project:

Please see attached negative declaration dated May 19, 2022.

No other significant effects upon the environment that would require the preparation of a Draft Environmental Impact Statement are foreseeable. This Negative Declaration has been prepared in accordance with Article 8 of the New York State Environmental Conservation Law (SEQRA).

| TITLE | LEAD AGENCY |
|---|---|
| Director, Environmental Planning - HPD | City of New York - Department of Housing Preservation and Development |
| NAME | DATE |
| Matthew Juliana, AICP | 05/19/2022 |
| SIGNATURE Matthew Juliana | |

**LIVONIA AVENUE PROJECT DESCRIPTION**

***Reasonable Worst-Case Development Scenario***

**INTRODUCTION**

The Applicant, the NYC Department of Housing Preservation and Development (HPD), is seeking the approval of several actions (the Proposed Actions) from the NYC City Planning Commission (CPC) to facilitate the construction of four mixed-use affordable housing buildings located along Livonia Avenue in the Brownsville neighborhood of Brooklyn Community District 16. The four buildings would be located within two Project Areas: Project Area 1 comprises Block 3813, Lot 115; Block 3812, Lots 17 (p/o), 18-22, 24, and 121; Block 3811, Lots 17-21, 23-27, and 124, and Project Area 2 comprises Block 3586, Lots 26, 40 (p/o), 41-44, and 45 (p/o). The majority of tax lots within the Project Areas are City-owned, but also include five privately owned properties within Project Area 1 (Block 3812, Lots 17 (p/o), 18, and 24; Block 3811, Lots 20 and 25), and three privately-owned properties within Project Area 2 (Block 3586, Lots 40 (p/o), 44, and 45 (p/o)). Project Area 2 also includes three lots owned by the New York City Department of Parks and Recreation. Three Development Sites represent a portion of Project Area 1 (Block 3813, Lot 115 (Projected Development Site 1; aka Site C1); Block 3812, Lots 19-22, and 121 (Projected Development Site 2; aka Site C2); Block 3811, Lots 17-19, 21, 23-27, and 124 (Projected Development Site 3; aka Site C3); and one Development Site represents a portion of Project Area 2 (Block 3586, Lot 26 (Projected Development Site 4; aka Site C4). As discussed in greater detail later in the "With-Action Scenario" section, for reasonable worst-case analysis purposes, the Proposed Actions are also assumed to facilitate construction on one property not controlled by the Applicant on Block 3812, Lot 24 (Projected Development Site 5).

The Proposed Actions include the following:

-Zoning map amendment proposed to apply to the block fronts within 200' of Livonia Avenue on Block 3813, and within 100' of Livonia Avenue on Blocks 3812, 3811, and 3586, which is an area nearly coterminous with Project Area 1 and Project Area 2. The amendment would rezone the area nearly coterminous with Project Area 1 from an R6 zoning district with a C2-4 commercial overlay to an R7-2 zoning district with a C2-4 commercial overlay and an area nearly coterminous with Project Area 2 from an R6 zoning district to an R7-2 zoning district with a C2-4 commercial overlay;

- A zoning text amendment to Appendix F to establish Project Areas 1 and 2 as Mandatory Inclusionary Housing (MIH) Areas;

- The designation of the Development Sites as an Urban Development Action Area (UDAA), approval of the project as an Urban Development Action Area Project (UDAAP), and the disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26 (collectively, the Disposition Area)) to a developer selected by HPD; and

- Amendment to the Brownsville II Urban Renewal Plan (URP) to permit residential use on Sites C1 (URA Site 142), C2 (URA Site 141), and C3 (URA Site 140).

The Proposed Development includes four new buildings on the Applicant controlled Projected Development Sites 1-4 (Sites C1-C4) containing approximately 534,479 gross square feet (gsf) (430,283 zoning square feet (zsf); 5.51 FAR) of total floor area including approximately 373,821 gsf (312,262 zsf) of residential floor area, approximately 34,641 gsf

(14,313 zsf) of commercial (retail) floor area, approximately 54,915 gsf (46,747 zsf) of community facility floor area, and approximately 71,102 gsf (56,961 zsf) of community facility with sleeping accommodations floor area. The Proposed Development would contain a total of approximately 498 affordable dwelling units, plus four units for superintendents, and 15 accessory parking spaces.

Community facility uses within the Proposed Development are anticipated to include supportive and formerly homeless housing units (treated as Use Group 3 community facility with sleeping accommodations per the NYC Zoning Resolution ("ZR")) and 54,915 gsf of other uses, including: an approximately 13,119 gsf rooftop garden with a greenhouse (Site C1); an approximately 5,052 gsf community facility space (Site C2); an approximately 10,000 gsf senior center (Site C3); and an approximately 26,744 gsf youth and family activity center (Site C4). Commercial space in the Proposed Development is anticipated to include an approximately 15,629 gsf supermarket and 13,176 gsf of parking (Site C1) and approximately 5,836 gsf of ground-floor local retail space (Sites C1 and C3).

For reasonable worst-case analysis purposes, this EAS assumes that the Proposed Actions would facilitate the development of one additional development site not controlled by the Applicant, Projected Development Site 5, for which there are no known plans for redevelopment at this time. It is assumed that Projected Development Site 5 would be developed with a total of 46,950 gsf of floor area, including approximately 4,800 gsf of ground floor commercial retail space, 4,800 gsf of community facility space (medical offices), and 37,350 gsf of residential space for 36 dwelling units including 7 affordable dwelling units. For CEQR analysis purposes, it is conservatively assumed that 20% of the residential floor area or 7 dwelling units on Projected Development Site 5 would be affordable at 80% of AMI.

In total, this EAS assumes that the Proposed Actions would facilitate the redevelopment of five Projected Development Sites with five new, mixed use residential, commercial, and community facility developments. The five developments would include approximately 581,429 gsf of floor area including approximately 411,171 gsf of residential floor area, 39,441 gsf of commercial floor area, 59,715 gsf of community facility floor area, and 71,102 gsf of community facility with sleeping accommodations. The five developments would contain a total of approximately 505 affordable dwelling units, 29 market rate housing units, and four dwelling units for superintendents.

The remainder of the Project Area is not proposed for development and is not controlled by the Applicant. However, new development could occur on two Potential Development Sites consisting of 43,250 gsf of residential space for 41 dwelling units, 5,500 gsf of retail space, and 4,550 gsf of community facility space (medical offices). For CEQR analysis purposes, it is conservatively assumed that 20% of the residential floor area or 9 dwelling units on Potential Development Sites 1 and 2 would be affordable at 80% of AMI.

No new development is anticipated on Other Sites 1 through 6.

**ACTIONS NECESSARY TO FACILITATE THE PROPOSAL**

The Applicant, the NYC Department of Housing Preservation & Development (HPD), is proposing the following actions:

I. A zoning map amendment from R6 and R6/C2-4 to R7-2/C2-4 which would involve a rezoning of the Applicant's properties, including Block 3813, Lot 115; Block 3812, Lots 19-22,

and 121; Block 3811, Lots 17 (p/o), 18, 19, 21, 23-27, and 124; and Block 3586, Lot 26 (p/o), and non-Applicant properties, identified as Block 3812, Lots 17 (p/o), 18, and 24; Block 3811, Lot 20, and Block 3586, Lots 40 (p/o), 41-44, and 45 (p/o).

II. A Zoning Text Amendment to Appendix F to establish Project Area 1 (Block 3811, Lots 17 (p/o), 18-21, 23-27, and 124; Block 3812, Lots 17 (p/o), 18-22, 24, and 121; and Block 3813, Lot 115), and Project Area 2 (Block 3586, Lots 26 (p/o), 40 (p/o), 41-44, and 45 (p/o)) as a Mandatory Inclusionary Housing (MIH) Area.

III. The designation of the Development Sites as an Urban Development Action Area (UDAA) and approval of the project as an Urban Development Action Area Project (UDAAP), and the disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26) to a developer selected by HPD; and

IV. Amendment to the Brownsville II Urban Renewal Plan (URP) to permit residential use on Sites C1 (Block 3813, Lot 115; URA #142), C2 (Block 3812, Lots 19-22, and 121; URA #141), and C3 (Block 3811, Lots 17-19, 21, 23-27, and 124; URA #140).

**DESCRIPTION OF THE SURROUNDING AREA**

The proposed Project Area is located in the Brownsville neighborhood of Brooklyn within Brooklyn Community District 16.

The area within a 400-foot radius of Project Area 1 is generally characterized by a mix of multi-family and single-family residences, community facility uses, limited commercial uses, transportation and utility uses, and open space facilities. The prevailing built form in the area varies by use with a range of low-rise buildings (one- to two-stories) and mid- to high-rise buildings (six- to 25-stories). Directly north of Project Area 1 are several New York City Housing Authority (NYCHA) developments, which range from six- to 16-stories in height. Most of the development directly south of Project Area 1 consists of one- and two-family residences. Community facility uses in the Surrounding Area include several churches and a community center. Open spaces in the Surrounding Area include Livonia Park, Power Street Livonia Garden, Van Dyke Playground, and Nehemiah Park. Livonia Avenue is the main thoroughfare in the surrounding area and is characterized by mixed-use residential/commercial uses. The elevated No. 3 subway line runs overhead on Livonia Avenue between East 98th Street and New Lots Avenue. The Long Island Railroad tracks are located to the east of Project Area 1 running in a north-south alignment between Junius Street and Van Sinderen Avenue.

The area within a 400-foot radius of Project Area 2 is generally characterized by a mix of multi-family and single-family residences, community facility uses, open space, and vacant lots. Residential uses include a mix of single- and two-family homes and larger multi-family apartment buildings generally ranging from two- to 4-stories in height. Several light industrial and warehouse uses are located one block west of Site C4 along Herzl Street. Community facility uses in the surrounding area include several churches. Betsy Head Park, a 10.5-acre open space with a public pool, community center, ballfields, track, and the recently constructed Imagination Playground, is located directly north of Project Area 2 across Livonia Avenue. Numerous vacant lots are scattered throughout the surrounding area. The elevated No. 3 subway line runs overhead on Livonia Avenue.

The primary zoning districts mapped within the surrounding area include R6/C2-4, R7-2/C2-4, and M1-1. R6 districts are the predominant zoning district and can be found throughout the surrounding area. An R7-2 district is located along Livonia Avenue between Thomas S. Boyland Street and Rockaway Avenue directly to the east of Site C4 and approximately four blocks west of Site C3. C2-4 overlay districts can be found along Livonia Avenue within R6 and R7-2 districts. An M1-1 zoning district is located one block east of Site C1 along the elevated L subway line.

**DESCRIPTION OF THE PROJECT AREA**

The Project Area includes Applicant controlled properties, identified as Block 3586, Lot 26; Block 3811, Lots 17-19, 21, 23-27, and 124; Block 3812, Lots 19-22 and 121; and Block 3813, Lot 115, and Non-Applicant properties, identified as Block 3586, Lots 40 (p/o), 41-44, and 45 (p/o); Block 3811, Lot 20; and Block 3812, Lots 17 (p/o), 18, and 24. The existing conditions on these lots are described below.

*Applicant Owned Sites*

1. Projected Development Site 1; aka Site C1 (Block 3813, Lot 115) – This vacant property has a lot area of approximately 40,400 sf with frontages of 200 feet along Livonia Avenue, 204 feet along Powell Street, and 200 feet along Sackman Street. The property is City-owned under the control of HPD and is zoned R6/C2-4.[1]

2. Projected Development Site 2; aka Site C2 (Block 3812, Lots 19-22 and 121) – This vacant property has a lot area of approximately 9,152 sf with 140 feet of frontage on Livonia Avenue and 51.5 feet of frontage on Christopher Avenue. Lots 19, 20, 21, and 121 have a depth of 51.5 feet while Lot 22 has a depth of 100 feet. The property is City-owned under the control of HPD and is zoned R6/C2-4.

3. Projected Development Site 3; aka Site C3 (Block 3811, Lots 17-19, 21, 23-27, and 124) – This vacant property has a lot area of approximately 18,500 sf with 200 feet of frontage on Livonia Avenue, 100 feet of frontage on Christopher Avenue, and 85 feet of frontage on Mother Gaston Boulevard. Lots 17-19, and 21 have a total lot frontage of 85 feet along Mother Gaston Boulevard and individual lot depths of 100 feet. Lots 23-26 and 124 have a total lot frontage of 100 feet along Livonia Avenue and individual lot depths of 80 feet. Lot 27 has 20 feet of frontage along Christopher Avenue and a lot depth of 100 feet. The property is City-owned under the control of HPD and is zoned R6/C2-4. A small 5-foot portion of Lot 17 on Block 3811, which is located beyond 100 feet of Livonia Avenue, is mapped R6 and is not located within the rezoning area but is within the Project Area.

4. Projected Development Site 4; aka Site C4 (Block 3586, Lot 26) – This vacant property has a lot area of approximately 10,023 sf with 100 feet of frontage on Livonia Avenue and 100.23 feet along Amboy Street. The property is City-owned under the control of HPD and is zoned R6. A small 0.23-foot portion of Lot 26 located beyond 100 feet of Livonia Avenue is located within the Project Area but is not within the rezoning area.

[1] Records show that a portion of Block 3813, Lot 115 that was previously thought to be City-owned (the portion formerly known as Block 3813, Lot 14 (the "Acquisition Site")), may be privately-owned and will therefore be acquired by the City. The Acquisition Site is already within the URA, and the authorization to acquire the Acquisition Site will be reapplied along with all other sites within the URA as part of the amendment to the URP.

*Non-Applicant Owned Sites*

The Non-Applicant properties are described as follows:

5. Projected Development Site 5 (Block 3812, Lot 24) – This 6,000 sf property has 60 feet of frontage on Livonia Avenue and a depth of 100 feet along Sackman Street. The property is developed with a 1-story, approximately 6,000 sf church owned by the Tabernacle Baptist Church (FAR: 1.0). The property is zoned R6/C2-4.

6. Potential Development Site 1 (Block 3812, Lots 17 (p/o) and 18) – This Site consists of two lots totaling 5,000 sf in area with 50 feet of frontage along Christopher Avenue and individual lot depths of 100 feet (Lot 18) and 101.5 feet (Lot 17). A 3,120 sf building is located on each lot (total Site FAR: 1.25) Both lots are zoned R6/C2-4. A small 1.5-foot portion of Lot 17, which is located beyond 100 feet of Livonia Avenue, is mapped R6 and is not located within the Project Area. The two lots are described below.

Lot 17 (p/o) – 2,500 sf lot area developed with a two-story dwelling containing 3,120 gsf of floor area and 3 residential dwelling units, and owned by Lawrence Wallace.

Lot 18 – 2,500 sf lot developed with a two-story dwelling containing 3,120 gsf of floor area and 3 residential dwelling units, and owned by 383 Chris LLC.

7. Potential Development Site 2 (Block 3811, Lot 20) – This 2,000 sf property has 20 feet of frontage along Mother Gaston Boulevard and a depth of 100 feet. The property is developed with a 1-story, approximately 1,800 gsf retail building owned by Mohammed Ali (FAR: 0.9). The property is zoned R6/C2-4.

8. Other Site 1 (Block 3586, Lot 40 (p/o)) - This 2,504 sf vacant property has 25 feet of frontage along Livonia Avenue and a depth of 100 feet. The property is owned by BSD Livonia, LLC and is zoned R6. A small 0.23-foot portion of Lot 40 is located beyond 100 feet of Livonia Avenue and is not located within the Project Area.

9. Other Site 2 (Block 3586, Lot 41) - This 1,488 sf vacant property has 19.78 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet along Livonia Avenue. The property is City-owned under the control of the NYC Department of Parks and Recreation (DPR) and is zoned R6.

10. Other Site 3 (Block 3586, Lot 42) - This 1,524 sf vacant property has 20.4 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet. The property is City-owned owned under the control of DPR and is zoned R6.

11. Other Site 4 (Block 3586, Lot 43) - This 1,500 sf vacant property has 20 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet. The property is City-owned owned under the control of DPR and is zoned R6.

12. Other Site 5 (Block 3586, Lot 44) - This 1,500 sf vacant property has 20 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet. The property is owned by Robert Aquart and is zoned R6.

13. Other Site 6 (Block 3586, Lot 45 (p/o)) - The 1,500 sf area of this property has 20 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet. It is developed with a three-story dwelling containing 3,000 gsf of floor area and 3 residential dwelling units. The property is owned by Israel Fastag and is zoned R6. A small 0.23-foot portion of Lot 45 is located beyond 100 feet of Livonia Avenue and is not located within the Project Area.

**BACKGROUND**

In 1984, the CPC approved the Brownsville URP (C 841019 HUK). In 1996, the URP was amended and designated an approximately 19 block area, including Sites C1, C2, and C3, as the Brownsville II Urban Renewal Area ("URA"). The URP was intended to achieve several goals including: eliminate blight and maximize appropriate land use; remove substandard and insanitary structures; remove impediments to land assemblage and orderly development; encourage new development; and redevelop the area in a comprehensive manner. Under the URP, Sites C1, C2, and C3 were identified as URA Sites 142, 141, and 140, respectively, and were designated for commercial use (C 960360 HUK). The URP will expire in 2040. Site C4 was formerly subject to the Marcus Garvey Urban Renewal Plan, which was approved in 1968 and expired in 2008.

Concurrent with the approval of the Brownsville II URP in 1996, the CPC approved a zoning map amendment (C 960361 ZMK) to rezone the frontages of four blocks on the southerly side of Livonia Avenue, including Sites C1, C2, and C3, by establishing a C2-4 overlay within the existing R6 district. Disposition approval was also granted for commercial development at Sites C1, C2, and C3 (C 960363 HDK). These three Development Sites still remain vacant, City-owned land.

An additional five tax lots received previous disposition approvals from the Board of Estimate. On Site C2, Block 3812, Lot 21 received disposition approval on October 23, 1980, Lot 22 on April 1, 1989, and Lot 121 on October 23, 1980; on Site C3, Block 3811, Lot 23 received disposition approval on June 17, 1980 and Lot 24 on April 12, 1984. However, these sites were never developed and remain vacant, City-owned land.

In recent years, the surrounding area has undergone several rezonings, including the Livonia Commons Rezoning (C 130374 ZMK) in 2013 and Marcus Garvey Village Rezoning (C 180489 ZMK) in 2018. Livonia Commons included a zoning map amendment to change R6, R6/C2-3 and M1-1 districts along Livonia Avenue between Pennsylvania and Van Sinderen Avenues to R6, R7A/C2-4, and C4-4L districts. The rezoning was intended to facilitate the construction of Livonia Commons, a mixed-use development containing affordable housing, commercial, and community facility space. Marcus Garvey Village rezoned portions of ten tax blocks bounded by Blake Avenue to the north, Rockaway Avenue to the east, Thomas S. Boyland Street to the west, and Newport Street to the south. The zoning map amendment changed an R6 zoning district to an R7-2 and R7-2/C2-4 zoning district. This rezoning was part of a series of land use actions, establishing a large-scale general development in order to facilitate the development of seven-, eight- and nine-story mixed-use buildings with approximately 724 units of affordable housing in Brownsville.

In 2016, HPD launched a community-based planning process to develop a shared vision and plan for the future of Brownsville. Working with residents, elected officials, community-based organizations, and other government agencies, HPD hosted a series of public workshops, implemented an online engagement tool, and participated in community events. The end result of these efforts was the release of the *Brownsville Plan* in 2017. In coordination with the release of the *Brownsville Plan*, HPD issued the Brownsville RFP to redevelop a number of sizeable vacant City-owned sites within the Brownsville neighborhood. The development area offers a combined total of 173,000 square feet across three distinct sites. Each site focuses on one specific theme that addresses the community

goals and strategies outlined in the *Brownsville Plan*. These priorities include the need for performance venues, rehearsal and visual arts studios, or exhibition space in the community (Site A); opportunities for small businesses and entrepreneurship training (Site B); and investment in healthy lifestyles (Site C). The RFP refers to Project Areas 1 and 2 as "Site C". The team selected by HPD for the development of Site C consists of Catholic Charities Progress of Peoples Development Corporation, SCO Family of Services, Community Solutions, Brownsville Partnership, and Radson Development.

**DESCRIPTION OF THE PROPOSED DEVELOPMENT**

The Proposed Actions are intended to facilitate the redevelopment of Applicant controlled Projected Development Sites 1 through 4 (Sites C1-C4) with a four building, approximately 534,479 gsf (5.51 FAR) development (the Proposed Development). In total, the Proposed Development would include approximately 534,479 gsf of floor area including approximately 373,821 gsf of residential floor area, 34,641 gsf of commercial floor area, 54,915 gsf of community facility floor area, 71,102 gsf of community facility with sleeping accommodations, and 15 accessory supermarket parking spaces. The Proposed Development would contain a total of approximately 498 affordable dwelling units, plus four units for superintendents. The 498 affordable dwelling units are anticipated to be marketed to households earning between 27 percent and 80 percent of Area Median Income (AMI), and would include approximately 279 affordable dwelling units, 97 affordable dwelling units for seniors, 32 supportive dwelling units, 48 supportive units treated as Use Group 3 community facility space, and 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility space. Other community facility uses would total 54,915 gsf and would include an approximately 13,119 gsf rooftop garden with a greenhouse (Site C1); an approximately 5,052 gsf community facility space (Site C2); an approximately 10,000 gsf senior center (Site C3); and an approximately 26,744 gsf youth and family activity center (Site C4). Commercial space in the Proposed Development is anticipated to include an approximately 15,629 gsf supermarket and 13,176 gsf of parking for 15 parking spaces accessory to the supermarket (Site C1), and approximately 5,836 gsf of ground-floor local retail space (Sites C1 and C3).

**DESCRIPTION OF THE PROPOSED PROJECT**

The Proposed Project would include the Proposed Development on Sites C1 through C4 plus an additional parcel not controlled by the Applicant. Projected Development Site 5 would be developed with a 46,950 gsf building containing 4,800 gsf of commercial retail space, 4,800 gsf of community facility space (medical offices), and 37,350 gsf of residential space for 36 dwelling units. It is assumed that 20% of the residential floor area or 7 dwelling units on Projected Development Site 5 would be affordable.

In total, the Proposed Project would include approximately 581,429 gsf of floor area including approximately 411,171 gsf of residential floor area, 39,441 gsf of commercial floor area, 59,715 gsf of community facility floor area, and 71,102 gsf of community facility with sleeping accommodations. The Proposed Project would contain a total of approximately 505 affordable dwelling units, 29 market rate housing units, and four dwelling units for superintendents.

**BUILD YEAR/PROJECT PHASING**

It is assumed that the Proposed Actions would be approved by late 2022. Construction of the Proposed Development on Projected Development Sites 1 through 4 is expected to occur simultaneously over a 24-month construction period and be completed by early 2025. As the Proposed Actions would result in the creation of an additional development site that is not controlled by the Applicant, it is anticipated that this site would be developed and occupied over an additional 12-month period with a Build Year of 2026.

**PURPOSE AND NEED OF THE PROPOSED ACTIONS**

The Proposed Actions would permit the development, on the Applicant owned Projected Development Sites 1 through 4, of approximately 502 new housing units, all of which would be affordable units with the exception of 4 superintendent's units, in the Brownsville neighborhood of Brooklyn on currently vacant City-owned land. It would include the development of approximately 279 affordable dwelling units, 97 affordable dwelling units for seniors, 32 supportive dwelling units, 48 supportive units treated as Use Group 3 community facility space, 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility space as well as approximately 34,641 gsf of commercial space and 54,915 gsf of community facility space on Projected Development Sites 1 through 4. The Proposed Actions, including the proposed rezoning from R6 and R6/C2-4 to R7-2/C2-4, are needed to provide sufficient residential floor area for the project to be economically feasible. The Applicant intends to develop the Development Sites with housing consistent with the standards of the Quality Housing Program as well as affordable units under HPD's ELLA, SARA, and/or NY 15/15 programs, the Mandatory Inclusionary Housing (MIH) Program zoning regulations, and/or HUD's Section 8 voucher program. The Proposed Actions would also permit the development in the Project Area of approximately 36 dwelling units, including 7 affordable units, 4,800 gsf of commercial retail space, and 4,800 gsf of community facility (medical office) space on Projected Development Site 5 which would be subject to the Proposed Actions but is not controlled by the Applicant. The Proposed Actions would provide the flexibility needed to develop a significant amount of much-needed affordable and supportive housing, retail, and community facility uses in close proximity to public transportation. Additionally, the Proposed Development would be consistent with HPD's 2017 Brownsville RFP and would further the objectives of the *Brownsville Plan*. Furthermore, the Proposed Development would introduce new activities and users to properties that have historically been vacant and desolate, enlivening the area and resulting in a more vibrant streetscape.

Zoning Map Amendment

The proposed zoning map amendment to sectional maps 17b and 17d would map Project Areas 1 and 2 with an R7-2 zoning district, retain the existing C2-4 commercial overlay in Project Area 1, and map a C2-4 commercial overlay in Project Area 2. The Project Areas are currently located within R6/C2-4 (Sites C1, C2, and C3) and R6 (Site C4) zoning districts, which have a maximum residential FAR of 3.0 on a wide street) and 2.0 on a narrow street pursuant to Quality Housing regulations, maximum community facility FAR of 4.8, and maximum commercial FAR of 2.0 (within the C2-4 overlay). For a height factor building, the maximum FAR is 2.43. Compared to existing zoning, the proposed R7-2 district would permit a higher maximum residential FAR of 4.0 (up to 4.6 if located within a designated Inclusionary Housing area) and a higher maximum community facility FAR of 6.5. There

would be no change in permitted commercial FAR. In both R6 and R7-2 districts, developments can be constructed pursuant to height factor or Quality Housing regulations. As discussed previously, under height factor regulations, building height and setback are governed by a sky exposure plane, which begins 60 feet above the street line in both districts. Quality Housing regulations mandate a maximum base height of 65 feet and 75 feet before setback and a maximum building height of 75 feet and 85 feet in R6 and R7-2 districts, respectively. Within designated Inclusionary Housing areas, optional floor area bonus and bulk modifications are available in exchange for the creation or preservation of affordable housing. As Project Areas 1 and 2 are located within the Transit Zone, no parking is required for income-restricted housing units.

The proposed R7-2 zoning district is appropriate as the Project Areas are well served by public transportation and well equipped to handle the proposed increase in density. The Project Areas are adjacent to Livonia Avenue, which operates as a wide street in the vicinity of the Project Areas with many buildings set back 20 to 40 feet from the street and can support the proposed increase in density. Sites C1, C2, and C3 are located immediately south of the No. 3 subway line at the Junius Street subway station and are located approximately two blocks west of the L subway line at the Livonia Avenue subway station. Site C4 is located three blocks west of the No. 3 subway line at the Rockaway Avenue subway station.

The proposed R7-2 zoning district would be consistent with existing land use and zoning patterns within the surrounding area. R7-2 zoning would allow a bulk and density consistent with what is currently permitted in the surrounding area, including the R7-2 district mapped along Livonia Avenue between Thomas S. Boyland Street and Rockaway Avenue directly to the east of Site C4 and approximately four blocks west of Site C3. The additional bulk and density would provide the flexibility needed to redevelop several irregularly shaped parcels along an elevated rail line with affordable and supportive housing, retail, and community facility uses including a senior center and community garden, which would provide much needed services and amenities to existing and future residents of the area. These proposed uses would be consistent with HPD's 2017 Brownsville RFP and would further the objectives of the *Brownsville Plan.* Furthermore, the Proposed Development would introduce new activities and users to properties that have historically been vacant and desolate, enlivening the area and resulting in a more vibrant streetscape.

Zoning Text Amendment

The Applicant is requesting a zoning text amendment to Appendix F to designate the entire rezoning area including the Development Site as an MIHA. According to the U.S. Census Bureau, approximately 51.2 percent of area households in Brooklyn Community District 16 are rent burdened and there is a strong need for affordable housing that reaches a broad range of incomes.[2]

The MIH program requires that permanently affordable housing be provided within new residential developments, enlargements, and conversions from non-residential to residential use within the mapped MIHAs. Within the MIHA, all housing developments, enlargements

[2] Based on American Community Survey 2012-2016 5-Year Estimates for PUMA 4007, which is an approximation of Brooklyn Community District 16 available at: https://communityprofiles.planning.nyc.gov/brooklyn/16.

and conversions that meet the criteria set forth in the MIH program must comply with the requirements of either Option 1 or Option 2 described below.

- Option 1: 25 percent of the residential floor area shall be provided as housing affordable to households with not less than 10 percent of floor area at 40 percent of AMI and at an average of 60 percent of the Income Index (AMI), with no unit targeted at a level exceeding 130 percent of AMI.
- Option 2: 30 percent of the residential floor area shall be provided as housing affordable to households at an average of 80 percent of the Income Index (AMI), with no unit targeted at a level exceeding 130 percent of AMI.

In addition to one or both of the options above, the City Council and the City Planning Commission could decide to apply one or both of the following options:

- Deep Affordability Option: 20 percent of the total residential floor area must be for housing units for residents with incomes averaging 40 percent of AMI and no direct subsidies could be used for these units except where needed to support more affordable housing.
- Workforce Option: 30 percent of the total residential floor area must be for housing units for residents with incomes averaging 115 percent of AMI; no units could go to residents with incomes above 135 percent AMI; no direct subsidies could be used for these affordable housing units; and this could not apply to Manhattan Community Districts 1-8.

The Applicant proposes to map Project Areas 1 and 2 with both MIH Options 1 and 2. As such, for the purposes of a conservative analysis, this EAS assumes that 25 percent of residential floor area (approximately 103 units) would be provided on the Applicant controlled Projected Development Sites 1 through 4 with not less than 10 percent of floor area at 40 percent of AMI and at an average of 60 percent of AMI with no unit at a level exceeding 130 percent of AMI. The MIH requirement ensures that these 103 dwelling units, and a percentage of floor area in any future residential development within the MIHA, are permanently affordable. In addition, for CEQR analysis purposes, it is conservatively assumed that 20 percent of the residential floor area or 7 dwelling units on the non-Applicant controlled Projected Development Site 5 would be affordable at 80 percent of AMI.

UDAA Designation, UDAAP Approval, and Disposition of City-Owned Land

The Development Sites consist of underutilized vacant property which tends to impair or arrest the sound development of the surrounding community, with or without tangible physical blight. Incentives are needed in order to induce the correction of these substandard, insanitary, and blighting conditions. The Proposed Development would protect and promote health and safety and would promote sound growth and development. The Development Sites are therefore eligible to be an UDAA and the Proposed Development is therefore eligible to be an UDAAP pursuant to Article 16 of the General Municipal Law. Designation of these properties as an UDAAP would allow an exemption from real estate taxes on the assessed value of future buildings and would facilitate the construction of the proposed affordable housing development. The designation of an UDAAP must be authorized by City Council.

In conjunction with these actions, the Applicant is seeking disposition authority for a number of City-owned properties (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block

3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26) to facilitate construction of the Proposed Development. The Development Sites will be conveyed to a developer to be selected by HPD.

Amendment to the Brownsville II URP

The Applicant is requesting an amendment to the Brownsville II URP to permit residential uses on Sites C1 (URA #142), C2 (URA #141), and C3 (URA #140). These three sites were originally designated for commercial development but have remained vacant due to market conditions affecting the development of new retail uses as well as the presence of established retail corridors in the vicinity of the Project Area, such as Rockaway Avenue. The proposed URP amendment would facilitate the development of these sites in line with the specific community goals and strategies outlined in the 2017 *Brownsville Plan*, including the need for new housing and resources to promote healthy lifestyles. The Proposed Development on the Applicant's Sites C1 through C4 would provide a substantial amount of new housing, including a total of approximately 502 units which would include senior, supportive, and formerly homeless housing units. The Proposed Development would also provide several commercial and community facility uses (including a supermarket, a rooftop garden and greenhouse, a senior center, a community facility space, and a youth and family activity center that would meet the objectives of the *Brownsville Plan* by improving access to healthy food, increasing opportunities to garden and grow fresh produce, and improving access to recreational services and programs.

**NO-ACTION SCENARIO**

It is assumed that under the No-Action Scenario, existing conditions would continue on the Applicant Owned Projected Development Sites 1 through 4, the Non-Applicant Owned Projected Development Site 5, and Other Sites 1 through 6.

**WITH-ACTION SCENARIO**

The With-Action Scenario includes a Zoning Map Amendment to rezone Project Areas 1 and 2 from their R6 and R6/C2-4 zoning to an R7-2 zoning district, retain the existing C2-4 commercial overlay in Project Area 1, and map a C2-4 commercial overlay in Project Area 2. The rezoning would include the Applicant properties, Projected Development Sites 1 through 4, and the Non-Applicant owned properties including Projected Development Site 5, Potential Development Sites 1 and 2, and Other Sites 1 through 6. Potential Development Sites are Sites where new development is considered less likely to occur by the project build year. Other Sites 1 through 6 would not be developed as they are City-owned under the control of DPR. The Proposed Actions would include a Zoning Text Amendment to Appendix F to establish Project Area 1 and Project Area 2 as MIH Areas. The Proposed Actions would also include the designation of the Development Sites as a UDAA and approval of the project as a UDAAP, and the disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26) to a developer selected by HPD. Finally, the Proposed Actions would include an amendment to the Brownsville II URP to permit residential use on Sites C1 (URA #142), C2 (URA #141), and C3 (URA #140).

*Projected Development Sites*

*Applicant-Owned Sites*

The With-Action RWCDS on Projected Development Sites 1 through 4 would be the same as the proposed development and is described below and summarized in Table 1.

The Applicant is proposing to redevelop Projected Development Sites 1 through 4 with four new buildings containing approximately 534,479 gsf of floor area (430,283 zsf; 5.51 FAR) including approximately 373,821 gsf of residential floor area, 34,641 gsf of commercial (retail) floor area, 54,915 gsf of community facility floor area, 71,102 gsf of community facility with sleeping accommodations, and 15 accessory supermarket parking spaces. The Proposed Development would contain a total of approximately 502 dwelling units including 4 superintendent's units, 279 affordable dwelling units, 97 affordable dwelling units for seniors, 32 supportive dwelling units, 48 supportive units treated as Use Group 3 community facility space, and 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility space.

The proposed 498 affordable dwelling units are anticipated to be marketed to households earning between 27 percent and 80 percent of AMI. Approximately 35 percent of these dwelling units would be set at 27 percent of AMI, while only six percent would be set at 80 percent of AMI. The 97 senior housing units and 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility spacewould be managed by Catholic Charities Progress of Peoples Development Corporation. The 32 supportive housing units and 48 supportive dwelling units treated as Use Group 3 community facility space would be managed by non-profit service provider Community Solutions, in partnership with Brownsville Partnership, SCO Family of Services and Medgar Evers College.

At this time, community facility uses within the Project Areas are anticipated to include 90 supportive housing units (treated as Use Group 3 community facility with sleeping accommodations per the NYC Zoning Resolution) and 54,915 gsf of other uses that are anticipated to include: an approximately 13,119 gsf rooftop garden with greenhouse (Site C1); an approximately 5,052 gsf community facility space (Site C2) operated by Community Solutions in partnership with SCO Family of Service; an approximately 10,000 gsf senior center operated by Catholic Charities Neighborhood Services (Site C3); and an approximately 26,744 gsf youth and family activities center (Site C4). The 34,641 gsf of commercial space at the Development Sites is anticipated to include an approximately 15,629 gsf supermarket (Site C1), which would be serviced by 15 accessory parking spaces, and approximately 5,836 gsf of ground-floor local retail (Sites C1 and C3).

1. Projected Development Site 1; aka Site C1 (Block 3813, Lot 115) would be developed with an approximately 12-story and cellar 256,150 gsf building with 32,941 gsf of commercial space in the cellar and on the ground floor, 13,119 gsf of community facility space primarily on the roof of the building, and 210,090 gsf of residential space on all floors of the building with residential living space for approximately 225 affordable dwelling units and 1 superintendents unit on floors 1 through 12. The commercial space would be comprised of an approximately 15,629 gsf supermarket, which would be serviced by 15 cellar level accessory parking spaces within 13,176 gsf of floor area and approximately 4,136 gsf of ground-floor local retail space. The community facility space would be comprised of an approximately 13,119 gsf rooftop garden with greenhouse. The building would contain 207,905 zsf on the 40,400 sf site for an FAR of 5.15 relative to the permitted FAR of 6.50.

The proposed building would set back approximately 15 feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back 15 feet, before rising to a final height of 130 feet (12 stories). The main residential entrance would be located on Sackman Street, while the commercial and community facility uses would be accessible from Livonia Avenue. The underground parking garage with approximately 15 accessory parking spaces would be accessible from Sackman Street and would provide the only off-street parking option within the Project Areas.

2. Projected Development Site 2; aka Site C2 (Block 3812, Lots 19-22 and 121) would be developed with an approximately 11-story and cellar 69,176 gsf building with 5,052 gsf of community facility space in the cellar and on the ground floor, 41,554 gsf of community facility space with sleeping accommodations for approximately 48 studio and two-bedroom supportive units, and 22,570 gsf of residential space with residential living space for 32 affordable supportive housing units and 1 superintendents unit. The 32 affordable supportive residential dwelling units would be occupied by vulnerable young adults. The community facility space would be comprised of an approximately 5,052 gsf community facility space. 60 of the 81 total dwelling units on Projected Development Site 2 would be single room occupancy units. The building would contain 53,490 zsf on the 9,152 sf site for an FAR of 5.84 relative to the permitted FAR of 6.50.

The proposed building would set back approximately six feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back nine feet, before rising to a final height of 115 feet (11 stories). The main entrance for building residents and visitors to the community facility space would be located on Livonia Avenue.

3. Projected Development Site 3; aka Site C3 (Block 3811, Lots 17-19, 21, 23-27, and 124) would be developed with an approximately 12-story and cellar 123,451 gsf building with 1,700 gsf of local retail space and 10,000 gsf of community facility space on the ground floor of the building, 29,548 gsf of community facility space with sleeping accommodations for approximately 42 studio and one-bedroom supportive housing units for formerly homeless seniors, and 82,203 gsf of residential space with residential living space for 97 senior affordable dwelling units and 1 superintendents unit. The community facility space would be comprised of an approximately 10,000 gsf senior center. The building would contain 103,837 zsf on the 18,500 sf site for an FAR of 5.61 relative to the permitted FAR of 6.50.

The proposed building would set back five feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back 13 feet, before rising to a final height of 125 feet (12 stories). The main residential entrance would be located on Mother Gaston Boulevard, while retail and community facility uses would be accessible from Livonia Avenue.

4. Projected Development Site 4, aka Site C4 (Block 3586, Lot 26) would be developed with an approximately 12-story and cellar 85,702 gsf building with 26,744 gsf of community facility space on the cellar through third floors of the building, and 58,958 gsf of residential space on all floors of the building with residential living space for approximately 54 affordable dwelling units and 1 superintendent's unit on floors 4 through 12. The community facility space would be comprised of an approximately 26,744 gsf youth and family activities center. The building would contain 65,051 zsf on the 10,023 sf site for an FAR of 6.49 relative to the permitted FAR of 6.50.

The proposed building would set back five feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back 15 feet, before rising to a final height of 129 feet (12 stories). The main residential entrance would be located on Amboy Street while the community facility use would be accessible from Livonia Avenue.

*Non-Applicant-Owned Site*

Although there are currently no plans for any development on Projected Development Site 5, the following levels of development would be permitted under the proposed R7-2/C2-4(MIH) zoning. For reasonable worst-case analysis purposes, it is assumed that the existing structures and uses on this Projected Development Site would be demolished and removed.

5. Projected Development Site 5 (Block 3812, Lot 24) would be developed with a 9-story and cellar 46,950 gsf building with 4,800 gsf of commercial retail space on the ground floor of the building, 4,800 gsf of community facility space (medical offices) on the second floor, and 37,350 gsf of residential space on most floors of the building with residential living space for 36 dwelling units on floors 3 through 9. It is assumed that 20% of the residential floor area or 7 dwelling units on Projected Development Site 5 would be affordable at 80% of AMI. The building would contain 36,795 zsf on the 6,000 sf site for an FAR of 6.13 relative to the permitted FAR of 6.50. The building would set back five feet from Sackman Street before rising to a height of 75 feet. Above 75 feet, the building would set back 15 feet from Livonia Avenue and Sackman Street, before rising to a final height of 95 feet (9 stories).

**Table 1**
**Summary of Projected Development Sites**

| Site Info | | | | No-Action Condition | | | | | With-Action Condition | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| # | Tax Block | Tax Lot | Lot Area (sf) | Res (gsf) | Comm (gsf) | CF (gsf) | Vacant (sf) | Parking Spaces | Res (gsf) | DUs | Comm (gsf) | CF (gsf) | CF w/ Sleeping (gsf) | Parking Spaces |
| 1 | 3813 | 115 | 40,400 | 0 | 0 | 0 | 40,400 | 0 | 210,090 | 226 | 32,941 | 13,119 | 0 | 15 |
| 2 | 3812 | 19 | 979 | 0 | 0 | 0 | 979 | 0 | 22,570 | 81 | 0 | 5,052 | 41,554 | 0 |
| | | 20 | 1,391 | 0 | 0 | 0 | 1,391 | 0 | | | | | | |
| | | 21 | 1,391 | 0 | 0 | 0 | 1,391 | 0 | | | | | | |
| | | 22 | 4,000 | 0 | 0 | 0 | 4,000 | 0 | | | | | | |
| | | 121 | 1,391 | 0 | 0 | 0 | 1,391 | 0 | | | | | | |
| 3 | 3811 | 17 | 2,000 | 0 | 0 | 0 | 2,000 | 0 | 82,203 | 140 | 1,700 | 10,000 | 29,548 | 0 |
| | | 18 | 2,000 | 0 | 0 | 0 | 2,000 | 0 | | | | | | |
| | | 19 | 2,000 | 0 | 0 | 0 | 2,000 | 0 | | | | | | |
| | | 21 | 2,500 | 0 | 0 | 0 | 2,500 | 0 | | | | | | |
| | | 23 | 1,600 | 0 | 0 | 0 | 1,600 | 0 | | | | | | |
| | | 24 | 1,600 | 0 | 0 | 0 | 1,600 | 0 | | | | | | |
| | | 25 | 1,600 | 0 | 0 | 0 | 1,600 | 0 | | | | | | |
| | | 26 | 1,600 | 0 | 0 | 0 | 1,600 | 0 | | | | | | |
| | | 27 | 2,000 | 0 | 0 | 0 | 2,000 | 0 | | | | | | |
| | | 124 | 1,600 | 0 | 0 | 0 | 1,600 | 0 | | | | | | |
| 4 | 3586 | 26 | 10,023 | 0 | 0 | 0 | 10,023 | 0 | 58,958 | 55 | 0 | 26,744 | 0 | 0 |
| 5[1] | 3812 | 24 | 6,000 | 0 | 0 | 6,000 | 0 | 0 | 37,350 | 36 | 4,800 | 4,800 | 0 | 0 |
| **Total** | | | **84,075** | **0** | **0** | **6,000** | **78,075** | **0** | **411,171** | **538** | **39,441** | **26,744** | **71,102** | **15** |

**Notes:** [1] Property not controlled by the Applicant

*Potential Development Sites*

There are two additional sites that could potentially be developed within the Project Area with the Proposed Actions but are considered less likely to be built by the Project Build Year of 2026. Although there are no plans for any development on Potential Development Sites 1 and 2, the following levels of development would be permitted under the proposed R7-2/C2-4(MIH) zoning. For reasonable worst-case analysis purposes, it is assumed that the existing structures and uses on these Potential Development Sites would be demolished and removed.

7. Potential Development Site 1 (Block 3812, Lots 17 (p/o) and 18) would be developed with a 10-story and cellar 37,900 gsf building with 4,100 gsf of commercial retail space on the ground floor of the building, 3,250 gsf of community facility space (medical offices) on the second floor, and 30,550 gsf of residential space on most floors of the building with residential living space for 29 dwelling units on floors 3 through 10. It is assumed that 20% of the residential floor area or 6 dwelling units on Potential Development Site 1 would be affordable at 80% of AMI. The building would contain 29,168 zsf on the 5,000 sf site for an FAR of 5.83 relative to the permitted FAR of 6.50. The building would set back 15 feet from Livonia Avenue and Sackman Street at a height of 75 feet before rising to a final height of 95 feet (10 stories).

8. Potential Development Site 2 (Block 3811, Lot 20) would be developed with a 10-story and cellar 15,400 gsf building with 1,400 gsf of commercial retail space on the ground floor of the building, 1,300 gsf of community facility space (medical offices) on the second floor, and 12,700 gsf of residential space on most floors of the building with residential living space for 12 dwelling units on floors 3 through 10. It is assumed that 20% of the residential floor area or 3 dwelling units on Potential Development Site 2 would be affordable at 80% of AMI. The building would contain 11,655 zsf on the 2,000 sf site for an FAR of 5.83 relative to the permitted FAR of 6.50. The building would set back 15 feet from Mother Gaston Boulevard at a height of 80 feet before rising to a final height of 95 feet (10 stories).

*Other Sites*

No new development is anticipated on Other Sites 1 through 6.

**INCREMENT BETWEEN NO-ACTION AND WITH-ACTION SCENARIOS**

Under the With-Action Scenario for the project build year of 2026, the five Projected Development Sites would be developed with five new buildings containing a total of 581,429 gsf of floor area. The buildings would contain 411,171 gsf of residential floor area, 39,441 gsf of commercial retail space (comprised of a 15,629 gsf supermarket, 10,636 gsf local retail space, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket), 59,715 gsf of community facility space (including 4,800 gsf of medical offices and 54,915 gsf of mixed community facility uses), and 71,102 of community facility space with sleeping accommodations. The five Projected Development Sites would contain a total of approximately 538 dwelling units including 4 superintendent's units, 286 affordable dwelling units, 97 affordable dwelling units for seniors, 32 supportive dwelling units, 48 supportive units treated as Use Group 3 community facility space, 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility space, and 29 market rate housing units.

The existing/No-Action condition includes 6,000 gsf of floor area, comprised of a 6,000 gsf community facility use (church) at Projected Development Site 5 (Block 3812, Lot 24). As such, compared to the existing/No-Action condition, the With-Action condition would result in an increase of 575,429 gsf of total floor area, including 411,171 gsf of residential floor area, 39,441 gsf of commercial retail space (comprised of a 15,629 gsf supermarket, 10,636 gsf local retail space, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket), 53,715 gsf of community facility space (including 4,800 gsf of medical offices and 48,915 gsf of mixed community facility uses), 71,102 of community facility space with sleeping accommodations, and 538 dwelling units. Table 2 provides a summary of No-Action and With-Action conditions as well as the net increment used for analysis purposes of this EAS. New development on Potential Development Sites 1 and 2 would only be analyzed for site specific impacts and would not be included in any quantitative assessments. No changes would occur to Other Sites 1 through 6.

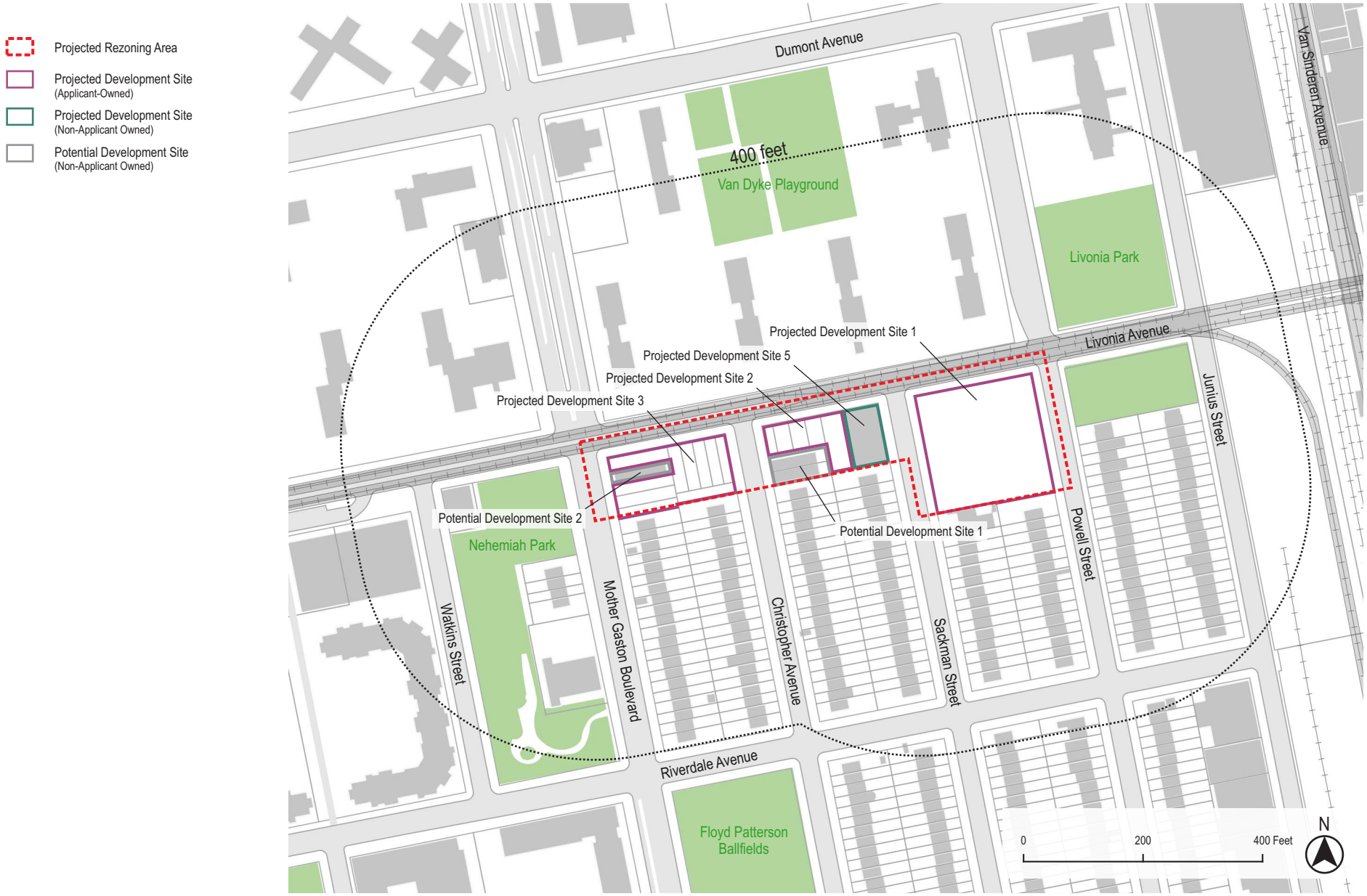
**Table 2**
**Comparison of No-Action and With-Action Conditions**

| Use | No-Action Condition | With-Action Condition | Increment |
|---|---|---|---|
| Residential | 0 gsf | 411,171 gsf | +411,171 gsf |
| Dwelling Units (Total) | 0 DUs | 538 DUs | +538 DUs |
| - Affordable Dwelling Units | 0 DUs | 286 DUs | +286 DUs |
| - Affordable Senior Dwelling Units | 0 DUs | 97 DUs | +97 DUs |
| - Affordable Supportive DUs | 0 DUs | 32 DUs | +32 DUs |
| - Affordable Supportive DUs (CF)[1] | 0 DUs | 48 DUs | +48 DUs |
| - Affordable Supportive Senior DUs (CF)[1] | 0 DUs | 42 DUs | +42 DUs |
| - Superintendent | 0 DUs | 4 DUs | +4 DUs |
| - Market Rate Units | 0 DUs | 29 DUs | + 29 DUs |
| Commercial | 0 gsf | 39,441 gsf | +39,441 gsf |
| Community Facility | 6,000 gsf | 59,715 gsf | +53,715 gsf |
| Community Facility with Sleeping Accommodations | 0 gsf | 71,102 gsf | +71,102 gsf |
| Parking | 0 spaces | 15 spaces | +15 spaces |
| **Population/Employment** | **No-Action Condition** | **With-Action Condition** | **Increment** |
| Residents[2] | 0 residents | 1,379 residents | +1,379 residents |
| Workers[3] | 18 workers | 138 workers | +120 workers |

**Notes:** [1] Community Facility with Sleeping Accommodations
[2]The number of residents is based on an average household size of 2.76 residents per dwelling unit (2020 U.S. Census data for Census Tract 918) for 478 DUs and 1 occupant per DU for the 60 single-occupancy units located at Projected Development Site 2.
[3] The number of proposed workers is based on an average of 3 workers/1,000 gsf of local retail and supermarket space, 10 rooftop garden/greenhouse workers, 10 senior center workers, 15 community facility space workers, 5 formerly homeless housing workers, 15 youth and family activity center workers, 4 workers/1,000 gsf medical office space, and 3 workers/1,000 gsf of existing church floor area.

# Livonia Avenue Rezoning, Brooklyn

Figure 1a: Site Location




Data Source: MapPLUTO 2018v2.1

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 1b: Site Location




Data Source: MapPLUTO 2018v2.1

Urban Cartographics



1. View of Development Site C1 facing northeast from Sackman Street.



2. View of Sackman Street facing northwest
(Development Site C1 at right).



3. View of Development Site C1 facing southeast from Sackman Street.





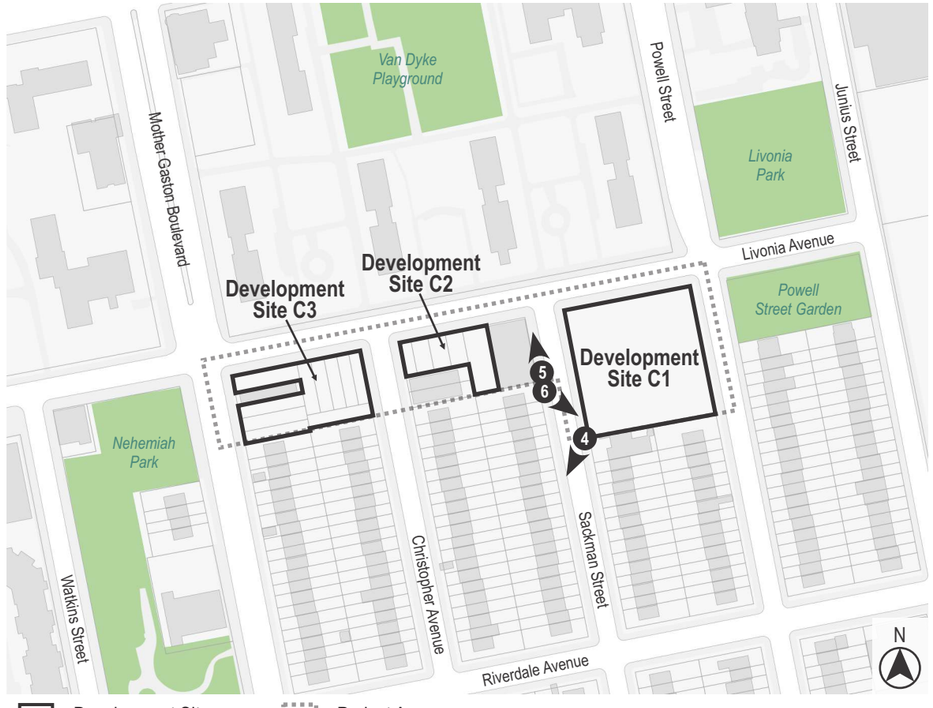
4. View of the west side of Sackman Street facing southwest from Development Site C1.



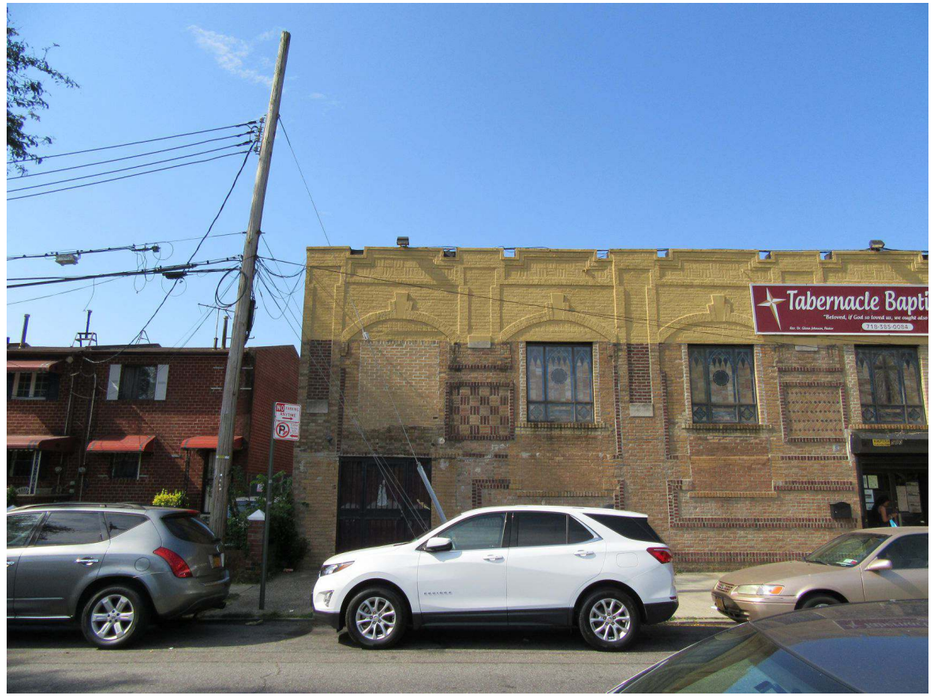
6. View of the east side of Sackman Street facing southeast from the Project Area.




5. View of the sidewalk along the west side of Sackman Street facing northwest (Project Area at left).




Urban Cartographics
Photographs Taken on October 2, 2019




7. View of the Project Area facing southwest from Development Site C1.




8. View of the Project Area facing northwest from Sackman Street.



9. View of the east side of Sackman Street facing northwest
(Development Site C1 at right).





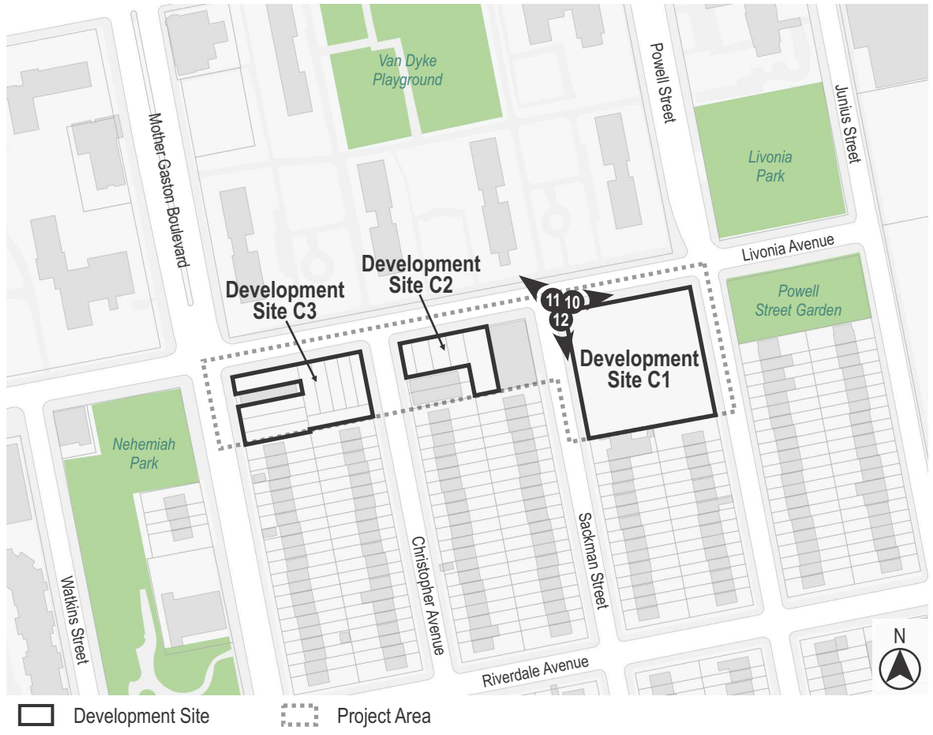

10. View of the sidewalk along the south side of Livonia Avenue facing northeast from Sackman Street (Development Site C1 at right).



11. View of the north side of Livonia Avenue facing northwest from Development Site C1.



12. View of the sidewalk along the east side of Sackman Street facing southeast from Livonia Avenue (Development Site C1 at left).





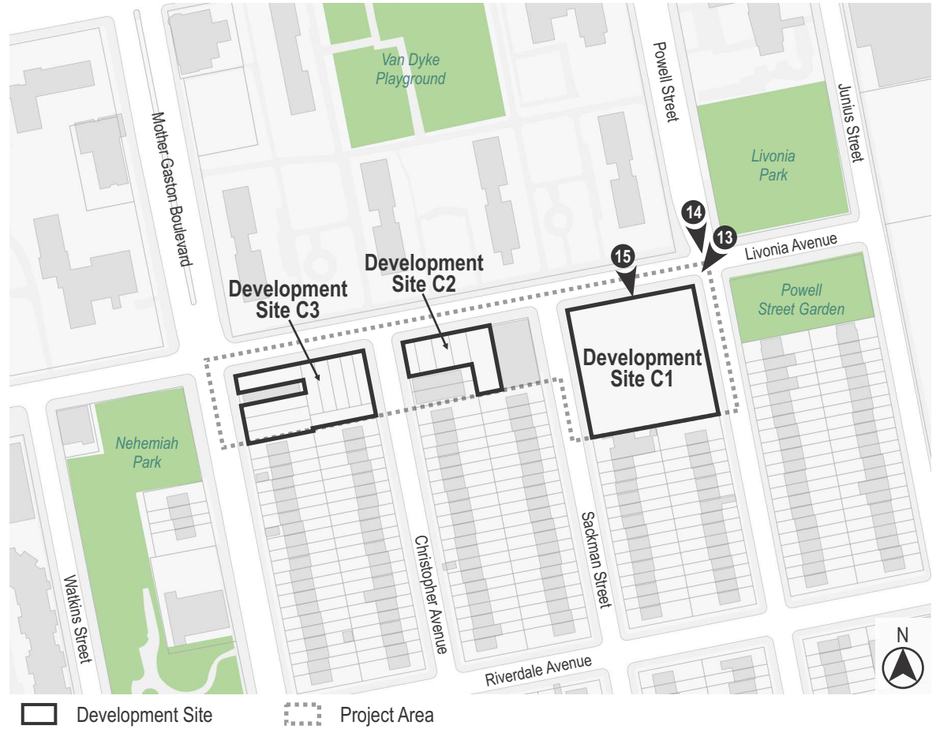
13. View of Development Site C1 facing southwest from the intersection of Powell Street and Livonia Avenue.



14. View of Powell Street facing southeast from Livonia Avenue (Development Site C1 at right).



15. View of Development Site C1 facing southeast from Livonia Avenue.





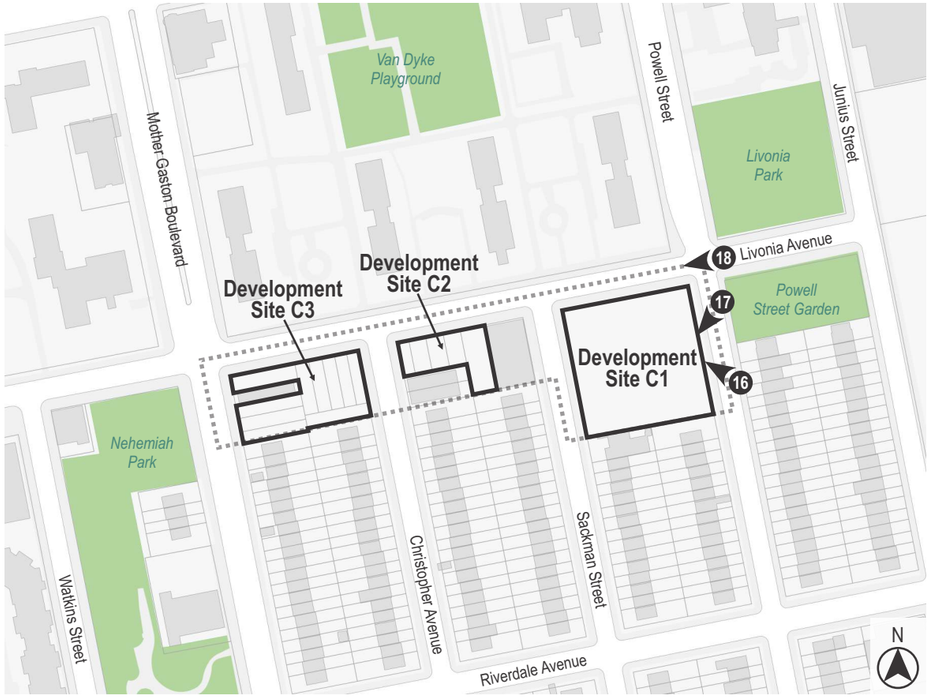
16. View of Development Site C1 facing northwest from Powell Street.



17. View of Development Site C1 facing southwest from Powell Street.



18. View of Livonia Avenue facing southwest from Powell Street (Development Site C1 at left).





19. View of the sidewalk along the west side of Powell Street facing northwest (Development C1 at left).



20. View of Powell Street facing northwest (Development Site C1 at left).



21. View of Development Site C1 facing northwest from Powell Street.





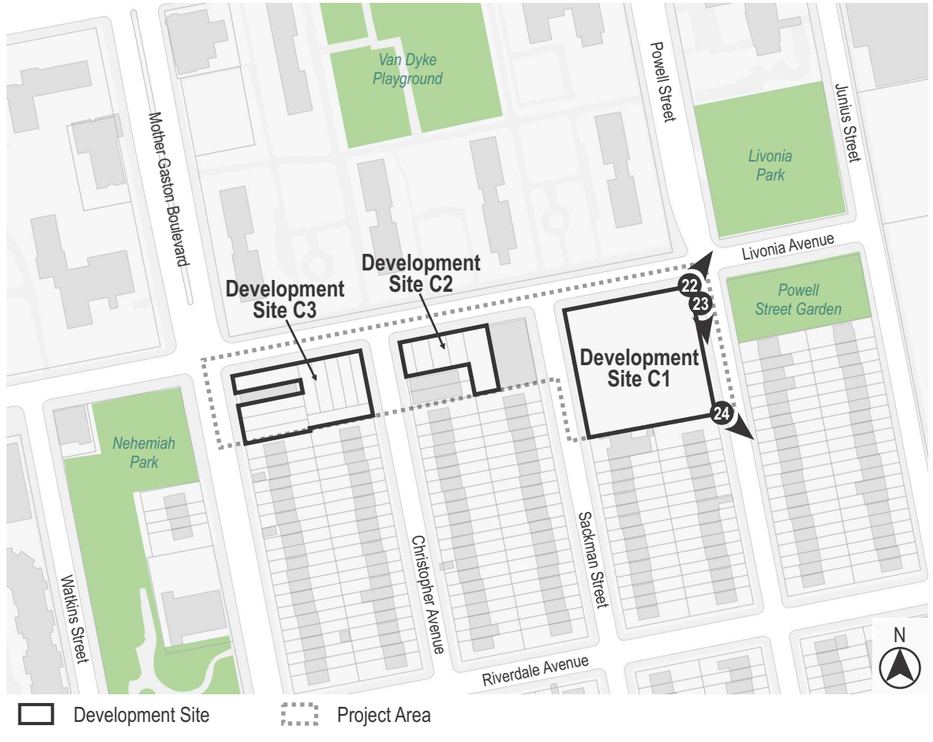
22. View of the intersection of Powell Street and Livonia Avenue facing northeast from Development Site C1.



23. View of the sidewalk along the west side of Powell Street facing southeast from Livonia Street (Development Site C1 at right).



24. View of the east side of Powell Street facing southeast from Development Site C1.





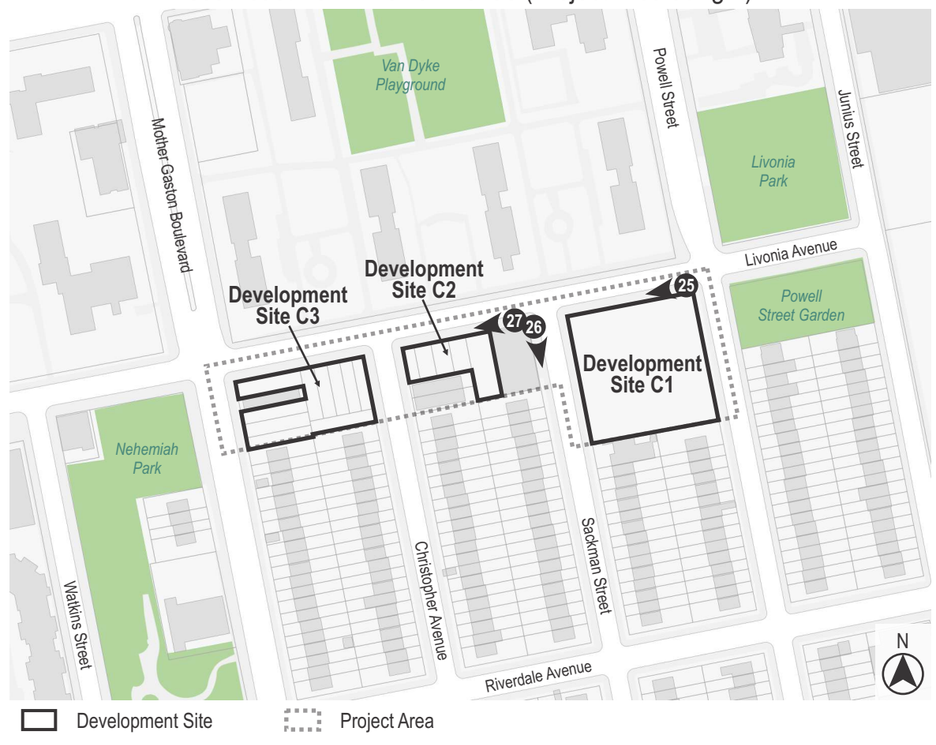
25. View of the sidewalk along the south side of Livonia Avenue facing southwest from Powell Street (Development Site C1 at left).



27. View of the sidewalk along the south side of Livonia Avenue facing southwest from Sackman Street (Project Area at left).



26. View of the sidewalk along the west side of Sackman Street facing southeast from Livonia Avenue (Project Area at right).




**Livonia Avenue Rezoning, Brooklyn**



Urban Cartographics
Photographs Taken on October 2, 2019



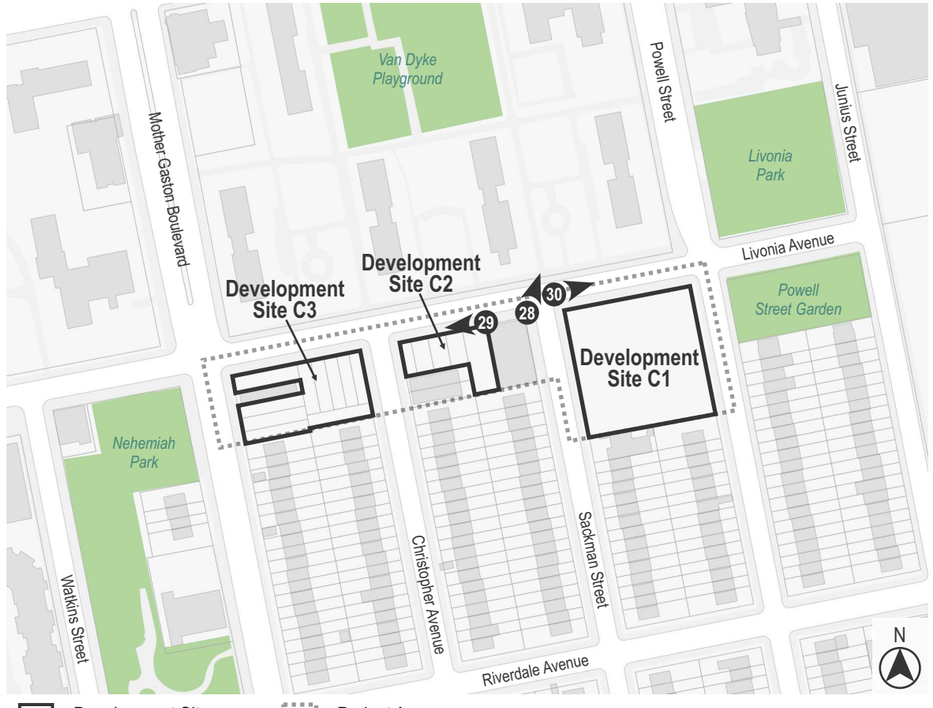
28. View of the north side of Livonia Avenue facing northeast from the Project Area.



30. View of Livonia Avenue facing northeast from Sackman Street (Development Site C1 at right).

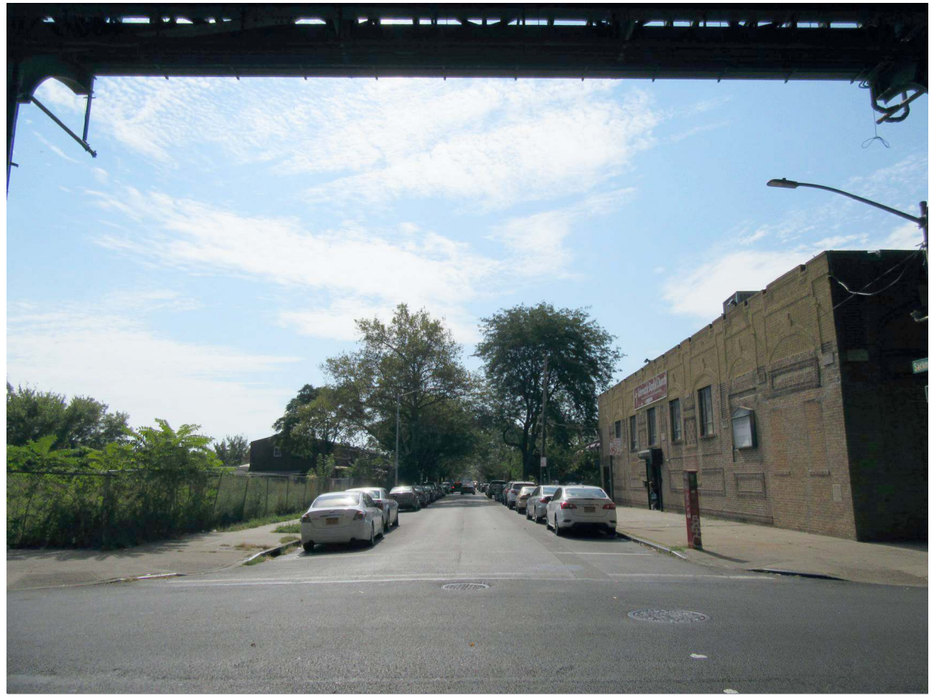


29. View of the sidewalk along the south side of Livonia Avenue facing southwest (Development Site C2 at left).





31. View of Livonia Avenue facing southwest from Sackman Street (Project Area at left).



32. View of Sackman Street facing southeast from Livonia Avenue (Development Site C1 at left, Project Area at right).



33. View of the Project Area facing southwest from the intersection of Sackman Street and Livonia Avenue.





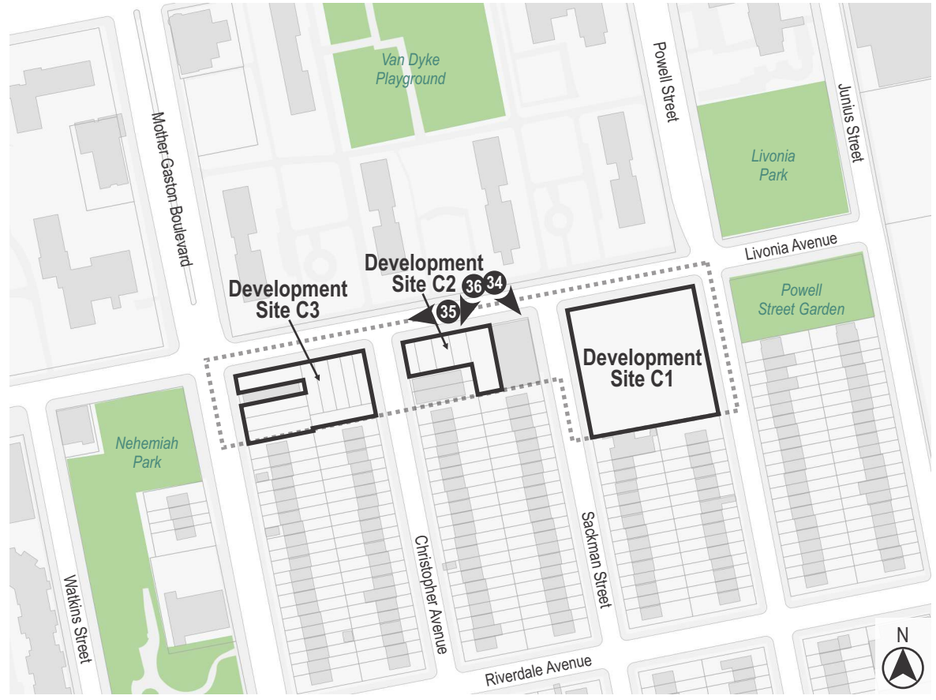
34. View of the Project Area facing southeast from Livonia Avenue.



35. View of Livonia Avenue facing southwest (Development Site C2 at left).



36. View of Development Site C2 facing southwest from Livonia Avenue.





37. View of Development Site C2 facing southeast from Livonia Avenue.



38. View of the west side of Christopher Avenue facing southwest from the Project Area.



39. View of the sidewalk along the east side of Christopher Avenue facing northwest (Project Area at right).





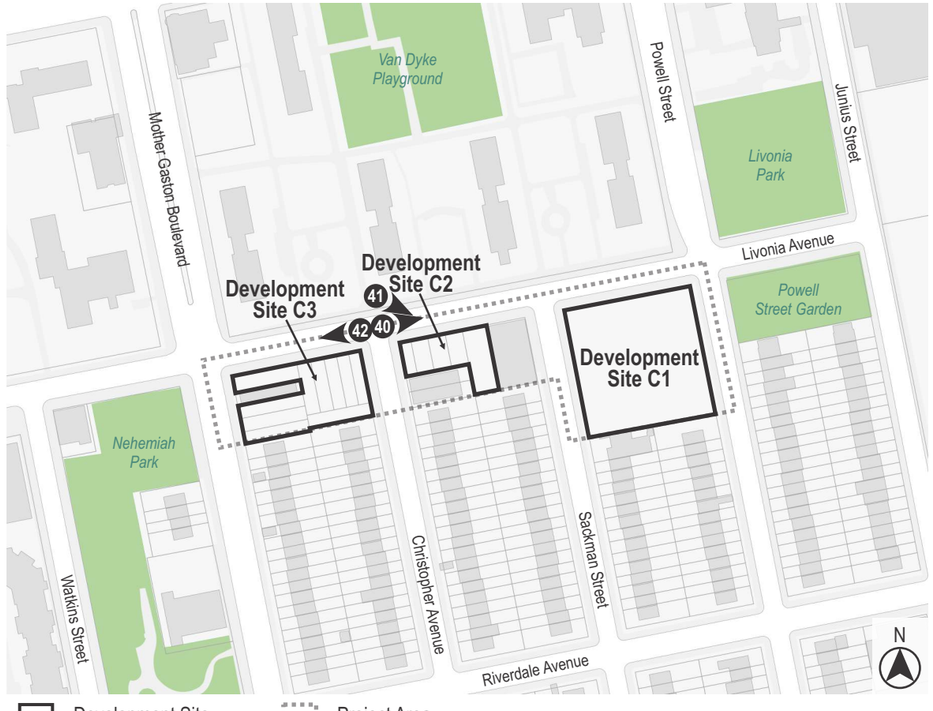
40. View of Livonia Avenue facing northeast from Christopher Avenue (Development Site C2 at right).



42. View of Livonia Avenue facing southwest from Christopher Street (Development Site C3 at left).



41. View of Development Site C2 facing southeast from the intersection of Christopher Street and Livonia Avenue.




Urban Cartographics
Photographs Taken on October 2, 2019



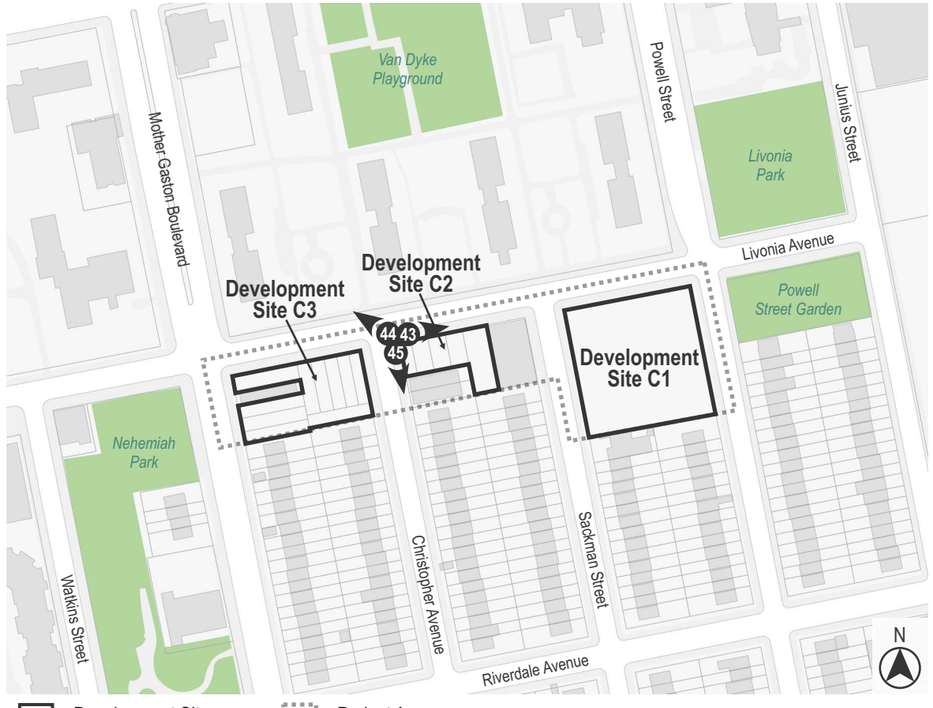
43. View of the sidewalk along the south side of Livonia Avenue facing northeast from Christopher Avenue (Development Site C2 at right).



45. View of the sidewalk along the east side of Christopher Avenue facing southeast from Livonia Avenue (Development Site C2 at left).



44. View of the north side of Livonia Avene facing northwest from Development Site C2.





46. View of Development Site C3 facing northwest from Christopher Avenue.



47. View of Development Site C3 facing northwest from Christopher Avenue.



48. View of Christopher Avenue facing northwest
(Development Site C3 at left, Project Area at right).





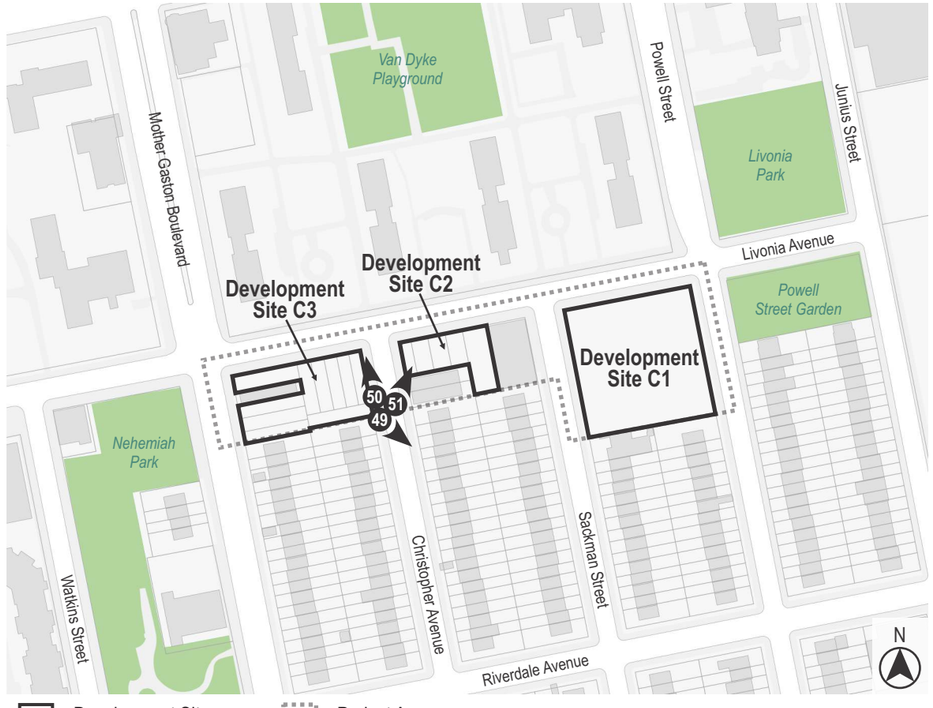
49. View of the east side of Christopher Avenue facing southeast from Development Site C3.




51. View of Development Site C2 facing northeast from Christopher Avenue.




50. View of the sidewalk along the left side of Christopher Avenue facing northwest (Development Site C3 at left).





52. View of Development Site C2 facing northeast from Christopher Street.



53. View of the sidewalk along the west side of Christopher Street facing southeast from Livonia Avenue (Development Site C3 at right).



54. View of the north side of Livonia Avenue facing northeast from Development Site C3.





55. View of the sidewalk along the south side of Livonia Avenue facing southwest from Christopher Street (Development Site C3 at left).



56. View of Christopher Street facing southeast from Livonia Avenue (Development Site C2 at left, Development Site C3 at right).



57. View of Development Site C3 facing southwest from the intersection of Livonia Avenue and Christopher Street.





58. View of Development Site C3 facing southwest from Livonia Avenue.



59. View of Development Site C3 facing southeast from Livonia Avenue.



60. View of Livonia Avenue facing northeast from Mother Gaston Boulevard (Development Site C3 at right).





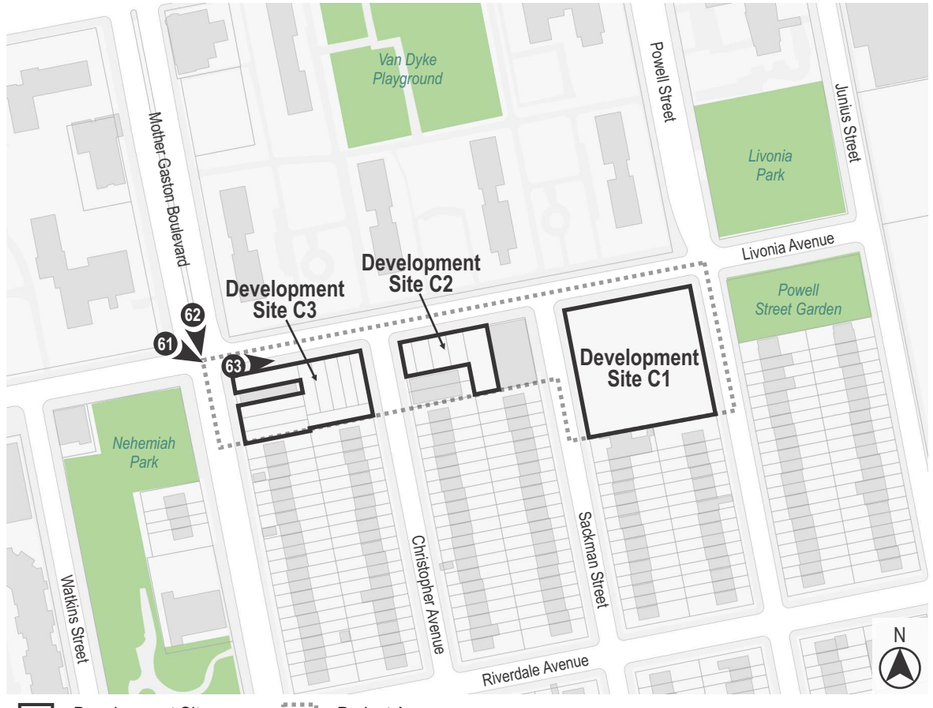

61. View of Development Site C3 facing southeast from the intersection of Mother Gaston Boulevard and Livonia Avenue.



63. View of the sidewalk along the south side of Livonia Avenue facing northeast from Mother Gaston Boulevard (Development Site C3 at right).




62. View of Mother Gaston Boulevard facing southeast from Livonia Avenue (Development Site C3 at left).




Urban Cartographics



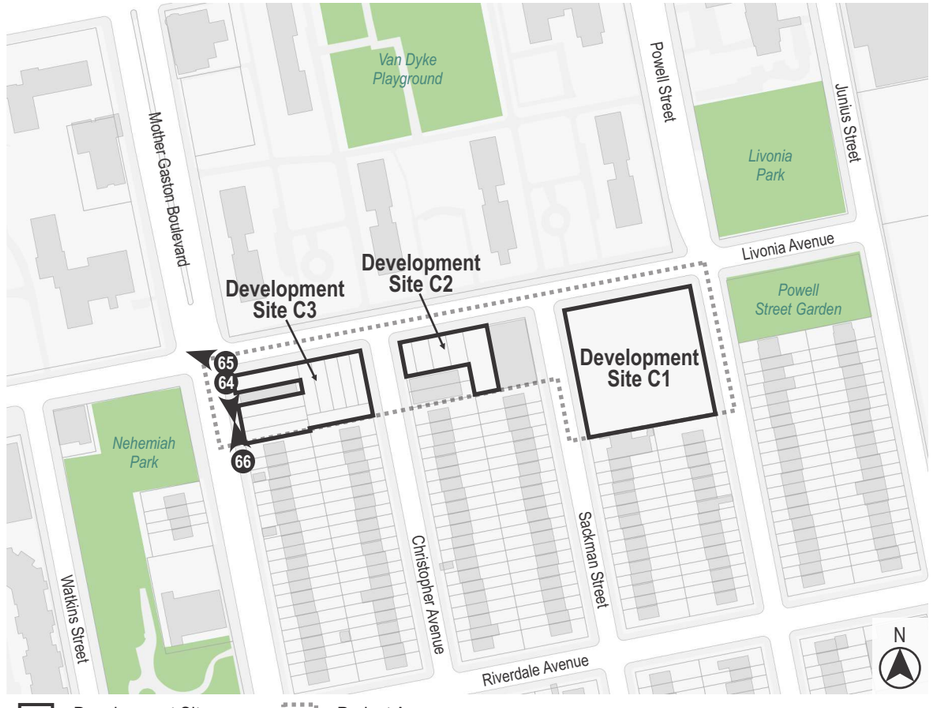

64. View of the sidewalk along the east side of Mother Gaston Boulevard facing southeast from Livonia Avenue (Development Site C3 at left).



65. View of the intersection of Mother Gaston Boulevard and Livonia Avenue facing northwest from Development Site C3.



66. View of the sidewalk along the east side of Mother Gaston Boulevard facing northwest (Development Site C3 at right).





67. View of the west side of Mother Gaston Boulevard facing southwest from Development Site C3.




68. View of Development Site C3 facing northeast from Mother Gaston Boulevard.




69. View of the Project Area facing northeast from Mother Gaston Boulevard.




Urban Cartographics
Photographs Taken on October 2, 2019



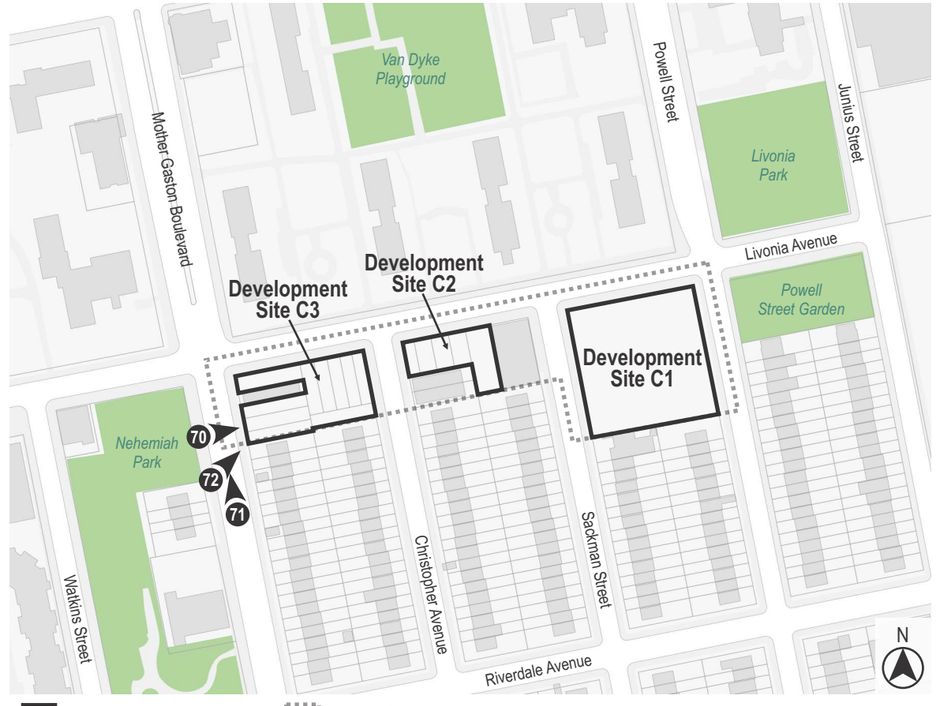
70. View of Development Site C3 facing northeast from Mother Gaston Boulevard.



71. View of Mother Gaston Boulevard facing northwest (Development Site C3 at right).



72. View of Development Site C3 facing northeast from Mother Gaston Boulevard.





73. View of the west side of Amboy Street facing southwest from Development Site C4.



74. View of the east side of Amboy Street facing northwest (Development Site C4 at right).



75. View of the sidewalk along the east side of Amboy Street facing southeast from Livonia Avenue (Development Site C4 at left).

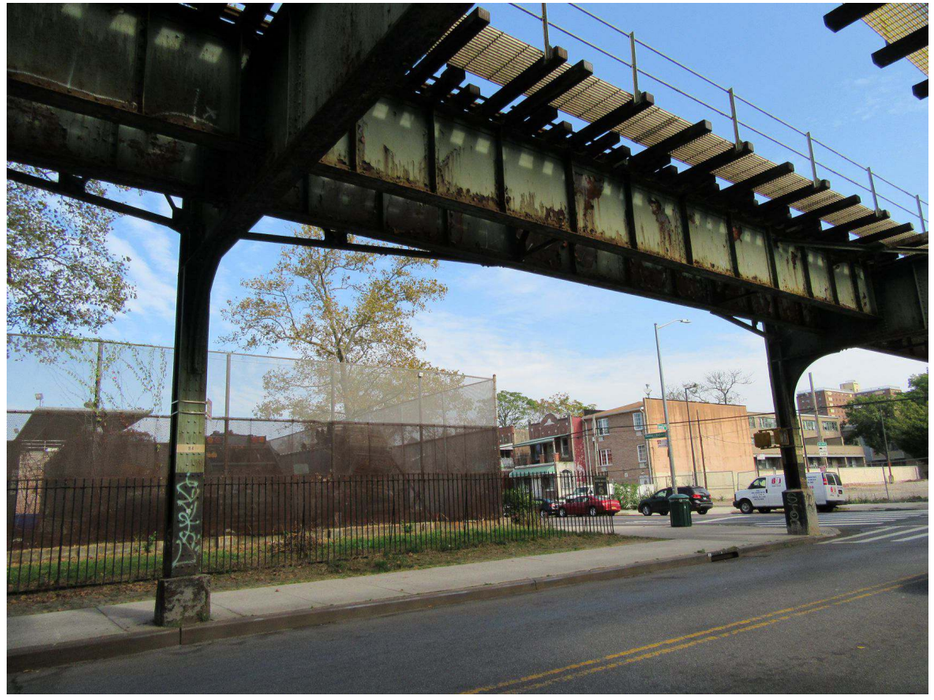




76. View of the south side of Livonia Avenue facing northeast from Amboy Street (Development Site C4 at right).



77. View of the north side of Livonia Avenue facing northwest from Development Site C4.



78. View of the north side of Livonia Avenue facing northeast from Development Site C4.





79. View of the sidewalk along the south side of Livonia Avenue facing southwest (Development Site C4 at left).



80. View of the sidewalk along the south side of Livonia Avenue facing southwest (Project Area at left).



81. View of the intersection of Thomas S. Boyland Street and Livonia Avenue facing northeast from the Project Area.





82. View of the sidewalk along the west side of Thomas S. Boyland Street facing southeast from Livonia Avenue (Project Area at right).



83. View of the sidewalk along the west side of Thomas S. Boyland Street facing northwest (Project Area at left).



84. View of the east side of Thomas S. Boyland Street facing southeast from the Project Area.





85. View of Thomas S. Boyland Street facing northwest (Project Area at left).



86. View of the Project Area facing northwest from Thomas S. Boyland Street.



87. View of the Project Area facing southwest from Thomas S. Boyland Street.





88. View of the Project Area facing southwest from Thomas S. Boyland Street.



89. View of Livonia Avenue facing southwest from Thomas S. Boyland Street (Project Area at left).



90. View of the Project Area facing southwest from the intersection of Livonia Avenue and Thomas S. Boyland Street.





91. View of Thomas S. Boyland Street facing southeast from Livonia Avenue (Project Area at right).



92. View of the Project Area facing southeast from Livonia Avenue.



93. View of Development Site C4 facing southwest from Livonia Avenue.





94. View of Development Site C4 facing southeast from Livonia Avenue.



96. View of Livonia Avenue facing northeast from Amboy Street (Development Site C4 at right).



95. View of Amboy Street facing southeast from Livonia Avenue (Development Site C4 at left).





97. View of Development Site C4 facing southeast from the intersection of Livonia Avenue and Amboy Street.



98. View of Amboy Street facing northwest (Development Site C4 at right).

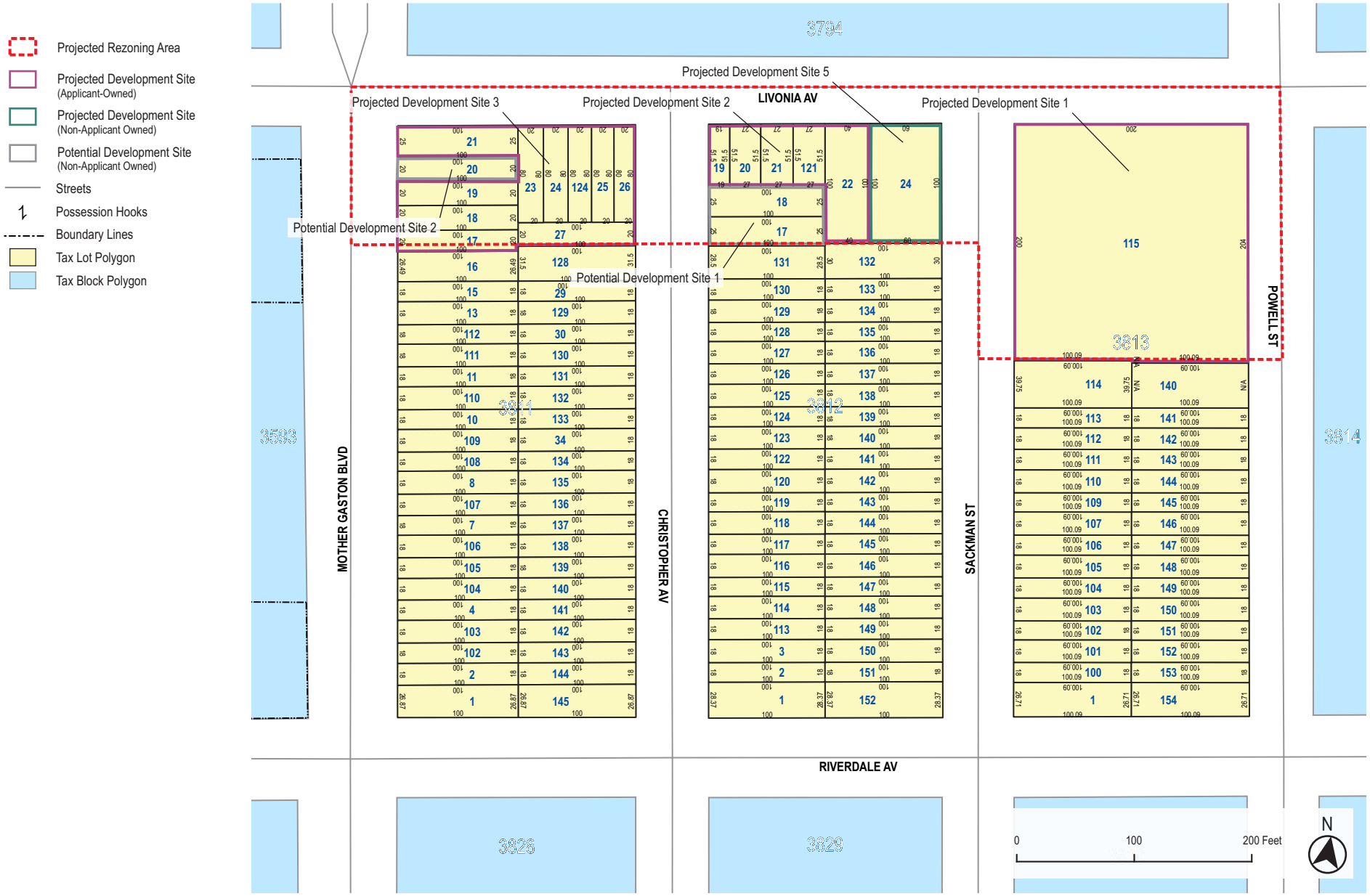


99. View Development Site C4 facing northeast from Amboy Street.



# Livonia Avenue Rezoning, Brooklyn

Figure 2a: Tax Map

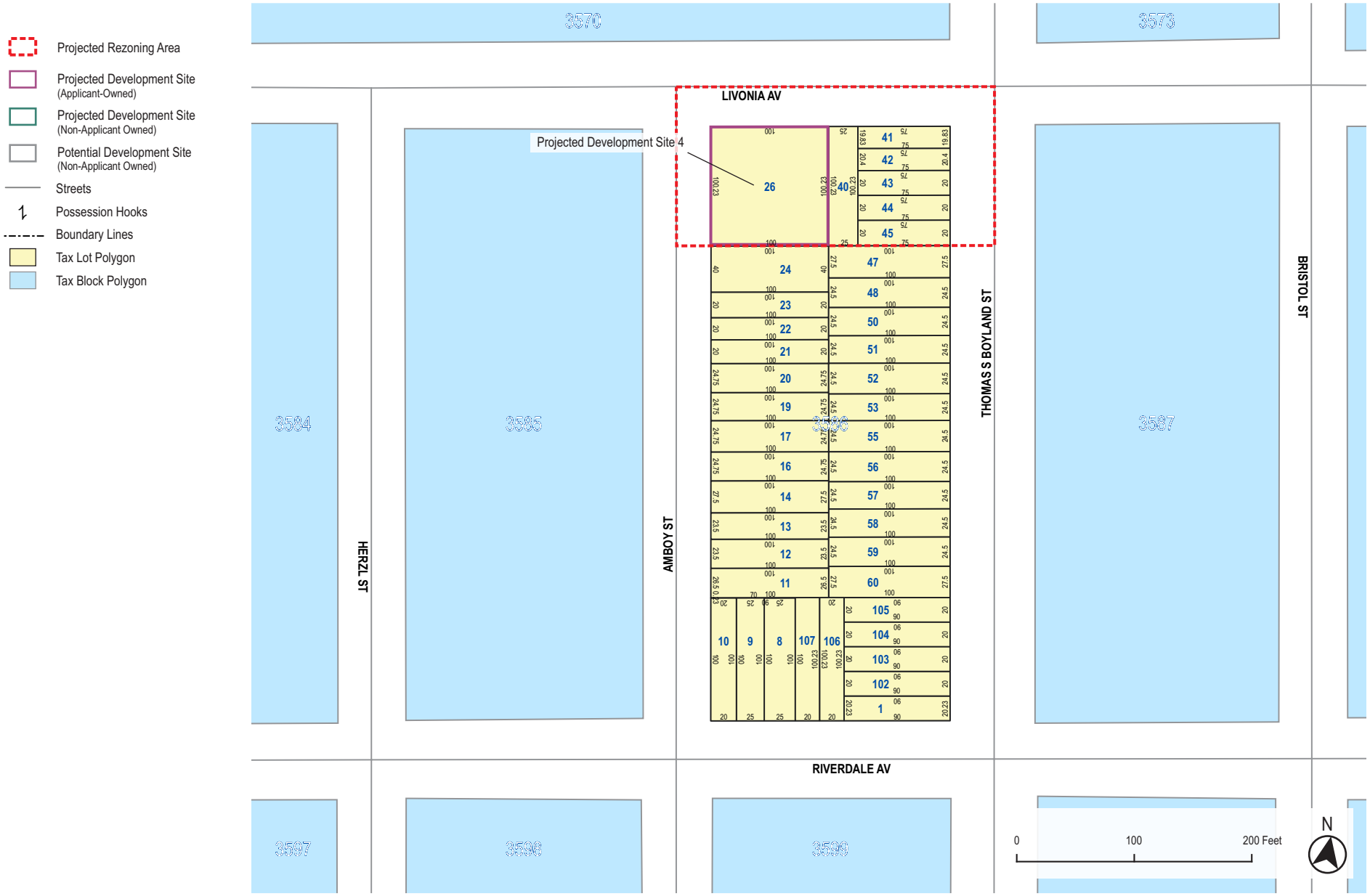



Data Source: MapPLUTO 2018v2.1, NYC DOF Digital Tax Map 2/22/19

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 2b: Tax Map




Data Source: MapPLUTO 2018v2.1, NYC DOF Digital Tax Map 2/22/19

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 3a: Land Use Map




Data Source: MapPLUTO 2018v2.1, NYC DOF Digital Tax Map 2/22/19

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 3b: Land Use Map

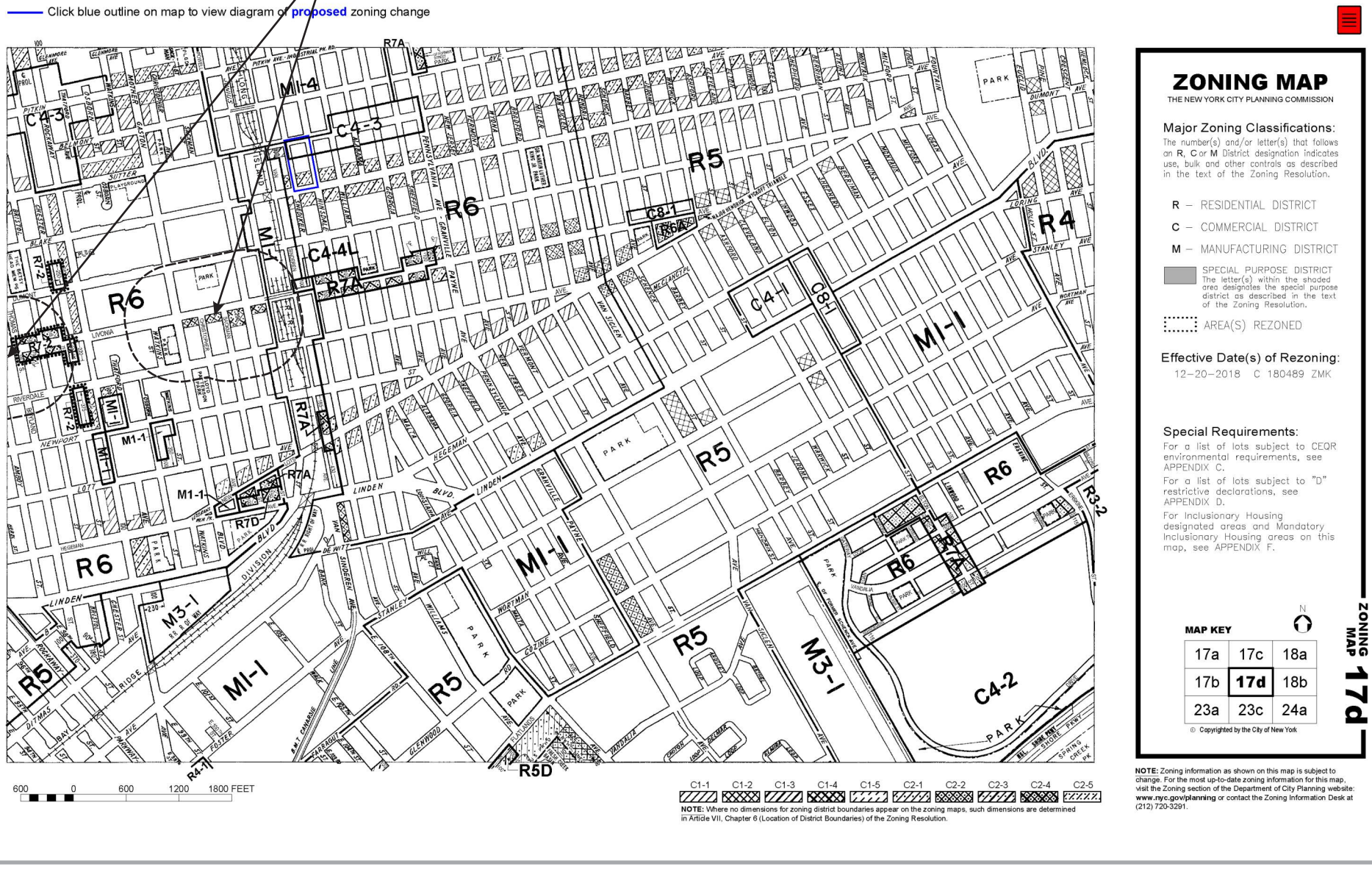



Data Source: MapPLUTO 2018v2.1, NYC DOF Digital Tax Map 2/22/19

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 4a: Zoning Map




## ZONING MAP

THE NEW YORK CITY PLANNING COMMISSION

**Major Zoning Classifications:**

The number(s) and/or letter(s) that follows an R, C or M District designation indicates use, bulk and other controls as described in the text of the Zoning Resolution.

R – RESIDENTIAL DISTRICT

C – COMMERCIAL DISTRICT

M – MANUFACTURING DISTRICT

SPECIAL PURPOSE DISTRICT
The letter(s) within the shaded area designates the special purpose district as described in the text of the Zoning Resolution.

AREA(S) REZONED

**Effective Date(s) of Rezoning:**

12–20–2018 C 180489 ZMK

**Special Requirements:**

For a list of lots subject to CEQR environmental requirements, see APPENDIX C.

For a list of lots subject to "D" restrictive declarations, see APPENDIX D.

For Inclusionary Housing designated areas and Mandatory Inclusionary Housing areas on this map, see APPENDIX F.

N

**MAP KEY**

| | | |
|---|---|---|
| 17a | 17c | 18a |
| 17b | **17d** | 18b |
| 23a | 23c | 24a |

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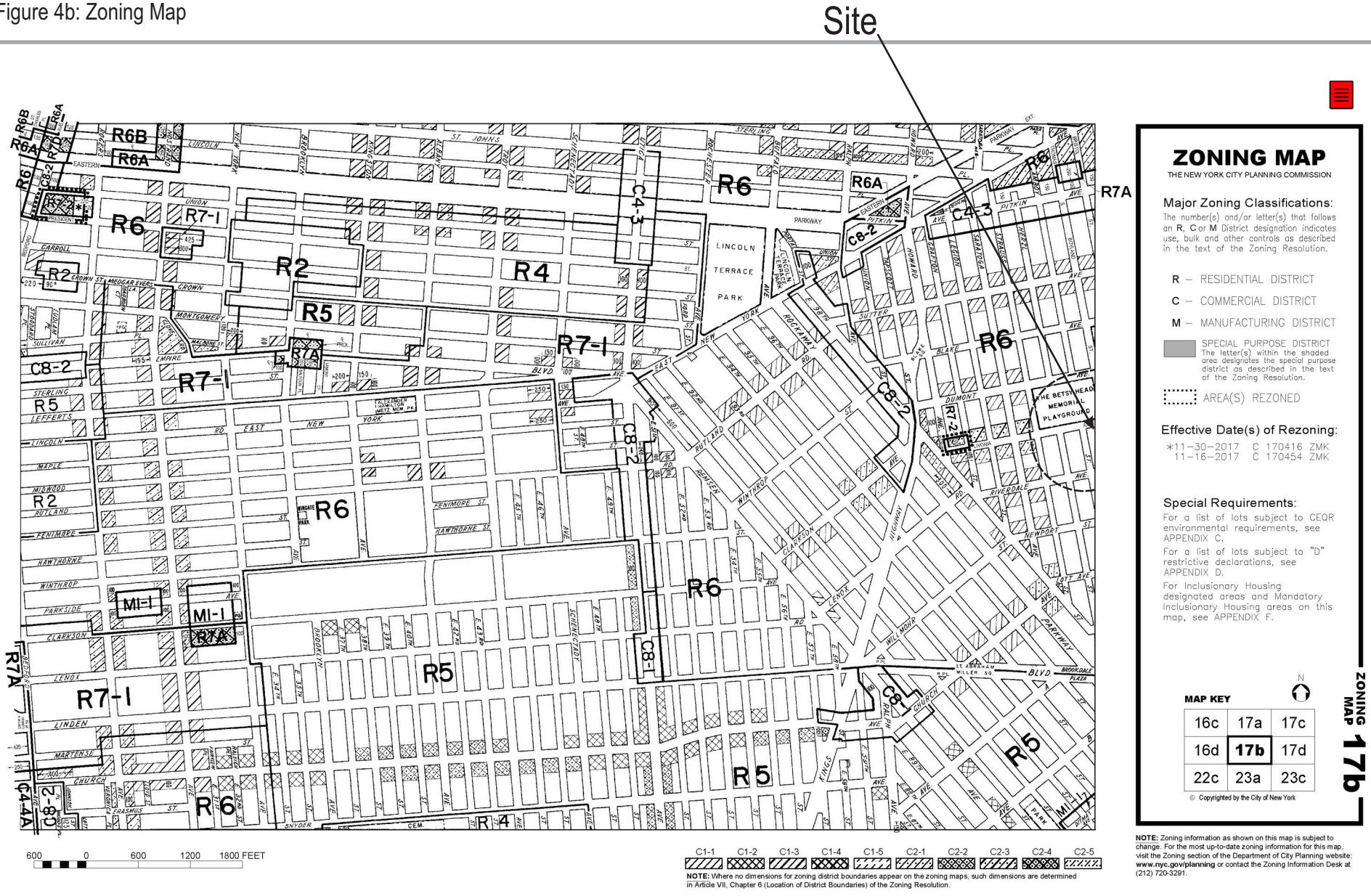
ZONING MAP 17d

**NOTE:** Zoning information as shown on this map is subject to change. For the most up-to-date zoning information for this map, visit the Zoning section of the Department of City Planning website: **www.nyc.gov/planning** or contact the Zoning Information Desk at (212) 720-3291.

**Livonia Avenue Rezoning, Brooklyn**

Figure 4b: Zoning Map




Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 5a: Aerial Map




Imagery Source: 2019 Bing, Microsoft Corporation (OR) 2019 Google

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 5b: Aerial Map




Imagery Source: 2019 Bing, Microsoft Corporation (OR) 2019 Google

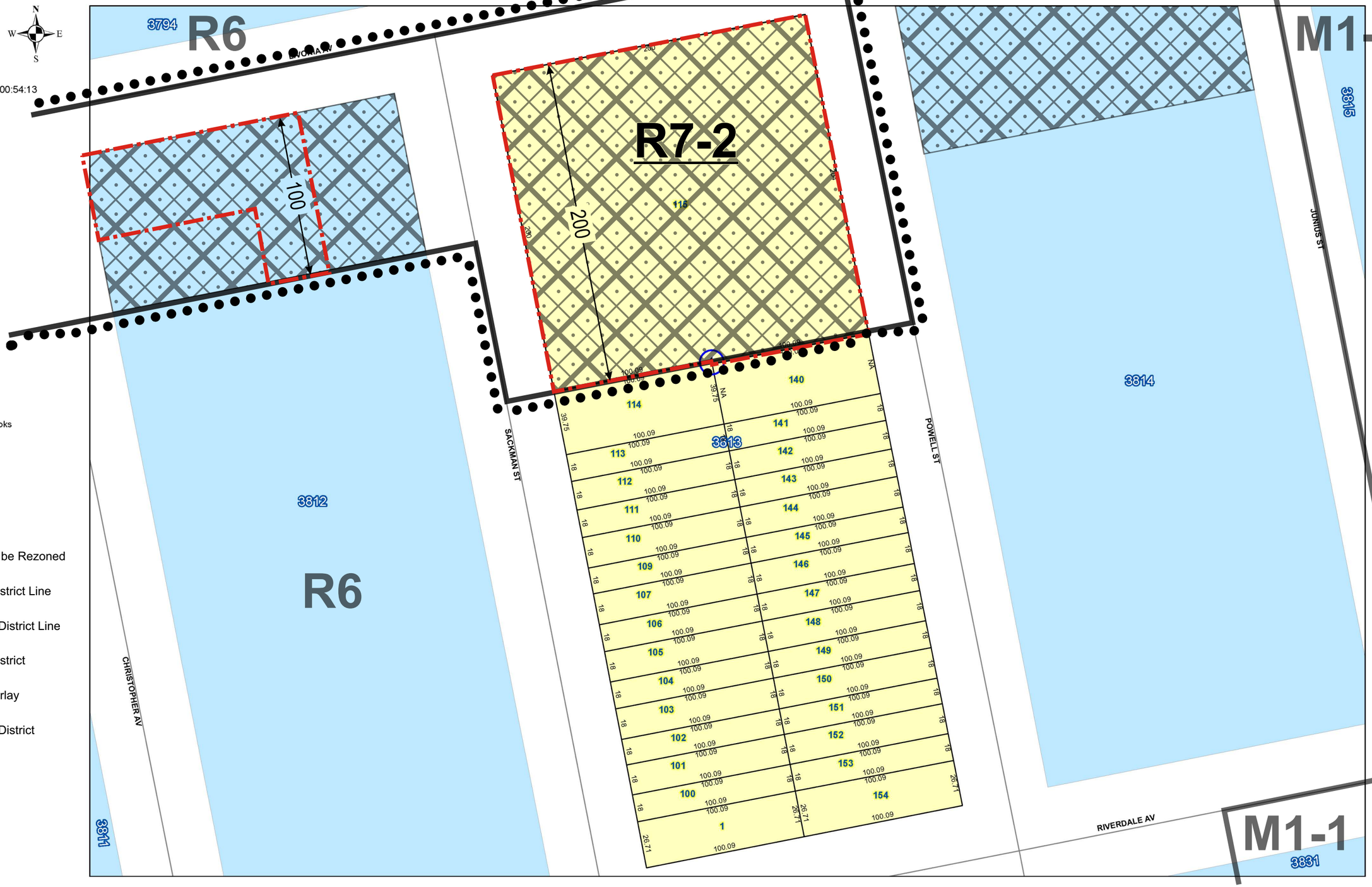
Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

FINANCE NEW • YORK
MARTHA E. STARK
COMMISSIONER

**NYC Digital Tax Map**

Effective Date : 12-06-2008 00:54:13
End Date : Current
Brooklyn Block: 3813




**Legend**

- Streets
- Miscellaneous Text
- Possession Hooks
- Boundary Lines
- Lot Face Possession Hooks
- Regular
- Underwater
- Tax Lot Polygon
- Condo Number
- Tax Block Polygon
- Development Site
- Area Proposed to be Rezoned
- Existing Zoning District Line
- Proposed Zoning District Line
- R6 — Existing Zoning District
- Existing C2-4 Overlay
- R7-2 — Proposed Zoning District

Feet
036 121824

# Livonia Avenue Rezoning, Brooklyn

FINANCE
NEW • YORK
MARTHA E. STARK
COMMISSIONER

**NYC Digital Tax Map**

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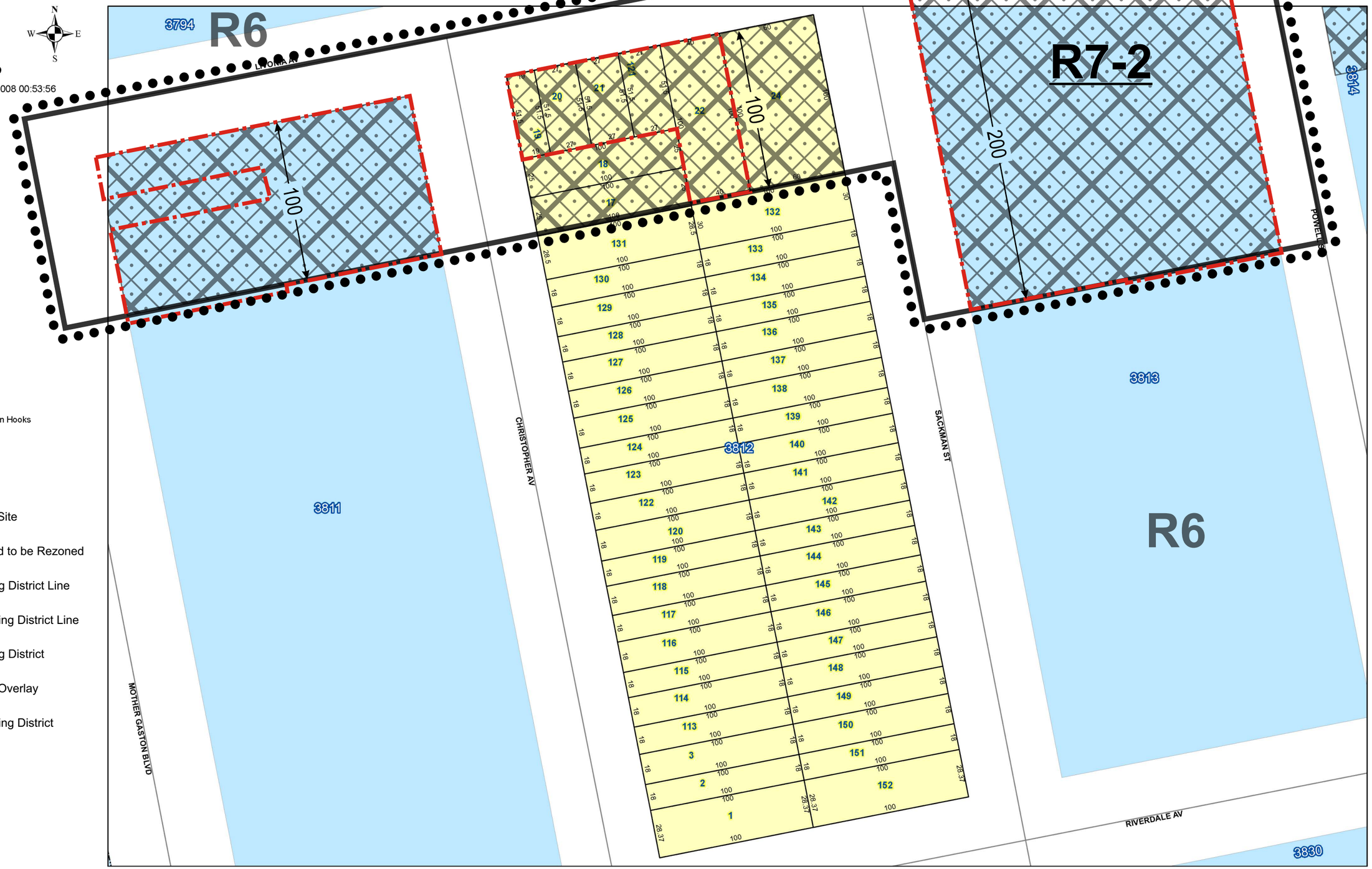


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- R7-2 — Proposed Zoning District

Feet
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# Livonia Avenue Rezoning, Brooklyn

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COMMISSIONER

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**NYC Digital Tax Map**

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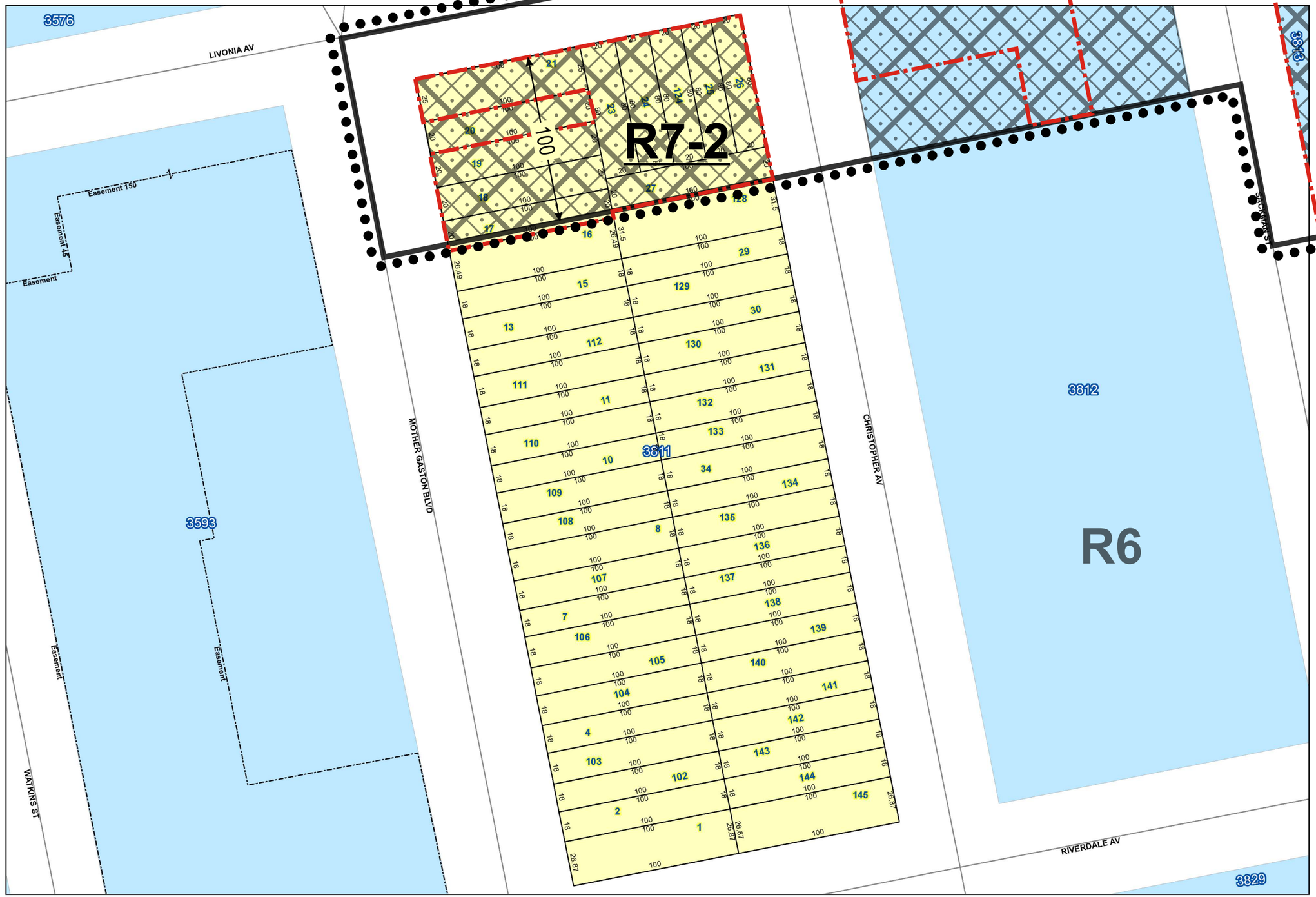
End Date : Current

Brooklyn Block: 3811

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- R7-2 — Proposed Zoning District

Feet
036 121824

# Livonia Avenue Rezoning, Brooklyn

NYC Finance

**NYC Digital Tax Map**

Effective Date : 04-07-2010 12:35:57
End Date : Current

Brooklyn Block: 3586




**Legend**

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- Proposed C2-4 Overlay
- R7-2 — Proposed Zoning District

0 5 10 20 30 40 Feet

# Livonia Avenue Rezoning, Brooklyn

FINANCE NEW • YORK
MARTHA E. STARK
COMMISSIONER

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**NYC Digital Tax Map**

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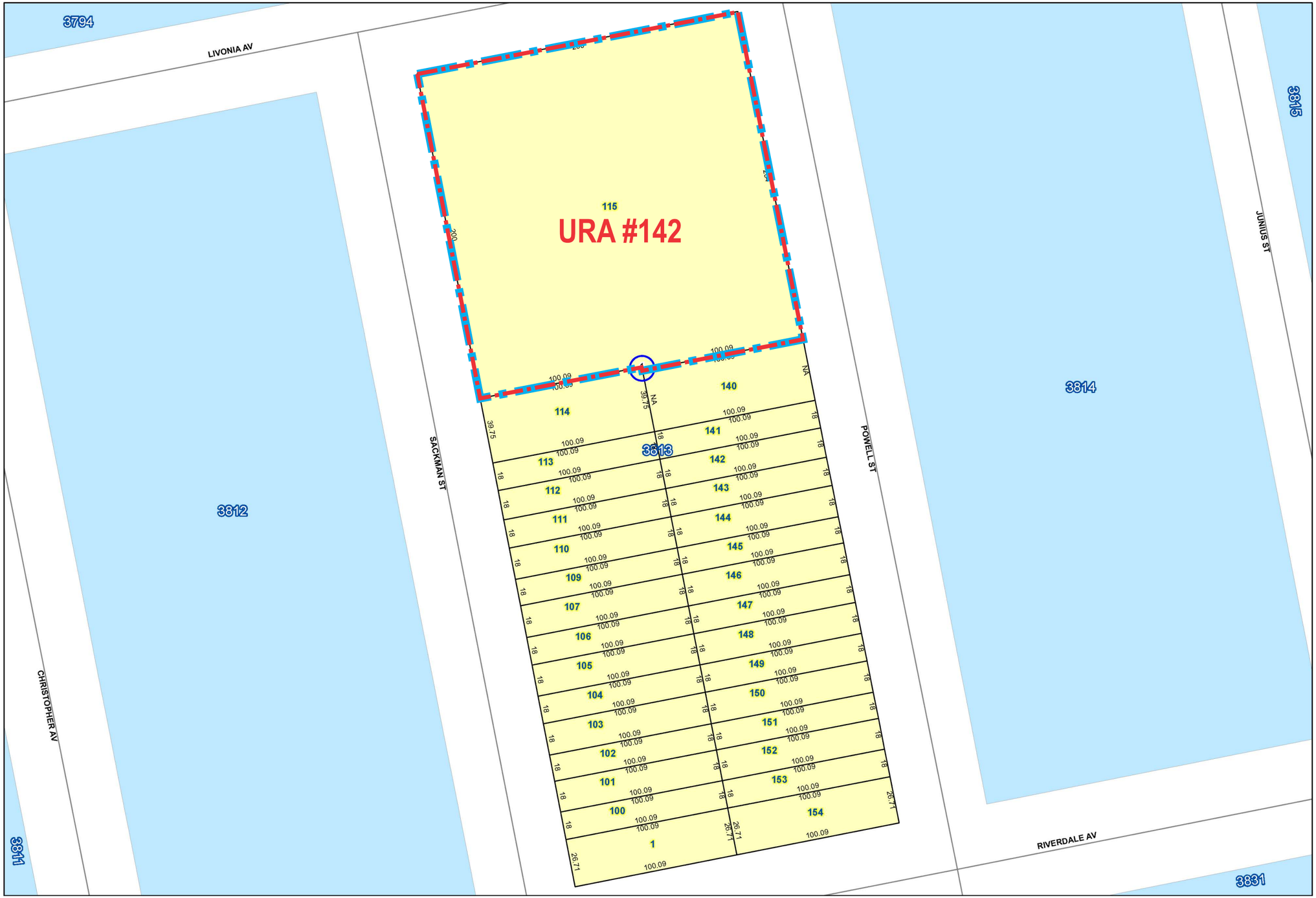
End Date : Current

Brooklyn Block: 3813




**Legend**

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- Tax Block Polygon

Development Site / UDAAP Site

Disposition Site

Feet
036 121824

# Livonia Avenue Rezoning, Brooklyn

FINANCE NEW • YORK
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COMMISSIONER

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**NYC Digital Tax Map**

Effective Date : 12-06-2008 00:53:56
End Date : Current

Brooklyn Block: 3812




**Legend**

- Streets
- Miscellaneous Text
- Possession Hooks
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- Underwater
- Tax Lot Polygon
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- Tax Block Polygon

Development Site / UDAAP Site

Disposition Site

Feet
036 121824

# Livonia Avenue Rezoning, Brooklyn

FINANCE NEW • YORK
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COMMISSIONER

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**NYC Digital Tax Map**

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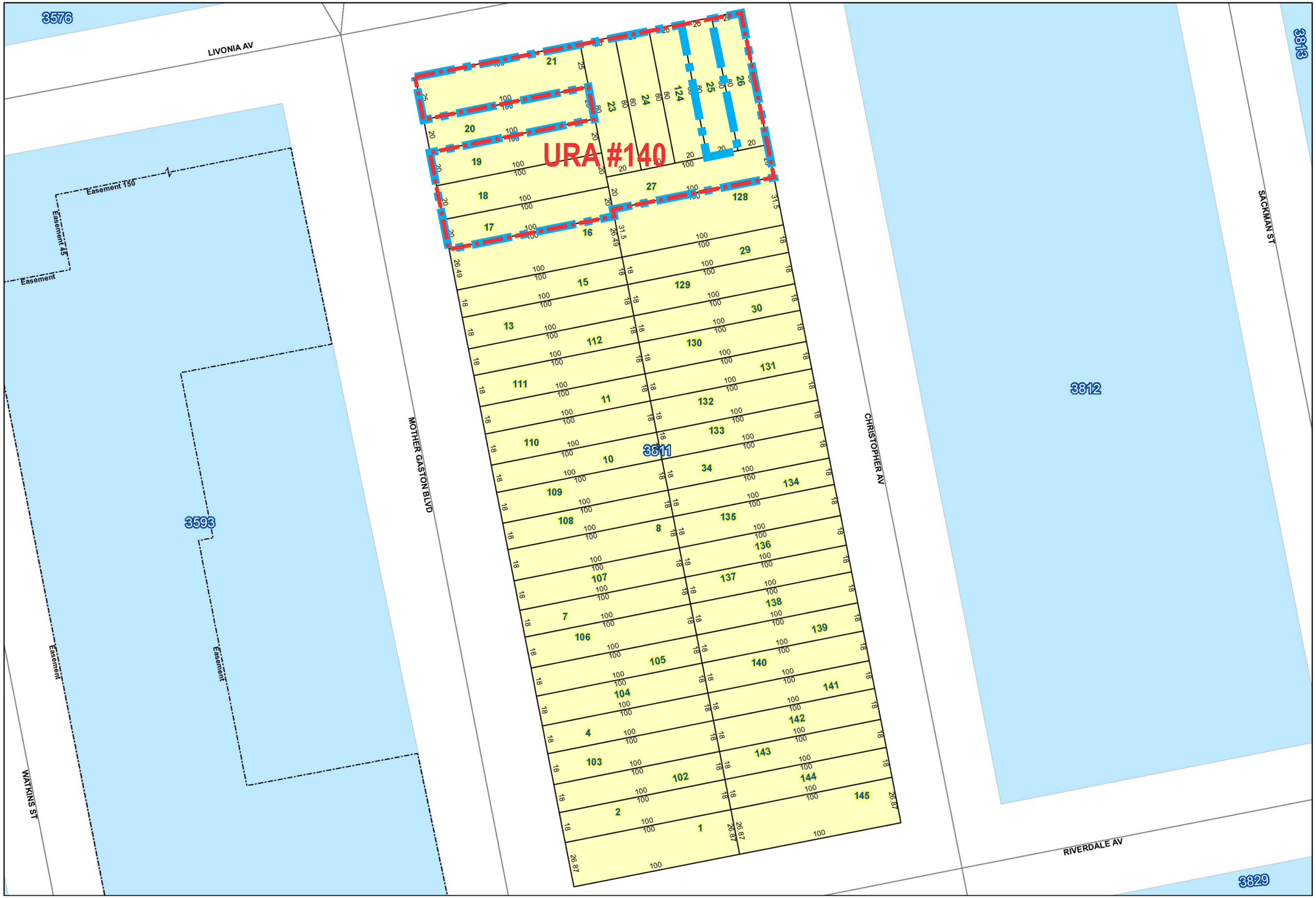
End Date : Current

Brooklyn Block: 3811

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- Development Site / UDAAP Site
- Disposition Site

Feet
036 121824

# Livonia Avenue Rezoning, Brooklyn

NYC Finance

## NYC Digital Tax Map

Effective Date : 04-07-2010 12:35:57
End Date : Current

Brooklyn Block: 3586




**Legend**

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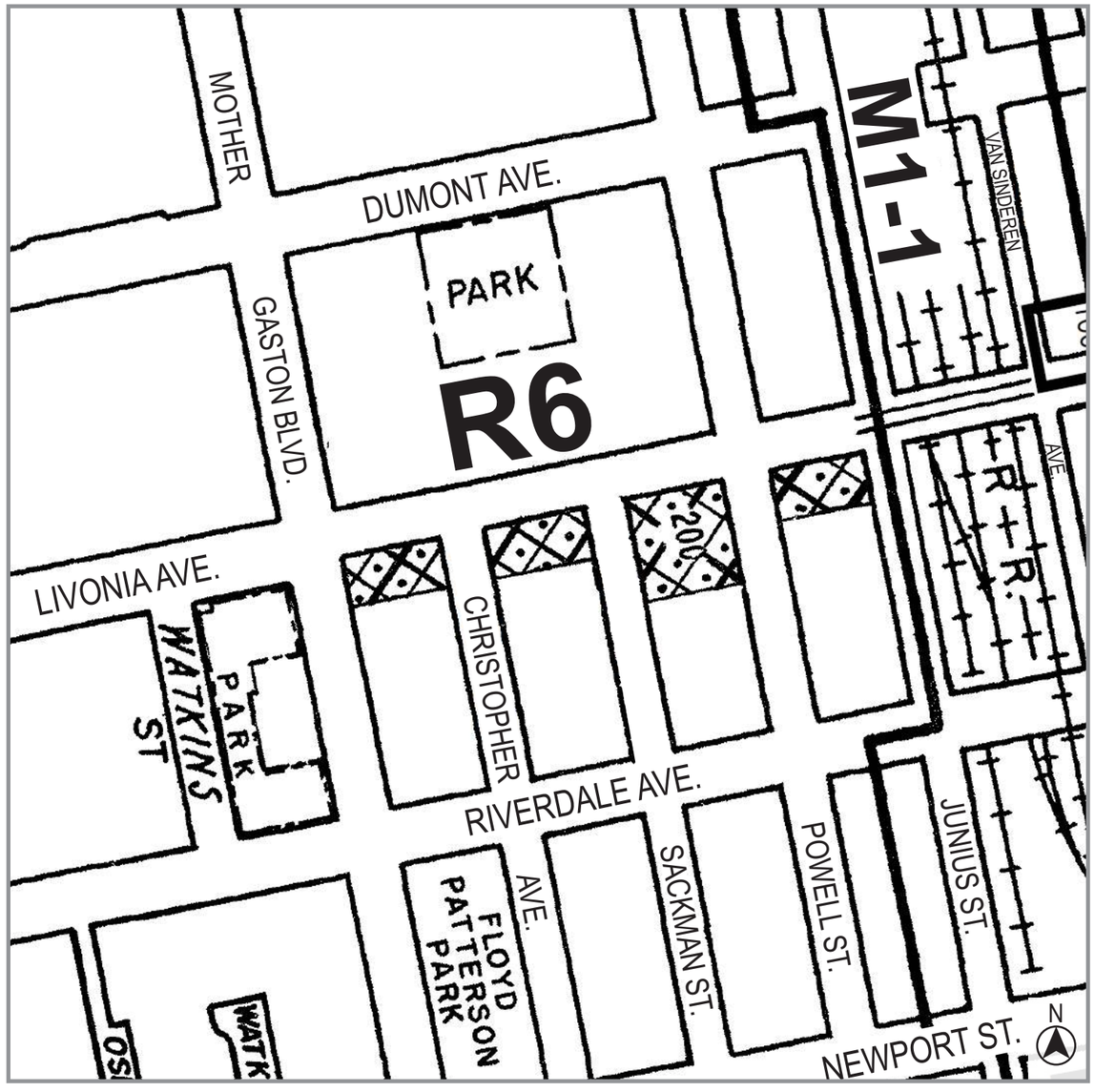
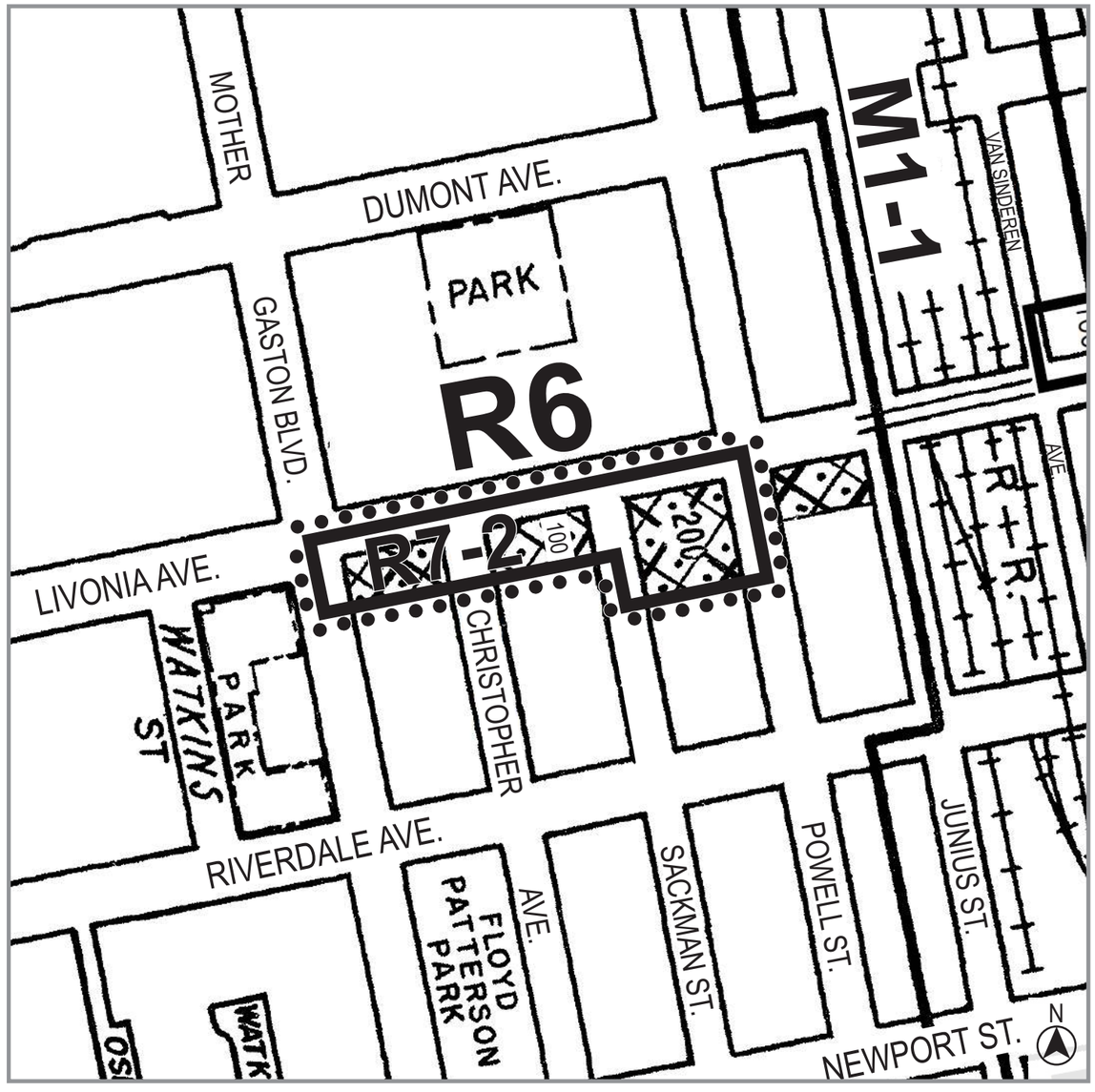
Development Site / UDAAP Site

Disposition Site

# Zoning Change Map




Current Zoning Map (17d)



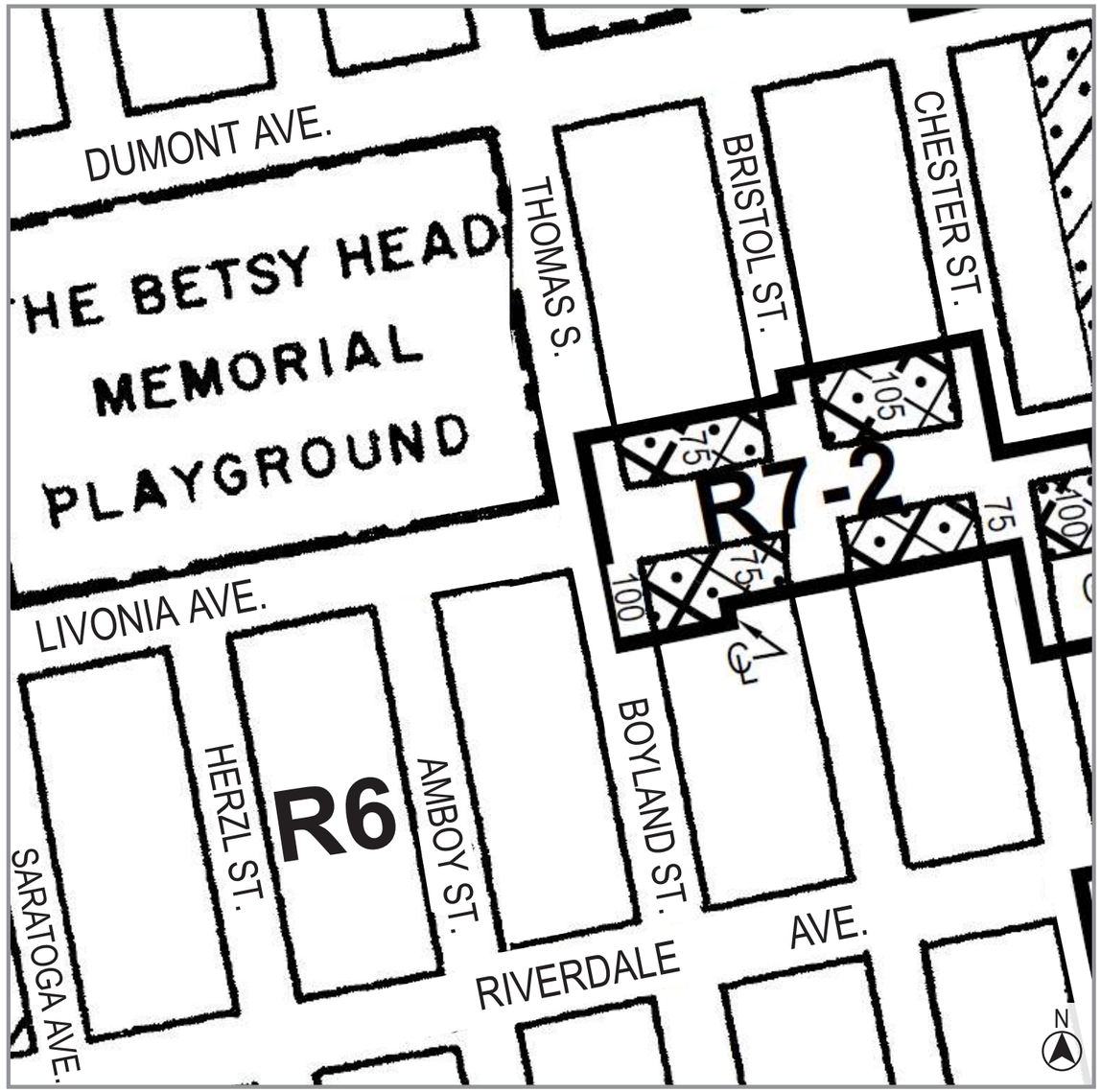

Proposed Zoning Map (17d) - Area being rezoned is outlined with dotted lines

Rezoning from R6/C2-4 to R7-2

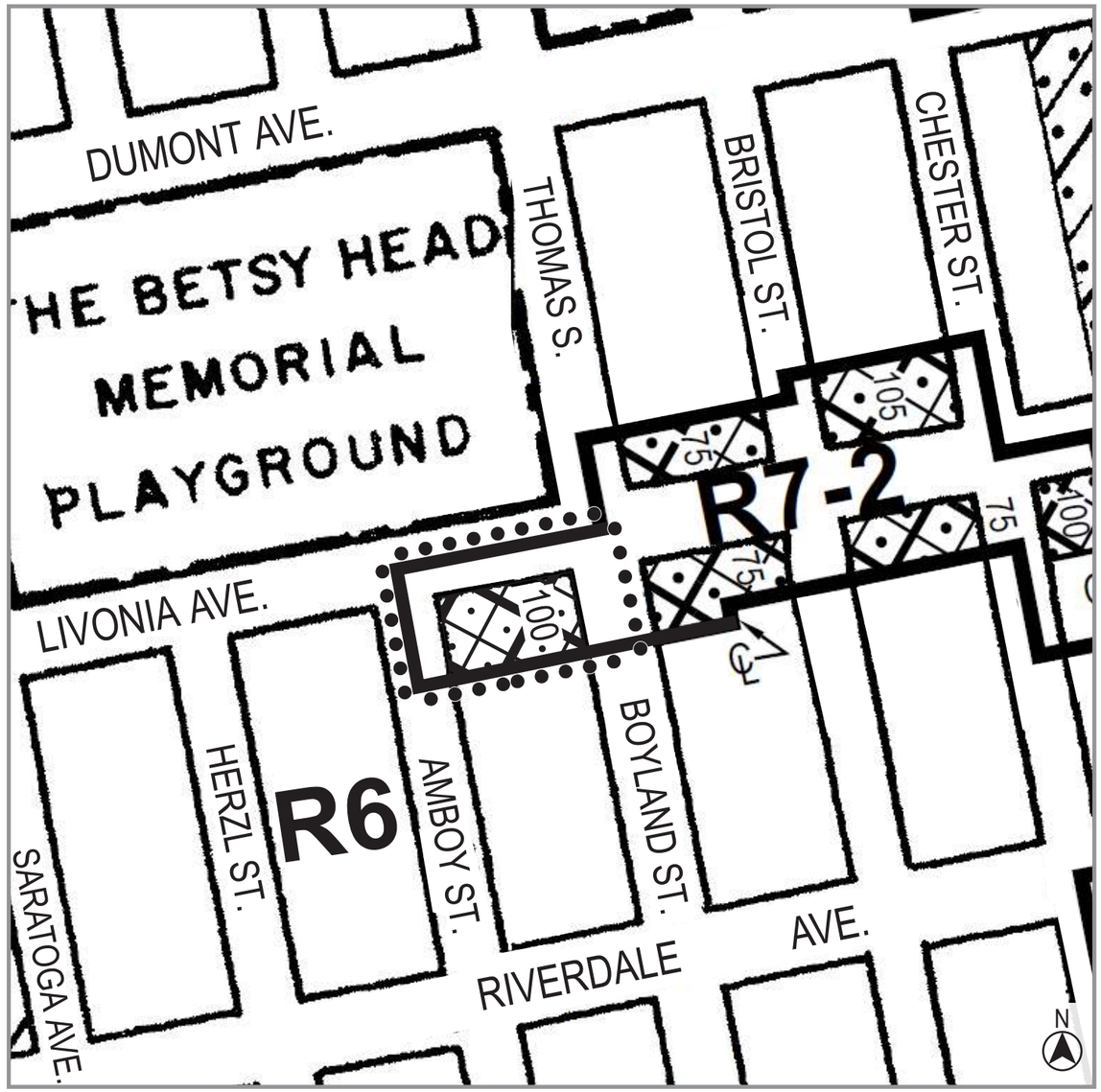
C1-1 C1-2 C1-3 C1-4 C1-5 C2-1 C2-2 C2-3 C2-4 C2-5

**NOTE:** Where no dimensions for zoning district boundaries appear on the zoning maps, such dimensions are determined in Article VII, Chapter 6 (Location of District Boundaries) of the Zoning Resolution.

# Zoning Change Map




Current Zoning Map (17d)




Proposed Zoning Map (17d) - Area being rezoned is outlined with dotted lines

Rezoning from R6 to R7-2/C2-4

C1-1 C1-2 C1-3 C1-4 C1-5 C2-1 C2-2 C2-3 C2-4 C2-5

**NOTE:** Where no dimensions for zoning district boundaries appear on the zoning maps, such dimensions are determined in Article VII, Chapter 6 (Location of District Boundaries) of the Zoning Resolution.

**Livonia Avenue Rezoning**
**Community District 16, Brooklyn**

**5/18/22**
**Zoning Map 17b & 17d**

Matter <u>underlined</u> is new, to be added;
Matter ~~struck out~~ is to be deleted;
Matter within # # is defined in Section 12-10;
* * * indicates where unchanged text appears in the Zoning Resolution.

**APPENDIX F**
**Inclusionary Housing Designated Areas and Mandatory Inclusionary Housing Areas**

* * *

**BROOKLYN**

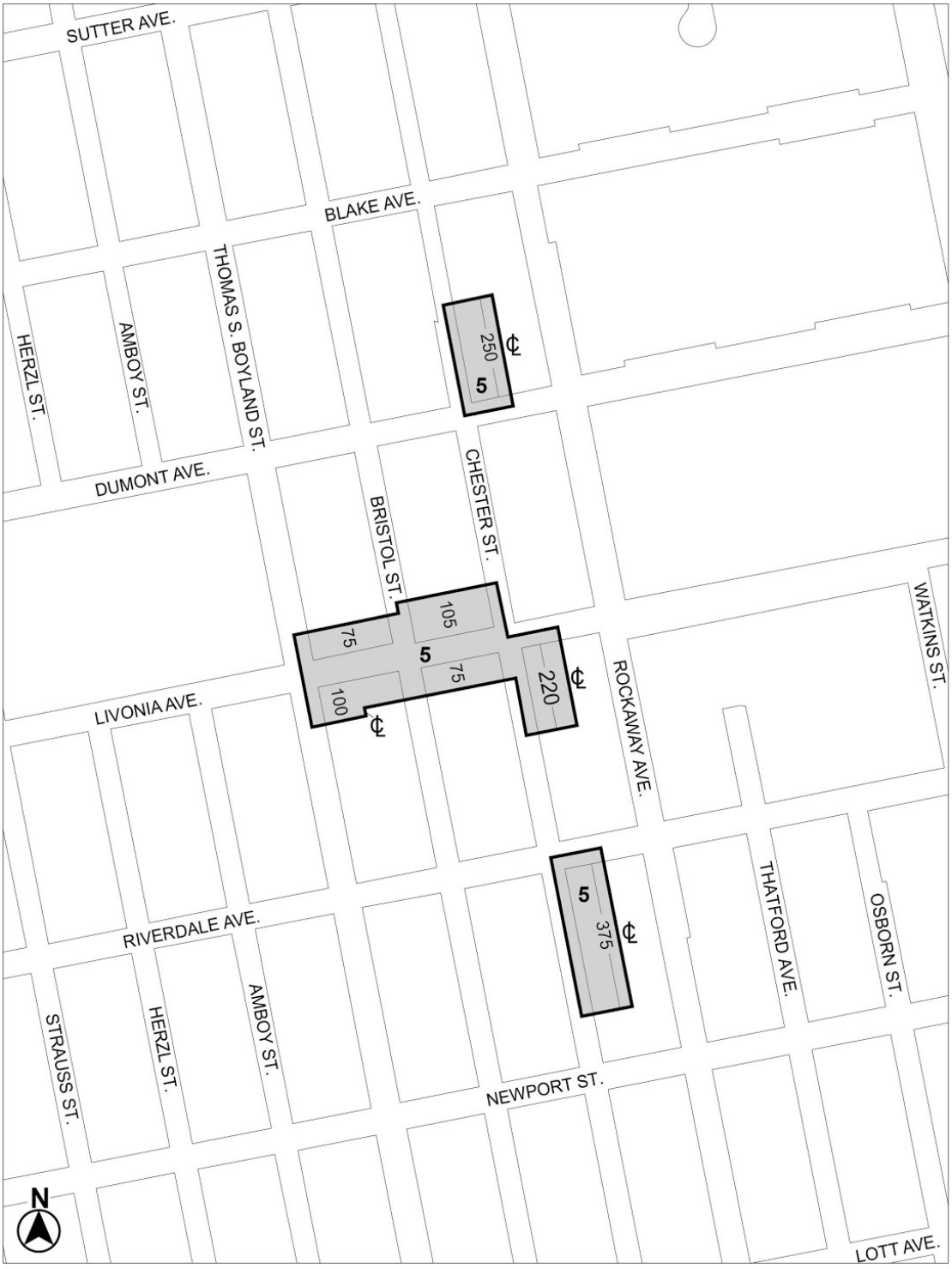
* * *

**Brooklyn Community District 16**

* * *

Map 4 – [date of adoption]

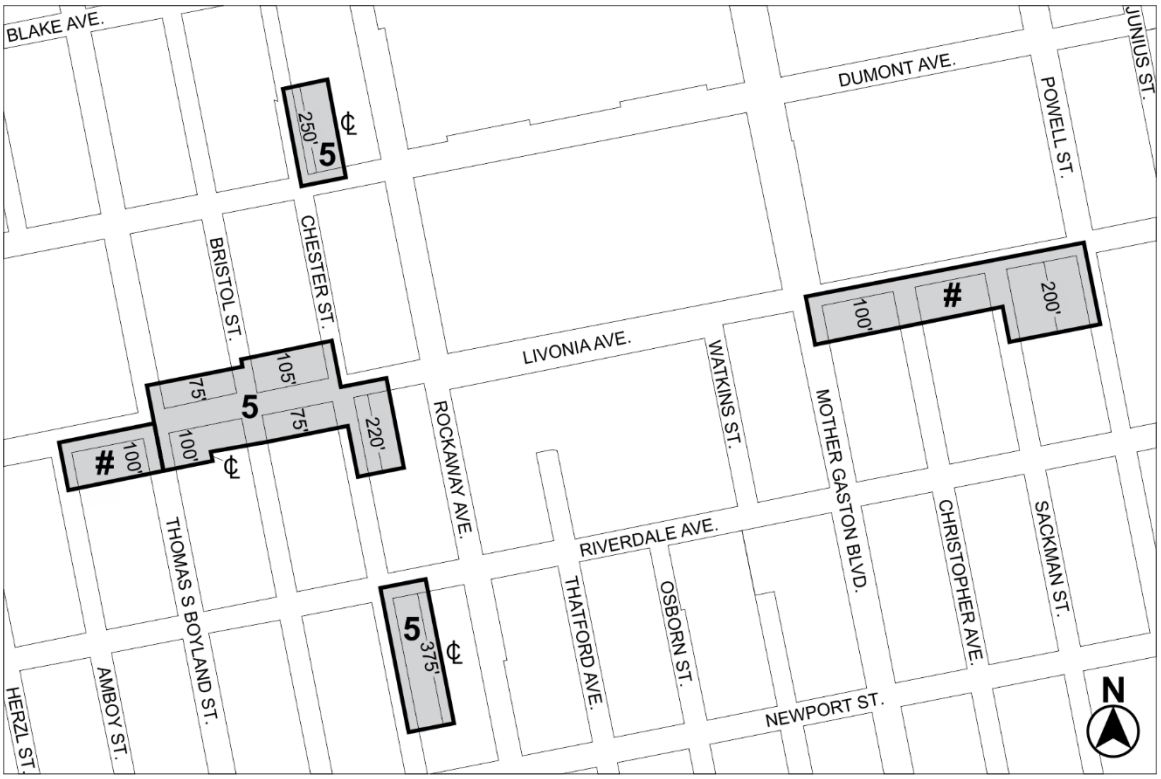
[EXISTING MAP]




Mandatory Inclusionary Housing Program Area *see Section 23-154(d)(3)*

Area **5** — 12/20/18 MIH Program Option 1 and Deep Affordability Option

[PROPOSED MAP]




Mandatory Inclusionary Housing Area *see Section 23-154(d)(3)*

Area **5** — 12/20/18 — MIH Program Option 1 and Deep Affordability Option

Area **#** — [date of adoption] — MIH Program Option 1 and Option 2

Portion of Community District 16, Brooklyn

* * *

# ENVIRONMENTAL ASSESSMENT STATEMENT

## INTRODUCTION

Based on the analysis and the screenings contained in the Environmental Assessment Statement Short Form, the analysis areas that require further explanation include land use, zoning, and public policy, socioeconomics, community facilities, open space, shadows, historic and cultural resources, urban design and visual resources, natural resources (Jamaica Bay Watershed), hazardous materials, water and sewer infrastructure, transportation, air quality, noise, neighborhood character, and construction as further detailed below. The subject heading numbers below correlate with the relevant chapters of the *CEQR Technical Manual.*

## 4. LAND USE, ZONING AND PUBLIC POLICY

### Introduction

Under the *City Environmental Quality Review (CEQR) Technical Manual* guidelines, a land use analysis evaluates the use and development trends in the area that may be affected by a proposed action and determines whether the proposed action is compatible with those conditions or may affect them. Similarly, the analysis considers the proposed action's compliance with, and effect on, the area's zoning and other applicable public policies.

The Proposed Actions (described more fully in the Project Description) consist of:

- Zoning map amendment to rezone an area nearly coterminous with Project Area 1 from an R6 zoning district with a C2-4 commercial overlay to an R7-2 zoning district with a C2-4 commercial overlay and an area nearly coterminous with Project Area 2 from an R6 zoning district to an R7-2 zoning district with a C2-4 commercial overlay;

- A Zoning Text Amendment to Appendix F to establish Project Areas 1 and 2 as a Mandatory Inclusionary Housing (MIH) Area;

- The designation of the Development Sites as an Urban Development Action Area (UDAA) and approval of the project as an Urban Development Action Area Project (UDAAP), and the disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26) to a developer selected by HPD; and

- Amendment to the Brownsville II Urban Renewal Plan (URP) to permit residential use on Sites C1 (URA #142), C2 (URA #141), and C3 (URA #140).

The Proposed Development includes four new buildings on the Applicant controlled Projected Development Sites 1-4 (Sites C1-C4) containing approximately 534,479 gross square feet (gsf) (430,283 zoning square feet (zsf); 5.51 FAR) of total floor area including approximately 373,821 gsf (312,262 zsf) of residential floor area, approximately 34,641

gsf (14,313 zsf) of commercial (retail) floor area, approximately 54,915 gsf (46,747 zsf) of community facility floor area, and approximately 71,102 gsf (56,961 zsf) of community facility with sleeping accommodations floor area. The Proposed Development would contain a total of approximately 498 affordable dwelling units, plus four units for superintendents, and 15 accessory parking spaces.

Community facility uses within the Proposed Development are anticipated to include supportive and formerly homeless housing units (treated as Use Group 3 community facility with sleeping accommodations per the NYC Zoning Resolution ("ZR")) and 54,915 gsf of other uses, including: an approximately 13,119 gsf rooftop garden with a greenhouse (Site C1); an approximately 5,052 gsf community facility space (Site C2); an approximately 10,000 gsf senior center (Site C3); and an approximately 26,744 gsf youth and family activity center (Site C4). Commercial space in the Proposed Development is anticipated to include an approximately 15,629 gsf supermarket and 13,176 gsf of parking (Site C1) and approximately 5,836 gsf of ground-floor local retail space (Sites C1 and C3).

For reasonable worst-case analysis purposes, this EAS assumes that the Proposed Actions would facilitate the development of one additional development site not controlled by the Applicant, Projected Development Site 5, for which there are no known plans for redevelopment at this time. It is assumed that Projected Development Site 5 would be developed with a total of 46,950 gsf of floor area, including approximately 4,800 gsf of ground floor commercial retail space, 4,800 gsf of community facility space (medical offices), and 37,350 gsf of residential space for 36 dwelling units including 7 affordable dwelling units. For CEQR analysis purposes, it is conservatively assumed that 20% of the residential floor area or 7 dwelling units on Projected Development Site 5 would be affordable at 80% of AMI.

In total, the EAS assumes that the Proposed Actions would facilitate the redevelopment of five Projected Development Sites with five new, mixed use residential, commercial, and community facility developments. The five developments would include approximately 581,429 gsf of floor area including approximately 411,171 gsf of residential floor area, 39,441 gsf of commercial floor area, 59,715 gsf of community facility floor area, and 71,102 gsf of community facility with sleeping accommodations. The five developments would contain a total of approximately 505 affordable dwelling units, 29 market rate housing units, and four dwelling units for superintendents.

Detailed information on Projected Development Sites 1-5 and Potential Development Sites 1-2 is included in the Project Description. No new development is anticipated in the With-Action Scenario for Other Sites 1-6. The developments on Projected Development Sites 1-5 are anticipated to be completed by 2026. This build year assumes the development of one site that is not controlled by the Applicant. Absent the Proposed Actions (the No-Action Scenario), it is assumed that existing conditions would continue on both the Applicant's Site and the Non-Applicant Owned Sites.

According to the *CEQR Technical Manual*, the appropriate study area for land use, zoning and public policy is related to the type and size of the project, as well as the location and context of the area that could be affected by the project. To assess the potential for project related impacts, the land use study area has been defined as the area located within a 400-foot radius of the proposed Project Areas. The 400-foot radius study areas include an area generally bounded by Livonia Avenue between Powell & Sackman Streets; Livonia Avenue between Christopher Ave & Sackman Street; Livonia Avenue between Christopher Avenue & Mother Gaston Boulevard; and Livonia Avenue between Amboy & Thomas S. Boyland Streets. Multiple sources have been used to prepare a comprehensive analysis of land use, zoning, and public policy characteristics of the area, including field surveys, studies of the neighborhood, census data, and land use and zoning maps.

## LAND USE

### Existing Conditions

#### *Project Areas*

The Project Areas include Applicant-controlled properties, identified as Block 3586, Lot 26; Block 3811, Lots 17-19, 21, 23-27, and 124; Block 3812, Lots 19-22 and 121; and Block 3813, Lot 115, and Non-Applicant properties, identified as Block 3586, Lots 40 (p/o), 41-44, 45 (p/o); Block 3811, Lot 20; and Block 3812, Lots 17 (p/o), 18, and 24.

Detailed information about the existing conditions on the Applicant Owned Sites, including Projected Development Sites 1 through 4, and the Non-Applicant Owned Site, including Projected Development Site 5, Potential Development Sites 1 and 2, and Other Sites 1 through 6 is included in the Project Description.

#### *400-Foot Radius Project Study Areas*

The Project Areas are located in the Brownsville neighborhood of Brooklyn's Community District 16. The study area near Project Area 1 is generally characterized by a mix of multi-family and single-family residences, community facility uses, limited commercial uses, transportation and utility uses, and open space facilities. The prevailing built form in the area varies by use with a range of low-rise buildings (one- to two-stories) and mid- to high-rise buildings (six- to 25-stories). Directly north of Project Area 1 are several New York City Housing Authority (NYCHA) developments, which range from six- to 16-stories in height. Most of the development directly south of Project Area 1 consists of one- and two-family residences. Community facility uses in the surrounding area include several churches and a community center. Open spaces in the surrounding area include Livonia Park, Power Street Livonia Garden, Van Dyke Playground, and Nehemiah Park. Livonia Avenue is the main thoroughfare in the surrounding area and is characterized by mixed-use residential/commercial uses. The elevated No. 3 subway line runs overhead on Livonia Avenue between East 98th Street and New Lots Avenue. The Long Island Railroad tracks are located to the east of Project

Area 1 running in a north-south alignment between Junius Street and Van Sinderen Avenue.

The area within a 400-foot radius of Project Area 2 is generally characterized by a mix of multi-family and single-family residences, community facility uses, open space, and vacant lots. Residential uses include a mix of single- and two-family homes and larger multi-family apartment buildings generally ranging from two- to 4-stories in height. Several light industrial and warehouse uses are located one block west of Site C4 along Herzl Street. Community facility uses in the surrounding area include several churches. Betsy Head Park, a 10.5-acre open space with a public pool, community center, ballfields, track, and the recently constructed Imagination Playground, is located directly north of Project Area 2 across Livonia Avenue. Numerous vacant lots are scattered throughout the surrounding area. The elevated No. 3 subway line runs overhead on Livonia Avenue.

## No-Action Scenario

### *Project Areas*

Under the No-Action Scenario for the project build year of 2026, it is assumed that the five Projected Development Sites, the two Potential Development Sites, and Other Sites 1-6 would remain in their existing condition as detailed above. No new as-of-right development would occur on the Projected and the Potential Development Sites and the Other Sites based on the provisions of the existing zoning; the amount of development currently existing on each of these sites would therefore remain. No new residential uses would be permitted in areas in which residential development is currently restricted by the Brownsville Urban Renewal II Plan, including Sites C1 (URA #142), C2 (URA #141), and C3 (URA #140). Similarly, no new affordable housing development, including affordable housing units for seniors and/or housing for low-income young mothers, is anticipated to be provided.

### *400-Foot Radius Project Study Areas*

No new development projects are identified for the 400-foot radius project study areas based on a review of the New York City Department of City Planning's (DCP) ZAP Search of Zoning and Land Use Applications. The nearest active construction site to the Project Areas is located at 399 Dumont Avenue, and includes general repair work (including the installation of a new boiler). No development plans are known to exist for the undeveloped parcels or other uses within the project study areas as identified above by the project build year of 2026.

Therefore, surrounding land uses within the immediate study areas are expected to remain largely unchanged by the project build year of 2026.

## With-Action Scenario

### *Project Areas*

Under the With-Action Scenario for the project build year of 2026, the five Projected Development Sites are expected to be developed with five new, mixed-use residential, commercial, and community facility developments. In total, the Proposed Actions would facilitate the development of approximately 581,428 gsf of floor area including approximately 411,171 gsf of residential floor area, 39,441 gsf of commercial floor area, 59,715 gsf of community facility floor area, 71,102 gsf of community facility with sleeping accommodations, and 15 accessory supermarket parking spaces. The five developments would contain a total of approximately 505 affordable dwelling units, 29 market rate housing units, and four dwelling units for superintendents. Detailed information on Projected Development Sites 1-5 and Potential Development Sites 1-2 is included in the Project Description. No new development is anticipated in the With-Action Scenario for Other Sites 1-6.

### *400-Foot Radius Project Study areas*

The Proposed Actions would not result in any changes in land use within the 400-foot radius project study areas.

## Conclusion

The Applicant intends to develop the applicant-controlled Projected Development Sites as described above. While the Proposed Actions would introduce increased density to the Project Areas, the Proposed Actions would provide substantial new affordable housing, commercial and community facility space (including community facility with sleeping accommodations), and accessory parking. The Proposed Actions would also allow for the replacement of underutilized lots and low-density uses with affordable housing, while largely maintaining the existing socioeconomic condition of the surrounding area. The replacement of these existing uses would not be considered to be a significant land use impact. The Applicant believes that the proposed increase in density is appropriate at this location due to the sites' adjacency to public transportation and existing infrastructure.

The Proposed Actions could alter existing development patterns in the surrounding project study areas in the future, especially of underutilized lots and vacant parcels, by encouraging the development of new residential uses. However, this would be in compliance with City policies to encourage the development of new housing, especially affordable housing, throughout the city.

Based on the above analyses, it has been determined that no potentially significant adverse impacts related to land use are expected to occur as a result of the Proposed Actions. Therefore, no further analysis is required.

## ZONING

### Existing Conditions

*Project Areas*

Project Areas 1 and 2 are presently mapped with R6 and R6/C2-4 zoning districts. R6 zoning districts are widely mapped in built-up, medium-density areas in Brooklyn, Queens and the Bronx. The character of R6 districts can range from neighborhoods with a diverse mix of building types and heights to large-scale "tower in the park" developments such as Ravenswood in Queens and Homecrest in Brooklyn. Developers can choose between two sets of bulk regulations. Standard height factor regulations, introduced in 1961, produce small multi-family buildings on small zoning lots and, on larger lots, tall buildings that are set back from the street. Optional Quality Housing regulations produce high lot coverage buildings within height limits that often reflect the scale of older, pre-1961 apartment buildings in the neighborhood.

Buildings developed pursuant to height factor regulations are often tall buildings set back from the street and surrounded by open space and on-site parking. The floor area ratio (FAR) in R6 districts ranges from 0.78 (for a single-story building) to 2.43 at a typical height of 13 stories; the open space ratio (OSR) ranges from 27.5 to 37.5. Generally, the more open space, the taller the building. In the diagram, for example, 81% of the zoning lot with the 13-story building is required to be open space (2.43 FAR × 33.5 OSR). Thus, the maximum floor area ratio is achievable only where the zoning lot is large enough to accommodate a practical building footprint as well as the required amount of open space. There are no height limits for height factor buildings although they must be set within a sky exposure plane which begins at a height of 60 feet above the street line and then slopes inward over the zoning lot.

Off-street parking is generally required for 70 percent of a building's dwelling units, but requirements are lower for income-restricted housing units (IRHU) and are further modified in certain areas, such as within the Transit Zone and the Manhattan Core, or for lots less than 10,000 square feet. Parking can be waived if five or fewer spaces are required.

The optional Quality Housing regulations produce high lot coverage buildings set at or near the street line. Height limitations ensure that these buildings are often more compatible with older buildings in the neighborhood. As an incentive for developers to choose the Quality Housing option outside the Manhattan Core, greater floor area ratio, and therefore, more apartments, is permitted for buildings on or within 100 feet of a wide street than would be permitted under height factor regulations. The FAR is 3.0; the maximum base height before setback is 65 feet with a maximum building height of 75 with a qualifying ground floor (70 feet without). On a narrow street (beyond 100 feet of a wide street), the maximum FAR is 2.2; the maximum base height before setback is 45 feet with a maximum building height of 55 feet. The area between a building's street

wall and the street line must be planted and the buildings must have interior amenities for the residents pursuant to the Quality Housing Program.

Higher maximum FAR and heights are available for buildings participating in the Inclusionary Housing Program or that provide certain senior facilities.

Off-street parking is generally required for 50 percent of a building's dwelling units, but requirements are lower for income-restricted housing units (IRHU) and are further modified in certain areas, such as within the Transit Zone and the Manhattan Core, or for lots less than 10,000 square feet. Parking can be waived if five or fewer spaces are required.

C2-1 through C2-5 districts are commercial overlays mapped within residence districts. Mapped along streets that serve local retail needs, they are found extensively throughout the city's lower- and medium-density areas and occasionally in higher-density districts. Typical retail uses include neighborhood grocery stores, restaurants and beauty parlors. C2 districts permit a slightly wider range of uses, such as funeral homes and repair services. In mixed buildings, commercial uses are limited to one or two floors and must always be located below the residential use. When commercial overlays are mapped in R1 through R5 districts, the maximum commercial FAR is 1.0; when mapped in R6 through R10 districts, the maximum commercial FAR is 2.0. Commercial buildings are subject to commercial bulk rules.

Overlay districts differ from other commercial districts in that residential bulk is governed by the residence district within which the overlay is mapped. All other commercial districts that permit residential use are assigned a specific residential district equivalent. Unless otherwise indicated on the zoning maps, the depth of overlay districts ranges from 100 to 200 feet. Generally, the lower the numerical suffix, the more off-street parking is required. For example, in C1-1 districts, typically mapped in outlying areas of the city, a large food store would require one parking space for every 100 square feet of floor area, whereas no parking is required in C1-5 districts, which are well served by mass transit.

***400-Foot Radius Project Study Areas***

The primary zoning districts mapped throughout the surrounding area include R6 and R6/C2-4 districts, as described above. The surrounding area also includes an R7-2/C2-4 and an M1-1 district. An R7-2 district is located along Livonia Avenue between Thomas S. Boyland Street and Rockaway Avenue directly to the east of Site C4 and approximately four blocks west of Site C3. C2-4 overlay districts can be found along Livonia Avenue within R6 and R7-2 districts. An M1-1 zoning district is located one block east of Site C1 along the elevated L subway line.

The R7-2 zoning district is a type of medium-density apartment house district mapped in much of the Bronx as well as the Upper West Side in Manhattan and Brighton Beach

in Brooklyn. The height factor regulations for R7 districts encourage lower apartment buildings on smaller zoning lots and, on larger lots, taller buildings with less lot coverage. As an alternative, developers may choose the optional Quality Housing regulations to build lower buildings with greater lot coverage.

Regulations for residential development in R7-1 and R7-2 districts are essentially the same except that R7-2 districts, which are mapped primarily in upper Manhattan, have lower parking requirements.

Height factor buildings are often set back from the street and surrounded by open space and on-site parking. The FAR in R7 districts ranges from 0.87 to a high of 3.44; the OSR ranges from 15.5 to 25.5. As in other non-contextual districts, a taller building may be obtained by providing more open space. For example, 76% of the zoning lot with a 14-story building must be open space (3.44 FAR × 22.0 OSR). The maximum FAR is achievable only where the zoning lot is large enough to accommodate a practical building footprint as well as the required amount of open space. The building must be set within a sky exposure plane which, in R7 districts, begins at a height of 60 feet above the street line and then slopes inward over the zoning lot.

Off-street parking is generally required for 60 percent of a building's dwelling units in an R7-1 district and 50 percent in an R7-2 district, but requirements are lower for income-restricted housing units (IRHU) and are further modified in certain areas, such as within the Transit Zone and the Manhattan Core, or for lots less than 15,000 square feet in R7-1 districts. Off-street parking requirements can be waived if 5 or fewer parking spaces are required in R7-1 districts, or if 15 or fewer parking spaces are required or if the zoning lot is 10,000 square feet or less in R7-2 districts.

The optional Quality Housing regulations in R7 districts utilize height limits to produce lower, high lot coverage buildings set at or near the street line. With floor area ratios that are equal to or greater than can be achieved in height factor buildings, the optional Quality Housing regulations produce new buildings in keeping with the scale of many traditional neighborhoods in the East Village and upper Manhattan, the west Bronx, and sections of Queens and Brooklyn.

The optional Quality Housing regulations for buildings on wide streets outside the Manhattan Core are the same as in R7A districts. The maximum FAR is 4.0 and the base height before setback is 40 to 75 feet with a maximum building height of 80 feet, or 85 feet if providing a qualifying ground floor. The maximum FAR on narrow streets and within the Manhattan Core is 3.44, and the base height before setback is 40 to 65 feet with a maximum building height of 75 feet. The area between a building's street wall and the street line must be planted, and the building must have interior amenities for residents pursuant to the Quality Housing Program.

Off-street parking is generally required for 50 percent of a building's dwelling units, but requirements are lower for IRHU and are further modified in certain areas, such as

within the Transit Zone and the Manhattan Core, or for lots less than 15,000 square feet in R7-1 districts. Off-street parking requirements can be waived if 5 or fewer parking spaces are required in R7-1 districts, or if 15 or fewer parking spaces are required or if the zoning lot is 10,000 square feet or less in R7-2 districts.

Higher maximum FAR and heights are available for buildings participating in the Inclusionary Housing Program or that provide certain senior facilities.

M1 districts range from the Garment District in Manhattan and Port Morris in the Bronx with multistory lofts, to parts of Red Hook or College Point with one- or two-story warehouses characterized by loading bays. M1 districts are often buffers between M2 or M3 districts and adjacent residential or commercial districts. M1 districts typically include light industrial uses, such as woodworking shops, repair shops, and wholesale service and storage facilities. Nearly all industrial uses are allowed in M1 districts if they meet the stringent M1 performance standards. Offices, hotels and most retail uses are also permitted. Certain community facilities, such as hospitals, are allowed in M1 districts only by special permit, but houses of worship are allowed as-of-right.

Floor area ratios in M1 districts range from 1.0 to 10.0, depending on location; building height and setbacks are controlled by a sky exposure plane which may be penetrated by a tower in certain districts. Although new industrial buildings are usually low-rise structures that fit within sky exposure plane, commercial and community facility buildings can be constructed as towers in M1-3 through M1-6 districts. Except along district boundaries, no side yards are required. Rear yards at least 20 feet deep are usually required, except within 100 feet of a corner. Parking and loading requirements vary with district and use. M1-1 districts are subject to parking requirements based on the type of use and size of an establishment. For example, a warehouse in an M1-1 district requires one off-street parking space per 2,000 square feet of floor area or per every three employees, whichever would be less. Requirements for loading berths of specified dimensions differ according to district, size and type of use.

**No-Action Scenario**

***Project Areas***

In the No-Action Scenario, the Project Areas would maintain their current zoning.

***400-Foot Radius Project Study areas***

Based on a review of the Department of City Planning's information for Brooklyn Community District 16, no rezoning applications are presently proposed for the 400-foot radius project study areas.

**With-Action Scenario**

***Project Areas***

The Proposed Actions, described above, would rezone the Project Areas from R6 and R6/C2-4 to an R7-2/C2-4 zoning district, map an MIH area coterminous with the Project Areas, modify the existing Brownsville II Urban Renewal Plan to allow residential uses, and designate UDAA and UDAAP areas, respectively. The provisions of the R7-2/C2-4 zoning district are described above.

According to the NYU Furman Center, nearly 40 percent of Brownsville households were severely rent burdened in 2017. There is therefore a strong need for zoning changes that facilitate the development of affordable housing that reaches a broad range of incomes. Under the MIH provisions applicable to the project, and as approved by HPD, 498 affordable dwelling units, plus four units for superintendents, would be provided on Projected Development Sites 1-4. 90 of these units would be supportive housing provided as community facility floor area.

The MIH program, as described further below (see Public Policy Section), requires that permanently affordable housing be provided within new residential developments, enlargements, and conversions from non-residential to residential use within the mapped MIH Areas.

***400-Foot Radius Project Study Areas***

The Proposed Actions would not result in any additional changes in zoning in the 400-foot radius project study areas. The development of the Proposed Project would introduce denser development than permitted by current zoning, but not development that is out-of-character with the surrounding zoning in the study areas, as a R7-2/C2-4 district is already mapped within a portion of the surrounding area.

**Conclusion**

The proposed zoning map and zoning text amendments would only apply to the Project Areas and would not affect lots beyond this area. The Applicant believes that the Proposed Actions would not introduce changes incompatible with the area's existing zoning. Based on the above analysis, it has been determined that no potentially significant adverse impacts related to zoning are expected to occur as a result of the Proposed Actions. Therefore, no further analysis is required.

## PUBLIC POLICY

**Existing Conditions**

According to the *CEQR Technical Manual*, a project that would be located within areas governed by public policies controlling land use, or that has the potential to substantially affect land use regulation or policy controlling land use, requires an

analysis of public policy. Public policies applicable to the Project Areas and 400-foot radius project study areas are discussed below.

***Project Areas and 400-Foot Radius Project Study Areas***

Public policies applicable to portions of the study areas include the Brownsville Urban Renewal Plan (URP), One New York: The Plan for a Strong and Just City (OneNYC), Housing New York: A Five-Borough, Five-Year Plan (Housing New York), and the City's Food Retail Expansion to Support Health (FRESH) program.

Brownsville URP

A portion of the Project Areas is located within the Brownsville II Urban Renewal Area, which was established by the CPC in 1984 and amended in 1996. This Urban Renewal area includes Sites C1, C2, and C3. The Urban Renewal Plan was intended to achieve several goals including: eliminate blight and maximize appropriate land use; remove substandard and insanitary structures; remove impediments to land assemblage and orderly development; encourage new development; and redevelop the area in a comprehensive manner. Sites C1, C2 and C3 were designated for commercial use under this plan, which is set to expire in 2024. Site C4 was formerly subject to the Marcus Garvey Urban Renewal Plan, which was approved in 1968 and expired in 2008.

OneNYC

OneNYC, originally released as PlaNYC in 2007, is a policy document designed to address New York City's long-term challenges, including a projected population increase to 9 million residents by 2040, changing climate conditions, an evolving economy, and aging infrastructure. OneNYC builds upon PlaNYC and focuses on four guiding principles: growth, equity, sustainability, and resiliency.

***Goal (Housing)***: New Yorkers will have access to affordable, high-quality housing coupled with robust infrastructure and neighborhood services.

To ensure that all New Yorkers have access to housing they can afford, OneNYC's goal for housing is to produce and preserve affordable units, increase the overall supply of all types of new housing, and coordinate with regional partners to stimulate production of more housing to meet demand. The Proposed Actions would support the following initiatives and sub-initiatives under this goal:

- Creating and preserving 200,000 affordable housing units over ten years (since updated to 300,000 units) to alleviate New Yorker's rent burden and meet the needs of a diverse population; and supporting efforts by the private market to produce 160,000 additional new units of housing over ten years to accommodate a growing population;
- Establishing a MIH program to promote economic diversity and affordable-housing development; and

• Pursuing neighborhood planning initiatives that expand opportunities for mixed residential/commercial development, especially the attraction of retail and services to underserved neighborhoods.

***Goal (Thriving Neighborhoods):*** <u>New York City's neighborhoods will continue to thrive and be well-served.</u>

OneNYC identifies three core principles for guiding the City's neighborhood planning efforts: (i) supporting vibrant, mixed residential/commercial communities that align transit, housing, and jobs, and offer residents access to essential retail and services; (ii) proactively planning for current and future growth; and (iii) engaging New Yorkers in the planning process. In particular, OneNYC outlines how neighborhood planning, including changes to existing zoning, has the potential to create a wide range of opportunities for mixed residential/commercial neighborhoods.

<u>Housing New York</u>

Housing New York is the City's comprehensive housing development policy, which includes a primary goal of building or preserving 200,000 units of high-quality affordable housing over the next decade (since updated to 300,000 units). Housing New York was developed in conjunction with the New York City Department of Housing and Preservation (HPD) to create housing opportunities for New Yorkers with a range of incomes, while fostering vibrant and diverse neighborhoods. Framed by the policy goals and objectives in Housing New York, the City Council adopted an amendment to the ZR to establish the MIH program on March 22, 2016. This program requires that a percentage of new housing be permanently affordable when an increase in residential floor area is requested (i.e., an upzoning). The primary components of Housing New York include: (i) Mandatory affordable housing: production of affordable housing would be a condition of residential development when developers build in a designated MIH area, whether rezoned as part of a City neighborhood plan or a private rezoning application; and (ii) Affordable housing would be permanent: there would be no expiration to the affordability requirement of apartments generated through MIH, making them a long-term, stable reservoir of affordable housing. MIH includes a number of possible options (officially designated by the City Council), as follows:

- Option 1: 25 percent of the residential floor area shall be provided as housing affordable to households with not less than 10 percent of floor area at 40 percent of the Income Index (AMI) and at an average of 60 percent of AMI, with no unit targeted at a level exceeding 130 percent of AMI.
- Option 2: 30 percent of the residential floor area shall be provided as housing affordable to households at an average of 80 percent of the AMI, with no unit targeted at a level exceeding 130 percent of AMI.

In addition to one or both of the options above, the City Council and the City Planning Commission could decide to apply one or both of the following options:

- Deep Affordability Option: 20 percent of the total residential floor area must be for housing units for residents with incomes averaging 40 percent of AMI and no direct subsidies could be used for these units except where needed to support more affordable housing.
- Workforce Option: 30 percent of the total residential floor area must be for housing units for residents with incomes averaging 115 percent of AMI; no units could go to residents with incomes above 135 percent AMI; no direct subsidies could be used for these affordable housing units; and this could not apply to Manhattan Community Districts 1-8.

FRESH Program

The Food Retail Expansion to Support Health (FRESH) additionally applies within the study areas. The City has established the FRESH program in response to the issues raised in neighborhoods that are underserved by grocery stores. FRESH provides zoning and financial incentives to promote the establishment and retention of neighborhood grocery stores in underserved communities throughout the five boroughs. The FRESH program is open to grocery store operators renovating existing retail space or developers seeking to construct or renovate retail space that will be leased by a full-line grocery store operator. Stores that benefit from the FRESH program must provide a minimum of 6,000 square feet of retail space for a general line of food and nonfood grocery products intended for home preparation, consumption and utilization.

The Project Areas and the 400-foot radius project study areas are not located within the City's Coastal zone boundary. Therefore, these areas are not subject to the provisions of the City's Waterfront Revitalization Program (WRP).

No other public policies would apply to the Proposed Actions as the Project Areas and the surrounding 400-foot radius study areas are not located within the boundaries of any 197-a Community Development Plans and also are not within a critical environmental area, a significant coastal fish and wildlife habitat, a wildlife refuge, or a special natural waterfront area. No Historic Districts or individually designated historic resources are located within the Project Areas or the surrounding 400-foot radius study areas.

**No-Action Scenario**

In the No-Action Scenario, no new development would occur in the Project Areas and it is not anticipated that a FRESH grocery store would be developed. The existing Brownsville II Urban Renewal Plan would not be modified to allow for the development of new affordable and supportive housing in the Project Areas. No other public policy initiatives would pertain to the Project Areas or to the study areas by the build year of 2026. In addition, no changes are anticipated to any other public policy

documents relating to the Project Areas or the surrounding study areas by the project build year.

**With-Action Scenario**

Brownsville URP

The Applicant is requesting an amendment to the Brownsville II URP to permit residential uses on Sites C1 (URA #142), C2 (URA #141), and C3 (URA #140). These three sites were originally designated for commercial development but have remained vacant due to market conditions affecting the development of new retail uses as well as the presence of established retail corridors in the vicinity of the Project Areas, such as Rockaway Avenue. The proposed URP amendment would facilitate the development of these sites in line with the specific community goals and strategies outlined in the 2017 *Brownsville Plan*, including the need for new housing and resources to promote healthy lifestyles. The Proposed Development on the Applicant-controlled Projected Development Sites 1-4 would provide a substantial amount of new housing, including a total of approximately 498 affordable dwelling units (including approximately 279 affordable dwelling units, 97 affordable dwelling units for seniors, 32 supportive dwelling units, 48 supportive units treated as Use Group 3 community facility space, 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility space), plus four units for superintendents. The Proposed Development would also provide several commercial and community facility uses (including a supermarket, local retail space, a rooftop garden and greenhouse, a senior center, a community facility space , and a youth and family activity center that would meet the objectives of the *Brownsville Plan* by improving access to healthy food, increasing opportunities to garden and grow fresh produce, and improving access to recreational services and programs.

OneNYC

The Proposed Actions are consistent with several of OneNYC's initiatives and support the growth goals of Vision 1, which aim to create the world's most dynamic urban economy where families, businesses, and neighborhoods thrive. The development facilitated by the Proposed Actions would support the goals of "Housing" and "Thriving Neighborhoods" under Vision 1 of OneNYC.

The Proposed Actions would facilitate the development of approximately 498 affordable dwelling units on the Applicant-controlled Projected Development Sites 1-4 (including 139 senior housing units), as well as 90 supportive units included as Use Group 3 community facility floor area. By facilitating the creation of permanent affordable housing, the Proposed Actions would support a diverse residential population and would create additional housing options, which would help strengthen the City's economy. Moreover, the Proposed Actions would expand opportunities for mixed residential/commercial development by facilitating the development of a

grocery store and local retail space amongst other amenities. Based on this information, the Proposed Actions are consistent with the policies of OneNYC.

The Proposed Actions would allow greater density and expanded residential uses, redeveloping sites which are largely underutilized into a mixed residential/commercial development including commercial uses at the street level. Based on this information, the Proposed Actions are consistent with the policies of OneNYC.

Housing New York

As discussed above, the Proposed Actions would support the policies and goals of Housing New York by providing significant new permanently affordable housing units. In total, the Proposed Actions would facilitate approximately 538 dwelling units, 505 of which would be affordable.

FRESH Program

The Applicant intends to develop an approximately 15,629 gsf supermarket bringing a full-scale market to an underserved community. However, at this time, the Applicant does not intend to pursue FRESH bonuses for the supermarket.

**Conclusion**

No impacts to public policies would occur as a result of the Proposed Actions. The Applicant believes that the Proposed Actions would be a contextually appropriate development within the study areas and support existing public policies applicable to the area, including OneNYC, Housing New York, FRESH and the Brownsville II Urban Renewal Plan. The Proposed Actions would also facilitate the development of needed affordable and supportive housing Brownsville.

Based on the above analyses, it has been determined that no potentially significant adverse impacts related to public policy are expected to occur as a result of the Proposed Actions. Therefore, no further analysis is required.

## 5. SOCIOECONOMIC CONDITIONS

### Introduction

According to the *CEQR Technical Manual*, an analysis of socioeconomic conditions is conducted to determine whether a proposed project would affect land use patterns, low-income populations, the availability of goods and services, or economic investment in a way that changes the socioeconomic character of an area. The *CEQR Technical Manual* considers the socioeconomic character of an area to include its population, housing, and economic activity.

The *CEQR Technical Manual* primarily considers four types of potential impacts relative to socioeconomic conditions: *direct residential displacement, direct business displacement, indirect residential displacement* and *indirect business displacement*. The *CEQR Technical Manual* recommends performing an analysis of socioeconomic conditions if a project would directly displace residents or businesses, or if a project has the potential to indirectly displace them by altering one or more of the underlying forces that shape socioeconomic conditions in an area. If a project is expected to directly displace 500 residents or 100 workers by, for example, requiring the demolition of existing residential or commercial buildings, the *CEQR Technical Manual* considers that this may have a significant impact on the socioeconomic conditions of the study areas. Further, a proposed project may result in significant changes to the socioeconomic conditions of a study area if the project introduces more than 200 dwelling units or 200,000 square feet.

As discussed in the Projected Description, the Proposed Actions would facilitate the redevelopment of the four Applicant controlled Development Sites C1 through C4 with four new, mixed use residential, commercial, and community facility developments. In total, the Proposed Development would include approximately 534,479 gsf of floor area including approximately 373,821 gsf of residential floor area, 34,641 gsf of commercial floor area (comprised of a 15,629 gsf supermarket, 5,836 gsf of local retail space, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket), 54,915 gsf of community facility floor area, 71,102 gsf of community facility with sleeping accommodations, and 15 accessory supermarket parking spaces. The Proposed Development would contain a total of approximately 498 affordable dwelling units, plus four units for superintendents. The 498 affordable dwelling units are anticipated to be marketed to households earning between 27 percent and 80 percent of Area Median Income (AMI), and would include approximately 279 affordable dwelling units, 97 affordable dwelling units for seniors, 32 supportive dwelling units, 48 supportive units treated as Use Group 3 community facility space, and 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility space.

The Proposed Project would include the Proposed Development on Sites C1 through C4 plus an additional parcel not controlled by the Applicant. Projected Development Site 5 would be developed with a 46,950 gsf building containing 4,800 gsf of commercial retail space, 4,800 gsf of community facility space (medical offices), and 37,350 gsf of

residential space for 36 dwelling units. It is assumed that 20% of the residential floor area or 7 dwelling units on Projected Development Site 5 would be affordable.

In total, the Proposed Actions would facilitate the construction of approximately 581,429 gsf of floor area, including approximately 411,171 gsf of residential floor area, 39,441 gsf of commercial retail space (comprised of a 15,629 gsf supermarket, 10,636 gsf local retail space, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket), 59,715 gsf of community facility space (including 4,800 gsf of medical offices and 54,915 gsf of mixed community facility uses), and 71,102 of community facility space with sleeping accommodations. The five Projected Development Sites would contain a total of approximately 448 dwelling units considered as residential floor area (415 of which would be affordable) and an additional 90 supportive housing units treated as Use Group 3 community facility space.

## Preliminary Assessment

### Study Areas

Per the *CEQR Technical Manual*, the study area for an assessment of socioeconomic conditions may be 400 feet, a 0.25-mile radius, or a 0.5-mile radius depending on the size of the development facilitated by the Proposed Actions. The *CEQR Technical Manual* suggests that if a project increases the population of the 0.25-mile study area by more than 5%, a 0.5-mile radius should be used. In the present project, the Proposed Actions apply to two, non-contiguous Project Areas in the same neighborhood, roughly 1/3 mile apart. As the Project Areas are nearby and similar in character, a single study area has been used for the analysis of Socioeconomic Conditions. This study area includes Census Tracts within a 0.25-mile radius of the Projected Development Sites in which 50% or more of the area of the tract is within the study area. The study area therefore includes Brooklyn Census Tracts 894, 898, 910, 912, 916, 918, and 1132, as presented in Table 5-1 and shown in Figure 5-1, Socioeconomic Analysis Map.

**Table 5-1**

**No-Action vs. With-Action Population in the 0.25 mile Study Area**

| Census Tracts (Brooklyn) | Existing Condition (Residents) | No-Action Scenario (Residents) | With-Action Scenario (Residents) | No-Action vs. With-Action Population (%) |
|---|---|---|---|---|
| 894, 898, 910, 912, 916, 918, 1132 | 28,988 | 29,858[1] | 31,237[2] | 1,379 (4.6%) |

Source: Population FactFinder, DCP; 2020 Census data

[1]Assumes annual growth factor of 0.5% per year (from 2021 to the 2026 build year)

[2] Includes the development of 538 dwelling units in the Project Areas (with 478 units with an average household size of 2.76 persons per household (renters) (2020 Census data for census tract 918) and 60 single-room occupancy units located at Projected Development Site 2.

In the Existing Condition, the study area includes 28,988 residents, and in the No-Action Scenario the study area would include 29,858 residents (assuming an annual growth factor of 0.5% per year until the 2026 build year). The With-Action Scenario would introduce an incremental 1,379 residents within the 0.25-mile study area, for a total population of 31,237 residents. This represents a 4.6% increase in the study area population. As this increase is below 5%, a 0.25-mile study area is appropriate.

**Direct Residential Displacement**

There are currently no existing residential units on the Projected Development Sites. Therefore, no people would be displaced from the Projected Development Sites in the With-Action Scenario. The *CEQR Technical Manual* states that directly displacing 500 or more people may cause a direct residential displacement impact. There would not be a direct residential displacement impact in the With-Action Scenario and no further analysis is required.

**Direct Business Displacement**

Presently, Projected Development Sites 1-4 are vacant. In the With-Action Scenario, it is anticipated that the existing building on Projected Development Site 5 would be demolished and replaced with new development, as detailed above. The *CEQR Technical Manual* states that there may be a direct business displacement impact when any of the following is true:

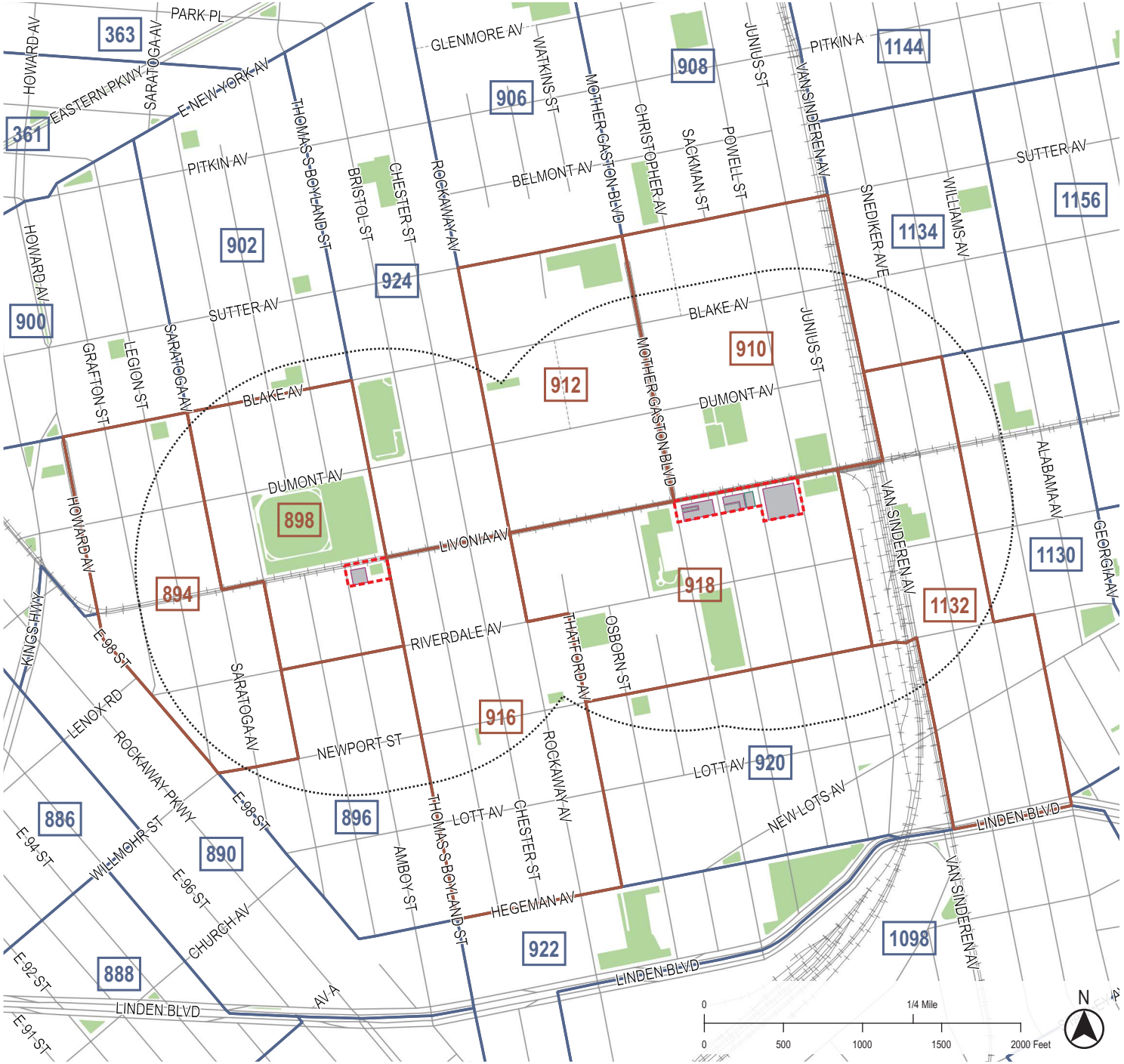
- The project would directly displace more than 100 employees;
- The businesses to be displaced provide products or services essential to the local economy that would no longer be available in its "trade area" to local residents or businesses due to the difficulty of either relocating the businesses or establishing new, comparable businesses; and/ or
- A category of businesses is the subject of other regulations or publicly adopted plans to preserve, enhance, or otherwise protect it.

The With-Action Scenario would not directly displace any existing businesses. Only one existing community facility use, the 6,000 gsf Tabernacle Baptist Church on Projected Development Site 5, would be displaced. It is estimated that this church employs approximately 18 people based on an assumption of 3 workers per 1,000 gsf of floor area. None of these sites contain "products or services essential to the local economy that would no longer be available in its "trade area" to local residents or businesses" in the With-Action Scenario, nor are any of the existing uses "subject of other regulations or publicly adopted plans to preserve, enhance, or otherwise protect [them]." As such, there would be no direct business displacement impacts related to the proposed project and no further analysis is required.

# Livonia Avenue Rezoning, Brooklyn

Figure 5-1: Socioeconomic Analysis Map

- Proposed Rezoning Area
- Projected Development Site (Applicant-Owned)
- Projected Development Site (Non-Applicant-Owned)
- Potential Development Site (Non-Applicant-Owned)
- 1/4-Mile Study Area
- Census Tract Boundaries
- 123 — 50% or More of Census Tract Within Study Area
- 123 — Less Than 50% of Census Tract Within Study Area




Urban Cartographics

## Indirect Residential Displacement

The *CEQR Technical Manual* states that "the objective of the indirect residential displacement analysis is to determine whether the proposed project may either introduce a trend or accelerate a trend of changing socioeconomic conditions that may potentially displace a vulnerable population to the extent that the socioeconomic character of the neighborhood would change." The risk of indirect residential displacement is typically associated with rising rents. These rising rents may contribute to increased area housing costs to an extent that could potentially force lower-income residents out of the neighborhood. The potential for impact is generally limited to households in unprotected, private rental units.

As noted above, a 0.25-mile study area is appropriate for this project. The dwelling unit characteristics and income distribution for the study area are illustrated in Tables 5-2 and 5-3.

**Table 5-2**

**Dwelling Unit Characteristics in the Study Area**

| Census Tracts (Brooklyn) | Total Dwelling Units | Occupied Dwelling Units | Renter Occupied Dwelling Units | Owner Occupied Dwelling Units |
|---|---|---|---|---|
| 894, 898, 910, 912, 916, 918, 1132 | 10,980 | 9,818 | 8,334 | 1,484 |

Source: Population FactFinder, DCP; ACS 2014-2018 5-year Estimate (2020 Census data not available for housing tenancy)

**Table 5-3**

**Income Distribution in the Study Area**

| Census Tracts (Brooklyn) | Total Households | Households Earning Less than $24,999 | Households Earning $25,000-$49,999 | Households Earning $50,000-$99,999 | Households Earning $100,000-$199,999 |
|---|---|---|---|---|---|
| 894, 898, 910, 912, 916, 918, 1132 | 9,818 | 5,548 | 2,035 | 1,521 | 714 |
| | | 56.5% | 20.7% | 20.5% | 7.3%* |

Source: Population FactFinder, DCP; ACS 2014-2018 5-year Estimate (2020 Census data not available for income distribution); *Figure is approximate and total figures may equal greater than 100%.

The Proposed Actions would introduce 538 dwelling units to the study area, 505 of which would be considered affordable. These units would include 4 superintendent's units, 286 affordable dwelling units, 97 affordable dwelling units for seniors, 32 supportive dwelling units, 48 supportive units treated as Use Group 3 community facility space, 42 supportive units for formerly homeless seniors treated as Use Group 3 community facility space, and 29 market rate housing units.

The proposed affordable dwelling units on Projected Development Sites 1 through 4 (Sites C1-C4) are anticipated to be marketed to households earning between 27 percent and 80 percent of Area Median Income (AMI). For CEQR analysis purposes, it is conservatively assumed that 20% of the residential floor area on Projected Development Site 5 would be affordable at 80% of AMI. As such, the Proposed Actions would facilitate development in character with the neighborhood's existing socioeconomic conditions. The Proposed Actions would not introduce a substantial new population with incomes higher than the area average.

Furthermore, per the CEQR *Technical Manual*, populations changes of 5% or less within the study area "would not be expected to affect real estate market conditions." As the change between the No-Action and With-Action Scenarios is 4.6% and the Proposed Actions are not expected to introduce a substantial new population with incomes higher than the area average, no further analysis is necessary.

**Indirect Business Displacement**

The *CEQR Technical Manual* states that there may be an indirect business displacement impact when any of the following is true:

- The project would directly displace more than 100 employees;
- A commercial development contains more than 200,000 square feet of space that is "markedly different than existing uses";
- The project would add to, or create, a retail concentration that may draw a substantial amount of sales from existing businesses within the study area to the extent that certain categories of business close and vacancies in the area increase, thus resulting in a potential for disinvestment on local retail streets (i.e. retail market saturation); or
- Certain regulatory changes that could cause adverse impacts to specific industries.

In the With-Action Scenario, the Proposed Actions would directly displace an existing church with approximately 18 employees and, accordingly, the 100-employee threshold established by the *CEQR Technical Manual* is not exceeded. The *CEQR Technical Manual* additionally states that "projects resulting in less than 200,000 square feet of retail on a single development site would not typically result in socioeconomic impacts," nor would projects under 200,000 square feet across numerous development

sites. In the With-Action Scenario, 39,441 gsf of commercial space would be provided. Therefore, the proposed project would not have potential impacts related to retail market saturation or constitute a development greater than 200,000 square feet with uses "markedly different than existing uses." The proposed project would also not introduce any changes that would adversely impact a specific industry. As such, there would be no indirect business displacement impacts related to the proposed project and no further analysis is required.

**Conclusion**

Per the methodology described in the *CEQR Technical Manual*, in the With-Action Scenario there would be no potential significant adverse impacts to socioeconomic conditions. The proposed project would not lead to significant direct or indirect residential or business displacement in the study area. As such, no further analysis is required.

## 6. COMMUNITY FACILITIES AND SERVICES

### Introduction

According to the *CEQR Technical Manual,* community facilities are public or publicly funded schools, libraries, child care centers, health care facilities, and fire and police protection. The CEQR analysis looks at a project's potential effect on the services provided by these facilities. A project can affect facility services when it physically displaces or alters a community facility or causes a change in population that may affect the services delivered by a community facility, as might happen if a facility is already over-utilized, or if a project is large enough to create a demand that could not be met by the existing facility. The CEQR analysis examines potential impacts on existing facilities and generally focuses in detail on those services that the City is obligated to provide to any member of the community. These services also have precisely defined measures of utilization (e.g., enrollment/available seats for public education). The CEQR analysis is not a needs assessment for new or additional services. Service providers like schools or libraries conduct their own needs assessments on a continuing basis.

The CEQR analysis considers both *direct effects*--such as if a proposed project would displace existing community facilities--and *indirect effects*. An analysis of *indirect effects* considers whether the introduction of new residents to a given area may increase the utilization rate of a given community facility, thereby triggering a potential significant adverse impact.

### Preliminary Assessment

### Direct Effects

The Proposed Actions would not physically displace or directly affect any existing community facilities. As such, no further assessment of direct effects is required.

### Indirect Effects

The *CEQR Technical Manual* provides a set of thresholds to use in determining whether detailed studies of potentially significant adverse indirect impacts related to community facilities and services are warranted. The With-Action Scenario includes the development of 538 dwelling units on Projected Development Sites 1 through 5, for a total of 538 incremental dwelling units in the Project Areas). Of these 538 incremental dwelling units, approximately 139 would be senior housing units, and 90 units would be supportive housing units treated as Use Group 3 community facility space. No new development is anticipated to occur under the No-Action Scenario.

<u>Public Schools</u>

According to the *CEQR Technical Manual*, the introduction of 50 or more incremental students requires a detailed analysis of potential impacts to public elementary and middle schools. An increase of 150 incremental high school students would likewise

warrant a detailed analysis. For the purposes of the public schools analysis, the senior housing units and supportive housing units for formerly homeless seniors have been excluded from the analysis.[1] As such, the public schools' analysis assumes the development of 399 dwelling units. Table 6-1 summarizes the total number of units included for purposes of the public schools analysis.

**Table 6-1**
**Residential Land Use for Public Schools Analysis**

| Incremental Total Dwelling Units[2] | Senior Housing Units excl. from Analysis | Total Units for Analysis |
|---|---|---|
| 538 | 139 | 399 |

Table 6-2 summarizes the total students expected to be generated in the With-Action Scenario.

**Table 6-2**
**Incremental Public School Students**

| Total Units for Analysis | School Type | Public School Students per Unit | Total Estimated Students | Analysis Threshold |
|---|---|---|---|---|
| 399 | Elementary | 0.14 | 56 | 50 |
| 399 | Middle School | 0.06 | 24 | |
| 399 | High School | 0.05 | 20 | 150 |

Source: Data obtained from the CEQR App (a Beta Project of New York City Department of City Planning).

In the With-Action Scenario, 56 students would be generated for elementary schools, 24 students for middle schools, and 20 students for high schools. In total, 80 estimated elementary/middle school students would be generated in the With-Action Scenario. High schools do not exceed the threshold and no further analysis is required. A detailed analysis of the potential significant adverse impacts to elementary schools/ intermediate schools is included below.

Child Care Centers

According to the *CEQR Technical Manual*, the introduction of 20 or more eligible children under age 6 (based on the number of low or low/moderate income dwelling

[1] A more conservative assumption of 538 incremental dwelling units also would not cause a potential public schools' impact in the With-Action Scenario. Both elementary and intermediate schools would still have utilization rates substantially under 100%; the percentage increase in the number of students from the No-Action Scenario to the With-Action Scenario would also be under the thresholds described in the *CEQR Technical Manual.*

[2] Including 90 supportive housing units.

units) would warrant a detailed analysis. The minimum number of low or low/ moderate income dwelling units required in the Borough of the Brooklyn to trigger a detailed analysis is 110 dwelling units. As the With-Action Scenario exceeds this threshold, a detailed analysis is included below.

Libraries

According to the *CEQR Technical Manual*, a more than 5% increase in the ratio of residential units to library branches would warrant a detailed analysis. The minimum number of residential units required in the Borough of Brooklyn to trigger a detailed analysis is 734 dwelling units. The With-Action Scenario would produce 538 incremental dwelling units. As this number is below the threshold provided in the *CEQR Technical Manual,* no further analysis is required.

Police/Fire Services and Health Care Services

According to the *CEQR Technical Manual*, a detailed analysis for police/ fire services and health care services is only required if the With-Action Scenario would introduce a "sizeable new neighborhood, e.g. Hunter's Point South." The With-Action Scenario would introduce an incremental 538 dwelling units to an already built-up area and would not therefore create a "sizeable new neighborhood." As such, no further analysis is required.

**Detailed Analysis**

**Public Schools**

According to the *CEQR Technical Manual*, the study area for the analysis of elementary and intermediate schools should be the "sub-district" in which the project is located. The *CEQR Technical Manual* further states that the detailed analysis should include information on the relevant "sub-district" in the Existing Conditions, No-Action, and With-Action Scenarios.

Existing Conditions

The Project Areas are located in Brooklyn Community School District (CSD) 23, Sub-district 1, which is considered to be the primary study area for the analysis of elementary and intermediate schools. Figure 6-1 (Public Schools Within CSD 23, Subdistrict 1) illustrates the locations of these schools.

Tables 6-3 (Existing Elementary Schools) and 6-4 (Existing Intermediate Schools) provide lists of the elementary and intermediate schools within this sub-district. The tables identify the schools by school number/name and address; the tables also include the latest available enrollment and school capacity numbers for each institution.

Elementary school capacity numbers are less than actual building capacities, as they assume a class size reduction of 20 students for kindergarten through the third grades,

## Livonia Avenue Rezoning, Brooklyn

Figure 6-1: Public Elementary and Intermediate Schools Within CSD 23, Sub-district 1

- Proposed Rezoning Area
- # Elementary Schools (see Table 6-1)
- # Elementary/Intermediate Schools (see Table 6-1)
- # Intermediate Schools (see Table 6-1)
- # High Schools (see Table 6-1)




Urban Cartographics

28 students for grades 4 to 8, and 30 students for grades 9 to 12. This is defined as their "target capacity."

Table 6-3 (Existing Elementary Schools) indicates that the elementary schools within the sub-district are generally under-capacity, with an average utilization rate of approximately 72%. Schools have enrollments ranging from 40% to 108% of target capacity at individual schools. The elementary schools within the sub-district have a total enrollment of 3,704 students relative to a target capacity of 5,140 seats, resulting in an excess capacity of 1,436 seats.

**Table 6-3**
**Existing Elementary Schools**

| Map ID | School Name | Address | Enrollment | Target Capacity | Avail-able Seats | Utilization |
|---|---|---|---|---|---|---|
| 11 | P.S. 41 – K | 411 Thatford Ave. | 240 | 381 | 141 | 63% |
| 2 | P.S. 150 – K | 364 Sackman St. | 191 | 296 | 105 | 65% |
| 3 | P.S. 156 – K | 104 Sutter Ave. | 642 | 757 | 115 | 85% |
| 4 | P.S. 165 – K | 76 Lott Ave. | 290 | 662 | 372 | 44% |
| 6 | P.S. 184 – K | 273 Newport St. | 385 | 472 | 87 | 82% |
| 7 | P.S. 284 – K | 213 Osborn St. | 280 | 394 | 114 | 71% |
| 8 | P.S. 298 – K | 85 Watkins St. | 281 | 316 | 35 | 89% |
| 12 | P.S./I.S. 323 - K | 210 Chester St. | 398 | 369 | -29 | 108% |
| 9 | P.S. 327-K<br>*P.S. 327 (TANDEM K396-D75)-K* | 111 Bristol St. | 292 | 731 | 439 | 40% |
| 10 | Christopher Ave. Community School<br>*P.S. 332 – K* | 51 Christopher Ave. | 316 | 353 | 37 | 90% |
| 5 | P.S. 446 - K<br>*P.S. 183 – K* | 76 Riverdale Ave. | 389 | 409 | 20 | 95% |
| Totals (District 23 - Subdistrict 1) | | | 3,704 | 5,140 | 1,436 | 72% |

Source: Data obtained from the CEQR App (a Beta Project of New York City Department of City Planning); *Transportable classroom capacity is excluded from the analysis

Table 6-4 indicates that the intermediate schools within the sub-district are generally under-capacity, with an average utilization rate of approximately 68%. Schools have enrollments ranging from 31% to 1067% of target capacity at individual schools. The intermediate schools within the sub-district have a total enrollment of 1,659 students relative to a target capacity of 2,435 seats. This results in an excess capacity of 776 seats.

**Table 6-4**
**Existing Intermediate Schools**

| ID | School Name | Address | Enroll-ment | Target Capacity | Avail-able Seats | Utilization |
|---|---|---|---|---|---|---|
| 11 | P.S. 41 – K | 411 Thatford Ave. | 163 | 257 | 94 | 63% |
| 6 | P.S. 184 – K | 273 Newport St. | 149 | 183 | 34 | 81% |
| 12 | P.S./I.S. 323 - K | 210 Chester St. | 217 | 202 | -15 | 107% |
| 9 | I.S. 363 - K<br>*P.S. 298 – K* | 85 Watkins St. | 278 | 264 | -14 | 105% |
| 3 | I.S. 392 - K<br>*P.S. 156 – K* | 104 Sutter Ave. | 307 | 352 | 45 | 87% |
| 1 | I.S. 518 - K<br>*I.S. 275 – K* | 985 Rockaway Ave. | 196 | 437 | 241 | 45% |
| 5 | Riverdale Ave. Middle School<br>*P.S. 183 – K* | 76 Riverdale Ave | 134 | 239 | 105 | 56% |
| 12 | M.S. 671 - K<br>*P.S./I.S. 323 – K* | 210 Chester St. | 199 | 450 | 251 | 44% |
| 14 | TEACHERS PREP (HS LVL) - K<br>*TEACHERS PREP HS* | 226 Bristol St. | 16 | 51 | 35 | 31% |
| Totals (District 23 - Subdistrict 1) | | | 1,659 | 2,435 | 776 | 68% |

Source: Data obtained from the CEQR App (a Beta Project of New York City Department of City Planning); *Transportable classroom capacity is excluded from the analysis.

## No-Action Scenario

This section presents an analysis of public school enrollments (including pre-kindergarten enrollments) and capacities for the project build year of 2026 in the No-Action Scenario. The analysis includes the primary study area of CSD 23, Sub-district 1 and is derived from Department of Education enrollment projections.

In the No-Action Scenario, it is assumed that no new residential development would occur in the Project Areas by the project build year of 2026. However, based on the NYC School Construction Authority's (SCA) "Projected New Housing Starts" (a.k.a. Housing Pipeline) projections, additional student enrollments would occur in CSD 23, Sub-district 1 in the No-Action Scenario by the project build year. This information is presented in Table 6-5 below.

According to the *CEQR Technical Manual*, No-Action school capacity changes considered in a community facilities analysis include information on proposed and adopted "Significant Changes in School Utilization" and the Department of Education's (DOE) Five-Year Capital Plan. Per DOE's "Significant Changes in School Utilization" information, no future changes to elementary/intermediate school capacities are anticipated within the sub-district.

In the No-Action Scenario, the utilization rate for elementary schools would be 72%; for intermediate schools the utilization rate would be 53%. These figures represent a 0% increase and a 15% decrease in the respective utilization rates as compared to the Existing Condition.

**Table 6-5**
**No-Action Enrollment and Capacity**

| Study Area | Projected 2026 Enrollment | Students Introduced by No Action | Total No Action Enrollment | Capacity | Available Seats | Utilization |
|---|---|---|---|---|---|---|
| **Primary Schools** | | | | | | |
| D23/ S1 | 3,340 | 375 | 3,715 | 5,140 | 1,425 | 72% |
| **Intermediate Schools** | | | | | | |
| D23/ S1 | 1,142 | 153 | 1,295 | 2,435 | 1,140 | 53% |

Source: Data obtained from the CEQR App (a Beta Project of New York City Department of City Planning).

With-Action Scenario

According to the *CEQR Technical Manual,* a significant impact on schools may occur if the following two conditions are met:

- if the project results in a collective utilization rate of the elementary and/or intermediate schools in the sub-district study area that is equal to or greater than 100% in the With-Action Scenario, *and* if the project results in an increase of 5% or more in the collective utilization rate between the No-Action and With-Action Scenario.

In the With-Action Scenario, the utilization rate for elementary schools would increase by 1.11% and the utilization rate for intermediate schools would increase by 0.99%. The projected increase of elementary and middle school students resulting from the Proposed Actions in 2026 would have a limited impact upon the utilization rates of the schools in the sub-district as shown in Table 6-6 below.

**Table 6-6**
**With-Action Enrollment and Capacity**

| School Level | Projected Enrollment w/o Project | Students Generated by Project | Projected Enrollment w/ Project | Projected Capacity | Avail-able seats | Utilization |
|---|---|---|---|---|---|---|
| Primary | 3,715 | 56 | 3,771 | 5,140 | 1,369 | 73% (1.11%) |
| Inter-mediate | 1,295 | 24 | 1,319 | 2,435 | 1,116 | 54% (0.99%) |

Source: Data obtained from the CEQR App (a Beta Project of New York City Department of City Planning).

In the With-Action Scenario, neither the utilization rate for elementary nor for intermediate schools exceeds the 100% threshold described in the *CEQR Technical Manual*. Additionally, the Proposed Actions do not lead to an increase of 5% or more in the collective utilization rate. As such, the With-Action Scenario would not be expected to result in a significant adverse impact on elementary or intermediate schools. No further analysis is required.

## Child Care

According to the *CEQR Technical Manual*, "the study area for publicly funded group child care and Head Start centers is approximately 1.5 miles around a project site. As there are no locational requirements for enrollment in day care centers, some parents/guardians choose a day care center close to their employment rather than their residence. Nonetheless, the child care centers closest to the Project Areas are more likely to be subject to increased demand." A list of child care centers within 1.5 miles of the Project Areas is provided in Table 6-7 below. For reference, Figure 6-2 (Day Care Facilities Within 1.5 Miles) shows the locations of child care facilities in the study area, including the 35 ACS-funded child care facilities and others which do not receive ACS funding.

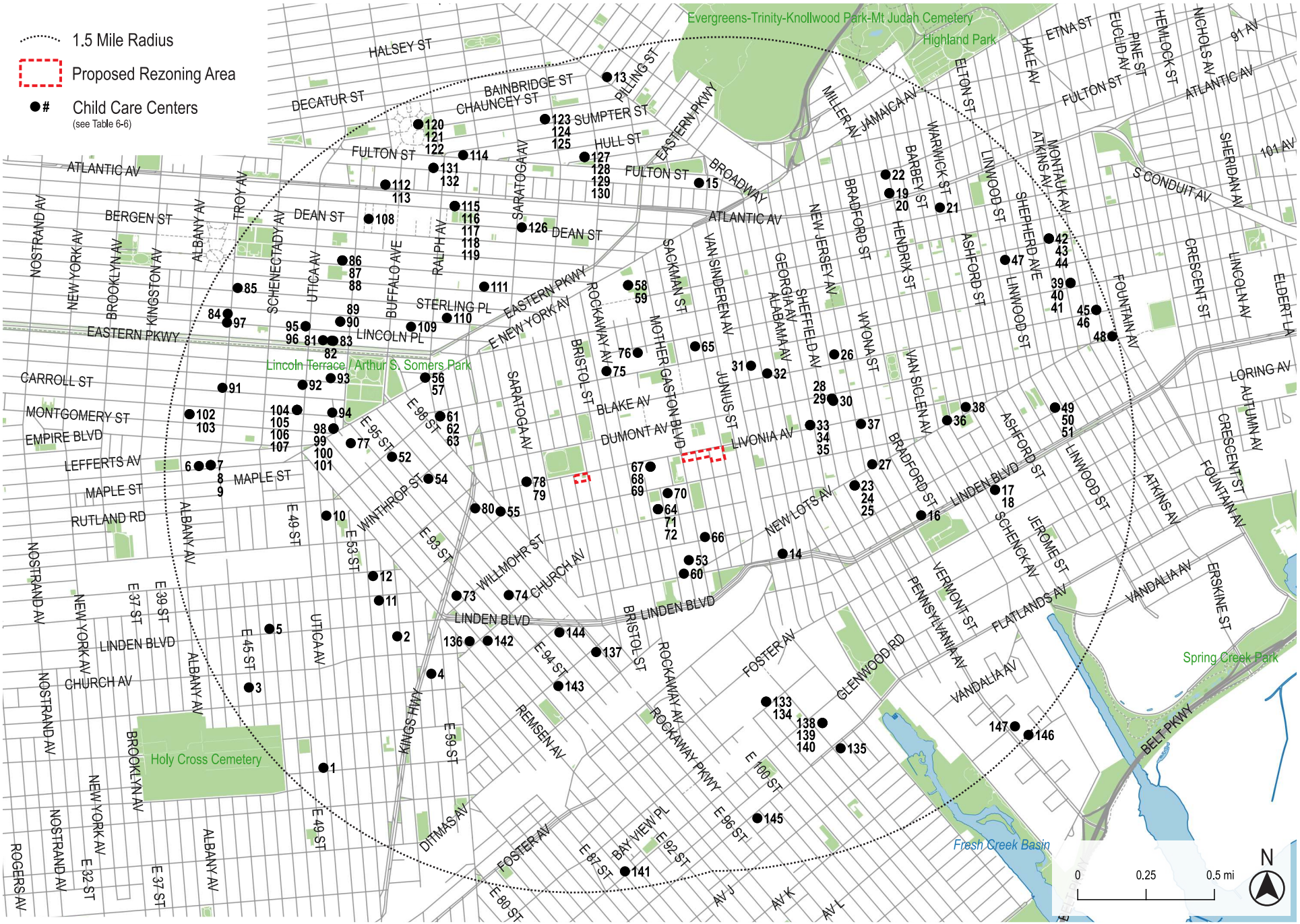
Information regarding existing child care facilities within the study area has been obtained from the Department of City Planning and is based on Agency for Children's Services (ACS) data.

### Existing Conditions

Table 6-7 (Existing Publicly Funded Group Child Care Facilities Within 1.5-Miles of Project Areas) shows that there are available child care slots in the 1.5-mile radius around the Project Areas. In total, the 35 child care facilities in the study area have an

# Livonia Avenue Rezoning, Brooklyn

Day Care Facilities




Urban Cartographics

overall capacity of 3,137 slots. At the time of the publication of the most-recent ACS data (2018), 2,749 of these slots were in use, resulting in an overall utilization rate of approximately 88%.

**Table 6-7**

**Existing Publicly Funded Group Child Care Facilities Within 1.5-Miles of Project Areas**

| Program Name | Program Address | Capacity | Enrolled | % of Enrollment |
|---|---|---|---|---|
| All My Children Day Care 16 | 739 East New York Avenue | 17 | 16 | 94% |
| All My Children Daycare 14 | 771 Crown Street | 43 | 41 | 95% |
| Babove 37- United Lubavitcher | 570 Crown Street | 119 | 107 | 90% |
| Bcs Atlantic Av Early Lrn Ctr | 1825 Atlantic Avenue | 32 | 19 | 59% |
| Bishop Sexton | 933 Herkimer Street | 116 | 113 | 97% |
| Blake-Milford DCC | 334 Milford Street | 44 | 45 | 102% |
| Boulevard Nursery School | 2150 Linden Boulevard | 40 | 32 | 80% |
| Breukelen Day Care Center | 717 East 105 Street | 70 | 63 | 90% |
| Breukelen Head St | 715 East 105 Street | 34 | 34 | 100% |
| Brevoort Children's Center | 250 Ralph Avenue | 47 | 38 | 81% |
| Children's Corner DCC | 565 Livonia Avenue | 174 | 140 | 80% |
| Firststepnyc @ PS/IS 41 | 225 Newport Street | 65 | 65 | 100% |
| Friends Of Crown Heights 13 | 36 Ford Street | 126 | 109 | 87% |
| Friends Of Crown Heights 15 | 2505 Pitkin Avenue | 100 | 89 | 89% |
| Friends Of Crown Heights 16 | 668 Logan Street | 83 | 78 | 94% |
| Friends Of Crown Heights 17 | 921 Hegeman Avenue | 80 | 63 | 79% |
| Friends Of Crown Heights 19 | 370 New Lots Avenue | 100 | 88 | 88% |
| Friends Of Crown Heights 26 | 20 Sutter Avenue | 74 | 58 | 78% |
| Friends Of Crown Heights 29 | 1435 Prospect Place | 95 | 79 | 83% |
| Help 1 | 515 Blake Avenue | 84 | 81 | 96% |
| Inner Force Tots Inc. | 1181 East New York Avenue | 311 | 231 | 74% |
| Medgar Evers HS | 60 East 93 Street | 105 | 101 | 96% |
| Nat Azarow Children's Ctr | 232 Powell Street | 88 | 86 | 98% |
| Pal Arnold & Marie Schwartz | 452 Pennsylvania Avenue | 103 | 89 | 86% |
| Pal World Of Creative Exp | 280 Livonia Avenue | 185 | 166 | 90% |
| Salvation Army Brownsville | 280 Riverdale Avenue | 63 | 55 | 87% |

| | | | | |
|---|---|---|---|---|
| Sco Services – Saratoga | 774 Saratoga Avenue | 96 | 83 | 86% |
| Shirley Chisholm 5 - Advent | 265 Sumpter Street | 52 | 50 | 96% |
| Shirley Chisholm DCC # 4 | 33 Somers Street | 118 | 114 | 97% |
| Shirley Chisholm DCC #1 | 2023 Pacific Street | 116 | 104 | 90% |
| St John's Place Fam Ctr Dc | 1620 St Johns Place | 37 | 18 | 49% |
| St. Malachy Ecdc | 220 Hendrix Street | 28 | 25 | 89% |
| Traditional Child Care Ctr. | 1112 Winthrop Street | 59 | 54 | 92% |
| United Community DCC | 613 New Lots Avenue | 94 | 78 | 83% |
| Urban Strategies DCC 1 | 1091 Sutter Avenue | 139 | 137 | 99% |
| Total | | 3,137 | 2,749 | 88% |

Source: ACS data (2018) (provided by the Department of City Planning).

No-Action Scenario

Per the *CEQR Technical Manual,* "since enrollment projections for child care facilities are not available, CEQR analysis assumes that the existing enrollment and capacity would stay the same for the build year and be the baseline for the No-Action Scenario, unless affordable housing is identified." In the No-Action Scenario, it is therefore assumed that no new affordable residential development would occur in the Project Areas or the surrounding study area. At this time, no changes to the capacities of child care facilities in the study area are anticipated by the project build year of 2026.

With-Action Scenario

According to the *CEQR Technical Manual,* a significant impact on child care may occur if the following two conditions are met:

- if the project results in a collective utilization rate of the group child care/Head Start centers in the study area that is greater than 100 percent in the With-Action Scenario, *and* if the project results in an increase of 5% or more in the collective utilization rate of the child care/Head Start centers in the study area between the No-Action and With-Action Scenarios.

In the With-Action Scenario, it is projected that an incremental 538 dwelling units would be developed in the Project Areas. Of these units, 139 are senior housing units. This analysis excludes the 139 senior housing units provided on Projected Development Sites 1-4 as they would not contain children.[3] For purposes of child care analysis it is assumed that 399 dwelling units would potentially include children.

Per the *CEQR Technical Manual,* the household multiplier for child care analysis in Brooklyn is 0.178. Based on this multiplier, in the With-Action Scenario there would be

[3] The most conservative assumption—538 incremental dwelling units (which includes some *market rate* apartments)—also would not cause a potential child care impact in the With-Action Scenario. Child care facilities within the study area would still have utilization rates under 100%. This number is below the thresholds described in the *CEQR Technical Manual.*

an estimated 71 additional children who would qualify for subsidized child care in the study area. The addition of these 71 children to the 2,749 children in the Existing Condition/No-Action Scenario would result in 2,820 children in the With-Action Scenario. The utilization rate in the With-Action Scenario would increase from 88% to 90% (a 2% increase as compared to the Existing Condition/ No-Action Scenario).

**Table 6-8**
**With-Action Scenario Enrollment and Capacity**

| | Projected Enrollment (No-Action) | Children Generated in With-Action | Projected Enrollment (With-Action) | Capacity | Utilization |
|---|---|---|---|---|---|
| Child Care Facilities | 2,749 | 71 | 2,820 | 3,137 | 90% (2%) |

The utilization rate for child care facilities does not exceed the 100% threshold in the With-Action Scenario. Additionally, the Proposed Actions do not lead to a "increase of 5% or more in the collective utilization rate." As such, the With-Action Scenario would not be expected to result in a significant adverse impact on child care facilities. No further analysis is required.

**Conclusion**

The With-Action Scenario would not physically displace or alter a community facility or cause a change that could affect the service delivery of a community facility. As such, there would be no direct effects on community facilities and services.

A preliminary analysis of the indirect effects of the With-Action Scenario found that the applicable thresholds described in the *CEQR Technical Manual* for libraries, police/fire services and health care centers were not exceeded. Therefore, detailed analyses were not required. The preliminary analysis of the indirect effects of the With-Action Scenario relative to public schools and child care found that a detailed analysis was required. These detailed analyses concluded that there would be no potential significant adverse impact to schools or child care facilities in the With-Action Scenario. As such, no further analysis is required.

## 7. OPEN SPACE

### Introduction

For the purpose of CEQR, open space is defined as publicly or privately owned land that is publicly accessible and has been designated for leisure, play, or sport; or land that is set aside for the protection and/or enhancement of the natural environment. According to the *CEQR Technical Manual,* an open space analysis is conducted to determine whether or not a proposed action would have either a direct impact resulting from the elimination or alteration of open space or an indirect impact resulting from overtaxing the use of open space. The analyses focus only on officially designated existing or planned public open space. Open space may be public or private and may include active and/or passive areas. Active open space is the part of a facility used for active play such as sports or exercise and may include playground equipment, playing fields and courts, swimming pools, skating rinks, golf courses, lawns and paved areas for active recreation. Passive open space is used for sitting, strolling, and relaxation with benches, walkways, and picnicking areas. Certain spaces, such as lawns, can be used for both active and passive recreation.

Open space analyses may be necessary when an action would potentially have a direct or indirect effect on open space. A direct impact would physically change, diminish or eliminate an open space or reduce its utilization or aesthetic value. An indirect impact could result from an action introducing a substantial new user population that would create or exacerbate an overutilization of open space resources.

### Direct Effects

According to the *CEQR Technical Manual*, a proposed project may have a direct effect on an open space when it:

- Results in a physical loss of public open space (by encroaching on an open space or displacing an open space);
- Changes the use of an open space so that it no longer serves the same user population (e.g., elimination of playground equipment);
- Limits public access to an open space; or
- Causes increased noise or air pollutant emissions, odors, or shadows on public open space that would affect its usefulness, whether on a permanent or temporary basis.

As described in the Project Description, the Proposed Actions would introduce new development on five Projected Development Sites within the Project Area. None of these sites would replace publicly accessible open space, reconfigure existing open space, limit public access to open space, or cause increased noise or air pollutant emissions, or odors that would affect the usefulness of an open space.

Projected Development Site 1 is adjacent to Powell Street Livonia Garden (0.49 acres) while Livonia Park (0.96 acres) is diagonal to the Site. Projected Development Site 3 is

adjacent to Nehemiah Park (1.61 acres). Projected Development Site 4 is adjacent to the Thomas S. Boyland Community Garden (0.12 acres), as well as to Betsy Head Park (10.11 acres). Due to the adjacency of these open space resources to the Project Area, potential shadows impacts could result from the Proposed Actions.

An analysis of new incremental shadows from the proposed project on these nearby open space resources was undertaken and it was found, with the exception of the Thomas S. Boyland Community Garden, that these resources would receive adequate sunlight outside of identified new incremental shadow durations such that the viability of their vegetation would not be jeopardized or their public usability and/or enjoyment impaired. Further, the proposed project would proactively develop and integrate spaces and infrastructure at the Projected Development Sites to support healthy food systems, including community garden and farm spaces and spaces and programs for education and training related to urban agriculture and healthy nutrition, among other elements. With respect to these open space resources, it was determined that project-generated incremental shadows would not result in significant adverse shadow impacts to the sunlight-sensitive resources identified, and no further analysis is warranted.

However, new development facilitated by the Proposed Actions could result in prolonged shadow coverage and duration at the Thomas S. Boyland Community Garden with up to 8 to 12 hours of shadow coverage during the March 21/ September 21, May 6/August 6, and June 21 analysis days. A discussion regarding options to reduce or eliminate shadows on this resource is found in Chapter 8, "Shadows," of this document.

**Indirect Effects**

According to the *CEQR Technical Manual*, if a project may add population to an area, demand for existing open space facilities would typically increase. Indirect effects may occur when the population generated by the proposed project would be large enough to noticeably diminish the ability of an area's open space to serve the future population. For the majority of projects, an assessment is conducted if the proposed project would generate more than 200 residents or 500 employees, or a similar number of other users (such as the visitor population that might be introduced by a large shopping area). However, the need for an open space assessment may vary in certain areas of the city that are considered either underserved or well-served by open space.

As the Proposed Actions would introduce more than 200 residents—but far less than 500 employees—to the Project Area, an assessment of the potential indirect effects on open space resources for residents is generally required. This assessment is included below. A quantitative analysis of indirect open space impacts for employees would not be required.

**Preliminary Assessment**

Existing Conditions

The first step in an open space analysis is to define and map a study area. Once the study area is defined, the following step is to determine which analysis is required by calculating the percentage change in the open space ratio between the No-Action and With-Action Scenarios.

Study areas for open space are generally defined by a reasonable walking distance that users would travel to reach local open space and recreation areas—typically 0.5 mile for residential users and 0.25 mile from commercial projects with a worker population. However, the boundaries of the study area should reflect existing conditions and may be irregularly shaped.

For the Proposed Development, a 0.5-mile study area has been utilized, as shown in Figure 7-1 (Open Space Facilities and Census Tracts). According to the *CEQR Technical Manual*, the existing population for the study area should include all census tracts which are 50% or more within the study area and should be based on the most recent decennial census (2020 Census). As such, Brooklyn Census Tracts 890, 892, 894, 896, 898, 900, 902, 910, 912, 916, 918, 920, 922, 924, 1126, 1130, 1132, 1134, and 1156 have been included in this analysis. Table 7-1 (Existing Conditions - Study Area Population) presents the population in the study area which is illustrated on Figure 7-1, Open Space Facilities and Census Tracts.

Table 7-1

**Existing Conditions - Study Area Population**

| Census Tract | Total Population |
|---|---|
| 890 | 6,683 |
| 892 | 3,673 |
| 894 | 3,834 |
| 896 | 4,081 |
| 898 | 2,329 |
| 900 | 5,434 |
| 902 | 3,817 |
| 910 | 5,814 |
| 912 | 6,572 |
| 916 | 5,309 |

| | |
|---|---|
| 918 | 2,703 |
| 920 | 3,491 |
| 922 | 3,031 |
| 924 | 3,628 |
| 1126 | 4,368 |
| 1130 | 4,460 |
| 1132 | 2,427 |
| 1134 | 2,658 |
| 1156 | 4,452 |
| **Study Area Total** | **78,764** |

Source: Population FactFinder, DCP; 2020 Census

According to the *CEQR Technical Manual*, an initial quantitative open space assessment involves a determination of an area's open space ratio based on the population of the study area compared to the acreage of all publicly accessible open space resources within the study area. If an area's open space ratio decreases significantly as a result of a proposed action or if an area has a very low open space ratio, a more detailed assessment may be required.

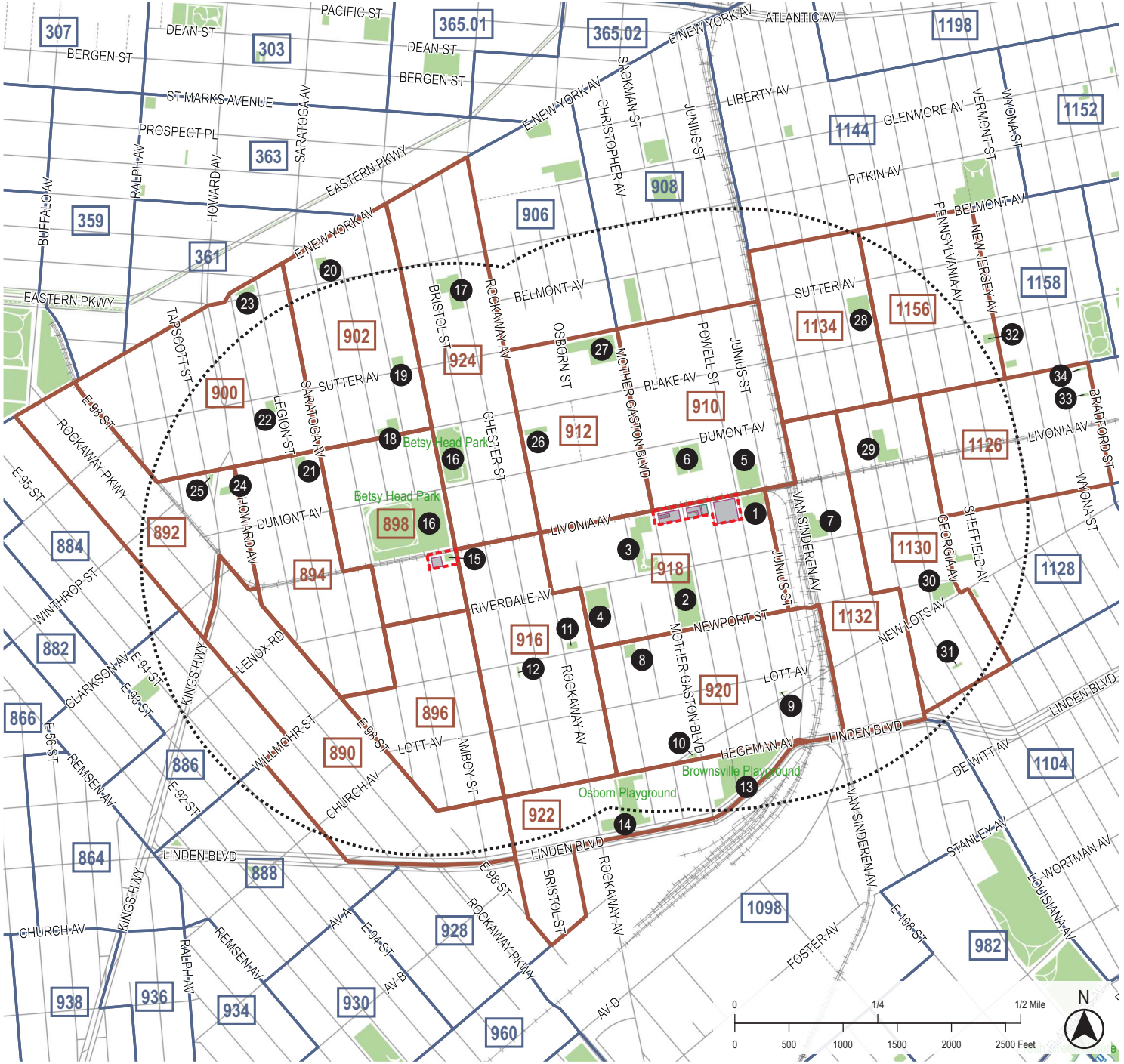
The Appendix to the *CEQR Technical Manual* considers Brooklyn Community District 16 to be an area neither underserved nor well-served by open space resources. Overall, the study area has a below average open space ratio of 0.425 acres of open space per 1,000 population (based on 33.44 acres of existing open space divided by the population). This 33.44 acres includes 26.03 acres of active open space and 7.41 acres of passive open space. The open space ratio for active open space is 0.331 acres per 1,000 population, while the open space ratio for passive open space is 0.094 acres per 1,000 population. This ratio falls below the citywide average of 1.5 acres per 1,000 population, as well as the city's benchmark of 2.5 acres per 1,000 population.

Table 7-2, Inventory of Open Space Resources shows existing open space resources in the study area. Per the *CEQR Technical Manual*, this analysis assumes that playgrounds, multipurpose play areas, and ballfields constitute 100% active space, while sitting areas constitute 100% passive space.

# Livonia Avenue Rezoning, Brooklyn

Figure 7-1: Open Space Facilities and Census Tracts

- Proposed Rezoning Area
- Projected Development Site (Applicant-Owned)
- Projected Development Site (Non-Applicant-Owned)
- Potential Development Site (Non-Applicant-Owned)
- 1/2-Mile Study Area
- Census Tract Boundaries
- 123 — 50% or More of Census Tract Within Study Area
- 123 — Less Than 50% of Census Tract Within Study Area
- 1 — Open Space Resources (see Table 7-1)




Urban Cartographics

**Table 7-2**

**Inventory of Open Space Resources**

| Map ID | Name/Location | Owner | Acres | Active Open Space | Passive Open Space | Features | Condition |
|---|---|---|---|---|---|---|---|
| 1 | Powell Street Livonia Garden (Powell St., Livonia Ave.) | Community Garden | 0.49 | 0 | 0.49 | Garden | N/A |
| 2 | Floyd Paterson Ballfields (Christopher Ave., Riverdale Ave., Newport St., Mother Gaston Blvd.) | DPR | 2.35 | 2.35 | 0 | Ballfields | Acceptable (11/13/2020) |
| 3 | Nehemiah Park (Watkins St., Mother Gaston Blvd., Livonia Ave., Riverdale Ave.) | DPR | 1.61 | 1.28 | 0.33 | Area park | Acceptable (10/27/2020) |
| 4 | Newport Playground (Riverdale Ave. Bet. Thatford Ave. And Osborn St.) | DPR/ DOE | 0.89 | 0.89 | 0 | Play-ground | Acceptable (10/27/2020) |
| 5 | Livonia Park (Livonia Ave. Between Powell St. And Junius St.) | DPR | 0.96 | 0.77 | 0.19 | Area park | Acceptable (11/13/2020) |
| 6 | Van Dyke Playground (Dumont Ave. Between Powell St. And Mother Gaston Blvd.) | DPR | 1.44 | 1.44 | 0 | Play-ground | Acceptable (11/13/2020) |
| 7 | Lion's Pride Playground (Riverdale Ave. Bet. Van Sinderen Ave. And Snediker Ave.) | DPR | 0.89 | 0.89 | 0 | Play-ground | Acceptable (10/16/2020) |
| 8 | Abib Newborn Learning Garden (495 Osborn St.) | Community Garden | 0.28 | 0 | 0.28 | Garden | N/A |
| 9 | Powell Street Block Association (103 New Lots Ave.) | Community Garden | 0.04 | 0 | 0.04 | Garden | N/A |
| 10 | Veterans Triangle (Hegeman Ave., New Lots Ave. Bet. Watkins St. And Mother Gaston Blvd.) | DPR | 0.13 | 0 | 0.13 | Sitting area | Unacceptable (10/19/2020) |
| 11 | United Community Centers Youth Farm (613 New Lots Ave.) | United Community Ctr. | 0.14 | 0 | 0.14 | Farm/ Garden | N/A |
| 12 | Gethsemane Garden | Community Garden | 0.05 | 0 | 0.05 | Garden | N/A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13 | Brownsville Playground (Hegeman Ave., Linden Blvd. Bet. Powell St. And Mother Gaston Blvd.) | DPR | 3.20 | 3.20 | 0 | Play-ground | Unacceptable (12/21/2020) |
| 14 | Osborn Playground (Linden Blvd., Osborn St., Rockaway Ave., Hegeman Ave.) | DPR | 2.79 | 2.79 | 0 | Play-ground | Acceptable (10/19/2020) |
| 15 | Thomas S, Boyland Community Garden (at Livonia Avenue and Thomas S. Boyland Street) | Community Garden | 0.12 | 0 | 0.12 | Garden | N/A |
| 16 | Betsy Head Park (Blake Ave., Dumont Ave., Livonia Ave. Bet. Strauss St., Hopkinson Ave. and Bristol St.) | DPR | 10.11 | 8.1 | 2.01 | Large area park | Unacceptable (9/17/2020) |
| 17 | Chester Playground (Chester St. To Bristol St. Between Sutter Ave. And Pitkin Ave.) | DPR/DOE | 1.27 | 1.27 | 0 | Play-ground | Unacceptable (10/19/2020) |
| 18 | Amboy Neighborhood Center | Amboy Neigh. Ctr. | 0.40 | 0 | 0.40 | Parklet | N/A |
| 19 | Jes Good Rewards Children's Garden (155 Amboy St.) | Community Garden | 0.25 | 0 | 0.25 | Garden | N/A |
| 20 | Marcus Garvey Tenants' Association Garden | Marcus Garvey Tenants' Association | 0.25 | 0 | 0.25 | Garden | N/A |
| 21 | Fantasy Garden (181 Legion St.) | Community Garden | 0.24 | 0 | 0.24 | Garden | N/A |
| 22 | I.S. 392 (104 Sutter Ave.) | DOE | 0.28 | 0.28 | 0 | Play-ground | N/A |
| 23 | Zion Triangle (Pitkin Ave., E. New York Ave. Bet. Crafton St. And Legon St.) | DPR | 0.20 | 0 | 0.20 | Sitting area | Acceptable (5/28/2020) |
| 24 | Howard Avenue Block Association (Howard Ave.) | Howard Avenue Block Association | 0.24 | 0 | 0.24 | Garden | N/A |
| 25 | Howard Malls (Blake Ave., Tapscott St., Howard Ave.) | DPR | 0.12 | 0 | 0.12 | Sitting area | Acceptable (10/19/2020) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | P.S. 125 Playground (Rockaway Ave. Bet. Blake Ave. And Dumont Ave.) | DPR/DOE | 0.24 | 0.24 | 0 | Play-ground | Acceptable (12/21/2020) |
| 27 | Dr. Green Playground (Sutter Ave. and Osborn St.) | DPR/DOE | 1.81 | 1.81 | 0 | Play-ground | Unacceptable (8/21/2020) |
| 28 | P.S. 328 (330 Alabama Ave.) | DOE | 0.66 | 0.66 | 0 | Play-ground | N/A |
| 29 | Success Garden (449 Williams Ave.) | Community Garden | 0.93 | 0 | 0.93 | Garden | N/A |
| 30 | United Community Centers (613 New Lots Ave.) | Small Green Space | 0.68 | 0 | 0.68 | Parklet | N/A |
| 31 | Prophecy Garden (43 Malta St.) | Community Garden | 0.06 | 0 | 0.06 | Garden | N/A |
| 32 | St. John Cantius Parish (479 New Jersey Ave.) | St. John Cantius | 0.20 | 0 | 0.20 | Parklet | N/A |
| 33 | P.S. 53 (720 Livonia Ave.) | DOE | 0.06 | 0.06 | 0 | Play-ground | N/A |
| 34 | First Temple of David (746 Dumont Ave.) | First Temple of David | 0.06 | 0 | 0.06 | Parklet | N/A |
| | Total | | 33.44 | 26.03 | 7.41 | | |

No-Action Scenario

As stated above, the 2020 population of the 0.5-mile study area was 78,764. In order to account for background growth to the 2026 project build year, a conservative annual growth rate of 0.5% per year was applied to the 2020 population of the study area. This growth factor would result in the addition of 2,363 additional residents between 2020 and 2026. No new residential development would occur in the Project Area in the No-Action Scenario. Therefore, the base population is projected to be 81,127 residents, as shown in Table 7-3 below.

**Table 7-3**

**No-Action – Study Area Population**

| **Existing Conditions – Study Area Population (2020 Census)** | **Increment** | **No-Action – Study Area Population (2026 build year)** |
|---|---|---|
| 78,764 | 2,363[1] | 81,127 |

[1]Assumes annual growth factor of 0.5% per year (from 2020 to the 2026 build year)

By the 2026 project build year, there is no projected increase or decrease in the 33.44 acres of existing open space in the study area, which includes 26.03 acres of active open space and 7.41 acres of passive open space.

In the No-Action Scenario, based on the area population of 81,127 in the 2026 build year and the 33.4 acres of open space area, the open space ratio would be 0.412 acres per 1,000 population. Based on 26.03 acres of active open space, the No-Action Scenario active open space ratio would be 0.321 acres per 1,000 population. Based on 7.41 acres of passive open space, the No-Action Scenario passive open space ratio would be 0.091 acres per 1,000 population.

With-Action Scenario

As discussed above, the With-Action Scenario includes the development of 538 incremental dwelling units (including 90 supportive housing units treated as Use Group 3 community facility space) in the Project Area. It is assumed that 478 of these units would have an average household size of 2.76 persons per household (2020 Census data) and the 60 single-room occupancy units located at Projected Development Site 2 would have 1 occupant per DU. As such, the total incremental population introduced in the With-Action Scenario would be 1,379 people. Adding this population to the No-Action Scenario population of 81,127 would result in a total study area population of approximately 82,506 persons in the With-Action Scenario, as shown in Table 7-4 below.

**Table 7-4**

**With-Action – Study Area Population**

| No-Action – Study Area Population (2026 build year) | Increment | With-Action Population |
|---|---|---|
| 81,127 | 1,379 | 82,506 |

No new publicly accessible open space or recreational resources are planned to be added to the study area in the With-Action Scenario. Therefore, in the 2026 build year it is assumed that the same amount of open space would remain in the study area.

Based on a population of 82,506 people and 33.44 acres of open space, the open space ratio in the With-Action Scenario would be 0.405 acres per 1,000 residents (with a 0.315 active open space ratio and a 0.090 passive open space ratio). This is compared to an open space ratio of 0.412 (with a 0.321 active open space ratio and a 0.091 passive open space ratio) in the No-Action Scenario. This represents a decrease of approximately 0.007 acres per thousand residents or 1.7% in the open space ratio. Therefore, the community would continue to have a below average amount of open space compared to New York City as a whole, as well as the desired benchmark ratio (2.5 acres per 1,000 population) described in the *CEQR Technical Manual*.

Table 7-5 shows the calculation of open space ratios for the existing, No-Action, and With-Action Scenarios.

**Table 7-5**

**Existing Conditions, No-Action, and With-Action Open Space Ratios**

| | Existing Conditions | No-Action | With-Action |
|---|---|---|---|
| Open Space (Acreage) | 33.4 (26.03 active, 7.41 passive) | 33.4 (26.03 active, 7.41 passive) | 33.4 (26.03 active, 7.41 passive) |
| Study Area Population | 78,764 | 81,127 | 82,506 |
| Open Space Ratio (Acres/1,000 Residents) | 0.425 (0.331 active, 0.094 passive) | 0.412 (0.321 active, 0.091 passive) | 0.405 – 0.007 (1.7% decrease (0.315 active, 0.090 passive) |

## Impact Significance

The significance of a project's effects on an area's open spaces is determined using both qualitative and quantitative factors, as compared to the No-Action Scenario. The determination of significance is based upon the context of a project, including its location, the quality and quantity of the open space in the With-Action Scenario, the types of open space provided, and any new open space provided by the project.

If the open space ratio would increase or remain substantially the same in the With-Action Scenario compared to the No-Action Scenario, no further analysis of open space is generally needed (unless direct, qualitative changes to an open space may occur because of the project).

A decrease in the open space ratio approaching or exceeding 5% is generally considered to be substantial. However, if the existing open space ratio is low, even an open space ratio change of less than 1% may result in potential significant open space impacts. In the present project, the decrease in the open space ratio is 1.7%. Given additional qualitative and quantitative factors (described below), this decrease would not result in a potential significant adverse impact to open space resources.

*Quantitative Impact*

The *CEQR Technical Manual* considers an action to result in significant impacts to open space resources if it would directly displace or alter an existing resource to the detriment of its users. The Projected Development would not result in the direct displacement of any parklands or recreational facilities. The Proposed Actions would, however, reduce the open space ratio by 1.7%. This decrease however is below the 5% threshold noted in the *CEQR Technical Manual* and is not—compared to other

community districts in New York City—an extremely low ratio. Therefore, based on *CEQR Technical Manual* criteria, the proposed project would not result in a significant adverse impact on open space resources. A detailed open space assessment is not required as it has been determined that the project would not decrease the open space ratio by more than 5%.

In addition, open space resources would be provided on Projected Development Sites 1-4, and assumed for Projected Development Site 5, as detailed in Table 7-6 below. These open space resources would serve to meet at least a portion of the active and passive open space needs of the projects' residents. The development on Projected Development Sites 1-4 would contain open spaces totaling 55,435 gsf, with a publicly accessible greenhouse and plaza on Projected Development Site 1.

**Table 7-6**

**Projected New Open Space Resources**

| PDS 1 | PDS 2 | PDS 3 | PDS 4 | PDS 5 |
|---|---|---|---|---|
| Resident landscaped yard – 4,526 sf | Public open space front of building – 840 sf | Public open space front of building – 3,000 sf | Boys & Girls Club 3rd floor roof terrace – 1,508 sf | Resident 4th floor roof terrace – 1,050 sf |
| Public plaza front of building – 1,625 sf | Resident 8th floor landscaped terrace – 1,300 sf | Resident 2nd floor landscaped terrace – 4,050 sf | 8th floor terrace (inaccessible) – 2,192 sf | Resident 8th floor roof terrace – 2,175 sf |
| Resident 2nd floor roof terrace – 3,607 sf | 8th floor green roof (inaccessible) – 807 sf | Resident 8th floor landscaped terrace – 3,030 sf | Resident roof terrace – 1,807 sf | Resident 8th floor roof terrace – 2,775 sf |
| 5th floor green roof (inaccessible) – 5,150 sf | Resident sunken courtyard – 1,200 sf | 8th floor green planting areas (inaccessible) – 1,640 sf | | |
| Resident 5th floor roof terrace – 6,000 sf | | | | |
| Resident 8th floor green roof – 2,286 sf | | | | |
| Public greenhouse – 12,067 sf | | | | |
| **Total 35,261 sf** | **Total 2,947 sf** | **Total 11,720 sf** | **Total 5,507 sf** | **Total 6,000 sf** |

*Qualitative Impact*

The *CEQR Technical Manual* considers an action to result in significant impacts to open space resources if it would significantly increase shadows, noise, air pollutant

emissions, or odors on existing public open spaces resources compared to No-Action Scenario. With the exception of shadows, the Projected Development would not increase such impacts on existing public open spaces resources. Based on *CEQR Technical Manual* criteria and as explained further in the Shadows section below, with the exception of Thomas S. Boyland Community Garden, the Projected Development in the Project Area would not replace publicly accessible open space, reconfigure existing open space, limit public access to open space, or cause increased noise or air pollutant emissions, odors, or shadows that would significantly affect the usefulness of an open space. New development facilitated by the Proposed Actions could result in prolonged shadow coverage and duration at the Thomas S. Boyland Community Garden with up to 8 to 12 hours of shadow coverage during the March 21/September 21, May 6/August 6, and June 21 analysis days. A discussion regarding options to reduce or eliminate shadows on this resource is found in Chapter 8, "Shadows," of this document.

**Conclusion**

In the With-Action Scenario, there would be no significant adverse direct impacts on any open space resources resulting from the Proposed Actions. Based on the limited decrease in the With-Action Scenario open space ratio, the Proposed Actions would not cause any significant indirect impacts to open space resources. As such, the Proposed Actions would not cause a potentially significant adverse open space impact and no further analysis is required.

## 8. SHADOWS

A shadow is defined in the 2020 *CEQR Technical Manual* as the condition that results when a building or other built structure blocks the sunlight that would otherwise directly reach a certain area, space, or feature. The purpose of this chapter is to assess whether new structures may cast shadows on sunlight sensitive publicly accessible resources or other resources of concern such as natural resources, and to assess the significance of their impact.

### Introduction

According to the *CEQR Technical Manual*, a shadows assessment is required for projects that would result in new structures greater than 50 feet in height or located adjacent to, or across the street from, a sunlight-sensitive resource. Such resources include publicly-accessible open spaces, important sunlight-sensitive natural features, or historic resources with sun-sensitive features. A significant adverse shadow impact occurs when the incremental shadow added by a proposed project falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight exposure, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources.

As described in the Project Description, the Proposed Actions would create several development sites, as described below. It is noted that these development sites are described in the context of their "worst-case" maximum zoning envelope scenario, which includes development to the maximum permissible building height as well as an assumed 40-foot mechanical/elevator bulkhead extending upward from the building roof.

- Projected Development Site 1
  The C1 development site (Brooklyn Block 3813, Lot 115) features a proposed 175-foot building (including a 135-foot building height plus a 40-foot bulkhead) on a currently vacant lot (representing a 175-foot increase over the No-Action Condition).

- Projected Development Sites 2 (with Projected Development Site 5 and Potential Development Site 1)
  The C2 development site (Brooklyn Block 3812, Lots 19, 20, 21, 22, and 121) features a proposed 175-foot building (including a 135-foot building height plus a 40-foot bulkhead) on a currently vacant lot (representing a 175-foot increase over the No-Action Condition). This development site also includes the adjacent Projected Development Site 5 to the east (Brooklyn Block 3812, Lot 24) and the adjacent Potential Development Site 1 to the south (Brooklyn Block 3812, Lots 17 (p/o) and 18), both of which are projected with a 175-foot building height as

well, featuring incremental height increases over the No-Action Condition of 153 feet and 149 feet, respectively.

- Projected Development Site 3 (with Potential Development Site 2)
  The C3 development site (Brooklyn Block 3811, Lots 17-19, 21, 23, 24, 25, 26, 27, and 124) features a proposed 175-foot building (including a 135-foot building height plus a 40-foot bulkhead) on a currently vacant lot (representing a 175-foot increase over the No-Action Condition). Additionally, there is the adjacent and contiguous Potential Development Site 2 (Brooklyn Block 3811, Lot 20), which also features on overall building height of 175 feet, representing an incremental increase of 161 feet over the No-Action Condition.

- Projected Development Site 4
  The C4 development site (Brooklyn Block 3586, Lot 26) features a proposed 175-foot building (including a 129-foot building height plus a 40-foot bulkhead) on a currently vacant lot (representing a 169-foot increase over the No-Action Condition).

Based on the identified incremental height increases above, further assessment is warranted for all development sites.

**Methodology**

In accordance with the *CEQR Technical Manual*, a preliminary screening assessment is conducted to ascertain whether shadows resulting from a project could reach any sunlight-sensitive resource at any time of year. This preliminary screening assessment consists of three tiers of analysis:

- Tier 1 Screening: The first tier determines a simple radius around the proposed buildings representing the longest shadow that could be cast. The radius is calculated based on a factor of 4.3 times the proposed maximum building height. If there are sunlight-sensitive resources within the radius, the analysis proceeds to the second tier;

- Tier 2 Screening: The second-tier analysis reduces the area that could be affected by project-generated shadows by accounting for a specific range of angles that can never receive shade in New York City due to the path of the sun in the northern hemisphere. According to the *CEQR Technical Manual*, shadows cannot be cast within New York City within 108 degrees from True North;

- Tier 3 Screening: If the second tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a third tier of screening analysis further refines the area that could be reached by new shadows by looking at specific representative days of the year and determining the maximum extent of shadow over the course of each representative day. For the Tier 3 screening, three-dimensional modeling software with the capacity to model shadows is

used, and the maximum building envelope that could be achieved as a result of the proposed project is modeled and geo-located within the program. Terrain provided by the modeling software is also incorporated into the model to account for how changes in elevation throughout the study area can influence shadows that could be cast by the proposed project. The representative days are December 21 (winter solstice), June 21 (summer solstice), March 21 / September 21 (vernal/autumnal equinox), and May 6 / August 6 (halfway between summer solstice and the equinoxes). The modeling software is also used to approximate times that shadows cast from the proposed project could enter and exit a resource.

If the Tier 3 screening indicates that, in the absence of intervening buildings, shadows from the proposed project would reach a sunlight sensitive resource on any of the representative analysis days, a detailed shadow analysis could be warranted. Because existing buildings may already cast shadows on a sun-sensitive resource (or a future building could be expected to cast shadows), the proposed project may not result in new incremental shadows upon that resource. The detailed shadow analysis models a baseline condition (the No-Action Condition) that is compared to the future condition resulting from the proposed project (the With-Action Condition) to illustrate the shadows cast by existing or future buildings and distinguish the new incremental shadow cast by the project. Like in the Tier 3 analysis, the detailed analysis considers the maximum building envelope that could be achieved as a result of the proposed project.

## Preliminary Shadows Screening Assessment

### Tiers 1 and 2 Screening Assessment

Figure 8-1 (appended to the end of this Section), illustrates the combined maximum shadow screening radius for all the projected and potential development sites. This combined maximum shadow screening radius is based on a maximum building height of 175 feet for each development site, resulting in individual maximum shadow screening radii of 752.5 feet (i.e., 175 feet multiplied by a factor of 4.3).

As shown in Figure 8-1, there are a total of 10 potential sunlight-sensitive resources within the combined maximum shadow screening radius for the proposed project, including eight open space resources and two historic resources, are described below.

1. *Thomas Boyland Community Garden (O1)* – a 0.15-acre community garden, as part of the New York City Department of Parks and Recreation (NYC DPR) GreenThumb program. The garden features 36 raised planting beds located in central and eastern areas of the lot. A toolshed, picnic tables, and gazebo are located along the garden's western edge (see Figures 8-7 and 8-8).

2. *Betsy Head Park (O2)* – 10.55-acre community park owned and operated by the NYC DPR, featuring various active recreational opportunities, including

multiple athletic fields, basketball and handball courts, a playground, pool, running track, and recreation center, as well as bathroom facilities, and decorative landscaping. The park is situated on two separate tax blocks in Brooklyn (i.e., Brooklyn Blocks 3558 and 3570), with the southernmost block/portion of the park primarily within the combined maximum shadow screening radius for the proposed project, consisting primarily of baseball fields, a running track, basketball and handball fields, and the Betsy Head Park Play Center pool complex.

3. *Nehemiah Playground (O3)* – A 1.65-acre playground facility owned and operated by the NYC DPR. The park features playground equipment, handball courts, shower facilities, and passive recreational facilities, as well as associated landscaping.

4. *Van Dyke Playground (O4)* – A 1.40-acre playground facility owned and operated by the NYC DPR. The park features playground equipment, handball courts, shower facilities, and passive recreational facilities, as well as associated landscaping.

5. *Livonia Park (O5)* – A 0.92-acre neighborhood park owned and operated by the NYC DPR. The park includes playground equipment and various passive recreation spaces with associated landscaping.

6. *Powell Street Livonia Garden (O6)* – A 0.46-acre community garden as part of the NYC DPR GreenThumb program.

7. *Lion's Pride Playground (O7)* – A 0.86-acre playground featuring playground equipment, basketball courts, shower facilities and passive recreational facilities, as well as associated landscaping.

8. *Floyd Patterson Ballfields (O8)* – A 2.30-acre baseball field complex with associated landscaping, as well as a small amphitheater in southern portion of the open space.

9. *MHBA Living Laboratory Community Garden (O9)* – A 0.06-acre community garden as part of the NYC DPR GreenThumb program.

10. *Betsy Head Park Play Center Bath House (H1)* – The one-story brick and concrete bath house with a rooftop metal canopy serves as the entrance gateway to the larger Betsy Head Park Play Center pool complex. Pursuant to the NYC Landmarks Preservation Commission (LPC) (See 10/24/19 LPC letter regarding concerns to Betsy Head) report for the Betsy Head Park Play Center (LP-2240) dated September 16, 2008 (see the full report in Shadows Appendix of this EAS), a portion of the bath house lobby can be considered sunlight sensitive as it is at least partially dependent on sunlight for lighting the space, as the report states:

"[t]he lobby does not have walls on the street and pool sides (only those that separate the lobby space from the locker rooms) thus allowing for natural light in the space." Pursuant to the *CEQR Technical Manual* and the LPC report, no other architectural features of this resource depend on direct sunlight for their enjoyment and use by the public.

11. *Brooklyn Public Library Stone Avenue Branch (H2)* – Pursuant to the NYC LPC report for the Stone Avenue Branch of the Brooklyn Public Library (LP-2568, dated April 14, 2015; see the full report included in the Shadows Appendix of this EAS), the architecturally significant features of this resource are its masonry and limestone building composition, as well as various window design articulations, none of which, pursuant to the *CEQR Technical Manual* and the LPC report, are architectural resources that depend on direct sunlight for their enjoyment and use by the public.

As illustrated in Figure 8-1, the entirety of the Floyd Patterson Ballfields (O8) is completely within the area that cannot be shadowed by the proposed project. Therefore, no further analysis is warranted regarding this resource. Further, as the Brooklyn Public Library Stone Avenue Branch (H2) does not contain any sunlight sensitive architectural features, no further analysis is warranted for this resource either. Therefore, based on the foregoing, the Tiers 1 and 2 shadows screenings could not rule out the potential for significant adverse shadow impacts to eight open space resources and one historic resource, all of which therefore warranted a Tier 3 analysis.

**Tier 3 Screening Assessment**

Tier 3 Screening Assessment: Analysis

In accordance with the *CEQR Technical Manual*, a Tier 3 screening assessment was performed because the Tier 1 and Tier 2 assessments identified multiple sunlight-sensitive resources within ±108 degrees of True North and within the area of the longest shadow that could be cast by all of the projected and potential development sites. The Tier 3 screening assessment was performed for the four representative days of the year set forth in the *CEQR Technical Manual*: December 21, the winter solstice and shortest day of the year; March 21/September 21, the equinoxes; May 6/August 6, the midpoints between the summer solstice and the equinoxes; and June 21, the summer solstice and the longest day of the year.

In accordance with the *CEQR Technical Manual*, models of the development site buildings representing the maximum zoning envelope development potential were developed in a three-dimensional computer program (Sketchup). The models were geo-located and the surrounding terrain was imported into the models to account for differences in topography. As noted above, the Tier 3 shadow screening shows the shadows that could be cast as a result of the proposed projects but does not account for existing buildings which may already cast shadows on the identified open space

resource. The Tier 3 analysis also does not account for shadows that would be expected in the No-Action condition from development of the as-of-right building on the projected and/or potential development sites. Figures 8-2a to 8-2d (appended to the end of this section) illustrate the results of the Tier 3 analysis for projected and potential development sites on Brooklyn Blocks 3811, 3812, and 3813 while Figures 8-3a to 8-3d (appended to the end of this section) illustrate the results of the Tier 3 analysis for Projected Development Sites on Brooklyn Block 3586.

Table 8-1 below identifies that Tier 3 shadow durations on all of the sunlight sensitive resources carried forward from the Tier 2 analysis as discussed above.

**Table 8-1 – Tier 3 Shadow Durations by Sunlight Sensitive Resource**

| | **December 21** | | **March 21 / September 21** | | **May 6 / August 6** | | **June 21** | |
|---|---|---|---|---|---|---|---|---|
| **Sunlight Sensitive Resource** | *Time Duration* | *Time Elapsed* | *Time Duration* | *Time Elapsed* | *Time Duration* | *Time Elapsed* | *Time Duration* | *Time Elapsed* |
| **Thomas S. Boyland Community Garden (O1)** | 12:08 AM – 2:53 PM | 2 hours, 45 minutes | 12:14 PM - 4:29 PM | 4 hours, 15 minutes | 12:05 PM - 5:18 PM | 5 hours, 13 minutes | 12:17 PM - 6:01 PM | 5 hours, 44 minutes |
| **Betsy Head Park (O2)** | 8:51 AM - 2:53 PM | 6 hours, 2 minutes | 7:36 AM - 2:50 PM | 7 hours, 14 minutes | 7:40 AM - 12:00 PM | 3 hours, 20 minutes | No Tier 3 Shadows | N/A |
| **Nehemiah Playground (O3)** | No Tier 3 Shadows | N/A | 7:36 AM - 9:11 AM | 1 hour, 35 minutes | 6:27 AM - 9:41 AM | 3 hours, 14 minutes | 5:57 AM - 9:39 AM | 3 hours, 42 minutes |
| **Van Dyke Playground (O4)** | 8:51 AM - 2:53 PM | 6 hours, 2 minutes | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A |
| **Livonia Park (O5)** | 11:59 AM - 2:53 PM | 2 hours, 54 minutes | 12:49 PM - 3:55 PM | 3 hours, 6 minutes | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A |
| **Powell Street Livonia Garden (O6)** | 12:27 PM - 2:53 PM | 2 hours, 26 minutes | 12:47 PM - 4:29 PM | 3 hours, 42 minutes | 1:03 PM - 4:29 PM | 4 hours, 26 minutes | 1:22 PM - 6:01 PM | 4 hours, 39 minutes |
| **Lion's Pride Playground (O7)** | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A |
| **MHBA Living Laboratory Community Garden (O9)** | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A |
| **Betsy Head Play Center Bath House (H1)** | 11:45 AM - 1:55 PM | 2 hours, 10 minutes | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A | No Tier 3 Shadows | N/A |

Tier 3 Screening Assessment: Findings

A discussion of the findings of the Tier 3 screening analysis on a resource-by-resource basis is provided below.

*Thomas S. Boyland Community Garden (O1)*

As indicated in Figures 8-3b, 8-3c, and 8-3d and in Table 8-1, the Thomas S. Boyland Community Garden is projected to receive extensive shadow coverage from the proposed project during the March 21/September 21, May 6/August 6, and June 21 analysis days, and, therefore, detailed shadows analyses are warranted for this resource on those analysis days.

While portions or the entirety of this resource is projected to receive shadows for the duration of the December 21 analysis period (see Figure 8-3a and Table 8-1), these shadows would be cast during winter months when all vegetation at the garden (agricultural or otherwise) would be dead or dormant. As such, these projected shadows are not anticipated to jeopardize the viability of vegetation or the public's use or enjoyment of the resource during this analysis day. As such, no adverse shadow impacts would result and no further analysis is warranted for this analysis period.

*Betsy Head Park (O2)*

During the December 21 analysis day, shadows would fall on the Betsy Head Park for the entirety of the analysis period, from 8:51 AM to 2:53 PM for a duration of 6 hours, 2 minutes (see Figure 8-3a and Table 8-1). However, these shadows would fall in the winter months on primarily active recreational infrastructure (e.g., softball fields, a running track, handball and basketball courts, and a pool), when utilization would be lowest and existing vegetation would be dormant or dead. Further, the Betsy Head Play Center pool complex, located in the eastern half of the park, would be closed for the season and therefore inaccessible and unusable.[4] These shadows would therefore not be anticipated to jeopardize the viability of vegetation at or the public's use or enjoyment of the park.

Projected Tier 3 shadows would fall on the Betsy Head Park at the beginning of the March 21/September 21 analysis day (7:36 AM) and last through 2:50 PM, for a total duration of 7 hours and 14 minutes (see Table 8-1). However, as illustrated in Figure 8-3b, the projected shadows would only cover relatively small, southern portions of the park. These areas are primarily developed with handball and basketball courts that do not require direct sunlight. Projected Tier 3 shadows passing over the Betsy Head Park Play Center pool complex during this period would be inconsequential, as the complex does not open for public access until late June.[1.] As such, these shadows would therefore

[4] https://www.metro.us/things-to-do/new-york/when-do-nyc-public-pools-open-close-2018, accessed August 26, 2019.

not be anticipated to jeopardize the viability of vegetation at or the public's use or enjoyment of this resource.

As illustrated in Figure 8-3c, projected Tier 3 shadows during the May 6/August 6 analysis day would only cover a miniscule southern portion of the Betsy Head Park from 7:40 AM to 12:00 PM (a 3-hour, 20-minute duration – see Table 8-1), such that a narrow, rectangular area no greater than 250 square feet/0.006-acre (0.06 percent of the total park area) would receive shadows during this analysis day. As indicated in Figure 8-3d and in Table 8-1, no projected Tier 3 shadows would fall on the Betsy Head Park during the June 21 analysis day. As such, there is no endangerment of the viability of vegetation of the public's use or enjoyment of the park as the result of projected shadows during these analysis days.

Based on the foregoing, no significant adverse shadow impacts on Betsy Head Park are anticipated during any of the required analysis days and no further analysis is warranted.

*Nehemiah Playground (O3)*

As illustrated in Figures 8-2c and 8-2d and indicated in Table 8-1, Tier 3 shadows would fall on the Nehemiah Playground for durations of 3 hours, 14 minutes and 3 hours, 42 minutes during the May 6/August 6 and June 21 analysis days, respectively. As these are relatively long durations during peak growing season months (i.e., from March to October), a detailed analysis is warranted.

During the March 21 analysis period, Tier 3 shadows are projected to fall on a small northeastern portion of the Nehemiah Playground in the early morning hours, from 7:36 AM to 9:11 AM for a total duration of 1 hour, 35 minutes (see Figure 8-2b and Figure 8-1). Given the relatively short duration of these shadows and their small extent/coverage, the viability of and vegetation within that area of the playground would not be jeopardized, nor would the public's use or enjoyment of the resource. As such, no significant adverse shadow impacts are anticipated and no further analysis is warranted.

No Tier 3 shadows are projected to fall on Nehemiah Park during the December 21 analysis period (see Figure 8-2a and Table 8-1) and, therefore, no further analysis is warranted.

*Van Dyke Playground (O4)*

Projected Tier 3 shadows would fall on the Van Dyke Playground for the entirety of the December 21 analysis period, from 8:51 AM to 2:53 PM, for a duration of 6 hours, 2 minutes (see Figure 8-2a and Table 8-1). However, these shadows would fall during the winter months when existing vegetation would be dead or dormant and park utilization would be lowest. As such, these shadows pose no risk to the viability of vegetation at the resource or to the public's use and enjoyment of the playground. As

such, no significant shadow impacts are anticipated and no further analysis is warranted.

As illustrated in Figures 8-2b through 8-2d and indicated in Table 8-1, no Tier 3 shadows are projected to fall on the Van Dyke Playground during the March 21/September 21, May 6/August 6, or June 21 analysis periods. Therefore, no further analysis is necessary.

*Livonia Park (O5)*

Figure 8-2b and Table 8-1 indicate that projected Tier 3 shadows would fall on Livonia Park from 12:49 PM to 3:55 PM for a duration of 3 hours, 6 minutes during the March 21/September 21 analysis day. Given the relatively long duration period and extensive coverage of the projected shadows, further analysis in the form of a detailed shadows screening is warranted.

During the December 21 analysis period, projected Tier 3 shadows would fall on Livonia Park for 2 hours, 54 minutes, from 11:59 AM to 2:53 PM (see Figure 8-2a and Table 8-1). However, these shadows would fall during the winter months when existing vegetation would dead or dormant and park utilization would be lowest. As such, these projected shadows would not jeopardize the viability of vegetation or the public's use or enjoyment of the park. Therefore, no significant adverse shadow impacts are anticipated and no further analysis is necessary for this analysis day.

As illustrated in Figures 8-2c and 8-2d and indicated in Table 8-1, no Tier 3 shadows are projected to fall on this resource during the May 6/August 6 or June 21 analysis days and, therefore, no further analysis is warranted.

*Powell Street Livonia Garden (O6)*

As indicated in Figures 8-2b, 8-2c, and 8-2d and in Table 8-1, the Powell Street Livonia Garden is projected to receive extensive shadow coverage from the proposed project during the March 21/September 21, May 6/August 6, and June 21 analysis days, and, therefore, detailed shadows analyses are warranted for this resource on those analysis days.

During the December 21 analysis period, projected Tier 3 shadows would fall on the Powell Street Livonia Garden for 2 hours, 26 minutes, from 12:27 PM to 2:53 PM (see Figure 8-2a and Table 8-1). However, these shadows would be cast during winter months when all vegetation at the garden (agricultural or otherwise) would be dead or dormant. As such, these projected shadows are not anticipated to jeopardize the viability of vegetation or the public's use or enjoyment of the resource during this analysis day. As such, no adverse shadow impacts would result and no further analysis is warranted for this analysis period.

*Lion's Pride Playground (O7)*

As illustrated in Figures 8-2a through 8-2d and indicated in Table 8-1, no Tier 3 shadows are projected to fall on the Lion's Pride Playground during any of the analysis days. As such, no further analysis is necessary.

*MHBA Living Laboratory Community Garden (O9)*

As indicated in Table 8-1 and Figures 8-3a, 8-3b 8-3c, and 8-3d, no other Tier 3 shadows would fall on this resource any analysis day. Based on the foregoing, no significant adverse shadow impacts at the MHBA Living Laboratory Community Garden are anticipated and no further analysis is necessary.

*Betsy Head Park Play Center Bath House (H1)*

During the December 21 analysis day, Tier 3 shadows are projected to fall on portions of the sunlight sensitive Betsy Head Park Play Center Bath House from 11:46 AM to 1:55 PM, for a duration of 2 hours, 10 minutes (see Figure 8-3a and Table 8-1). However, as previously discussed, the larger Betsy Head Park Play Center pool complex, which includes this bath house, would be seasonally closed at this time, precluding public access to the resource. As such, shadows on this resource during this analysis day would not diminish the public's use and enjoyment of said resource. As such, significant adverse shadow impacts on this resource during the December 21 analysis day are not anticipated and no further analysis is warranted.

As indicated in Figures 8-3b through 8-3d as well as in Table 8-1, no Tier 3 shadows are projected to fall on the bath house at any time during the March 21/September 21, May 6/August 6, or June 21 analysis days. As such, no further analysis is necessary.

Tier 3 Screening Assessment: Conclusions

Based on the foregoing, the following resources of concern were identified with corresponding analysis days:

- Thomas S. Boyland Community Garden (O1): March 21/September 21, May 6/August 6, and June 21 analysis days;
- Nehemiah Playground (O3): May 6/August 6 and June 21 analysis days;
- Livonia Park (O5): March 21/September 21 analysis day; and
- Powell Street Livonia Garden (O6): March 21/September 21, May 6/August 6, and June 21 analysis days.

A detailed shadows analysis for these resources of concern is provided below.

**Detailed Shadows Screening Assessment**

Detailed Shadows Screening Assessment: Analysis

For the detailed analysis, the 3d model used in the Tier 3 assessment was used to compare No-Action Condition shadow conditions at the identified resources of concern

generated by the No-Action Scenario surrounding built environment (including the No-Action Condition at the various development sites) versus the proposed maximum zoning envelope development at each development site to determine the new incremental shadow on these resources created by the maximum zoning envelope development scenarios. Table 8-2 below shows entry and exit times and total durations of new incremental shadows on these identified resources of concern projected from the maximum zoning envelope development scenarios.

**Table 8-2 – New Incremental Shadow Durations on Identified Resources of Concern**

| | **December 21** | | **March 21 / September 21** | | **May 6 / August 6** | | **June 21** | |
|---|---|---|---|---|---|---|---|---|
| | **Sunlight Sensitive Resource** *Time Duration* | *Time Elapsed* | *Time Duration* | *Time Elapsed* | *Time Duration* | *Time Elapsed* | *Time Duration* | *Time Elapsed* |
| **Thomas S. Boyland Community Garden (O1)** | N/A | N/A | 12:14 PM - 4:29 PM | 4 hours, 15 minutes | 12:05 PM - 5:18 PM | 5 hours, 13 minutes | 12:17 PM - 6:01 PM | 5 hours, 44 minutes |
| **Nehemiah Playground (O3)** | N/A | N/A | 7:36 AM - 9:11 AM | 1 hour, 35 minutes | 6:27 AM - 9:41 AM | 3 hours, 14 minutes | 5:57 AM - 9:39 AM | 3 hours, 42 minutes |
| **Livonia Park (O5)** | N/A | N/A | 12:49 PM - 3:55 PM | 3 hours, 6 minutes | N/A | N/A | N/A | N/A |
| **Powell Street Livonia Garden (O6)** | N/A | N/A | 12:47 PM - 4:29 PM | 3 hours, 42 minutes | 1:03 PM – 5:18 PM | 4 hours, 15 minutes | 1:22 PM - 6:01 PM | 4 hours, 39 minutes |

Figures 8-4 through 8-14 (appended to the end of this chapter) provide representative illustrations of new incremental shadows for each of these resources of concern for the analysis days identified, based on the identified new incremental shadow durations.

Detailed Shadows Screening Assessment: Findings

A discussion of the findings of the detailed shadow analysis on a resource-by-resource basis is provided below.

*Thomas S. Boyland Community Garden*

As indicated in Table 8-2 above and illustrated in Figures 8-4a through 8-6d, the Thomas S. Boyland Community Garden would be largely and/or completely covered by new incremental shadow in the latter half of the March 21/September 21, May

6/August 6, and June 21 analysis periods. Specifically, during the March 21/September 21 analysis period, from approximately 12:14 to 4:29 PM (a duration of 4 hours, 15 minutes), new incremental shadows would either cover significant portions or nearly the entirety of the garden, while similar new incremental shadow conditions and durations would occur from 12:05 PM to 5:18 PM (5 hours, 13 minutes) and from 12:17 AM to 6:01 PM (5 hours, 44 minutes) during the May 6/August 6 and June 21 analysis periods, respectively.

*Nehemiah Playground*

New incremental shadows from the proposed project would fall on the Nehemiah Playground from 6:27 AM to 9:41 AM (a 3-hour, 14-minute duration) and from 5:57 AM to 9:39 AM (a 3-hour, 42-minute duration) during the May 6/August 6 and June 21 analysis days, respectively, as indicated in Table 8-2 above and illustrated in Figures 8-9 through 8-10. As indicated in both of those figures for each analysis period, new incremental shadows would be limited to a relatively small, northern portion of the open space resource, while the remainder of the playground would remain sunlit during that time period. Further, based on the aforementioned 3d modeling during both of these analysis days, that area of Nehemiah Playground projected to receive new incremental shadows from the proposed project would remain largely sunlit for the remainder of those analysis days, such that park vegetation, equipment, and patrons in this area would still receive direct sunlight for a majority of the day.

*Livonia Park*

As illustrated in Figure 8-11, new incremental shadows for the proposed project would fall on a southern portion of Livonia Park for a duration of 3 hours, 6 minutes (from 12:49 PM to 3:55 PM – see Table 8-2 above) during the March 21 analysis day. As Figure 8-11 indicates, these shadows would be limited to a small, southern portion of the park while large portions of the park would still receive direct sunlight during this time. Further, based on the previously described 3d modeling, this park would remain entirely sunlight from the beginning of the analysis day (7:36 AM) until the entrance of the projected incremental shadows on the park, such that such that park vegetation, equipment, and patrons would still receive direct sunlight for a majority of the day.

*Powell Street Livonia Garden*

During the March 21/September 21, May 6/August 6, and June 21 analysis days, new incremental shadows from the proposed project would begin to fall on the west side of the Powell Street Livonia Garden in the early afternoon and would continue through to the end of the respective analysis days to varying coverage extents. Specifically, during the March 21/September 21 analysis day, new incremental shadows would begin to fall on the garden at 12:47 PM and incrementally cover larger portions of the garden until the full extent of the garden is within new incremental shadow, lasting until the end of the analysis day at 4:29 PM (see Table 8-2 above and Figure 8-12).

For the May 6/August 6 and June 21 analysis days, shadows would begin to fall on the garden in the early afternoon (1:03 PM and 1:22 PM, respectively) and move in a clockwise motion across the resource before starting to move off of the garden towards the end of the respective analysis days, for durations of 4 hours, 15 minutes and 4 hours, 39 minutes, respectively (see Table 8-2 above and Figures 8-13 and 8-14). During these identified new incremental shadow durations, significant portions of the garden would be shadowed from approximately 3:00 PM to the end of the respectively analysis days.

Based on the previously discussed 3d modeling, the Powell Street Livonia Garden would remain largely sunlit for the entirety of both these analysis days prior to the onset of projected new incremental shadows in the early afternoon, for durations of approximately 6 and a half hours or more (i.e., from 6:27 AM to 1:02 PM during the May 6/August 6 analysis day and from 5:57 AM to 1:22 PM during the June 21 analysis day).

Detailed Shadows Screening Assessment: Conclusions

The proposed project would result in considerable new incremental shadow coverage at the Thomas S. Boyland Community Garden during the latter half of the March 21/September 21, May 6/August 6, and June 21 analysis days. It is noted that the sunlight sensitive features of the garden (i.e., planting beds) are situated approximately 25 feet east of the garden's western property boundary, such that new incremental shadows on the garden, which move west to east across the garden on these three analysis days, would not reach sunlight sensitive features of this resource until slightly later in the identified durations (see Figures 8-4a through 8-6d).

Specifically, during the March 21/September 21 analysis day, new incremental shadows would reach 25 feet within the garden at approximately 12:45 PM and last until 4:29 PM, for a 3-hour, 44-minute duration on sunlight sensitive features of the garden (see Figures 8-4a through 8-4c). Prior to that new incremental shadow duration, almost the entire garden would be in direct sunlight from 7:36 AM to 12:44 PM (5 hours, 12 minutes), with the exception of a small, southern area of the garden that would receive shadows from an Existing/Future No-Action Condition building just south of the park. Further, those planting beds located in the eastern half of the garden would not begin to receive new incremental shadows until 1:00 – 1:30 PM, such that they would receive over 6 hours of direct sunlight over the course of this analysis day. During the May 6/August 6 and June 21 analysis days, new incremental shadows would not reach 25 feet within the garden from the western property boundary until 12:35 PM and 12:49 PM, respectively. Therefore, sunlight sensitive features within the garden would receive direct sunlight for at least 6 hours, 7 minutes (from 6:27 AM to 12:34 PM, see Figures 8-5a through 8-5c) during the May 6/August 6 analysis day and for at least 6 hours, 50 minutes (from 5:57 AM to 12:47 PM, see Figures 8-6a through 8-6d) during the June 21 analysis day. It is noted that northern/northeastern portions of the garden would not

receive incremental shadows towards the end of these analysis days, such that their total time in direct sunlight would range from 7 to 8 hours.

Collards, cabbage, tomatoes, kale, peppers, carrots, pole beans, basil, mint and other herbs are traditionally grown in this garden, as well as flowers (i.e., zinnias, tulips, and daffodils) and an apple tree. The sunlighting requirements of this vegetation vary from a minimum of 4 to a maximum of 8 hours. Most planting bed portions of the garden are projected to receive at least 6 hours of direct sunlight and up to approximately 8 hours. However, some western portions of the garden would receive only 5 to 5.5 hours of direct sunlight during the March 21/September 21 analysis day. Some plantings within the garden may have to be relocated to eastern planting beds to ensure they receive adequate sunlighting; for instance, tomatoes, which usually require 6 to 8 hours of sunlighting for proper growing conditions, may be relocated to eastern/northeastern planting beds, which are projected to receive 6 to 8 hours of direct sunlight throughout the growing season (March through October, pursuant to the *CEQR Technical Manual*).

Based on the foregoing, sunlight sensitive planting beds within the garden are projected to receive adequate sunlighting during the growing season, such that various agricultural vegetation within the garden would not be jeopardized.

With regard to the Powell Street Livonia Garden, it was found that prior to the identified new incremental shadow durations during both the May 6/August 6 and June 21 analysis days, the entirety of the garden would be in direct sunlight for at least 6 and a half hours. Pursuant the to the *CEQR Technical Manual*, four to six hours a day of direct sunlight during the growing season (i.e., March through October) is the minimum requirement to maintain vegetative viability. As such, minimum sunlight conditions at this garden would be exceeded under the proposed project.

Additionally, the proposed project would proactively develop and integrate spaces and infrastructure at the Projected Development Sites to support healthy food systems, notably 10,000 square feet of community gardens and farms (including a rooftop garden and greenhouse at Projected Development Site C1), education on healthy food preparation and day-to-day nutritional management, active design principles, and a supermarket. Additionally, local community organization involvement could help with identification of strategies for on-site production of fresh food, support for gardeners, green jobs training, opening opportunities for food, nutrition and environmental education, to bringing a community kitchen with locally sourced, affordable and healthy food options to the community, and organics collection. Several community and educational spaces would be created at Projected Development Site C4, which could incorporate training and support for urban agriculture, leveraging the community garden and farm infrastructure created as part of the proposed project for such purposes.

It is also noted that the Isabahlia Ladies of Elegance Foundation, Inc. (ILOEF, Inc.), which manages the Powell Street Livonia Garden (and five other community gardens in the surrounding area), articulated support for Projected Development Site C1 (adjacent to the garden to the west and the largest individual contributor of new incremental shadows on the garden) as an opportunity for extension of their community garden, food bag, and community education programs (see the letter dated December 15, 2017 in Shadows Appendix of this EAS).

**Conclusions**

The proposed project would result in multiple new buildings resulting in incremental building height increases of 50 feet or more, and therefore preliminary shadows assessments (Tier 1, Tier 2, and Tier 3 assessments) were undertaken. The Tier 1 and Tier 2 analyses indicated that there were eight open space resources and one sunlight sensitive historic resource that could potentially receive shadows from the proposed project, resulting in the necessity of a Tier 3 assessment for these resources.

The Tier 3 analysis indicated that the proposed project would cast shadows on all of these resources except one during some or all of the required analysis days. Most of the Tier 3 shadows on these resources were found to be inconsequential with regard to either the viability of the resource's vegetation and/or the public's use and enjoyment of said resource and were therefore screened out for additional analyses. However, several resources received projected Tier 3 shadows on certain analysis days, including the Thomas S. Boyland Community Garden (during the March 21/September 21, May 6/August 6, and June 21 analysis days), the Nehemiah Playground (during the May 6/August 6 and June 21 analysis days), Livonia Park (during the March 21/September 21 analysis day) and the Power Street Livonia Garden (during the March 21/September 21, May 6/August 6, and June 21 analysis days).

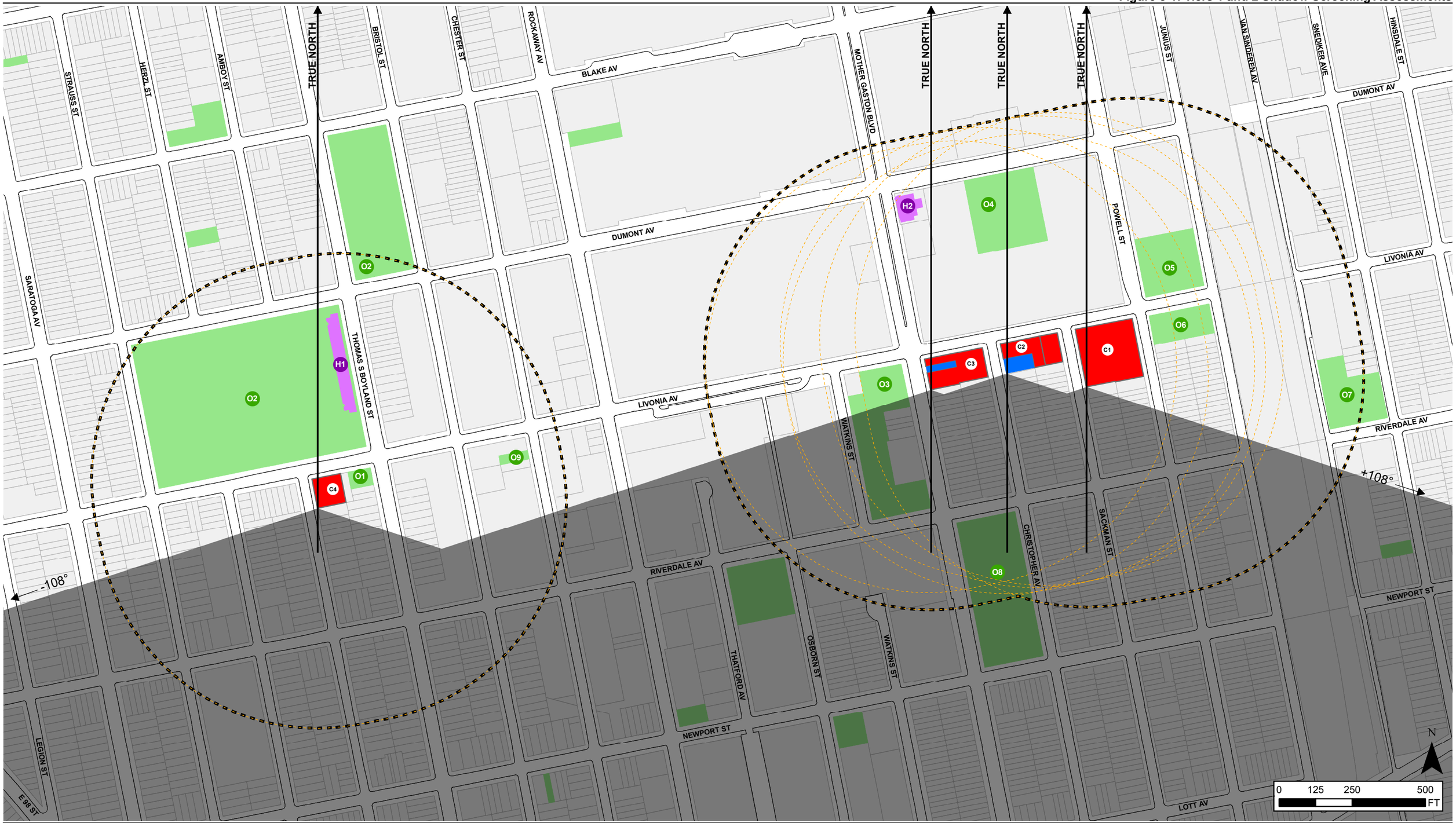
The detailed analysis indicated that projected new incremental shadows on the Nehemiah Playground and Livonia Park during the identified analysis days would be contained to small areas of these open space resource while the remaining areas remain largely sunlit. Further, these resources would remain predominantly sunlit outside of the projected new incremental shadow durations on all of these analysis days, such that overall sunlight on vegetation would exceed the minimum requirements for maintaining viability of this sunlight sensitive feature, such that no significant adverse shadow impacts on these resources as a result of the proposed project were anticipated.

The detailed shadows analysis indicated Powell Street Livonia Garden would experience relatively long durations of shadow on large portions of its area during all the identified analysis days. However, it was found that the garden would remain largely sunlit prior to the onset of projected new incremental shadows during these days, such that minimum direct sunlight requirements to maintain the viability of vegetation would be met or exceeded. Further, the proposed project would proactively develop and integrate spaces and infrastructure at the Projected Development Sites to

support healthy food systems, including community garden and farm spaces and spaces and programs for education and training related to urban agriculture and healthy nutrition, among other elements. As such, the proposed project would not result in significant adverse shadow impacts at the Powell Street Livonia Garden.

Projected new incremental shadows would fall on the Thomas S. Boyland Community Garden for long, high-coverage durations during the March 21/September 21, May 6/August 6, and June 21 analysis days. However, it was found that the garden would remain largely sunlit prior to the onset of projected new incremental shadows during these days, such that minimum direct sunlight requirements to maintain the viability of vegetation would be met or exceeded. Therefore, the proposed project would not result in significant adverse shadow impacts at the Thomas S. Boyland Community Garden.

**Figure 8-1: Tiers 1 and 2 Shadow Screening Assessments**




Projected Development Site

Potential Development SIte

Individual 752.5-Foot Maximum Shadow Screening Radii

Combined Maximum Shadow Screening Radius*

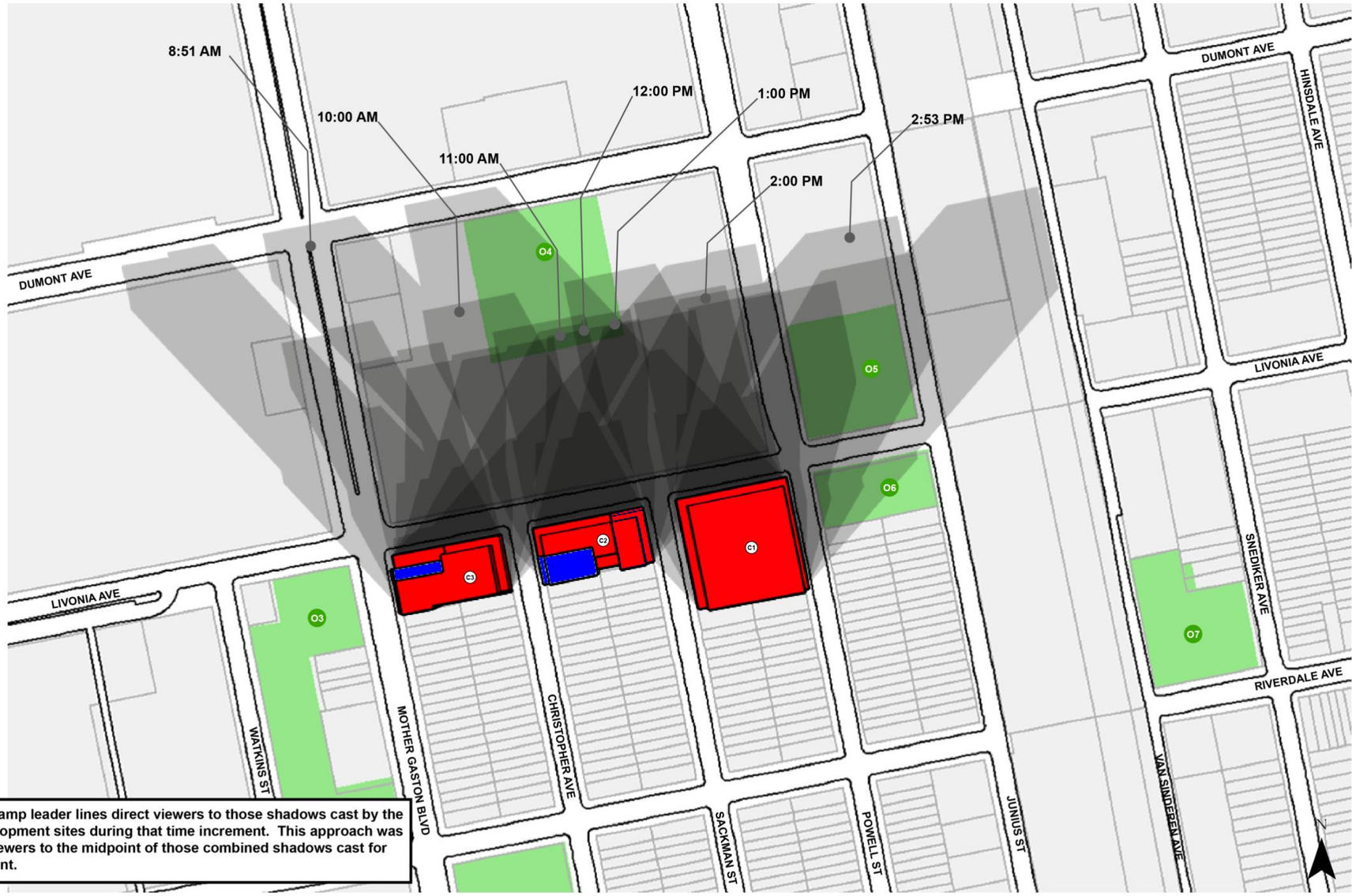
Area that Cannot be Shaded by the Proposed Project

O1 Open Space and Recreation

H1 Individual LPC Landmark Building

*Based on a combined 752.5-foot maximum shadow screening radius for each individual development site

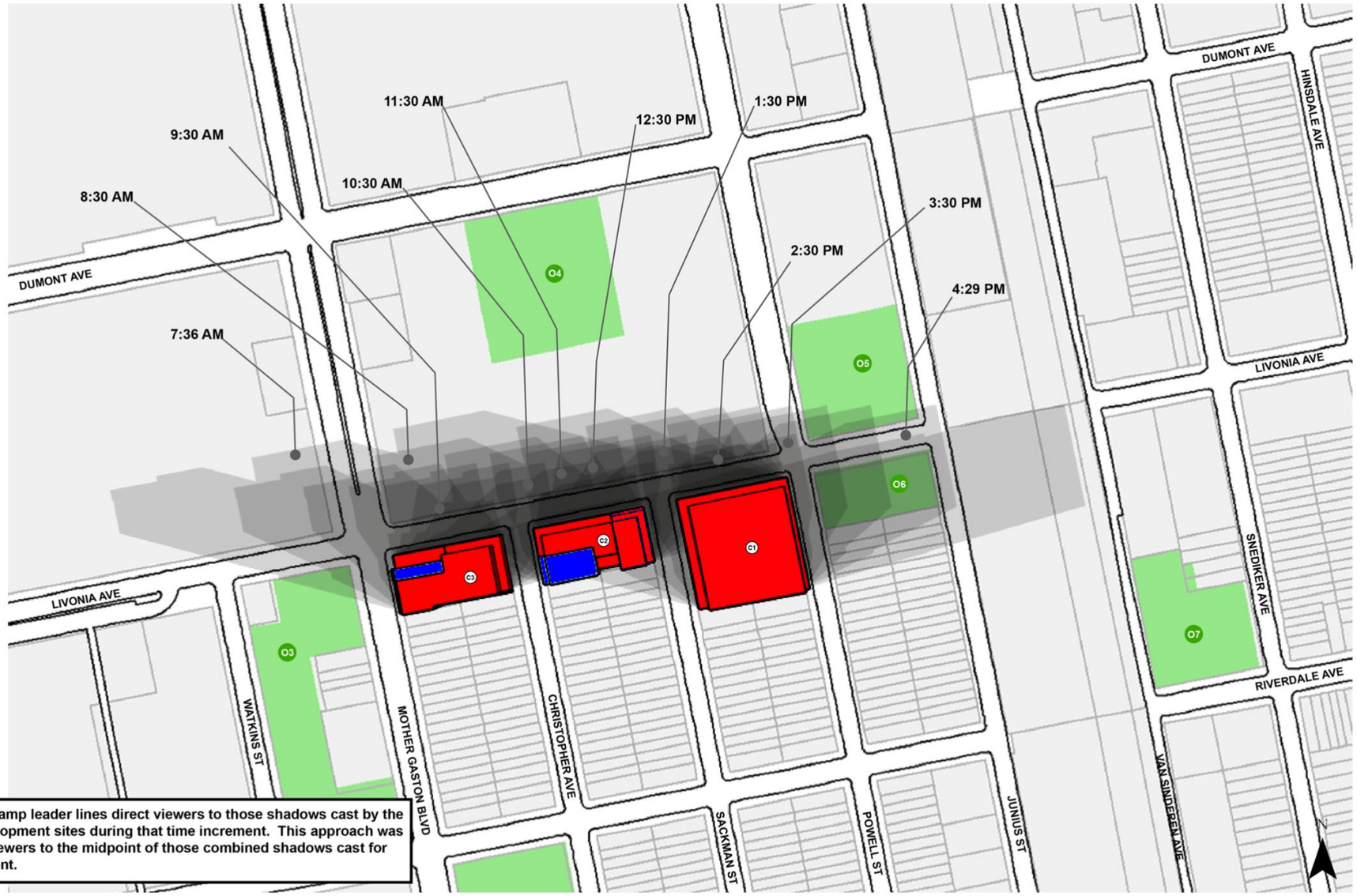
**Figure 8-2a – Tier 3 Shadow Screening Assessment, Development Sites C1 through C3 – December 21 Analysis Day**




**Note: The time stamp leader lines direct viewers to those shadows cast by the C2 / P1 / S1 development sites during that time increment. This approach was taken to orient viewers to the midpoint of those combined shadows cast for that time increment.**

Projected Development Site
Potential Development Site
Projected Tier 3 Shadow
O1 Open Space and Recreation

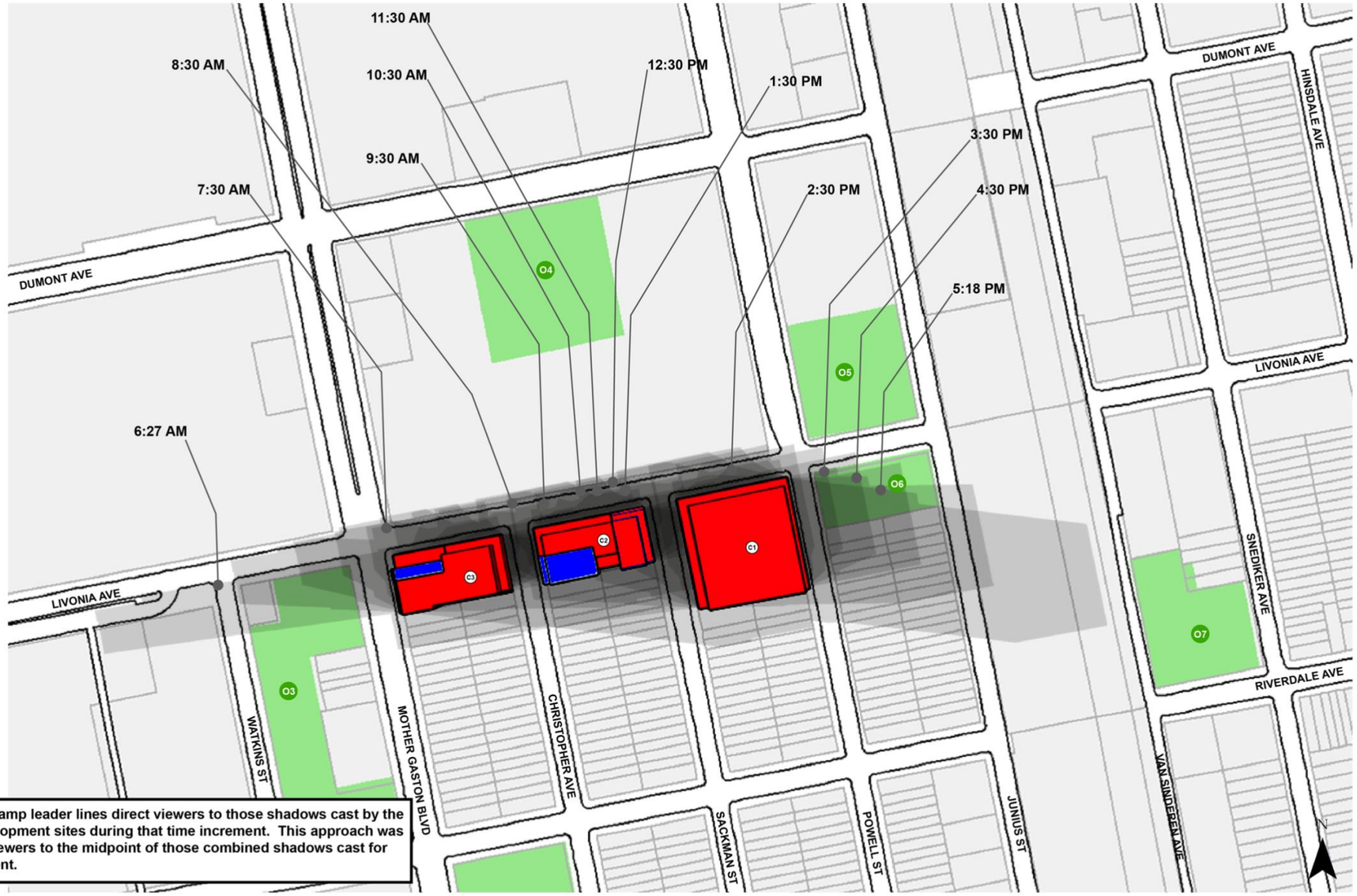
**Figure 8-2b – Tier 3 Shadow Screening Assessment, Development Sites C1 through C3 – March 21 / September 21 Analysis Day**




**Note: The time stamp leader lines direct viewers to those shadows cast by the C2 / P1 / S1 development sites during that time increment. This approach was taken to orient viewers to the midpoint of those combined shadows cast for that time increment.**

Projected Development Site
Potential Development Site
Projected Tier 3 Shadow
O1 Open Space and Recreation

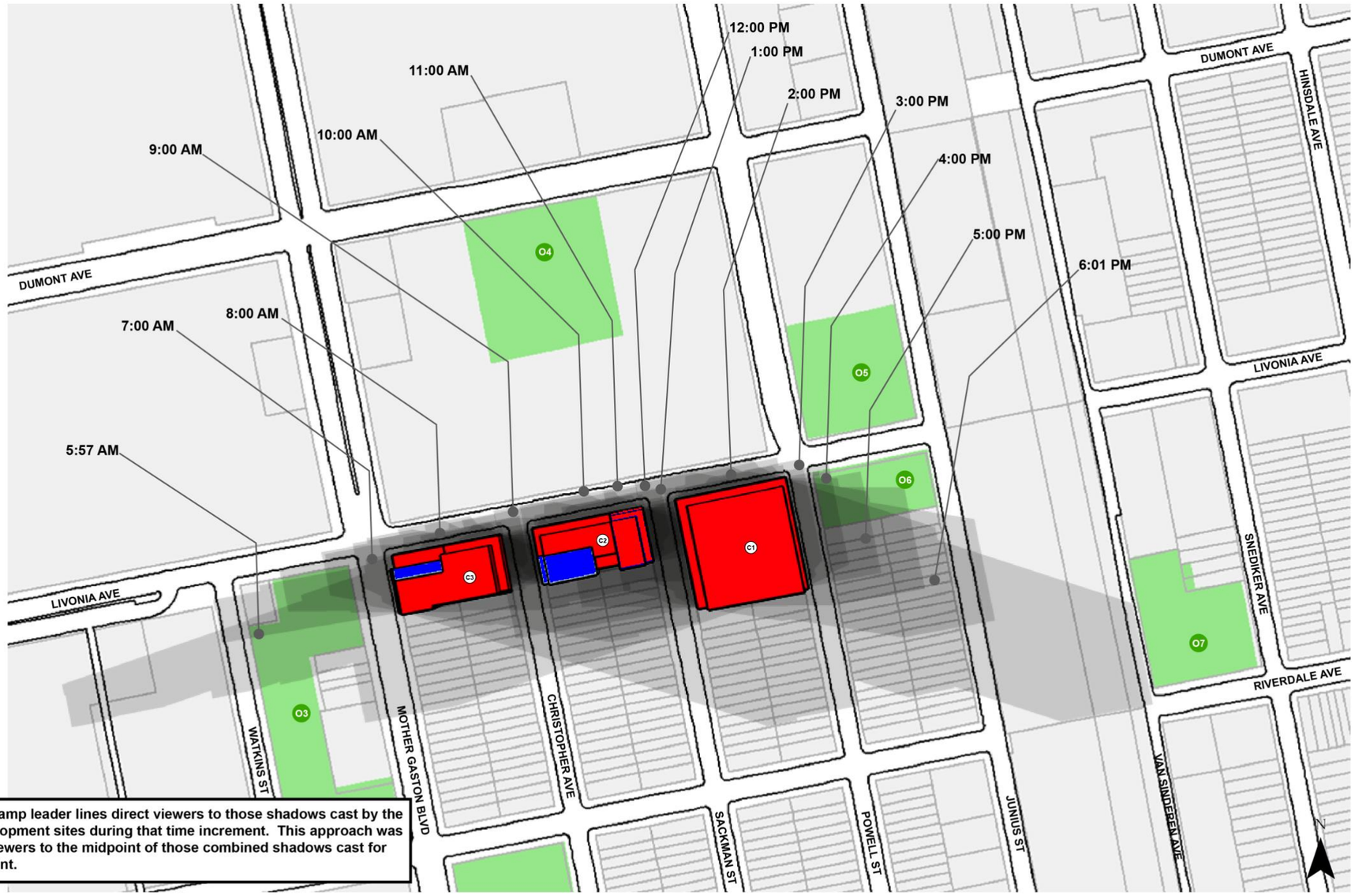
**Figure 8-2c – Tier 3 Shadow Screening Assessment, Development Sites C1 through C3 – May 6 / August 6 Analysis Day**




Note: The time stamp leader lines direct viewers to those shadows cast by the C2 / P1 / S1 development sites during that time increment. This approach was taken to orient viewers to the midpoint of those combined shadows cast for that time increment.

Projected Development Site
Potential Development Site
Projected Tier 3 Shadow
O1 Open Space and Recreation

**Figure 8-2d – Tier 3 Shadow Screening Assessment, Development Sites C1 through C3 – June 21 Analysis Day**




**Note: The time stamp leader lines direct viewers to those shadows cast by the C2 / P1 / S1 development sites during that time increment. This approach was taken to orient viewers to the midpoint of those combined shadows cast for that time increment.**

Projected Development Site
Potential Development Site
Projected Tier 3 Shadow
O1 Open Space and Recreation

**Figure 8-3a – Tier 3 Shadow Screening Assessment, Development Site C4 – December 21 Analysis Day**




Projected Development Site

Projected Tier 3 Shadow

O2 Open Space and Recreation

H1 Sunlight Sensitive Historic Resource

**Figure 8-3b – Tier 3 Shadow Screening Assessment, Development Site C4 – March 21 / September 21 Analysis Day**




Projected Development Site

Projected Tier 3 Shadow

O2 Open Space and Recreation

H1 Sunlight Sensitive Historic Resource

**Figure 8-3c – Tier 3 Shadow Screening Assessment, Development Site C4 – May 6 / August 6 Analysis Day**




Projected Development Site

Projected Tier 3 Shadow

O2 Open Space and Recreation

H1 Sunlight Sensitive Historic Resource

**Figure 8-3d – Tier 3 Shadow Screening Assessment, Development Site C4 – June 21 Analysis Day**




Projected Development Site
Projected Tier 3 Shadow
O2 Open Space and Recreation
H1 Sunlight Sensitive Historic Resource

**Figure 8-4a – Detailed Shadows Analysis for the Thomas S. Boyland Community Garden, March 21 / September 21 Analysis Day**

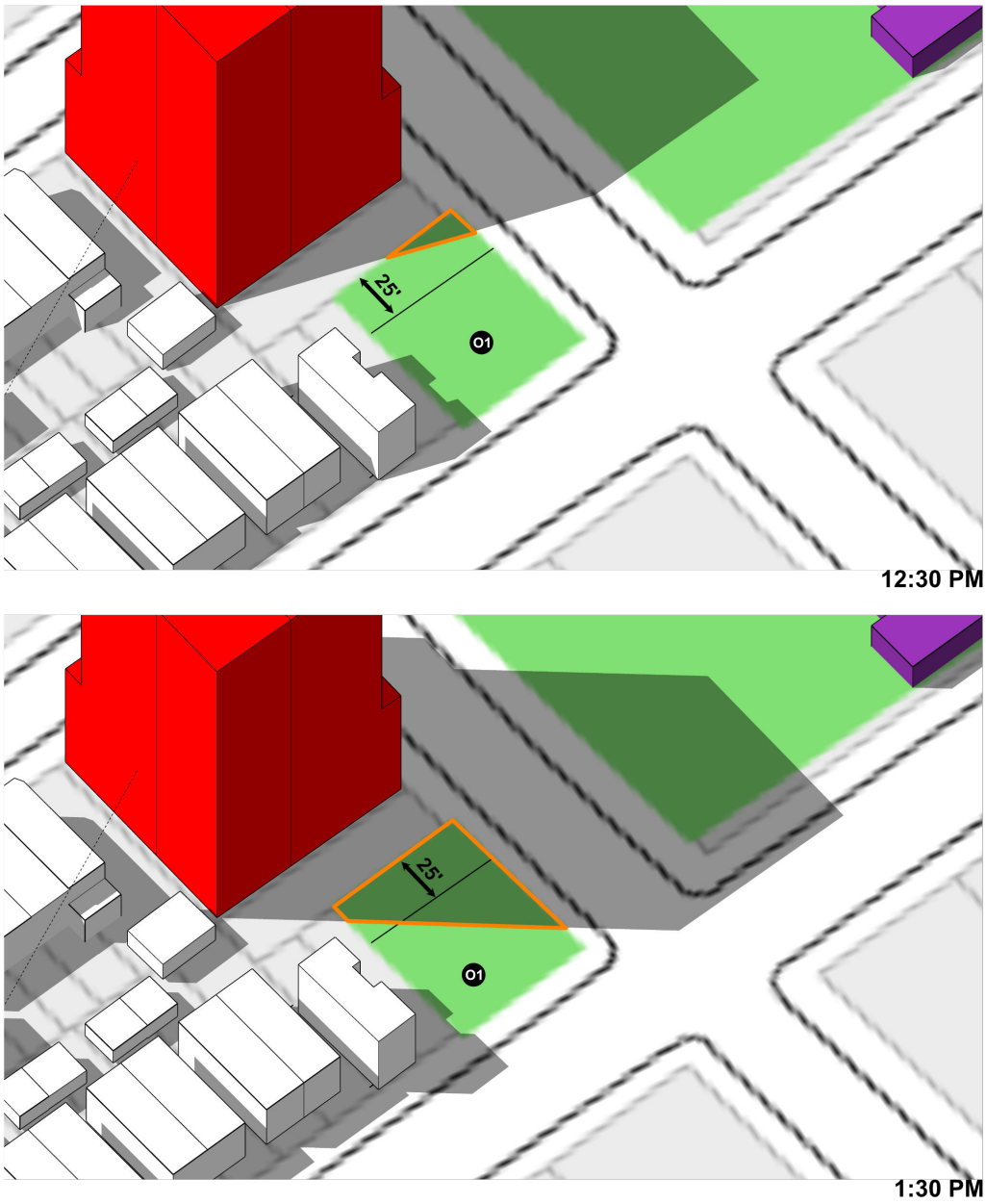
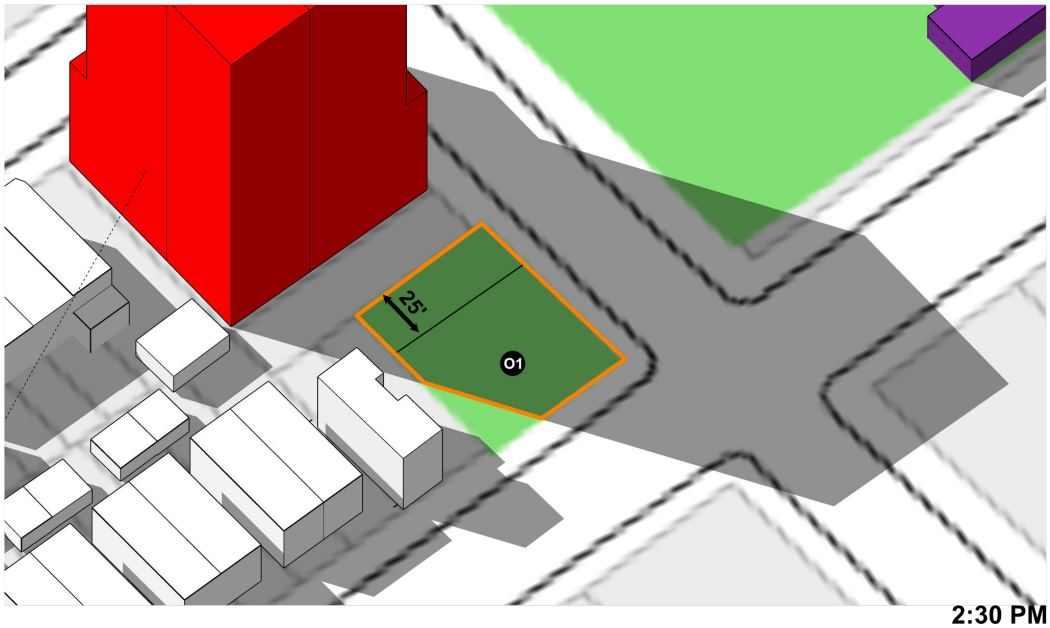
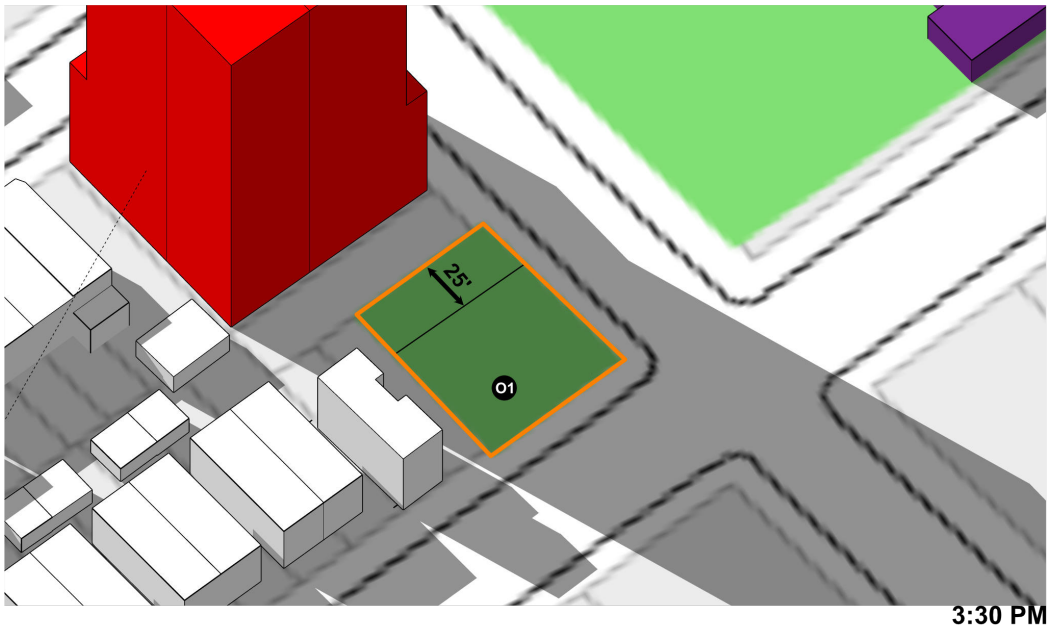


**Figure 8-4b – Detailed Shadows Analysis for the Thomas S. Boyland Community Garden, March 21 / September 21 Analysis Day, Continued**




2:30 PM




3:30 PM

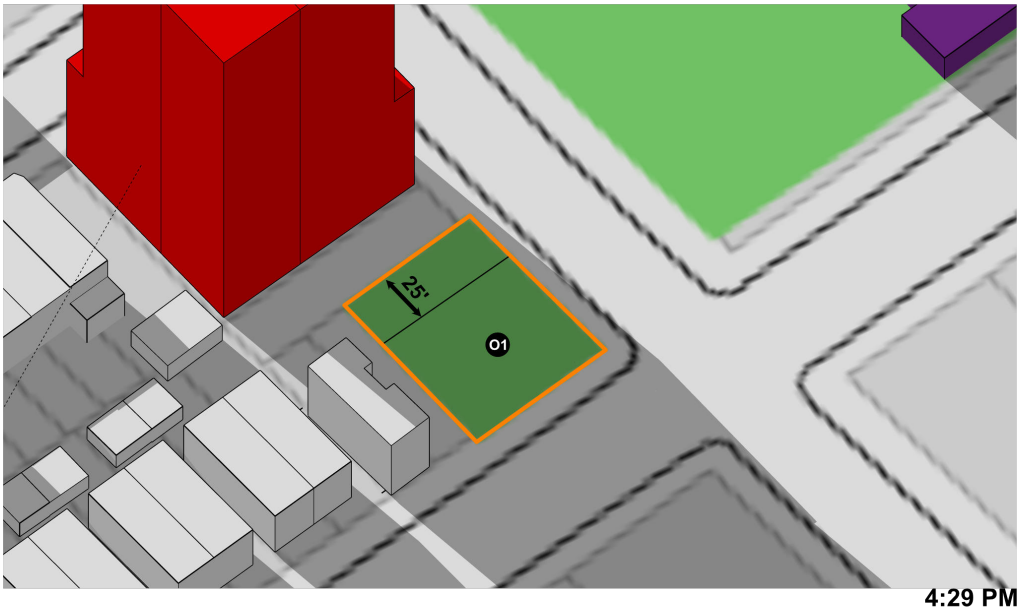
C4 Building Massing

Future With-Action Shadow Condition

New Incremental Shadow on Sunlight Sensitive Features

O1 Open Space and Recreation

**Figure 8-4c – Detailed Shadows Analysis for the Thomas S. Boyland Community Garden, March 21 / September 21 Analysis Day, Continued**




C4 Building Massing

Future With-Action Shadow Condition

New Incremental Shadow on Sunlight Sensitive Features

O1 Open Space and Recreation

**Figure 8-5a – Detailed Shadows Analysis for the Thomas S. Boyland Community Garden, May 6 / August 6 Day**

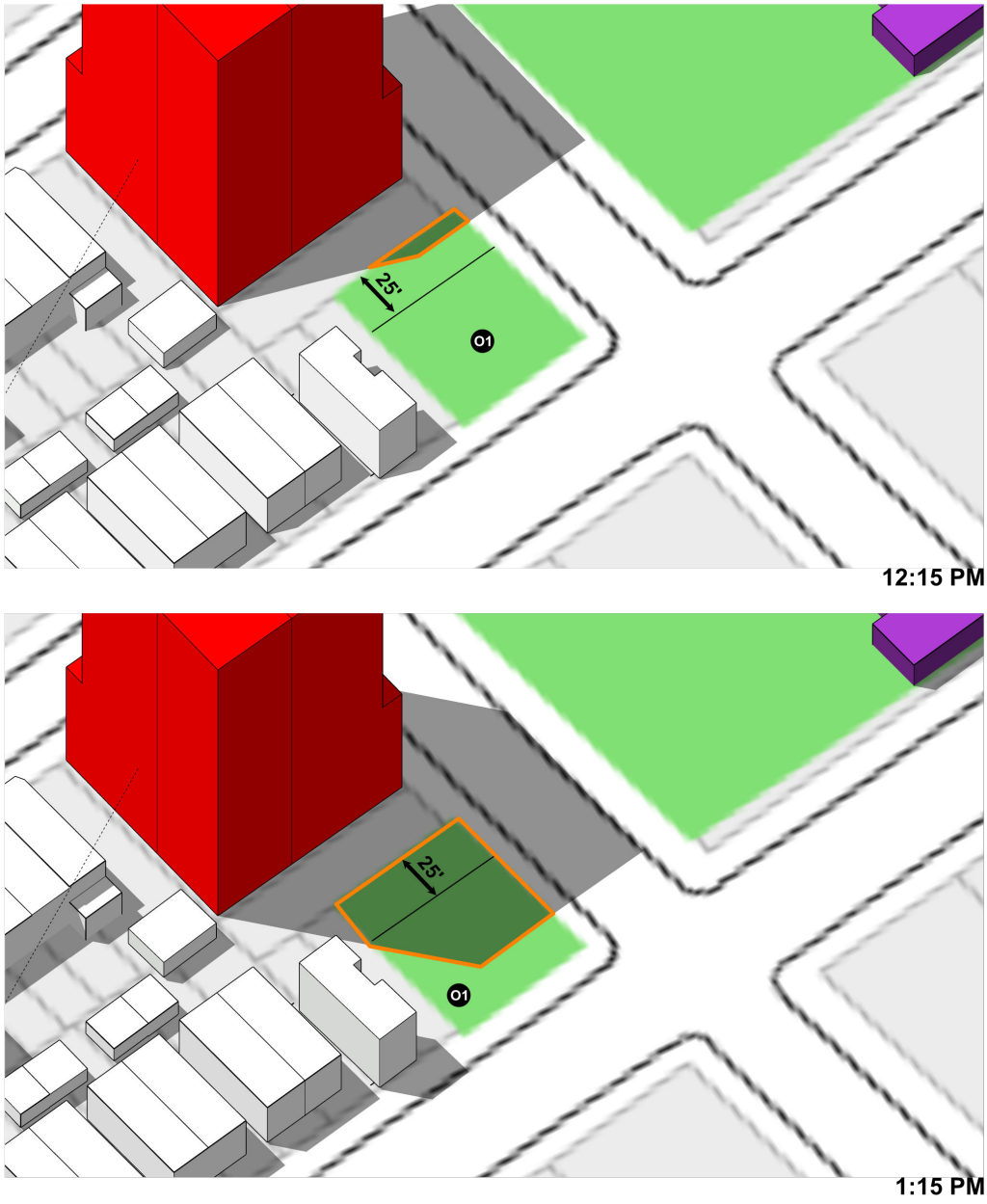


**Figure 8-5b – Detailed Shadows Analysis for the Thomas S. Boyland Community Garden, May 6 / August 6 Analysis Day, Continued**

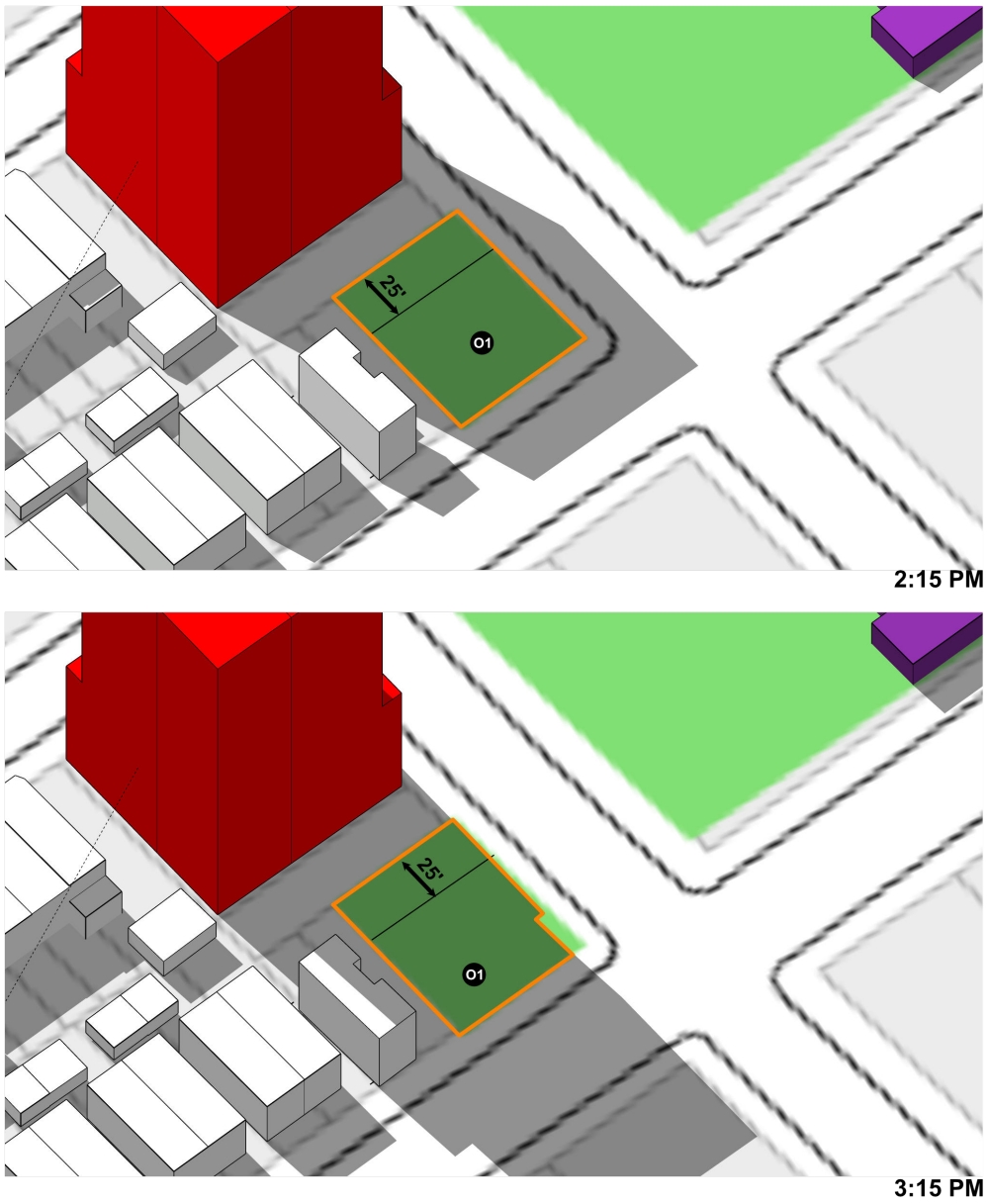


**Figure 8-5c – Detailed Shadows Analysis for the Thomas S. Boyland Community Garden, May 6 / August 6 Analysis Day, Continued**

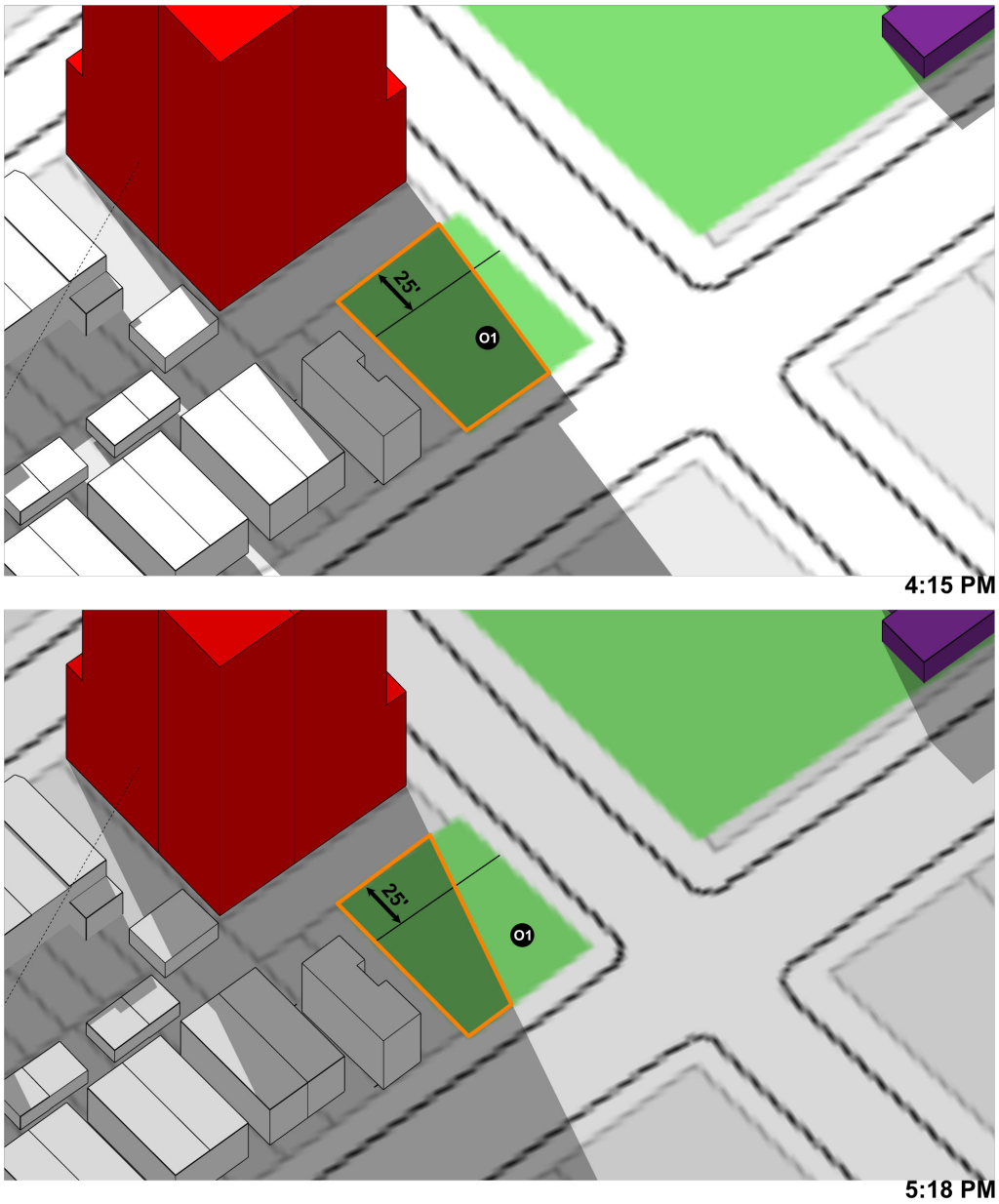


**Figure 8-6a – Detailed Shadows Analysis for the Thomas S. Boyland Community Garden, June 21 Analysis Day**

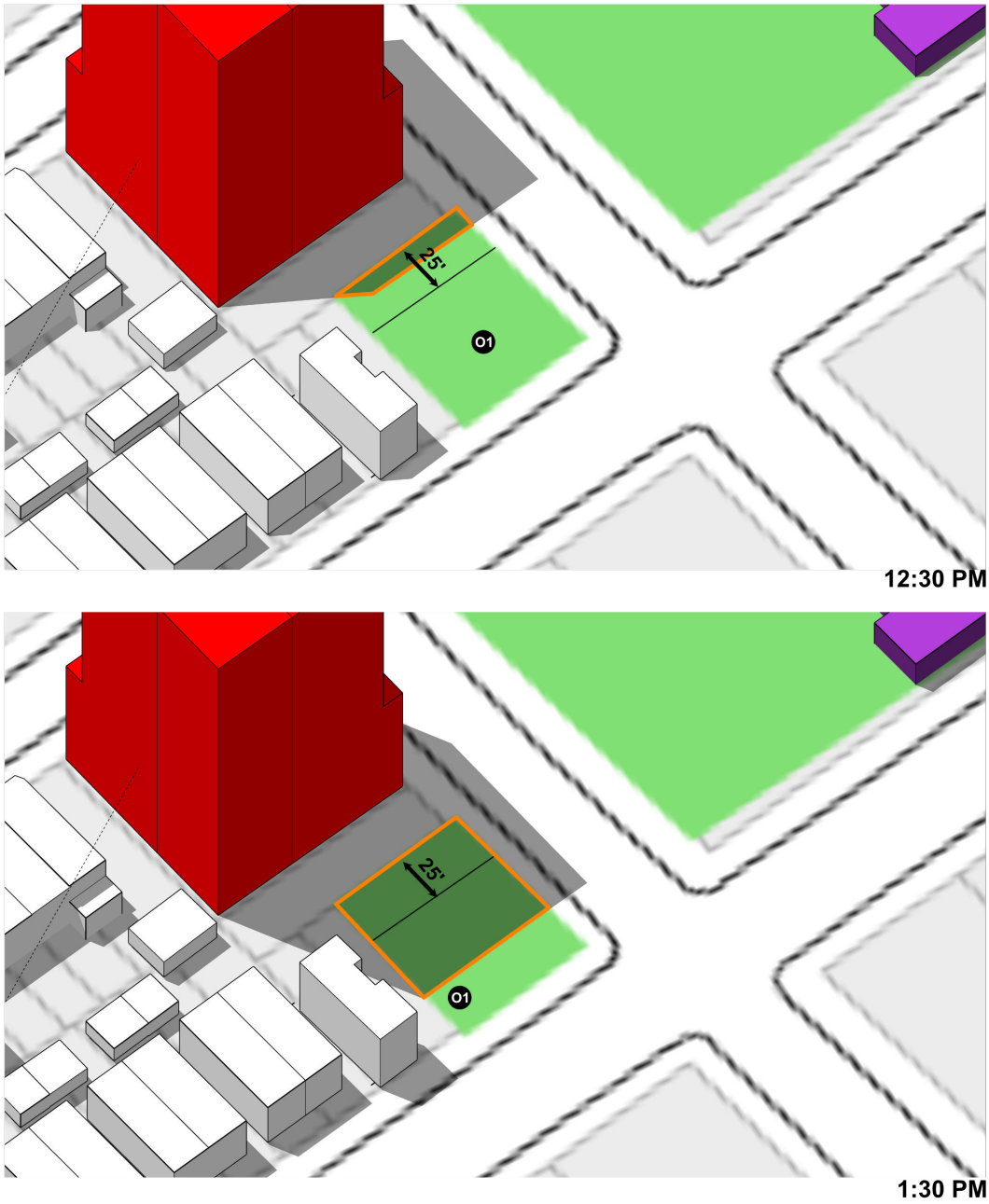
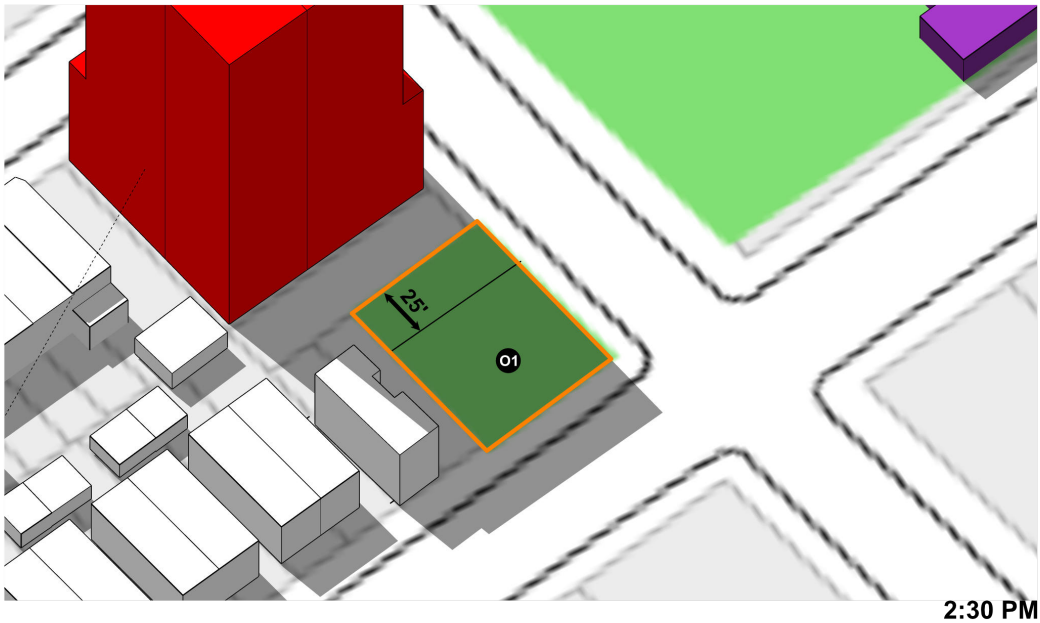
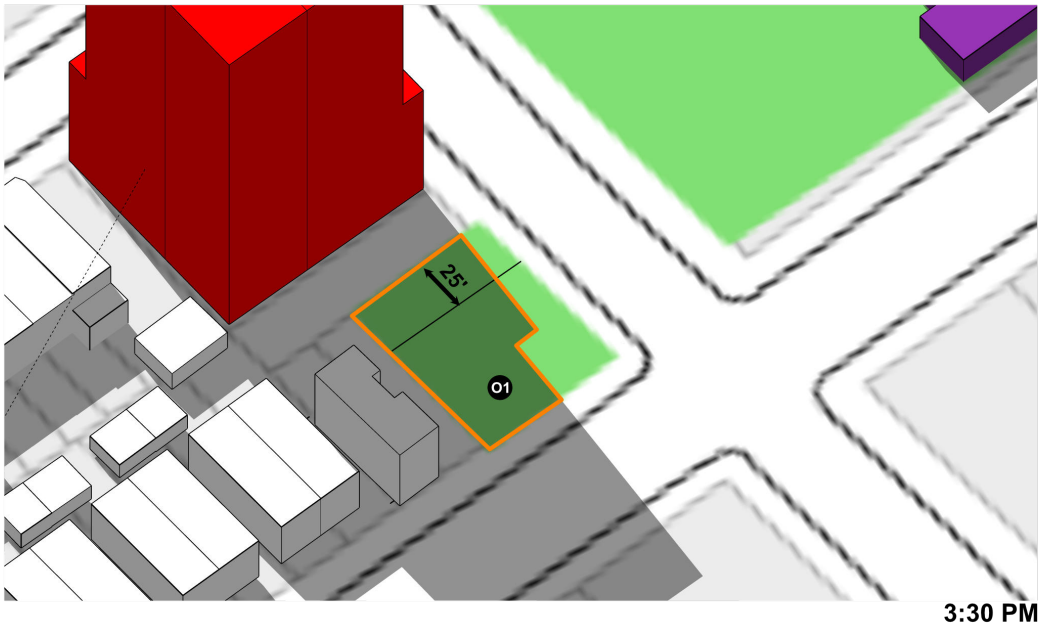


**Figure 8-6b – Detailed Shadows Analysis for the Thomas S. Boyland CommunityGarden, June 21 Analysis Day, Continued**




2:30 PM




3:30 PM

C4 Building Massing

Future With-Action Shadow Condition

New Incremental Shadow on Sunlight Sensitive Features

O1 Open Space and Recreation

**Figure 8-6c – Detailed Shadows Analysis for the Thomas S. Boyland CommunityGarden, June 21 Analysis Day, Continued**

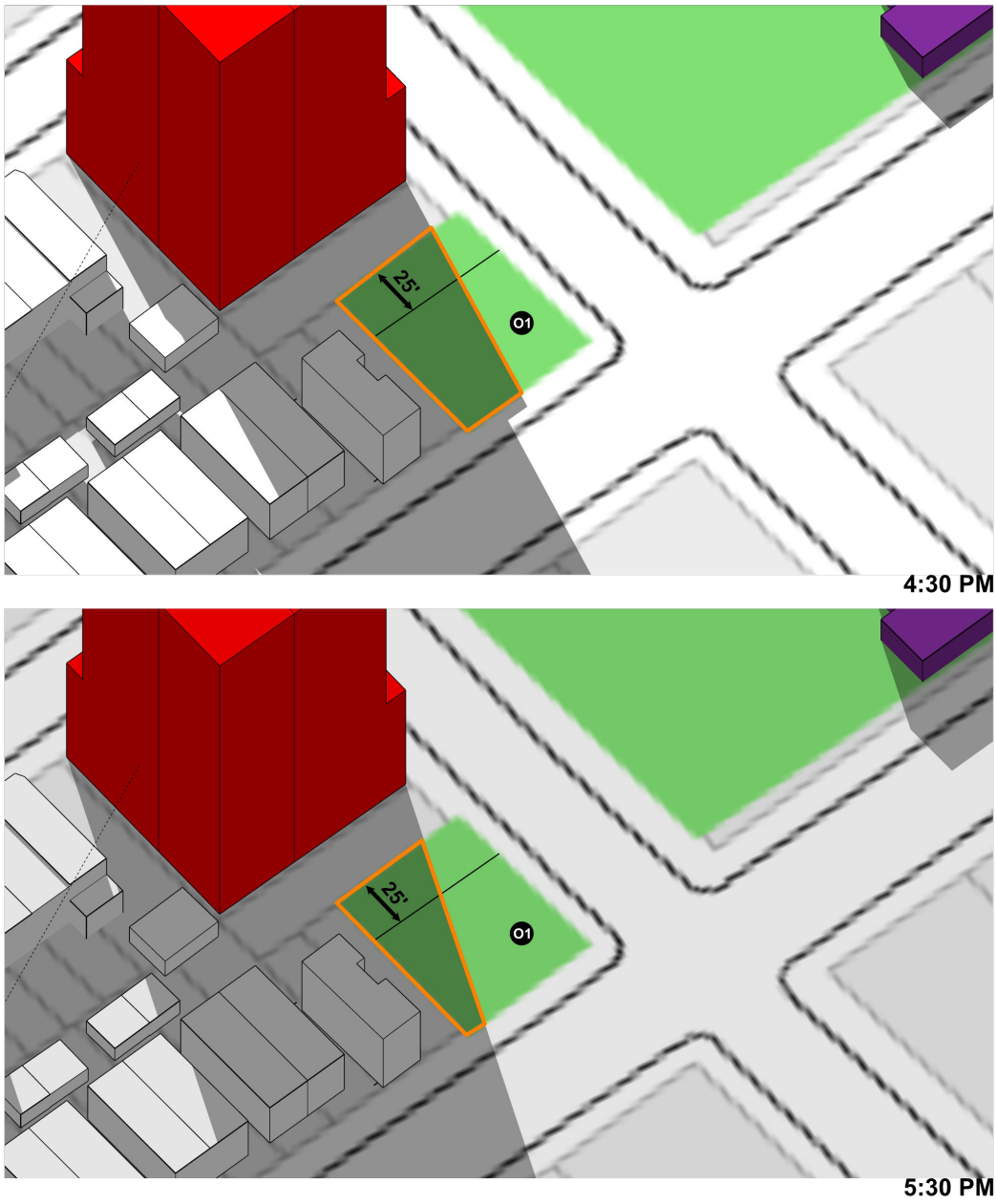
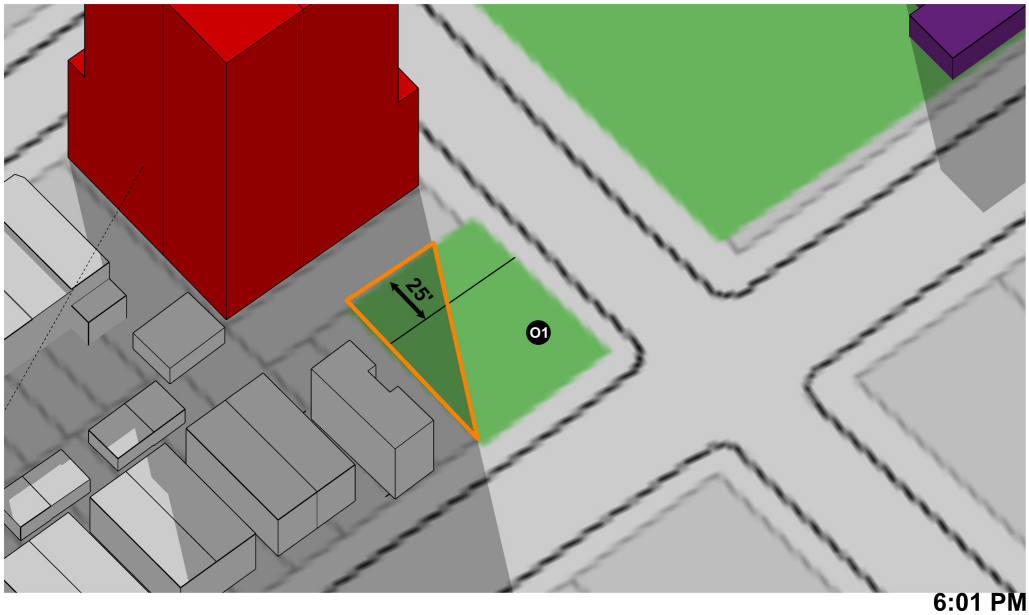


**Figure 8-6d – Detailed Shadows Analysis for the Thomas S. Boyland CommunityGarden, June 21 Analysis Day, Continued**




C4 Building Massing

Future With-Action Shadow Condition

New Incremental Shadow on Sunlight Sensitive Features

O1 Open Space and Recreation

**Figure 8-7 – Detailed Shadows Analysis for Nehemiah Playground, May 6 / August 6 Analysis Day**

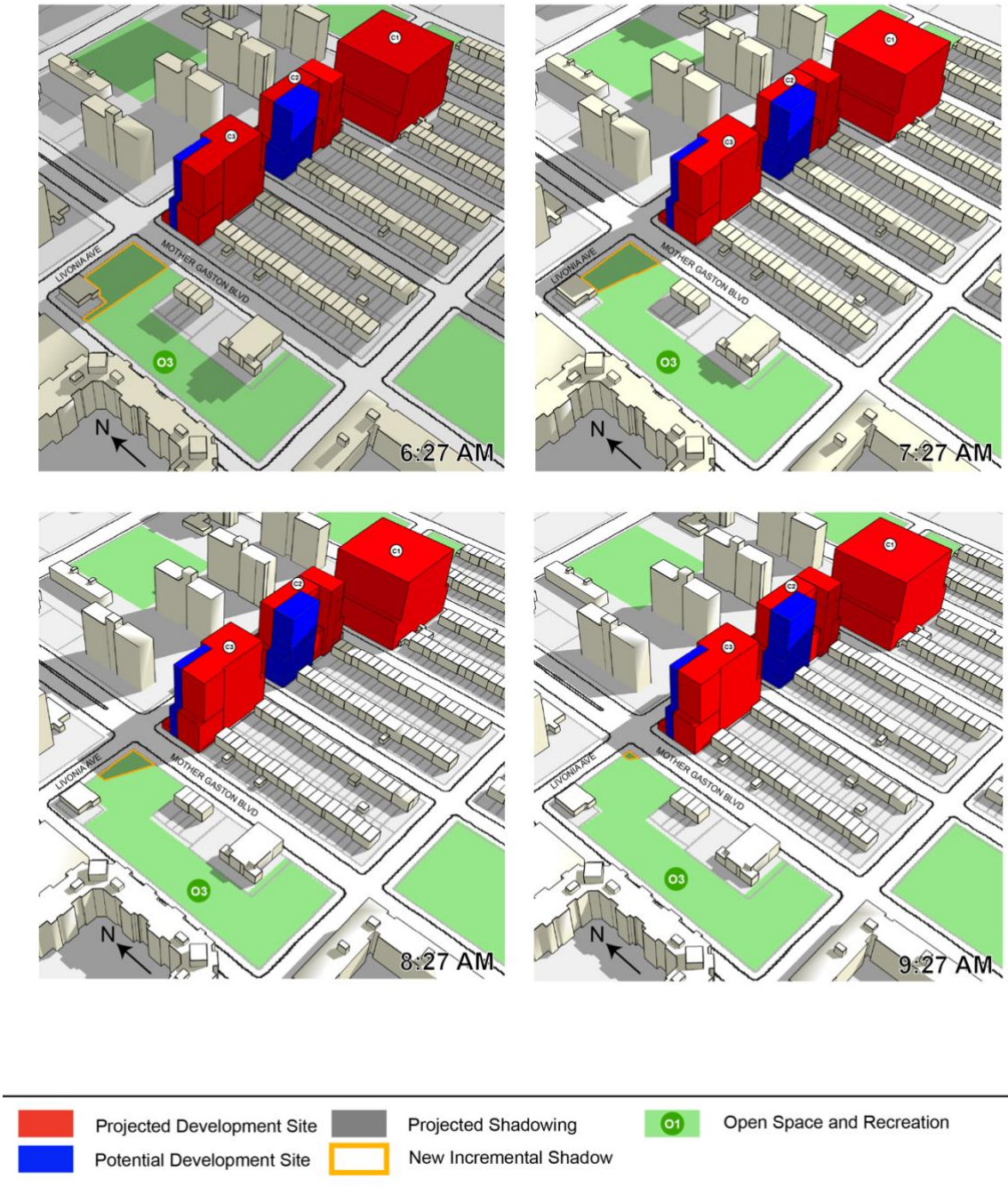


**Figure 8-8 – Detailed Shadows Analysis for Nehemiah Playground, June 21 Analysis Day**

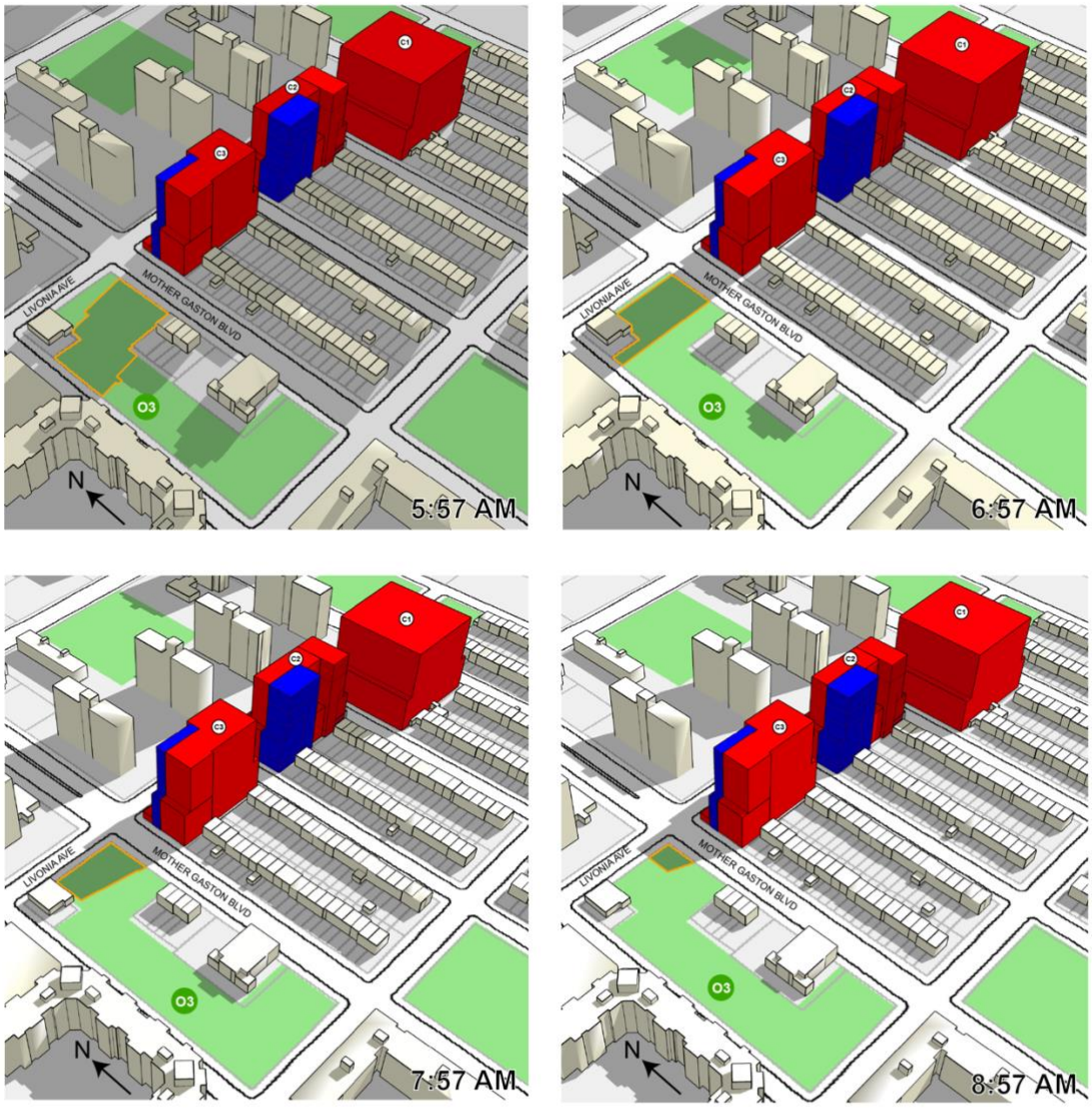


**Figure 8-9 – Detailed Shadows Analysis for Livonia Park, March 21 / September 21 Analysis Day**

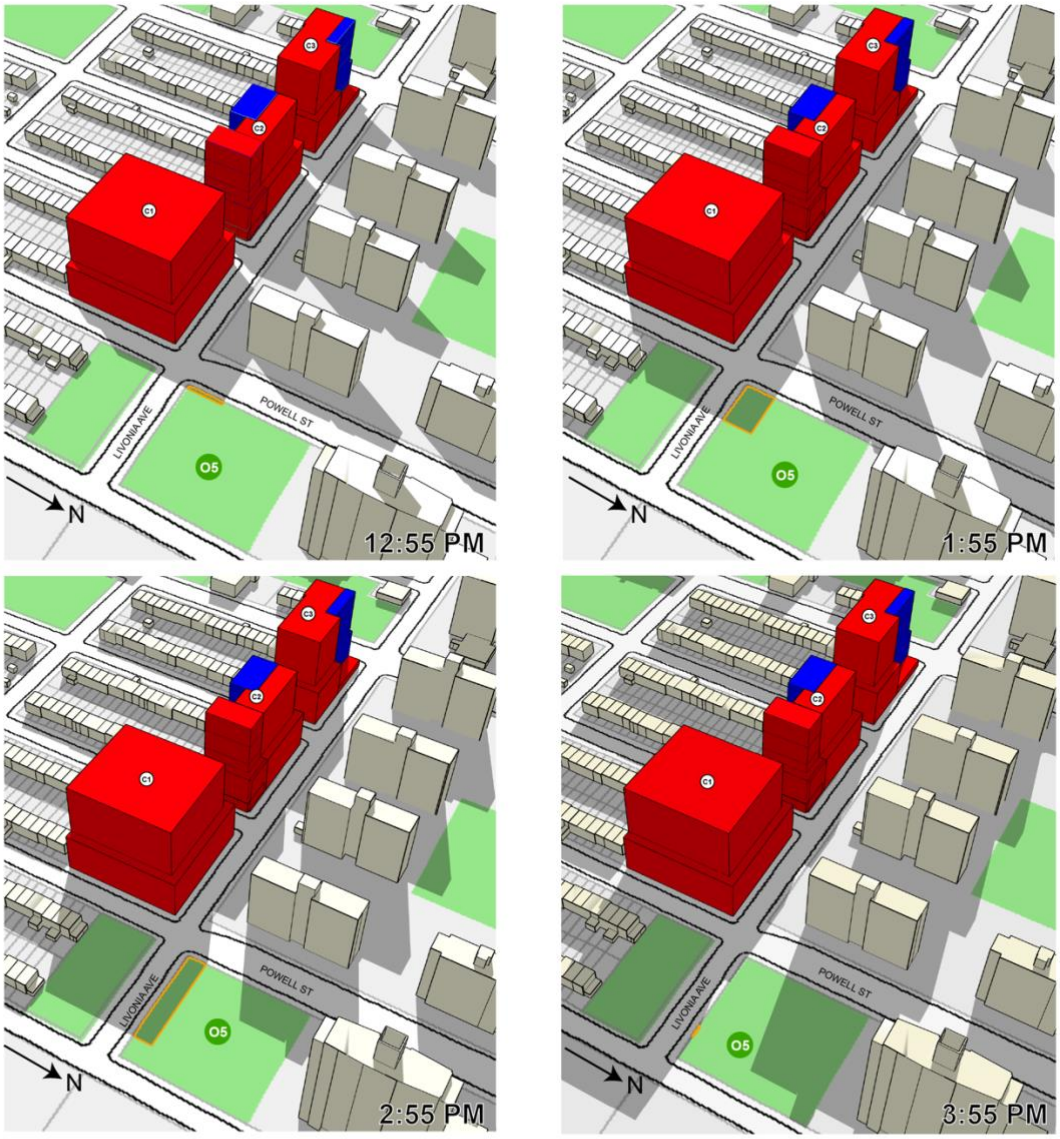
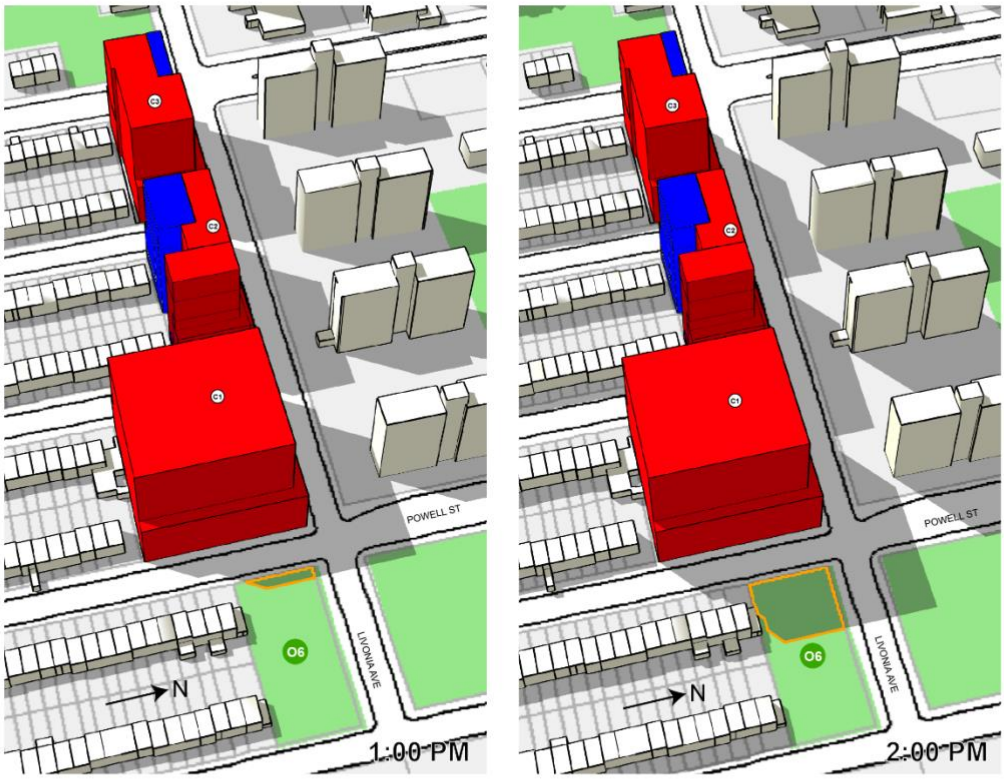
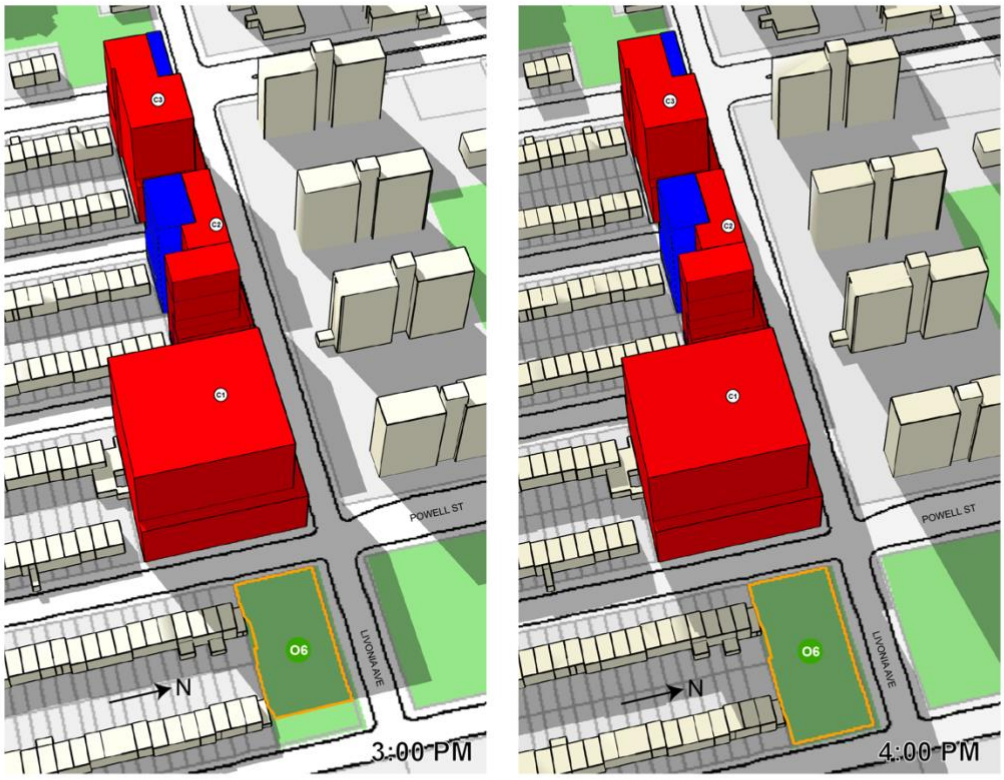


**Figure 8-10a – Detailed Shadows Analysis for Powell Street Livonia Garden, March 21 / September 21 Analysis Day**



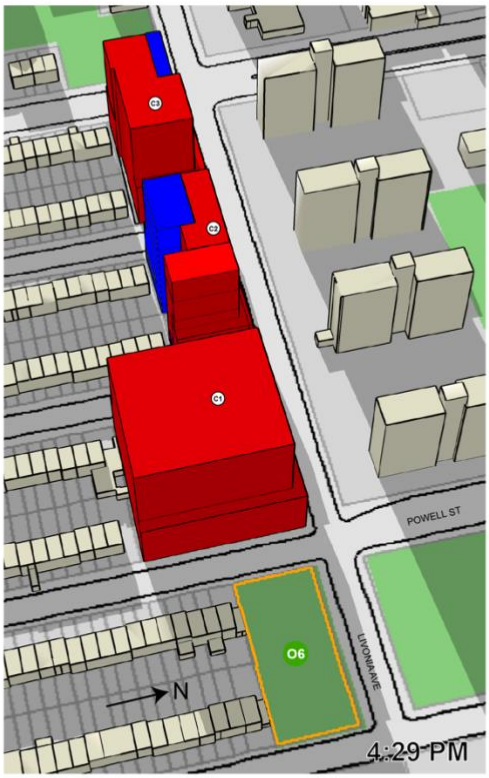

Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-10b – Detailed Shadows Analysis for Powell Street Livonia Garden, March 21 / September 21 Analysis Day, Continued**



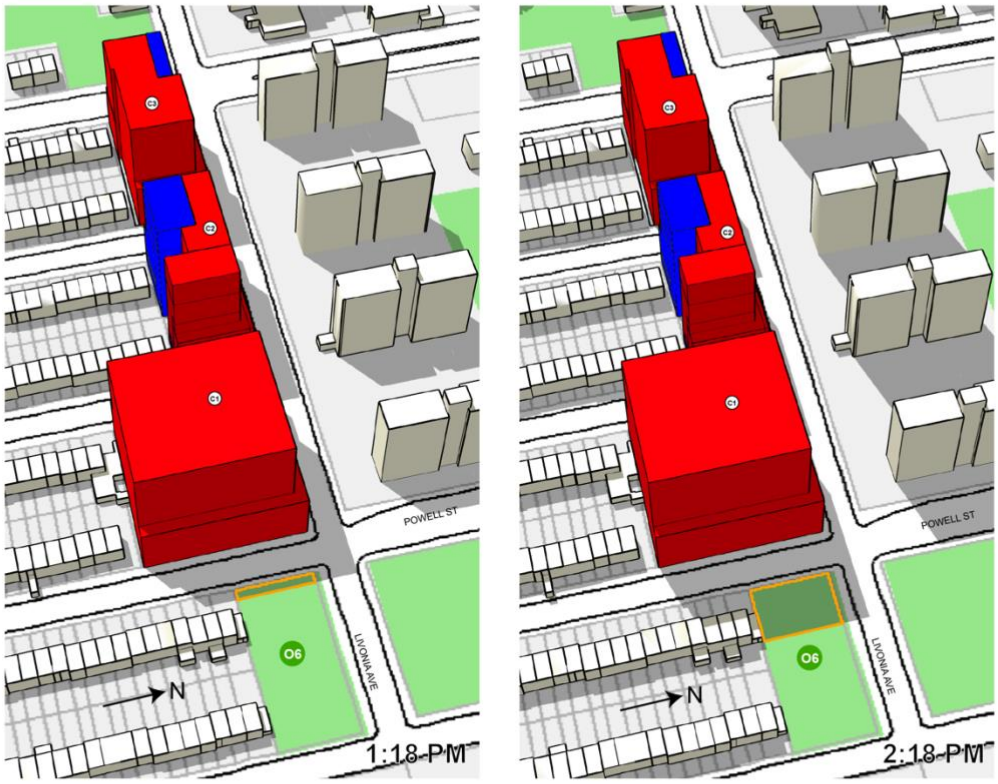

Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-10c – Detailed Shadows Analysis for Powell Street Livonia Garden, March 21 / September 21 Analysis Day, Continued**



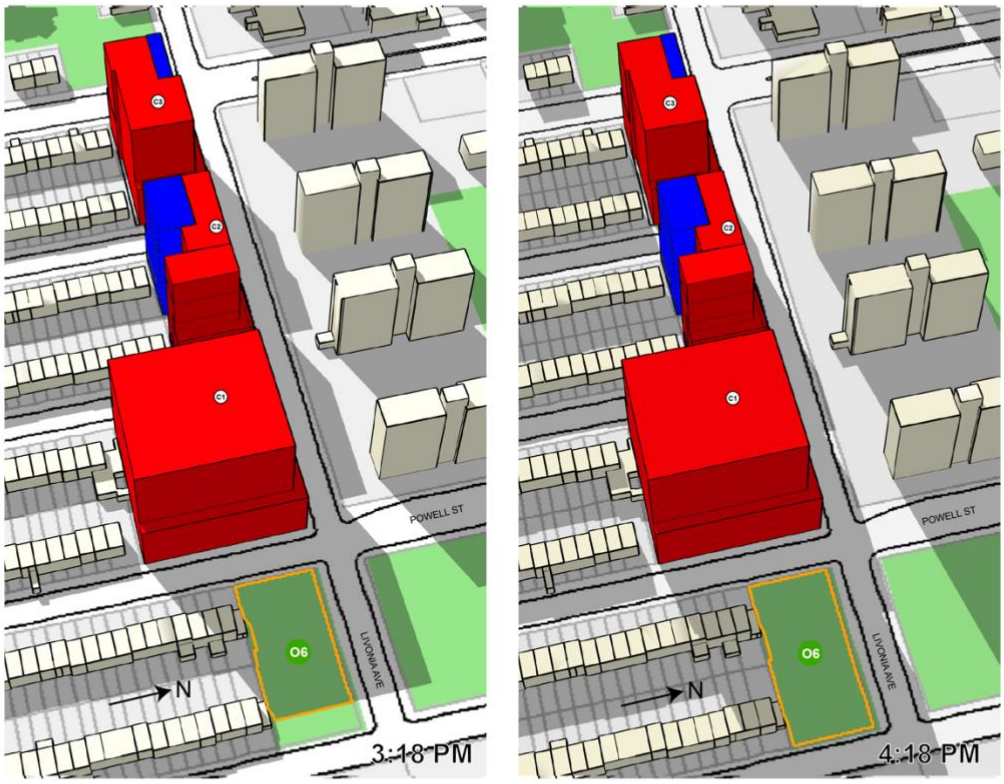

Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-11a – Detailed Shadows Analysis for Powell Street Livonia Garden, May 6 / August 6 Analysis Day**



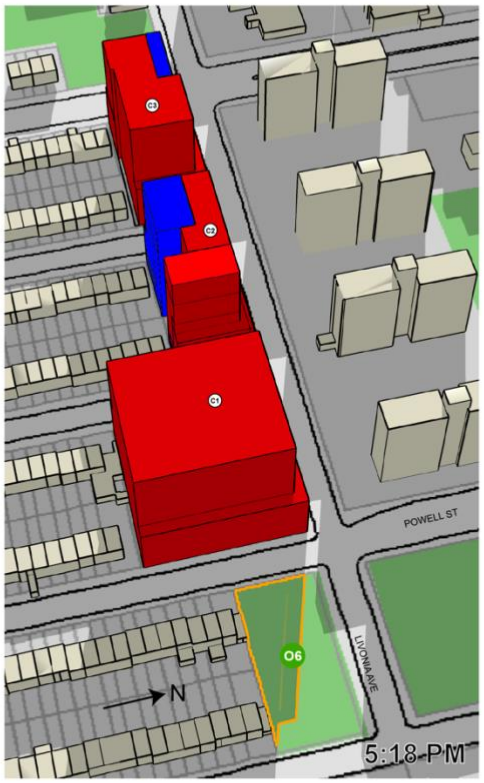

Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-11b – Detailed Shadows Analysis for Powell Street Livonia Garden, May 6 / August 6 Analysis Day, Continued**



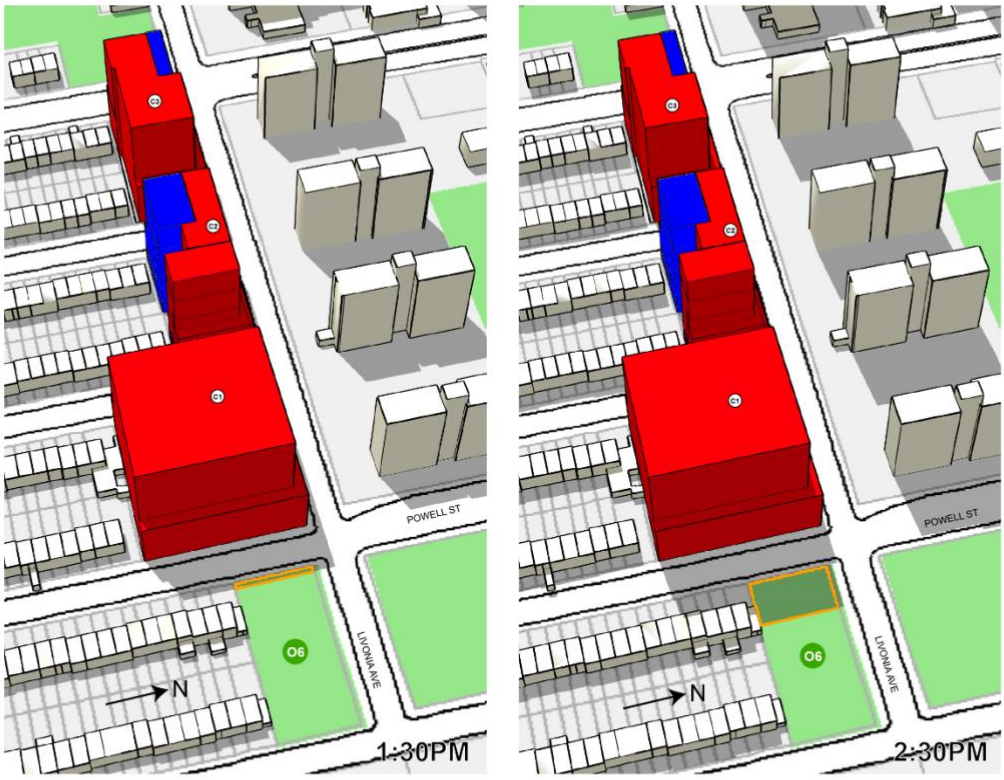

Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-11c – Detailed Shadows Analysis for Powell Street Livonia Garden, May 6 / August 6 Analysis Day, Continued**



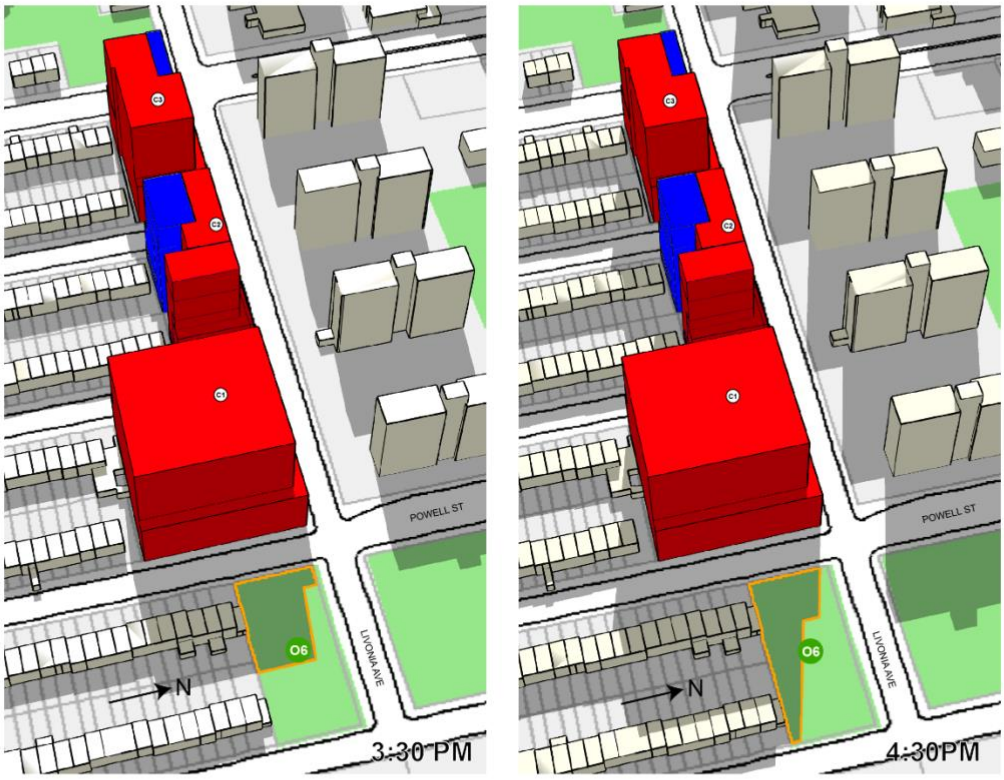

Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-12a – Detailed Shadows Analysis for Powell Street Livonia Garden, June 21 Analysis Day**



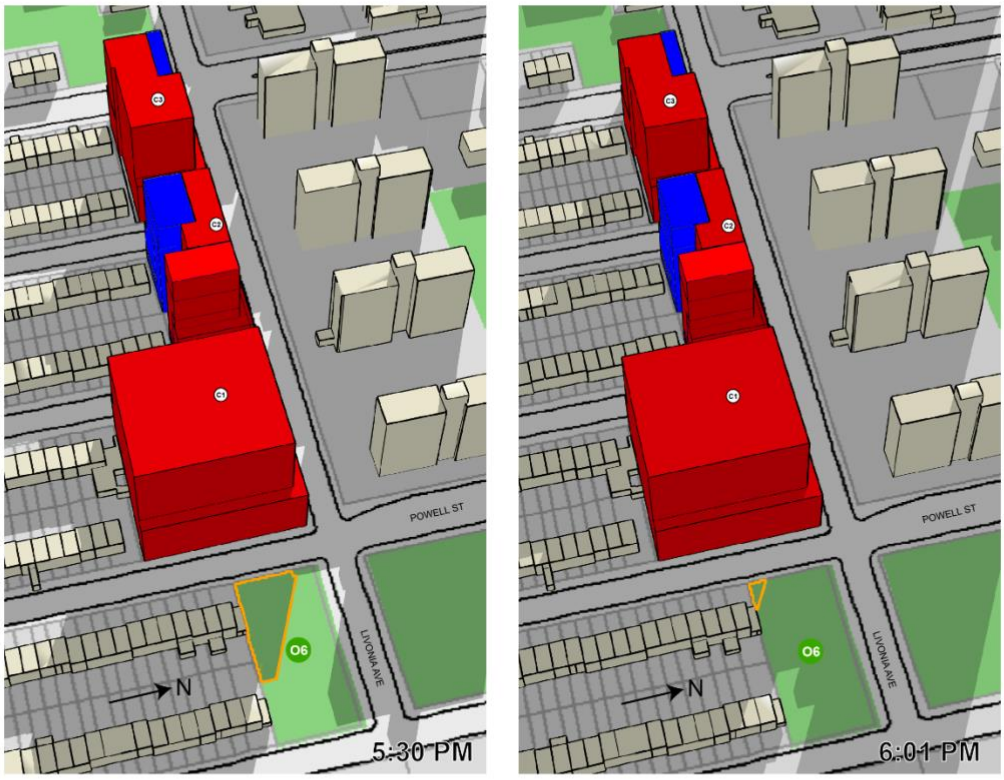

Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-12b – Detailed Shadows Analysis for Powell Street Livonia Garden, June 21 Analysis Day, Continued**




Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

**Figure 8-12c – Detailed Shadows Analysis for Powell Street Livonia Garden, June 21 Analysis Day, Continued**




Projected Development Site
Potential Development Site
Projected Shadowing
New Incremental Shadow
O1 Open Space and Recreation

## 9. HISTORIC AND CULTURAL RESOURCES

### Introduction

The 2020 *City Environmental Quality Review* (CEQR) *Technical Manual* identifies historic resources as districts, buildings, structures, sites, and objects of historical, aesthetic, cultural, and archaeological importance. This includes designated New York City Landmarks (NYCL); properties calendared for consideration as landmarks by the New York City Landmarks Preservation Commission (LPC); properties listed in the State/National Registers of Historic Places (S/NR) or contained within a district listed in or formally determined eligible for S/NR listing; properties recommended by the New York State Board for listing on the S/NR; National Historic Landmarks (NHL); and properties not identified by one of the programs listed above, but that meet their eligibility requirements. An assessment of historic/archaeological resources is usually needed for projects that are located adjacent to historic or landmark structures or within historic districts, or projects that require in-ground disturbance, unless such disturbance occurs in an area that has already been excavated.

### Existing Resources

The Project Areas and the 400-foot radius project study areas are not a Federal, State, or New York City designated Historic District. Although there are no individually designated historic resources within the Project Areas, there is one individually designated historic resource within the 400-foot radius project study areas. This resource is the NYC Landmarks Preservation Commission (LPC) designated and State/National Register eligible Betsy Head Play Center, located approximately 90 feet north of Projected Development Site 4 directly across Livonia Avenue.

By letter dated 10/24/19 (see Historic and Archaeological Resources Appendix), LPC has determined that the properties subject to the Proposed Actions within the Project Areas do not have any historic or archaeological significance. The LPC letter states "LPC Designated and S/NR Eligible Betsy Head Play Center within radius of Development Site 4 (166 Livonia Avenue and BBL 3586/26). No interest around Development Sites 1-3."

By letter dated 12/27/19 (see Historic and Archaeological Resources Appendix), the NYS Office of Parks, Recreation, and Historic Preservation (OPRHP) states that based on their review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

### Potential Impacts of Proposed Actions

*Shadows*

As discussed in the Shadows section above, during the December 21 analysis day, Tier 3 shadows are projected to fall on portions of the sunlight sensitive Betsy Head Park Play

Center Bath House from 11:46 AM to 1:55 PM, for a duration of 2 hours, 10 minutes. However, the larger Betsy Head Park Play Center pool complex, which includes this bath house, would be seasonally closed at this time, precluding public access to the resource. As such, shadows on this resource during this analysis day would not diminish the public's use and enjoyment of said resource. As such, significant adverse shadow impacts on this resource during the December 21 analysis day are not anticipated and no further analysis is warranted.

No Tier 3 shadows are projected to fall on the bath house at any time during the March 21/September 21, May 6/August 6, or June 21 analysis days. As such, no significant adverse shadows impacts from the Proposed Actions are anticipated to effect the LPC Designated and S/NR Eligible Betsy Head Play Center.

*Construction*

The *CEQR Technical Manual* indicates that construction impacts may occur to historic and cultural resources if in-ground disturbances or vibrations associated with project construction could undermine the foundation or structural integrity of nearby resources. A construction assessment may be needed for historic and cultural resources if the project involves construction activities within 400 feet of a historic resource. LPC-approved construction procedures would be followed on Projected Development Site 4 to protect the Betsy Head Play Center from damage from vibration, subsidence, dewatering, or falling objects. Construction procedures would comply with the NYC Department of Buildings memorandum Technical Policy and Procedure Notice # 10/88 (TPPN # 10/88) and with the site safety requirements of the 2008 NYC Building Code, as amended, which stipulate that certain procedures be followed for the avoidance of damage to historic and other structures resulting from construction. TPPN # 10/88 pertains to any structure which is a designated NYC Landmark or located within a historic district, or listed on the National Register of Historic Places and is contiguous to or within a lateral distance of 90 feet from a lot under development or alteration. Therefore, no adverse construction impacts would occur to any historic resources within 400 feet of the Project Areas.

**Conclusion**

Based on the above analysis, it was determined that the Proposed Actions would not result in any significant adverse impacts to historic or archaeological resources.

## 10. URBAN DESIGN AND VISUAL RESOURCES

### Introduction

An assessment of urban design is needed when a project may have effects on any of the elements that contribute to the pedestrian experience of public space. A preliminary assessment is appropriate when there is the potential for a pedestrian to observe, from the street level, a physical alteration beyond that allowed by existing zoning, including the following:

1. Projects that permit the modification of yard, height, and setback requirements;

2. Projects that result in an increase in built floor area beyond what would be allowed 'as-of-right' or in the future without the proposed project.

The Proposed Actions include:

A. A Zoning Map Change to Sectional Maps 17b and 17d - Rezone the Applicant's properties, including Block 3813, Lot 115; Block 3812, Lots 19-22, and 121; Block 3811, Lots 17 (p/o), 18, 19, 21, 23-27, and 124; and Block 3586, Lot 26 (p/o), and non-Applicant properties, identified as Block 3812, Lots 17 (p/o), 18, and 24; Block 3811, Lot 20, and Block 3586, Lots 40 (p/o), 41-44, 45 (p/o) from R6 and R6/C2-4 to R7-2/C2-4.

B. Zoning Text Amendment to Appendix F - Establish Project Area 1 (Block 3811, Lots 17 (p/o), 18-21, 23-27, and 124; Block 3812, Lots 17 (p/o), 18-22, 24, and 121; and Block 3813, Lot 115), and Project Area 2 (Block 3586, Lots 26 (p/o) and 40 (p/o), 41-44, 45 (p/o)) as a Mandatory Inclusionary Housing (MIH) Area.

C. Designation of the Development Sites as an Urban Development Action Area (UDAA); Approval of the project as an Urban Development Action Area Project (UDAAP); Disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26) to a developer selected by HPD.

D. Amendment to the Brownsville II Urban Renewal Plan (URP) - Permit residential use on Sites C1 (Block 3813, Lot 115; URA #142), C2 (Block 3812, Lots 19-22, and 121; URA #141), and C3 (Block 3811, Lots 17-19, 21, 23-27, and 124; URA #140).

The Proposed Actions would permit the modification of the existing yard, height, and setback requirements of the lots within the Project Areas and introduce new buildings with greater height. The maximum amount of floor area that would be permitted in the 101,091 square foot Project Areas in the future under the existing and future No-Action R6 zoning is up to 245,651 zoning square feet (zsf) of residential floor area or up to 485,236 zsf of community facility space. The maximum amount of commercial floor area that would be permitted on the 62,552 square foot portion of the Project Areas mapped with the C2-4 commercial overlay in the future under the existing and future No-Action zoning is up to 125,104 zsf. The maximum amount of floor area that would be permitted in the Project Areas in the future With-Action R7-2/C2-4 (MIH) zoning calculated on

the basis of maximum FAR is up to 465,018 zsf of residential floor area or up to 657,091 zsf of community facility space. As the entire Project Areas would be mapped with a C2-4 commercial overlay, where only Project Area 1 is currently mapped with the overlay, up to 202,182 zsf of commercial space would be permitted. A preliminary urban design assessment is therefore required.

**Preliminary Assessment**

Existing Conditions

***Project Areas***

The Project Areas consist of two distinct subareas generally located along Livonia Avenue in the Brownsville neighborhood of Brooklyn Community District 16.

- Project Area 1 is located along Livonia Avenue extending for three blocks between Powell Street on the east and Mother Gaston Boulevard on the west. The subarea is comprised of Block 3813, Lot 115 (Projected Development Site 1; aka Site C1); Block 3812, Lots 19-22, and 121 (Projected Development Site 2; aka Site C2); Block 3811, Lots 17-19, 21, 23-27, and 124 (Projected Development Site 3; aka Site C3); and five privately-owned properties including Block 3812, Lot 24 (Projected Development Site 5), Block 3812, Lots 17 (p/o) and 18 (Potential Development Site 1), Block 3811, Lot 20 (Potential Development Site 2), and Block 3811, Lot 25 (part of Site C3 noted above).

- Project Area 2 is located along Livonia Avenue extending for one block between Thomas S Boyland Street on the east and Amboy Street on the west. The subarea is comprised of Block 3586, Lot 26 (Projected Development Site 4; aka Site C4) and six privately-owned properties including Block 3586, Lot 40 (p/o) (Other Site 1), Block 3586, Lot 41 (Other Site 2), Block 3586, Lot 42 (Other Site 3), Block 3586, Lot 43 (Other Site 4), Block 3586, Lot 44 (Other Site 5), and Block 3586, Lot 45 (p/o) (Other Site 6).

The 101,091 square foot Project Areas consist primarily of vacant undeveloped land totaling 85,091 square feet. The remainder of the Project Areas are developed with a 6,000 square foot church, three lots developed with 9,240 gsf of residential floor area for 9 dwelling units, and one lot containing an 1,800 gsf retail store.

The existing development on each of the Projected and Potential Development Sites as well as Other Sites is detailed below.

***Projected Development Sites***

Projected Development Site 1, aka Site C1 (Block 3813, Lot 115), is a vacant property with a lot area of approximately 40,400 sf with frontages of 200 feet along Livonia Avenue, 204 feet along Powell Street, and 200 feet along Sackman Street.

Projected Development Site 2, aka Site C2 (Block 3812, Lots 19-22 and 121), is a vacant property with a lot area of approximately 9,152 sf with 140 feet of frontage on Livonia

Avenue and 51.5 feet of frontage on Christopher Avenue. Lots 19, 20, 21, and 121 have a depth of 51.5 feet while Lot 22 has a depth of 100 feet.

Projected Development Site 3, aka Site C3 (Block 3811, Lots 17-19, 21, 23-27, and 124), is a vacant property with a lot area of approximately 18,500 sf with 200 feet of frontage on Livonia Avenue, 100 feet of frontage on Christopher Avenue, and 85 feet of frontage on Mother Gaston Boulevard. Lots 17, 18, 19, and 21 have a total lot frontage of 85 feet along Mother Gaston Boulevard and individual lot depths of 100 feet. Lots 23-26 and 124 have a total lot frontage of 100 feet along Livonia Avenue and individual lot depths of 80 feet. Lot 27 has 20 feet of frontage along Christopher Avenue and a lot depth of 100 feet. A small 5-foot portion of Lot 17, which is located beyond 100 feet of Livonia Avenue extending beyond the proposed rezoning area, is mapped R6 and is included in the Project Area.

Projected Development Site 4, aka Site C4 (Block 3586, Lot 26), is a vacant property with a lot area of approximately 10,023 sf with 100 feet of frontage on Livonia Avenue and 100.23 feet along Amboy Street. A small 0.23-foot portion of Lot 26 extends beyond the proposed rezoning area but is included in the Project Area.

Projected Development Site 5 (Block 3812, Lot 24) is a 6,000 sf property with 60 feet of frontage on Livonia Avenue and a depth of 100 feet along Sackman Street. The property is developed with a 1-story, approximately 6,000 sf church.

***Potential Development Sites***

Potential Development Site 1 (Block 3812, Lots 17 (p/o) and 18) consists of two lots totaling 5,000 sf in area with 50 feet of frontage along Christopher Avenue and individual lot depths of 100 feet (Lot 18) to 101.5 feet (Lot 17). A small 1.5-foot portion of Lot 17 extends beyond the proposed rezoning area and is therefore not included in the Project Area. Lot 17 (p/o) is a 2,500 sf lot developed with a two-story dwelling containing 3,120 gsf of floor area and 3 residential dwelling units. Lot 18 is a 2,500 sf lot developed with a two-story dwelling containing 3,120 gsf of floor area and 3 residential dwelling units.

Potential Development Site 2 (Block 3811, Lot 20) is a 2,000 sf property with 20 feet of frontage along Mother Gaston Boulevard and a depth of 100 feet. The property is developed with a 1-story, approximately 1,800 gsf retail building.

***Other Sites***

Other Site 1 (Block 3586, Lot 40 (p/o)) - This 2,504 sf vacant property has 25 feet of frontage along Livonia Avenue and a depth of 100 feet. The property is owned by BSD Livonia, LLC and is zoned R6. A small 0.23-foot portion of Lot 40 extends beyond the proposed rezoning area is therefore not included in the Project Area.

Other Site 2 (Block 3586, Lot 41) is a 1,488 sf vacant property with 19.78 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet along Livonia Avenue.

Other Site 3 (Block 3586, Lot 42) is a 1,524 sf vacant property with 20.4 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet.

Other Site 4 (Block 3586, Lot 43) is a 1,500 sf vacant property with 20 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet.

Other Site 5 (Block 3586, Lot 44) - This 1,500 sf vacant property has 20 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet. The property is owned by Robert Aquart and is zoned R6.

Other Site 6 (Block 3586, Lot 45 (p/o)) - This 1,500 sf property has 20 feet of frontage along Thomas S. Boyland Street and a depth of 75 feet. A small 0.23-foot portion of Lot 45 extends beyond the proposed rezoning area is not included in the Project Area. It is developed with a three-story dwelling containing 3,000 gsf of floor area and 3 residential dwelling units. The property is owned by Israel Fastag and is zoned R6. The Project Areas contains one visual resource consisting of a 0.12 acre community garden (Hoparkinson R&L Block Association Garden) located on Other Sites 2, 3, and 4 identified above. There are no other visual resources such as open space facilities, historic resources, or natural resources within the Project Areas.

***400-Foot Radius Project Study Areas***

The area within a 400-foot radius of Project Area 1 is generally characterized by a mix of multi-family and single-family residences, community facility uses, limited commercial uses, transportation and utility uses, and open space facilities. The prevailing built form in the area varies by use with a range of low-rise buildings (one- to two-stories) and mid- to high-rise buildings (six- to 25-stories). Directly north of Project Area 1 are several New York City Housing Authority (NYCHA) developments, which range from six- to 16-stories in height. Most of the development directly south of Project Area 1 consists of one- and two-family residences. Community facility uses in the surrounding area include several churches and a community center. Open spaces in the surrounding area include Livonia Park, Power Street Livonia Garden, Van Dyke Playground, and Nehemiah Park. Livonia Avenue is the main thoroughfare in the surrounding area and is characterized by mixed-use residential/commercial uses. The elevated No. 3 subway line runs overhead on Livonia Avenue between East 98th Street and New Lots Avenue. The Long Island Railroad tracks are located to the east of Project Area 1 running in a north-south alignment between Junius Street and Van Sinderen Avenue. Most streets in the project study area are two-way and 60 feet in width except for Livonia Avenue which is 70 feet wide and Mother Gaston Boulevard which is 85 feet in width.

The area within a 400-foot radius of Project Area 2 is generally characterized by a mix of multi-family and single-family residences, community facility uses, open space, and

vacant lots. Residential uses include a mix of single- and two-family homes and larger multi-family apartment buildings generally ranging from two- to 4-stories in height. Several light industrial and warehouse uses are located one block west of Site C4 along Herzl Street. Community facility uses in the surrounding area include several churches. Betsy Head Park, a 10.5-acre open space with a public pool, community center, ballfields, track, and the recently constructed Imagination Playground, is located directly north of Project Area 2 across Livonia Avenue. Numerous vacant lots are scattered throughout the surrounding area. The elevated No. 3 subway line runs overhead on Livonia Avenue. Most streets in the project study area are two-way and 60 feet in width except for Livonia Avenue which is 70 feet wide and Thomas S Boyland Street which is 80 feet in width.

As noted above, the 400-foot radius Project Study Areas contain numerous visual resources including Livonia Park, Power Street Livonia Garden, Van Dyke Playground, Nehemiah Park, and Betsy Head Park. Betsy Head Play Center within the Betsy Head Park is an LPC designated and State/National Register eligible facility, located approximately 90 feet north of Projected Development Site 4 directly across Livonia Avenue. There are no other visual resources such as open space facilities, historic resources, or natural resources within the project study areas.

An aerial photograph of the project study areas and ground level photographs of the Project Areas and the immediate context are attached which show existing conditions in the Project Areas and in the surrounding area. Zoning calculations of the existing conditions in the Project Areas, including floor area calculations, lot coverage, and building heights, are shown in Table 10-1 below.

No-Action Scenario

***Project Areas***

As explained in the Land Use section above, it is assumed that under the No-Action Scenario, existing conditions would continue in the Project Areas. The existing 6,000 square foot church, 9,240 gsf of residential floor area for 9 dwelling units, an 1,800 gsf retail store, and vacant land would remain as they currently exist. Therefore, no changes would occur to the existing urban design and visual character of the Project Areas.

***400-Foot Radius Project Study Areas***

No future development projects are identified for the 400-foot radius project study areas based on a review of the NYC Department of City Planning's (DCP) ZAP Search of Zoning and Land Use Applications. No development plans are known to exist for the undeveloped parcels or other uses within the project study areas as identified above by the project build year of 2026. Therefore, surrounding land uses within the immediate study areas are expected to remain largely unchanged by the project build year of 2026. The character of the surrounding project study areas would not be expected to change

# Livonia Avenue Rezoning, Brooklyn

Figure 5a: Aerial Map




Imagery Source: 2019 Bing, Microsoft Corporation (OR) 2019 Google

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Figure 5b: Aerial Map




Imagery Source: 2019 Bing, Microsoft Corporation (OR) 2019 Google

Urban Cartographics



1. View of Development Site C1 facing northeast from Sackman Street.



2. View of Sackman Street facing northwest
(Development Site C1 at right).



3. View of Development Site C1 facing southeast from Sackman Street.





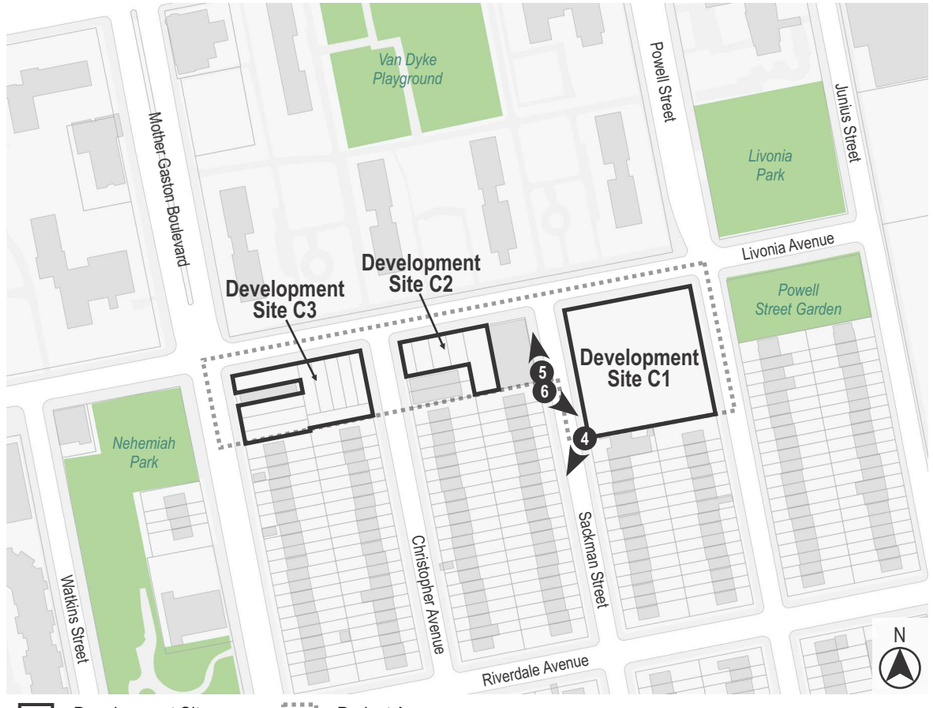
4. View of the west side of Sackman Street facing southwest from Development Site C1.



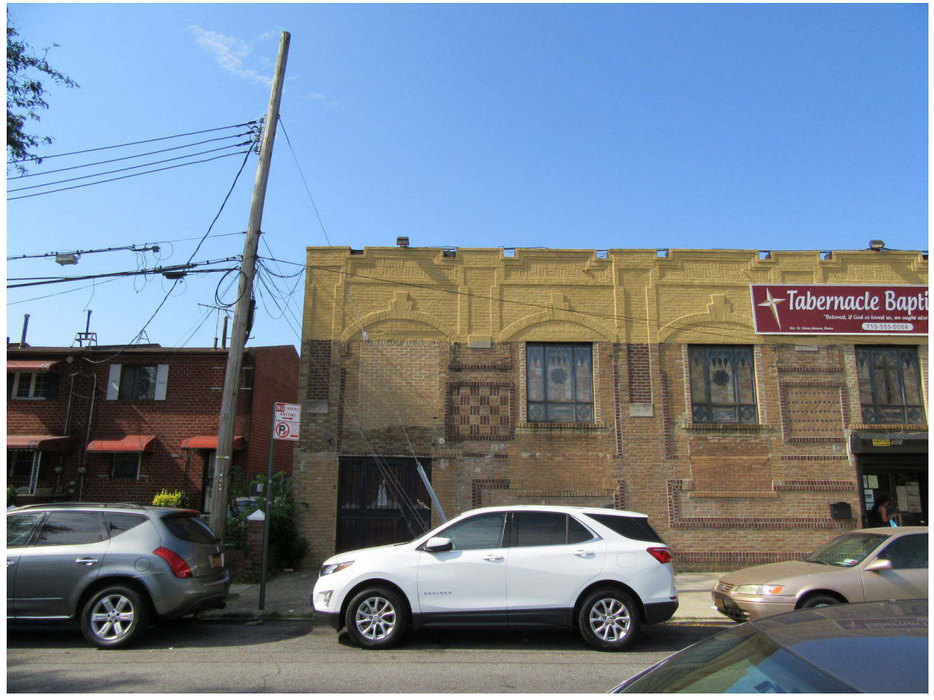
6. View of the east side of Sackman Street facing southeast from the Project Area.




5. View of the sidewalk along the west side of Sackman Street facing northwest (Project Area at left).




Urban Cartographics
Photographs Taken on October 2, 2019




7. View of the Project Area facing southwest from Development Site C1.




8. View of the Project Area facing northwest from Sackman Street.



9. View of the east side of Sackman Street facing northwest
(Development Site C1 at right).





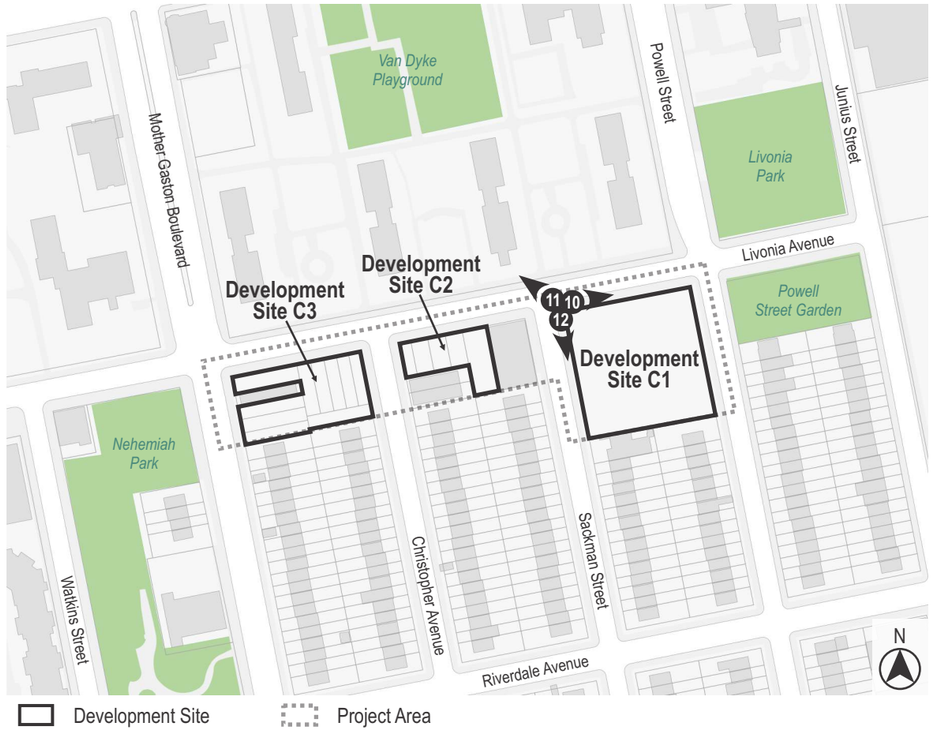

10. View of the sidewalk along the south side of Livonia Avenue facing northeast from Sackman Street (Development Site C1 at right).



11. View of the north side of Livonia Avenue facing northwest from Development Site C1.



12. View of the sidewalk along the east side of Sackman Street facing southeast from Livonia Avenue (Development Site C1 at left).





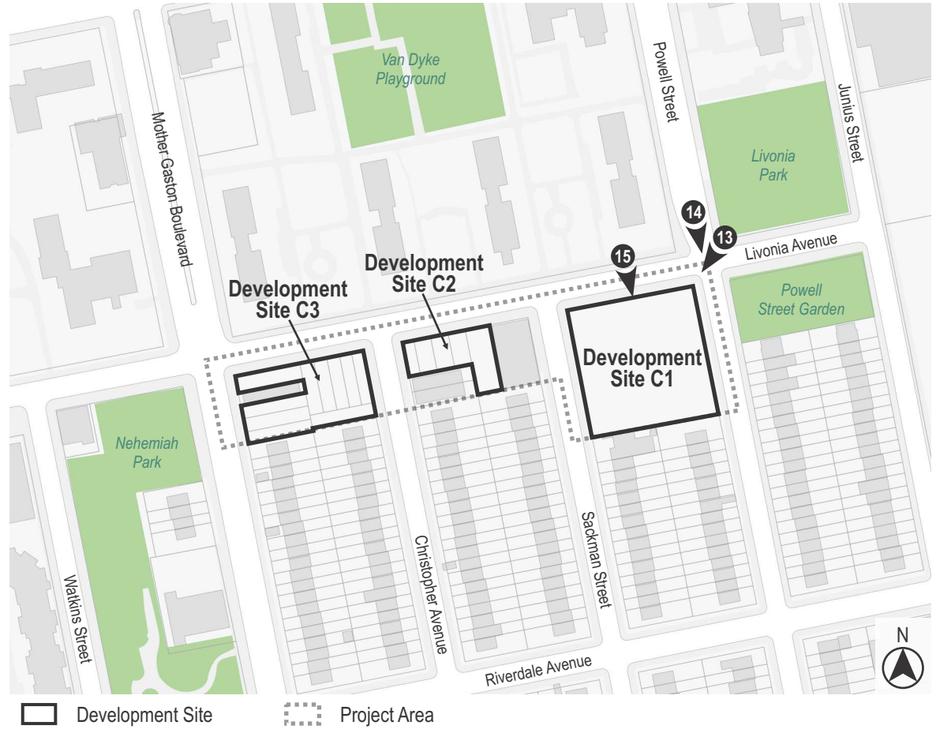
13. View of Development Site C1 facing southwest from the intersection of Powell Street and Livonia Avenue.



14. View of Powell Street facing southeast from Livonia Avenue (Development Site C1 at right).



15. View of Development Site C1 facing southeast from Livonia Avenue.





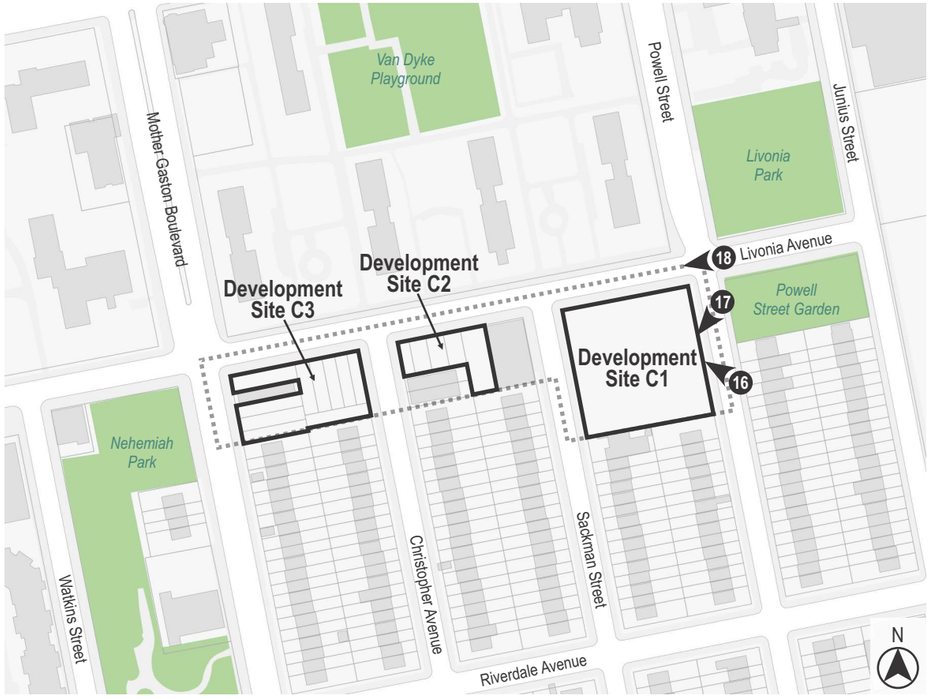
16. View of Development Site C1 facing northwest from Powell Street.



17. View of Development Site C1 facing southwest from Powell Street.



18. View of Livonia Avenue facing southwest from Powell Street (Development Site C1 at left).





19. View of the sidewalk along the west side of Powell Street facing northwest (Development C1 at left).



20. View of Powell Street facing northwest (Development Site C1 at left).



21. View of Development Site C1 facing northwest from Powell Street.





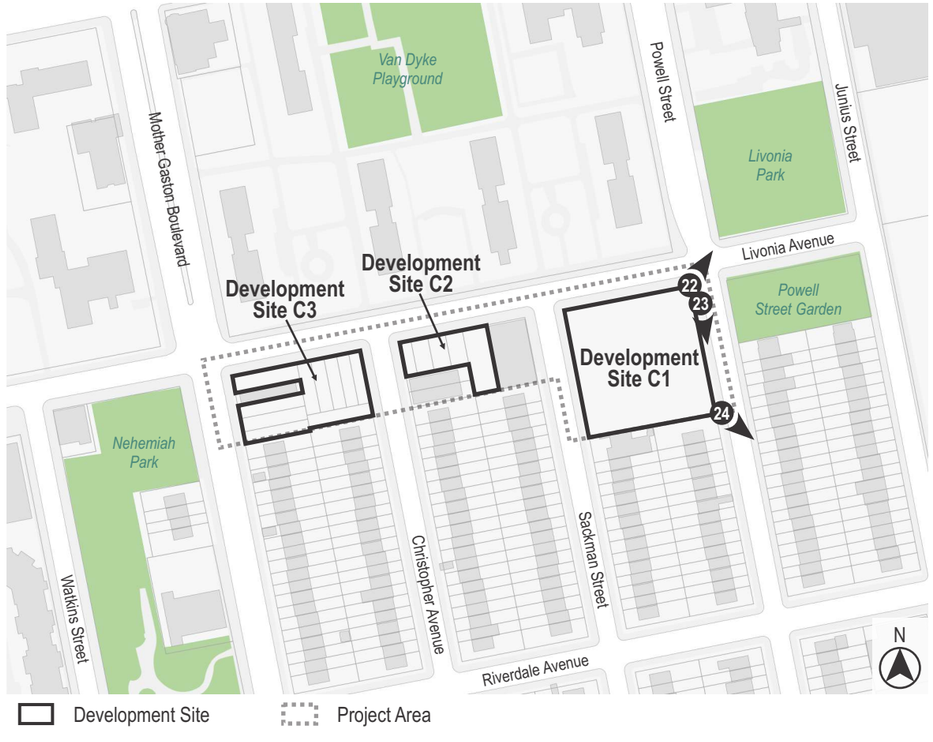
22. View of the intersection of Powell Street and Livonia Avenue facing northeast from Development Site C1.



23. View of the sidewalk along the west side of Powell Street facing southeast from Livonia Street (Development Site C1 at right).



24. View of the east side of Powell Street facing southeast from Development Site C1.





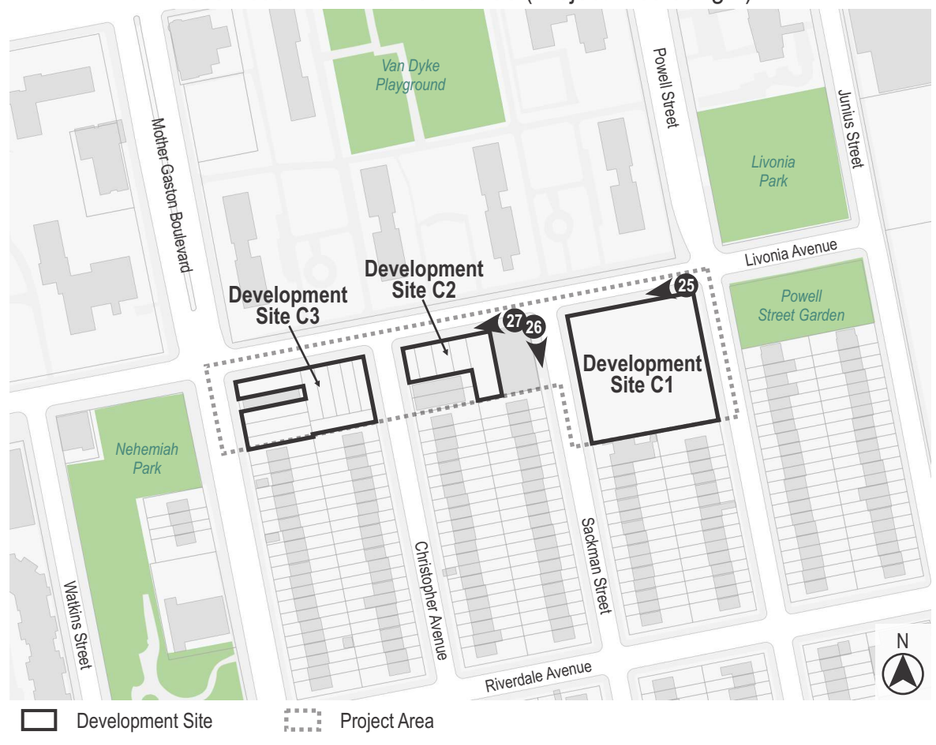
25. View of the sidewalk along the south side of Livonia Avenue facing southwest from Powell Street (Development Site C1 at left).



27. View of the sidewalk along the south side of Livonia Avenue facing southwest from Sackman Street (Project Area at left).



26. View of the sidewalk along the west side of Sackman Street facing southeast from Livonia Avenue (Project Area at right).




**Livonia Avenue Rezoning, Brooklyn**



Urban Cartographics
Photographs Taken on October 2, 2019



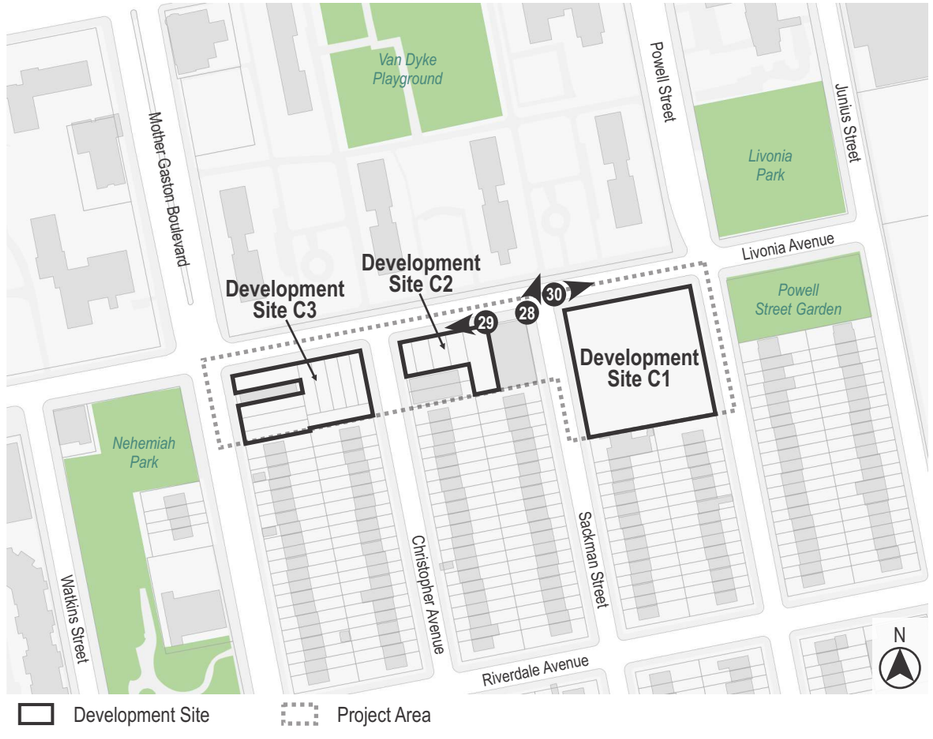
28. View of the north side of Livonia Avenue facing northeast from the Project Area.



30. View of Livonia Avenue facing northeast from Sackman Street (Development Site C1 at right).

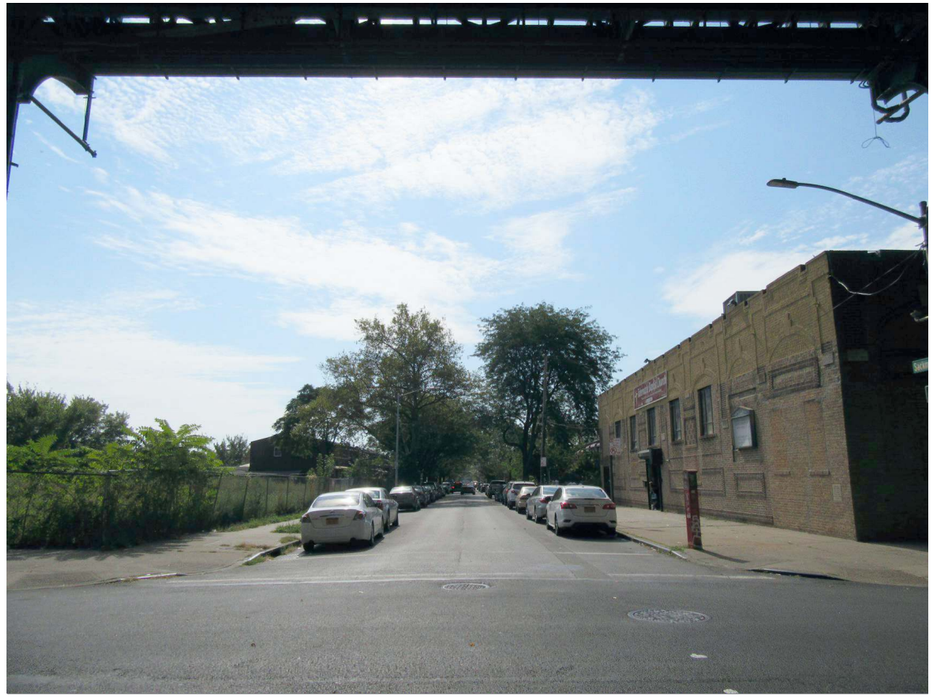


29. View of the sidewalk along the south side of Livonia Avenue facing southwest (Development Site C2 at left).





31. View of Livonia Avenue facing southwest from Sackman Street (Project Area at left).



32. View of Sackman Street facing southeast from Livonia Avenue (Development Site C1 at left, Project Area at right).



33. View of the Project Area facing southwest from the intersection of Sackman Street and Livonia Avenue.





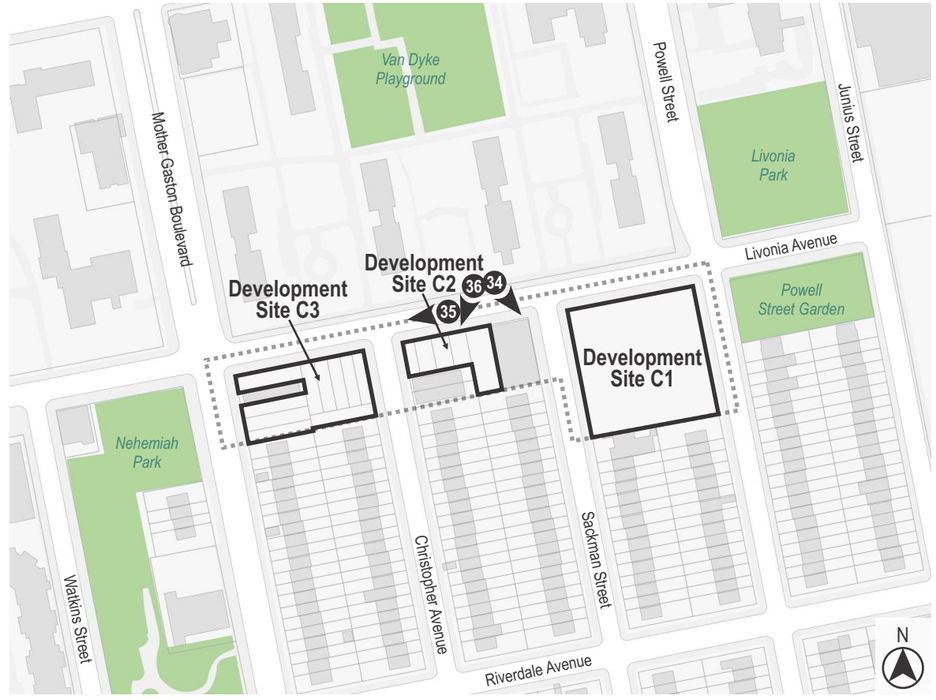
34. View of the Project Area facing southeast from Livonia Avenue.



35. View of Livonia Avenue facing southwest (Development Site C2 at left).



36. View of Development Site C2 facing southwest from Livonia Avenue.





37. View of Development Site C2 facing southeast from Livonia Avenue.



38. View of the west side of Christopher Avenue facing southwest from the Project Area.



39. View of the sidewalk along the east side of Christopher Avenue facing northwest (Project Area at right).





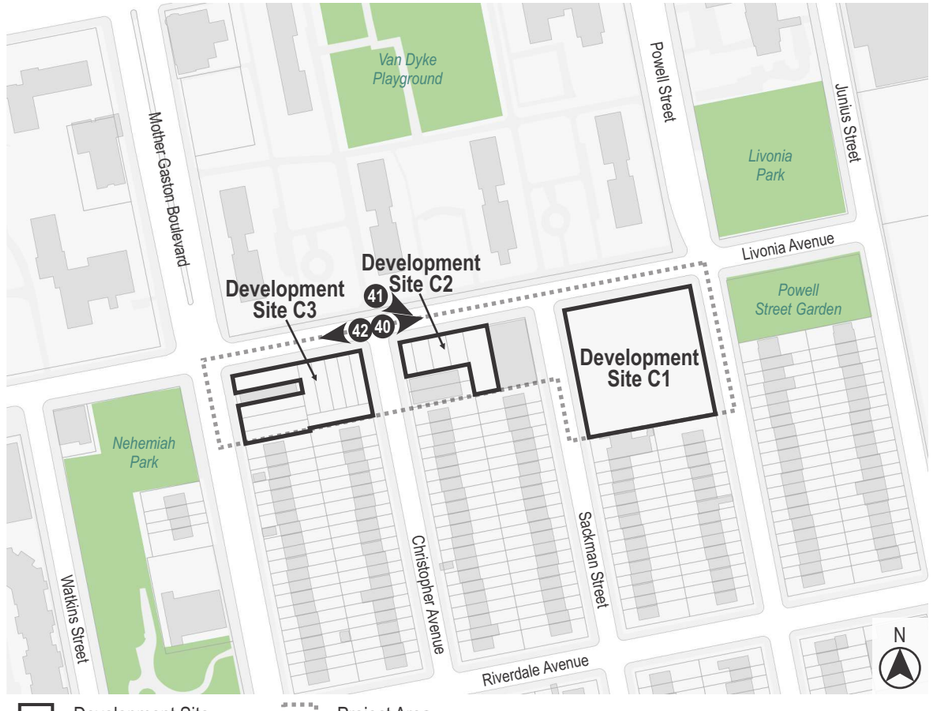
40. View of Livonia Avenue facing northeast from Christopher Avenue (Development Site C2 at right).



42. View of Livonia Avenue facing southwest from Christopher Street (Development Site C3 at left).



41. View of Development Site C2 facing southeast from the intersection of Christopher Street and Livonia Avenue.




Urban Cartographics
Photographs Taken on October 2, 2019



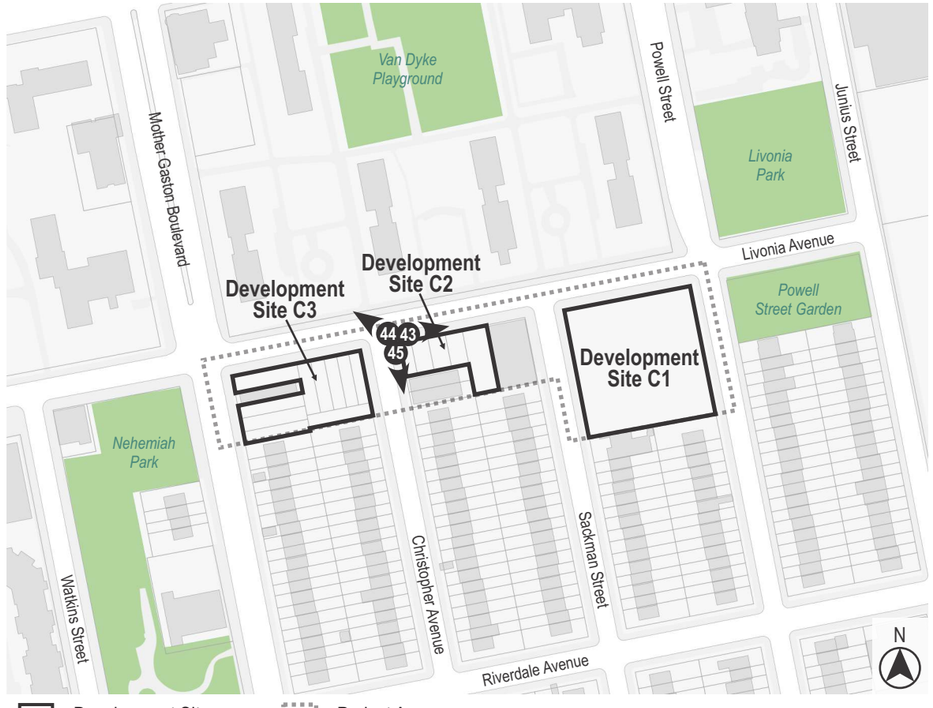
43. View of the sidewalk along the south side of Livonia Avenue facing northeast from Christopher Avenue (Development Site C2 at right).



45. View of the sidewalk along the east side of Christopher Avenue facing southeast from Livonia Avenue (Development Site C2 at left).



44. View of the north side of Livonia Avene facing northwest from Development Site C2.





46. View of Development Site C3 facing northwest from Christopher Avenue.



47. View of Development Site C3 facing northwest from Christopher Avenue.



48. View of Christopher Avenue facing northwest
(Development Site C3 at left, Project Area at right).





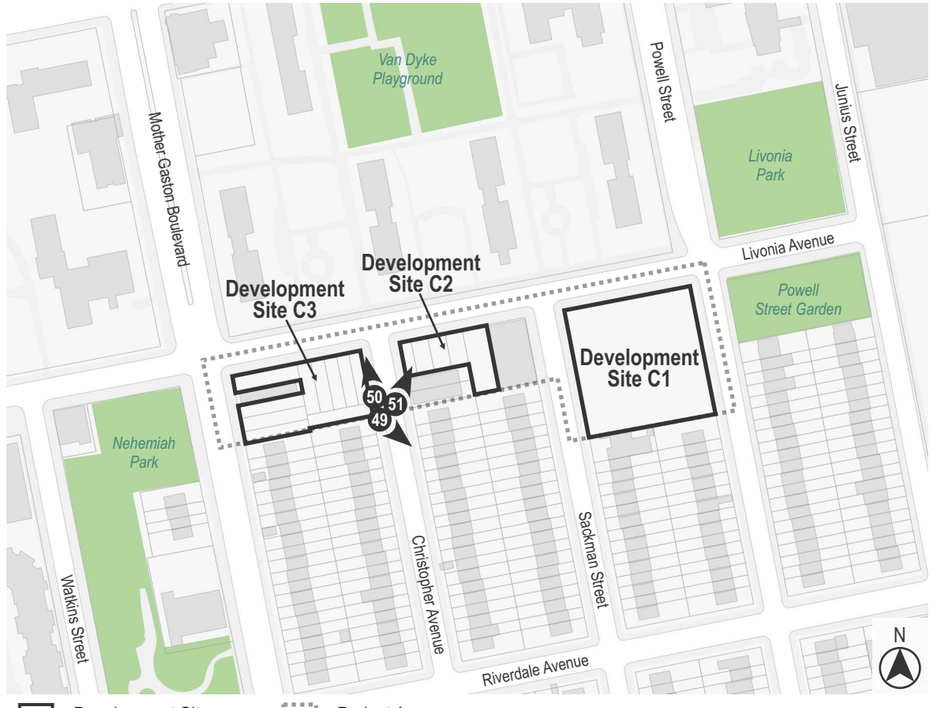
49. View of the east side of Christopher Avenue facing southeast from Development Site C3.




51. View of Development Site C2 facing northeast from Christopher Avenue.




50. View of the sidewalk along the left side of Christopher Avenue facing northwest (Development Site C3 at left).





52. View of Development Site C2 facing northeast from Christopher Street.



53. View of the sidewalk along the west side of Christopher Street facing southeast from Livonia Avenue (Development Site C3 at right).



54. View of the north side of Livonia Avenue facing northeast from Development Site C3.





55. View of the sidewalk along the south side of Livonia Avenue facing southwest from Christopher Street (Development Site C3 at left).



56. View of Christopher Street facing southeast from Livonia Avenue (Development Site C2 at left, Development Site C3 at right).



57. View of Development Site C3 facing southwest from the intersection of Livonia Avenue and Christopher Street.





58. View of Development Site C3 facing southwest from Livonia Avenue.



59. View of Development Site C3 facing southeast from Livonia Avenue.



60. View of Livonia Avenue facing northeast from Mother Gaston Boulevard (Development Site C3 at right).





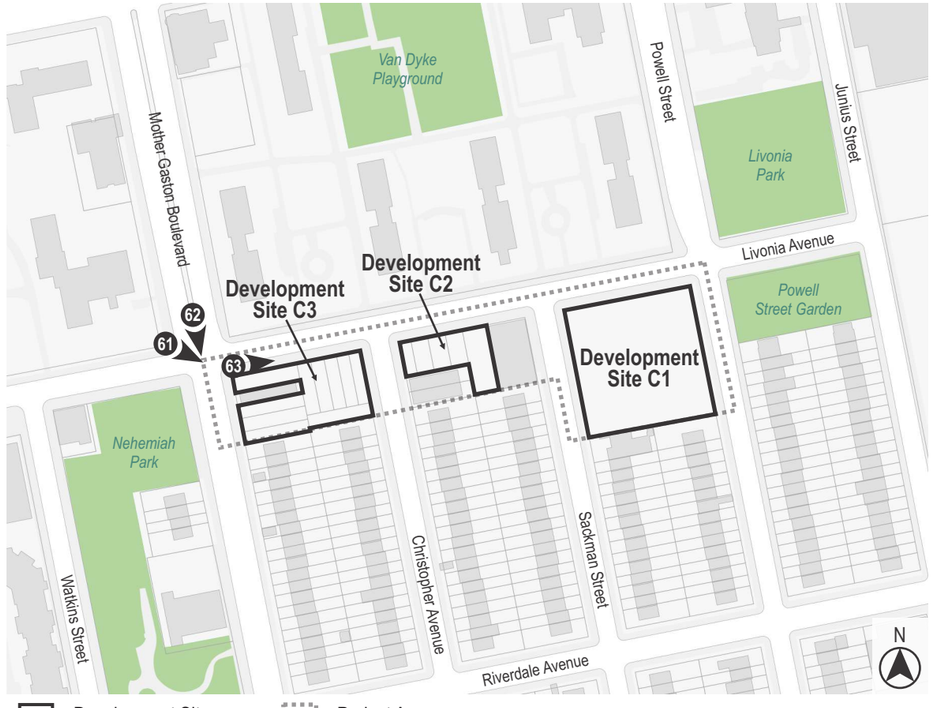

61. View of Development Site C3 facing southeast from the intersection of Mother Gaston Boulevard and Livonia Avenue.



63. View of the sidewalk along the south side of Livonia Avenue facing northeast from Mother Gaston Boulevard (Development Site C3 at right).




62. View of Mother Gaston Boulevard facing southeast from Livonia Avenue (Development Site C3 at left).




Urban Cartographics



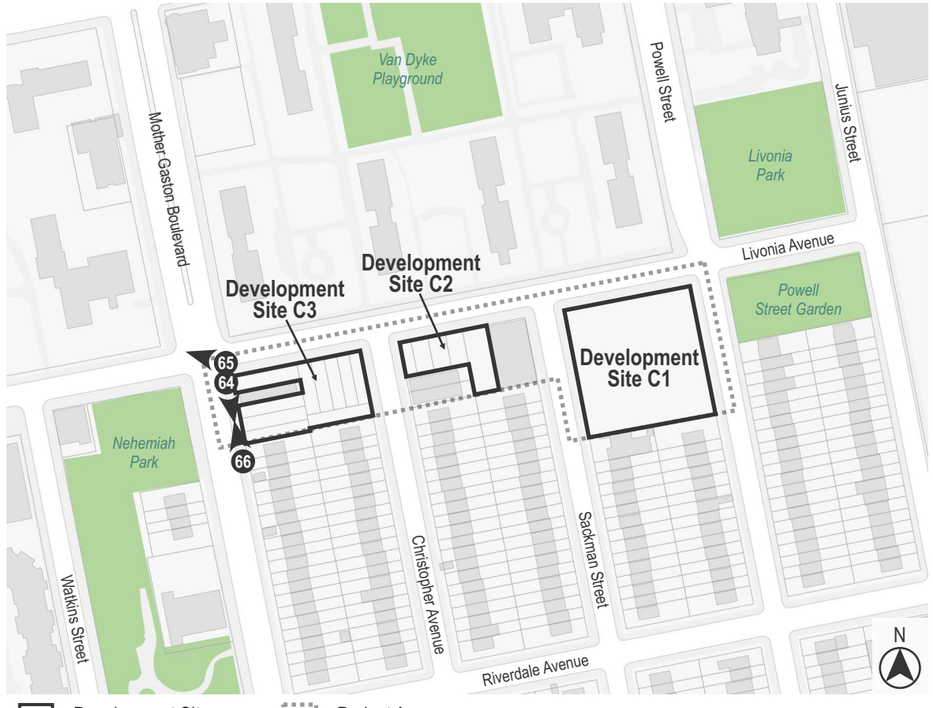

64. View of the sidewalk along the east side of Mother Gaston Boulevard facing southeast from Livonia Avenue (Development Site C3 at left).



65. View of the intersection of Mother Gaston Boulevard and Livonia Avenue facing northwest from Development Site C3.



66. View of the sidewalk along the east side of Mother Gaston Boulevard facing northwest (Development Site C3 at right).





67. View of the west side of Mother Gaston Boulevard facing southwest from Development Site C3.




68. View of Development Site C3 facing northeast from Mother Gaston Boulevard.




69. View of the Project Area facing northeast from Mother Gaston Boulevard.




Urban Cartographics
Photographs Taken on October 2, 2019



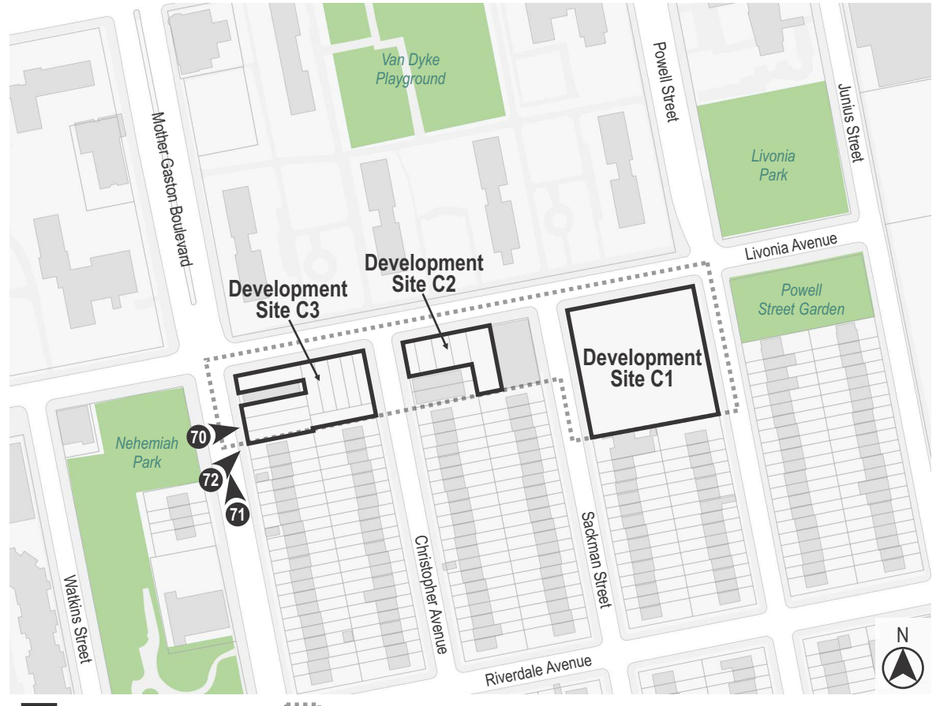
70. View of Development Site C3 facing northeast from Mother Gaston Boulevard.



71. View of Mother Gaston Boulevard facing northwest (Development Site C3 at right).



72. View of Development Site C3 facing northeast from Mother Gaston Boulevard.





73. View of the west side of Amboy Street facing southwest from Development Site C4.



74. View of the east side of Amboy Street facing northwest (Development Site C4 at right).



75. View of the sidewalk along the east side of Amboy Street facing southeast from Livonia Avenue (Development Site C4 at left).

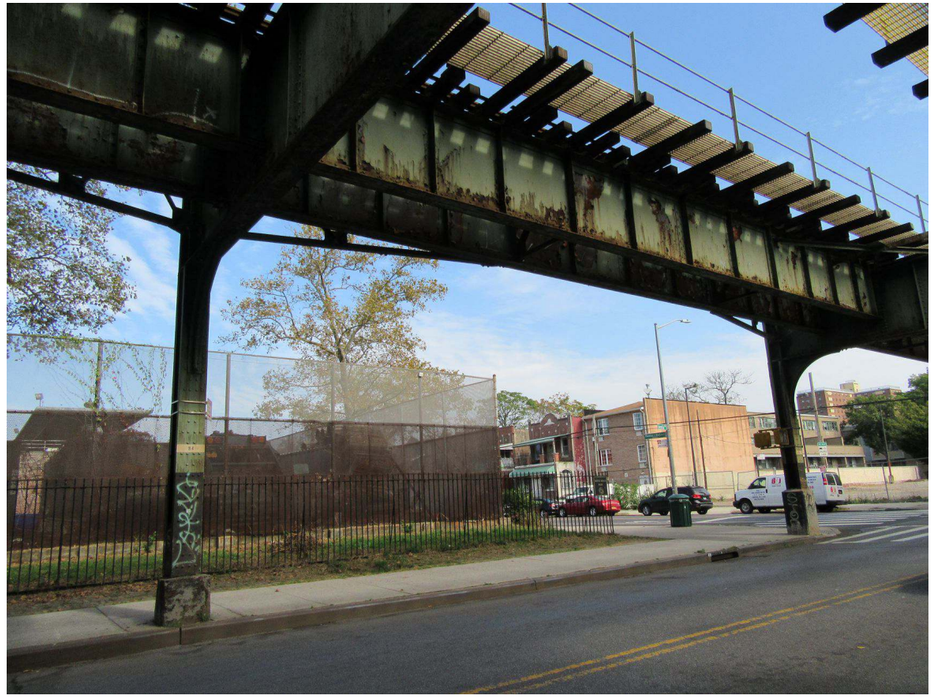




76. View of the south side of Livonia Avenue facing northeast from Amboy Street (Development Site C4 at right).



77. View of the north side of Livonia Avenue facing northwest from Development Site C4.



78. View of the north side of Livonia Avenue facing northeast from Development Site C4.





79. View of the sidewalk along the south side of Livonia Avenue facing southwest (Development Site C4 at left).



80. View of the sidewalk along the south side of Livonia Avenue facing southwest (Project Area at left).



81. View of the intersection of Thomas S. Boyland Street and Livonia Avenue facing northeast from the Project Area.





82. View of the sidewalk along the west side of Thomas S. Boyland Street facing southeast from Livonia Avenue (Project Area at right).



83. View of the sidewalk along the west side of Thomas S. Boyland Street facing northwest (Project Area at left).



84. View of the east side of Thomas S. Boyland Street facing southeast from the Project Area.





85. View of Thomas S. Boyland Street facing northwest (Project Area at left).



86. View of the Project Area facing northwest from Thomas S. Boyland Street.



87. View of the Project Area facing southwest from Thomas S. Boyland Street.





88. View of the Project Area facing southwest from Thomas S. Boyland Street.



89. View of Livonia Avenue facing southwest from Thomas S. Boyland Street (Project Area at left).



90. View of the Project Area facing southwest from the intersection of Livonia Avenue and Thomas S. Boyland Street.





91. View of Thomas S. Boyland Street facing southeast from Livonia Avenue (Project Area at right).



92. View of the Project Area facing southeast from Livonia Avenue.



93. View of Development Site C4 facing southwest from Livonia Avenue.





94. View of Development Site C4 facing southeast from Livonia Avenue.



96. View of Livonia Avenue facing northeast from Amboy Street (Development Site C4 at right).



95. View of Amboy Street facing southeast from Livonia Avenue (Development Site C4 at left).





97. View of Development Site C4 facing southeast from the intersection of Livonia Avenue and Amboy Street.



98. View of Amboy Street facing northwest (Development Site C4 at right).



99. View Development Site C4 facing northeast from Amboy Street.



significantly in the absence of the project. Zoning calculations of future No-Action conditions on the Site, including floor area calculations, lot coverage, and building heights, are shown in Table 10-1 below.

Future With-Action Scenario

The future With-Action Development Scenario would result in a denser development on the property as compared to the Existing/No-Action Development Scenario. Under the With-Action Scenario for the project build year of 2026, the five Projected Development Sites would be developed with five new buildings containing a total of 581,428 gsf of floor area. The buildings would contain 411,171 gsf of residential floor area, 39,411 gsf of commercial retail space (comprised of a 15,629 gsf supermarket, 10,636 gsf local retail space, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket), 59,715 gsf of community facility space (including 4,800 gsf of medical offices and 54,915 gsf of mixed community facility uses), and 71,102 of community facility space with sleeping accommodations. The five developments would contain a total of approximately 505 affordable dwelling units, 29 market rate housing units, and four dwelling units for superintendents. 90 of these units would be supportive housing treated as Use Group 3 community facility space. The existing 6,000 gsf church would be removed to accommodate the With-Action development. There are also two Potential Development Sites where new development is less likely to occur by the project build year. It is anticipated that the Potential Development Sites could be developed with two new buildings totaling up to 53,300 gsf in floor area comprised of 43,250 gsf of residential floor area for 41 dwelling units, 9 of which would be affordable, 5,500 gsf of retail space, and 4,550 gsf of community facility (medical office) space. No changes would occur to the existing/No-Action conditions on Other Sites 1-6. The development on each of the five Projected Development Sites and the two Potential Development Sites is detailed below.

*Projected Development Sites*

The Applicant seeks to develop Projected Development Site 1 with a 12-story and cellar 256,150 gsf building with 32,941 gsf of commercial space in the cellar and on the ground floor, 13,119 gsf of community facility space primarily on the roof of the building, and 210,090 gsf of residential space on all floors of the building with residential living space for 225 affordable dwelling units and 1 superintendents unit on floors 1 through 12. The commercial space would be comprised of an approximately 15,629 gsf supermarket, which would be serviced by 15 cellar level accessory parking spaces within 13,176 gsf of floor area, and approximately 4,136 gsf of ground-floor local retail space. The community facility space would be comprised of an approximately 13,119 gsf rooftop garden with greenhouse.

The proposed building would set back approximately 15 feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back 15 feet, before rising to a final height of 130 feet (12 stories). The main residential entrance

would be located on Sackman Street, while the commercial and community facility uses would be accessible from Livonia Avenue. The underground parking garage with approximately 15 accessory parking spaces would be accessible from Sackman Street and would provide the only off-street parking option within the Project Areas.

Projected Development Site 2 would be developed with an 11-story and cellar 69,176 gsf building with 5,052 gsf of community facility space in the cellar and on the ground floor, 41,554 gsf of community facility space with sleeping accommodations for 48 one- and two-bedroom units on floors 2, 3, and 4 of the building, and 22,570 gsf of residential space with residential living space for 32 affordable supportive dwelling units and 1 superintendents unit on floors 5 through 11. The community facility space would be comprised of an approximately 5,052 gsf community facility space.

The proposed building would set back approximately six feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back nine feet, before rising to a final height of 115 feet (11 stories). The main entrance for building residents and visitors to the community facility space would be located on Livonia Avenue.

Projected Development Site 3 would be developed with a 12-story and cellar 123,451 gsf building with 1,700 gsf of local retail space and 10,000 gsf of community facility space on the ground floor of the building, 29,548 gsf of community facility space with sleeping accommodations for 42 studio, one- and two-bedroom units on floors 2 and 3 of the building, and 82,203 gsf of residential space with residential living space for 97 senior affordable dwelling units and 1 superintendents unit on floors 4 through 12. The community facility space would be comprised of an approximately 10,000 gsf senior center.

The proposed building would set back five feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back 13 feet, before rising to a final height of 125 feet (12 stories). The main residential entrance would be located on Mother Gaston Boulevard, while retail and community facility uses would be accessible from Livonia Avenue.

Projected Development Site 4 would be developed with a 12-story and cellar 85,702 gsf building with 26,744 gsf of community facility space on the cellar through third floors of the building, and 58,958 gsf of residential space on all floors of the building with residential living space for 54 affordable dwelling units and 1 superintendent's unit on floors 4 through 12. The community facility space would be comprised of an approximately 26,744 gsf youth and family activities center.

The proposed building would set back five feet from Livonia Avenue before rising to a height of 75 feet. Above 75 feet, the building would set back 15 feet, before rising to a final height of 125 feet (12 stories). The main residential entrance would be located on

Amboy Street while the community facility use would be accessible from Livonia Avenue.

Projected Development Site 5 would be developed with a 9-story and cellar 46,950 gsf building with 4,800 gsf of commercial retail space on the ground floor of the building, 4,800 gsf of community facility space (medical offices) on the second floor, and 37,350 gsf of residential space on most floors of the building with residential living space for 36 dwelling units on floors 3 through 9. The building would set back five feet from Sackman Street before rising to a height of 75 feet. Above 75 feet, the building would set back 15 feet from Livonia Avenue and Sackman Street, before rising to a final height of 95 feet (9 stories).

The difference between the No-Action and With-Action Scenarios on the five Projected Development Sites would be the removal of all existing development and the development under the With-Action Scenario of five new buildings resulting in an increase of approximately 575,429 gsf of total floor area and would include the addition of 411,171 gsf of residential floor area for 448 dwelling units, 415 of which would be affordable units, 39,441 gsf of commercial retail space (comprised of a 15,629 gsf supermarket, 10,636 gsf local retail space, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket), 53,715 gsf of community facility space (including 4,800 gsf of medical offices and 48,915 gsf of mixed community facility uses), and 71,102 of Use Group 3 community facility space with sleeping accommodations for 90 supportive housing units. The With-Action development would change the primarily vacant and undeveloped character of the Project Areas to a relatively high density mixed-use residential, commercial, and community facility development with limited accessory parking. The With-Action development would increase the density of development on the five Projected Development Sites with the addition of a significant amount of new floor in buildings ranging from 9- to 12-stories in height.

Zoning calculations of future With-Action conditions on the Site, including floor area calculations, lot coverage, and building heights, are shown in Table 10-1 below. A three-dimensional representation of the future With-Action condition streetscape is also attached.

**Table 10-1**
**Zoning Calculations Relevant to Urban Design Analysis – Projected Development Sites**

| Item | Existing Conditions | No-Action Conditions | With-Action Conditions |
|---|---|---|---|
| **Development Scenario** | 6,000 gsf church; vacant land | 6,000 gsf church; vacant land | 448 dwelling units including 415 (411,171 gsf) affordable units; 39,441 gsf retail (inc 15 accessory parking spaces); 59,715 gsf community facility (inc 4,800 gsf medical offices & 54,915 gsf mixed community facility uses); 71,102 community facility w/sleeping accommodations for 90 supportive housing units |
| **Building Floor Area** | 6,000 gsf | 6,000 gsf | 581,429 sf |
| **Building Heights** | One 1-story building | One 1-story building | One 9-story (95'), one 11-story (115'), three 12-story (125', 129' & 130') |

*Potential Development Sites*

New development on Potential Development Sites 1 and 2 is analyzed for site specific impacts only and is not included in the quantitative assessment above. See the attached three-dimensional representation of the future With-Action condition streetscape.

Potential Development Site 1 could be developed with a 10-story and cellar 37,900 gsf building with 4,100 gsf of commercial retail space on the ground floor of the building, 3,250 gsf of community facility space (medical offices) on the second floor, and 30,550 gsf of residential space on most floors of the building with residential living space for 29 dwelling units on floors 3 through 10. The building would set back 15 feet from Livonia Avenue and Sackman Street at a height of 75 feet before rising to a final height of 95 feet (10 stories).

Potential Development Site 2 could be developed with a 10-story and cellar 15,400 gsf building with 1,400 gsf of commercial retail space on the ground floor of the building, 1,300 gsf of community facility space (medical offices) on the second floor, and 12,700 gsf of residential space on most floors of the building with residential living space for 12 dwelling units on floors 3 through 10. The building would set back 15 feet from Mother Gaston Boulevard at a height of 80 feet before rising to a final height of 95 feet (10 stories).

## Conclusion

The Proposed Actions would result in the development of residential, commercial, and community facility uses and accessory parking on five Projected Development Sites located in an area primarily characterized by vacant and undeveloped land.

The proposed R7-2/C2-4 district was chosen for the Project Areas in order to develop residential uses on the Applicant's property at a density needed to provide sufficient residential floor area for the project to be economically feasible. The Applicant seeks to develop Projected Development Sites 1-4 with housing consistent with the standards of the Quality Housing Program as well as affordable units under HPD's ELLA, SARA, and NY 15/15 programs and the Mandatory Inclusionary Housing (MIH) Program zoning regulations. Compared to existing R6 zoning, the proposed R7-2 district would permit an increase in maximum residential FAR from 3.6 to 4.6 when located within a designated Inclusionary Housing area) and an increase in maximum community facility FAR from 4.8 to 6.5. (There would be no change in the permitted commercial FAR of 2.0). The increase in permitted bulk is appropriate given the City's policy of promoting increased development in close proximity to transit stops and along a wide street (Livonia Avenue). The establishment of a Mandatory Inclusionary Housing area for this application was developed in consultation with DCP in order to facilitate the development of affordable housing at a higher FAR in the area to be rezoned.

The proposed R7-2 zoning district would be consistent with existing land use and zoning patterns within the surrounding area. R7-2 zoning would allow a bulk and density consistent with what is currently permitted in the surrounding area, including the R7-2 district mapped along Livonia Avenue between Thomas S. Boyland Street and Rockaway Avenue directly to the east of Site C4 and approximately four blocks west of Site C3. The additional bulk and density would provide the flexibility needed to redevelop several irregularly shaped parcels along an elevated rail line with affordable and supportive housing, retail, and community facility uses including a senior center and community garden, which would provide much needed services and amenities to existing and future residents of the area. These proposed uses would be consistent with HPD's 2017 Brownsville RFP and would further the objectives of the *Brownsville Plan*. Furthermore, the Proposed Development would introduce new activities and users to properties that have historically been vacant and desolate, enlivening the area and resulting in a more vibrant streetscape.

The With-Action Development Scenario would not result in any significant impacts to visual resources in proximity to the Project Areas. The Proposed Actions would not partially or totally block a view corridor or a natural or built visual resource that is rare in the area or considered a defining feature of the neighborhood. The Applicant believes that the development that would be facilitated by the Proposed Actions would represent a visual improvement to the Project Areas and would result in new development on the underdeveloped Projected Development Sites that is believed to be more compatible with the development pattern in residential areas further to the north. A detailed urban design analysis would not be required.

# Livonia Avenue Rezoning, Brooklyn

Urban Design Diagram

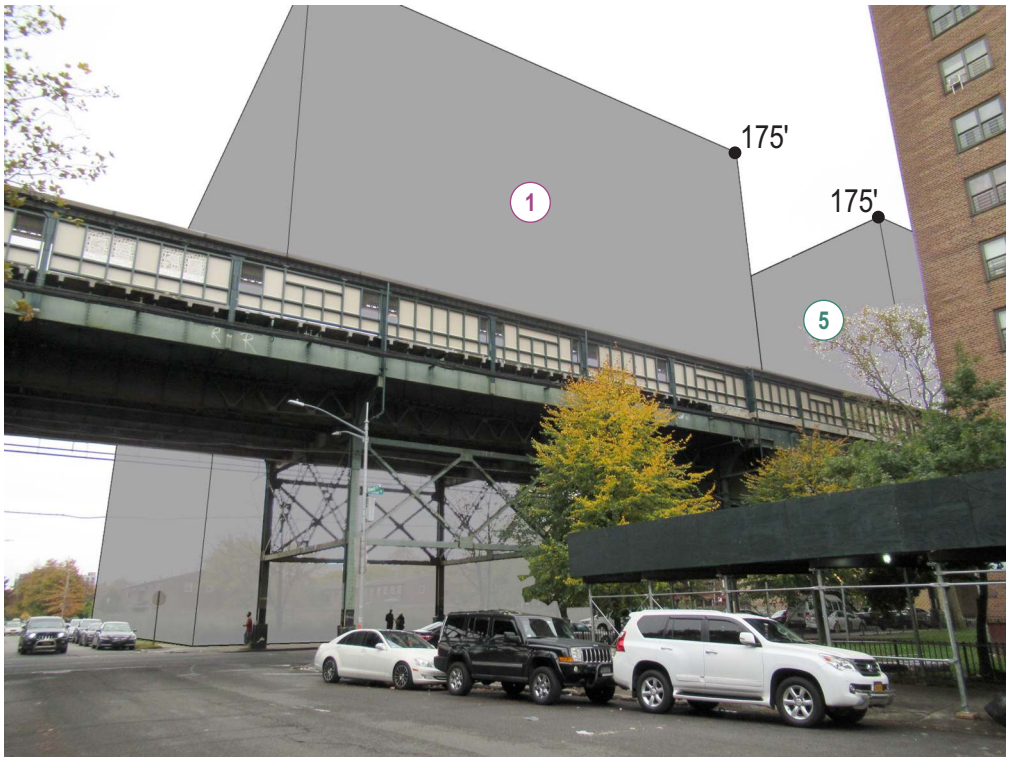
## No-Action Scenario

Livonia Avenue facing southwest (Site ahead)



## With-Action Scenario

Livonia Avenue facing southwest (Site ahead)




(#) Projected Development Site (Applicant-Owned)

(#) Projected Development Site (Non-Applicant-Owned)

(#) Potential Development Site (Non-Applicant-Owned)

Urban Cartographics

# Livonia Avenue Rezoning, Brooklyn

Urban Design Diagram

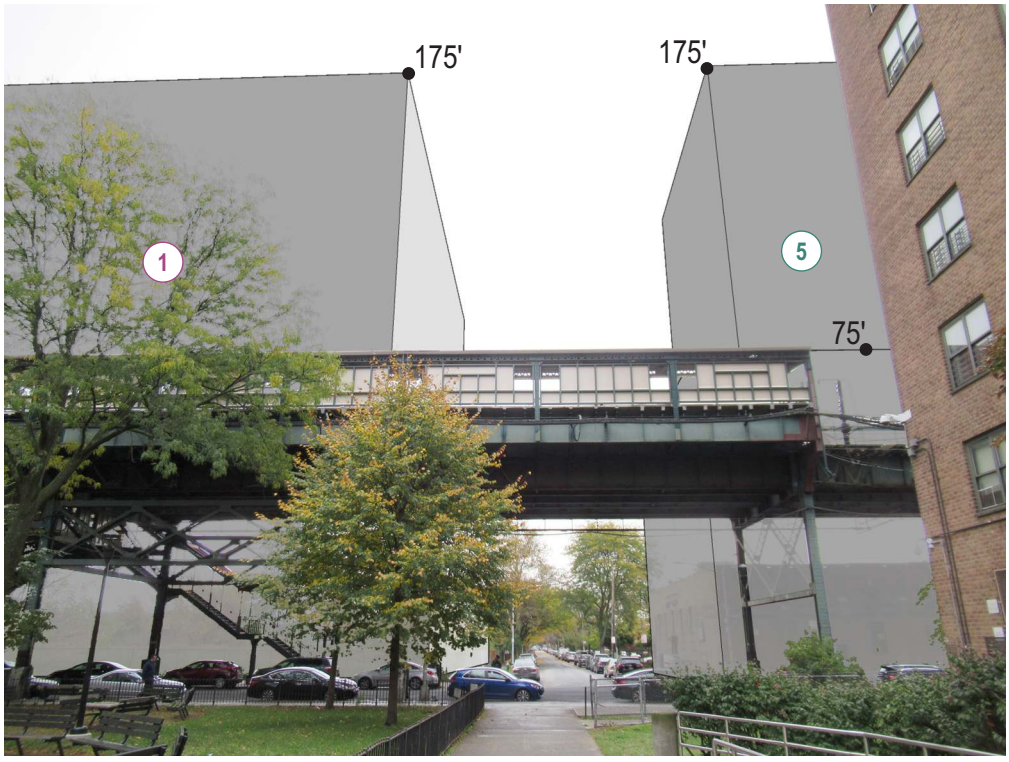
## No-Action Scenario

Livonia Avenue facing south (Site ahead)



## With-Action Scenario

Livonia Avenue facing south (Site ahead)




(#) Projected Development Site (Applicant-Owned)

(#) Projected Development Site (Non-Applicant-Owned)

(#) Potential Development Site (Non-Applicant-Owned)

Urban Cartographics

**Livonia Avenue Rezoning, Brooklyn**
Urban Design Diagram

## No-Action Scenario
Livonia Avenue facing south (Site ahead)



## With-Action Scenario
Livonia Avenue facing south (Site ahead)




(#) Projected Development Site (Applicant-Owned)
(#) Projected Development Site (Non-Applicant-Owned)
(#) Potential Development Site (Non-Applicant-Owned)

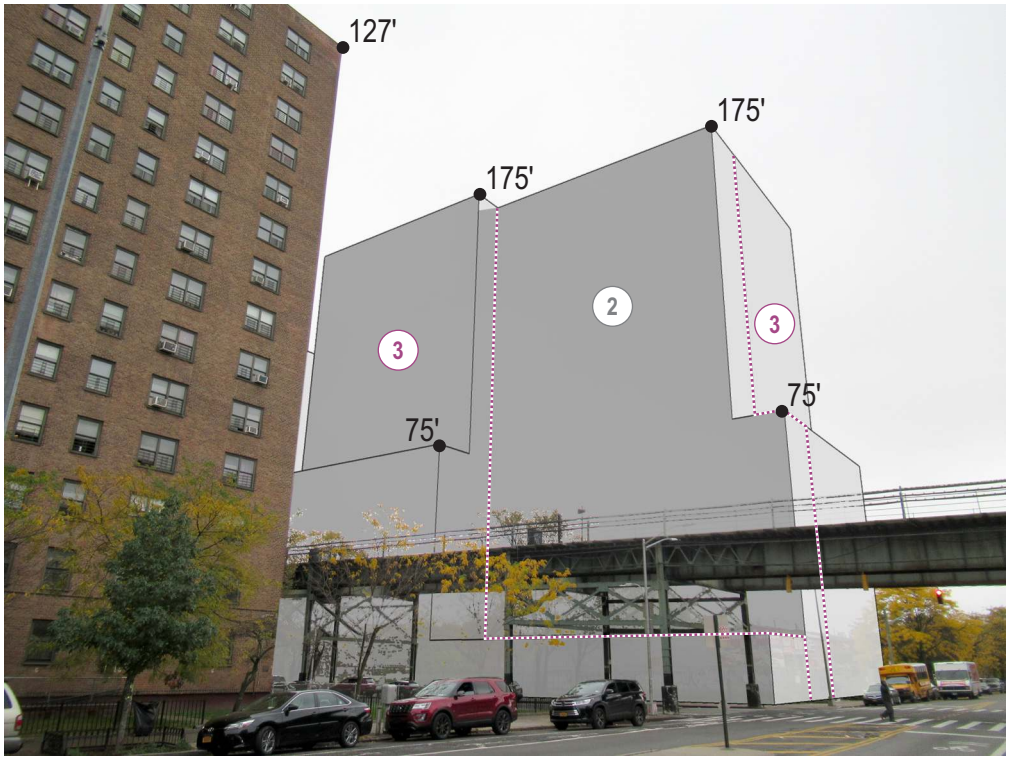
Urban Cartographics

**Livonia Avenue Rezoning, Brooklyn**
Urban Design Diagram

## No-Action Scenario
Livonia Avenue facing southeast (Site ahead)



## With-Action Scenario
Livonia Avenue facing southeast (Site ahead)




(#) Projected Development Site (Applicant-Owned)
(#) Projected Development Site (Non-Applicant-Owned)
(#) Potential Development Site (Non-Applicant-Owned)

Urban Cartographics

**Livonia Avenue Rezoning, Brooklyn**
Urban Design Diagram

## No-Action Scenario
Livonia Avenue facing south (Site at right)



## With-Action Scenario
Livonia Avenue facing south (Site at right)




(#) Projected Development Site (Applicant-Owned)
(#) Projected Development Site (Non-Applicant-Owned)
(#) Potential Development Site (Non-Applicant-Owned)

Urban Cartographics

## 11. NATURAL RESOURCES

The Project Areas and the surrounding 400-foot radius project study areas do not contain any natural resources. However, the Project Areas and surrounding radius are located within the Jamaica Bay Watershed. As required, the Jamaica Bay Watershed Protection Plan Project Tracking Form has been prepared and is attached to the end of the section. The Proposed Actions would not result in any significant adverse environmental impacts to the Jamaica Bay Watershed.

Print Form

# Jamaica Bay Watershed Protection Plan
# Project Tracking Form

The Jamaica Bay Watershed Protection Plan, developed pursuant to Local Law 71 of 2005, mandates that the New York City Department of Environmental Protection (DEP) work with the Mayor's Office of Environmental Coordination (MOEC) to review and track proposed development projects in the Jamaica Bay Watershed (http://www.nyc.gov/html/oec/downloads/pdf/ceqr/Jamaica_Bay_Watershed_Map.jpg) that are subject to CEQR in order to monitor growth and trends. If a project is located in the Jamaica Bay Watershed, (the applicant should complete this form and submit it to DEP and MOEC. This form must be updated with any project modifications and resubmitted to DEP and MOEC.

*The information below will be used for tracking purposes only. It is not intended to indicate whether further CEQR analysis is needed to substitute for the guidance offered in the relevant chapters of the CEQR Technical Manual.*

## A. GENERAL PROJECT INFORMATION

1. CEQR Number: 20HPD054K  1a. Modification ☐
2. Project Name: Livonia Avenue Rezoning
3. Project Description:

Development of 5 Sites with 581,429 gsf of floor area including 538 dwelling units,39,441 gsf of commercial retail space, 59,715 gsf of community facility space, 71,102 of community facility space with sleeping accommodations for 90 supportive housing units (part of 538 units), 15 parking spaces.

4. Project Sponsor: NYC Department of Housing Preservation & Development
5. Required approvals: Zoning Map & Text Amendments, UDAA/UDAAP, property dispos, URP Amend
6. Project schedule (build year and construction schedule): 2026; 36 months

## B. PROJECT LOCATION:

1. Street address: South side Livonia Ave betw Powell St/Mother Gaston Blvd & T.Boyland/Amber Sts
2. Tax block(s): 3811, 3812, 3813, 3586  Tax Lot(s): 17-19,20,21,23-27,124;19-22,24,121;115,26
3. Identify existing land use and zoning on the project site: Vacant, church; R6, R6/C2-4
4. Identify proposed land use and zoning on the project site: Res, com'l, CF; R7/C2-4
5. Identify land use of adjacent sites (include any open space): Residential
6. Describe existing density on the project site and the proposed density:

| Existing Condition | Proposed Condition |
|---|---|
| 6,000 bldg gsf on 84,075 sf land area | 581,429 gsf on 84,075 sf land area |

7. Is project within 100 or 500 year floodplain (specify)? ☐ **100 Year** ☐ **500 Year** ☒ **No**

## C. GROUND AND GROUNDWATER

1. Total area of in-ground disturbance, if any (in square feet): 84,075
2. Will soil be removed (if so, what is the volume in cubic yards)? 29,395
3. Subsurface soil classification:
   (per the New York City Soil and Water Conservation Board): Pavement/buildings-Flatbush-Riverh
4. If project would change site grade, provide land contours (**attach** map showing existing in 1' contours and proposed in 1' contours).
5. Will groundwater be used (list volumes/rates)? ☐ **Yes** ☒ **No**

   Volumes: Rates:
6. Will project involve dewatering (list volumes/rates)? ☐ **Yes** ☒ **No**

   Volumes: Rates:
7. Describe site elevation above seasonal high groundwater:

   The seasonal high water table is rarely higher than 40 inches from the surface for any significant period during the growing season.

## D. HABITAT

1. Will vegetation be removed, particularly native vegetation? ☐ **Yes** ☒ **No**

   If YES,
   - **Attach** a detailed list (species, size and location on site) of vegetation to be removed (including trees >2" caliper, shrubs, understory planting and groundcover).
   - **List** species to remain on site.
   - **Provide** a detailed list (species and sizes) of proposed landscape restoration plan (including any wetland restoration plans).
2. Is the site used or inhabited by any rare, threatened or endangered species? ☐ **Yes** ☒ **No**
3. Will the project affect habitat characteristics? ☐ **Yes** ☒ **No**

   If YES, describe existing wildlife use and habitat classification using "Ecological Communities of New York State." at http://www.dec.ny.gov/animals/29392.html.
4. Will pesticides, rodenticides or herbicides be used during construction? ☐ **Yes** ☒ **No**

   If YES, estimate quantity, area and duration of application.
5. Will additional lighting be installed? ☒ **Yes** ☐ **No**

   If YES and near existing open space or natural areas, what measures would be taken to reduce light penetration into these areas?

   Exterior lighting would be shielded and directed downward away from nearby open space areas.

## E. SURFACE COVERAGE AND CHARACTERISTICS

(describe the following for both the existing and proposed condition):

| | Existing Condition | Proposed Condition |
|---|---|---|
| 1. ***Surface area:*** | | |
| Roof: | 6,000 | 46,635 |
| Pavement/walkway: | 0 | 10,167 |
| Grass/softscape: | 78,075 | 27,273 |
| Other (describe): | 0 | None |
| 2. ***Wetland*** (regulated or non-regulated) area and classification: | None | None |
| 3. ***Water surface area:*** | None | None |

4. ***Stormwater management*** (describe):

Existing – how is the site drained?

Stormwater currently drains overland from the affected properties into the storm drains in the surrounding streets.

Proposed – describe, including any infrastructure improvements necessary off-site:

Stormwater would drain over land from the affected properties into the storm drains in the surrounding streets. Sidewalks, streets, and storm drains adjacent to the development sites would be rebuilt as necessary to service the new developments.

## 12. HAZARDOUS MATERIALS

### INTRODUCTION

Environmental Studies Corp. has performed Phase I Environmental Site Assessments (ESA) of the following properties in the Borough of Brooklyn, New York City, New York.

- Livonia 4 Site C1, located at 386-408 Livonia Avenue (A.K.A. 579-601 Sackman Street & 440-462 Powell Street);
- Livonia 4 Site C2, located at 362-376 Livonia Avenue (A.K.A. 377-381 Christopher Street);
- Livonia 4 Site C3, located at 338-354 & 360 Livonia Avenue (A.K.A. 641 & 647-651 Mother Gaston Boulevard and 378-388 Christopher Avenue); and
- Livonia 4 Site C4, located at 146-156 Livonia Avenue (A.K.A. 339-349 Amboy Street).

The Phase I ESAs were prepared in accordance with the latest ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Designation E 1527-13).

The Standard Practice E 1527-13 defines good commercial and customary practice for conducting an environmental site assessment (ESA) of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and petroleum products. As such, the Practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability (referred to as landowner liability protections or LLPs); that is, the practice that constitutes all appropriate inquiries into the previous ownership and uses of the property consistent with good commercial and customary practice.

The goal of an ESA is to identify, to the extent feasible in accordance with ASTM E 1527-13, *recognized environmental conditions (RECs)* in connection with the property. The term *recognized environmental condition* means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not *recognized environmental conditions*. The term *de minimis* condition means a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. The presence or likely presence of hazardous substances or petroleum products at the

site includes any form, such as solid or liquid at the surface or subsurface, and vapor in the subsurface.

The Practice also defines two additional *RECs*; *controlled recognized environmental conditions* and *historical recognized environmental conditions*. The term *controlled recognized environmental conditions* means a *recognized environmental condition* resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

The term *historical recognized environmental condition* means a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been address to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Recognized environmental conditions are identified through a review of pertinent records for the project site and nearby properties, a site reconnaissance, interviews and User provided information. The records review includes a review of *Standard Historical Sources* of information to determine the history of the property. Such sources include historical aerial photographs, fire insurance maps such as those published by the Sanborn Map Company, reverse telephone directories, building department records such as Certificates of Occupancy, building and demolition permits, etc., property tax records, recorded land title records, previous environmental reports and others. The records review also includes regulatory agency lists and databases of documented hazardous waste sites, spill incidents, registered storage tanks and others.

The non-invasive site reconnaissance is performed to identify potential sources of contamination at the project site and in the immediate vicinity of the site. Such potential sources of contamination include operations involving the storage or use of hazardous substances or petroleum products, the presence of petroleum storage tanks, drainage structures, chemical/oil staining, dead or dying vegetation and others.

Interviews are conducted, whenever possible, with site owners, operators, tenants, local government officials, and others with knowledge of the site and information regarding potential RECs at a property. Finally, several ASTM "Non-Scope" items including asbestos-containing materials, lead-based paints, and radon are also discussed.

The Executive Summary of the Phase I ESA for Sites C1, C2, C3, and C4 is presented below.

**LIVONIA 4 SITE C1**

Site Description

The subject property is located on the south side of Livonia Avenue, between Sackman Street and Powell Street, in the Brownsville section of the Borough of Brooklyn, New York City, New York. The site consists of a 40,000+/- square foot, undeveloped lot surrounded by a chain link fence. There were not any visible indications of former buildings on the surface, such as concrete slabs, old foundation walls, etc. The surface was unpaved and overgrown by a dense layer of weeds and other low vegetation.

Site History

Research into the history of the property indicates that the project site was undeveloped in 1887, as shown on the Sanborn map for that year. The area surrounding the site was rural in the 1880s, and it is considered unlikely that the lot would have been developed prior to 1887.

Sometime between 1887 and 1907, six residential dwellings and a small distillery (East New York Distillery Co. Distillery No. 3) were constructed at the site. The distillery was located on the northwest portion of the lot and fronted Livonia Avenue. The facility contained a 1-story building (1,500+/- square feet) with the distillery and office, and a small, 1-story stable and storage building. By 1924, the distillery had been demolished and the entire project site was developed with 22 buildings (13 dwellings and nine retail stores), some of which contained basements. These structures remained at the site until at least 1954, and by 1987, all 22 buildings had been demolished. The project site has remained an undeveloped lot since 1987.

The materials used to fill the basements of these former buildings is not known. At the time these buildings were demolished, it was not uncommon for the buildings to be demolished into the basements, particularly if they had been damaged by fire or in a severely deteriorated condition. In addition, it is not known if the contents of the basements were removed prior to demolition, such as oil tanks, boilers, hot water heaters, pipes, etc. Therefore, it is possible that debris from the former buildings at the site may remain in the subsurface.

The identified uses of the property from 1907 to 1987 include residential dwellings, a distillery, a moving company, a doll and toy store, grocery stores, an electrical contractor, a liquor store, a shoe store, a shoe repair store, a barber shop, insurance agencies, a cigar store, stationary stores, a roofing and siding contractor and a dry cleaner. With the exception of the dry cleaner, the identified former uses at the project site are not types of operations that typically involve the storage or use of hazardous substances.

A dry cleaner is shown in the building at 394 Livonia Avenue on the 1966, 1977, 1981, 1983 and 1986 Sanborn maps. City directories list Kelson Cleaners at 394 Livonia

Avenue in 1960, 1965, 1970 and 1973. Dry cleaners typically use solvents including tetrachloroethylene, also known as perchloroethylene or perc, in their operations. Any past spills, leaks or discharges of such materials at the site would represent a potential source of contamination to the property. In addition, solvents such as perc have a propensity to move through the soil in the form of a vapor and therefore, the possibility exists for the encroachment of vapors into any future buildings at the site.

Fill Materials

The southern two-thirds of the project site is slightly higher in elevation than the surrounding streets and sidewalks. Small quantities of debris, including concrete, were observed on the lot. At the time of the site visit, the surface of the lot was covered by a dense layer of vegetation which obscured the surface. However, numerous small mounds and depressions were located throughout the area, which indicates the possibility of fill materials of an unknown origin on the lot.

Environmental Liens and Activity and Use Limitations

There were not any indications of Environmental Liens or Activity and Use Limitations found on file for the project site in the New York City Department of Finance records reviewed. There are not any Environmental Liens or Activity and Use Limitations identified at the project site in the EDR database report.

Drainage Structures

No floor drains, storm drains, drywells, trench drains, pits, ponds, lagoons or other drainage structures were observed at the project site.

Petroleum Storage Tanks

No aboveground storage tanks (ASTs), or visible indications of the presence of underground storage tanks (USTs) such as fillports, vent lines, associated mechanical equipment, etc., were observed at the property, or in the sidewalks adjoining the property, during the site visit. The property is not identified in the New York State Department of Environmental Conservation (NYSDEC) Petroleum Bulk Storage (PBS) database, which lists all registered facilities with a total combined petroleum storage capacity in excess of 1,100 gallons. There are not any Oil Burner Applications on file for the project site in the New York City Department of Buildings (NYCDOB) records reviewed.

It is not known how the buildings formerly located at the project site were heated (e.g., fuel oil, gas, coal, electric, etc.). According to NYCDOB records, approval for the storage of fuel oil at 396 Livonia Avenue was received from the New York City Fire Department (FDNY) in 1952, which indicates that the building had an oil-fired heating system and associated oil tank. Any heating oil tanks which were not removed from the project site at the time of the building's demolition may remain at the property. Any fuel oil tanks

discovered at the site during re-development should be properly closed or removed in accordance with all applicable regulations.

Asbestos/Lead-Based Paints/PCBs

No suspected asbestos-containing materials, lead-based paints or electrical equipment suspected of containing PCBs were observed at the subject property during the site visit.

Regulatory Agency Records

The subject property is not identified in any of the Federal or State environmental databases reviewed, including the USEPA's Superfund, CORRACTS, CERCLIS or ERNS databases, the RCRA Hazardous Waste Generators list or hazardous waste Treatment/Storage/Disposal Facilities list, or the NYSDEC's Spill Logs database, Petroleum Bulk Storage database, Solid Waste Facilities database, Voluntary Cleanup Program, Brownfield Cleanup Program, or the Registry of Inactive Hazardous Waste Disposal Sites.

Surrounding Land Uses

The project site is adjoined to the north by Livonia Avenue, beyond which are the New York City Housing Authority (NYCHA) Van Dyke Houses. There is an elevated rail line which runs along Livonia Avenue, and the Junius Street station for this line is also located adjacent and to the north of the site. To the south of the site are residential dwellings. Adjacent and to the east is Powell Street, beyond which are residential dwellings and an undeveloped lot. The lot is adjoined by Sackman Street to the west, beyond which is the Tabernacle Baptist Church and residential dwellings. Land uses in the immediate vicinity of the project site (i.e., within approximately 500 feet) are predominantly comprised of a mix of residential and commercial/retail uses. No gasoline filling stations or heavy industrial uses were observed in the immediate vicinity of the project site.

A review of Sanborn maps show that land uses in the immediate area of the site have been predominantly residential and commercial/retail, with some light industrial uses, since at least the 1920s. Light industrial uses identified in the area include woodworking shops, mattress manufacturing, lumber yards, bottling companies and a knitting mill. However, there were not any industrial uses which are considered likely to have impacted the project site identified on the Sanborn maps reviewed.

There were not any potential off-site sources of contamination which are considered likely to have impacted the project site identified in the regulatory agency database or historical information reviewed for this report.

Conclusions

Environmental Studies Corp. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 of the property referred to as Livonia 4 Site C1, Block 3813, Lot 115, Brooklyn, New York, the property. This assessment has revealed no evidence of *Controlled Recognized Environmental Conditions* or *Historical Recognized Environmental Conditions* in connection with the property. This assessment has revealed no evidence of *Recognized Environmental Conditions* in connection with the property, with the following exceptions:

- The potential for site impacts from past on-site dry cleaning operations at 394 Livonia Avenue, including the potential for the encroachment of vapors to future buildings at the project site.
- The possible presence of one or more fuel oil storage tanks at the project site.
- The possible presence of fill materials, including remnants of former buildings, at the project site.

**LIVONIA 4 SITE C2**

Site Description

The subject property referred to as Livonia 4 Site C2 is located on the south side of Livonia Avenue, between Sackman Street and Christopher Avenue, in the Brownsville section of the Borough of Brooklyn, New York City, New York. The property consists of five adjoining, undeveloped lots with a total combined area of approximately 9,150+/- square feet. The site is surrounded by a chain link fence along the north, south and west sides of the site, and an adjoining building located along the eastern site boundary. A concrete slab, possibly a remnant of a former building, was visible on the southeast portion of the site. No other indications of former buildings or structures were observed, such as additional concrete slabs, old foundations walls, etc. The rest of the property is unpaved and overgrown by a dense layer of low vegetation including weeds and grass.

Site History

Research into the history of the property indicates that the project site was undeveloped in 1887 and 1907, as shown on the Sanborn maps for those years. The area surrounding the site was rural in the 1880s, and it is considered unlikely that the site would have been developed prior to 1887.

Sometime between 1907 and 1924, 2-story mixed-use buildings (i.e., commercial/retail on the ground floor with residential above) were constructed on Lots 19, 20, 21 and 121, and a 1-story industrial/warehouse building was constructed on Lot 22. The 1-story industrial warehouse building was demolished sometime between 1977 and 1979 and the 2-story buildings on Lots 19 and 20 were demolished in 1974. The 2-story buildings

on Lots 21 and 121 were demolished in 2008, and the project site has remained undeveloped and vacant since 2008.

The basements of these former buildings is not known, and it is not known if the contents of the basements were removed prior to demolition, such as oil tanks, boilers, hot water heaters, pipes, etc. Therefore, it is possible that debris from the former buildings at the site may remain in the subsurface.

The identified uses of the property from 1924 to 2008 include residential dwellings, grocery stores, restaurants and cafes, a window shade company, a bakery, a jewelry store, a hardware store, an upholstery store, a medical office, a coat and apron company, sash and door storage, a mattress manufacturing company, and a dry cleaner. With the exceptions of the dry cleaner and mattress manufacturing, the identified former uses at the project site are not types of operations that typically involve the storage or use of hazardous substances.

A dry cleaner is shown in the building at 372 Livonia Avenue on the 1966 and 1977 Sanborn maps. City directories list Perfect Cleaners and Tailors at 372 Livonia Avenue in 1960 and 1965. Dry cleaners typically use solvents including tetrachloroethylene, also known as perchloroethylene or perc, in their operations. Any past spills, leaks or discharges of such materials at the site would represent a potential source of contamination to the property. In addition, solvents such as perc have a propensity to move through the soil in the form of a vapor and therefore, the possibility exists for the encroachment of vapors into future buildings at the site.

The 1-story industrial/warehouse building formerly located on Lot 22 of the project site was occupied by a mattress manufacturing company (Bordman's Mattress Co.) from 1940 to 1973. It is not known if the mattress manufacturing operations involved the storage or use of hazardous substances or petroleum products. However, it is likely that such materials were, at a minimum, used to operate and maintain the machinery and equipment at the factory. Any past spills, leaks or discharges of such materials at the site would represent a potential source of contamination to the property, including the possibility for the encroachment of vapors into future buildings at the site.

Fill Materials

At the time of the site visit, the surface of the lot was covered by a dense layer of vegetation which obscured the surface. However, numerous small mounds and depressions were located throughout the area, which indicates the possibility of fill materials of an unknown origin on the lot.

Environmental Liens and Activity and Use Limitations

There were not any indications of Environmental Liens or Activity and Use Limitations found on file for the project site in the New York City Department of Finance records

reviewed. There are not any Environmental Liens or Activity and Use Limitations identified at the project site in the EDR database report.

Drainage Structures

No floor drains, storm drains, drywells, trench drains, pits, ponds, lagoons or other drainage structures were observed at the project site.

Petroleum Storage Tanks

No aboveground storage tanks (ASTs), or visible indications of the presence of underground storage tanks (USTs) such as fillports, vent lines, associated mechanical equipment, etc., were observed at the subject property, or in the sidewalks adjoining the property, during the site visit. The property is not identified in the New York State Department of Environmental Conservation (NYSDEC) Petroleum Bulk Storage (PBS) database, which lists all registered facilities with a total combined petroleum storage capacity in excess of 1,100 gallons.

It is not known how the buildings formerly located at the project site were heated (e.g., fuel oil, gas, coal, electric, etc.). According to NYCDOB records, an Oil Burner Application (F.O. 6637-46) was issued to Lot 21 in 1946 for oil burning equipment, which indicates that the building had an oil-fired heating system and associated oil tank. Any heating oil tanks which were not removed from the project site at the time of the building's demolition may remain at the subject property. Any fuel oil tanks discovered at the site during re-development should be properly closed or removed in accordance with all applicable regulations.

Asbestos/Lead-Based Paints/PCBs

No suspected asbestos-containing materials, lead-based paints or electrical equipment suspected of containing PCBs were observed at the subject property during the site visit.

Regulatory Agency Records

The subject property is not identified in any of the Federal or State environmental databases reviewed, including the USEPA's Superfund, CORRACTS, CERCLIS or ERNS databases, the RCRA Hazardous Waste Generators list or hazardous waste Treatment/Storage/Disposal Facilities list, or the NYSDEC's Spill Logs database, Petroleum Bulk Storage database, Solid Waste Facilities database, Voluntary Cleanup Program, Brownfield Cleanup Program, or the Registry of Inactive Hazardous Waste Disposal Sites.

Surrounding Land Uses

The project site is adjoined to the north by Livonia Avenue, beyond which are the New York City Housing Authority Van Dyke Houses. There is an elevated rail line which runs along Livonia Avenue. To the south of the site are residential dwellings. Adjacent

and to the east is the Tabernacle Baptist Church. The site is adjoined to the west by Christopher Avenue, beyond which is an undeveloped lot. Land uses in the immediate vicinity of the project site (i.e., within approximately 500 feet) are predominantly comprised of a mix of residential and commercial/retail uses. No gasoline filling stations or heavy industrial uses were observed in the immediate vicinity of the project site.

A review of Sanborn maps show that land uses in the immediate area of the site have been predominantly residential and commercial/retail, with some light industrial uses, since at least the 1920s. Light industrial uses identified in the area include woodworking shops, mattress manufacturing, lumber yards, bottling companies and a knitting mill. However, there were not any industrial uses which are considered likely to have impacted the project site identified on the Sanborn maps reviewed.

There were not any potential off-site sources of contamination which are considered likely to have impacted the project site identified in the regulatory agency database or historical information reviewed for this report.

Conclusions

Environmental Studies Corp. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 of the property referred to as Livonia 4 Site C2, 362-376 Livonia Avenue (A.K.A. 377-381 Christopher Street), Brooklyn, New York, the property. This assessment has revealed no evidence of *Controlled Recognized Environmental Conditions* or *Historical Recognized Environmental Conditions* in connection with the property. This assessment has revealed no evidence of *Recognized Environmental Conditions* in connection with the property, with the following exceptions:

- The potential for site impacts from past on-site dry cleaning operations at 372 Livonia Avenue, including the potential for the encroachment of vapors to future buildings at the project site.
- The potential for site impacts from past on-site mattress manufacturing operations at 376 Livonia Avenue, including the potential for the encroachment of vapors to future buildings at the project site.
- The possible presence of one or more fuel oil storage tanks at the project site.
- The possible presence of fill materials, including remnants of former buildings, at the project site.

**LIVONIA 4 SITE C3**

Site Description

The subject property referred to as Livonia 4 Site C3 is located on the south side of Livonia Avenue, between Mother Gaston Boulevard and Christopher Avenue, in the

Brownsville section of the Borough of Brooklyn, New York City, New York. The property consists of nine adjoining, undeveloped lots with a total combined area of approximately 16,900+/- square feet. The site is surrounded by a chain link fence. The surface of the property is unpaved and was covered by a dense layer of vegetation at the time of the site visit. No indications of former buildings or structures were observed, such as concrete slabs, old foundations walls, etc.

Site History

Research into the history of the property indicates that the project site was undeveloped in 1887, as shown on the Sanborn map for that year. The area surrounding the site was rural in the 1880s, and it is considered unlikely that the site would have been developed prior to 1887.

Sometime between 1887 and 1907, development of the site began, and by 1924 the entire property was developed with buildings. Lots 17, 18, 19, 23, 26, and 124 contained 3-story, mixed-use buildings (i.e., retail and residential), Lot 21 contained a 4-story retail building, and Lots 24 and 27 contained 3-story apartment buildings. All of the former structures at the project site were demolished between 1966 and 1986, and the site has remained vacant and undeveloped since 1986.

The materials used to fill the basements of these former buildings is not known, and it is not known if the contents of the basements were removed prior to demolition, such as oil tanks, boilers, hot water heaters, pipes, etc. Therefore, it is possible that debris from the former buildings at the site may remain in the subsurface.

The identified uses in the former buildings at the site include retail stores, grocery stores, candy stores and confectionaries, furniture stores, real estate offices, a TV store, a dry cleaner, a chemical (aerosol) company, a tin smith shop (blower shop), and a printer.

A dry cleaner is shown in the building at 360 Livonia Avenue (A.K.A. 378-386 Christopher Ave.) on the 1966 Sanborn map. City directories list Diamond Cleaners at 386 Christopher Avenue in 1960 and 1965. Dry cleaners typically use solvents including tetrachloroethylene, also known as perchloroethylene or perc, in their operations. Any past spills, leaks or discharges of such materials at the site would represent a potential source of contamination to the property. In addition, solvents such as perc have a propensity to move through the soil in the form of a vapor and therefore, the possibility exists for the encroachment of vapors into any future buildings developed on the site.

Other past businesses or operations at the project site which may have included the storage or use of hazardous substances or petroleum products are the Eska Chemicals Corp. (aerosols), listed in the former building at 352 Livonia Avenue in 1960, a printer (Junis Press Printer) at 348 Livonia Avenue in 1934, and a tinsmith shop (blower shop) at 352-354 Livonia Avenue in the 1950s. Any past spills, leaks or discharges of

hazardous substances or petroleum products from these former uses would represent a potential source of contamination to the property, including the possibility for the encroachment of vapors into any future buildings developed on the site.

Fill Materials

At the time of the site visit, the surface of the lot was covered by a dense layer of vegetation which obscured the surface. However, numerous small mounds and depressions were located throughout the area, which indicates the possibility of fill materials of an unknown origin on the lot.

Environmental Liens and Activity and Use Limitations

There were not any indications of Environmental Liens or Activity and Use Limitations found on file for the project site in the New York City Department of Finance records reviewed. A search of land title records did not identify any Environmental Liens or Activity and Use Limitations at the site. There are not any Environmental Liens or Activity and Use Limitations identified at the project site in the EDR database report.

Drainage Structures

No floor drains, storm drains, drywells, trench drains, pits, ponds, lagoons or other drainage structures were observed at the project site.

Petroleum Storage Tanks

No aboveground storage tanks (ASTs), or visible indications of the presence of underground storage tanks (USTs) such as fillports, vent lines, associated mechanical equipment, etc., were observed at the property, or in the sidewalks adjoining the property, during the site visit. The property is not identified in the New York State Department of Environmental Conservation (NYSDEC) Petroleum Bulk Storage (PBS) database, which lists all registered facilities with a total combined petroleum storage capacity in excess of 1,100 gallons.

It is not known how the buildings formerly located at the project site were heated (e.g., fuel oil, gas, coal, electric, etc.). According to NYCDOB records, Oil Burner Applications were issued to Lot 17 in 1955, to Lot 19 in 1956 and to Lot 26 in 1951, which indicates that the buildings had oil-fired heating systems and associated oil tanks. Any heating oil tanks which were not removed from the project site at the time of the building's demolition may remain at the subject property. Any fuel oil tanks discovered at the site during re-development should be properly closed or removed in accordance with all applicable regulations.

Asbestos/Lead-Based Paints/PCBs

No suspected asbestos-containing materials, lead-based paints or electrical equipment suspected of containing PCBs were observed at the property during the site visit.

Regulatory Agency Records

The subject property is not identified in any of the Federal or State environmental databases reviewed, including the USEPA's Superfund, CORRACTS, CERCLIS or ERNS databases, the RCRA Hazardous Waste Generators list or hazardous waste Treatment/Storage/Disposal Facilities list, or the NYSDEC's Spill Logs database, Petroleum Bulk Storage database, Solid Waste Facilities database, Voluntary Cleanup Program, Brownfield Cleanup Program, or the Registry of Inactive Hazardous Waste Disposal Sites.

Surrounding Land Uses

The project site is adjoined to the north by Livonia Avenue, beyond which are the New York City Housing Authority Van Dyke Houses. There is an elevated rail line which runs along Livonia Avenue. To the south of the site are residential dwellings. Adjacent and to the east is Christopher Avenue, beyond which are dwellings and an undeveloped lot. Adjacent and to the west of the site is Mother Gaston Blvd., beyond which is a public park. Land uses in the immediate vicinity of the project site (i.e., within approximately 500 feet) are predominantly comprised of a mix of residential and commercial/retail uses. No gasoline filling stations or heavy industrial uses were observed in the immediate vicinity of the project site.

A review of Sanborn maps show that land uses in the immediate vicinity of the site have been predominantly residential and commercial/retail, with some light industrial uses, since at least the 1920s. Light industrial uses identified in the area include woodworking shops, mattress manufacturing, lumber yards, bottling companies and a knitting mill. However, there were not any industrial uses which are considered likely to have impacted the project site identified on the Sanborn maps reviewed.

There were not any potential off-site sources of contamination which are considered likely to have impacted the project site identified in the regulatory agency database or historical information reviewed for this report.

Conclusions

Environmental Studies Corp. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 of the property referred to as Livonia 4 Site C3, 338-354 & 360 Livonia Avenue (A.K.A. 378-388 Christopher Avenue and 641 & 647-651 Mother Gaston Boulevard), Brooklyn, New York, the property. This assessment has revealed no evidence of *Controlled Recognized Environmental Conditions* or *Historical Recognized Environmental Conditions* in connection with the property. This assessment has revealed no evidence of *Recognized Environmental Conditions* in connection with the property, with the following exceptions:

- The potential for site impacts from past on-site dry cleaning operations on Lot 26, including the potential for the encroachment of vapors to any future buildings to be developed on the project site.

- The potential for site impacts from past on-site tinsmith operations, printing operations, or chemical company operations at the subject property, including the potential for the encroachment of vapors to any future buildings to be developed on the project site.

- The possible presence of one or more fuel oil storage tanks at the project site.

- The possible presence of fill materials, including remnants of former buildings, at the project site.

**LIVONIA 4 SITE C4**

Site Description

The subject property is located on the south side of Livonia Avenue, between Amboy Street and Thomas S. Boyland Street, in the Brownsville section of the Borough of Brooklyn, New York City, New York. The property consists of a 10,000+/- square foot, undeveloped lot surrounded by a chain link fence. At the time of the site visit, the surface of the lot was unpaved and overgrown by low vegetation such as weeds and grasses, and there were three mature trees located along the south and east sides of the lot. Three old concrete slabs were visible on the surface, which were possibly old building slabs, driveways, etc. No other indications of former on-site structures were seen at the lot, such as additional concrete slabs, old building foundation walls, etc.

Site History

Research into the history of the property shows that the project site was undeveloped from at least 1890 to 1924. Given the rural nature of the area in the late 1800s, it is considered unlikely that the property was developed prior to 1890. Sometime between 1924 and 1928, the Samuel L Feldman Lumber Company began operations at the site, and remained in business until at least 1966. This yard contained a small office on the northwest corner of the site, and open lumber storage buildings on the east and west sides of the lot. In 1967, the title to the project site was transferred to Art Porcelain Products, Inc. The specific nature of operations of Art Porcelain Products, Inc. are not known, nor is it known if this company ever operated at the project site. By 1977, all of the former structures on the lot had been demolished, and the property has remained an undeveloped, vacant lot from 1977 to the present time.

The operations of lumber yards often included the storage and sale of treated lumber, paints, stains and other wood finishes, building supplies, as well as materials used to operate and maintain yard equipment and machinery. Given that the site operated as a lumber yard for at least 38 years, the potential for impacts to the property from past

lumber yard operations exists, including the potential for the encroachment of vapors into any future buildings constructed on the site.

Fill Materials

Although no outward indications of the presence of fill materials were observed at the property during the site visit, the project site has been an undeveloped lot since at least 1977, and was undeveloped from at least 1890 to 1924. Therefore, the potential for the past dumping or disposal of fill materials or other debris exists at the property.

Environmental Liens and Activity and Use Limitations

There were not any indications of Environmental Liens or Activity and Use Limitations found on file for the project site in the New York City Department of Finance records reviewed. There are not any Environmental Liens or Activity and Use Limitations identified at the project site in the EDR database report.

Drainage Structures

No floor drains, storm drains, drywells, trench drains, pits, ponds, lagoons or other drainage structures were observed at the project site.

Petroleum Storage Tanks

No aboveground storage tanks (ASTs), or visible indications of the presence of underground storage tanks (USTs) such as fillports, vent lines, associated mechanical equipment, etc., were observed at the property, or in the sidewalks adjoining the property, during the site visit. The property is not identified in the New York State Department of Environmental Conservation (NYSDEC) Petroleum Bulk Storage (PBS) database, which lists all registered facilities with a total combined petroleum storage capacity in excess of 1,100 gallons. There are not any Oil Burner Applications on file for the project site in the New York City Department of Buildings (NYCDOB) records reviewed.

It is considered unlikely that the former open storage buildings at the site would have contained heating systems, but the small office on the north side of the site was most likely heated. It is not known how this building was heated (e.g., fuel oil, gas, coal, electric, etc.). Any heating oil tanks which were not removed from the project site at the time of the building's demolition may remain at the property. Any fuel oil tanks discovered at the site during re-development should be properly closed or removed in accordance with all applicable regulations.

Asbestos/Lead-Based Paints/PCBs

No suspected asbestos-containing materials, lead-based paints or electrical equipment suspected of containing PCBs were observed at the property during the site visit.

Regulatory Agency Records

The subject property is not identified in any of the Federal or State environmental databases reviewed, including the USEPA's Superfund, CORRACTS, CERCLIS or ERNS databases, the RCRA Hazardous Waste Generators list or hazardous waste Treatment/Storage/Disposal Facilities list, or the NYSDEC's Spill Logs database, Petroleum Bulk Storage database, Solid Waste Facilities database, Voluntary Cleanup Program, Brownfield Cleanup Program, or the Registry of Inactive Hazardous Waste Disposal Sites.

Surrounding Land Uses

The project site is adjoined to the north by Livonia Avenue, beyond which is the Betsy Head Park. There is an elevated rail line which runs along Livonia Avenue. To the south of the site are residential dwellings. Adjacent and to the east is a contractor's storage lot and a community garden. The site is also adjoined by Amboy Street to the west, beyond which is an undeveloped lot. Land uses in the immediate vicinity of the project site (i.e., within approximately 500 feet) are predominantly comprised of a mix of residential and commercial/retail uses, public parks and undeveloped lots. There are four garage/warehouse type buildings located approximately 300 feet west/southwest of the project site, at 342-352, 344-354, 366-376 & 373-375 Herzl Street. No gasoline filling stations or heavy industrial uses were observed in the immediate vicinity of the project site.

A review of Sanborn maps show that land uses in the immediate area of the site have been predominantly residential and commercial/retail uses and public parks, with some industrial/auto-related uses located to the west/southwest of the site, since the 1920s. Industrial/auto-related uses identified on historical Sanborn maps include auto-repair garages (some with underground gasoline tanks), the Independent Laundry Company, Herzl Textile & Dyers, Inc. wire products manufacturing, beverage bottling, aerosol filling, store fixture manufacturing, refrigerator manufacturing, and metal products manufacturing. In addition, a gasoline filling station is shown at 98 Livonia Avenue on the 1928 through 1986 Sanborn maps. This site is located approximately 500 feet west of the subject property. However, and given that the direction of groundwater flow in the area of the project site is likely from the north to the south, it is considered unlikely that the industrial uses to the west and southwest of the project site would have impacted the property.

There were not any potential off-site sources of contamination which are considered likely to have impacted the project site identified in the regulatory agency database or historical information reviewed for this report.

Conclusions

Environmental Studies Corp. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 of the

property referred to as Livonia 4 Site C4, Block 3586, Lot 26, Brooklyn, New York, the property. This assessment has revealed no evidence of *Controlled Recognized Environmental Conditions* or *Historical Recognized Environmental Conditions* in connection with the property. This assessment has revealed no evidence of *Recognized Environmental Conditions* in connection with the property, with the following exceptions:

- The potential for site impacts from past on-site lumber yard operations, including the potential for the encroachment of vapors to future buildings at the project site.
- The possible presence of one or more fuel oil storage tanks at the project site.
- The possible presence of fill materials of an unknown origin at the project site.

**NYC Department of Environmental Protection (DEP) Review**

***March 11, 2020 Letter***

The New York City Department of Environmental Protection, Bureau of Sustainability (DEP) has reviewed the January 2020 Environmental Assessment Statement (EAS), the October and November 2018 Phase I Environmental Site Assessments (Phase I), and the December 2019 Phase II Environmental Site Assessment Work Plans (Work Plan) and Health and Safety Plans (HASP) prepared by Environmental Studies Corporation on behalf of HPD for the project. DEP finds the December 2019 Work Plans and HASPs for the proposed project acceptable provided that as the following additional information is incorporated into the Work Plans.

> HPD should inform the applicant that two soil samples should be collected from each soil boring. One surface soil sample should be collected from the 0-2 feet bgs interval and one subsurface soil sample should be collected between 2 feet bgs and the maximum proposed excavation depth (based on visual/olfactory evidence of impacts and/or elevated soil screening readings obtained using accepted field instruments). If no evidence or elevated readings are noted during borehole advancement, the subsurface soil sample should be collected from the two-foot interval below the proposed maximum excavation depth(s) and/or the groundwater interface (whichever is encountered first).

DEP requests that upon completion of the investigation activities, the Applicant should submit a detailed Phase II report for DEP review and approval. Relative to Projected Development Site 5 and Projected Development Site 6 (no longer part of the project) and Potential Development Sites 1 and 2, DEP recommends the following.

> Based on prior on-site and/or surrounding area land uses which could result in

environmental contamination, DEP concurs with the EAS recommendation that an (E) Designation for hazardous materials should be placed on the zoning map pursuant to Section 11-15 of the New York City Zoning Resolution for the subject properties. The (E) Designation will ensure that testing and mitigation will be provided as necessary before any future development and/or soil disturbance. Further hazardous materials assessments should be coordinated through the Mayor's Office of Environmental Remediation.

The above referenced letter is included in the Hazardous Materials Appendix.

***October 13, 2020 Letter***

DEP has reviewed the June 2020 Phase II Environmental Site Assessment (Phase II) and the July 2020 Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) prepared by Environmental Studies Corporation on behalf of HPD for the project. The letter summarizes the July 2020 RAP and CHASP for Projected Development Sites 1 through 4 as follows.

The July 2020 RAP proposes the excavation, transportation and off-site disposal of soil in accordance with all applicable federal, state, and local regulations; removal of underground storage tanks, if encountered, and closure of petroleum spills in compliance with applicable local, state, and federal laws and regulations; a New York City Department of Environmental Protection Sewer Discharge Permit will be obtained prior to the start of any de-watering activities; stockpiled soil will be covered with appropriately anchored plastic tarps; dust control; air monitoring; installation of a vapor barrier system consisting of 46-mil Grace Preprufe 300R (or equal) below cellar areas, 0.5 mm Grace Florprufe 120R (or equal) below ground floor slab areas, 32-mil Grace Preprufe 160R (or equal) will be used for foundation wall and Grace Bituthene 3000 (or equal) for post applied applications (if the type of vapor barrier is changed an amendment must first be approved by NYCDEP); and placement of 2-feet of certified clean soil in landscaped areas that are not capped with asphalt or concrete. The July 2020 CHASP addresses worker and community health and safety during construction.

DEP's letter provides the following recommendations for each of the four Projected Development Sites.

Site C1: Block 3813, Lot 11

DEP finds the July 2020 RAP and CHASP for the proposed project acceptable. HPD should instruct the applicant that at the completion of the project, a Professional Engineer (P.E.) certified Remedial Closure Report should be submitted for DEP review and approval for the proposed project. The P.E. certified Remedial Closure Report should indicate that all remedial requirements have been properly implemented (i.e., transportation/disposal manifests for removal and disposal of soil in accordance with NYSDEC regulations; two feet of DEP approved certified

clean fill/top soil capping requirement in any landscaped/grass covered areas not capped with concrete/asphalt; installation of vapor barrier, etc.).

Site C2: Block 3812, Lots 19, 20, 21, 22, and 121

It should be noted that the historical on-site use of the subject property consisted of a dry cleaner. The soil vapor analytical results revealed that PCE and TCE were detected atconcentrations up to 94 µg/$m^3$ and 5.7 µg/$m^3$, respectively. In addition, PCE and TCE were detected above their Air Guideline Values (September 2013 and August 2015 updates) in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Therefore, HPD should inform the applicant that in addition to the proposed vapor barrier system, a passive SSDS with the capability of being converted to an active SSDS if warranted based on future conditions should be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS should be included in the RAP and submitted for DEP review and approval. Soil disturbance should not occur without DEP's written approval of the RAP and CHASP.

Site C3: Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27, and 124

It should be noted that the historical on-site use of the subject property consisted of a dry cleaner. The soil vapor analytical results revealed that PCE and TCE were detected at concentrations up to 4,700 µg/$m^3$ and 98 µg/$m^3$, respectively. In addition, PCE and TCE were detected above their Air Guideline Values (September 2013 and August 2015 updates) in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Therefore, HPD should inform the applicant that in addition to the proposed vapor barrier system, an active sub-slab depressurization system (SSDS) should be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed active SSDS should be included in the RAP and submitted for DEP review and approval. Soil disturbance should not occur without DEP's written approval of the RAPand CHASP.

Site C4: Block 3586, Lots 26 and 40

It should be noted that the historical on-site use of the subject property consisted of lumber yard operations. The soil vapor analytical results revealed that PCE was detected at concentrations up to 280 µg/$m^3$. In addition, PCE was detected above its Air Guideline Value (September 2013 update) in the NYSDOH October 2006 Guidance for Evaluating SoilVapor Intrusion in the State of New York. Therefore, HPD should inform the applicant thatin addition to the proposed vapor barrier system, a passive SSDS with the capability of beingconverted to an active SSDS if warranted based on future conditions should be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS should be included in the RAP and submitted for DEP review and approval. Soil

disturbance should not occur without DEP's written approval of the RAP and CHASP.

The above referenced letter is included in the Hazardous Materials Appendix.

**CONCLUSION**

**Projected Development Sites 1 through 4**

Based on the recommendations included in the October 13, 2020 DEP letter to HPD, the following measures will be implemented as required through the Land Disposition Agreement between HPD and the Project Sponsor.

Site C1 (Projected Development Site 1): Block 3813, Lot 11

At the completion of the project, a P.E. certified Remedial Closure Report will be submitted for DEP review and approval. The P.E. certified Remedial Closure Report will indicate that all remedial requirements have been properly implemented as specified in the summary of the DEP letter provided above.

Site C2 (Projected Development Site 2): Block 3812, Lots 19, 20, 21, 22, and 121

In addition to the proposed vapor barrier system, a passive SSDS with the capability of being converted to an active SSDS if warranted based on future conditions will be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS will be included in the RAP and submitted for DEP review and approval. Soil disturbance will not occur without DEP's written approval of the RAP and CHASP.

Site C3 (Projected Development Site 3): Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27, and 124

In addition to the proposed vapor barrier system, an active sub-slab depressurization system (SSDS) will be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed active SSDS will be included in the RAP and submitted for DEP review and approval. Soil disturbance will not occur without DEP's written approval of the RAPand CHASP.

Site C4 (Projected Development Site 4): Block 3586, Lots 26 and 40

In addition to the proposed vapor barrier system, a passive SSDS with the capability of being converted to an active SSDS if warranted based on future conditions will be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS will be included in the RAP and submitted for DEP review and approval. Soil disturbance will not occur without DEP's written approval of the RAP and CHASP.

Following the preparation of the above noted items and approval by DEP, no significant adverse impacts related to hazardous materials are expected, and no further analysis is

warranted. Therefore, there would be no potential for the Proposed Actions to result in significant adverse impacts related to hazardous materials on Projected Development Sites 1 through 4.

**Projected Development Site 5 and Potential Development Sites 1 and 2**

Projected Development Site 5 and Potential Development Sites 1 and 2 are not under the control or ownership of the Applicant and they are not included in the Proposed Development plans for this project. As recommended by DEP in their March 11, 2020 letter to HPD, an "E" designation for hazardous materials will be placed on the zoning map pursuant to Section 11-15 of the New York City Zoning Resolution for the subject properties. The "E" designation will ensure that testing and mitigation will be provided as necessary before any future development and/or soil disturbance on these properties. These applicant(s) should be directed to coordinate further hazardous materials assessments through the Mayor's Office of Environmental Remediation.

Therefore, in order to avoid any potential impacts associated with hazardous materials, an (E) designation (E-641) will be assigned for hazardous materials on the following properties:

**Block 3811, Lot 20; Block 3812, Lots 17, 18, and 24**

The text for the (E) designations related to hazardous materials is as follows:

**Task 1-Sampling Protocol**

**The Applicant submits to OER, for review and approval, a Phase I of the site along with a soil, groundwater and soil vapor testing protocol, including a description of methods and a site map with all sampling locations clearly and precisely represented. If site sampling is necessary, no sampling should begin until written approval of a protocol is received from OER. The number and location of samples should be selected to adequately characterize the site, specific sources of suspected contamination (i.e., petroleum based contamination and non-petroleum based contamination), and the remainder of the site's condition. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of sampling data. Guidelines and criteria for selecting sampling locations and collecting samples are provided by OER upon request.**

**Task 2-Remediation Determination and Protocol**

**A written report with findings and a summary of the data must he submitted to OER after completion of the testing phase and laboratory analysis for review and approval. After receiving such results, a determination is made by OER if the results indicate that remediation is necessary. If OER determines that no remediation is necessary, written notice shall be given by OER.**

**If remediation is indicated from test results, a proposed remediation plan must be submitted to OER for review and approval. The Applicant must complete such remediation as determined necessary by OER. The Applicant should then provide proper documentation that the work has been satisfactorily completed.**

**A construction-related health and safety plan should be submitted to OER and would be implemented during excavation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil, groundwater and/or soil vapor. This plan would be submitted to OER prior to implementation.**

With this (E) designation in place, no significant adverse impacts related to hazardous materials are expected, and no further analysis is warranted. Therefore, there is no potential for the Proposed Actions to result in significant adverse impacts related to hazardous materials on Projected Development Site 5 and Potential Development Sites 1 and 2.

## 13. WATER AND SEWER INFRASTRUCTURE

### Introduction

A waste water and storm water infrastructure analysis is required for the proposed project because the Project Areas are located in a combined sewer area and the development would exceed the *CEQR Technical Manual* threshold of 400 residential units in Brooklyn. The Proposed Actions would result in the development of approximately 538 dwelling units on the five Projected Development Sites within the Project Areas.

### Infrastructure Analysis

Water Supply

The proposed project does not require an analysis of impacts to water supply as it would not result in an exceptionally large demand for water (i.e., more than one million gallons per day) and the Project Areas are not located in an area that experiences low water pressure (such as areas at the end of the water supply distribution system).

Sanitary Sewage and Storm Water

The existing development in the Project Areas on Projected Development Sites 1 through 5 consist of a 6,000 gsf church with the remainder of the Area being vacant and undeveloped. As the church is only occupied intermittently, no sanitary sewage generation volume has been assigned to this facility.

The proposed project would result in the development in the Project Areas of a net increase of approximately 448 residential dwelling units, 26,265 gsf[5] of retail space, 57,846 gsf[6] of community facility space, and 50,206 of community facility space with sleeping accommodations for 90 supportive housing units[7]. Although the Proposed Actions would also result in the loss of 6,000 gsf of floor area for an existing church on Projected Development Site 5, no credit has been taken for this loss.

Based on the sewage generation rate factors shown in Table 13-2 of the Water and Sewer Infrastructure chapter of the *CEQR Technical Manual,* the project would generate 135,095 gpd of sanitary sewage as shown in the table below.

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[5] Comprised of a 15,629 gsf supermarket and 10,636 gsf local retail space. Does not include 13,176 gsf of floor area for 15 parking spaces accessory to the supermarket.

[6] Including 4,800 gsf of medical offices, 13,119 gsf rooftop garden with greenhouse, 5,052 gsf community facility space , 10,000 gsf senior center, and 26,744 gsf youth and family activity center. For the purposes of the infrastructure analysis, the office space will be assumed to total 47,908 gsf including the entire 4,800 gsf of medical offices, 10% of the 13,119 gsf rooftop garden with greenhouse as office space (1,312 gsf), the entire 5,052 gsf community facility space , the entire 10,000 gsf senior center, and the entire 26,744 gsf youth and family activity center.

[7] These units will be considered residential dwelling units for the purposes of the infrastructure analysis.

**Table 13-1**

**Projected Sanitary Sewage Generation**

| Use | Rate Factor | Sewage Generation Amount |
|---|---|---|
| Residential | 100 gpd/person x 1,379 persons* | 137,900 gpd |
| Retail Stores | 0.24 gpd/sf (26,265 sf) | 6,304 gpd |
| Office | 0.10 gpd/sf (47,908 sf) | 4,791 gpd |
| **TOTAL** | | **148,995 gpd** |

* Includes the development of 538 dwelling units in the Project Areas (with 478 housing and supportive units with an average household size of 2.76 persons per household (renters) (2020 Census data) and 60 single-room occupancy units with an average household size of 1 person per household)

Table 13-2 below presents the existing surface area conditions on the five Projected Development Sites.

**Table 13-2**

**Existing Surface Area Conditions**

| Projected Development Site | Lot Area (SF) | Roof Area | Pavement/ Walkway | Grass/ Softscape |
|---|---|---|---|---|
| 1 | 40,400 | 0 | 0 | 40,400 |
| 2 | 9,152 | 0 | 0 | 9,152 |
| 3 | 18,500 | 0 | 0 | 18,500 |
| 4 | 10,023 | 0 | 0 | 10,023 |
| 5 | 6,000 | 6,000 | 0 | 0 |
| **TOTAL** | **84,075** | **6,000** | **0** | **78,075** |

Table 13-3 below presents the proposed surface area conditions on the five Projected Development Sites.

**Table 13-3**

**Proposed Surface Area Conditions**

| Projected Development Site | Lot Area (SF) | Roof Area | Pavement/ Walkway | Grass/ Softscape |
|---|---|---|---|---|
| 1 | 40,400 | 15,287 | 5,794 | 19,319 |
| 2 | 9,152 | 7,505 | 840 | 807 |
| 3 | 18,500 | 13,860 | 3,000 | 1,640 |
| 4 | 10,023 | 3,983 | 533 | 5,507 |
| 5 | 6,000 | 6,000 | 0 | 0 |
| **TOTAL** | **84,075** | **46,635** | **10,167** | **27,273** |

The Project Areas are located in a combined sanitary and storm sewer area. The matrix table included in the Infrastructure Appendix presents the sanitary and stormwater drainage generation characteristics of the existing and future developments on the combined five Projected Development Sites.

The existing combined sanitary and storm sewers located adjacent to each of the five Projected Development Sites is listed below. Surveys for the four Applicant controlled properties (Projected Development Sites 1 through 4) showing the locations of the existing combined sewer lines are provided in the Infrastructure Appendix to this report. The proposed connections from each of the proposed buildings is also provided below. The combined sanitary and storm sewer flows would flow to the 26th Ward Wastewater Treatment Plant (WWTP) which has a capacity of 85 million gallons per day.

- Projected Development Site 1 – Existing: 36″ combined sewer in Sackman Street; 24″ combined sewer in Powell Street; 15″ combined sewer in Livonia Avenue; Proposed: 12″ combined sewer house connection to the street.

- Projected Development Site 2 – Existing: 30″ combined sewer in Christopher Avenue; 15″ combined sewer in Livonia Avenue; Proposed: 6″ combined sewer house connection to the street.

- Projected Development Site 3 – Existing: 24″ combined sewer in Mother Gaston Boulevard; 30″ combined sewer in Christopher Avenue; 15″ combined sewer in Livonia Avenue; Proposed: 10″ combined sewer house connection to the street.

- Projected Development Site 4 – Existing: 12″ combined sewer in Amboy Street; 24″ combined sewer in Livonia Avenue; Proposed: 10″ combined sewer house connection to the street.

- Projected Development Site 5 – Existing: 36″ combined sewer in Sackman Street; 15″ combined sewer in Livonia Avenue; Proposed: 6″ combined sewer house connection to the street.

Total storm water flows generated by the proposed project would exceed current flows as four of the five properties that would be developed are currently vacant and unpaved. A minimal increase in storm water flows would be anticipated from Projected Development Site 5 as this site is currently totally covered by an existing building.

Storm water generated by new development on the four Applicant controlled properties (Projected Development Sites 1 through 4) would be minimized through the use of green roofs on each building and the use of detention tanks to temporarily hold storm water to allow for its gradual release to the combined sewer lines in the surrounding streets. It is anticipated that green roofs would also be installed on the new buildings on Projected Development Site 5.

**Conclusion**

The Proposed Actions would not result in significant impacts on water supply since the Projected Developments are not anticipated to yield an exceptionally large demand for water. Additionally, the Project Areas are not within an area that experiences low water pressure. Based on the sewage generation factors provided in the *CEQR Technical Manual*, future development in the Project Areas could result in the generation of approximately 148,995 gpd of sanitary sewage. While the proposed project would result in an increase in sanitary flow to adjacent sewers, further measures are enforced by DEP during the Sewer Certification application process to evaluate the adequacy of the existing abutting sewer to receive site storm and sanitary discharge from new development. If determined that there is potential for a significant increase in sanitary flow, DEP may request a hydraulics analysis, prior to issuing a Site Connection Permit, to further assess whether the existing sewer system is capable of supporting potential increase in wastewater flow from any new development (with or without the Proposed Actions). Due to change in zoning, an amendment to the existing City Drainage Plan is required to ensure that the capacity of the sewer system is capable of supporting higher density development and related increase in wastewater flow. Given these measures, it is not anticipated that the increase in sanitary sewage flows generated by the proposed project would result in significant adverse impacts. Assessing the surface area conditions resulting from the Proposed Actions, storm water flows would not increase significantly in the With-Action Scenario. No significant adverse impacts to the water and sewer infrastructure are therefore anticipated.

It is not anticipated that the relatively modest increase in sanitary sewage flows generated by the project and the increase in storm water flows would exceed the capacity of existing sewer lines servicing the Project Areas or the design capacity of the 26th Ward WWTP. No significant adverse impacts to the water and sewer infrastructure would be anticipated.

## 16. TRANSPORTATION

### INTRODUCTION

In order to determine the potential for the Proposed Actions to result in significant adverse transportation impacts, trip generation (Level 1) and trip assignment (Level 2) screening analyses were performed pursuant to the methodologies identified in the *2020 CEQR Technical Manual.* Based on the proposed mixed-use development trip generation (Level 1) and trip assignment screening (Level 2) analyses results, it was determined that the Proposed Actions would not result in significant adverse impacts, as summarized below.

### PROJECTED SITES

The Projected Development Sites that comprise the Project Areas in the Brownsville section of Brooklyn include the following:

Projected Development Site 1; aka Site C1 (Block 3813, Lot 115) is located within the block bounded by Livonia Avenue, a two-way eastbound/westbound roadway on the north; Powell Street, a one-way northbound roadway on the east; Riverdale Avenue, a two-way eastbound/westbound roadway on the south; and Sackman Street, a one-way southbound roadway on the west.

Projected Development Site 2; aka Site C2 (Block 3812, Lots 19-22 and 121) is located within the block bounded by Livonia Avenue, a two-way eastbound/westbound roadway on the north; Riverdale Avenue, a two-way eastbound/westbound roadway on the south; Sackman Street, a one-way southbound roadway on the east; and Christopher Avenue, a one-way northbound roadway on the west.

Projected Development Site 3; aka Site C3 (Block 3811, Lots 17-19, 21, 23-27 and 124) is located within the block bounded by Livonia Avenue, a two-way eastbound/westbound roadway on the north; Riverdale Avenue, a two-way eastbound/westbound roadway on the south; Christopher Avenue, a one-way northbound roadway on the west; and Mother Gaston Boulevard, a two-way northbound/southbound roadway on the west.

Projected Development Site 4; aka Site C4 (Block 3586, Lot 26) is located within the block bounded by Livonia Avenue, a two-way eastbound/westbound roadway on the north; Riverdale Avenue, a two-way eastbound/westbound roadway on the south; Thomas S. Boyland street, a two-way northbound/southbound roadway on the east; and Amboy Street, a one-way southbound roadway on the west.

Projected Development Site 5 (Block 3812, Lot 24) is located within the block bounded by Livonia Avenue, a two-way eastbound/westbound roadway on the north; Riverdale Avenue, a two-way eastbound/westbound roadway on the south; Sackman Street, a one-way southbound roadway on the east; and Christopher Avenue, a one-way northbound roadway on the west.

The Projected Sites are shown in Figure 1, as well as the proposed Site Plans.

**NO-ACTION SCENARIO**

Absent the Proposed Actions, it is assumed that the development on all zoning lots within the Project Areas would remain the same as the existing condition, consisting of vacant or underutilized sites. No transportation credits would be taken for existing development in the transportation analysis.

**WITH-ACTION SCENARIO**

Under the With-Action Scenario for the project build year of 2026, the five Projected Development Sites would be developed with five new buildings containing a total of 581,429 gsf of floor area. The buildings would contain 411,171 gsf of residential floor area, 39,441 gsf of commercial retail space (comprised of a 15,629 gsf supermarket, 10,636 gsf local retail space, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket), 59,715 gsf of community facility space (including 4,800 gsf of medical offices and 54,915 gsf of mixed supportive community facility uses), and 71,102 gsf of supportive community facility space with sleeping accommodations, as summarized in Table 1. The five developments would contain a total of approximately 538 dwelling units including 286 affordable family dwelling units, 97 affordable units for seniors, 32 supportive family dwelling units, 90 affordable supportive dwelling units (of which 42 are for seniors) treated as Use Group 3 community facility space, 29 market rate units, and four units for superintendents.

**Table 1**

**Livonia Avenue Rezoning Development by Parcel**

| Projected Develop Sites | Site ID/SF Size | Resident'l GSF | Comm'l GSF | Community Facility GSF | Comm Facility w/sleeping accom. GSF | Total Ppsd. GSF |
|---|---|---|---|---|---|---|
| 1. Projected Site 1 (C1) | B 3813, L 115; 40,400 sf | 210,090 (225 affordable units, 1 super's unit) | 32,941 (super-market, retail)[8] | 13,119 (rooftop garden + greenhouse) | 0 | 256,150 |
| 2. Projected Site 2 (C2) | B 3812, L 19-22, 121; 9,152 sf | 22,570 (32 support units, 1 super's unit) | 0 | 5,052 (community facility space) | 41,554 (48 supportive DUs) | 69,176 |

[8] Includes 15,629 gsf supermarket, 4,136 gsf local retail, and 13,176 gsf parking for 15 parking spaces accessory to the supermarket

| | | | | | | |
|---|---|---|---|---|---|---|
| 3. Projected Site 3 (C3) | B 3811, L 17-19, 21, 23-27, 124; 18,500 sf | 82,203 (97 senior units, 1 super's unit) | 1,700 | 10,000 (senior center) | 29,548 (42 former homeless senior DUs) | 123,451 |
| 4. Projected Site 4 (C4) | B 3586, L 26; 10,023 sf | 58,958 (54 affordable units, 1 super's unit) | 0 | 26,744 (youth and family activities center) | 0 | 85,702 |
| 5.Projected Site 5 (C5) | B 3812, L 24; 6,000 sf | 37,350 (7 affordable + 29 market rate units) | 4,800 | 4,800 medical office | 0 | 46,950 |
| **TOTAL** | **84,075 SF land; 6,000 existing gsf bldg. (church)** | **411,171 (448 DUs)** | **39,441** | **59,715** | **71,102 (90 DUs)** | **581,429** |

**PRINCIPAL CONCLUSIONS**

The following detailed trip generation (Level-One Screening) and trip assignment (Level-Two Screening) analyses were conducted for the Projected Development Sites, as is summarized and shown in **Tables 2** through **19** as well as **Figures 2 through 9** in the Transportation Appendix.

Traffic and Parking

Based on the results of trip generation and trip assignment screening analyses, it is concluded that in the future with the Proposed Actions, none of the intersections in the study areas would experience 50 or more peak hour vehicle trip ends, as summarized in **Table 17** and shown in **Figures 2 through 5** (as presented in the Transportation Appendix) for the AM, MD, PM, and Saturday MD peak hours, respectively. Therefore, in accordance with the *CEQR Technical Manual* 50 vehicle trip end threshold, the vehicular trip ends generated by the Proposed Actions would not result in any conditions needed for a detailed assessment of traffic and parking impacts.

Transit

*Subway and Bus Lines*

Based on the results of trip generation screening analysis, it is concluded that in the future with the Proposed Actions, none of the subway stations and bus lines in the study areas would experience 200 and 50 or more peak hour subway and bus line trip ends, respectively, as summarized in **Table 18** (as presented in the Transportation Appendix) for the AM, MD, PM, and Saturday MD peak hours. Therefore, in accordance with the *CEQR Technical Manual* 200 and 50 subway and bus trip end

thresholds, the subway and bus trip ends generated by the Proposed Actions would not result in any conditions needed for a detailed assessment of transit impacts.

Pedestrian

Based on the results of the trip generation and trip assignment screening analyses, it is concluded that in the future with the Proposed Actions, the pedestrian elements in the study areas, as listed below, would experience 200 or more peak hour pedestrian trip ends, as summarized in **Table 19** and shown in **Figures 6 through 9** for the AM, MD, PM, and Saturday Midday peak hours**,** respectively (as presented in the Transportation Appendix). Therefore, in accordance with the *CEQR Technical Manual* 200 pedestrian trip end threshold, the pedestrian trip ends generated by the Proposed Actions would result in conditions needed for a detailed assessment of pedestrian impacts.

No detailed assessment (LOS analysis) could be conducted for corners listed below, due to the unsignalized intersections:

AM Peak hour

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C1)

Midday Peak hour

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C1)

PM Peak Hour

Intersection of Livonia Avenue and Sackman Street (Unsignalized Intersection)

Southeast Corner (C1)

Intersection of Livonia Avenue and Powell Street (Unsignalized Intersection)

Southwest Corner (C2)

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C3)

Saturday Midday Peak Hour

Intersection of Livonia Avenue and Powell Street (Unsignalized Intersection)

Southwest Corner (C1)

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C2)

**BUILD YEAR/PROJECT PHASING**

It is assumed that the Proposed Actions would be approved by late 2022. Construction of the Proposed Development on Projected Development Sites 1 through 4 is expected to occur simultaneously over a 24-month construction period and be completed by early 2025. As the Proposed Actions would result in the creation of one additional development site that is not controlled by the Applicant, it is anticipated that this Site would be developed and occupied over an additional 12-month period with a Build Year of 2026.

**PRELIMINARY ANALYSIS METHODOLOGY AND SCREENING ASSESSMENTS**

The *CEQR Technical Manual* recommends a two-tier screening procedure for the preparation of a "preliminary analysis" to determine if quantified analyses of transportation conditions are warranted. As discussed below, the preliminary analysis begins with a trip generation analysis (Tier 1) to estimate the volume of person and vehicle trip ends attributable to the Proposed Actions. If the Proposed Actions are expected to result in fewer than 50 peak hour vehicle trip ends and fewer than 200 peak hour transit or pedestrian trip ends, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (Tier 2) are performed to estimate the project trip ends at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the Proposed Actions would result in 50 or more peak hour vehicle trip ends at an intersection, 200 or more peak hour subway trip ends at a station, 50 or more peak hour bus trip ends in one direction along a bus route, or 200 or more peak hour pedestrian trip ends traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, and parking.

**LEVEL 1 SCREENING ASSESSMENTS**

A Level 1 trip generation screening assessment was conducted for the project, as summarized in **Tables 2 through 19,** to estimate the numbers of person and vehicle trip ends by mode generated by the Proposed Actions during the weekday AM, midday, PM, and Saturday Midday peak hours (as presented in the Transportation Appendix). These trip estimates were then compared to the *CEQR Technical Manual* thresholds to determine if a Level 2 screening and/or quantified operational analyses would be warranted.

The Proposed Actions would generate a total of 474, 449, 598, and 554 person trip-ends; 95, 73, 104, and 89 vehicle trip ends; 226, 139, 248, and 209 subway trip ends; 52 and 60 bus trip ends; and 372, 365, 474, and 445 pedestrian trip ends, during the weekday AM, Midday, PM and Saturday Midday peak hours, respectively. Based on the results of trips generated by the Proposed Actions, as summarized in **Tables 2 through 19**, a

level-two vehicle, parking, transit and pedestrian assessments would be required for weekday AM, Midday, PM, and Saturday Midday peak hours, as described below.

**LEVEL 2 SCREENING ASSESSMENTS**

A Level 2 screening assessment involves the distribution and assignment of projected trips to the transportation network and the determination of whether specific locations are expected to experience incremental trips exceeding *CEQR Technical Manual* thresholds. Typically, if the results of this analysis show that the Proposed Actions would result in 50 or more peak hour vehicle trip ends through an intersection, 50 or more peak hour bus trip ends on a bus route in a single direction, 200 or more peak hour subway trip ends per station, or 200 or more peak hour pedestrian trip ends per pedestrian element, further quantified analyses may be warranted to evaluate the potential for significant adverse traffic, transit, pedestrian, and parking impacts.

Vehicular Trip Ends

Trip assignments are assigned conservatively to the Projected Development Sites and the proposed on-site parking garage on Powell Street, instead of on-street parking supply. Based on trip assignments, and as shown in **Figures 2 through 5** (as presented in Transportation Appendix) for weekday AM, Midday, PM, and Saturday Midday peak hours**,** none of the intersections in the study areas would experience 50 or more vehicle trip ends.

**Figure 2** shows the highest vehicle trip ends of 44 at the intersection of Livonia Avenue and Powell Street, during weekday AM peak hour.

**Figure 3** shows the highest vehicle trip ends of 33 at the intersection of Livonia Avenue and Mother Gaston Boulevard, during weekday Midday peak hour.

**Figure 4** shows the highest vehicle trip ends of 47 at the intersections of Livonia Avenue and Mother Gaston Boulevard and Livonia Avenue and Christopher Avenue, during PM peak hour.

**Figure 5** shows the highest vehicle trip ends of 43 at the intersections of Livonia Avenue and Powell Street, during Saturday Midday peak hour.

Therefore, in accordance with the *CEQR Technical Manual* 50 vehicle trip end threshold, the vehicular trip ends generated by the Proposed Actions would not result in any conditions that would require a detailed assessment of traffic and parking impacts.

Subway Trip Ends

The Proposed Actions would generate a total of 226 and 248 subway trip ends during the AM and PM peak hour time periods, respectively, as summarized in **Tables 2 through 16 and summary Table 18** (as presented in the Transportation Appendix). Currently, there are (4) subway stations and four (4) subway lines in the study area,

including the Livonia Avenue subway station (L subway line), the Junius Street subway station (number 2, 3 and 4 subway lines), the Rockaway Avenue subway station (number 2, 3, and 4 subway lines), and the Saratoga Avenue subway station (number 2, 3, and 4 subway lines). The Proposed Actions would generate less than 200 subway trip ends per subway station and per subway line during any peak hour time period, and in accordance with the *CEQR Technical Manual* criteria, would not result in any conditions that would typically trigger the need for a detailed assessment of subway impacts.

Bus Trip Ends

The Proposed Actions would generate a total of 52 and 60 bus trip ends during the AM and PM peak hour time periods, respectively, as summarized in **Tables 2 through 16 and summary Table 18** (as presented in the Transportation Appendix). Currently, two bus lines serve the study areas, including bus line B14 operating along Dumont Avenue, and bus line B60 operating along Rockaway Avenue. The Proposed Actions would generate less than 50 bus trip ends per bus line and per direction during any peak hour time period, and in accordance with the *CEQR Technical Manual* criteria, would not result in any conditions that would typically trigger the need for a detailed assessment of bus impacts.

Pedestrian Trip Ends

The Proposed Actions would generate a total of 372, 365, 474, and 445 pedestrian trip ends during the weekday AM, Midday, PM, and Saturday Midday peak hour time periods, respectively, as summarized in **Tables 2 through 16 and summary Table 19** (as presented in the Transportation Appendix). Based on the results of the Level 1 analysis and the *CEQR Technical Manual* guidelines, a Level 2 analysis or trip assignment (Level 2) would be required. Based on the results of the trip assignment (Level 2) as shown in **Figure 6 through 9** (as presented in Transportation Appendix) for the weekday AM, Midday, PM, and Saturday Midday peak hours, respectively, it is concluded that in the future with the Proposed Actions, the pedestrian elements in the study areas, as listed below, would experience 200 or more peak hour pedestrian trip ends. Therefore, in accordance with the *CEQR Technical Manual* 200 pedestrian trip end threshold, the pedestrian trip ends generated by the Proposed Actions would result in conditions warranting a detailed assessment of pedestrian impacts.

AM Peak hour

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C1)

Midday Peak hour

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C1)

PM Peak Hour

Intersection of Livonia Avenue and Sackman Street (Unsignalized Intersection)

Southeast Corner (C1)

Intersection of Livonia Avenue and Powell Street (Unsignalized Intersection)

Southwest Corner (C2)

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C3)

Saturday Midday Peak Hour

Intersection of Livonia Avenue and Powell Street (Unsignalized Intersection)

Southwest Corner (C1)

Intersection of Livonia Avenue and Junius Street (Unsignalized Intersection)

Northwest Corner (C2)

No detailed assessment (LOS analysis) could be conducted for corners listed above, due to the unsignalized intersections:

**TRANSPORTATION PLANNING ASSUMPTIONS**

Trip generation factors for the Proposed Actions were determined based on information from the *2020 City Environmental Quality Review (CEQR) Technical Manual*, recent U.S. Census Data, trip generation and modal split data provided by NYCDOT, and other approved EASs and EISs. The travel demand assumptions and trip generation sources are summarized in **Tables 2, 5, 8, 11, and 14** (as presented in the Transportation Appendix), and detailed below.

Residential Development

The *2020 CEQR Technical Manual* (Table 16-2*)* was utilized for trip generation rates, including truck trips, and peak hour temporal distribution. The 2015-2019 American Community Survey (ACS) Journey-to Work (JTW) data for Census Tract #'s 894, 896, 898, 902, 910, 912, 916, 918, 920, 924, and 1132 in Brooklyn, NY was used for modal split information and auto occupancy rates, as is estimated in **Exhibits A and B** and summarized in **Tables 2, 5, 8, 11, and 14** (as presented in the Transportation Appendix).

The estimated modal split data for residential use found that approximately 21.5%would travel by car, 0.8 percent would travel by taxi, 13.2% would travel by bus, 57% would travel by subway, and 7.5% would travel by foot and other mode of travel, such as bicycle. Auto occupancy rate would be at 1.12 and taxi occupancy rate would be

at 1.4, based on the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS,* Table 14-8.

Local Commercial Retail Development

The *2020 CEQR Technical Manual* (Table 16-2) was utilized for trip generation rates, including peak hour temporal distribution and truck trip rates. Modal split information and vehicle occupancy rates are based on the recent NYCDOT survey results for a similar local retail space, located within a ¼-mile radius of a subway station (Brooklyn Transit Zone), as is summarized in **Tables 2, 8, and 14** (as presented in the Transportation Appendix). It is important to note that the use is in support of the proposed residential development.

The estimated modal split results for local commercial retail use found that approximately 11% would travel by car, 0% would travel by taxi, 2% would travel by bus, 3% would travel by subway, and 84% would travel by foot. Vehicle occupancy rates are based on the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS,* Table 14-8.

Medical Office Development

Trip generation rates, peak hours temporal distribution, modal split information, vehicle occupancy rates, and truck trip rates are based on the NYCDOT survey results for a similar medical office space in Brooklyn, located within a ¼-mile radius of a subway station (Brooklyn Transit Zone).

The surveyed modal split results for medical office use found that approximately 24% would travel by car, 6% would travel by taxi, 9% would travel by bus, 59% would travel by subway, and 2% would travel by foot and other, such as bicycles. The above information is summarized in **Table 14** (as presented in the Transportation Appendix).

Supermarket

The *2020 CEQR Technical Manual* (Table 16-2) was utilized for trip generation rates and peak hour temporal distribution. Modal split information and truck trip rates were both estimated utilizing the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS* (Table 14-8) rates as is summarized in **Table 2** (as presented in the Transportation Appendix). It is important to note that the use is in support of the proposed residential development.

On weekdays, the estimated modal split results for supermarket use found that approximately 21% would travel by car, 3% would travel by taxi, 4% would travel by bus, 14% would travel by subway, and 58% would travel by foot and other mode of travel, such as bicycles. On Saturdays, the estimated modal split results for supermarket use found that approximately 14% would travel by car, 5% would travel by taxi, 6% would travel by bus, 8% would travel by subway, and 67% would travel by foot and other mode of travel, such as bicycles. Vehicle occupancy rates for both weekday and

Saturday are based on the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS,* Table 14-8.

Community Kitchen/Farm Development

The *2020 CEQR Technical Manual* (Table 16-2) was utilized for trip generation rates, and peak hour temporal distribution. Modal split information, truck trip rates, and vehicle occupancy rates are based on the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS,* Table 14-8, as shown in **Table 2**. It is important to note that the use is in support of the proposed residential development.

The estimated modal split results for Community Kitchen/Farm (Community Center) use found that approximately 5% would travel by car, 1% would travel by taxi, 6% would travel by bus, 3% would travel by subway, and 85% would travel by foot and other mode of travel, such as bicycle.

Senior Residential Development

For the senior residential component of the project, the Zoning for Quality & Affordability Text Amendment (ZQA) FEIS (Page 15-4 and Table 1) was utilized for the weekday and Saturday daily trip rates of 3.7. The *2020 CEQR Technical Manual* (Table 16-2*)* was utilized for truck trips and peak hours temporal distribution. The 2015-2019 American Community Survey (ACS) Journey-to Work (JTW) data for Census Tract #'s 894, 896, 898, 902, 910, 912, 916, 918, 920, 924, and 1132 in Brooklyn, NY was used for modal split information and auto occupancy rate, as is estimated in **Exhibits A and B** and summarized in **Tables 5 and 8** (as presented in the Transportation Appendix).

The estimated modal split data for residential use found that approximately 21.5% would travel by car, 0.8 percent would travel by taxi, 13.2% would travel by bus, 57% would travel by subway, and 7.5% would travel by foot and other mode of travel, such as bicycle. Auto occupancy rate would be at 1.12 and taxi occupancy rate would be at 1.4, based on the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS,* Table 14-8.

Community Facility Space (Office Space)

The *2020 CEQR Technical Manual* (Table 16-2) was utilized for trip generation rates, including peak hour temporal distribution. The modal split information, truck trip rates, and vehicle occupancy rates are based on the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS* (Table 14.8), as shown in **Table 5**. It is important to note that the use is in support of the proposed residential development.

The estimated modal split results for the community facility space (office space) use found that approximately 5% would travel by car, 1% would travel by taxi, 6% would travel by bus, 3% would travel by subway, and 85% would travel by foot and other mode of travel, such as bicycle.

Community Center

The *2020 CEQR Technical Manual* (Table 16-2) was utilized for trip generation rates, including peak hour temporal distribution. The modal split information, truck trip rates, and vehicle occupancy rates are based on the recently approved *Gowanus Neighborhood Rezoning and Related Actions EIS* (Table 14.8), as shown in **Table 8**. It is important to note that the use is in support of the proposed residential development.

The estimated modal split results for the Community Center for Youth (office space) use found that approximately 5% would travel by car, 1% would travel by taxi, 6% would travel by bus, 3% would travel by subway, and 85% would travel by foot and other mode of travel, such as bicycle.

Youth and Family Activity Center

The *2020 CEQR Technical Manual* (Table 16-2) was utilized for trip generation rates. The modal split information, peak hour temporal distribution, truck trip rates, and vehicle occupancy rates are based on the recently approved *Stevenson Commons EIS* (Table 11-5), as shown in **Table 11**. It is important to note that the use is in support of the proposed residential development.

The estimated modal split results for Youth and Family Activity Community Center use found that approximately 4% would travel by car, 9% would travel by taxi, 5% would travel by bus, 12% would travel by subway, and 70% would travel by foot and other mode of travel, such as bicycle.

Conclusion

Based on the *CEQR Technical Manual* and guidelines for screening analyses, as detailed above, the Proposed Actions would not have any potentially significant adverse transportation impacts, and further analyses would not be warranted.

## 17. AIR QUALITY

### A. Introduction

**Analysis Framework**

Ambient air quality, or the quality of the surrounding air, may be affected by air pollutants produced by motor vehicles, referred to as "mobile sources"; by fixed facilities, usually referenced as "stationary sources"; or by a combination of both. Under CEQR, an air quality assessment determines both a proposed project's effects on ambient air quality as well as the effects of ambient air quality on the project. The analysis framework, as mandated by the State Environmental Review Act, followed the *New York City Environmental Quality Review (CEQR) 2020 Technical Manual*.

### B. Principal Conclusion

The air quality analysis determined that both the Proposed Actions effects on ambient air quality and the effects of ambient air quality on the projected development sites would not result in significant adverse air quality impacts. A summary of the analysis is presented below.

The analysis for the projected development sites' heating/hot water, ventilation, and air conditioning (HVAC) systems included screening analyses and detailed air dispersion analyses. There are no buildings similar or greater in height than Projected Development Site 4 in the 400-foot study area surrounding the development, and as such, a detailed air dispersion analysis was not required (Projected Development Site 4 screened out). Detailed air dispersion analyses, conducted with AERMOD, were required for the other developments project-on-project scenario and the project-on-existing scenario. Control measures were required for all Projected Development Sites and Potential Development Sites HVAC systems. The control measures are specified in the (E) Designation language below.

The transportation trip-assignment analysis showed that no intersections would exceed the threshold of 170 vehicular trips (condition outlined in Section 210 of Chapter 17 of the *CEQR Technical Manual*). Therefore, no CO detailed analysis is required. The screening analysis for the generated peak hour HDDVs traffic or its equivalent in vehicular emissions, depending on the type of road, showed exceedances at Livonia Avenue. A $PM_{2.5}$ detailed air dispersion analysis was conducted for the intersection of Livonia Avenue and Powell Street, the most effected intersection. The air dispersion analysis showed that the increment between the future with-action to the no-action $PM_{2.5}$ concentrations would not exceed the *de minimis* design values. Therefore, no significant adverse air quality impacts are expected at intersections effected by the project-generated traffic. In addition, the Proposed Actions would result in no incremental accessory parking spaces.

The Crest Lock Co., Inc facility, a lock manufacturing facility, is located in the 400 feet area surrounding the Project Area. Therefore, an air toxics air dispersion analysis was conducted for the facility. The industrial sources analysis showed that the air toxics emissions from the processing activities at the facility would not result in significant adverse air quality impacts on the Proposed Project. The air toxics concentrations would not exceed the Annual and Short-Term Guideline Concentrations (AGCs and SGCs, respectively), and the cumulative inhalation excess cancer risk or the cumulative hazardous quotient thresholds would not be exceeded.

There are no Title V facilities or Air State facilities (major or large sources) in the 1,000-foot study area surrounding the Projected Development Sites. Therefore, a major/large source analysis was not required.

## C. Pollutants of Concern

The Clean Air Act (CAA) is a comprehensive federal law that regulates all sources of air emissions. The CAA requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants that are common in outdoor air, considered harmful to public health and the environment, and that come from numerous and diverse sources. The EPA has identified six key pollutants considered harmful to public health and the environment. In addition, national and state regulations identified numerous other pollutants, primarily due to industrial activities.

### Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas, which is primarily formed by incomplete combustion of carbon-containing fuels and by photochemical reactions in the atmosphere. Nationally, particularly in urban areas, the majority of CO emissions to ambient air come from mobile sources. The majority of these on-road CO emissions are derived from gasoline powered vehicles.[9] Because CO disperses quickly, its concentrations may vary greatly over relatively short distances. Elevated concentrations are usually limited to locations near congested intersections and along heavily traveled and congested roadways.

### Nitrogen Dioxide VOC and Ozone

Nitrogen oxides (NOx) are emitted from both mobile and stationary sources. Nitric Oxide (NO) accounts for approximately 90% of the total oxidized nitrogen emitted. In the atmosphere, and in the presence of sunlight, NO reacts with free radicals and ozone ($O_3$) to form mainly nitrogen dioxide ($NO_2$).[10] Ground-level ozone is formed when

[9] EPA. *Integrated Science Assessment (ISA) for Carbon Monoxide (Final Report, Jan 2010)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-09/019F, 2010

[10] EPA. *Integrated Science Assessment (ISA) for Oxide of Nitrogen – Health Criteria (Final Report, Jan 2010)*. U.S. Environmental Protection Agency, Washington, DC, EPA/ EPA/600/R-15/068, 2016

volatile organic compounds (VOCs), also known as hydrocarbons, and nitrogen oxides (NOx) interact in the presence of sunlight. Because the reactions are slow and occur as the pollutants are transported downwind, elevated ozone levels are often found many miles from the sources of the precursor pollutants.

The zone of elevated $NO_2$ concentrations from vehicular emissions extends away from the roadway. Therefore, the effects of NOx (NO and $NO_2$) emissions from mobile sources are generally examined on a regional basis. The Proposed Actions would not substantially increase the vehicle miles traveled or stationary source emissions at a regional scale. Therefore, mesoscale (regional) analysis for ozone precursors is not required. The Proposed Actions would include stationary fuel combustion sources (boiler(s) for heating and hot water). Therefore, the proposed project's effects on local $NO_2$ concentration were evaluated.

**Respirable Particulate Matter ($PM_{10}$ and $PM_{2.5}$)**

Airborne particulate matter (PM) is a mixture of substances suspended in air as small liquid and/or solid particles. In contrast to the other criteria pollutants, PM does not have a unique chemical composition. These individual particles range in size from less than 0.01 µm to more than 10 µm. $PM_{2.5}$ is the abbreviation for fine PM with a diameter smaller than 2.5 microns. $PM_{10}$ refers to particulates with diameter less than or equal to 10 micrometers. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye.

PM sources are both primary and secondary in nature. Primary sources are specific sources, such as particles produced by mechanical abrasion. Secondary PM sources originate from gas-phase chemical compounds that condensate with certain gasses or when different gasses react with each other. These small particles might then coagulate with other particles to form larger particles. Sulfur oxides, nitrogen oxides, and volatile organic compounds (VOC) are examples of PM precursors.[11] The burning of fossil fuel can produce both primary and secondary PM. $PM_{2.5}$ is extremely persistent in the atmosphere and has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles.

Anthropogenic sources of PM are prevalent in many activities. Common sources include fuel combustion, such as in boilers or vehicular engines, industrial processes, such as spray painting or sanding of wood, and construction activities. Fugitive road dust that gets airborne when vehicles traverse roadways is also a common source.

[11] EPA. *Integrated Science Assessment (ISA) for Particulate Matter (Final Report, Dec 2019)*. U.S. Environmental Protection Agency, Washington, DC, EPA EPA/600/R-19/188, 2019

**Sulfur Dioxide**

Fossil fuel combustion is the main anthropogenic source of primary sulfur dioxide ($SO_2$). The amount of $SO_2$ emitted is directly related to the amount of sulfur in the fuel. Therefore, fuels with low sulfur content produce little $SO_2$. Beginning in 2006, EPA began to phase-in more stringent regulations to lower the amount of sulfur in diesel fuel to 15 parts per million (ppm). This fuel is known as ultra-low sulfur diesel (ULSD). $SO_2$ is also a precursor for the formation of $PM_{2.5}$. As such, controlling $SO_2$ emissions controls $PM_{2.5}$ concentrations.

The amount of $SO_2$ emitted from on-road vehicles is not significant. Therefore, mobile source analysis for $SO_2$ is not required. The developments could potentially include stationary fuel combustion sources (boiler(s) for heating and hot water), where fuel oil No. 2 is burned. Therefore, effects on local $SO_2$ concentration were examined.

**Lead**

Emissions of lead (Pb) have dropped substantially over the past 40 years as result of the phasing out of Pb as an anti-knock agent in gasoline for on-road vehicles, and later from enhanced controls of the metal processing industry.[12] The Proposed Actions are unlikely to result in lead emissions. Therefore, no analysis is required.

**Air Toxics**

Noncriteria pollutants, also referred to as toxic air pollutants or air toxics, are mainly associated with industrial sources. The CAA identifies 187 hazardous air pollutants (HAPs) to be regulated by the EPA, where the EPA regulates their emissions. These are substances that cause or may cause cancer or other serious health effects. In addition, the New York State Department of Environmental Conservation (NYSDEC) identified numerous other pollutants, known as "noncriteria pollutants," for which the EPA has no established standards, and these are pollutants of various toxicities.

## D. Air Quality Standards, Regulations, and Benchmarks

**Criteria Pollutants**

The EPA has established national ambient air quality standards (NAAQS) for seven of the most common air pollutants—known as "criteria" pollutants. The presence of these pollutants in ambient air is generally due to numerous diverse and widespread sources of emissions. The NAAQS primary standards are designed to protect public health with an adequate margin of safety. The NAAQS secondary standards are designed to protect the public welfare from adverse effects, including those related to effects on soils, water, vegetation, visibility, and other aspects. As required by the Clean Air Act, EPA

[12] EPA. *Integrated Science Assessment (ISA) for Lead (Final Report, Jul 2013)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/075F, 2013

periodically conducts comprehensive reviews of the scientific literature on health and welfare effects associated with exposure to the criteria air pollutants. The NAAQS have been adopted as the ambient air quality standards for the State of New York.

NYSDEC measures air pollutants at more than 50 sites across the state using continuous and/or manual instrumentation. These sites are a mix of federally-mandated and supplemental monitoring networks. The primary NAAQS and background concentrations from the nearest federally-mandated monitoring station(s) are presented in **Table 17-1.**

**Table 17-1: Background Concentration at the NYSDEC Nearest Monitoring Station**

| Pollutant | Averaging Period | National and State Standards | Background Concentration | Monitoring Station |
|---|---|---|---|---|
| $PM_{2.5}$ | 24-Hour | 35 µg/m³ | 18.1 µg/m³ | Queens College |
| | Annual | 12 µg/m³ | 7.0 µg/m³ | |
| $PM_{10}$ | 24-Hour | 150 µg/m³ | 28 µg/m³ | |
| $SO_2$ | 1-Hour | 196 µg/m³ | 13.51 µg/m³ | |
| $NO_2$ (2) | 1-Hour | 188 µg/m³ | 103.6 µg/m³ | |
| | Annual | 100 µg/m³ | 26.8 µg/m³ | |
| CO | 1-Hour | 35 ppm | 1.51 ppm | |
| | 8-Hour | 9 ppm | 1.10 ppm | |
| Ozone | 8-Hour | 0.070 ppm | 0.074 ppm | |
| Lead | 3-Month | 0.15 µg/m³ | 0.0027 µg/m³ | IS 52 |

Note:
1. Part per million (ppm); microgram per meter cube (µg/m³).
2. $NO_2$ background concentration from Queens College monitoring station Site No. 36-081-0124.

*NAAQS Attainment Status and State Implementation Plans*

The setting of the NAAQS in the CAA was coupled with directing the states to develop state implementation plans (SIPs), applicable to appropriate industrial sources in the state, in order to achieve these standards. The Act was amended in 1977 and 1990 primarily to set new goals (dates) for achieving attainment of NAAQS. The CAA 1990 amendment requires that each state with a nonattainment area (NAA) submit a State Implementation Plan (SIP) that delineates the control strategies to achieve compliance with the NAAQS. New York City complies with the NAAQS for $SO_2$, $NO_2$, CO and lead, but is designated as a NAA for 8-hour ozone. New York County is also designated as a NAA for $PM_{10}$. **Table 17-2** summarizes the attainment status of Kings County for each pollutant.

**Table 17-2: Kings County NAAQS Attainment Status**

| Pollutant | Status | Designation Date |
|---|---|---|
| **Carbon Monoxide (CO)** | Attainment (Maintenance Area) | 5/20/2002 |
| **Lead** | Attainment | |
| **Nitrogen Dioxide ($NO_2$)** | Attainment / Unclassified | |
| **Ozone ($O_3$) Standard (2008-2015)** | Nonattainment (Moderate) | 8/3/2018 |
| **Respirable Particulate Matter ($PM_{10}$)** | Attainment / Unclassified | |
| **Fine Particulate Matter ($PM_{2.5}$)** | Attainment (Maintenance Area) | 04/18/2014 |
| **Sulfur Dioxide ($SO_2$)** | Attainment / Unclassified | |

All five New York City boroughs have been designated as a $PM_{2.5}$ NAA area under the CAA for exceeding both the 24-hour and annual average standard. On December 31, 2012, the EPA determined that the New York-Northern New Jersey-Long Island, NY–NJ–CT fine particle ($PM_{2.5}$) nonattainment area for the 2006 24-hour $PM_{2.5}$ NAAQS has attained the 2006 24-hour $PM_{2.5}$ NAAQS. On November 15, 2010 EPA determined that the area has attained the 1997 annual $PM_{2.5}$ NAAQS. On March 18, 2013 the EPA revised the annual $PM_{2.5}$ standard by lowering the level to 12.0 micrograms per cubic meter ($\mu g/m^3$). Effective April 18, 2014 all five New York City boroughs were re-designated in attainment and are under maintenance plan. The EPA designated New York County (Manhattan) as a nonattainment area for respirable particulate matter ($PM_{10}$). The other four New York City boroughs are designated as in attainment for the $PM_{10}$ standards.

Historical monitoring data for New York City indicate that the ozone 8-hour standard is exceeded. To be in compliance, the 3-year average of the annual fourth highest maximum 8-hour average concentration should not exceed the ozone 8-hour standard. On March 2008, the EPA revised the 8-hour ozone NAAQS to 0.075 parts per million (ppm). On January 2016, the EPA revised the 8-hour ozone NAAQS to 0.070 ppm. On August 3, 2018 EPA designated the New York-Northern New Jersey-Long Island as moderate nonattainment. On July 19, 2017 NYSDEC requested (announcement made in a public hearing) that the EPA issue an expeditious reclassification to serious nonattainment so New York, New Jersey, and Connecticut have adequate time to develop complete SIPs that forecast attainment in the New York Metropolitan Area (NYMA) by the serious area deadline of July 20, 2021. On November 14, 2018 EPA proposed that the NYMA would be reclassified as serious nonattainment.

*$NO_2$ NAAQS*

The 1-hour nitrogen dioxide ($NO_2$) NAAQS was promulgated in the United States in February 2010. The 1-hour standard is based on a percentile rank from the annual distribution of daily maximum 1-hour values, averaged across the number of years processed. The 1-hour $NO_2$ modeled design value is based on the 98$^{th}$ percentile, or 8$^{th}$

highest, of the daily maximum 1-hour values across the year. For typical multi-year modeling analysis based on 5 years of National Weather Service (NWS) meteorological data, the modeled design value is the 5-year average of the 8th highest values for $NO_2$.

Nitrogen oxide (NOx) emissions from combustion consist predominantly of nitric oxide (NO) at the source. The NOx in these emissions is then gradually converted to $NO_2$. For determining compliance with the 1-hour standard, the EPA has developed a three-tiered modeling approach: a) Tier 1, the most conservative approach, assumes a full (100%) conversion of NOx to $NO_2$; b) Tier 2 is the Ambient Ratio Method 2 (ARM2) which assumes ambient equilibrium between NO and $NO_2$. ARM2 adjusts the modeled NOx concentrations based on an empirical relationship between ambient NOx and ambient $NO_2$ concentrations; and c) Tier 3, which is the most precise approach, accounts for the chemical transformation of NO emitted from the stack to $NO_2$ within the source plume using hourly ozone background concentrations.

*NYC Guidelines - Determining the Significance of Air Quality Impacts*

The City's *de minimis* criteria are used to determine the significance of the incremental increase in CO and $PM_{2.5}$ concentrations that would result as a consequence of the proposed project. The CO criteria set the minimum change in 8-hour average CO concentrations that would constitute a significant environmental impact. Significant increases of CO concentrations in New York City are:

- An increase of 0.5 parts per million (ppm) or more in the maximum 8-hour average CO concentration at a location where the predicted No-Action 8-hour concentration is equal to 8 ppm or between 8 ppm and 9 ppm; or
- An increase of more than half the difference between baseline (i.e., No-Action) concentrations and the 8-hour standard, when No-Action concentrations are below 8 ppm.

The following criteria are used for determination of significant adverse $PM_{2.5}$ incremental impacts for projects subject to the CEQR:

- Predicted 24-hour maximum $PM_{2.5}$ concentration increase of more than half the difference between the 24-hour background concentration and the 24-hour standard; or
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or for mobile sources, at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or

- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.3 µg/$m^3$ at any receptor location for stationary sources.

Accordingly, the 8-hour CO *de minimis* design value is 3.95 ppm. However, CO detailed analysis is not required. $PM_{2.5}$ *de minimis* design values are 24-hour $PM_{2.5}$ concentration increment of 8.45 µg/$m^3$, and annual $PM_{2.5}$ concentration increments of 0.3 µg/$m^3$ for stationary source and 0.1 µg/$m^3$ for mobile source.

**Non-Criteria Pollutants**

The NYSDEC has established guidelines for maximum allowable concentration of "noncriteria pollutants," which are potentially toxic or carcinogenic pollutants. The maximum allowable guidelines set a maximum 1-hour and annual averaging time concentrations and are published in the DAR-1 AGC/SGC Table, where AGC/SGC refers to Annual and Short-term Guideline Concentrations. The most recent DAR-1 guidelines were created on August 10, 2016. NYSDEC also regulates pollutants that produce discomfort due to odors, where significant discomfort is evaluated on quantity, characteristic, or duration. The AGC and SGC concentration standards of compounds emitted from existing manufacturing or processing facilities in the study area are presented in **Table 17-3**.

**Table 17-3: Relevant Noncriteria Pollutants Guidelines - NYSDEC**

| Pollutant Name | CAS Number | SGC (*µg/m³*) | AGC (*µg/m³*) |
|---|---|---|---|
| Methyl Pyrrolidone | 00872-50-4 | --- | 100.0 |
| Triethylamine | 00121-44-8 | 2800.0 | 7.0 |
| Butoxyethanol, 2- | 00111-76-2 | 4700.0 | 1600.0 |
| Diethylene Triamine | 00111-40-0 | --- | 10.0 |
| Propanediol, 1,2- | 00057-55-6 | 36850.0 | 2000.0 |
| Isobutyl Alcohol | 0078-83-1 | --- | 360.0 |
| $PM_{2.5}$ (2) | NY075-00-0 | 88 | 12 |

Note:
1. Source: NYSDEC, DAR-1 AGC/SGC Tables, Feb. 2021.
2. Particulate New York identification number NY075-00-0 was analyzed as 100 percent $PM_{2.5}$. 24-hour NAAQS used to calculate DAR-1 equivalent 1-hour.

Of the chemicals presented in **Table 17-3**, Butoxyethanol, 2-is a Hazardous Air Pollutant (HAP).

## E. Mobile Source

According to the *CEQR Technical Manual,* projects may result in significant mobile source air quality impacts when they increase or cause a redistribution of traffic, create any other mobile sources of pollutants (e.g., diesel trains, helicopters, boats), or add new uses near mobile sources (e.g., roadways, garages, parking lots). Detailed analyses are required to predict whether a proposed action could potentially result in a significant adverse air quality impact if certain threshold criterions are met or exceeded. Proposed actions that do not meet or exceed the threshold criterions (screen out) are not expected to result in mobile source impacts.

**Screening Assessment**

*Existing Sources*

According to the *CEQR Technical Manual*, projects that would result in new sensitive uses within 200 feet of an atypical roadway or near other significant mobile sources of pollutants may result in significant adverse mobile source air quality impacts. As the Project Area is not located within 200 feet of an atypical roadway or any other significant mobile sources of pollutants, no analysis is required.

*Parking Garage*

The Proposed Actions would result in 15 new off-street parking spaces between the With-Action and No-Action scenarios. The number of new spaces (15) is less than the *CEQR Technical Manual* threshold that would require a transportation analysis (*Table 16-1, Minimum Development Densities Potentially Requiring Transportation Analysis*). Additionally, the Proposed Project would not exceed the *CEQR Technical Manual* threshold of 170 peak hour vehicle trips that would require a mobile source air quality analysis (Chapter 17, Section 210). Furthermore, based on analyses of much larger parking garages in the city, given the small number of incremental parking spaces, the potential for significant adverse air quality impacts is unlikely. Therefore, an analysis of parking garage air quality conditions is not warranted and no significant adverse impacts are anticipated as a result of the Proposed Project.

*Project-Generated Traffic*

The screening analyses for the project's peak hour auto traffic and peak hour heavy-duty diesel vehicle (HDDVs) traffic are presented in this section. Per the *CEQR Technical Manual*, a detailed analysis for carbon monoxide (CO) is required if the generated peak hour auto traffic or diversion of existing peak hour traffic would result in an increment of 170 auto trips (in this area of the city). A detailed analysis for particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$) is required if the generated peak hour HDDVs traffic or its equivalent in vehicular emissions, depending on the type of road, would be met or exceeded.

According to the transportation analysis for this project, the Proposed Project would generate a total of 90, 68, 95, and 82 net vehicle trip ends (inbound and outbound combined) during the AM, Midday, PM, and Saturday Midday peak hour periods, respectively. The peak hours project generated traffic would not exceed the threshold of 170 vehicular trips (condition outlined in Section 210 of Chapter 17 of *the CEQR Technical Manual*). Therefore, no CO detailed analysis is required.

The $PM_{2.5}$ equivalent truck calculation in vehicular emission screen ranges from 12 to 23 HDDVs depending on the type of road. All autos were assumed to be LDGT1 class vehicles. Project generated traffic on selected roadways (the transportation analysis for this project detailed trip assignment Level 2 screening) was used to calculate the HDDVs or its equivalent in vehicular emissions. **Table 17-4** shows the project generated traffic (inbound and outbound combined) and the results of the *CEQR Technical Manual* Equivalent Truck Calculation.

**Table 17-4: *CEQR Technical Manual* Equivalent Truck Calculations**

| Roadway | Roadway Classification (Threshold HDDVs screen) [1] | Peak-Hour Period | Truck Per Hour | Auto Per Hour | Equivalent Truck | Pass / Fail |
|---|---|---|---|---|---|---|
| Livonia Avenue | Local (12) | AM | 6 | 30 | 19.51 | Fail |
| | | Midday | 6 | 21 | 15.17 | Fail |
| | | PM | 0 | 39 | 18.80 | Fail |
| | | SAT | 0 | 36 | 17.35 | Fail |
| Mother Gaston Boulevard | Collector (19) | AM | 6 | 4 | 5.32 | Pass |
| | | Midday | 6 | 4 | 5.32 | Pass |
| | | PM | 0 | 16 | 3.18 | Pass |
| | | SAT | 0 | 9 | 1.79 | Pass |
| Junius Street, or Powell Street, or Sakman Street, or Christopher Avenue | Paved (12) | AM | 3 | 15 | 9.75 | Pass |
| | | Midday | 3 | 9 | 6.86 | Pass |
| | | PM | 0 | 20 | 9.64 | Pass |
| | | SAT | 0 | 15 | 7.23 | Pass |

Note:
1. Roadway classification obtained from the New York State Department of Transportation (NYSDOT) map application (June 2021). https://gis3.dot.ny.gov/html5viewer/?viewer=FC.

As seen in **Table 17-4**, the Proposed Actions $PM_{2.5}$ equivalent truck calculation in vehicular emissions exceeds the HDDVs screening threshold criterion. Therefore, a detailed analysis is required.

The worst case exceedances, shown in **Table 17-4**, occurred on Livonia Avenue during the AM peak hour period. From the roadways intersecting Livonia Avenue, most traffic would travel on Powell Street. As such, a detailed analysis was conducted for the intersection of Livonia Avenue and Powell Street.

**Project-Generated Traffic Detailed Analysis**

*Methodology*

$PM_{2.5}$ detailed analysis was conducted for the intersections of Livonia Avenue and Powell Street, using MOVES2014b and CAL3QHCR. Existing traffic counts and vehicle classifications (eastbound and westbound combined) at Livonia Avenue collected for the noise analysis for this project was used in the analysis. The AM peak hour period eastbound/westbound distribution was derived from the New York State Department of Transportation (NYSDOT) Station 024149 traffic count report for Dumont Avenue. Existing traffic counts on Powell Street was obtained from the NYSDOT Station 024295 and vehicle classification was assumed to be similar to the vehicle classification on Livonia Avenue. Traffic annual background growth rates, obtained from the *CEQR Technical Manual,* were used to project the No-Action traffic. The project increment was added to the No-Action traffic to project the With-Action traffic, where the number of trucks on each link (roadway segment) was derived from the total traffic. With-Action traffic was assumed to travel at 10 miles per hour and No-Action traffic at 15 miles per hour.

The EPA's MOVES2014b emission factor algorithm was used to compile $PM_{2.5}$ emission factors. MOVES can be used to calculate emission rates of criteria air pollutants, greenhouse gas emissions, and some hazardous air pollutants for both on-road motor vehicles and non-road equipment. MOVES models calculate emissions at the national, county, and project level by use of databases and by specifying the characteristics (Run Specification) of the scenario that is modeled. In a microscale (project level) analysis, MOVES requires the use of traffic and roadways characteristics for each link (roadway segment) that is modeled and county database. County database for the MOVES model was obtained from the NYSDEC. The county data included inspection and maintenance, passenger car/truck distribution, fuel data (fuel properties, distribution, and engine technology), age distribution, and meteorology data. Vehicles age distribution was projected to the Build year using the EPA tool.[13]

In addition, $PM_{2.5}$ emissions of dust generated by vehicles traveling on paved roadways were added to estimate total particulate matter emissions for the short-term analysis (annual fugitive dust emission is negligible, based on similar types of projects). Fugitive dust emissions were calculated using the methodology in the EPA's AP-42 manual.[14] A silt loading factor of 0.4 $g/m^2$ for paved local roadways was applied for all roadways, based on a value from the *CEQR Technical Manual*. In addition, a conservative assumption of "dry" road condition was used for the short-term calculation (precipitation reduced silt loading).

[13] https://www.epa.gov/moves/tools-develop-or-convert-moves-inputs

[14] EPA. Compilation of Air Pollutant Emission Factors AP-42 Fifth Edition, Vol. 1: Paved Roads Chapter 13: Miscellaneous Sources https://www3.epa.gov/ttn/chief/ap42. January 2011.

Dispersion analysis was conducted with the EPA's CAL3QHCR dispersion model version 13196. $PM_{2.5}$ concentrations were predicted with model-ready JFK Airport meteorology data, obtained from the New York City Department of City Planning (DCP) for another project. Models specified settling and deposition velocities of 0-meter per second, 60-minute averaging time, and urban surface roughness of 108-centimeter (applicable to single family residential land use), which is generally the most conservative urban land use parameter. Links were modeled as free flowing, at grade, links. Short-term receptors were placed in the middle of sidewalks at a 1.8-meter height around the intersection in spaced intervals. Annual receptors were placed 15-meters from the curb side at 1.8 meters height in spaced intervals. The map application built into Lakes Environmental, Inc. commercial version of CAL3QHCR was used to spatially locate links. Traveling links were assumed to be 10 feet wide and the total street width (traveling plus parking lane(s) width) were obtained from the New York City Digital City Map (DCM) shapefile.

*Dispersion Analysis Results*

The With-Action 24-hour $PM_{2.5}$ concentrations and the annual $PM_{2.5}$ increments between the With-Action and No-Action concentrations at each intersection were evaluated with the NYC Guideline, *de minimis*. **Table 17-5** shows the dispersion analysis results.

**Table 17-5: Project-Generated Traffic Dispersion Analysis Results**

| Pollutant and Averaging Time | Increment (Modeled) Concentration | Threshold Concentration | Threshold Standard |
|---|---|---|---|
| **$PM_{2.5}$ 24-hour** | 4.90 µg/m$^3$ | 8.45 µg/m$^3$ | *de minimis* |
| **$PM_{2.5}$ Annual Increment (1)** | 0.07 µg/m$^3$ | 0.1 µg/m$^3$ | *de minimis* |

Note:
1. The predicted With-Action concentration is less than the *de minimis*; therefore, the increment (With-Action from No-Action) would also be below the *de minimis*.

As seen in **Table 17-5**, the Proposed Actions $PM_{2.5}$ increment concentrations do not exceed the *de minimis* (24-hour or annual averaging times). Therefore, no significant adverse air quality impacts are expected at intersections effected by the Proposed Actions.

## F. Stationary Source

### Heating and Hot Water Systems

The heating/hot water, ventilation, and air conditioning (HVAC) systems analysis considers the potential for emissions from the HVAC system(s) of a proposed action to result in development that significantly impacts existing land uses (project-on-existing), and the potential of a proposed project to significantly impact each other (project-on-

project). Based on the *CEQR Technical Manual*, a preliminary screening assessment is to be conducted as a first step to predict whether the potential impacts of the heat and hot water system(s) boiler emissions can be significant. The screening analysis determines the threshold of development size below which the action would not have a significant impact. This CEQR screening procedure is applicable to buildings that are not less than 30 feet from the nearest building of similar or greater height. Otherwise, a detailed dispersion analysis is required.

*Screening Assessment*

The potential for the heat and hot water system(s) to have a significant adverse impact on nearby receptors depends on the type of fuel that would be used by the HVAC system, the height of the stack venting the emissions, the distance to the nearest building of similar or greater height, and the building's use and the square footage of the development that would be served by the system, both of which effect the amount of fossil fuel consumed. The *CEQR Technical Manual* screening assessment is based on these factors. A detailed analysis is required if the screening assessment failed. **Table 17-6** shows the Development Sites block/lot numbers, and the RWCDS heights and floor area (gsf).

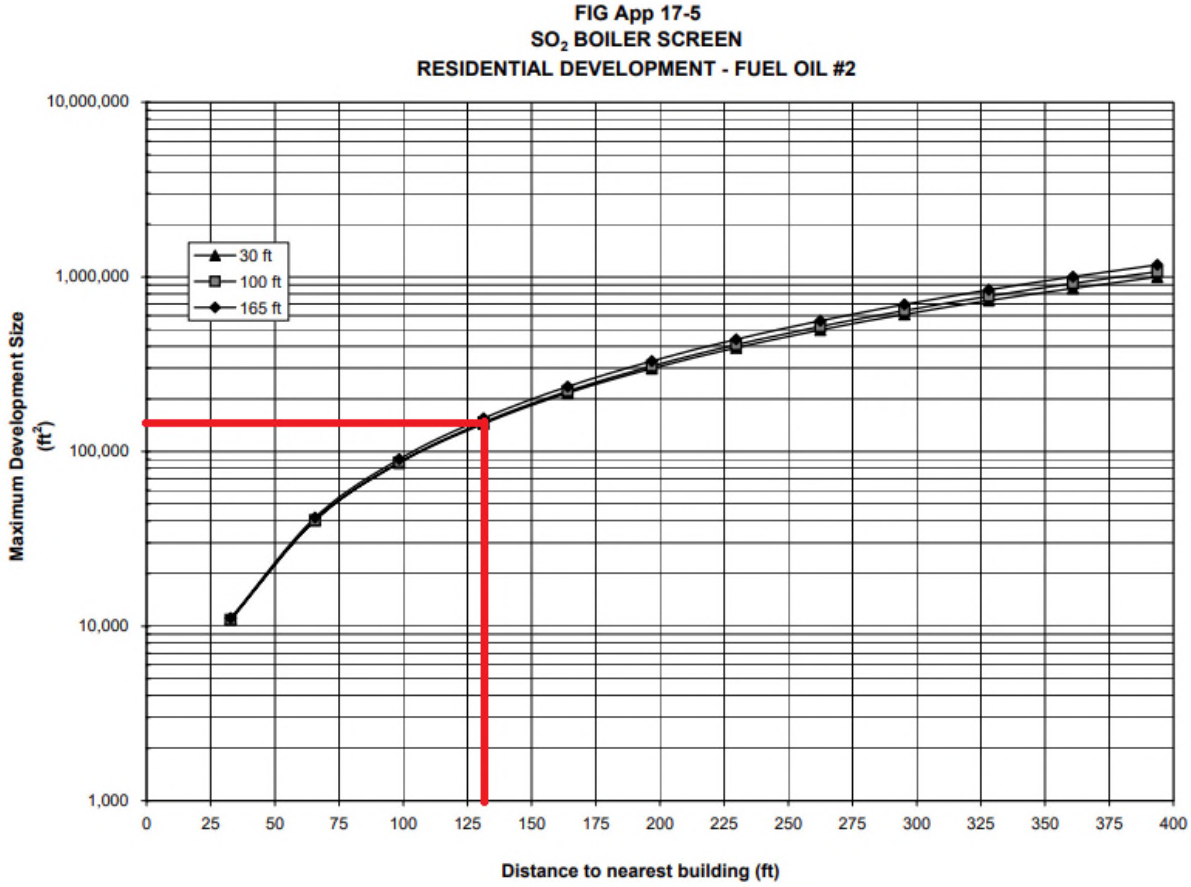
**Table 17-6: Livonia Avenue Rezoning Development by Parcel**

| Site ID | Block/Lot | Floor Area (gsf) | RWCDS Height (ft) |
|---|---|---|---|
| Projected Development Site 1 | Block 3813, Lot 115 | 256,482 | 130 |
| Projected Development Site 2 | Block 3812, Lots 19-22 and 121 | 69,176 | 115 |
| Projected Development Site 3 | Block 3811, Lots 17-19, 21, 23-27, and 124 | 123,450 | 125 |
| Projected Development Site 4 | Block 3586, Lot 26 | 85,702 | 125 |
| Projected Development Site 5 | Block 3812, Lot 24 | 46,950 | 95 |
| Potential Development Site 1 | Block 3812, Lots 17 (p/o) and 18 | 37,900 | 95 |
| Potential Development Site 2 | Block 3811, Lot 20 | 15,400 | 95 |

According to 15 RCNY 2-15, no new boiler or burner installations may use No. 6 or No. 4 fuel oils. Therefore, the highest-emitting fuel that could be used is No. 2 fuel oil. As such, the CEQR nomographs depicted on Figure 17-5 of the *CEQR Technical Manual Appendices* were used for the screening assessments. This stationary source screen is a generic screen for an oil No. 2 fueled boiler serving a residential use building, where the CEQR nomograph depicts the size of the development versus the distance below which the potential impact can occur and provides a conservative estimate of the threshold distance. In addition, the screening assessment is only applicable to a single smokestack. However, for purposes of a cumulative analysis, emissions from multiple stacks could be combined in a single stack situated as close as possible to a receiving building. The following screening assessments were conducted:

Projected Development Sites 2 and 5 and Potential Development Site 1 on Projected Development Sites 1 and 3: Based on the methodology above, Projected Development Sites 2 and 5 and Potential Development Site 1 Reasonable Worst Case Development Scenarios (RWCDSs) were combined and analyzed as a 95-foot-tall residential building containing 154,026 gsf. For screening assessment purposes, it is assumed that fuel oil No. 2 would be the type of fuel used in the building's (Projected Development Sites 2 and 5 and Potential Development Site 1 combined gsf as a single building) HVAC system. **Figure 17-1** (using Figure 17-5 of the *CEQR Technical Manual Appendices)* shows the cumulative Projected Development Sites 2 and 5 and Potential Development Site 1 combined gsf as a single building screening assessment nomograph.

**Figure 17-1: Projected Development Sites 2 and 5 and Potential Development Site 1 – HVAC Minimum Screen Distance**

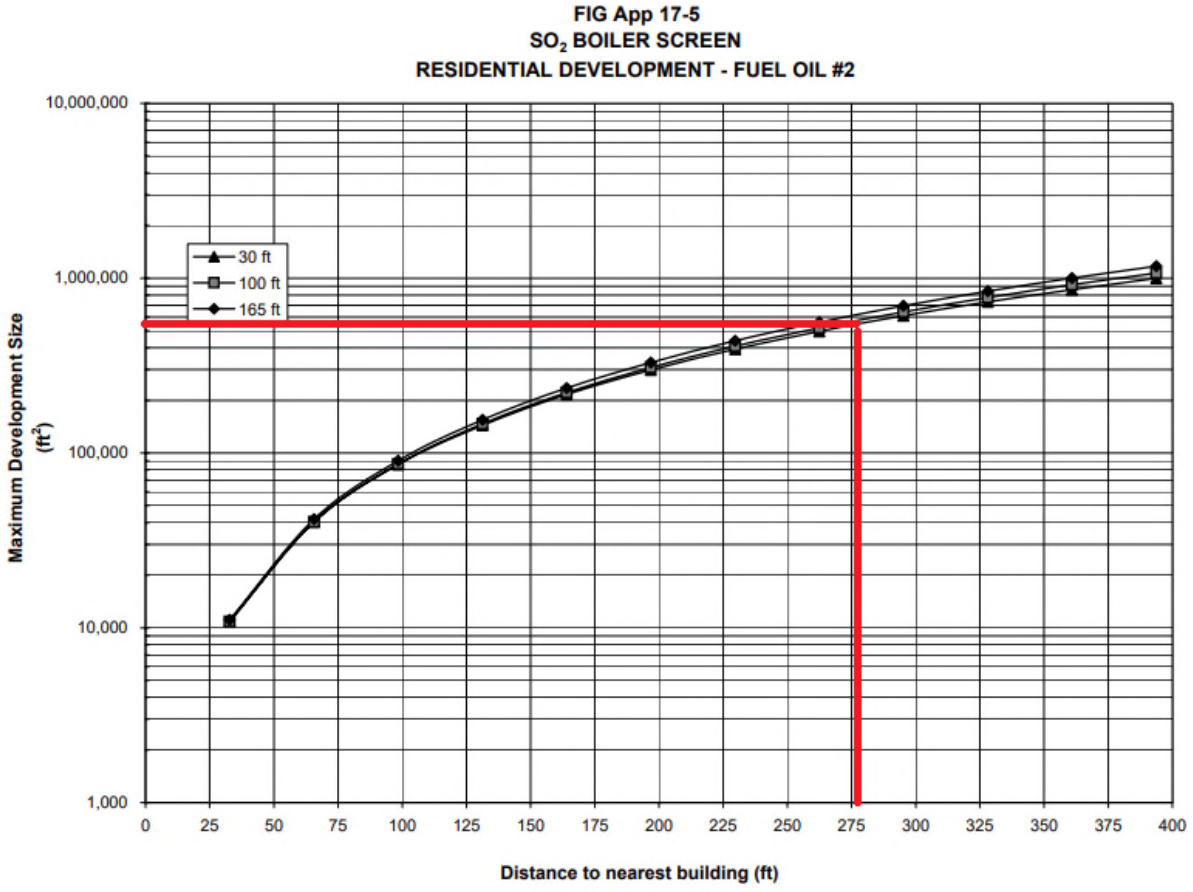



As seen in the screening analysis (**Figure 17-1**), using the nomograph provided in the *CEQR Technical Manual*, Projected Development Sites 2 and 5 and Potential Development Site 1 combined gsf meets the curve for fuel oil No. 2 at a distance of 130 feet. Projected Development Site 1 is located 60 feet east of Projected Development Site 5, and Projected Development Site 3 is located 60 feet west of

Projected Development Site 2 or Potential Development Site 1. As such, a detailed analysis is required for the potential impact of Projected Development Sites 2 and 5 and Potential Development Site 1 on Projected Development Sites 1 and 3.

1. Projected Development Sites 1, 2, 3 and 5 and Potential Development Sites 1 and 2 on Existing Land Uses: Based on the methodology above, Projected Development Sites 1, 2, 3 and 5 and Potential Development Sites 1 and 2 RWCDSs were combined and analyzed as a 95-foot tall residential building containing 549,027 gsf. For screening assessment purposes, it is assumed that fuel oil No. 2 would be the type of fuel used in the building's (Projected Development Sites 1, 2, 3 and 5 and Potential Development Sites 1 and 2 combined gsf as a single building) HVAC system. **Figure 17-2** (using Figure 17-5 of the *CEQR Technical Manual Appendices)* shows the cumulative Projected Development Sites 1, 2, 3 and 5 and Potential Development Sites 1 and 2 combined gsf as a single building screening assessment nomograph.

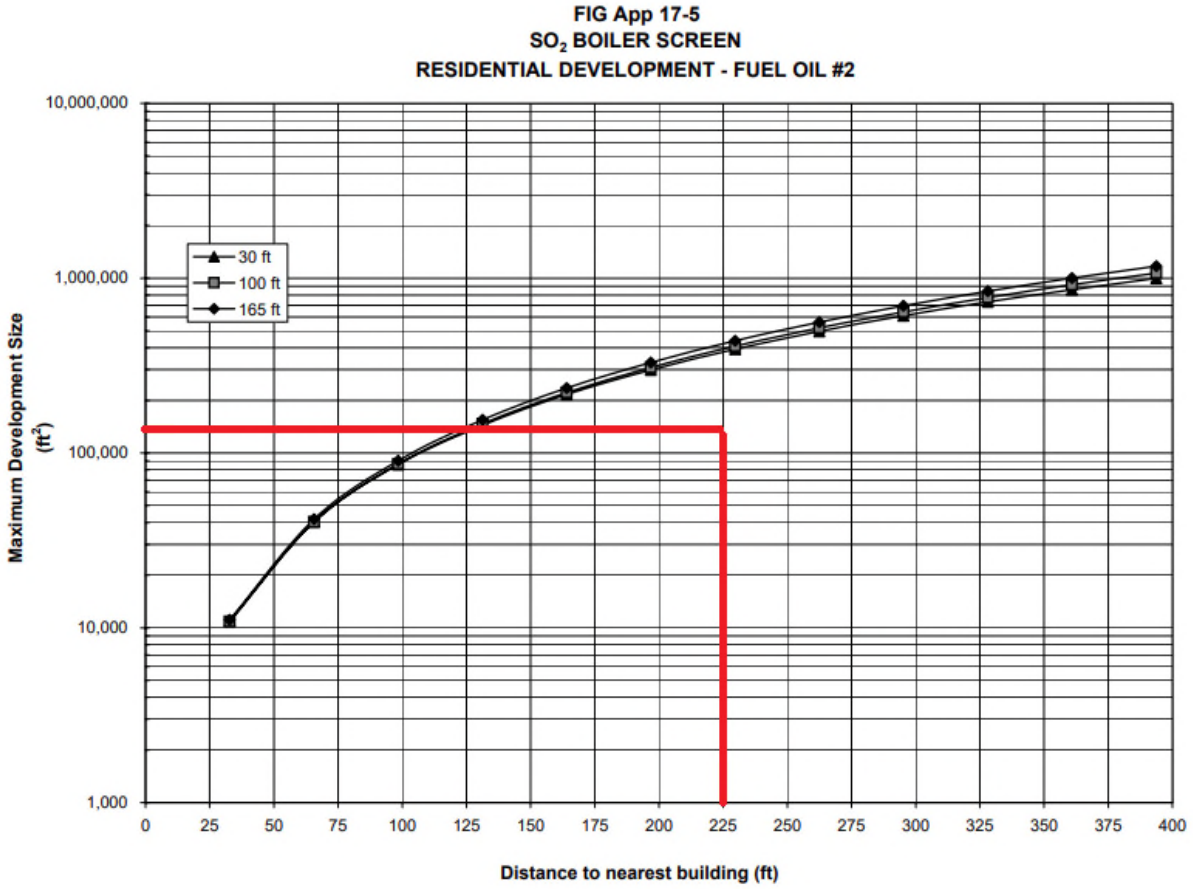
**Figure 17-2: Projected Development Sites 1, 2, 3 and 5 and Potential Development Sites 1 and 2 – HVAC Minimum Screen Distance**



As seen in the screening analysis (**Figure 17-2**), using the nomograph provided in the *CEQR Technical Manual*, Projected Development Sites 1, 2, 3 and 5 and Potential Development Sites 1 and 2 combined gsf meets the curve for fuel oil No. 2 at a distance of 280 feet. The four 14-story residential buildings on Block 3794, Lot 1, just north of Livonia Avenue, are approximately 140 feet high (height greater than the tallest development site (Projected Development Site 1) of 130 feet) and located approximately 105 feet from either Projected Development Site 1, 2, or 3. As such, a detailed analysis is required for the potential impact of Projected Development Sites 1, 2, 3 and 5 and Potential Development Sites 1 and 2 combined gsf on these existing buildings.

2. Projected Development Site 3 and Potential Development Site 2 on 630 Mother Gaston Boulevard: Based on the methodology above, Projected Development Site 3 and Potential Development Site 2 RWCDSs were combined and analyzed as a 95-foot-tall residential building containing 138,851 gsf. For screening assessment purposes, it is assumed that fuel oil No. 2 would be the type of fuel used in the building's (Projected Development Site 3 and Potential Development Site 2 combined gsf as a single building) HVAC system. A distance of 225 feet, which is approximately the distance between the tower portion of the 14-story residential building located at 630 Mother Gaston Boulevard (Block 3576, Lot 1) and Projected Development Site 3, was used in the screening analysis. **Figure 17-3** (using Figure 17-5 of the *CEQR Technical Manual Appendices)* shows the cumulative Projected Development Site 3 and Potential Development Site 2 combined gsf as a single building screening assessment nomograph.

**Figure 17-3: Projected Development Site 3 and Potential Development Site 2 – HVAC Screen on 630 Mother Gaston Boulevard Building**




As seen in the screening analysis (**Figure 17-3**), using the nomograph provided in the *CEQR Technical Manual*, Projected Development Site 3 and Potential Development Site 2 combined gsf would fall below the curve for fuel oil No. 2. As such, the Projected Development Site 3 and Potential Development Site 2 passes the HVAC screening assessment on the residential building located at 630 Mother Gaston Boulevard.

Other than Projected Development Site 3 and Potential Development Site 2, the nearest development site is Projected Development Site 2, which is approximately 480 feet from the tower portion of the residential building located at 630 Mother Gaston Boulevard. As such, no other Development Site was considered in this cumulative screening analysis.

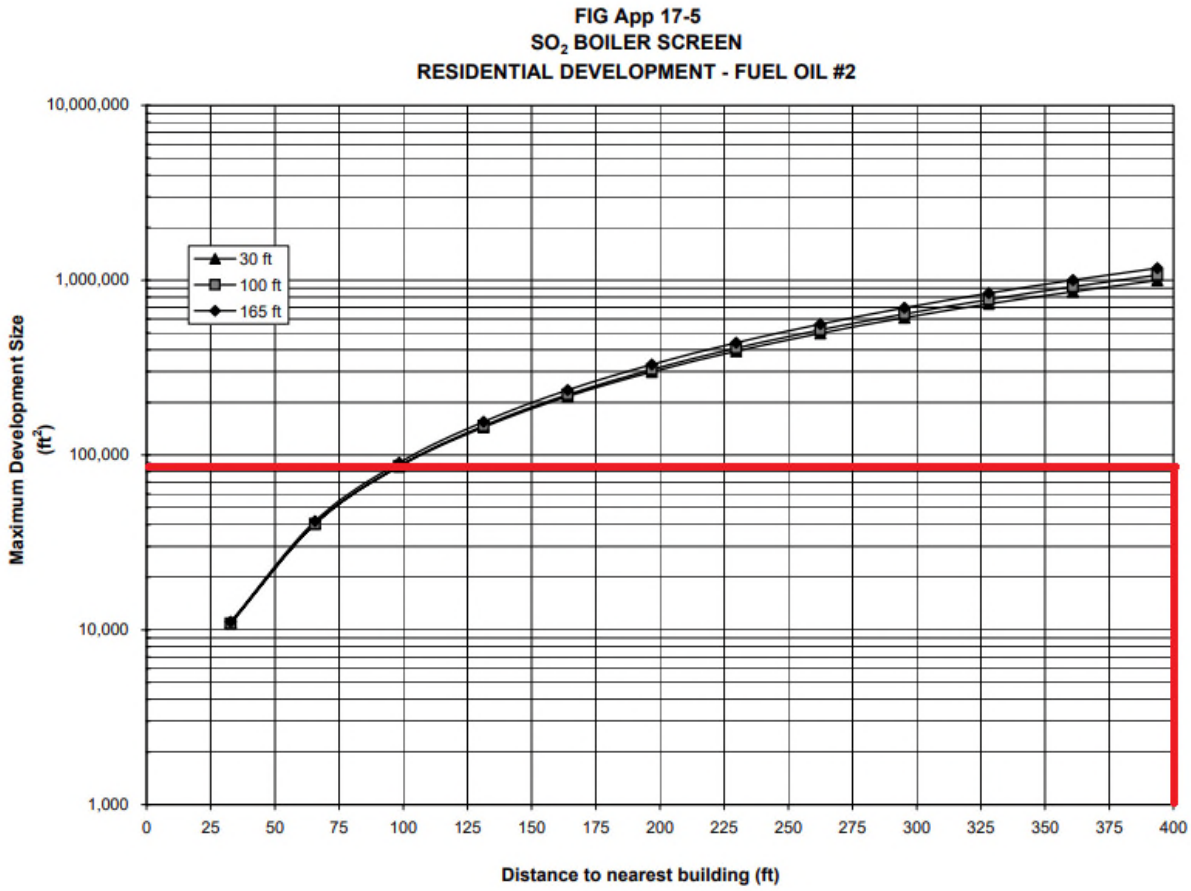
3. Other Project-on-Project Impacts: Projected Development Site 5 and Potential Development Site 1, which are each 95 feet tall, are adjacent to Projected Development Site 2. Therefore, a detailed analysis is required for this scenario.

Potential Development Site 2, which is 95 feet tall, is adjacent to Projected Development Site 3. Therefore, a detailed analysis is required for this scenario.

In addition, all project-on-project scenarios were analyzed to account for cumulative concentration.

4. Projected Development Site 4 on Existing Land Uses: Based on the methodology above, Projected Development Site 4 RWCDS was analyzed as a 125-foot tall residential building containing 85,702 gsf residential building. For screening assessment purposes, it is assumed that fuel oil No. 2 would be the type of fuel used in the building's HVAC system. A distance of 400 feet was applied in the screening assessment as no other building 125 feet or taller is located within 400 feet from Projected Development Site 4. **Figure 17-4** (using Figure 17-5 of the *CEQR Technical Manual Appendices)* shows the Projected Development Site 4 screening assessment nomograph on existing land uses.

**Figure 17-4: Projected Development Site 4 – HVAC Screen on Existing Land Uses**



As seen in the screening analysis (see **Figure 17-4**), using the nomograph provided in the *CEQR Technical Manual*, Projected Development Site 4 relative to the closest existing building with a similar or taller building height would fall below the curve for fuel oil No. 2. As such, Projected Development Site 4 passes the HVAC screening assessment on existing land uses.

*Detailed Analysis*

Stationary source modeling was conducted to evaluate the potential impacts associated with the boilers stacks emissions. Lakes Environmental MPI executable was used in the analysis. The MPI executable takes advantage of computers with multiple processors, reducing run-time significantly. Lakes Environmental has adjusted the US EPA AERMOD source code and recompiled the model to parallelize the processing of receptors. The latest MPI executable (used in the analysis) modified the EPA's AERMOD latest executable model version 21112. The AERMOD model incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The model was run with the regulatory default option and for both with and without downwash effect options, where the Building Profile Input Program (BPIP) was run with the downwash effect enabled. All analyses were conducted using the five consecutive years of meteorological data (2015-2019) obtained from the NYSDEC. Surface data used in the analysis is from JFK Airport, and upper air data is from Brookhaven station, New York. According to the NYSDEC, the meteorological data was processed using the latest versions of AERMINUTE, AERSURFACE, and AERMET. The meteorological data provided hour-by-hour wind speeds and directions, stability states, and temperature inversion elevations over the 5-year period. Population in Kings County, obtained from the U.S. Census Bureau (July 2019), was specified to account for the effects of increased surface heating from an urban area on pollutant dispersion under stable atmospheric conditions.

Natural gas would be the type of fuel used in the boilers for Projected Development Sites 1, 2 and 5 and Potential Development Site 1. In addition, low-NOx burners would be utilized in the boilers for Projected Development Sites 2 and 5. The pollutant of concern for natural gas fuel boilers is $NO_2$ and $PM_{2.5}$. Line-electric energy would be used to power the Potential Development Site 2's HVAC system; therefore, no emissions are predicted from the Potential Development Site 2's HVAC system. Fuel oil No. 2 was assumed to be the type of fuel used in the Projected Development Site 3 HVAC equipment. The pollutants of concern for fuel oil No. 2 boilers are $NO_2$, $PM_{2.5}$, and $SO_2$.

The boilers' energy intensities were calculated based on energy consumption rate, obtained from the *CEQR Technical Manual Appendices* (60.3 thousand Btu per gsf)[15], corresponding to residential use in the buildings. Emissions were calculated based on emission factors obtained from the EPA's AP-42 manual for external combustion sources.[16] All fuel was assumed to be consumed during the 100 day (or 2,400 hour) heating season, based on the *CEQR Technical Manual*. **Table 17-7** shows the boilers' energy intensities and pollutants emission rates.

**Table 17-7: HVAC Systems Short-term and Annual Emission Rates**

| Site ID (RWCDS gsf) | Boiler Heat Input (MMBtu/hr); Fuel used | Pollutant | Short-term Emission Rate (g/s) | Annual Emission Rate (g/s) |
|---|---|---|---|---|
| Projected Development Site 1 (256,150 gsf) | 6.44; Natural gas | $NO_2$ | 7.95E-02 | 2.18E-02 |
| | | $PM_{2.5}$ | 6.04E-03 | 1.66E-03 |
| Projected Development Site 2 (69,176 gsf) | 1.74; Natural gas Low NOx | $NO_2$ | 1.07E-02 | 2.94E-03 |
| | | $PM_{2.5}$ | 1.63E-03 | 4.47E-04 |
| Projected Development Site 3 (123,451 gsf) | 3.10; Fuel oil No. 2 | $NO_2$ | 5.60E-02 | 1.53E-02 |
| | | $PM_{2.5}$ | 5.96E-03 | 1.63E-03 |
| | | $SO_2$ | 5.96E-04 | 1.63E-04 |
| Projected Development Site 5 (46,950 gsf) | 1.18; Natural gas Low NOx | $NO_2$ | 7.29E-03 | 2.00E-03 |
| | | $PM_{2.5}$ | 1.11E-03 | 3.03E-04 |
| Potential Development Site 1 (37,900 gsf) | 0.95; Natural gas | $NO_2$ | 1.18E-02 | 3.22E-03 |
| | | $PM_{2.5}$ | 8.94E-04 | 2.45E-04 |

The *CEQR Technical Manual* default stack's diameter and exhaust's exit velocity were specified for Potential Development Site 1 (as Potential Development Site 1 predicted boiler energy intensity is less than 1 million Btu). The other Projected Development Sites' boiler stacks' diameters were estimated based on values obtained from the New York City Department of Environmental Protection (DEP) "CA Permit" database for corresponding boiler sizes (i.e., rated heat input or million Btu per hour)[17], and their stacks' exit velocities were calculated based on the fuel dry volume of combustion components per unit of heat content. The stacks' exit temperatures were assumed to be 426$^{o}$K, which is appropriate for boilers, based on the DEP "CA Permit" database. The boilers stacks were initially placed 3 feet above the roofline and as close as possible to

[15] *CEQR Technical Manual 2020 Appendices*, and U.S. Energy Information Administration (EIA) Table US1: Total Energy Consumption, Expenditures, and Intensities, 2005 Part 1: Housing Unit Characteristics and Energy Usage Indicators.

[16] EPA. *Compilation of Air Pollutant Emission Factors AP-42 Fifth Edition, Vol. 1:* Chapter 1: External Combustion Sources, https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf. July 1998.

[17] DEP "CA Permit" database obtained from the New York City Department of City Planning, February 2020.

the receiving building. A stack(s) set back distance(s) and/or increased stack height was specified if an impact was predicted.

The Development Sites were modeled as buildings that cover their entire lot(s) area(s) (the wall façade located on the outer lot lines) and rise to their RWCDS heights. Buildings in the surrounding area were accounted for in the downwash effect on plumes dispersions (BPIP). Receptors on the receiving building(s) were placed on all wall façades from the ground floor to the roof-top height in spaced intervals.

The U.S. Geological Service (USGS) National Elevation Dataset (NED) 1/3 arc-second resolution (GeoTIFF dataset), the terrain data set recommended by the EPA for use in the United States for regulatory purposes, was used to process buildings' base elevations. The base elevations of receptors and stacks were set to their buildings' base elevations. Roof heights of buildings in the area were obtained from the NYC Building Footprint database.[18]

1-hour $NO_2$ concentrations were evaluated with the NAAQS design value of 8$^{th}$ highest concentration and Tier 1 or 2 approach. The national default minimum and maximum ambient ratios of 0.5 and 0.9, respectively, were used in the Tier 2 (ARM 2) approach. 1-Hour $SO_2$ maximum concentration at Projected Development Sites 2 and 5 and Potential 1 and 2 was evaluated in a single model by placing receptor at all these sites.

Concentrations were modeled twice; with or without building wake effect options. The predicted concentrations are the highest concentration of these. **Table 17-8** shows the HVAC dispersion analysis results.

**Table 17-8: HVAC Dispersion Analysis Results**

| Pollutant and Averaging Time | Modeled Concentration (μg/m$^3$) | Background Concentration (μg/m$^3$) | Evaluated Concentration [(1)] (μg/m$^3$) | Threshold Concentration (μg/m$^3$) | Threshold Standard |
|---|---|---|---|---|---|
| **Concentrations at Projected Development Site 1** | | | | | |
| **1-hour $NO_2$** | 83.1 | 103.6 | 187 | 188 | NAAQS |
| **Annual $NO_2$** | 1.27 | 26.8 | 28 | 100 | NAAQS |
| **24-hour $PM_{2.5}$** | 5.03 | 18.1 | 5.0 | 8.45 | *de minimis* |
| **Annual $PM_{2.5}$** | 0.14 | 7.0 | 0.14 | 0.3 | *de minimis* |
| **1-hour $SO_2$** | 0.3 | 13.5 | 14 | 196 | NAAQS |
| **Concentrations at Projected Development Site 2** | | | | | |
| **1-hour $NO_2$** | 83.1 | 104 | 187 | **188** | NAAQS |
| **Annual $NO_2$** | 1.23 | 26.8 | 28 | 100 | NAAQS |
| **24-hour $PM_{2.5}$** | 2.53 | 18.1 | 2.5 | 8.45 | *de minimis* |
| **Annual $PM_{2.5}$** | 0.11 | 7.0 | 0.11 | 0.3 | *de minimis* |
| **Concentrations at Projected Development Site 3** | | | | | |

[18] City of New York, nyc-geo-metadata (May 03, 2016); https://data.cityofnewyork.us/Housing-Development/Building-Footprints/nqwf-w8eh

| | | | | | |
|---|---|---|---|---|---|
| **1-hour $NO_2$** | 84 | 103.6 | 187 | 188 | NAAQS |
| **Annual $NO_2$** | 1.07 | 26.8 | 28 | 100 | NAAQS |
| **24-hour $PM_{2.5}$** | 3.12 | 18.1 | 3.1 | 8.45 | *de minimis* |
| **Annual $PM_{2.5}$** | 0.10 | 7.0 | 0.10 | 0.3 | *de minimis* |
| **Concentrations at Projected Development Site 5** | | | | | |
| **1-hour $NO_2$** | 11 | 103.6 | 115 | 11 | NAAQS |
| **Annual $NO_2$** | 0.31 | 26.8 | 27 | 0.31 | NAAQS |
| **24-hour $PM_{2.5}$** | 0.63 | 18.1 | 0.6 | 0.63 | *de minimis* |
| **Annual $PM_{2.5}$** | 0.03 | 7.0 | 0.03 | 0.03 | *de minimis* |
| **Concentrations at Potential Development Site 1** | | | | | |
| **1-hour $NO_2$** | 11 | 103.6 | 115 | 188 | NAAQS |
| **Annual $NO_2$** | 0.19 | 26.8 | 27 | 100 | NAAQS |
| **24-hour $PM_{2.5}$** | 0.28 | 18.1 | 0.3 | 8.45 | *de minimis* |
| **Annual $PM_{2.5}$** | 0.02 | 7.0 | 0.02 | 0.3 | *de minimis* |
| **Concentrations at Potential Development Site 2** | | | | | |
| **1-hour $NO_2$** | 18.3 | 103.6 | 116 | 188 | NAAQS |
| **Annual $NO_2$** | 0.27 | 26.8 | 27 | 100 | NAAQS |
| **24-hour $PM_{2.5}$** | 0.83 | 18.1 | 0.8 | 8.45 | *de minimis* |
| **Annual $PM_{2.5}$** | 0.03 | 7.0 | 0.03 | 0.3 | *de minimis* |
| **Maximum $SO_2$ 1-Hour Concentration at Projected 2 and 5 and Potential 1 and 2** | | | | | |
| **1-hour $SO_2$** | 0.31 | 13.5 | 14 | 196 | NAAQS |
| **Concentrations at Existing Land Uses** | | | | | |
| **1-hour $NO_2$** | 83.1 | 103.6 | 187 | 188 | NAAQS |
| **Annual $NO_2$** | 1.77 | 26.8 | 29 | 100 | NAAQS |
| **24-hour $PM_{2.5}$** | 3.06 | 18.1 | 3.1 | 8.45 | *de minimis* |
| **Annual $PM_{2.5}$** | 0.19 | 7.0 | 0.19 | 0.3 | *de minimis* |
| **1-hour $SO_2$** | 1.0 | 13.5 | 15 | 196 | NAAQS |

As seen in **Table 17-8**, the $NO_2$ and $SO_2$ predicted concentrations do not exceed the NAAQS and the $PM_{2.5}$ concentrations do not exceed the NYC *de minimis*. These results were predicted with certain restrictions, such as stack setback distances. The restrictions are specified in the Land Disposition Agreement and E-Designation language below.

**Land Disposition Agreement**

The following measures needed to preclude the potential for air quality impacts on Projected Development Sites 1 through 4 will be memorialized and enforced through the Land Disposition Agreement (LDA) between HPD and the Project Sponsor.

***Block 3813, Lot 115 (Projected Development Site 1): Any new residential, commercial, or community facility development on the above-referenced property exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC) system(s), ensure that the stack is located at the building's highest level at a minimum of 133 feet above the grade, and that the stack is located at least 120 feet from the***

***northern lot line facing Livonia Avenue to avoid any potential significant adverse air quality impacts.***

***Block 3812, Lots 19-22, 121 (Projected Development Site 2): Any new residential or community facility development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC) system(s) and must be fitted with low NOx (30 ppm) burners, ensure that the HVAC stack is located at the building's highest level at a minimum of 118 feet above the grade, and that the stack is located at least 35 feet from the eastern lot line facing Sackman Street and at least 35 feet from the western lot line facing Christopher Avenue to avoid any potential significant adverse air quality impacts.***

***Block 3811, Lots 17-19, 21, 23-27, 124 (Projected Development Site 3): Any new residential, commercial, or community facility development on the above-referenced property must ensure that the heating, ventilating, air conditioning (HVAC), and hot water system(s) stack is located at the building's highest level at a minimum of 128 feet above the grade, and that the stack is located at least 70 feet from the northern lot line facing Livonia Avenue and 50 feet from the eastern lot line facing Christopher Avenue to avoid any potential significant adverse air quality impacts.***

***Block 3586, Lot 26 (Projected Development Site 4): Any new residential or community facility development on the above-referenced property must ensure that the heating, ventilating, air conditioning (HVAC), and hot water system(s) stack is located at the building's highest level at a minimum of 128 feet above the grade to avoid any potential significant adverse air quality impacts.***

**(E) Designation**

Projected Development Site 5 and the Potential Development Sites, which are not part of the proposed project, would be mapped with E-Designations (E-641) as specified below.

***Block 3812, Lot 24 (Projected Development Site 5): Any new residential, commercial, or community facility development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s) and must be fitted with low NOx (30 ppm) burners, ensure that the stack is located at a minimum of 122 feet above the grade, and that the stack is located at least 35 feet from the eastern lot line facing Sackman Street to avoid any potential significant adverse air quality impacts.***

***Block 3812, Lots 17 (p/o), 18 (Potential Development Site 1): Any new residential, commercial, or community facility development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s), ensure that the stack is located at a minimum of 122 feet above the grade, and that the stack is located at least 40 feet from the eastern lot***

***line facing Sackman Street and at least 30 feet from the northern lot line facing Livonia Avenue to avoid any potential significant adverse air quality impacts.***

***Block 3811, Lot 20 (Potential Development Site 2): Any new residential, commercial, or community facility development on the above-referenced property must exclusively use line-electric power as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s) to avoid any potential significant adverse air quality impacts.***

**Industrial Source**

*Identifying Potential Emission Sources*

Per the *CEQR Technical Manual*, projects that would result in new uses (particularly schools, hospitals, parks, and residences) within 400 feet of manufacturing processing facilities may result in potentially significant adverse impacts. The analysis first determines if there are any existing manufacturing uses within the 400-foot study area containing exhaust stacks, vents, or other emission sources that may have the potential to adversely affect the uses introduced by the project. If warranted, an air dispersion analysis is then conducted for any existing industrial source(s) located in the study area.

Existing manufacturing uses with exhaust stacks, vents, or other emission sources that may have the potential to adversely affect the uses introduced by the project were identified by reviewing the DEP online Clean Air Tracking System (CATS) database, the NYSDEC map application (DECinfo Locator), and through a field survey. The field survey took place on November 11th, 2019.

The Project Area includes two sub-areas. Study Area 1 is the 400-foot radius surrounding Projected Development Sites 1, 2, 3, and 5 and Potential Development Sites 1 and 2, which are located on three adjoining blocks along the south side of Livonia Avenue between Powell Street and Mother Gaston Boulevard. This study area includes all or part of the following Blocks: 3576, 3590, 3593, 3794, 3797, 3798, 3811, 3812, 3813, 3814, 3815, 3829, 3830, and 3831. Study Area 2 consist of a 400-foot radius around Projected Development Site 4, which is located on the south side of Livonia Avenue between Thomas S. Boyland Street and Amboy Street. This study area encompasses all or part of Blocks 3570, 3573, 3584, 3585, 3586, and 3587. The results of the study are as follows:

- There are three expired DEP certificates to operate issued to the Crest Lock Co., Inc. at 342 Herzl Street (Block 3584, Lot 37). This facility is located in Study Area 2, approximately 325 feet southwest of Projected Development Site 4. Permit PA037984 was issued for a Certificate to Operate – Industrial for an industrial spray booth. This permit expired on 10/19/11. Permit PA038284 was issued for a Certificate to Operate – Industrial for metal processing. This permit expired on 10/19/14. Permit PA038384 was issued for Certificate to Operate – Industrial for industrial miscellaneous activities. This permit expired on 10/19/14.

This facility also contains a NYSDEC Air Facility Registration Certificate (Registration ID 2-6104-00306/00003) with a total of 1 emission point. The Description on the Certificate reads "paint spray booth." The Certificate registration effective date is 1/28/2002 and its expiration date is not applicable. While no air toxics emission was identified at the facility during the site investigation, as described below, the NYSDEC permit is active, and therefore (based on DEP guidance), emission from the facility was analyzed.

The property at 342 Herzl Street was visited on October 24th, 2018 and November 11th, 2019, to determine if the Crest Lock Co., Inc. still performs manufacturing operations in the building. At the time of the site visits, the portion of the building occupied by the Crest Lock Co., Inc. was locked, and no one was present in the area. No manufacturing operations were noted at the time of the site visits. Mr. Dave Nardone of Hilt Projects, a tenant at 342 Herzl Street, was interviewed during the site visit on November 11th, 2019. According to Mr. Nardone, the Crest Lock Co. no longer has manufacturing operations in the building and has not had manufacturing operations in the building for more than a year. The small part of the building still occupied by the Crest Lock Co., Inc. is used for warehousing and office purposes. No stacks, odors or emissions were observed in this part of the building.

The rest of the building at 342 Herzl Street is occupied by Hilt Projects, an interior design and marketing display company. There are not any DEP Permits on file for this business in the CATS database, and no stacks, emissions, or odors were observed at these businesses.

- There is an industrial operation located in the building at 366 Herzl Street (Block 3584, Lot 47), which is located in Study Area 2, approximately 370 feet southwest of Projected Development Site 4. Tri-State Shearing and Bending at 366 Herzl Street is a metal shearing and bending company, specializing in metal pre-fabrication for stairs, railings, etc. There are not any DEP Permits on file for this business in the CATS database, and no stacks, emissions, or odors were observed at this business.

- There is a 1-story commercial/industrial building located at 373 Herzl Street (Block 3585, Lot 11), which is located in Study Area 2 approximately 290 feet southwest of Projected Development Site 4. This building is occupied by Bentzy's Roofing and Waterproofing. There are not any DEP Permits on file for this business in the CATS database, and no stacks, emissions, or odors were observed at these businesses.

No other potential source(s) of toxics air emissions was identified in the study area (Study Area 1 or Study Area 2).

*Crest Lock Co., Inc. Dispersion Analysis*

The Crest Lock Co., Inc. facility has an active NYSDEC air permit registration (Registration ID 2-6104-00306/00003) for a spray booth. Emission profile for the spray

booth manufacturing processing activities at the facility was obtained from the DEP permit application, registered to the Crest Lock Co. Inc. facility, PA037984 and PA038284 (PA038384 is for sand blasting unit). PA037984 is for a spray booth operating 8 our per day, 200 day per year. PA038284 is for a lacquer spin machine used for mixing lacquer, and operating 1 hour per day, 200 day per year. The contaminants listed in the DEP permits are specific chemicals and particulates (New York Identification Number NY075-00-0). Each specific chemical was analyzed with the SGC/AGC guideline concentration. Particulate emission was analyzed as $PM_{2.5}$ with the *de minimis* and the SGC/AGC. The maximum 1-hour and annual emission rates of the chemicals emitted by the processing activities at the facility, along with their CAS numbers, are presented in **Table 17-9**.

**Table 17-9: Contaminants Emission Rates from the Crest Lock Co., Inc. Facility – DEP Permits PA037984 and PA038284**

| Contaminant Name | CAS No. | 1-Hour | Annual |
|---|---|---|---|
| | | lb/hr | lb/yr |
| **PA037984** | | | |
| Methyl Pyrrolidone | 00872-50-4 | 0.02 | 32.0 |
| Triethylamine | 00121-44-8 | 0.01 | 16.0 |
| Butoxyethanol, 2- | 00111-76-2 | 0.02 | 32.0 |
| Diethylene Triamine | 00111-40-0 | 0.01 | 16.0 |
| Propanediol, 1,2- | 00057-55-6 | 0.01 | 16.0 |
| Pigments (Particulates) | NY075-00-0 | 0.001 | 1.6 |
| **PA038284** | | | |
| Isobutyl Alcohol | 0078-83-1 | 2.4 | 480.0 |
| **Note:**<br>1. Butoxyethanol, 2- is a Hazardous Air Pollutant (HAP) | | | |

The Crest Lock Co., Inc. facility is located at 342 Herzl Street (Block 3584, Lot 37), and approximately 315 feet from Projected Development Site 4. The *CEQR Technical Manual* Industrial Source Screen methodology was used to predict pollutants' maximum short-term(s) and annual average concentrations. This methodology can be used to predict a pollutant concentration emitted from a single source at various distances (from 30 to 400 feet). A distance of 300 feet was used in the analysis. **Table 17-10** shows the pollutants predicted concentrations evaluated with the SGC/AGC standards.

**Table 17-10: Crest Lock Co., Inc. - Pollutants Concentrations and the SGC/AGC Standards (CEQR Industrial Source Screen Dispersion Analysis Result)**

| Contaminant | CAS No. | 1-Hour | SGC | Annual | AGC |
|---|---|---|---|---|---|
| | | ($\mu g/m^3$) | ($\mu g/m^3$) | ($\mu g/m^3$) | ($\mu g/m^3$) |
| Methyl Pyrrolidone | 00872-50-4 | 3.7 | --- | 0.27 | 100.0 |

| | | | | | |
|---|---|---|---|---|---|
| Triethylamine | 00121-44-8 | 1.8 | 2800.0 | 0.13 | 7.0 |
| Butoxyethanol, 2- | 00111-76-2 | 3.7 | 4700.0 | 0.27 | 1600.0 |
| Diethylene Triamine | 00111-40-0 | 1.8 | --- | 0.13 | 10.0 |
| Propanediol, 1,2- | 00057-55-6 | 1.8 | 36850.0 | 0.13 | 2000.0 |
| Isobutyl Alcohol | 0078-83-1 | 438.6 | --- | 4.0 | 360.0 |
| Particulates ($PM_{2.5}$) (2) | NY075-00-0 | 0.2 | 88 | 0.01 | 12 |
| Note:<br>1. Butoxyethanol, 2- is a HAP.<br>2. PM2.5 NAAQS was used to calculate DAR-1 equivalent 1-hour (35 µg/$m^3$ divided by 0.4). | | | | | |

As seen in **Table 17-10**, the pollutants concentrations are within the SGC/AGC design values. In addition, the cumulative potential for significant impact was evaluated with the inhalation risk (for carcinogen pollutants) or the hazardous index. The inhalation risk for the HAP is 0.0002 (less than 1), and the hazardous index is 0.05 (less than 1) for the non-carcinogenic pollutants.

$PM_{2.5}$ concentration was evaluated with the *de minimis*. **Table 17-11** shows the $PM_{2.5}$ 24-hour and annual predicted concentrations.

**Table 17-11: Crest Lock Co., Inc. – $PM_{2.5}$ Concentration Evaluated With the *de minimis* (CEQR Industrial Source Screen Dispersion Analysis Result)**

| **Contaminant** | **24-Hour Increment Concentration (µg/$m^3$)** | ***de minimis* (µg/$m^3$)** |
|---|---|---|
| 24-Hour $PM_{2.5}$ | 0.10 | 8.45 |
| Annual $PM_{2.5}$ | 0.013 | 0.3 |

As seen in **Table 17-11**, the $PM_{2.5}$ predicted concentration is within the *de minimis*. Therefore, no adverse air quality impact is predicted at project-generated buildings due to existing nearby industrial sources within the study area.

## Major Source

As outlined in the *CEQR Technical Manual*, projects that would introduce new uses near major sources, large sources, and odor producing facilities may result in potentially significant adverse air quality impacts. The study area considers major sources, large sources, and odor producing facilities within 1,000 feet of the Project Area. Major emission sources are identified as those sources located at Title V facilities that require Prevention of Significant Deterioration permits; large emission sources are identified as sources located at facilities which require a State facility permit. Solid waste or medical

waste incinerators, asphalt and concrete plants, power generating plants, large boilers of large public facilities for example, and large industrial facilities are typical type of sources requiring these permits. Odor producing facilities are operations that have the potential to cause discomfort, such as: solid waste management facilities, water pollution control plants (i.e., sewage treatment plants), and incinerators.

No existing large combustion source(s), such as power plants, cogeneration facilities, etc., located within 1,000 feet of the Proposed Project, was identified[19], and no odor producing facility was identified within 1,000 feet of the Proposed Project. The nearest major/large source is the Air State Facility Brookdale Hospital Medical Center, located at 1275 Linden Boulevard Brooklyn, NY 11212, and approximately 2,100 feet south of Projected Development Site 4. As such, no analysis is warranted, and no significant adverse air quality impacts are predicted from these types of facilities.

## G. Conclusion

Based on the analysis, conditions associated with the Proposed Actions would not result in any violations of the ambient air quality standards. Therefore, there is no reason to believe that the Proposed Actions would result in any potentially significant adverse stationary or mobile source air quality impacts, and further assessment is not warranted.

[19] https://gisservices.dec.ny.gov/gis/dil/

## 19. NOISE

### Introduction

Two types of potential noise impacts are considered under CEQR. These are potential mobile source and stationary source noise impacts. Mobile source impacts are those which could result from a proposed project adding a substantial amount of vehicular traffic to an area, or introducing new noise-sensitive land uses into an area where vehicular traffic creates high ambient noise levels. Potential stationary source noise impacts are considered when a proposed development would cause a stationary noise source to be operating within 1,500 feet of a sensitive land use (receptor), with a direct line of sight to that receptor, if the project would include unenclosed mechanical equipment for building ventilation purposes, or if the project would introduce a sensitive land use into an area with high ambient noise levels.

Because the proposed project would receive federal funding, a HUD-compliant noise analysis is also required. The HUD analysis identifies airport, railway, and roadway noise generators near the project sites, then, utilizing the HUD online calculator, generates a combined DNL for each site.

### Noise Analysis

### Introduction

Environmental Studies Corp. (ESC) conducted noise monitoring on Wednesday, May 29th, 2019 in support of the Proposed Development of four City-owned sites for new affordable housing. These sites, located along Livonia Avenue in the Brownsville section of Brooklyn, would be developed for medium density residential buildings with ground floor commercial or community facility use. The sites are proposed to be rezoned from R6 and R6/C2-4 to an R7-2/C2-4 zoning district. The proposed project would rely on federal, state, and/or local funding for housing development. Therefore, an assessment of ambient noise that could affect project occupants is warranted.

Projected Development Site 1 (Site C-1) is identified as Block 3813, Lot 115 within Brooklyn Community District 16 on the New York City Tax Map. It is located between Powell Street on the east and Sackman Street on the west.

Projected Development Site 2 (Site C-2) is identified as Block 3812, Lots 19-22 and 121 within Brooklyn Community District 16 on the New York City Tax Map. It is located between Sackman Street on the east and Christopher Street on the west.

Projected Development Site 3 (Site C-3) is identified as Block 3811, Lots 17-19, 21, 23-27, and 124 within Brooklyn Community District 16 on the New York City Tax Map. It is located between Christopher Avenue on the east and Mother Gaston Boulevard on the west.

Projected Development Site 4 (Site C-4) is identified as Block 3586, Lot 26 within Brooklyn Community District 16 on the New York City Tax Map. It is located between Thomas Boyland Street to the east and Amboy Street to the west.

Projected Development Site 5 (non-applicant controlled) is identified as Block 3812, Lot 24 within Brooklyn Community District 16 on the New York City Tax Map. It is located between Sackman Street on the east and Christopher Street on the west.

Potential Development Site 1 (non-applicant controlled) is identified as Block 3812, Lots 17 (p/o) and 18 within Brooklyn Community District 16 on the New York City Tax Map. It is located between Sackman Street on the east and Christopher Street on the west.

Potential Development Site 2 (non-applicant controlled) is identified as Block 3811, Lot 20 within Brooklyn Community District 16 on the New York City Tax Map. It is located between Christopher Avenue on the east and Mother Gaston Boulevard on the west.

Livonia Avenue at the Project Area is a two-way east-west street with two moving lanes and curbside parking. The elevated tracks of the IRT #3 subway line are located over Livonia Avenue. Powell Street, Sackman Street, and Christopher Avenue are all one-way streets with one moving lane and curbside parking. Mother Gaston Boulevard is a two-way street. Local intersections are controlled by stop signs and traffic lights.

The Proposed Actions would utilize public funding to develop new noise-sensitive residential uses. Because the Proposed Actions would allow for development of a noise-sensitive land use, an assessment of the potential for adverse effects on project occupants from ambient noise is warranted. The Proposed Actions would not create a significant stationary noise generator. Additionally, project-generated traffic would not double vehicular traffic on nearby roadways, and therefore would not result in a perceptible increase in vehicular noise. Therefore, this noise assessment is limited to an assessment of ambient noise that could adversely affect occupants of the development.

Framework of Noise Analysis

Noise is defined as any unwanted sound, and sound is defined as any pressure variation that the human ear can detect. Humans can detect a large range of sound pressures, from 20 to 20 million micropascals, but only those air pressure variations occurring within a particular set of frequencies are experienced as sound. Air pressure changes that occur between 20 and 20,000 times a second, stated as units of Hertz (Hz), are registered as sound.

Because the human ear can detect such a wide range of sound pressures, sound pressure is converted to sound pressure level (SPL), which is measured in units called decibels (dB). The decibel is a relative measure of the sound pressure with respect to a standardized reference quantity. Because the dB scale is logarithmic, a relative increase

of 10 dB represents a sound pressure that is 10 times higher. However, humans do not perceive a 10-dB increase as 10 times louder. Instead, they perceive it as twice as loud.

Sound is often measured and described in terms of its overall energy, taking all frequencies into account. However, the human hearing process is not the same at all frequencies. Humans are less sensitive to low frequencies (less than 250 Hz) than mid-frequencies (500 Hz to 1,000 Hz) and are most sensitive to frequencies in the 1,000- to 5,000-Hz range. Therefore, noise measurements are often adjusted, or weighted, as a function of frequency to account for human perception and sensitivities. The most common frequency weightings used are the A- and C-weightings. These weight scales were developed to allow sound level meters, which use filter networks to approximate the characteristic of the human hearing mechanism, to simulate the frequency sensitivity of human hearing. The A-weighting is the most commonly used for environmental measurements, and sound levels measured using this weighting are denoted as dBA. The letter "A" indicates that the sound has been filtered to reduce the strength of very low and very high frequency sounds, much as the human ear does. C-weighting gives nearly equal emphasis to sounds of most frequencies. Mid-range frequencies approximate the actual (unweighted) sound level, while the very low and very high frequency bands are significantly affected by C-weighting.

**Table 19-1: Noise Levels of Common Sources**

| Sound Source | SPL (dB(A)) |
|---|---|
| Air Raid Siren at 50 feet | 120 |
| Maximum Levels at Rock Concerts (Rear Seats) | 110 |
| On Platform by Passing Subway Train | 100 |
| On Sidewalk by Passing Heavy Truck or Bus | 90 |
| On Sidewalk by Typical Highway | 80 |
| On Sidewalk by Passing Automobiles with Mufflers | 70 |
| Typical Urban Area | 60-70 |
| Typical Suburban Area | 50-60 |
| Quiet Suburban Area at Night | 40-50 |
| Typical Rural Area at Night | 30-40 |
| Isolated Broadcast Studio | 20 |
| Audiometric (Hearing Testing) Booth | 10 |
| Threshold of Hearing | 0 |

| |
|---|
| *Notes: A change in 3dB(A) is a just noticeable change in SPL. A change in 10 dB(A)Is perceived as a doubling or halving in SPL.* |
| *Source: 2020 CEQR Technical Manual* |

The following is typical of human response to relative changes in noise level:

- 3-dBA change is the threshold of change detectable by the human ear;
- 5-dBA change is readily noticeable; and
- 10-dBA change is perceived as a doubling or halving of the noise level.

The SPL that humans experience typically varies from moment to moment. Therefore, various descriptors are used to evaluate noise levels over time. Some typical descriptors are defined below.

- $L_{eq}$ is the continuous equivalent sound level. The sound energy from the fluctuating SPLs is averaged over time to create a single number to describe the mean energy, or intensity, level. High noise levels during a measurement period will have a greater effect on the $L_{eq}$ than low noise levels. $L_{eq}$ has an advantage over other descriptors because $L_{eq}$ values from various noise sources can be added and subtracted to determine cumulative noise levels.
- $L_{max}$ is the highest SPL measured during a given period of time. It is useful in evaluating $L_{eq}$s for time periods that have an especially wide range of noise levels.
- $L_{eq(24)}$ is the continuous equivalent sound level over a 24-hour time period.

The sound level exceeded during a given percentage of a measurement period is the percentile-exceeded sound level ($L_X$). Examples include $L_{10}$, $L_{50}$, and $L_{90}$. $L_{10}$ is the A-weighted sound level that is exceeded 10% of the measurement period.

The decrease in sound level caused by the distance from any single noise source normally follows the inverse square law (i.e., the SPL changes in inverse proportion to the square of the distance from the sound source). In a large open area with no obstructive or reflective surfaces, it is a general rule that at distances greater than 50 feet, the SPL from a point source of noise drops off at a rate of 6 dB with each doubling of distance away from the source. For "line" sources, such as vehicles on a street, the SPL drops off at a rate of 3 dBA with each doubling of the distance from the source. Sound energy is absorbed in the air as a function of temperature, humidity, and the frequency of the sound. This attenuation can be up to 2 dB over 1,000 feet. The drop-off rate also will vary with both terrain conditions and the presence of obstructions in the sound propagation path.

Noise Standards and Guidelines

In 1983, the New York City Department of Environmental Protection (NYCDEP) adopted the City Environmental Quality Review (CEQR) noise exposure guidelines for exterior noise levels. As shown in Table 19-2 below, noise standards classify noise exposure into four categories based on noise level limits and land use, for vehicular traffic, rail, and aircraft noise sources: Acceptable, Marginally Acceptable, Marginally Unacceptable and Clearly Unacceptable. Table 19-3 of the *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise exposure levels. Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA (*$L_{10}$ or Ldn, depending on the source*) or below.

**Table 19-2: Noise Exposure Guidelines for Use in City Environmental Impact Review**

| Receptor Type | Time Period | Acceptable General External Exposure | Airport[3] Exposure | Marginally Acceptable General External Exposure | Airport[3] Exposure | Marginally Unacceptable General External Exposure | Airport[3] Exposure | Clearly Unacceptable General External Exposure | Airport[3] Exposure |
|---|---|---|---|---|---|---|---|---|---|
| 1.Outdoor area requiring serenity and quiet[2] | | $L_{10} \leq 55$ dBA | Ldn < 60 dBA | | | | | | |
| 2. Hospital, Nursing Home | | $L_{10} \leq 55$ dBA | | 55<$L_{10}$≤65 dBA | Ldn < 60 dBA | 65<$L_{10}$≤80 dBA | Ldn < 60 dBA | $L_{10}$>80dBA | Ldn < 75 dBA |
| 3. Residence, residential hotel or motel | 7 am to 10 pm | $L_{10} \leq 65$dBA | | 65<$L_{10}$≤70 dBA | | 70<$L_{10}$≤80 dBA | | $L_{10}$>80dBA | |
| | 10 pm to 7 am | L10≤55dBA | | 55<$L_{10}$≤70 dBA | | 70<$L_{10}$≤80 dBA | | $L_{10}$>80dBA | |
| 4. School, museum, library, court house of worship, transient hotel or motel, public meeting room, auditorium, out- patient public health facility | | Same as Residential Day (7 AM-10 PM) | | Same as Residential Day (7 AM-10 PM) | | Same as Residential Day (7 AM- 10 PM) | | Same as Residential Day (7 AM –10 PM) | |
| 5. Commercial or office | | Same as Residential Day (7 AM-10 PM) | | Same as Residential Day (7 AM-10 PM) | | Same as Residential Day (7 AM –10 PM) | | Same as Residential Day (7 AM-10 PM) | |
| 6. Industrial, public areas only[4] | Note 4 | Note 4 | | Note 4 | | Note 4 | | Note 4 | |

Source: New York City Department of Environmental Protection (adopted policy 1983).

**Notes:**

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more;

1 Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.

2 Tracts of land where serenity and quiet are extraordinarily important and serve an important public need and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and nursing homes.

3 One may use the FAA-approved $L_{dn}$ contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

4 External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

**Table 19-3 CEQR TM: Attenuation Values to Achieve Acceptable Interior Noise Levels**

| | **Marginally Unacceptable** | | | | **Clearly Unacceptable** |
|---|---|---|---|---|---|
| Noise Level with Proposed Project | $70 < L_{10} \leq 73$ | $73 < L_{10} \leq 76$ | $76 < L_{10} \leq 78$ | $78 < L_{10} \leq 80$ | $80 < L_{10}$ |
| Attenuation[1] | (i) 28 dB(A) | (ii) 31 dB(A) | (iii) 33 dB(A) | (iv) 35 dB(A) | $36 + (L_{10} - 80)^2$ dB(A) |

Source: New York City of Environmental Protection

**Notes:**

[1] The above composite window-wall attenuation values are for residential dwellings. Commercial and office spaces/meeting rooms would be 5 dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.

[2] Required attenuation values increase by 1 dB(A) increments for $L_{10}$ values greater than 80 dBA.

Measurement Location and Equipment

Because of the proposed sensitive use and predominant noise sources in the area of the proposed project consist of vehicular and elevated train movements, noise monitoring was conducted during peak weekday vehicular travel periods (AM, Midday, PM). Pursuant to *CEQR Technical Manual* methodology, measurements were conducted for a 1-hour period during each of the peak periods at the Projected Development Sites. The monitoring locations at Site C-1 were conducted on an elevated lift at an approximate height of 50', equal to the height of the elevated rail line (C-1A) at the intersection of Livonia Avenue and Powell Street. A corresponding location (C-1) was conducted on the sidewalk directly below the elevated reading. The monitoring location at Site C-3 was conducted on an elevated lift at an approximate height of 50', equal to the height of the elevated rail line (C-3A) at the intersection of Livonia Avenue and Mother Gaston Boulevard. A corresponding location (C-3) was conducted on the sidewalk directly below the elevated reading. The monitoring location at Site C-4 was conducted on an elevated lift at an approximate height of 30', equal to the height of the elevated rail line (C-4A). A corresponding location (C-4) was conducted on the sidewalk directly below the elevated reading. The monitoring locations are identified in Figure 19-1 and Photo 19-1 19-2, 19-3, 19-4, 19-5, and 19-6 below.

Noise monitoring was conducted using Type 1 Casella CEL-633C sound meters with wind screen. The monitors were placed on a tripod at a height of approximately three feet above the ground or lift platform, away from any other noise-reflective surfaces.

The monitors were calibrated prior to and following each monitoring session. Periods of peak vehicular traffic around the subject site constitute a worst-case condition for noise at the project site. Noise meter calibration certification and back up data are provided in the Noise Appendix.

**Photo 19-1:** ***Location C-1***



**Photo 19-2:** ***Location C-1A***



**Photo 19-3:** ***Location C-3***



**Photo 19-4:** ***Location C-3A***

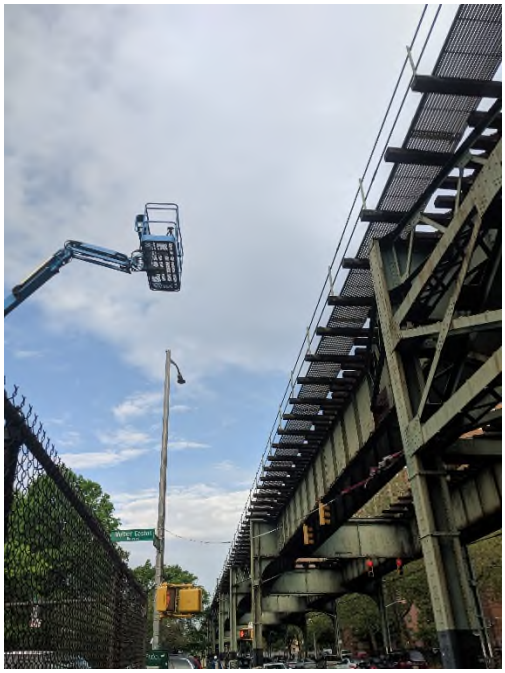


**Photo 19-5:** ***Location C-4***



**Photo 19-6:** ***Location C-4A***



## Figure 19-1: Noise Monitoring Locations



## Measurement Conditions

Monitoring was conducted during typical midweek conditions, on Wednesday May 29th, 2019. The weather was dry and wind speeds were moderate during all monitoring periods. The sound meters were calibrated before and after each monitoring session.

### Existing Conditions

Based on the noise measurements taken at the Project Sites, the predominant sources of noise are elevated train movements and vehicular traffic.

***Table 19-4, 19-5, 19-6, 19-7, 19-8, and 19-9*** *below contains the results for the measurements taken at the Project Site:*

**Table 19-4**

*Noise Levels (dB) at Location C-1*

*Wednesday, May 29, 2019*

| Time | **7:58 am – 8:58 am** | **12:03 pm – 1:03 pm** | **4:33 pm – 5:33 pm** |
|---|---|---|---|
| $L_{max}$ | 100.7 | 93.9 | 94.4 |
| $L_{10}$ | **81.0** | **79.0** | **79.0** |
| $L_{eq}$ | 76.0 | 75.5 | 75.4 |
| $L_{50}$ | 63.5 | 63.5 | 63.5 |
| $L_{90}$ | 58.0 | 57.0 | 57.0 |
| $L_{min}$ | 53.9 | 50.3 | 52.4 |

Note: **Bold** denotes $L_{10}/L_{eq}$ noise level exceedances, according to Table 19-2 of the *CEQR Technical Manual.*

**Meter for this location (serial#4637978) reset to the incorrect date and time. The time and date in the report are correct.*

**Table 19-5**

*Noise Levels (dB) at Location C-1A*

*Wednesday, May 29, 2019*

| Time | **7:55 am – 8:58 am** | **12:00 pm – 1:03 pm** | **4:30 pm – 5:33 pm** |
|---|---|---|---|
| $L_{max}$ | 88.6 | 96.4 | 90.9 |
| $L_{10}$ | **76.0** | **74.0** | **76.0** |
| $L_{eq}$ | 72.0 | 70.4 | 72.0 |
| $L_{50}$ | 61.5 | 60.0 | 62.5 |
| $L_{90}$ | 55.0 | 55.0 | 56.5 |
| $L_{min}$ | 48.8 | 51.0 | 51.6 |

Note: **Bold** denotes $L_{10}/L_{eq}$ noise level exceedances, according to Table 19-2 of the *CEQR Technical Manual.*

**Table 19-6**

*Noise Levels (dB) at Location C-3*

*Wednesday, May 29, 2019*

| Time | **7:40 am – 8:40 am** | **12:02 pm – 1:02 pm** | **4:32 pm – 5:32 pm** |
|---|---|---|---|
| $L_{max}$ | 94.9 | 94.3 | 96.6 |
| $L_{10}$ | **76.0** | **73.5** | **80.5** |
| $L_{eq}$ | 77.9 | **77.4** | 79.7 |
| $L_{50}$ | 64.0 | 62.0 | 64.5 |
| $L_{90}$ | 58.0 | 55.0 | 58.0 |
| $L_{min}$ | 53.5 | 50.8 | 52.9 |

Note: **Bold** denotes $L_{10}/L_{eq}$ noise level exceedances, according to Table 19-2 of the *CEQR Technical Manual.*

**Table 19-7**

*Noise Levels (dB) at Location C-3A*

*Wednesday, May 29, 2019*

| Time | **7:38 am – 8:44 am** | **12:00 pm – 1:05 pm** | **4:30 pm – 5:31 pm** |
|---|---|---|---|
| $L_{max}$ | 96.6 | 93.3 | 95.5 |
| $L_{10}$ | **74.0** | **72.5** | **78.0** |
| $L_{eq}$ | **76.4** | **76.5** | **78.9** |
| $L_{50}$ | 62.0 | 60.5 | 63.0 |
| $L_{90}$ | 57.5 | 55.5 | 58.0 |
| $L_{min}$ | 53.5 | 52.0 | 53.8 |

Note: **Bold** denotes $L_{10}/L_{eq}$ noise level exceedances, according to Table 19-2 of the *CEQR Technical Manual.*

| **Table 19-8**<br>*Noise Levels (dB) at Location C-4* | | | |
|---|---|---|---|
| *Wednesday, May 29, 2019* | | | |
| Time | **7:47 am – 8:48 am** | **12:01 pm – 1:01 pm** | **4:30 pm – 5:30 pm** |
| $L_{max}$ | 99.7 | 98.2 | 97.4 |
| $L_{10}$ | **71.0** | **72.5** | **76.0** |
| $L_{eq}$ | **78.9** | **80.5** | **80.5** |
| $L_{50}$ | 60.0 | 60.0 | 61.0 |
| $L_{90}$ | 52.0 | 53.0 | 54.0 |
| $L_{min}$ | 46.8 | 45.7 | 49.0 |

Note: **Bold** denotes $L_{10}/L_{eq}$ noise level exceedances, according to Table 19-2 of the *CEQR Technical Manual.*

| **Table 19-9**<br>*Noise Levels (dB) at Location C-4A* | | | |
|---|---|---|---|
| *Wednesday, May 29, 2019* | | | |
| Time | **7:46 am – 8:48 am** | **12:00 pm – 1:02 pm** | **4:29 pm – 5:32 pm** |
| $L_{max}$ | 100.6 | 98.2 | 98.1 |
| $L_{10}$ | 68.5 | 68.0 | **74.0** |
| $L_{eq}$ | **78.9** | **77.7** | **80.0** |
| $L_{50}$ | 57.5 | 57.5 | 59.5 |
| $L_{90}$ | 51.5 | 52.0 | 54.0 |
| $L_{min}$ | 48.1 | 46.0 | 49.5 |

Note: **Bold** denotes $L_{10}/L_{eq}$ noise level exceedances, according to Table 19-2 of the *CEQR Technical Manual.*

***Table 19-10, 19-11, and 19-12*** *below contains the traffic counts and vehicle classifications taken at the Project Site during each monitoring period for 1 hour:*

| **Table 19-10**<br>***Location 1:*** *Traffic volumes and vehicle classification at Location C-1 and C-1A* | | | |
|---|---|---|---|
| | **7:55 am – 8:58 am** | **12:00 pm – 1:03 pm** | **4:30 pm – 5:33 pm** |
| **Car/ Taxi** | 122 | 72 | 84 |
| **Van/Light Truck/SUV** | 159 | 90 | 99 |
| **Motorcycle** | 0 | 0 | 0 |
| **Heavy Truck** | 0 | 3 | 2 |
| **Bus** | 18 | 3 | 4 |
| **Train** | 18 | 15 | 24 |

| **Table 19-11**<br>***Location 3:*** *Traffic volumes and vehicle classification at C-3 and C-3A* | | | |
|---|---|---|---|
| | **7:38 am – 8:44 am** | **12:00 pm – 1:05 pm** | **4:30 pm – 5:31 pm** |
| **Car/ Taxi** | 150 | 99 | 126 |
| **Van/Light Truck/SUV** | 246 | 115 | 195 |
| **Motorcycle** | 0 | 0 | 0 |
| **Heavy Truck** | 24 | 21 | 9 |
| **Bus** | 39 | 6 | 24 |
| **Train** | 18 | 15 | 24 |

| **Table 19-12**<br>***Location 3:*** *Traffic volumes and vehicle classification at C-4 and C-4A* | | | |
|---|---|---|---|
| | **7:46 am – 8:48 am** | **12:00 pm – 1:02 pm** | **4:29 pm – 5:32 pm** |
| **Car/ Taxi** | 121 | 77 | 162 |
| **Van/Light Truck/SUV** | 123 | 102 | 151 |
| **Motorcycle** | 0 | 00 | 0 |
| **Heavy Truck** | 1 | 0 | 2 |
| **Bus** | 10 | 0 | 9 |
| **Train** | 18 | 15 | 24 |

**Determination of Impacts/Building Attenuation Requirements**

The 2020 *CEQR Technical Manual* Table 19-2 contains noise exposure guidelines. For a residential use such as would occur under the Proposed Actions, an $L_{10}$ of between 65 and 70 dB(A) is identified as marginally acceptable general external exposure. An $L_{10}$ of between 70 and 80 dB(A) is identified as marginally unacceptable general external exposure. The above discussed marginally acceptable general exposure guidelines are for residential and community facility uses. Commercial uses have a 5 dB(A) increase in acceptable noise levels. The highest recorded $L_{10}$ at Location C-1 was 81 dB during the morning monitoring period. The highest recorded $L_{10}$ at C-1A was 76.0 dB during the morning and evening monitoring periods. The highest recorded $L_{10}$ at C-3 was 80.5 dB during the evening monitoring period. The highest recorded $L_{eq}$, above the L10 at C-3A was 78.9 dB during the evening monitoring period. The highest recorded $L_{eq}$, above the $L_{10}$ at C-4 was 80.5 dB during the midday and evening monitoring periods. The highest recorded $L_{eq}$, above the $L_{10}$ at C-4A was 80.0 dB during the evening monitoring period.

Based on the results of the noise monitoring, a window-wall attenuation of 37 dB(A) would be required for all facades below the elevated rail line at Projected Development Site 1 (C-1) and a window-wall attenuation of 31 dB(A) would be required for all facades above the elevated rail line at Projected Development Site 1 (C-1); a window-wall attenuation of 37 dB(A) would be required for all facades below the elevated rail line at Projected Development Sites 2 and 3 (C-2, C-3), Projected Development Site 5, and Potential Development Sites 1 and 2 and a window-wall attenuation of 35 dB(A) would be required for all facades above the elevated rail line at Projected Development Sites 2 and 3 (C-2, C-3), Projected Development Site 5, and Potential Development Sites 1 and 2; a window-wall attenuation of 37 dB(A) would be required for all facades below the elevated rail line at Projected Development Site 4 (C-4) and a window-wall

attenuation of 36 dB(A) would be required for all facades above the elevated rail line at Projected Development Site 4 (C-4). With this level of attenuation there would be no potential for adverse impacts related to ambient noise.

**HUD Noise Analysis**

HUD noise analysis requires an assessment of all airports within 15 miles of a project site, any major roadways within 1,000 feet, and all railways within 3,000 feet. The assessment below identifies all noise generators that fit the above characteristics which were then entered into the HUD online calculator for a combined DNL for each project site.

**Airport**

HUD requires the analysis of aircraft-generated noise for all airports within 15 miles of the proposed project site. There are two airports within 15 miles of the project sites: LaGuardia International Airport and John F. Kennedy International Airport. Review of the federally approved noise contour maps for each airport indicate that none of the project sites are within the noise contours.

**Railways**

HUD requires analysis of rail-generated noise if the railroad tracks are within 3,000 feet of the proposed project site. There are two railways that are within 3,000 feet of the project sites: the elevated tracks running along Livonia Avenue (MTA 2, 3, and 4 subway lines) and elevated tracks running along Van Sinderen Avenue (MTA L subway line and Long Island Railroad tracks). The Van Sinderen Avenue elevated rail and Long Island Railroad are not within 3,000 feet of Site C4, and will not be included in the analysis of that site.

The effective distance was measured from each of the four sites, and MTA's published schedules for the 2, 3, 4, and L subway lines were consulted to determine the total number of train operations. The rail noise analysis assumes an average train speed of 25 miles per hour, 1 engine per train, 10 cars per train, and 10% night fraction of average total trips. It is also assumed that there are no railway whistles or horns, and that the tracks are bolted.

**Roadways**

HUD requires the analysis of roadway-generated noise for all major roadways within 1,000 feet of the proposed project. For the purposes of this analysis, it is assumed that all roads generating more than 10,000 AADT are major roadways, and as such will be factored into the DNL calculation. Two roadways within 1,000 feet of the proposed project sites fit within these parameters: Rockaway Avenue and Mother Gaston Boulevard. Rockaway Avenue is not within 1,000 feet of Site C1, C2, or C3 and will therefore not be considered in the analysis of those sites. Mother Gaston Boulevard is not within 1,000 feet of Site C4, and will not be considered in the analysis of that site.

For the purposes of the HUD DNL Calculator NYS DOT AADT counts will be broken into cars, medium trucks, and heavy trucks. NYS DOT traffic count data for heavy vehicles will be split between medium and heavy trucks.

The night fraction of AADT is assumed to be 15%, per HUD guidelines.

Road gradient for heavy trucks is assumed to be 2%.

**Conclusions and Recommendations**

**Land Disposition Agreement**

The following measures needed to preclude the potential for noise impacts on Projected Development Sites 1 through 4 will be memorialized and enforced through the Land Disposition Agreement (LDA) between HPD and the Project Sponsor.

**Block 3813, Lot 115 (Projected Development Site 1):** In order to ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 37 dB(A) window-wall attenuation for all façades below the level of the elevated rail line along Livonia Avenue and a 31 dB(A) window-wall attenuation for all façades above the level of the elevated rail line along Livonia Avenue in order to maintain an interior noise level of 45 dB(A). Commercial uses must maintain an interior noise level of at least 50 dB(A). To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

**Block 3812, Lots 19-22, 121 (Projected Development Site 2):** In order to ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 37 dB(A) window-wall attenuation for all façades below the level of the elevated rail line along Livonia Avenue and a 35 dB(A) window-wall attenuation for all façades above the level of the elevated rail line along Livonia Avenue in order to maintain an interior noise level of 45 dB(A). To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

**Block 3811, Lots 17-19, 21, 23-27, 124 (Projected Development Site 3):** In order to ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 37 dB(A) window-wall attenuation for all façades below the level of the elevated rail line along Livonia Avenue and a 35 dB(A) window-wall attenuation for all façades above the level of the elevated rail line along Livonia Avenue in order to maintain an interior noise level of 45 dB(A). Commercial uses must maintain an interior noise level of at least 50 dB(A). To maintain a closed-window condition, an alternate means of ventilation must also be

provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

**Block 3586, Lot 26 (Projected Development Site 4):** In order to ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 37 dB(A) window-wall attenuation for all façades below the level of the elevated rail line along Livonia Avenue and a 36 dB(A) window-wall attenuation for all façades above the level of the elevated rail line along Livonia Avenue in order to maintain an interior noise level of 45 dB(A). To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

**(E) Designation**

Projected Development Site 5 and the Potential Development Sites, which are not part of the proposed project, would be mapped with E-Designations (E-641) as specified below.

**Block 3812, Lot 24 (Projected Development Site 5):** In order to ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 37 dB(A) window-wall attenuation for all façades below the level of the elevated rail line along Livonia Avenue and a 35 dB(A) window-wall attenuation for all façades above the level of the elevated rail line along Livonia Avenue in order to maintain an interior noise level of 45 dB(A). Commercial uses must maintain an interior noise level of at least 50 dB(A). To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

**Block 3812, Lots 17 (p/o) and 18 (Potential Development Site 1):** In order to ensure an acceptable interior noise environment, future residential/community facility must provide a closed-window condition with a minimum of 37 dB(A) window-wall attenuation for all façades below the level of the elevated rail line along Livonia Avenue and a 35 dB(A) window-wall attenuation for all façades above the level of the elevated rail line along Livonia Avenue in order to maintain an interior noise level of 45 dB(A). Commercial uses must maintain an interior noise level of at least 50 dB(A). To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

**Block 3811, Lot 20 (Potential Development Site 2):** In order to ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 37 dB(A) window-wall attenuation for all façades below the level of the elevated rail line along Livonia Avenue and a 35 dB(A) window-wall attenuation for all façades above the level of the elevated rail line along Livonia Avenue in order to maintain an interior noise level of 45 dB(A). Commercial uses must maintain an interior noise level of at least 50 dB(A). To maintain a closed-

window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

With the implementation of the (E) designations, no significant adverse impacts related to noise would occur.

Therefore, the Actions would not result in any potentially significant adverse stationary or mobile source noise impacts, and further assessment is not warranted.

Based on the HUD analysis described above, combined DNL's for each of the four sites is listed below.

Site C1: 76.5215

Site C2: 76.7844

Site C3: 81.3866

Site C4: 76.5215

It is expected that HUD interior noise level requirements would be achieved through the requirements of the above-referenced (E) designations and no additional attenuation measures would be required to achieve HUD compliance.

The Calculations and back-up data for the HUD analysis are included in the Noise Appendix to this report.

## 22. NEIGHBORHOOD CHARACTER

The project would not have the potential to result in any significant adverse impacts to the following analysis areas related to neighborhood character as further discussed below.

A. Land Use, Zoning, and Public Policy – As stated in the conclusion to this section above, the Proposed Actions would not result in significant adverse impacts related to land use, zoning or public policy. Although the Land Use, Zoning, and Public Policy technical area of the EAS provides a detailed analysis, a neighborhood character assessment is not warranted as the project does not have the potential to result in any significant adverse Land Use, Zoning, or Public Policy impacts as further discussed below.

The Project Areas and the surrounding 400-foot radius project study areas consist of a mixture of multi-family and single-family residences, community facility uses, limited commercial uses, several light industrial and warehouse uses, transportation and utility uses, numerous open space facilities, and many vacant parcels. The Project Areas are also directly adjacent to the elevated No. 3 subway line which runs overhead on Livonia Avenue between East 98th Street and New Lots Avenue. The Long Island Railroad tracks are located to the east of Project Area 1 running in a north-south alignment between Junius Street and Van Sinderen Avenue. As such, the proposed Project Areas and the project study areas do not have a unified neighborhood character. The introduction of the proposed mixed-use residential, commercial, and community facility development on Projected Development Sites 1 through 5 would fit in well with the eclectic mix of uses in both the Project Areas and the surrounding project study areas. The Projected Developments could alter existing development patterns in the future, especially of the underutilized parking and vacant parcels, by encouraging the development of new residential and mixed-use projects. However, this would be in compliance with City policies to encourage the development of new housing, especially affordable housing, in underutilized areas of the City.

The proposed Zoning Map and Zoning Text Amendments, the designation of the Development Sites as a UDAA and approval of the project as a UDAAP, the disposition of City-owned property, and the Amendment to the Brownsville II URP would only apply to the Project Areas and would not affect lots beyond this area. The Applicant believes that the Proposed Actions would not result in any significant impacts to zoning patterns in the area since the mapping of the proposed R7-2/C2-4 zoning districts in the Project Areas would result in development that is believed to be compatible with the existing mixed neighborhood context while also providing enough floor area to develop affordable dwelling units on the Applicant Site and the non-Applicant owned Projected Development Sites. The change in zoning is believed to be appropriate as the proposed R7-2 zoning district would be the same as the R7-2 district mapped along Livonia Avenue between Thomas S. Boyland Street and Rockaway Avenue directly to the east

of Site C4 and approximately four blocks west of Site C3. The mapping of the C2-4 commercial overlay over Project Area 2 (Project Area 1 is already mapped with a C2-4 commercial overlay) would extend the existing C2-4 overlay over one additional block front as three blockfronts are already mapped with the overlay.

No impact to public policies would occur as a result of the Proposed Actions. The Applicant believes that the Proposed Actions would be an appropriate development in the Project Areas and would be a positive contribution to Brooklyn Community District 16 and to the surrounding neighborhood. The proposed project would meet the City's public policy goals as well as similar State and national public policy goals related to the provision of affordable housing.

B. Socioeconomic Conditions – As stated in the conclusion to this section above, the Proposed Actions would not result in significant adverse impacts related to socioeconomic conditions. The Proposed Actions would not result in the direct or indirect displacement of residences or businesses in excess of the *CEQR Technical Manual* thresholds.

C. Community Facilities - As stated in the conclusion to this section above, the Proposed Actions would not result in significant adverse impacts related to community facilities. The With-Action Scenario would not physically displace or alter a community facility or cause a change that could affect the service delivery of a community facility. A preliminary analysis of the indirect effects of the With-Action Scenario found that the applicable thresholds described in the *CEQR Technical Manual* for libraries, police/fire services and health care centers were not exceeded. Therefore, detailed analyses were not required. The preliminary analysis of the indirect effects of the With-Action Scenario relative to public schools and child care found that a detailed analysis was required.

Relative to public schools, in the With-Action Scenario, the utilization rate for elementary and intermediate schools does not exceed the 100% threshold described in the *CEQR Technical Manual*. Additionally, the Proposed Actions do not lead to an increase of 5% or more in the collective utilization rate. As such, the With-Action Scenario would not be expected to result in a significant adverse impact on elementary or intermediate schools.

Relative to child care, in the With-Action Scenario, the utilization rate for child care facilities does not exceed the 100% threshold described in the *CEQR Technical Manual*. Additionally, the Proposed Actions do not lead to a "increase of 5% or more in the collective utilization rate." As such, the With-Action Scenario would not be expected to result in a significant adverse impact on child care facilities.

D. Open Space - As stated in the conclusion to this section above, the Proposed Actions would not result in significant adverse impacts related to open space. The Proposed Actions would result in some direct open space impacts which can be mitigated as

discussed in further detail in the shadows section below. Relative to indirect open space impacts, the Proposed Actions would result in a limited decrease in the open space ratio in the future with action condition that would not be considered significant.

E. Historic and Cultural Resources - As stated in the conclusion to this section above, the Proposed Actions would not result in any significant adverse impacts to historic or archaeological resources as LPC has determined that no such resources are located within the Project Areas. The LPC Designated and S/NR Eligible Betsy Head Play Center is within a 400-foot radius of Projected Development Site 4 but no significant adverse impacts to this resource are anticipated from the Proposed Actions.

F. Urban Design and Visual Resources - As stated in the conclusion to this section above, the Proposed Actions would not result in a significant adverse impact to urban design and visual resources. Although the Urban Design and Visual Resources technical area of the EAS provides a detailed analysis, a neighborhood character assessment is not warranted as the project does not have the potential to result in any significant adverse Urban Design and Visual Resources impacts as further discussed below.

The Proposed Actions would result in the development of residential, commercial, and community facility uses and accessory parking on five Projected Development Sites located in an area primarily characterized by vacant and undeveloped land.

The proposed R7-2/C2-4 district was chosen for the Project Areas in order to develop residential uses on the Applicant's property at a density needed to provide sufficient residential floor area for the project to be economically feasible. The Applicant seeks to develop Projected Development Sites 1-4 with housing consistent with the standards of the Quality Housing Program as well as affordable units under HPD's ELLA, SARA, and NY 15/15 programs and the Mandatory Inclusionary Housing (MIH) Program zoning regulations. Compared to existing R6 zoning, the proposed R7-2 district would permit an increase in maximum residential FAR from 3.6 to 4.6 when located within a designated Inclusionary Housing area) and an increase in maximum community facility FAR from 4.8 to 6.5. (There would be no change in the permitted commercial FAR of 2.0). The increase in permitted bulk is appropriate given the City's policy of promoting increased development in close proximity to transit stops and along a wide street (Livonia Avenue). The establishment of a Mandatory Inclusionary Housing area for this application was developed in consultation with DCP in order to facilitate the development of affordable housing at a higher FAR in the area to be rezoned.

The proposed R7-2 zoning district would be consistent with existing land use and zoning patterns within the surrounding area. R7-2 zoning would allow a bulk and density consistent with what is currently permitted in the surrounding area, including the R7-2 district mapped along Livonia Avenue between Thomas S. Boyland Street and Rockaway Avenue directly to the east of Site C4 and approximately four blocks west of Site C3. The additional bulk and density would provide the flexibility needed to

redevelop several irregularly shaped parcels along an elevated rail line with affordable and supportive housing, retail, and community facility uses including a senior center and community garden, which would provide much needed services and amenities to existing and future residents of the area. These proposed uses would be consistent with HPD's 2017 Brownsville RFP and would further the objectives of the *Brownsville Plan*. Furthermore, the Proposed Actions would introduce new activities and users to properties that have historically been vacant and desolate, enlivening the area and resulting in a more vibrant streetscape.

The With-Action Development Scenario would not result in any significant impacts to visual resources in proximity to the Project Areas. The Proposed Actions would not partially or totally block a view corridor or a natural or built visual resource that is rare in the area or considered a defining feature of the neighborhood. The Applicant believes that the development that would be facilitated by the Proposed Actions would represent a visual improvement to the Project Areas and would result in new development on the underdeveloped Projected Development Sites that is believed to be more compatible with the development pattern in residential areas further to the north. A detailed urban design analysis would not be required.

G. Shadows - As stated in the conclusion to this section above, the proposed project would result in multiple new buildings resulting in incremental building height increases of 50 feet or more, and therefore preliminary shadows assessments (Tier 1, Tier 2, and Tier 3 assessments) were undertaken. The Tier 1 and Tier 2 analyses indicated that there were eight open space resources and one sunlight sensitive historic resource that could potentially receive shadows from the proposed project. The Tier 3 analysis indicated that the proposed project would cast shadows on all of these resources except one during some or all of the required analysis days. Most of the Tier 3 shadows on these resources were found to be inconsequential with regard to either the viability of the resource's vegetation and/or the public's use and enjoyment of said resource and were therefore screened out for additional analyses. However, several resources received projected Tier 3 shadows on certain analysis days, including the Thomas S. Boyland Community Garden (during the March 21/September 21, May 6/August 6, and June 21 analysis days), the Nehemiah Playground (during the May 6/August 6 and June 21 analysis days), Livonia Park (during the March 21/September 21 analysis day) and the Power Street Livonia Garden (during the March 21/September 21, May 6/August 6, and June 21 analysis days).

The detailed analysis indicated that projected new incremental shadows on the Nehemiah Playground and Livonia Park during the identified analysis days would be contained to small areas of these open space resource while the remaining areas remain largely sunlit. Further, these resources would remain predominantly sunlit outside of the projected new incremental shadow durations on all of these analysis days, such that overall sunlight on vegetation would exceed the minimum requirements for

maintaining viability of this sunlight sensitive feature, such that no significant adverse shadow impacts on these resources as a result of the proposed project were anticipated.

The detailed shadows analysis indicated Powell Street Livonia Garden would experience relatively long durations of shadow on large portions of its area during all the identified analysis days. However, it was found that the garden would remain largely sunlit prior to the onset of projected new incremental shadows during these days, such that minimum direct sunlight requirements to maintain the viability of vegetation would be met or exceeded. Further, the proposed project would proactively develop and integrate spaces and infrastructure at the Projected Development Sites to support healthy food systems, including community garden and farm spaces and spaces and programs for education and training related to urban agriculture and healthy nutrition, among other elements. As such, the proposed project would not result in significant adverse shadow impacts at the Powell Street Livonia Garden.

Projected new incremental shadows would fall on the Thomas S. Boyland Community Garden for long, high-coverage durations during the March 21/September 21, May 6/August 6, and June 21 analysis days. However, it was found that the garden would remain largely sunlit prior to the onset of projected new incremental shadows during these days, such that minimum direct sunlight requirements to maintain the viability of vegetation would be met or exceeded. Therefore, the proposed project would not result in significant adverse shadow impacts at the Thomas S. Boyland Community Garden.

Based on the foregoing, it was determined that project-generated incremental shadows would not result in significant adverse shadow impacts to the sunlight-sensitive resources identified.

H. Transportation - As discussed in this section above, no significant adverse impacts related to transportation would occur as a result of the Proposed Actions. The Proposed Actions would add vehicle trips to the study areas. However, in the future with the Proposed Actions, none of the intersections in the study areas would experience 50 or more net new vehicle trip ends. Therefore, the traffic analysis shows that the Proposed Actions would not result in any significant adverse traffic impacts based on the impact criteria defined within the 2020 CEQR *Technical Manual*. The Proposed Actions would generate less than 50 bus trip ends per direction during any peak hour time period, and would generate less than 200 subway trip ends per subway station during the AM and PM peak hour time periods. Therefore, in accordance with the *CEQR Technical Manual* criteria, the Proposed Actions would not result in any conditions that would typically trigger the need for a detailed assessment of bus or subway impacts. None of the pedestrian elements in the study areas would experience 200 or more peak hour pedestrian trip ends as a result of the Proposed Actions. Therefore, in accordance with the *CEQR Technical Manual* 200 pedestrian trip ends threshold, the Proposed Actions would not result in any conditions that would typically trigger the need for a detailed assessment of pedestrian impacts.

I. Noise – The Proposed Actions required a detailed noise analysis due to ambient noise levels in the vicinity of the Project Areas that could have a potentially adverse impact on future residents of the Projected Development Sites. As discussed in the noise section above, window-wall noise attenuation will be incorporated into the project design and therefore there would be no adverse impacts related to noise for project occupants. In order to avoid a significant adverse impact related to noise, measures needed to preclude the potential for noise impacts on Projected Development Sites 1 through 4 will be memorialized and enforced through the Land Disposition Agreement (LDA) between HPD and the Project Sponsor, and E-Designations (E-641) would be mapped on Projected Development Site 5 and the Potential Development Sites, which are not part of the proposed project. In addition, no potential significant adverse noise impacts would be generated by the proposed project on the surrounding area.

## 22. CONSTRUCTION

### Introduction

Development on Projected Development Sites 1 through 5 could result in potential construction impacts. A preliminary construction analysis may be required because future development facilitated by the Proposed Actions could result in the following:

- Construction of multiple buildings where there is a potential for on-site receptors on buildings to be completed before the final build-out;
- The operation of several pieces of diesel equipment in a single location at peak construction;
- Activities within 400 feet of a historic or cultural resource; and
- Construction on multiple development sites in the same geographic area, such that there is the potential for several construction timelines to overlap, and last for more than two years overall.

### Proposed Construction Schedule

Construction would occur on five Projected Development Sites including four Applicant-owned Sites and one Non-Applicant owned parcel as further described below. It is assumed that the Proposed Actions would be approved by late 2022. Construction and occupancy of Projected Development Sites 1 through 4 is expected to occur simultaneously over a 24-month construction period and be completed by early 2025. As the Proposed Actions would result in the creation of one additional Projected Development Site that is not controlled by the Applicant, it is anticipated that this Site would be developed and occupied over an additional 12-month period with a Build Year of 2026. The total construction and occupancy period is therefore projected to be approximately 36 months for the five Projected Development Sites. Two Potential Development Sites could be developed at some point in the future beyond the 2026 build year. However, as it is not known when such development may occur, no discussion of construction impacts on these sites is provided.

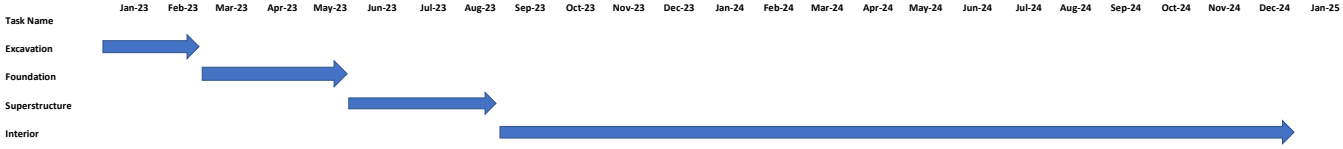
Applicant-owned Sites

Construction of Projected Development Sites 1 through 4 is expected to begin in early 2023 and be completed within 2 years or less by the early 2025 as illustrated on the attached construction schedule for the four Development Sites.

Non-Applicant owned Sites

It is not known when construction on the Non-Applicant owned Site would occur but it is assumed that it would occur following the completion of construction on the Applicant-owned Projected Development Sites 1 through 4. Construction and occupancy of the new building would take approximately 12 months to complete as its projected floor areas would be much smaller than the Applicant-owned Sites. Therefore,

Livonia Avenue Construction Schedule  Projected Development Sites 1 through 4



assuming a total construction and occupancy period of approximately 12 months on the Non-Applicant owned Site, the final project build year would be 2026.

The construction and occupancy sequence and timeline for the Non-Applicant Owned Site is listed below and illustrated on the attached construction schedule for the Development Site.

- Projected Development Site 5 – start construction January 2025; complete construction September 2025; occupancy by end of December 2025/early 2026.

**Proposed Construction Activities**

Applicant-owned Sites

Construction activities would proceed as follows: site preparation and excavation (2 months), construction of the building foundations (3 months), construction of the superstructures, joists, and roofs (3 months), and interior fit-out work (16 months). Therefore, only 8 months would involve exterior construction activities on each of the proposed buildings with the remaining 16 months required for interior fit-out activities and occupancy.

Non-Applicant owned Sites

Construction activities on the Non-Applicant owned Site would be similar to those on the Applicant-owned Site described above except that demolition of the existing development on this site would be required prior to the start of other construction activities. The anticipated timeframe for Projected Development Site 5 for demolition work, exterior and interior construction work, and time to occupy each building would be as follows:

- demolition of existing structure (1 month);

- site preparation and excavation (1 month);

- construction of building foundation (1.5 months);

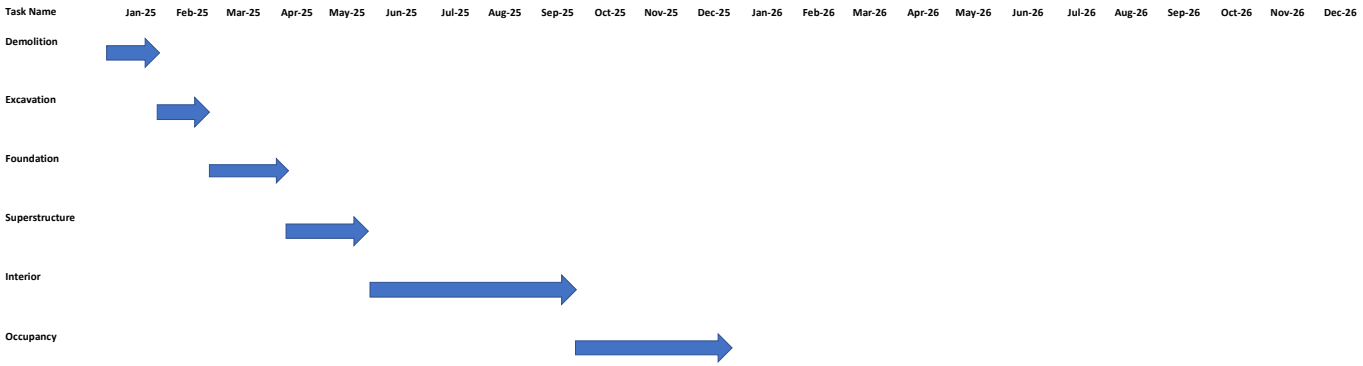
- construction of superstructure, joists, and roof (1.5 months); and

- interior fit-out work (4 months).

It is anticipated that building occupancy would occur over a period of 3 months following completion of construction on Projected Development Site 5.

Project construction activities are expected to be typical for larger building construction projects in New York City. Construction activities would predominantly occur Monday through Friday, although limited delivery of certain critical pieces of equipment (e.g., cranes) may be necessary on weekend days if required in order to minimize traffic disruptions. Any weekend work would be contingent upon any conditions that may be

Livonia Avenue Construction Schedule  Projected Development Site 5



imposed by City agencies that approve and monitor construction activities such as the NYC Department of Buildings (DOB) and the NYC Department of Transportation (DOT). DOB also regulates the permitted hours of construction. In accordance with those regulations, typical construction activities in New York City begin no earlier than 7 AM during the week, and workers typically arrive and begin to prepare work areas between 6 and 7 AM. The standard weekday construction workday ends by 3:30 PM with an occasional extended shift until 6 PM.

**Potential Construction Impacts**

In accordance with the 2020 *CEQR Technical Manual*, the proposed project was reviewed to determine whether further analysis of the proposed construction activities is needed for any technical area, as follows.

Transportation

According to the *CEQR Technical Manual*, a number of factors should be considered before determining whether a preliminary assessment of the effect of construction on transportation is needed including:

• *Whether the project's construction would be located in a Central Business District (CBD) or along an arterial or major thoroughfare;*

• *Whether the project's construction activities would require closing, narrowing, or otherwise impeding moving lanes, roadways, key pedestrian facilities, parking lanes and/or parking spaces, bicycle routes and facilities, bus lanes or routes, or access points to transit; and*

• *Whether the project would involve construction on multiple development sites in the same geographic area, such that there is the potential for several construction timelines to overlap, and last for more than two years overall.*

The five projected buildings would be constructed along or close to Livonia Avenue. Livonia Avenue at the Project Areas is a two-way east-west street with two moving lanes and curbside parking. It is not located in a Central Business District and is not an arterial or major thoroughfare.

It is not anticipated that the construction on Projected Development Sites 1 through 4 would require the closing, narrowing, or otherwise impeding moving lanes, roadways, key pedestrian facilities, parking lanes and/or parking spaces, bicycle routes and facilities, bus lanes or routes, or access points to transit adjacent to these Sites. Access to Projected Development Sites 1 through 4 can be obtained from both Livonia Avenue and at least one adjacent side street including Powell, Sackman, and Amboy Streets, Christopher Avenue, and Mother Gaston Boulevard, all of which are minor streets adjoining these Sites. In addition, it is anticipated that there would be adequate space on Projected Development Sites 1 through 4 to accommodate construction vehicles without blocking any transportation elements along Livonia Avenue.

It is not anticipated that the construction of Projected Development Site 5 would require the closing of any transportation elements adjacent to this Site. Construction access to Projected Development Site 5 can be obtained from both Livonia Avenue and Sackman Street. In addition, it is anticipated that there would be adequate space on Projected Development Site 5 to accommodate construction vehicles without blocking any transportation elements along Livonia Avenue.

Although the project would involve the initial phase of construction on four Development Sites in the same geographic area, it is anticipated that construction would occur over a period of less than two years on these sites. Construction on Projected Development Site 5 would begin after the completion of construction on Projected Development Sites 1 through 4 and it is not anticipated that the construction on this Development Sites would overlap as described in the proposed construction schedule above.

On the basis of the above, construction of the proposed project would not be expected to result in significant adverse impacts on transportation.

Air Quality and Noise

According to the *CEQR Technical Manual*, an assessment of air quality and noise for construction activities is likely not warranted if the project's construction activities:

- *Are considered short-term (less than two years);*
- *Are not located near sensitive receptors; and*
- *Do not involve construction of multiple buildings where there is a potential for on-site receptors on buildings to be completed before the final built-out.*

Construction of the Applicant-owned Projected Development Sites 1 through 4 would be completed in two years or less. Although it is not known when construction on the Non-Applicant owned Projected Development Site 5 would occur, it is assumed that this Site would be developed and occupied over a 12 month period (only 9 months of which would involve construction activities) resulting in a total construction and occupancy period of approximately three years for the five Projected Development Sites.

Sensitive receptors located adjacent to the five Projected Development Sites consist of one- and two-family dwellings to the south. The five Projected Development Sites are separated from other sensitive receptors by the 70-foot wide Livonia Avenue to the north and other local streets ranging from 60 to 85 feet in width to the east and west. Significant noise levels currently exist in the Project Areas from the elevated No. 3 subway line, which runs overhead on Livonia Avenue between East 98th Street and New Lots Avenue, and the Long Island Railroad tracks located to the east of Project Area 1 running in a north-south alignment between Junius Street and Van Sinderen

Avenue. As exterior construction activities on Projected Development Sites 1 through 4 would be limited to approximately 8 months per Site occurring simultaneously while such activities on Projected Development Site 5 would occur over a five month period, significant air quality and noise impacts to sensitive receptors are anticipated to be minimal.

It is not known when construction on the Non-Applicant owned Site would actually occur. As discussed above, it is anticipated that construction on the Non-Applicant owned Projected Development Site 5 would occur following completion of construction and occupancy of the Applicant-owned Projected Development Sites 1 through 4. Therefore, the Proposed Actions could potentially result in the construction of multiple buildings where there is a potential for on-site receptors on buildings to be completed before the final build-out.

There would be no air quality and noise impacts from the construction on Projected Development Sites 1 through 4 on each other or on Projected Development Site 5 as construction and occupancy of these four Sites would occur simultaneously. Air quality and noise impacts could occur from the construction of Projected Development Site 5 on the adjacent Projected Development Site 2. Any air quality and noise impacts would be mitigated by the relatively short periods of exterior construction activities that would occur on this Site. The exterior construction and demolition periods for Projected Development Site 5 would typically be 5 months. No significant noise or air quality impacts would be anticipated from construction activities occurring within the interiors of the building.

The *CEQR Technical Manual* states that if a project meets one or more of the criteria above, a preliminary air quality or noise assessment is not automatically required. Instead, various factors should be considered, such as the types of construction equipment (*e.g.*, gas, diesel, electric), the nature and extent of any commitment to use the Best Available Technology (BAT) for construction equipment, the physical relationship of the Project Site to nearby sensitive receptors, the type of construction activity, and the duration of any heavy construction activity. These measures are discussed below.

Demolition, excavation, and foundation activities, which often generate the highest levels of air emissions, would be temporary and limited in duration and would take slightly more than one year (13 months) out of a total construction and occupancy period of 3 years (36 months) to complete. These activities would be spread out over five separate locations in the Project Areas and would not overlap as discussed above. In addition, any heavy equipment associated with the construction of the buildings (such as a crane) would operate from at least five different locations during construction.

*Air Quality*

The project would make use of the Best Available Technology to minimize impacts to sensitive receptors in the vicinity of the Projected Development Sites as further discussed below.

As with most construction projects in the City, the proposed project would require the operation of several pieces of diesel equipment at one time during the heavier periods of construction, such as demolition and excavation. The Applicant would implement the following measures that would minimize air quality and noise impacts on the surrounding community.

• *Diesel Equipment Reduction.* Construction of the proposed project would minimize the use of diesel engines and use electric engines, to the extent practicable. This would reduce the need for on-site generators, and require the use of electric engines in lieu of diesel where practicable.

• *Clean Fuel.* To the extent practicable, ultra-low sulfur diesel (ULSD) would be used for diesel engines on the Projected Development Sites.

• *Best Available Tailpipe Reduction Technologies.* To the extent practicable, non-road diesel engines with a power rating of 50 horsepower (hp) or greater would utilize the best available tailpipe (BAT) technology for reducing diesel particulate matter (DPM) emissions. Diesel particle filters (DPF) have been identified as being the tailpipe technology currently proven to have the highest PM reduction capability.

To the extent practicable, construction contracts would specify that all diesel non-road engines rated at 50 hp or greater would utilize DPFs, either installed on the engine by the original equipment manufacturer (OEM) or retrofit with a DPF verified by EPA or the California Air Resources Board, and may include active DPFs if necessary; or other technology proven to reduce DPM by at least 90 percent.

• *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for non-road engines regulate the emission of criteria pollutants from new engines, including PM, CO, NOx, and hydrocarbons (HC). To the extent practicable, all non-road construction equipment in the project would meet at least the Tier 2 emissions standard, and construction equipment meeting Tier 3 and/or Tier 4 emissions standards would be used where conforming equipment is widely available, and the use of such equipment is practicable.

• *Dust Control.* Fugitive dust control plans will be implemented as part of the construction process. For example, stabilized truck exit areas would be established for washing off the wheels of all trucks that exit the construction sites. Truck routes within the Sites would be watered as needed to avoid the re-suspension of dust. All trucks hauling loose material will be equipped with tight fitting tailgates and their loads securely covered prior to leaving the Sites. In addition to regular cleaning by the City,

streets adjacent to the Site would be cleaned as frequently as needed by the construction contractor. Water sprays will be used for all transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air.

• *Restrictions on Vehicle Idling.* In addition to adhering to local laws restricting unnecessary idling on roadways, on-site vehicle idle time will also be restricted to three minutes, to the extent practicable, for all equipment and vehicles that are not using their engines to operate a loading, unloading, or a processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.

Overall, these air emission control commitments would significantly reduce DPM emissions to a level otherwise achieved by applying the currently defined best available control technologies under NYC Local Law 77, which are required only for publicly funded City capital projects. In addition, as stated in the *CEQR Technical Manual*, all the necessary measures would be implemented to ensure compliance with the NYC Air Pollution Control Code regulating construction-related dust emissions. Based on the project size and the construction work involved, construction activities for the proposed project would not be considered out of the ordinary or exceptional in terms of intensity. Therefore, based on above and with the implementation of an emissions control program, the proposed project would not result in any significant adverse impacts on air quality.

*Noise*

While increases in ambient noise levels due to construction exceeding the *CEQR* impact criteria for two years or less may be noisy and intrusive, they are not considered to be significant adverse noise impacts. As described above, demolition, excavation, and foundation activities, which are the noisiest construction activities, would be temporary and limited in duration and would take slightly more than 1 year (13 months) out of a total construction and occupancy period of 3 years (36 months) to complete. These activities would be spread out over five separate locations in the Project Areas and would not overlap. Projected Development Sites 1 through 4 would each require 8 months of exterior construction activities occurring simultaneously while exterior construction activities on the remaining Projected Development Site 5would be limited to approximately 5 months.

Construction noise is regulated by the NYC Noise Control Code and by EPA's noise emission standards for construction equipment. These local and federal requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise emission standards; that construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction materials be handled and transported in such a manner as not to create unnecessary noise. If weekend or after hour work is necessary, permits would be required to be obtained, as specified in the NYC Noise Control Code. In addition, the Applicant would commit to a preparing a noise control plan that would be implemented during project construction. The

measures to be contained in the plan would avoid noise impacts on the community. The plan would be prepared to be compliant with the NYC Noise Control Code (which requires a "Construction Noise Mitigation Plan") and would include such measures as construction noise source controls, path controls, and receiver controls. With these measures in place, no significant noise impacts are expected to occur as a result of the project construction.

Historic and Cultural Resources

The Project Areas and the 400-foot radius project study areas are not a Federal, State, or New York City designated Historic District. Although there are no individually designated historic resources within the Project Areas, there is one individually designated historic resource within the 400-foot radius project study areas. This resource is the NYC Landmarks Preservation Commission (LPC) designated and State/National Register eligible Betsy Head Play Center, located approximately 90 feet north of Projected Development Site 4 directly across Livonia Avenue.

By letter dated 10/24/19 (see Historic and Archaeological Resources Appendix), LPC has determined that the properties subject to the Proposed Actions within the Project Areas do not have any historic or archaeological significance. The LPC letter states "LPC Designated and S/NR Eligible Betsy Head Play Center within radius of Development Site 4 (166 Livonia Avenue and BBL 3586/26). No interest around Development Sites 1-3."

The *CEQR Technical Manual* indicates that construction impacts may occur to historic and cultural resources if in-ground disturbances or vibrations associated with project construction could undermine the foundation or structural integrity of nearby resources. A construction assessment may be needed for historic and cultural resources if the project involves construction activities within 400 feet of a historic resource. LPC-approved construction procedures would be followed on Projected Development Site 4 to protect the Betsy Head Play Center from damage from vibration, subsidence, dewatering, or falling objects. Construction procedures would comply with the NYC Department of Buildings memorandum Technical Policy and Procedure Notice # 10/88 (TPPN # 10/88) and with the site safety requirements of the 2008 NYC Building Code, as amended, which stipulate that certain procedures be followed for the avoidance of damage to historic and other structures resulting from construction. TPPN # 10/88 pertains to any structure which is a designated NYC Landmark or located within a historic district, or listed on the National Register of Historic Places and is contiguous to or within a lateral distance of 90 feet from a lot under development or alteration. Therefore, no adverse construction impacts would occur to any historic resources within 400 feet of the Project Areas.

Hazardous Materials

***Projected Development Sites 1 through 4***

As explained in the Hazardous Materials section above, based on the recommendations included in the October 13, 2020 DEP letter to HPD, the following measures will be implemented.

Site C1 (Projected Development Site 1): Block 3813, Lot 11

At the completion of the project, a P.E. certified Remedial Closure Report will be submitted for DEP review and approval. The P.E. certified Remedial Closure Report will indicate that all remedial requirements have been properly implemented as specified in the summary of the DEP letter provided above.

Site C2 (Projected Development Site 2): Block 3812, Lots 19-22 and 121

In addition to the proposed vapor barrier system, a passive SSDS with the capability of being converted to an active SSDS if warranted based on future conditions will be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS will be included in the RAP and submitted for DEP review and approval. Soil disturbance will not occur without DEP's written approval of the RAP and CHASP.

Site C3 (Projected Development Site 3): Block 3811, Lots 17-19, 21, 23-27, and 124

In addition to the proposed vapor barrier system, an active sub-slab depressurization system (SSDS) will be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed active SSDS will be included in the RAP and submitted for DEP review and approval. Soil disturbance will not occur without DEP's written approval of the RAPand CHASP.

Site C4 (Projected Development Site 4): Block 3586, Lots 26 and 40

In addition to the proposed vapor barrier system, a passive SSDS with the capability of being converted to an active SSDS if warranted based on future conditions will be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS will be included in the RAP and submitted for DEP review and approval. Soil disturbance will not occur without DEP's written approval of the RAP and CHASP.

Following the preparation of the above noted items and approval by DEP, no significant adverse impacts related to hazardous materials are expected, and no further analysis is warranted. Therefore, there would be no potential for the Proposed Actions to result in significant adverse impacts related to hazardous materials on Projected Development Sites 1 through 4.

***Projected Development Site 5 and Potential Development Sites 1 and 2***

Projected Development Site 5 and Potential Development Sites 1 and 2 are not under the control or ownership of the Applicant and they are not included in the Proposed Development plans for this project. As recommended by DEP in their March 11, 2020 letter to HPD, an "E" designation for hazardous materials will be placed on the zoning map pursuant to Section 11-15 of the New York City Zoning Resolution for the subject properties. The "E" designation will ensure that testing and mitigation will be provided as necessary before any future development and/or soil disturbance on these properties. These applicant(s) should be directed to coordinate further hazardous materials assessments through the Mayor's Office of Environmental Remediation.

Therefore, in order to avoid any potential impacts associated with hazardous materials, an (E) designation (E-641) will be assigned for hazardous materials on the following properties:

Block 3811, Lot 20; Block 3812, Lots 17, 18, and 24;

The text for the (E) designations related to hazardous materials is as follows:

Task 1-Sampling Protocol

The Applicant submits to OER, for review and approval, a Phase I of the site along with a soil, groundwater and soil vapor testing protocol, including a description of methods and a site map with all sampling locations clearly and precisely represented. If site sampling is necessary, no sampling should begin until written approval of a protocol is received from OER. The number and location of samples should be selected to adequately characterize the site, specific sources of suspected contamination (i.e., petroleum based contamination and non-petroleum based contamination), and the remainder of the site's condition. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of sampling data. Guidelines and criteria for selecting sampling locations and collecting samples are provided by OER upon request.

Task 2-Remediation Determination and Protocol

A written report with findings and a summary of the data must he submitted to OER after completion of the testing phase and laboratory analysis for review and approval. After receiving such results, a determination is made by OER if the results indicate that remediation is necessary. If OER determines that no remediation is necessary, written notice shall be given by OER.

If remediation is indicated from test results, a proposed remediation plan must be submitted to OER for review and approval. The Applicant must complete

such remediation as determined necessary by OER. The Applicant should then provide proper documentation that the work has been satisfactorily completed.

A construction-related health and safety plan should be submitted to OER and would be implemented during excavation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil, groundwater and/or soil vapor. This plan would be submitted to OER prior to implementation.

With this (E) designation in place, no significant adverse impacts related to hazardous materials are expected, and no further analysis is warranted. Therefore, there is no potential for the Proposed Actions to result in significant adverse impacts related to hazardous materials on Projected Development Site 5 and Potential Development Sites 1 and 2.

Natural Resources

According to the *CEQR Technical Manual*, a construction assessment is not needed for natural resources unless the construction activities would disturb a site or be located adjacent to a site containing natural resources. The Projected Development Sites and the adjacent properties are fully developed and do not contain any natural resources. Therefore, there is no potential for significant adverse construction impacts on natural resources.

Open Space, Socioeconomic Conditions, Community Facilities, Land Use and Public Policy, Neighborhood Character, and Infrastructure

According to the *CEQR Technical Manual*, a preliminary construction assessment is generally not needed for these technical areas unless the following are true:

- *The construction activities are considered "long-term" (more than 2 years);*

- *Short-term construction activities would not directly affect a technical area, such as impeding the operation of a community facility.*

As discussed above, construction activities on the Applicant controlled parcels would be considered short term as they would occur over a period of 24 months or less. Although construction activities on the non-Applicant controlled parcel would extend the total construction and occupancy period to more than two years (3 years), construction on this Site would not have any significant direct effects on open space areas, socioeconomic conditions, community facilities, or infrastructure conditions, and would not have cumulative impacts on land use or neighborhood character. Therefore, construction of the proposed project would not be expected to result in any significant adverse construction impacts on these technical areas.

**Conclusion**

On the basis of the above analysis, the Proposed Actions would not have any potentially significant adverse construction impacts, and further analysis would not be warranted.

# APPENDIX

# SHADOWS
# APPENDIX

Landmarks Preservation Commission
September 16, 2008, Designation List 405
LP-2240

**BETSY HEAD PLAY CENTER,** including the bath house, swimming pool, diving pool, bleachers and filter house, and perimeter cast-iron fencing; Thomas Boyland Street (Hopkinson Avenue) between Livonia and Dumont Avenues, Brooklyn.
Swimming pool modernized and enlarged, 1934-35; bath house constructed 1937-1939, John Matthews Hatton, lead architect; Aymar Embury II, Henry Ahrens and others, consulting architects; Gilmore D. Clarke and others, landscape architects.

Landmark Site: Borough of Brooklyn Tax Map Block 3570, Lot 1 in part, and portions of the adjacent public way, consisting of the property bounded by a line extending northerly from the intersection of the western curbline of Thomas Boyland Street (Hopkinson Avenue) and the northern curbline of Livonia Avenue to the southern curbline of Dumont Avenue, westerly approximately 285 feet along the southern curbline of Dumont Avenue to a point along the southern curbline of Dumont Avenue which intersects with a line extending northerly from the chain link fence which runs along the western side of the Betsy Head swimming pool complex, continuing southerly along that line and along the chain link fence which runs along the western side of the Betsy Head swimming pool complex to the northern curbline of Livonia Avenue, and easterly along the northern curbline of Livonia Avenue to the point of beginning.

On January 30, 2007, the Landmarks Preservation Commission held a public hearing on the proposed designation of the Betsy Head Play Center (LP-2240) including the bath house, swimming pool, diving pool, bleachers and filter house, and perimeter cast-iron fencing, Thomas Boyland Street (Hopkinson Avenue) between Livonia and Dumont Avenues and the proposed designation of the related Landmark Site (Item No. 25). The hearing had been duly advertised in accordance with the provisions of law. Nine witnesses spoke in favor of designation, including Parks Commissioner Adrian Benepe and representatives of the Municipal Art Society of New York, the Historic Districts Council, the New York Landmarks Conservancy, and the Society for the Architecture of the City. There were no speakers in opposition to designation. The Commission has also received letters from the Fine Arts Federation of New York and the Modern Architecture Working Group in support of designation. Several of the speakers and letters also expressed support for the larger designation effort of all the WPA-era pools. [1]

Summary

The Betsy Head Play Center is one of a group of eleven immense outdoor swimming pools opened in the summer of 1936 in a series of grand ceremonies presided over by Mayor Fiorello LaGuardia and Park Commissioner Robert Moses. All of the pools were constructed largely with funding provided by the Works Progress Administration (WPA), one of many New Deal agencies created in the 1930s to address the Great Depression. Designed to accommodate a total of 49,000 users simultaneously at locations scattered throughout New York City's five boroughs, the new pool complexes quickly gained recognition as being among the most remarkable public facilities



constructed in the country. The pools were completed just two and a half years after the LaGuardia administration took office, and all but one survives relatively intact today.

While each of the 1936 swimming pool complexes is especially notable for its distinctive and unique design, the eleven facilities shared many of the same basic components. The complexes generally employed low-cost building materials, principally brick and cast concrete, and often utilized the streamlined and curvilinear forms of the popular 1930s Art Moderne style. Each had separate swimming, diving and wading pools, and a large bath house with locker room sections which doubled as gymnasiums in non-swimming months. Concrete bleachers at the perimeter of each pool complex and rooftop promenades and galleries furnished ample spectator viewing areas. The complexes were also distinguished by innovative mechanical systems required for heating, filtration and water circulation. Sited in existing older parks or built on other city-owned land, the grounds surrounding the pool complexes were executed on a similarly grand scale, and included additional recreation areas, connecting pathway systems, and comfort stations. The team of designers, landscape architects and engineers assembled to execute the new pool complexes, in addition to hundreds of other construction and rehabilitation projects undertaken between 1934 and 1936 by New York's newly consolidated Parks Department, was comprised largely of staff members and consultants who had earlier worked for Moses at other governmental agencies, including architect Aymar Embury II, landscape architects Gilmore D. Clarke and Allyn R. Jennings, and civil engineers W. Earle Andrews and William H. Latham. Surviving documents also indicate that Moses, himself a long-time swimming enthusiast, gave detailed attention to the designs for the new pool complexes.

Established in 1914, Betsy Head Park in the Brownsville section of Brooklyn was the city's first recreation facility designed to include a public outdoor swimming pool and bath house. The pool, later described by Moses as "an antiquated tank with no provision for cleaning or sterilizing the water," was replaced in 1936 by the much larger existing swimming and diving pools. The 1914 bath house, a substantial twin-gabled building, was originally retained, but, following a fire in 1937, was replaced by the present bath house exceptionally designed by John Matthews Hatton and completed in 1939. More so than the other WPA pools, which were constructed at earlier dates, the Betsy Head bath house's sleek geometric forms stripped of most ornament has been recognized as "perhaps the most inventive and most overtly Modernist structure of this type."[2] Moses himself considered this pool structure to be one of the most successful in terms of design, plan, and use of materials.

Like Hatton's earlier design for the Astoria Play Center, the bath house is distinguished by the extensive use of recessed glass-block walls for the locker room portions of the bath house, making the structure translucent in these sections to a surprising degree. Equally striking is the rooftop observation gallery with its parabolic arches which support a broad, flat roof. Noted architect Ely Jacques Kahn, writing in *Architectural Record,* praised the rooftop structure and its underlying stepped stadium for "[recapturing] most of the park area occupied by the building," and the bath house's "multiplicity of uses" designed for "enjoyable use" year round.[3] The main entrance is distinguished by its relatively lavish materials – polished black marble wall facings, curved corner sections of glass block, and slate paving. Cleverly designed and engineered, the brick pier in the lobby extends through the ceiling to the roof where it is clad in glass block and once functioned as a light source for evening activities; vents also serving as light shafts at roof level were once located above the men's and women's shower rooms.

## DESCRIPTION AND ANALYSIS

History of the Betsy Head Play Center Site[4]

Located in the Brownsville section of Brooklyn, the Betsy Head Play Center is set within the 10.555 acres of Betsy Head Park, which is bounded by Dumont Avenue to the north, Livonia Avenue to the south, Strauss Street to the west and Thomas Boyland Street (Hopkinson Avenue) to the east.[5] The play center is located in the eastern section of the park along Thomas Boyland Street (Hopkinson Avenue).

The neighborhood of Brownsville, which at one time was a farming village, is named for Charles S. Brown who purchased land in the area beginning in 1865. New York City real-estate developer Aaron Kaplan's decision to build tenements there in 1887, as well as the construction of the Fulton Street elevated railway in 1889 and the Williamsburg Bridge in 1903, resulted in the transformation of Brownsville from a rural German area to an urban community of mostly Eastern European Jews employed in the garment and building trades. Having left their tenement apartments in the Lower East Side in Manhattan and Williamsburg in Brooklyn, these Jews sought to recreate in Brownsville the *shtetls*, or small villages, of their European homelands. In 1925, the Jewish population in Brownsville and neighboring East New York amounted to the largest concentration of that ethnic group in New York City. Russian, Polish and Italian immigrants also settled in Brownsville at the turn of the century. Beginning in the 1920s, affordable housing attracted a small number of African Americans, and their presence in the neighborhood increased in the following decades, particularly after the Second World War.

By the first decade of the twentieth century, Brownsville had become a densely-populated neighborhood. The Hebrew Educational Society (HES), founded in 1899 by established Jews to help assimilate Jewish immigrants, was one of the leading advocates for the creation of public parkland for the neighborhood. Brownsville property owners were eventually responsible for the $250,000 purchase of the land that would become Betsy Head Park, a recreational space set on two lots diagonally across from each other.[6] Opened in 1914, the land was then transferred from the Public Recreation Commission to the Department of Parks. The playground there was planned as the "most elaborate in [the] city," and the cost of construction for the buildings and equipment was covered entirely with money left by the late Betsy Head of Long Island, a widow who donated half of her estate to the City of New York "[to] be used to purchase and improve playgrounds for children, such as recreation places, public baths, &c."[7]

Designed by Henry B. Herts,[8] the larger lot (the site of the future Betsy Head Play Center) was the city's first recreation facility planned to include a public outdoor swimming pool (150 by 50 feet) and a substantial twin-gabled bath house; a field house, gymnasia and a baseball field were also located here. (Until the WPA pools of the 1930s were built, the Parks Department only had two pools in operation in the city: the Brownsville pool and one in Faber Park on Staten Island.) The smaller lot, intended for young children, offered a wading pool, play fields, and a farm school with 500 plots to grow crops. A model of the playground was featured at the Panama-Pacific Fair of 1915 in San Francisco, and it won first prize at the New York City Parks exhibit of that same year.

Under the auspices of Mayor Fiorello LaGuardia and Park Commissioner Robert Moses, major improvements to Betsy Head Park were made in the 1930s. Though the Brownsville park, unlike the other WPA pool sites, already had a bath house and swimming pool in place, Moses was never satisfied with the complex, and a modernized Olympic-size swimming pool was constructed from 1934 to 1935. A 1937 fire that damaged the interior of the older bath house led the Parks Department to erect a temporary building for the 1938 swimming season while the current facility, opened in 1939, was under construction. Other additions planned for the pool complex were a diving pool (which opened after the new pool), bleachers and a filter house. Funding for the various improvements was largely made possible by the Works Progress Administration (WPA), one of the many public works programs created by Franklin Delano Roosevelt and the United States Congress during the Great Depression.

Fiorello LaGuardia, Robert Moses and the New Deal[9]

Franklin D. Roosevelt was elected President of the United States in 1932 in the middle of the Great Depression that followed the stock market crash of 1929. Roosevelt promised to rebuild confidence in American capitalism and to improve the nation's standard of living by creating the New Deal economic program of unprecedented public spending on social programs and construction projects.

New York City had been especially hard hit by the economic downturn,[10] and its citizens, hoping for change, elected Fiorello H. LaGuardia to the mayoralty of New York City in 1933 as an anti-Tammany Hall reform candidate. A maverick Republican and a five-term congressman from East Harlem, LaGuardia won the mayoral election on the "Fusion" ticket after losing the 1929 mayoral race on the Republican line. The Fusion Conference Committee at first considered running Robert Moses, another Republican, who was appointed Chairman of the New York State Council of Parks in 1924 by his political mentor, Governor Alfred E. Smith, a Tammany Hall Democrat from New York City. However, the committee decided against Moses because of his association with Smith, and chose LaGuardia instead. At the time, Moses was a popular public figure with a reputation as a progressive and as the builder of great parks and parkways like Jones Beach and the Northern State Parkway on Long Island. His endorsement of LaGuardia during the campaign was considered instrumental in securing a victory for LaGuardia. Within a week of the election, LaGuardia chose Moses, a champion of reform politics, as New York City's new Park Commissioner.

Moses accepted the position of Commissioner of Parks in the LaGuardia administration on the condition that the five existing independent Parks Departments (one for each borough) would be consolidated into a single department with himself as the sole Commissioner, with authority extending also over the City's parkways. Moses also demanded to be appointed the Chief Executive Officer of the Triborough Bridge Authority, which was then building the bridge of that name, and that a new agency, the Marine Parkway Authority, which would build a bridge to the Rockaways, be created with himself at the helm. Already in charge of the Long Island State Park Commission, the New York City Council of Parks, the Jones Beach State Park Authority, and the Bethpage State Park Authority, Moses would then be in control of all existing and proposed parks and parkways in the New York metropolitan region, with the exception of areas outside of New York State.

In the 1920s, Moses was at the forefront of the national recreation movement that began in the first decade of the twentieth century, led by such men as President Theodore Roosevelt and the lesser-known George D. Butler of the National Recreation Association. The movement gained momentum under the administration of President Calvin Coolidge with the organization of the National Conference on Outdoor Recreation (NCOR) in 1924.[11] The Depression of the 1930s further amplified the need to provide more, or improve existing, outdoor recreational opportunities, especially in urban areas. Fortunately, such goals fit nicely into FDR's New Deal economic programs. Mayor LaGuardia's success in securing a lion's share of monies made available by the federal Works Progress Administration (WPA), and Moses' management skills and his ability to attract talented designers and engineers to his staff, resulted in profound physical changes to the environment of New York City. The construction and renovation of neighborhood recreation areas, such as pools and play grounds, were some of the most ambitious and successful programs undertaken by Moses with funds largely provided by the WPA.

Moses began to assess the state of the City's parks and to plan for their future as soon as LaGuardia announced his intention to appoint Moses as Park Commissioner. According to one source: "Immediately after the election he wrote out, on a single piece of paper, a plan for putting 80,000 men to work on 1,700 relief projects."[12] Moses hired a consulting engineer and three assistant engineers to survey every park and parkway in the City. The survey was completed by the time he took office in mid-January 1934.

When Moses took over the Parks Department, it was already employing 69,000 relief workers funded mainly by the federal Civil Works Administration (CWA) and the Temporary Emergency Relief Administration (TERA). However, Moses found the men to be ill-equipped and inadequately supervised, and considered many of the construction projects to have been poorly designed. He immediately began to revamp the entire operation of the Parks Department and established a Division of Design, located at the Arsenal in Central Park. The staff was to be headed up by experienced professionals drawn mainly from his State agencies. Some of his talented staff of young architects, landscape architects and engineers had worked on the designs for Long Island's highly acclaimed parks, including Jones Beach, which is considered one of Moses' greatest accomplishments. His staff also included a number of well-known and accomplished designers, among them architects Aymar Embury II and John M. Hatton, and the landscape architect and civil engineer Gilmore D. Clarke. Other top members of Moses' staff were the landscape architect Allyn R. Jennings, and civil engineers W. Earle Andrews and William H. Latham.

The Parks Department's Division of Design was organized in the following manner: a topographical unit of about 400 surveyors and draftsmen, a landscape architecture unit of about sixty people, an architecture unit

made up of sixty architects and draftsmen, and an engineering unit of about fifty. Smaller units included an Arboricultural Department and an Inspection Department. All the work in the Division of Design was under the direct supervision of the Park Engineer, who was aided and advised by a Consulting Architect, a Consulting Landscape Architect, and a Consulting Engineer.[13] All new projects began in the topographical unit, where a complete survey of the land was prepared. It then moved on to the landscaping unit, where the basic concept for the design was developed. Next, the three units, landscape, architecture, and engineering, collaborated to produce the final design and all the necessary construction documents. The Park Engineer and his aides had to approve all of the plans. Moses himself sometimes stepped in to revise or overrule a design, especially on the larger, more visible projects.

Moses' superior management ability and political savvy allowed him to move projects along very quickly and to produce concrete results, gaining for him much public admiration. However, Moses' personal demeanor was notoriously stubborn and arrogant, and he was known, at times, to disregard the legitimate authority of other governmental agencies. Once, when the Department of Plant and Structures refused to suspend a ferry service that used a terminal in the path of construction of the Triborough Bridge approach road, Moses had his men demolish the terminal while the boat was on the other side of the river. He feuded with President Franklin D. Roosevelt for years, even while Washington was pouring millions of dollars into Moses' own Parks Department. His later battles with and subsequent triumphs over community groups opposed to the routing of the Gowanus and the Cross-Bronx Expressways through their neighborhoods are now legendary. Moses was also known to have been insensitive to people of color, and reputedly tried to restrict access to many of his recreational facilities, including the WPA-era pools.[14]

To many, Robert Moses was a master builder who helped modernize New York City's infrastructure; to others, his policies led to the destruction of many distinctive neighborhoods. In the summer of 1934, however, Moses was a hero. Hundreds of projects, covering virtually every neighborhood in the city, had been completed. Structures were repainted, tennis courts resurfaced, and lawns reseeded. Hundreds of new construction projects were either already underway or in the process of being designed.[15] Among them was the Betsy Head Play Center in the Brownsville section of Brooklyn.

History of Swimming in New York City[16]

The Hudson and East Rivers lining the shores of Manhattan both served as popular bathing spots dating to the Colonial era. Despite extensive contamination resulting from decades of unchecked pollution, the long tradition of swimming in New York City's rivers was still strong at the middle of the nineteenth century. Out of concern for the health and welfare of the people of the city, and particularly of immigrant populations who took the most advantage of the rivers, the city opened its first free floating pools in 1870. The floating pools, however, were essentially wood-framed structures suspended on pontoons, filled with the same unfiltered river water. By the turn of the century, there were about two dozen of these floating pools moored at various places along the waterfront, competing directly with industry for the space. Some improvements were eventually made to the floating pool concept, e.g. by 1914 the pools were required to be watertight and filled with purified water. Nonetheless, as river quality continued to erode, and access to nearby beaches improved, the floating pools gradually disappeared.

In 1891, New York City's first public bath was opened on the Lower East Side of Manhattan by the Association for Improving the Condition of the Poor, one of several charitable organizations operating bath houses for a small fee. Following an 1895 state law requiring cities with populations of 50,000 or more to construct free public baths, the City of New York opened the Rivington Street Bath in 1901. By 1914, thirteen City-operated bath houses had been constructed in Manhattan, mostly sited within immigrant neighborhoods where overcrowded tenements lacked indoor plumbing. These shower and bathtub facilities, however, were never very popular with the working class, and swimming pools and gymnasia eventually were added to some public baths in hopes of attracting more patrons (most bath houses erected after 1905 included these features in their original designs). The indoor pools at the bath houses never quite replaced the need or demand for outdoor swimming facilities in the city, and by the 1930s, it was clear that they had not aged well.

When Robert Moses became Parks Commissioner in 1934, only two outdoor pools remained, one at Betsy Head in Brownsville, Brooklyn, and the other at Faber Park on Staten Island. Moses, however, considered the Betsy Head pool "unsanitary" and often lamented its "unattractive, inadequate, and impractical bath houses."[17] Moses, a strong believer in the need for safe bathing in the city, consulted with the heads of the

New York City Health and Sanitation Department in July 1934. Finding that only an increase in the number of swimming pools could ease the existing burden, Moses wrote the following in a press release picked up by the *New York Times*:

> It is no exaggeration to say that the health, happiness, efficiency and orderliness of a large number of the city's residents, especially in the summer months, are tremendously affected by the presence or absence of adequate swimming and bathing facilities. We are providing additional wading pools for children as fast as we can…This, however, does not meet the problem of any but small children…It is one of the tragedies of New York life, and a monument to past indifference, waste, selfishness and stupid planning, that the magnificent natural boundary waters of the city have been in large measure destroyed for recreational purposes by haphazard industrial and commercial developments, and by pollution through sewage, trade and other waste…We must frankly recognize the conditions as they are and make our plans accordingly…[18]

To Moses, a forerunner in the national recreation movement and an avid swimmer since his university days, a change was desperately needed, and by October 1934, excavations had already begun for the first of eleven state-of-the-art swimming pools. The pools were to be sited near inner-city neighborhoods in order to provide swimming for those who could not easily reach places like Orchard Beach or the beaches of Long Island. In addition to swimming pools, the new centers would incorporate elaborate bath houses, and also provide active adult sport areas, children's playgrounds, and other amenities. The eleven pools opened in the summer of 1936 and quickly gained recognition as being among the most exceptional public facilities constructed in the country.[19] All of the pools featured new bath houses, with the exception of Hamilton Fish and Betsy Head.[20] After the completion of the WPA-era pool complexes, no new public swimming pools were constructed in New York City until the 1970s. Over 1.65 million bathers are thought to have used the new swimming pools in their first summer of use.

<u>The Swimming Pools, Moses, and Segregation in New York City</u>[21]

Institutionalized racism was still an established way of life in the United States during the inter-war years, even on the federally sanctioned level. For example, as a result of federal guidelines articulated in the 1935 Federal Housing Administration Underwriting Manual, it was impossible for non-segregated developments to attain mortgage insurance, meaning ethnic and even religious minorities could only secure mortgages in certain areas. The result was a substantial increase in both racial segregation and urban disinvestment in cities across the country, New York included. At its peak, estimates of segregation in public housing nation-wide ran as high as 90 percent due in large part to both federal and local government policies.[22] Even as late as 1943, the City of New York gave its approval for Metropolitan Life's all-white, middle income project – Stuyvesant Town and Peter Cooper Village.

Similar to many people of his era, Robert Moses was also known to have been insensitive to people of color, an attitude which may have impacted both the siting and administration of the WPA-era pools. LaGuardia and Moses often went to great lengths to show the media that they did care about minorities, holding, for example, a celebration for 25,000 people upon the opening of the Colonial Park pool, at which the mayor offered the facility as proof that his administration was in fact "building and doing things for Harlem."[23] Although LaGuardia and Moses claimed they were siting pools in the most congested areas of the city, Colonial Park in Harlem remained the only one sited in a predominantly "non-white" neighborhood. Moreover, the Thomas Jefferson Park pool, located in East Harlem (LaGuardia's old congressional district) was close to Spanish Harlem where the city's growing Puerto Rican population was settling. To discourage minority use at this facility, Moses reputedly kept the water heating system turned off, believing that the cold water would not bother Caucasian swimmers, but would somehow deter non-whites.[24]

It has been alleged that the Parks Department at the time had an active policy of hiring only white lifeguards and attendants in hopes of deterring minority patrons. Whether or not such directives came from Moses himself, the fact remains that the pools were largely segregated at the time of their opening. In the Pulitzer Prize winning biography, *The Power Broker*, Robert Caro writes that "one could go to the [Thomas Jefferson] pool on the hottest summer days, when the slums of Negro and Spanish Harlem a few blocks away sweltered in the heat, and not see a single non-Caucasian face."[25] Similarly, oral histories relating to Betsy Head pool tell of an unwritten rule that "African-Americans could swim in the Brooklyn pool only in the late afternoon, after white residents had

vacated the premises."[26] Such claims are supported by photographs and video footage from the era, showing that largely, white and black New Yorkers swam in different pools.[27] For a handful of sites, however, including the Highbridge and Colonial Park Play Centers in Manhattan, as well as McCarren Play Center in Brooklyn, photographs and video footage seem to indicate that, on occasion, the populations did mix.[28]

Brownsville itself was known to be a fairly integrated community, and certainly more so than other neighborhoods throughout New York City. One local recreational organization, the Brownsville Boys Club (BBC), encouraged a "better understanding [between white and black youths] through working and playing together."[29] Their mission was rare, however, and their sports teams were segregated except when they competed in citywide tournaments. While children often played together in the streets, integration between adults was not as prevalent. African-American resident Harold Burton noted that, "You weren't really welcome in Betsy Head Park or the Ambassador Theatre on Hopkinson Avenue."[30]

The Design and Construction of the Betsy Head Pool[31]

The Betsy Head Play Center is one of a group of eleven immense outdoor swimming pools opened in the summer of 1936 in a series of grand ceremonies presided over by Mayor Fiorello LaGuardia and Park Commissioner Robert Moses. All of the pools were constructed largely with funding provided by the Works Progress Administration (WPA), one of many New Deal agencies created in the 1930s to address the Great Depression. Designed to accommodate a total of 49,000 users simultaneously at locations scattered throughout New York City's five boroughs, the new pool complexes quickly gained recognition as being among the most remarkable public facilities ever constructed in the country. The city's pool construction program was reported to have been the most expensive in terms of total cost. Robert Moses, an avid swimmer who had a home near the ocean in Babylon, Long Island, was known to have taken a special interest in the design and construction of bathing and swimming facilities, such as Jones Beach, Orchard Beach and Riis Park, as well as the neighborhood swimming pools.[32] As a result of his special attention, along with that of Aymar Embury II and Gilmore D. Clarke, the design and execution of New York City's aquatic facilities in the 1930s were a cut above most other park projects at the time.

At the start, the Parks Department adopted a list of shared guidelines for the entire pool project in order to enhance the efficiency of the design effort, to unify the operations of each complex, and to meet the various local and federal requirements of the relief programs. For example, each pool complex was to have separate swimming, diving and wading pools, and a large bath house, the locker room sections of which doubled as gymnasiums during non-swimming months. The bath houses, which would serve as the centerpieces of each complex, would be distinctive pavilions that would establish the design motif of each facility. Concrete bleachers at the perimeter of the pools would furnish spectator viewing areas to be augmented at some sites with rooftop promenades and galleries. There would be a minimum width for the decks to provide enough room for sunbathing and circulation, and at least one dimension of each swimming pool would have to be a multiple of fifty-five yards to allow swimming competitions to be held at standard distances in either English or metric systems. There had to be underwater lighting for night swimming, and heating for the pools. Plus, the complexes had to share low-cost building materials, principally brick and cast concrete, as required by the federal government as per the terms of the WPA funding.

To satisfy federal stipulation on low-cost materials, it appears that the design team for the pools determined that the streamlined and curvilinear forms of the Art Moderne and Modern Classical styles would best meet the low-cost needs and still permit pleasing aesthetics. As a group, the pools were also distinguished by the innovative mechanical systems required to heat, filter, and circulate the vast amounts of water they used. Many of these innovations set new standards for swimming pool construction, such as scum gutters that allowed in enough sunlight to naturally kill off bacteria and a series of footbaths filled with foot cleaning solution through which bathers were forced to pass upon entering the pool areas from the locker rooms.

Sited in existing older parks or built on other city-owned land subsequently developed as parks and playgrounds, the huge pool complexes were provided with landscape settings that included additional recreational areas, connecting pathway systems, and comfort stations. Despite the fact that the basic components were essentially the same and that the WPA required that only the cheapest materials be used, each of these swimming pool complexes is especially notable for its distinctive and unique setting, appearance, and character.

In October 1934, the Parks Department announced the start of excavations and site work for several of the new pools. Though the Brownsville site already had a swimming pool and bath house, Robert Moses was

never satisfied with the complex, which he called "inadequate and unsanitary," and the pool was modernized and enlarged to 330 feet by 165 feet. Moses believed the 1914 bath house was "unsatisfactory," but the building remained with only minor alterations in order to accommodate the larger pool; baskets replaced lockers in the changing rooms and the interior was altered to provide space for 4,660 bathers. The year 1936 was known as "the swimming pool year," since ten of the eleven pools were opened that summer, one per week for ten weeks.[33] Each opening day was a memorable event for its neighborhood; with the exception of the Betsy Head Play Center, the day-long events featured parades, blessings of the waters, swimming races, diving competitions, appearances by Olympic stars, and performances by swimming clowns. Mayor LaGuardia attended every opening to perform the ribbon cutting. Festivities continued well after dusk with LaGuardia pulling the switch to turn on each pool's spectacular underwater lighting to the "oooohs" of the crowds.

In stark contrast to these events, the opening of the Betsy Head Play Center on August 7, 1936 occurred without the presence of the mayor or Department of Parks officials. That day, the *Brooklyn Daily Eagle* reported:

> With shouts of glee some 450 youngsters today dedicated the new 1,400,000 gallon swimming pool at Betsy Head Park, Hopkinson and Dumont Aves., in their own fashion. There were no formal opening ceremonies, since the diving pool and a wading pool will not be completed until next year. The Park Department decided, however, not to deprive children the use of the completed larger pool any longer. Although there was no advance notice of the opening, word spread like wildfire along the younger set grapevine and in less than half an hour children were pouring into the park.[34]

The decision to not have a formal pool opening appears to be a last-minute one. According to a Department of Parks press release dated August 5th, Moses and Philip Klowensky, President of the Pitkin Avenue Merchants' Association, were to speak at a formal ceremony on August 6th that was to include a flag-raising event and an aquatic exhibition. (Architectural Historian Marta Gutman suggests another reason as to why officials were absent that day: they might have been cautious of visiting Brownsville, a neighborhood at the time known for its radical politics where a public official at a rally the summer before was heckled and a fight broke out.[35]) In response to the lack of ceremony, Captain Bernard Rorke of the local police precinct, at the pool on August 7th, commented that, "Commissioners, Aldermen and such folk aren't expected to use the pool, and they'll not be missed this morning. It's wonderful to have an opening be just that and nothing more."[36] Eager children of Brownsville, East New York and other surrounding neighborhoods raced out of the locker rooms and into the new pool, "sampling [it] to their heart's content."[37] At the time of the opening, a diving pool measuring 100 by 50 feet, a new playground, a track, and soccer field were still under construction. Intended to be used throughout the year, plans to convert the main pool for winter use were also made in September 1936: the pool was drained, temporary stairs were installed, benches were placed along the inside perimeter, and handball, paddle tennis, basketball, volleyball and shuffle board courts were added.

On August 17, 1937, a fire destroyed the interior of the bath house and shortened the swimming season at Betsy Head that summer. In a letter written to Mayor LaGuardia three days later, Robert Moses stated that the building should be replaced with a "modern play center" rather than be repaired.[38] Though he strongly urged that the new bath house be completed for the 1938 season, a temporary one-story shower building was erected and used instead. Finally, on May 27, 1939, the one-story bath house that now occupies the site was completed, fulfilling Moses' vision for the Brownsville pool complex. Together with the remaining WPA-era pools, the Betsy Head Play Center is one of the major achievements of the New Deal in New York City.

<u>The Designers Behind the Planning of Betsy Head Pool</u>[39]

The eleven WPA-era pool facilities shared many common features and specifications that could be repeated at each site, and contained other elements that were similar from complex to complex. As a result, junior designers, having different areas of expertise, appear to have moved quickly among the various pool projects. The department produced designs and construction documents simultaneously with great speed so that eleven pools and hundreds of other park projects, including some massive undertakings like Orchard Beach, were completed within

a few years. Aymar Embury II and Gilmore D. Clarke, respectively the Parks Department's Consulting Architect and Consulting Landscape Architect, were employed by the City on a part-time basis to oversee designs for park projects under Robert Moses. William H. Latham, the head of the Division of Design at the time, was the Park Engineer, responsible for the preparation of all plans and specifications within the department. Major design problems were discussed by Embury and Clarke before the preliminary sketches were made under Latham's direction. Completed sketches were subject to approval by the Park Engineer, the General Superintendent, and Commissioner Moses. The consultants would give regular criticism during the preparations of the plans.

Aymar Embury II (1880-1966) was born in New York City and studied engineering at Princeton University, where he received a Master of Science degree in 1901. He acquired his architectural training through apprenticeships with three New York firms: George B. Post, Howells and Stokes, and Palmer and Hornbostel. He also worked for Cass Gilbert. In 1905, Embury won both first and second prize in a contest held by the Garden City Company for a modest country house to be built in Garden City, Long Island. This gained for him a reputation as a talented designer, and led to many commissions for country houses in the New York metropolitan area. He subsequently published seven books and several pamphlets, mainly on early American architecture, establishing him as an authority on that subject. By the start of the Great Depression, he was well-known and had received a wide range of commissions all over the east coast of the United States, including college buildings and social clubs, in addition to residences. He designed the Players and Nassau Clubs in Princeton, New Jersey, the Princeton Club in New York City, and the University Club in Washington, D.C. Embury was said to have supervised the design of over six hundred public projects, including Orchard Beach, Bryant Park, the New York City Building at the 1939 World's Fair, the Donnell Branch of the New York Public Library, the Hofstra University Campus, the Central Park and Prospect Park Zoos, Jacob Riis Park, five of the eleven neighborhood pool and play centers,[40] the Lincoln Tunnel, the Triborough Bridge, and many more.

The lead architect for each pool project generally designed the bath house, which was unique to each site, establishing the motif that guided the design and detailing of the rest of the complex. Although each pool complex has been credited to a particular architect, the designs appear to actually have been collaborative efforts among the army of architects, draftsmen, engineers, and landscape architects employed by the Parks Department in the 1930s.

The Betsy Head Play Center bath house was designed by architect John Matthews Hatton who was born c. 1886 in Iowa, and first appears in New York City directories in 1915. His professional training remains undetermined, but he practiced architecture in New York City into the late 1940s. In the early 1920s, he formed a partnership with architect Diego DeSuarez (DeSuarez & Hatton), which lasted only a few years. In addition to the Betsy Head bath house, his other works for the Department of Parks in the 1930s include the Astoria Play Center in Queens and Pelham Bay Park golf clubhouse. In the 1940s, he was considered an expert in store modernization (lighting, space layout, customer comfort, display, fixture, and storefronts) and his designs for commercial spaces and storefronts were published in several architectural periodicals. Among his clients was the Stetson Hat Company. He also did work for the New York City Housing Authority in the 1940s.

Gilmore D. Clarke appears to have been directly involved with the landscaping of the pool complex, signing approval on several of the plans for the park. Clarke (1892-1982) was born in New York City and studied landscape architecture and civil engineering at Cornell University, from which he received a Bachelor of Science degree in 1913. He served as an engineer in the army during the First World War, receiving many citations and decorations, and remained in the Army Reserve Corps until 1939. During the 1920s, he served on several local, state and federal commissions as landscape architect, including the Architectural Advisory Board for the United States Capital, the New York State Council of Parks (which was headed by Robert Moses), and the Westchester County Park Commission, among many others. For his work in Westchester County, which included the Rye Beach Playland, the Saw Mill River Parkway, and the Bronx River Parkway, Clarke was awarded the Gold Medal of Honor in Landscape Architecture from the Architectural League of New York in 1931. By the time of the Great Depression, Clarke was already established as the most popular landscape architect in public works in America.

His career advanced during the 1930s. Besides being hired by Robert Moses as the Consulting Landscape Architect to the New York City Parks Department, he also became a member of the National Commission on Fine Arts, the New York State Planning Council, and the Board of Design for the 1939 New York World's Fair. In addition to the Betsy Head Play Center, his work for the Parks Department included Bryant Park, Central Park Zoo, City Hall Park, Orchard Beach, and the Henry Hudson Parkway. He taught landscape architecture at Cornell University from 1935 to 1950, serving as dean from 1939 until his retirement in 1950 and wrote several articles for trade periodicals. In 1935, Clarke joined Michael Rapuano, an engineer and landscape architect, establishing the

New York civil engineering and landscape architectural firm Clarke & Rapuano, Inc. Clarke was president of the firm from 1962 until his retirement in 1972. Later in his career, Clarke worked as a consultant on the construction of the United Nations Headquarters in New York and became a Trustee for the American Museum of Natural History.

Subsequent History[41]

Brownsville in the decades after the pool opened gradually shifted from a predominantly Jewish neighborhood to an African-American one. Between 1925 and 1940, as the overall population of Brooklyn increased, Brownsville experienced a rapid decline. After the Second World War, Robert Moses proposed the construction of public housing for the area to counter its aging building stock. The African-American population in Brownsville totaled 14,209 and would continue to grow, despite the fact Jewish residents continued to dominate the district in the years just after the war. Since that time, Brownsville and East New York have become African-American neighborhoods, and it is this group that benefits from the Betsy Head Play Center today. Notable boxing figures, Riddick Bowe and Mike Tyson–who, in the 1990s, became heavyweight champions of the world–lived in Brownsville; Bowe was known to have jogged around the Betsy Head pool in his youth.[42]

As for the subsequent history of the Betsy Head Play Center itself, by the late 1970s it and many other WPA pools had become badly run down, partially the result of the fiscal crisis of the 1970s which hit the Parks Department particularly hard. By March 1981, the Parks Department workforce had dwindled to a record low of 2,900 employees, mostly unskilled and temporary, as compared to the 30,000 parks employees on staff during the Moses administration. The strain on Parks Department resources was evident in the deplorable conditions of many of its facilities. To address the rapid deterioration of its recreational facilities, in 1977 the Parks Department began a major capital construction program involving more than 500 projects, expected to total more than $180 million, partly in Federal funds – the first such projects undertaken by the parks system since the fiscal crisis halted such work in 1975, and arguably the most ambitious program to improve the parks since the 1940s. Among the projects planned was a $10 million plan to preserve Prospect Park, a $1 million renovation of the Coney Island Boardwalk, and restorations of several WPA-era pools, such as Sunset Park and Jackie Robinson (Colonial Park) in Harlem.

In 1979, an estimated $5.2 million was budgeted for the restoration of the Betsy Head Play Center. Over the next three years, the pool complex was closed to the public as the swimming and diving pools were reconstructed and the bath house received new locker room facilities that were handicap-accessible. New landscaping and the rehabilitation of the baseball fields, track and other recreational facilities within the park also occurred during this period. On June 28, 1983, a dedication ceremony was held at the Betsy Head Play Center to mark the completion of rehabilitation efforts and to re-open the pool to the public; in attendance were Mayor Edward I. Koch, Parks Commissioner Henry Stern, City Councilmembers Enoch Williams and Priscilla Wooten, Deputy Brooklyn Borough President William C. Thompson, community leaders and hundreds of neighborhood children. The Morningside Diving Association held a diving exhibition in honor of the occasion. Mayor Koch remarked, “Three or four generations of Brownsville residents and people from all over Brooklyn have mastered the arts of running, jumping and swimming at this pool and sports complex. The massive rehabilitation of this facility is part of the city’s ongoing effort to make all of our neighborhoods vital places to live.”[43] The Parks Department called the renovations of the WPA-era pools “an essential part of the revitalization [of] the entire public recreational infrastructure of the city,” helping transform the aging pools back into modern recreational facilities.[44]

The WPA-era pools faced a new set of challenges beginning in the mid-1980s, with pools like the Crotona Play Center in the Bronx becoming infamous for vandalism and walkways littered with broken glass. In 1991, Mayor David Dinkins proposed closing the pools as part of a package of budget cuts. Only a donation of $2 million from a private donor, real estate magnate Sol Goldman, guaranteed the pools would be kept open for at least a portion of that summer; an additional $1.8 million was still needed to cover the entire nine-week long swimming season. In the mid-1990s, a menacing ritual known as “whirlpooling” had become common throughout the pool system, a practice characterized by groups of teenage boys locking arms and shoulders, churning the water and disrupting the activities of other swimmers, particularly women who often found themselves unwillingly fondled. Several more serious complaints of sexual assault were recorded throughout the pool system in the summer of 1994. With improvements in security staffing and increased vigilance on the

part of patrons, many of the problems of the 1990s did eventually dissipate, and by 2003, the pools were once again touted as both extremely safe, and a welcome alternative on a hot summer day.

The Architecture and Site of the Betsy Head Play Center

The New Deal construction projects within New York City, such as the Betsy Head Play Center, were a part of a national trend that included similar projects undertaken by various governmental agencies, ranging from the vast Tennessee Valley Authority to small cities and towns. Urban projects built with WPA funding often possessed similar qualities from region to region, partly because the difficult economic climate dictated the use of inexpensive building materials, but also because the programs provided employment opportunities for a generation of young architects and engineers, many of whom were committed to modernism. For example, the bath house and waterfront facilities at Aquatic Park in San Francisco are similar in plan and appearance to the public pool and beachfront projects being built at about the same time in New York City. The California facility, with its streamlined, concrete façade and steel-framed windows, bears a striking resemblance to the façade added in 1936 with WPA funds to the bath house at Jacob Riis Park in Queens. The original and creative use made of these modest materials by Moses' talented design teams and the careful siting of each project makes every one of them a distinguished, individual design, as much related to their specific environment and needs as to one another.

The implementation of a modern aesthetic in the design of the WPA pools stands as a testament to the influence of the young designers on Moses' team; Aymar Embury II, who oversaw the design of the eleven neighborhood pools, was generally a traditionalist with little patience for modernism. In a 1938 interview, Embury was quoted as having said:

> If an architect has any function, it is to coordinate units so that they do a required job and at the same time create a pleasant emotion. Modernists believe that the essence of their work is to do something that has never been done before. They leave off all ornamentation because, they say, the ornaments do not aid the structure to do its job. I suppose some of these architects do not use neckties or buttons when they dress.[45]

More so than the other WPA pools, which were constructed at earlier dates, the Betsy Head bath house's sleek geometric forms stripped of most ornament has been recognized as "perhaps the most inventive and most overtly Modernist structure of this type."[46] Its cantilevered canopy on the roof is the most notable feature of the bath house; a concrete slab and eight parabolic arches all clad in metal panels once provided shade to onlookers watching pool activities such as water pageants and diving competitions below. An article written by noted architect Ely Jacques Kahn in the *Architectural Record* praised the rooftop structure and its underlying stepped stadium used as bleachers for "[recapturing] most of the park area occupied by the building."[47] The rooftop terrace was accessed from stairs on either side of the bath house, and admission was free. The building's "multiplicity of uses," including the roof deck as well as the wintertime conversion of the locker rooms into much-needed neighborhood recreational space, was applauded by Kahn.

Materials at the play center were also carefully considered. Like Hatton's earlier design for the Astoria Play Center bath house (1936) in Queens, the Brownsville structure makes extensive use of glass block wall construction; eight recessed glass block windows between brick piers on either side of the bath house allow ample natural light into the interior spaces, and the curved walls marking the entrances to the men's and women's locker rooms were once clad in glass block as well. Below the windows are concrete panels incised with a pattern reminiscent of ocean waves. Moses believed that the plan for the bath house was "better than that adopted in any of the existing pools and provides for a far more efficient utilization of the space available."[48] The curved glass walls that frame the lobby entrance invite bathers into the space, and they were once greeted by a football-shaped ticket booth that is extant, but no longer in operation. Cleverly designed and engineered, the brick pier in the lobby extends through the ceiling to the roof where it is clad in glass block and once functioned as a light source for evening activities. Vents also serving as light shafts at roof level were located above the men's and women's shower rooms, but have since been removed. Still retaining the majority of its elements, the exceptional Modern design of the Betsy Head Play Center continues to serve as a striking addition to the Brownsville neighborhood.

Description

*Plan and Circulation*

Betsy Head Play Center is set within the 10.55 acres of Betsy Head Park, which is bounded by Dumont Avenue to the north, Livonia Avenue to the south, Strauss Street to the west and Thomas Boyland Street (Hopkinson Avenue) to the east. The play center is located in the eastern section of the park along Thomas Boyland Street (Hopkinson Avenue). The landmark site excludes the baseball fields to the west of the pool complex. Pool visitors enter the play center through the main entrance on the east façade of the bath house facing Thomas Boyland Street (Hopkinson Avenue). Use of the pool complex is now free so patrons do not have to go to the ticket booth once they pass through the entryway; the ticket booth is thus purely ornamental. After entering the bath house lobby, men go to the locker rooms and showers located on the north wing of the bath house and women go to the locker rooms and showers located on the south wing. From there, they enter the pool deck from their respective doors, which are marked by curved walls that are set into the bath house structure (these historically were clad in glass blocks).

Bathers swim in the Olympic-size swimming pool, which measures 330 feet by 165 feet. Bathers may also sit on the concrete bleachers located on the southern edge of the pool complex next to the filter house. Bleachers exist on the roof of the bath house under the metal canopy, although the public no longer has access to the roof. The diving pool was filled-in with sand in 2005-2006 and now serves as a volleyball court. Wrought-iron fencing runs along the perimeter of the pool complex on the Livonia and Dumont Avenue sides. There is no wading pool located within the landmark site.

*The Bath House*

The one-story brick and concrete bath house includes a rooftop metal canopy. The men's locker and shower rooms are located in the north wing of the bath house and the women's locker and shower rooms are located in the south wing.

**East façade (street side).** The east façade consists of a central section flanked by shower rooms. The central section is clad in English Common bond brick except at the piers, which are clad in Monk bond brick (two stretchers to one header in each row). Each pier has a cast stone base and capital. There are four window bays on either side of the main entrance that have large glass block windows divided by two mullions. Some of these glass block windows were repaired or replaced during the early 1980s rehabilitation. Below each window is a short cast concrete wall that features a subtle decorative "wave" detail at the top. Cast stone coping runs the length of the base and top of the façade, and a historic metal railing is located at the edge of the roof. The main entrance has two glass block curved walls and a historic metal gate. A portion of the stone steps leading up to the bath house was replaced by a handicapped ramp in the early 1980s. The letters "B E T S Y H E A D P L A Y C E N T E R" are carved into the stone at the top of the façade over the main entrance.

The men's and women's shower rooms mirror each other in design and are both clad in English Common bond brick. A glass block ribbon window is set into the brick and a cast stone water table runs along the base. Doors with non-historic metal roll down gates (these were historically metal and were replaced in the early 1980s) are located at the end of each shower room wall. Three stone steps lead up to the door and although it provides access to the roof deck, the public can no longer use the roof. Historic metal railings sit at the edge of the roof.

**West façade (pool side).** The west façade consists of a central section flanked by shower rooms. The central section is clad in English Common bond brick except at the piers, which are clad in Monk bond brick (two stretchers to one header in each row). Each pier has a cast stone base and capital. There are four window bays on either side of the main entrance that have large glass block windows divided by two mullions. Some of these glass block windows were repaired or replaced during the early 1980s rehabilitation. Below each window is a short cast concrete wall that features a subtle decorative "wave" detail at the top. Cast stone coping runs the length of the base and top of the façade, and a historic metal railing is located at the edge of the roof. The main entrance has two glass block curved walls. The curved wall on the northern end was altered in the early 1980s to accommodate the addition of an elevator; a vertical strip with a vent has been inserted into the glass block wall. Above the central entrance is a clock that features red metal pieces on a non-historic white circular background (historically, the clock consisted of metal hour bars and hour/minute hands set into the brick wall). Two steps run the length of the central entrance (and once ran the length of the central section of this façade until the handicapped ramps were added during the early 1980s rehabilitation).

The men's and women's shower rooms are identical in design, clad in English Common bond brick and feature recessed curved entrances that were once clad in glass block, but were later replaced with cinder blocks made to imitate the shape and pattern of glass block. The historic metal letters "M E N" and "W O M E N" are still extant above their respective shower room entrances. Non-historic metal roll-down doors have replaced the historic ones. Planters on either side of the entrances rest on stepped cast stone platforms, which were once the location of fountains (spouts still exist on the brick wall a few feet above). Footbaths once existed on the ground within the curved space, but they have since been filled in with cement to match the rest of the pool deck. A non-historic metal double door entry exists at the setback portion of each shower room. A cement ramp leads up to the double doors on the women's shower room side. The perpendicular wall between the curved wall and this setback portion has a small glass block window whereas between the setback portion and the street façade there is an unornamented English Common bond brick wall. Photographs of the bath house in 1939 reveal that the stairway on the other side of this wall was once viewable from the street and so the wall sloped to match the rise of the stairway. There were no doors blocking access to the stairs. It is unclear when the wall was filled in to its current condition, but English Common bond brick was used to match the rest of the façade. Historic metal railings sit at the edge of the roof.

**Bath house lobby.** The lobby does not have walls on the street and pool sides (only those that separate the lobby space from the locker rooms) thus allowing for natural light in the space. The floor is paved in bluestone. At the center of the lobby is a large circular brick pier (now painted red) that continues through the ceiling and to the roof where it is clad in glass block. The football-shaped ticket booth located between the central pier and the street side entrance is surrounded by metal and is therefore not visible. The condition of the ticket booth is unclear. On the street side of the lobby an historic metal fixed gate runs the length of the opening and a matching historic metal gate directly above was designed to roll up and down, although this function is presumably not used anymore. On the pool side of the lobby a non-historic chain-link fence has been mounted to an historic metal gate. The door at this gate is for staff use only. The white plaster ceiling forms a concentric square pattern that is stepped so that the innermost square is raised higher than the outermost one. The dropped ceiling at the pool side entrance is made of stone panels with metal bosses.

The men's and women's locker rooms are located on the north and south walls, respectively. They both are clad in marble panels with small bronze rosettes except at the top where plaster has been applied. An air conditioner protrudes from each wall on the street side end. Central non-historic metal double doors (historically these were wood double doors) mark the entrance to each locker room; above these doors are incised and silvered Art Deco-style letters "M E N" and "W O M E N" that are set into the marble. On the men's locker room side there is a single non-historic metal door (historically wood) with incised and silvered Art Deco-style letters "O F F I C E" to the left of the double doors. A marble inset to the right of the double doors has various Betsy Head dedication dates incised and silvered in the Art Deco style; the inset is the size of the other single door openings in the lobby. On the women's locker room side to the left of the double doors is a recess once used for telephones (incised and silvered Art Deco-style letters above read "T E L E P H O N E"), but is now occupied by a vending machine. To the right of the double doors is a single non-historic metal door (historically wood) with incised and silvered Art Deco-style letters "F I R S T A I D" above. Although the 1939 drawings for the new bath house indicate that the original intention was to have the letters "L I F E G U A R D S" above this door, it is unclear if this was later altered or never realized.

**Roof and Canopy.** The main feature of the roof is the historic metal canopy and its eight parabolic arches clad in metal panels. The canopy is largely unaltered although the original drawings and 1939 photographs reveal that smooth cement stucco was applied to the metal lath of the canopy and parabolic arches. The canopy roof appears to have been white while the arches were black. The stucco has since been removed, leaving beams, rivets and other structural elements exposed. The roof canopy and arches sit atop what were once concrete bleachers and are now covered in tar.

*The Pool and Deck Area*

Located to the west of the bath house, the Olympic-sized swimming pool forms a rectangle with its long axis running from north to south. To the south of the pool is the rectangular diving pool with its long axis running from west to east. In the swimming pool there are two islands with triangular caps that house the filtration systems (these were historically fountains that were covered in metal to prevent children from climbing on them during the early 1980s renovation). The entire deck is paved in cement. A chain-link fence separates the pool area from the baseball fields and Dumont Avenue. Historic lampposts are located around the

pool: three (excluding one that is missing) on the east side; three (excluding one that is missing) on the south side; seven on the west side; and four on the north side.

**Diving pool.** The diving pool is now filled in and used as a volleyball court, similar to other WPA-era pools. The volleyball court is separated from the swimming pool by a large non-historic chain-link fence. To the east of the diving pool and south of the bath house there is a large open space enclosed by perimeter fence and paved in cement. In the winter the Parks Department uses this area for storage.

**Bleachers and filter house.** To the south of the volleyball court are the concrete bleachers, which have a non-historic metal railing on the east end. Although resurfaced, the bleachers date to the 1917 bath house complex, as do the adjacent Flemish bond brick filter house to the west and the Flemish bond brick wall, stone coping and wrought iron fence at the top of the bleachers. Four lampposts sit atop brick piers that are part of the Flemish bond brick wall (a description of the Livonia Street side of this brick wall can be found below). The filter house has stone coping, red-painted bricks and a non-historic metal door on the pool side. Its west façade has cement and Flemish bond brick with a door that has been filled-in with 5:1 Common bond brick. Attached to the filter house is a Flemish bond brick wall that fronts Livonia Street, in addition to a chain-link fence.

On the Livonia Street side, the Flemish bond brick wall that supports the bleachers has five bull's eye windows that are filled-in with metal. A stone water table runs the length of the wall as does stone coping. The wall also forms the backside of the filter house, which on this façade has non-historic metal double doors with a painted glass-block transom (presumably the glass block was historically left unpainted). A brick soldier course runs the length of the transom. Stone steps and stone sides lead up to the doors. A historic wrought-iron fence runs along the perimeter of the landmark site.

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## *NOTES*

[1] The site was previously heard on April 3, 1990 and September 11, 1990 (LP-1785).

[2] Robert A.M. Stern, Gregory Gilmartin and Thomas Mellins, *New York 1930* (New York: Rizzoli International Publications, Inc., 1987).

[3] Ely Jacques Kahn, "City Play Center for All-Year Use," *Architectural Record*, 90 (September 1941), 84-87.

[4] Portions of this section adapted from LPC, *Astoria Park Pool and Play Center Designation Report* (LP-2196) (New York: City of New York, 2006), prepared by Donald Presa; LPC, *Crotona Play Center Designation Report* (LP-2232) (New York: City of New York, 2007), prepared by Jennifer Most. Sources for this section include "Betsy Head Playground," New York City Park Department Report (1915); "Betsy Head Will," Department of Parks Library, The Arsenal, New York City; Alter F. Landesman, *A History of New Lots* (Port Washington, N.Y.: Kennikat Press, 1977); Wendell E. Pritchett, *Brownsville, Brooklyn: Blacks, Jews, and the Changing Face of the Ghetto* (Chicago: The University of Chicago Press, 2002); Kenneth T. Jackson and John B. Manbeck, *The Neighborhoods of Brooklyn* (New Haven, CT: Yale University Press, 2004); "G.C. Taylor Stricken," *New York Times (NYT)*, July 16, 1902, 1; "Mrs. Betsy Head Dead," *NYT*, June 15, 1907, 9; "Betsy Head Cash for a Playground," *NYT*, Dec. 3, 1908, 5; "New Brownsville Playground Planned as Most Elaborate in City," *NYT*, May 17, 1914, SM8; "Analyze Effect of Playgrounds On Valuations of Near-by Realty," *NYT*, July 8, 1928, 134; Dorothy Dunbar Bromley, "City Children to Have New Play Fields," *NYT*, May 6, 1934, XX2; "Moses Sees Doom of Park Inn Dances," *NYT*, June 12, 1934; "Park Pools Turned into Skating Rinks," *NYT*, Sept. 21, 1936, 25; "Pools Now Playgrounds," *NYT*, Oct. 7, 1936, 19; "Fire in Park Building," *NYT*, Aug. 18, 1937, 11; "City Park Revenue $753,467 This Year, *NYT*, Sept. 12, 1938, 19.

[5] Betsy Head Park consists of two blocks diagonally across from each other: Block 3570, Lot 1 (8.262 acres) and Block 3558, Lot 1 (2.293 acres). The play center is located on Block 3570.

[6] In 1912, the sections of Amboy and Herzl (formerly Ames) Streets located between Dumont and Livonia Avenues were closed in order to create Betsy Head Park. "Betsy Head Memorial Playground" file, Department of Parks Library, The Arsenal, New York City.

[7] "New Brownsville Playground Planned as Most Elaborate in City"; "Daughter Gets $5 of $365,000 Estate," *New York Times*, July 14, 1907, C8. The widow Betsy Head, an English native, had been living at the country home of George C. Taylor in Long Island as his housekeeper, and her daughter Lena was his ward. Upon learning that Lena had married Taylor's foreman, William Frederick Bodily, Betsy disowned her and left her only five dollars in her will. The remaining $365,000 estate was bequeathed to several New York City institutions and to the City of New York, which received $187,746.84. This sum, originally planned for a playground in Corlears Hook Park on Manhattan's Lower East Side, was used in 1914 for the creation of Betsy Head Park in Brownsville, Brooklyn. Betsy Head died in 1907 and her remains are located in a mausoleum adjacent to that of George C. Taylor in Woodlawn Cemetery in the Bronx, New York.

[8] Henry B. Herts was a prominent theater architect whose designs included the Shubert Theater, Booth Theater, and Longacre Theater in the Times Square area of Manhattan, all of which are designated New York City Landmarks. He also served for a time as the architect for the Playground Commission of New York City. "H. B. Herts Dead; Noted Architect," *NYT*, Mar. 28, 1933, 19.

[9] This section adapted from LPC, *Astoria Park Pool and Play Center Designation Report*; LPC, *Crotona Play Center Designation Report.*

[10] More than 10,000 of the City's 29,000 manufacturing firms had shut down, and the unemployment rate skyrocketed to over thirty percent. An estimated 1,600,000 people in New York City were receiving public assistance. Robert Caro, *Robert Moses and the Fall of New York* (New York: Random House, Inc., 1974), *323*.

[11] By the 1920s, the recreational needs of people were changing with the increase in leisure time afforded by the advent of shorter work weeks, paid vacations, and greater mobility due to inventions such as the car. The addition of active recreation to city parks was in direct keeping with popular theories on the importance of providing the public

with outlets for active recreation over passive recreation in these changing times. The Great Depression of the 1930s further amplified such needs.

[12] Cleveland Rodgers, *Robert Moses: Builder for Democracy*, 1st ed. (New York: Henry Holt and Co., 1952), 82.

[13] A staff of 1,893 architects, engineers, landscape architects, and technicians was employed at the peak of the work. See Rodgers, 84. Moses later came under fire by a number of city aldermen for hiring people for the Parks Department's technical staff who did not meet the guidelines for relief work. Moses vigorously defended this practice, calling the investigation "Tammany-controlled." *NYT*, Apr. 10, 1935, 1; Apr. 20, 1935, 4.

[14] Work is ongoing as to whether Robert Moses did actively discourage minorities from using Parks Department facilities such as the WPA-era swimming pools. Also see: Caro, and Hillary Ballon and Kenneth T. Jackson, eds, *Robert Moses and the Modern City: The Transformation of New York* (New York and London: W.W. Norton & Company, 2007).

[15] During Moses' first year as Parks Commissioner, the Department spent over $90,000,000 ($1.2 billion in 2005 dollars) for work relief projects, most of which was provided by the Federal government. New York City was the largest single recipient of Federal largesse during the course of the New Deal. It has been estimated that the city received one-seventh of the total national outlay. See Rodgers, 84-85.

[16] This section adapted from LPC, *Astoria Park Pool and Play Center Designation Report*; LPC, *Crotona Play Center Designation Report.*

[17] Robert Moses, "Parks and Recreation in New York," transcript of the proceedings of the National Recreation Association (1947), 20-21.

[18] See "23 Bathing Pools Planned by Moses," *NYT*, July 23, 1934, 17; Robert Moses "Press Release: Public Swimming Facilities in New York City," July 23, 1934.

[19] In the order of their inauguration, the eleven WPA-era pools included: Hamilton Fish Play Center (Manhattan), Thomas Jefferson Play Center (Manhattan), Astoria Play Center (Queens), Joseph Lyons (Tompkinsville) Play Center (Staten Island), Highbridge Play Center (Manhattan), Sunset Play Center (Brooklyn), Crotona Play Center (Bronx), McCarren Play Center (Brooklyn), Betsy Head Play Center (Brooklyn), Jackie Robinson (Colonial Park) Play Center (Manhattan), and Red Hook Play Center (Brooklyn).

[20] The Hamilton Fish Play Center bath house, designed by Carrère & Hastings in 1898, was designated a New York City Landmark in 1982. The original 1914 bath house structure at Betsy Head was destroyed by fire shortly after the 1936 opening of the pool, and was rebuilt in 1939.

[21] This section adapted from LPC, *Astoria Park Pool and Play Center Designation Report*; LPC, *Crotona Play Center Designation Report*. Architectural Historian Marta Gutman has studied the issue of race at the swimming pools and believes that the issue of segregation and racial mixing was more complex than Caro states. Her work is due to come out in a forthcoming issue of the Journal of the Society of Architectural Historians. See Marta Gutman, "Race, Place, and Play: Robert Moses and the WPA Swimming Pools in New York City," Journal of the Society of Architectural Historians 67 (December 2008): in press.

[22] Walter Thabit, *How East New York Became a Ghetto* (New York: New York University Press, 2005), 39.

[23] "25,000 at Opening of Harlem Pool," *NYT*, Aug. 6, 1936, N6.

[24] See Caro, 514; Ballon and Jackson, 70-71.

[25] Caro, 514.

[26] Ballon and Jackson, 81.

[27] Ibid.

[28] Research currently being conducted indicates that the racial composition of pool users may have actually been more complex, and dependent on a variety of factors, including the entrance fee structure, which varied depending on the age of the swimmer as well as the time of day. Also see: Caro…*The Power Broker* and Ballon and Jackson…*Robert Moses and the Modern City: The Transformation of New York.*

[29] Pritchett, 95.

[30] Ibid, 92.

[31] This section adapted from LPC, *Astoria Park Pool and Play Center Designation Report*; LPC, *Crotona Play Center Designation Report*. Sources for this section include Betsy Head Play Center, plans and blueprints on file at the Olmsted Center, Flushing, New York; "Building Plans Filed," *NYT*, May 25, 1938, 40; Department of Parks, press release, Aug. 5, 1936.

[32] Moses encourages his engineers to innovate more efficient heating and filtering plants, and underwater lighting that were revolutionary developments in pool technology. Caro, 456.

[33] Ibid.

[34] "Hey! Skinny, the Pool's Open," *Brooklyn Daily Eagle,* Aug. 7, 1936, 3.

[35] Ballon and Jackson, 151-152.

[36] "City Pool is Opened without Ceremonies," *NYT*, Aug. 8, 1936, 15.

[37] Ibid.

[38] Robert Moses, letter to Honorable Fiorello H. LaGuardia, Aug. 20, 1937, Department of Parks Library, The Arsenal, New York City.

[39] This section adapted from LPC, *Astoria Park Pool and Play Center Designation Report*; LPC, *Crotona Play Center Designation Report*.

[40] They are the Colonial Park Pool and Play Center in Manhattan, the Crotona Park Pool and Play Center in the Bronx, the Tompkinsville Pool and Play Center in Staten Island, and the McCarren Park Pool and Play Center and the Red Hook Pool and Play Center in Brooklyn.

[41] Portions of this section adapted from LPC, *Astoria Park Pool and Play Center Designation Report*; LPC, *Crotona Play Center Designation Report*. Sources for this section include: Charles Seaton, "Renovated Pool is Open," *Daily News*, June 29, 1983, K3.

[42] Dave Anderson, "A Different Brownsville Champion," *NYT*, Nov. 15, 1992, S1.

[43] City of New York Office of the Mayor, press release, 28 June 1983, Department of Parks Library, The Arsenal, New York City.

[44] New York City Department of Parks and Recreation, 1986.

[45] Moses, 20-21.

[46] Stern, 717.

[47] Kahn, 84-87.

[48] Robert Moses, letter to New York City Board of Estimate, 28 June 1938, Department of Parks Library, The Arsenal, New York City.

## FINDINGS AND DESIGNATION

On the basis of careful consideration of the history, architecture, and other features of the building and site, the Landmarks Preservation Commission finds that the Betsy Head Play Center has a special character and a special historical and aesthetic interest and value as part of the development, heritage, and cultural characteristics of New York City.

The Commission further finds that, among its important qualities, the Betsy Head Play Center is one of a group of eleven immense outdoor swimming pools which were opened in the summer of 1936 by Mayor Fiorello LaGuardia and Parks Commissioner Robert Moses; that it was constructed with funding provided by the Works Progress Administration; that the play center officially opened on August 7, 1936 and became the ninth WPA pool to open throughout New York City that summer; that it was built to accommodate 5,500 swimmers; that Betsy Head Park, established in 1914, in the Brownsville section of Brooklyn was the city's first recreation facility designed to include a public outdoor swimming pool and bath house, which later was replaced by the much larger swimming and diving pools; that the 1914 bath house, a substantial twin-gabled building, was originally retained, but following a fire in 1937, was replaced by the present bath house designed by John Matthews Hatton and completed in 1939; that, like Hatton's earlier design for the Astoria Play Center, the bath house is distinguished by the extensive use of recessed glass-block walls for the locker room portions of the bath house, making the structure translucent in these sections to a surprising degree; that equally striking is the rooftop observation gallery with its parabolic arches which support a broad, flat roof; that the main entrance is distinguished by its relatively lavish materials of polished black marble wall facings, curved corner sections of glass block, and slate paving; that the original and creative use made of modest materials and forms, and the careful siting of the facility, make it a distinguished, individual design; and that the complex, along with the other WPA-era pools, was a major accomplishment of engineering and architecture, and is recognized as being among the most remarkable public recreational facilities ever constructed in the United States.

Accordingly, pursuant to the provisions of Chapter 74, Section 3020 of the Charter of the City of New York and Chapter 3 of Title 25 of the Administrative Code of the City of New York, the Landmarks Preservation Commission designates as a Landmark the Betsy Head Play Center, Thomas Boyland Street (Hopkinson Avenue) between Livonia and Dumont Avenues, Brooklyn, and designates Borough of Brooklyn Tax Map Block 3570, Lot 1, and portions of the adjacent public way, consisting of the property bounded by a line extending northerly from the intersection of the western curbline of Thomas Boyland Street (Hopkinson Avenue) and the northern curbline of Livonia Avenue to the southern curbline of Dumont Avenue, westerly approximately 285 feet along the southern curbline of Dumont Avenue to a point along the southern curbline of Dumont Avenue to a point along the southern curbline of Dumont Avenue which intersects with a line extending northerly from the chain link fence which runs along the western side of the Betsy Head swimming pool complex, continuing southerly along that line and along the chain link fence which runs along the western side of the Betsy Head swimming pool complex to the northern curbline of Livonia Avenue, and easterly along the northern curbline of Livonia Avenue to the point of beginning as its Landmark Site.

Robert B. Tierney, Chair
Pablo E. Vengoechea, Vice-Chair
Frederick A. Bland, Stephen F. Byrns, Diana Chapin, Joan Gerner, Roberta Brandes Gratz, Christopher Moore, Margery Perlmutter, Elizabeth Ryan, Roberta Washington, Commissioners



**Betsy Head Play Center**
Thomas Boyland Street (Hopkinson Avenue) between Livonia and Dumont Avenues, Brownsville, Brooklyn
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Main entrance, Thomas Boyland Street (Hopkinson Avenue)
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Men's shower room and stairs to roof deck (now enclosed)
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Bath house and swimming pool
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Lobby (view from pool side) with central brick pier; ticket booth behind
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
View from roof deck of filled-in diving pool (now volleyball court) and bleachers
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Parabolic arches, roof canopy and roof deck
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Detail of glass block lighting feature on roof deck
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Portion of roof deck seating area and swimming pool
*Photo: Christopher D. Brazee, 2007*







**Betsy Head Play Center**

Entrances to men's and women's shower rooms, formerly clad in glass block

*Photo: Christopher D. Brazee, 2007*




**Betsy Head Play Center**
Men's shower room
*Photo: Christopher D. Brazee, 2007*



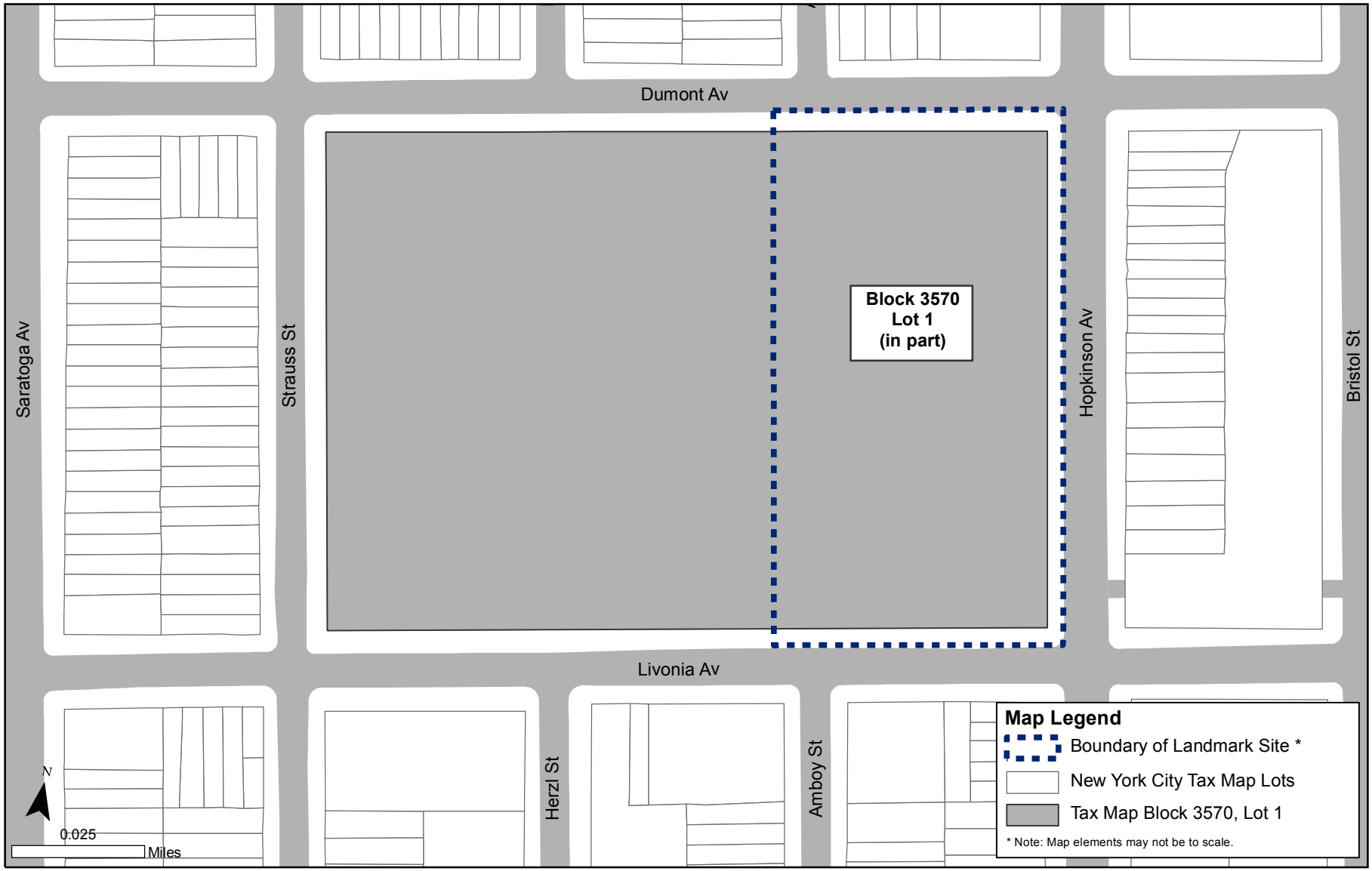

**Betsy Head Play Center**
Women's shower room
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Detail of glass block and concrete window bay with incised wave-like design
*Photo: Christopher D. Brazee, 2007*



**Betsy Head Play Center**
Pool deck with chain link fence separating the play center from the rest of the park
*Photo: Christopher D. Brazee, 2007*




BETSY HEAD PLAY CENTER [LP-2240], including the bath house, swimming pool, diving pool, bleachers and filter house, and perimeter cast-iron fencing; Thomas Boyland Street (Hopkinson Avenue) between Livonia and Dumont Avenues. Borough of Brooklyn, Tax Map Block 3570, Lot 1 in part, and portions of the adjacent public way (see designation report for detailed boundary description).

Designated: September 16, 2008

Graphic Source: New York City Department of City Planning, MapPLUTO, Edition 06C, December 2006.
Author: New York City Landmarks Preservation Commission, JM.

Landmarks Preservation Commission
April 14, 2015, Designation List 480
LP-2568

**Brooklyn Public Library Stone Avenue Branch**, 581 Stone Avenue (aka 581-591 Mother Gaston Boulevard, 372-382 Dumont Avenue), Brooklyn**.**
Built: 1913-1914; William B. Tubby, architect.

Borough of Brooklyn Tax Map Block 3794, Lot 18

On April 7, 2015 the Landmarks Preservation Commission held a public hearing on the proposed designation as a Landmark of the Brooklyn Public Library Stone Avenue Branch and the proposed designation of the related Landmark Site (Item No. 1). The hearing was advertised in accordance with the provisions of law. At that hearing there were five speakers in favor of the designation, including Council Member Darlene Mealy, David Woloch, Vice President of External Affairs of the Brooklyn Public Library, and representatives from the Historic Districts Council, Society for the Architecture of the City, and Citizens Defending Libraries. There were no speakers in opposition to the designation.



Summary

The Stone Avenue branch of the Brooklyn Public Library opened in September 1914, with the construction funded as part of Andrew Carnegie's gift to the institution. Designed by the noted Brooklyn architect William B. Tubby, it was originally known as the Brownsville Children's Library and is believed to be the only public library of its kind, exclusively serving "grammar and primary grade children." It was conceived by educator Clara W. Hunt, who served as the Brooklyn Public Library's "Superintendent for Work with Children" for 36 years. Designed in the Jacobean Revival style, with a squat corner tower, the tapestry brick facades which incorporate prominent recessed entrances, multi-paned windows, and various stone carvings that express the structure's original use, such as the seal of the Brooklyn Public Library and various small panels illustrating characters in children's literature, such as Aladdin, Robin Hood, and the rabbit from Alice in Wonderland. The partially crenellated parapet contains panels with printer's marks, representing the origins of the printed book. Tubby, who served on the Architects' Advisory Commission for the Brooklyn Carnegie libraries, designed five branches in the borough, including the DeKalb Branch, a New York City Landmark. In 1929, the Brownsville library expanded its mission and began to serve teenagers. In subsequent years, the Stone Avenue branch became a popular meeting place for local organizations, including the Girls Club and the Brownsville Boys Club. Since 1981, the second story has been home to Heritage House, a multi-cultural center founded by community activist Rosetta Gaston.

## DESCRIPTION

Description

The Stone Avenue branch of the Brooklyn Public Library is a free standing red tapestry brick and Indiana buff limestone building set on a corner lot, at the intersection of Mother Gaston Boulevard (Stone Avenue) and Dumont Avenue. A possibly historic iron fence partially encloses the site. The library is built to the lot line, and features a projecting corner tower with stone steps leading to two entrance doors. A three-bay wide wing extends out from the middle of the rear wall. The building is topped by a flat roof.

A heavy stone water-table anchors the façade. A projecting brick tower with two doorways and two oriel bay windows is located on the northwest corner. Possibly historic stone staircases with iron railing lead to the doors. Carved stone label molding are at each entrance bay, a stone transom bar separates the tall, multi-paneled wooden doors from the transom window with six glass panes divided by wooden muntins. Above each doorway is the Brooklyn Public Library seal carved in stone.

Corner tower

Historic Features: brickwork; limestone base and steps, corner tower's second story two multi-pane oriel windows, tapered stone base and two small corbels. Stone mullions divide each bay window into three sections. Carved stone label molding and a decorative chamfer cornice at the tower feature carvings referencing characters from children's literature: Aladdin's lamp, Robin Hood's cap, and Alice's rabbit, oak leaves, and acorns separate the second floor from the brick parapet; above the windows are carved stone coats of arms on each side of the tower; of the State of New York, New Amsterdam, New York City, Christopher Columbus and George Washington. Followed by a decorative parapet crenellation that contains carved printer's marks chosen to represent the printed book, a stone cornice crowns the parapet, and continues around the entire building.

Alterations: Non-historic double-leaf wood doors; non-historic iron railings and light fixtures at entrances.

Mother Gaston Boulevard West façade

Historic Features: brickwork, limestone water-table base and trim, tall vertical ribbon casement windows, stone mullions, two brick-and-stone buttresses, horizontal stone tablet; decorative carvings, stone carvings of fleur-de-lis and rosettes, two fir trees, Robin Hood's cap and arrows, relief depicting an open book. Secondary entrance; stone label molding enframements at all second floor casement windows; second band runs parallel to the top of the windows with decorative carvings between each window, of a rabbit, a sword (Excalibur), a bird (Aesop Fables), a cap and spear (Mercury's), and a donkey. A projecting stone chamfer cornice runs the width of the façade wraps the building and separates the second floor from the brick parapet. Topped by a decorative parapet crenellation that contains carved printer's marks, a stone cornice crowns the parapet, and continues around the entire building.

Alterations: wire mesh at most first floor windows; non-historic iron railings; light fixtures, metal double-leaf door and signage at secondary entrance.

Site features: stone recessed stairs and recessed secondary entrance with metal door surrounded by stone curb with possibly historic iron fencing.

North façade (Dumont Avenue)

Historic Features: brickwork, limestone base and steps; tall vertical ribbon casement windows with molded stone muntins, large center windows, flanked by smaller multi-pane casement windows and door stone enframements featuring stone label molding. A stone band runs the width of the second-story façade and acts as sills for all windows at this level. Four rectangular casement windows with stone label molding enframements, multi-pane windows are divided by stone muntins. A second stone band runs parallel to the top of the windows and contains small decorative carvings between each window with a Cheshire cat, and owl, and a seahorse. A stone chamfer cornice runs the width of the façade and wraps the building. Parapet crenellation with stone printer's marks panels, and a stone cornice crowns the parapet, wraps the building.

Alterations: Non-historic double-leaf wood doors; non-historic iron railings; light fixtures at entrances; windows replaced.

Site features: Stone ramp leads to the first floor tower entrance surrounded by stone curb with possibly historic iron fencing.

South façade

Historic Features: brickwork, and limestone base. First and mezzanine floors contain two sets of small, recessed windows with stone lintels and sills. A single, multi-paned casement window at the second floor, wide stone band runs the width of the façade and acts as sills for windows, and a stone chamfer cornice and brick parapet.

Alterations: brick and stone addition; two first floor 1/1 casement windows with stone lintels and sills, and two large louvered vents with stone lintels and sills at second floor; stone banding and cornice. The eastern façade of the addition contains three rectangle windows with stone lintels and sills at the first floor; smaller windows at mezzanine floor; and one multi-pane window with stone muntins, label molding and sills at second floor.

Site Features: a narrow concrete walkway and grassy areaway with a wood pergola and incorporated seating surrounded by chain-link fencing.

East façade

Historic features: brickwork, and limestone base. Two first floor multi-pane, rectangular, casement windows with stone muntins and enframements, historic one-story brick and limestone extension flanked by two multi-pane windows with stone enframements, second floor stone banding acts as sills for windows; seven multi-pane windows with stone muntins and label moldings at the second floor, stone chamfer cornice, brick parapet, possibly historic copper downspouts at the cornice, parapet crenellation with carved printer's marks, and a stone cornice at parapet.

Extension

Historic features: one-story extension of brick, with a limestone base; two multi-pane, rectangular, casement windows with stone muntins and enframements at north and south sides. East façade is brick; projecting stone chamfered cornice wraps the building on three sides, with possibly historic copper downspouts at cornice, brick-and-stone parapet.

Alterations: some windows replaced; second floor window enlarged to accommodate metal door; two-story metal fire escape.

Site features: large planted areaway and wide bluestone areaway with stone stairs, secondary entrance with metal door stone label molding enframements; possibly historic iron fencing and chainlink fencing.

## SITE HISTORY

History of Brownsville[1]

The neighborhood of Brownsville is named for Charles S. Brown who purchased land in the area beginning in 1865. New York City real-estate developer Aaron Kaplan's decision to build tenements there in 1887, as well as the construction of the Fulton Street elevated railway in 1889 and the Williamsburg Bridge in 1903, resulted in the transformation of Brownsville into an urban community of mostly Eastern European Jews employed in the garment and building trades. In 1925, the Jewish population in Brownsville and neighboring East New York amounted to the largest concentration of that religious group in New York City. Russian, Polish and Italian immigrants also settled in Brownsville. The Hebrew Educational Society (HES), founded in 1899 to help assimilate Jewish immigrants, opened the first library and reading room in the neighborhood. Brownsville thrived during the early part of the 20th century to the late 1940s, and spurred the political interest of the residents; many were involved in labor radicalism, electing a candidate to the state assembly in 1915 and 1921 and socialists electing a candidate from the American Labor Party in 1936.

A small number of African Americans had lived in eastern Brooklyn since the early 1800s. Beginning in the 1920s, affordable housing attracted more African Americans, and their presence in the neighborhood increased in subsequent decades, particularly after the Second World War. By the first decade of the 20th century, Brownsville had become a densely-populated neighborhood.[2] As early as 1920 there were 253 working-class black families living in Brownsville, census records reveal that these families maintained a relatively stable existence: the men worked full time as laborers, dock longshoremen; the women were homemakers and children attended school.[3] By 1930, the African-American population rose from 253 to 5,062. However, African Americans in Brownsville had no important organizations of their own before the 1930s and many black residents traveled to Bedford-Stuyvesant to worship and socialize. Gradually this began to change, St. Paul's Baptist Church, Brownsville's first African-American church, was founded in 1927. In the later part of the 1920s and into the 1930s the number of black churches in Brownsville, mostly Baptist, would rise to almost 40 African-American churches.[4]

Despite the resentment of some local white residents, African Americans lived in Brownsville without incident. Unlike other New York neighborhoods, there were no threats or attacks upon black families and that alone made Brownsville a more desirable neighborhood for African Americans.[5]

By 1940 Brownsville was home to nearly 8,000 African Americans, a little over six percent of the population. The overwhelming majority lived in the oldest section of the neighborhood with the most decrepit housing stock. After the Second World War, Robert Moses proposed the construction of public housing for the area to replace the aging building stock. By 1950 the African-American population in Brownsville totaled 14,209 and would continue to grow, despite the fact that Jewish residents continued to dominate the district in the years just after the war.[6]

During the optimistic years of the 1940s and 1950s Brownsville became a more diverse community where progressive politics and racial integration were evident at the social centers of the community including Betsy Head pool, (a New York City Landmark) with its integrated pool and lifeguard staff. Black and white children were separated by gender only and not by race, sharing locker rooms and the pool deck.[7] The Brownsville Children's Library was open to all children regardless of race. The Brownsville Boys Club maintained an integrated softball team throughout the 1940s that forged solidarity among its members.

By the 1960s, the Jewish population was in rapid decline, this was accelerated by an influx of African Americans mainly of Caribbean origins. By 1968 only 5,000 Jews remained in the neighborhood and most were elderly.[8] Throughout the late 1960s to mid-1980s, Brownsville faced even more challenges, as crime and violence took a heavy toll on the neighborhood. However, in the late 1990s community-based organizations grew and increased their advocacy services, crime decreased dramatically, thus, increasing economic stability to the Brownsville neighborhood.

Today Brownsville is home to over 86,000 residents, and has one of the largest concentrations of public housing in the nation.[9]

Brooklyn Libraries[10]

Early in the 19th century, a number of small libraries and library associations (both free and subscription) were started in Brooklyn. The first seems to have been a commercial circulating library begun in 1809 by Joseph Pierson; around that same time the Brooklyn Union Sabbath School also made books available to its students. While neither of these endured, they represent the beginning of numerous attempts to create collections of reading material for Brooklyn's growing population. The first free library in Brooklyn was the Apprentices' Library, founded by Augustus Graham in 1823, and incorporated in 1824 as the Brooklyn Apprentices' Library Association.

Near the middle of the 19th century, two additional subscription or membership libraries opened: the Brooklyn Athenaeum Library, and the Brooklyn Mercantile Library. Before long, these two organizations merged and were housed in the Brooklyn Athenaeum on the comer of Atlantic and Clinton Streets. In 1867, ground was broken on Montague Street for a new building for the Mercantile Library Association; in 1878 its name was changed to The Brooklyn Library.[11] This private organization received part of its funds from the City of Brooklyn and thus the library was free for persons "of good character who were duly recommended."[12] The library was given to the people of Brooklyn in 1882.

The Brooklyn Public Library was established in 1892 by an act of the New York State Legislature, as a department of the city government, to be administered by a board of directors. The first branch of the new system opened in 1897 in a former public school building in the Bedford section. Despite the absorption of the City of Brooklyn into Greater New York in 1898, the Brooklyn Public Library remained independent from the New York Public Library. Between 1898 and 1901, Brooklyn developed a 16-branch system, incorporating both new and existing libraries, as well as an Administration Headquarters and Traveling Library Department. An agreement between the Brooklyn Public Library and the City of New York in 1902 (ratified in 1903) arranged for the management of the Brooklyn Public Library to be handled by a new private corporation with its own Board of Trustees, also to be called the Brooklyn Public Library. After this, the still-private Brooklyn Library deeded all its property, including its special

collections and endowment funds to the new corporation, adding considerably to the stature of the institution.

The Andrew Carnegie Gift [13]

At the end of the 19th century, libraries were seen as an important means of improving the lives of poor Americans and new immigrants, and considerable effort was spent to make them available in working class neighborhoods, along with parks, playgrounds, and public baths. Because of the connotation of self-improvement, libraries were often favored with gifts from wealthy individuals. Andrew Carnegie, who had been a poor "working boy" in Pennsylvania and was the exemplar of the self-made man, attributed much of his success to the hours he spent in the private library of Colonel James Anderson.[14] He was continuing a popular charitable tradition when he decided, in 1881, to use a portion of his vast wealth to donate library buildings to some of his favorite towns. He began with towns with which he had a personal connection, such as Dunfermline in Scotland, where he was born, and Allegheny City, Pennsylvania, where he lived after immigrating to this country.

During the last years of the 19th century, Carnegie expanded his grant process, donating 26 libraries in 1899, with a total of 204 by 1903. Using the practical abilities he developed during his business career, Carnegie, demanded that the localities acquire the sites and tax their populations to provide money for books and upkeep in return for his gift, which would be used to construct the actual buildings. Through his Carnegie Corporation, established in 1911 and one of the first such philanthropic foundations, he institutionalized his generosity, with the goal of improving the standard of living of the working poor. By 1917, Carnegie had given over $41 million to more than 1,400 communities (mostly small towns) throughout the United States for the construction of 1,680 library buildings.

By basing his gifts on specific criteria, Carnegie was able to remove the sense of paternalistic charity so often found in earlier donations. He was also able to impose certain design aesthetic and, after 1908, allowed his secretary to approve all library designs. As a result, there is a general harmony and continuity among the numerous Carnegie libraries. He insisted, and the local government concurred that they be modest rather than extravagant, with practical interior planning to get the best value for his money. While each building is distinct, there are similar design characteristics among the Carnegie branches. In Brooklyn they are freestanding masonry buildings faced with red brick and limestone trim.[15] One or two stories high, they have visually prominent, entrances reached by a flight of stairs, the style of most of the buildings was classical, with stone ornament consisting primarily of columns, pilasters, pediments, cornices, quoins, and keystones. Large windows take up much of the facades. In addition, Carnegie was concerned with the siting of the libraries and wanted them to stand out as libraries with a central location, preferably close to other institutions such as schools or YM/YWCA's.

> It was felt that it was desirable to establish the libraries as far as possible, in conspicuous positions on well-frequented streets.... The fact that a branch library is constantly before the eyes of the neighboring residents so that all are familiar with its location will undoubtedly tend to increase its usefulness.[16]

Although Andrew Carnegie lived in New York City and served for many years as a trustee of the New York Free Circulating Library, at first he considered the city's system too wealthy for his gift. By 1901, however, he changed his mind and offered to fund the branch

library system for New York City. Between 1901 and 1929, Carnegie donated $5.2 million for 67 branch library buildings in all five boroughs. Of that amount, the Brooklyn Public Library received $1.6 million.

The Brooklyn Carnegie Libraries

In 1901, the Brooklyn Public Library, the New York Public Library, and representatives of Andrew Carnegie reached an agreement which called for the construction of 20 branch libraries in Brooklyn.[17] A committee was appointed to select the sites for these buildings and to oversee their construction. The Carnegie Committee was chaired by David A. Boody (former Mayor of Brooklyn and President of the Board of Trustees of the Brooklyn Public Library), with members Daniel W. McWilliams, John W. Devoy, and R. Ross Appleton.

For the designs of these branches, the Carnegie Committee first hired Professor A.D.F. Hamlin of Columbia University as consulting architect.[18] Hamlin established an Architects' Advisory Commission consisting of the following individuals or firms from Brooklyn: Lord & Hewlett, R. L. Davis, Walker & Morris, Raymond F. Almirall, and William B. Tubby, future architect of the Brownsville Children's Branch Library. Hamlin's goal was to create a "unity of general type and character ... without the sacrifice of that individuality which gives interest to a design." The procedure called for each of the five architects on the advisory commission to create a preliminary design for one branch, in consultation with the entire commission, a librarian, and Hamlin himself, thus gaining the collective wisdom and judgment of the entire group. These preliminary designs would then go to the Carnegie Committee to help them reach conclusions about what features and requirements would be needed at all the libraries. The committee would frame final instructions for the architects who would prepare the working drawings. After this, the rest of the 15 branches would be assigned to the architects.

The Stone Avenue Branch[19]

The formerly private Brooklyn Library collection, in addition to several small independent libraries, formed the core of the Brooklyn Public Library by 1902. These independent facilities, including Brownsville, Bedford, Fort Hamilton, Washington Irving, and Flatbush, were soon housed in Carnegie buildings.

Brownsville was distinct from other Brooklyn neighborhoods in that it had two Carnegie libraries. The first was the Brownsville Branch, at 61 Glenmore Avenue which opened in 1908.[20] Located in the heart of the immigrant community, the library had signs in Yiddish, and English books translated into Yiddish and by 1909, the annual circulation was 330,000—the largest of any library in Brooklyn.[21]

To ease overcrowding and decrease demands on the facility the library administration proposed an additional children's branch. [22] The "Children's Branch" library was the 19th of 24 Carnegie branches of the Brooklyn Public Library, and was completed in 1914. It opened its doors to all children below high school age, and was the first library of its kind in the country dedicated solely to children.[23] The cost of the site was $15,000 and the total cost with construction and its furnishings was $87,206. The first Superintendent of the Children's Department of the Brooklyn Public Library, Clara W. Hunt, collaborated directly with the architect W.B. Tubby & Sons as well as planners to specifically make the building a children's branch. On September 24, 1914 the Brownsville Children's Library officially opened, equipped with over 8,000 volumes.[24] In 1929 the branch extended its resources to teenagers, and became the meeting place to several organizations, including the Girls Club and the Brownsville Boys

Club, which held planning meeting here for several years. In 1937 the Library Association of America held its annual convention in New York City. Its members, impressed with its innovations toured the Brownsville Children's Library and acknowledged it as one of the most outstanding juvenile institutions in the United States.[25] After World War II, the neighborhood experienced great change, tenements were raised to give way for low-income housing projects and the population was uprooted and resettled. Juvenile readership declined, and the name was changed to the Stone Avenue Branch. At this time, the institution started to serve patrons of all ages, and has continued to serve the Brownsville community.

Design and Construction

The Brooklyn Public Library's first Carnegie branch in Brownsville quickly became the busiest branch in the borough, and library officials contemplated expanding the structure or building a second branch in the area. The Stone Avenue site was acquired in 1912 and the budget was approved in January 1913. Contracts were signed in July 1913 and by the end of the year construction was underway. The library opened on September 24, 1914. The cost was $87,000. F. J. Kelly's Sons, who built two earlier Carnegie branches with Tubby, was the contractor.[26]

For the working-class residents of Brownsville, William Tubby & Sons produced a "fairy-tale" building.[27] Clara W(hitehill) Hunt (1871-1958) helped plan the library and is likely to have played a role in choosing the images that enliven the facades. Hunt worked for the Brooklyn Public Library as "Superintendent of Work with Children" for 36 years, organizing the children's rooms in each new branch. In a 1914 article, she thanked J(osiah) T. Tubby, Jr. (1875-1958), who worked with his older brother, William Tubby, after attending the Ecole des Beaux Arts in Paris.[28] Hunt described the Brownsville library as "wonderfully fine, attractive and satisfactory."[29]

Embellished with castle-like features, Tubby designed a monumental civic structure that stood out from the neighborhood's tenements, frame buildings, and pushcarts. Though Hunt described the library as "Collegiate Gothic" – a style associated with many 19th and early 20th century American schools – Tubby's design is closer to the Jacobean Revival (or Jacobethan) style.[30] During the Jacobean period in early 17th century England, many grand houses were built combining various Gothic, Renaissance, and Mannerist motifs. Notable examples include: Charlton House (c. 1607-12) and Hatfield House (c. 1611). Though aspects of the style were revived during the late 19th century, the Jacobean style had limited impact in urban areas. Exceptions include Tubby's William H. Childs Mansion (1900-03) in the Park Slope Historic District and 1025 Park Avenue (1905, a New York City Landmark). Typical design features included brick facades with stone trim, distinctive gables, bay windows, casement windows with leaded glass, and heraldic sculptural elements.

Faced with red-and-black tapestry brick and contrasting Indiana limestone, Tubby's exterior incorporates many elements associated with the Jacobean Revival style. These include a squat corner tower, elaborate door and window surrounds with drip moldings, projecting bay windows, stone buttresses, mullions and muntins, as well as a partially crenellated parapet. The elevations that face the street are also enlivened by relief panels and decorative moldings. Installed where they would be most visible, the greatest concentration is on the sides of the tower, as well as above the rear entrance facing Stone Avenue.

Hunt, in consultation with the architects, developed the iconographic program that identifies the building and its pioneering educational mission. Executed in low relief, these elements were intended to interest the library's young readers and are credited to E(ugene)

Romero, who produced the models, and the firm Rochette & Parzini, who did the carvings. The Stone Street façade originally featured a carved sign with Gothic-style lettering (now covered), flanked by the small carvings of the initials AC and FPH -- Andrew Carnegie, who financed the branch, and Frank P. Hill, the chief librarian. Other vertical panels illustrate the seal of the library, as well as that of the United States, New York State, among others. Between the windows on the upper story are small sunken reliefs inspired by children's literature, such as the rabbit in *Alice in Wonderland* and King Arthur's sword in the anvil. At the top of the façade are groups of printer's marks. These incised emblems may have been chosen for their association with early children's literature or, more likely, the origins of the printed book.

Children ascended a short flight of steps to enter the corner vestibule (the interior is not landmarked). To the right, on Dumont Avenue, was the registration desk, while on the left, adjoining Stone Avenue, the loan desk. These long, narrow spaces were planned to control circulation. Not only did they permit children to "come in under cover" but it prevented the "incoming and outgoing crowd from interfering with one another."[31] Most of the floor was occupied by a spacious double-height reading room containing a reference desk and fireplace. Surrounded by windows on most sides, *The Brooklyn Eagle* observed: "The ceilings are high and the windows are long and wide, so as not to exclude one single sunbeam that wants to come in and enjoy the good times."[32]

William Bunker Tubby (1858-1944)[33]

Born in Des Moines, Iowa, Tubby graduated from Brooklyn Polytechnic Institute in 1875. He worked in the architectural offices of Ebenezer L. Roberts until beginning his own firm in 1883. Continuing this practice until his retirement in 1942, Tubby became a major New York architect, creating important buildings in a variety of styles, and was especially known for his Romanesque Revival style designs. The house he created for Charles Millard Pratt at 241 Clinton Avenue (1893, located in the Clinton Hill Historic District) is one of the city's finest examples of this style. His creativity and expertise can also be seen in several homes in the Park Slope Historic District: the neo-Jacobean mansion designed for William H. Childs (1900-01, 53 Prospect Park West, now the Brooklyn Ethical Culture Society Meeting House), the Romanesque Revival style home at 234 Lincoln Place (1889), and the Queen Anne style row at 864-872 Carroll Street (1887). His institutional designs include the Renaissance Revival style library building for the Pratt Institute, (1896-97, a designated New York City Landmark),[34] the Romanesque Revival style 83rd Police Precinct House in Brooklyn (1894-95, a designated New York Landmark) and the Flemish Revival style Wallabout Market (demolished) a produce market near the Brooklyn Navy Yard. Outside New York City, Tubby created designs for a library and municipal hospital in Greenwich, Connecticut, where he lived, a YMCA building in Westport, Connecticut, the Nassau County Court House in Mineola (1901), as well as numerous houses on Long Island and Connecticut. As a member of the Architects' Advisory Commission for the Brooklyn Carnegie Libraries, Tubby designed five library buildings, the first being the DeKalb Branch (1905), and his last library, designed specifically for children, the Brownsville Children's Library, now the Stone Avenue Branch Library.

Subsequent History

In 1953-1955 the library was renovated, and the roof was rebuilt in 1976 and 1994. Upon completion of a $270,000 renovation in 2014, the Stone Avenue Branch celebrated its centennial.[35]

To better serve the community, a new learning institution, Heritage House was introduced to the Stone Avenue Branch Library in 1981. Rosetta Gaston, born in 1885, was a pioneer, advocate, and community activist. She was devoted to educating youth and fighting for civil rights[36] and founded Heritage House in 1981, a multi-cultural center that focuses on culture, the arts, education and history located in the Stone Avenue Branch library. The Heritage House opened its doors with the goal of educating both young and old about African-American culture. The Heritage House functions as a library/ museum and is home to a variety of books, and historical photographs of prominent African-Americans. Art includes sculptures, graffiti by local artists, and photo collages depicting the history of Brownsville. Stone Avenue was renamed Mother Gaston Boulevard in 1981.

Report prepared by
Theresa C. Noonan
Design section prepared by
Matthew Postal
Research Department

## *NOTES*

[1] The information in this section was taken from: "Brownsville," in *The Encyclopedia of New York,* Kenneth T. Jackson, ed., (New Haven: Yale University Press, 1995), 184-5; Alter F. Landesman, *A History of New Lots* (Port Washington, N.Y.: Kennikat Press, 1977); Wendell E. Pritchett, *Brownsville, Brooklyn: Blacks, Jews, and the Changing Face of the Ghetto* (Chicago: The University of Chicago Press, 2002); Kenneth T. Jackson and John B. Manbeck, *The Neighborhoods of Brooklyn* (New Haven, CT: Yale University Press, 2004).

[2] The information in this section was taken from Rae Glauber, *All Neighborhoods Change: A Survey of Brownsville, Brooklyn, U. S. A.* This is dated 1963 and was found in the Library files, Brownsville, at the Brooklyn Public Library, with no other, more specific identification.

[3] The information in this section was taken from: U. S. Census Bureau, Negro Population in the United States, 1790-1915 (Washington, D. C.: Government Printing Office, 1917); U. S. Census Bureau, Negro Population in the United States, 1920-1932 (Washington, D. C.: Government Printing Office, 1934).

[4] The information in this section was taken from: Clarence Taylor, *Black Churches of Brooklyn,* (New York: Columbia University Press, 1996) 76.

[5] The information in this section was taken from: Alfred Kazin, *A Walker in the City,* (New York: Harcourt Brace, 1951), 141.

[6] The information in this section was taken from: Landmarks Preservation Commission, (LPC) *Betsy Head Play Center* (LP-2240), (New York: City of New York, 2008) prepared by Amanda B. Davis, 6.

[7] The information in this section was taken from: Marta Gutman, "Race, Place, and Play: Robert Moses and the WPA Swimming Pools in New York City," *Journal of the Society of Architectural Historians,* 67, (December 2008), 546-552.

[8] The information in this section was taken from: Ilana Abramovitch and Seán Galvin, *Jews of Brooklyn,* (Hanover, NH : University Press of New England, 2002), 43.

[9] The information in this section was taken from: "A Brownsville Sanctuary, 100 years and Counting,"*The New York Times*, April 18, 1914,

[10] The history of the library system in Brooklyn has been compiled from the following three theses: Margaret B. Freeman, *The Brooklyn Public Library: A History* (New York, Pratt Institute 1966); Marcia McKee, *A Brief History of the Brooklyn Public Library* (New York, 1968); and Louis Feipel, *Historical Information Regarding the Brooklyn Public Library* (Brooklyn, 1937).

[11] This was a different institution from the current Brooklyn Public Library. The Montague Street building was a Victorian Gothic design by architect P. B. Wight.

[12] Feipel, 5.

[13] The information on the Carnegie gift and the libraries built from it was adapted from Mary B. Dierickx, *The Architecture of Literacy, The Carnegie Libraries of New York City* (New York: The Cooper Union for the Advancement of Science and Art, 1996), Abigail A. Van Slyck, *Free To All, Carnegie Libraries & American Culture, 1890-1920* (Chicago: University of Chicago Press, 1995), and LPC, *New York Public Library, Tottenville Branch* (LP-1867), (New York: The City of New York, 1995) prepared by David Breiner.

[14] See Theodore Wesley Koch, *A Book of Carnegie Libraries* (New York: The H.W. Wilson Co., 1917), 345-351.

[15] The one exception to this was the Red Hook Branch, built in 1915 by Richard A. Walker. This building, which is no longer extant, was constructed in a Mediterranean Revival style, with stuccoed walls, wide, overhanging eaves and a deep cornice pierced by attic windows.

[16] Dierickx, 27, 65.

[17] *The Brooklyn Eagle*, July 24, 1901. Although this amount of money was supposed to fund 20 libraries for the Borough of Brooklyn, 21 libraries were actually built.

[18] The information about the design process comes from a newspaper clipping entitled "Five Districts Named for Carnegie Libraries," dated 1901 and found in the Library Scrapbooks, 1904-05, at the Brooklyn Public Library.

[19] Pritchett, 25-26.

[20] Dierickx, 65.

[21] Pritchett, 25. Residents often waited in line for hours to gain access to the libraries' holdings, after-school hours were the most crowded.

[22] The information in this section was taken from: Gerald Sorin, *The Nurturing Neighborhood the Brownsville Boys Club and Jewish Community in Urban America, 1940-1990* (New York: New York University Press, 1990), 39-41.

[23] *The Brooklyn Eagle*, September 25, 1914, 18.

[24] *The New York Times*, September 26, 1914, 11.

[25] *The Brooklyn Eagle*, June 26, 1937.

[26] Kelly's Sons also built the DeKalb (1905) and Leonard (1908) branches.

[27] *Brooklyn Eagle*, January 17, 1915, 2.

[28] See "All Souls Church, City of Plainfield, Union County, New Jersey," National Register of Historic Places, 2009, section 8, 23.

[29] Clara Whitehall Hunt, "Brooklyn Opens the First Children's Branch," *The Library Journal*, 39, (January-December, 1914), 762.

[30] Hunt felt the Collegiate Gothic style was fitting because it recalled the Ruby School, the setting for the 1857 novel *Tom Brown's School Days.* Hunt, 762.

[31] Hunt, 762.

[32] *Brooklyn Eagle* January 17, 1915, 2.

[33] The information about William B. Tubby was compiled from research files of the Landmarks Preservation Commission, specifically: "W. B. Tubby; Architect Here for 61 Years," *The New York Times* (May 10, 1944), 19; Henry R. Withey and Elsie R. Withey, *Biographical Dictionary of American Architects, (Deceased)* (Los Angeles: Hennessey & Ingalls, 1970); and "Tubby, William Bunker," *The National Cyclopaedia of American Biography* 33 (New York: James T. White & Co., 1941), 567.

[34] The information in this section was taken from: LPC, *Pratt Institute Library* (LP-2011), (New York: City of New York, 1981) prepared by Marjorie Pearson, 2.

[35] Some of the information in this section was taken from: "Stone Avenue Library Unveils $1.7M Renovation" *The Brooklyn Eagle*, October 10, 2005; *The Brooklyn Eagle*, April 21, 2014.

## FINDINGS AND DESIGNATION

On the basis of a careful consideration of the history, the architecture, and other features of the buildings and site, the Landmarks Preservation Commission finds that the Brooklyn Public Library Stone Avenue Branch has a special character, special historical and aesthetic interest, and value as part of the development, heritage, and cultural characteristics of New York City.

The Commission further finds that, among its important qualities, the Stone Avenue branch of the Brooklyn Public Library opened in September 1914, with the construction funded as part of Andrew Carnegie's gift to the institution; that it was designed by the noted Brooklyn architect William B. Tubby, it was originally known as the Brownsville Children's Library and is believed to be the only public library of its kind, exclusively serving "grammar and primary grade children:" that it was conceived by educator Clara W. Hunt, who served as the Brooklyn Public Library's "Superintendent for Work with Children" for 36 years; that it is designed in the Jacobean Revival style, with a squat corner tower, the tapestry brick facades incorporate which prominent recessed entrances, multi-paned windows, and various stone carvings that express the structure's original use, such as the seal of the Brooklyn Public Library and various small panels illustrating characters in children's literature, such as Aladdin, Robin Hood, and the rabbit from Alice in Wonderland; that the partially crenellated parapet contains panels with printer's marks, representing the origins of the printed book; that Tubby, who served on the Architects' Advisory Commission for the Brooklyn Carnegie libraries, designed five branches in the borough, including the DeKalb Branch, a New York City Landmark; that in 1929, the Brownsville library expanded its mission and began to serve teenagers; and that in subsequent years, the Stone Avenue branch became a popular meeting place for local organizations.

Accordingly, pursuant to provisions of Chapter 74, Section 3020 of the Charter of the City of New York and Chapter 3 of Title 25 of the Administrative Code of the City of New York, the Landmarks Preservation Commission designates as a Landmark the Brooklyn Public Library Stone Avenue Branch and designates Borough of Brooklyn Tax Map Block 3794, Lot 18 as its Landmark Site.

Meenakshi Srinivasan, Chair
Adi Shamir Baron, Frederick Bland, Diana Chapin, Michael Devonshire,
John Gustaffson, Roberta Washington, Commissioner



**Brooklyn Public Library Stone Avenue Branch**
Borough of Brooklyn
Tax Block: 3794, Tax Lot: 18
*Photo: Christopher D. Brazee (2015)*



**Brooklyn Public Library Stone Avenue Branch**
**West façade Mother Gaston Blvd.; East façade**
*Photo: Christopher D. Brazee (2015)*





**Brooklyn Public Library Stone Avenue Branch**
**North façade Dumont Avenue; South façade**
*Photo: Christopher D. Brazee (2015)*





**Brooklyn Public Library Stone Avenue Branch**
**North and West entrances**
*Photo: Christopher D. Brazee (2015)*





**Brooklyn Public Library Stone Avenue Branch**
**Details**
*Photo: Christopher D. Brazee (2015)*






**Brooklyn Public Library Stone Avenue Branch**
**Details**
*Photo: Christopher D. Brazee (2015)*

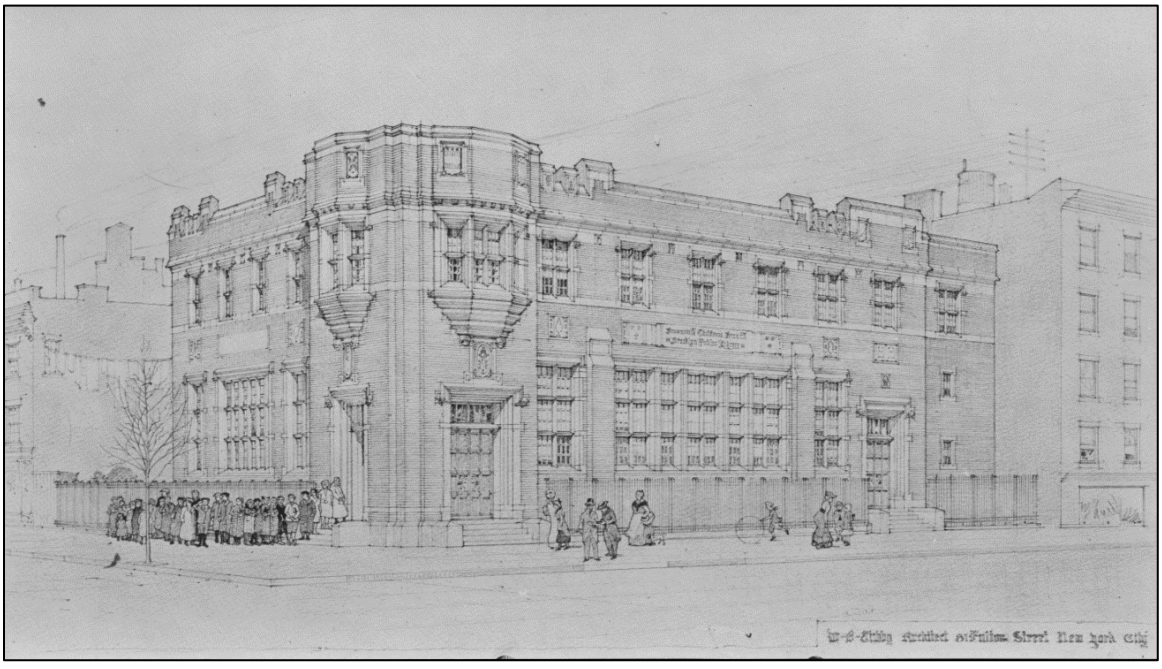




**Brooklyn Public Library Stone Avenue Branch**
**Details**
*Photo: Christopher D. Brazee (2015)*



**Brooklyn Public Library Stone Avenue Branch c.1914**
*Photo Source: Brooklyn Public Library*





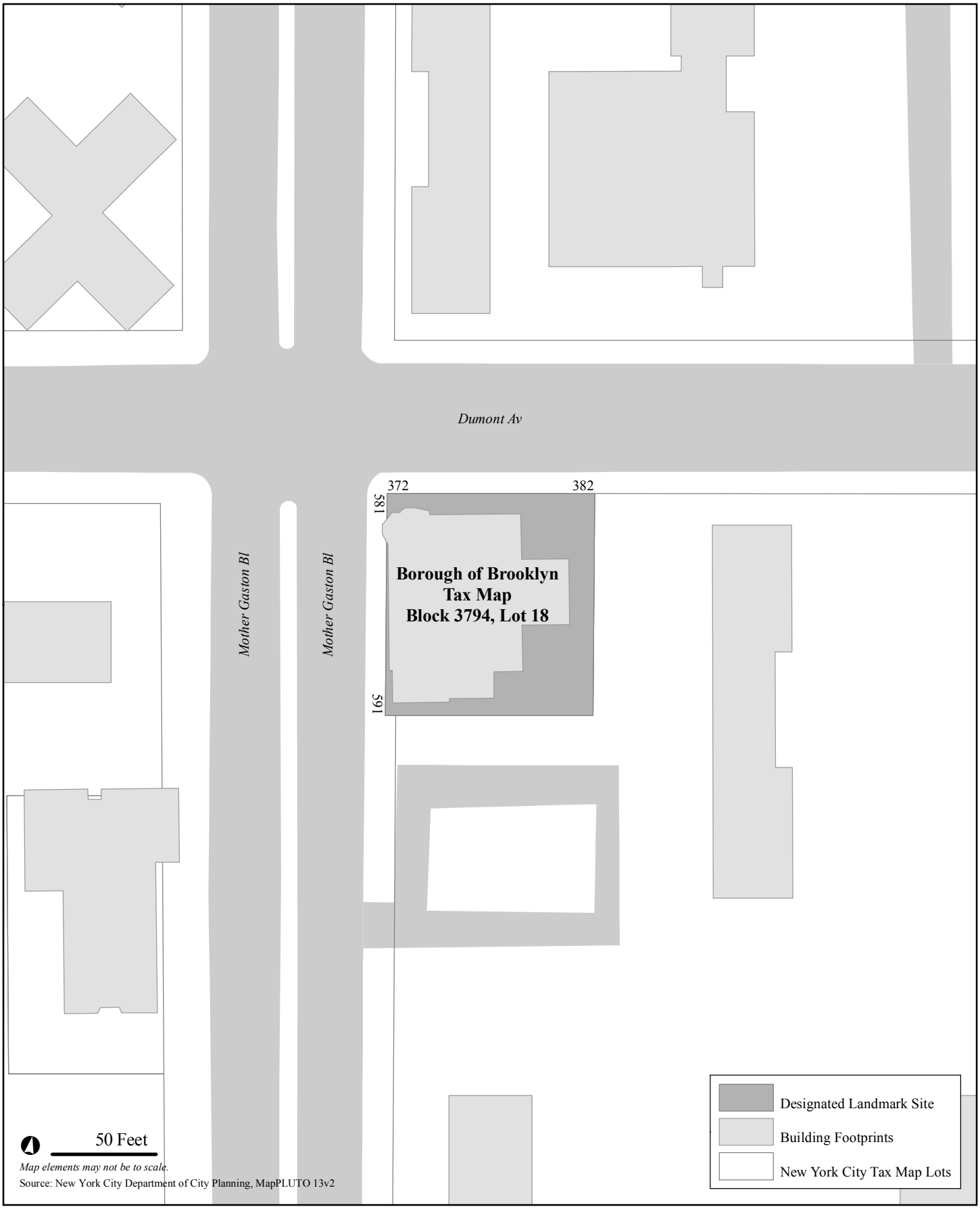
**Brooklyn Public Library Stone Avenue Branch c.1920s**
*Photo Source: Brooklyn Public Library*



**Brooklyn Public Library Stone Avenue Branch c.1960**
*Photo Source: Brooklyn Public Library*




**Brooklyn Public Library Stone Avenue Branch**
*Photo: Christopher D. Brazee (2015)*




**Brooklyn Public Library, Stone Avenue Branch (LP-2568)**
581 Stone Avenue (aka 581-591 Mother Gaston Boulevard; 372-382 Dumont Avenue).
Landmark Site: Borough of Brooklyn Tax Map Block 3794, Lot 18
Designated: April 14, 2015

ISABAHLIA

December 15th, 2017

Daniel Rad
Principal
Radson Development
77 Cuttermill Road
Great Neck, NY 10024

Dear Daniel,

This letter to express the interest of Isabahlia Ladies of Elegance Foundation, Inc. in being part of the Livonia 4 proposal for the HPD RFP for Livonia Avenue in Brownsville.

The Isabahlia Ladies of Elegance Foundation Inc. (ILOEF, INC.) is dedicated to building a healthy community. Founded in 2009, ILOEF seeks to provide the community access to affordable, fresh and healthy produce year-round while engaging residents in a variety of gardening workshops. Our mission is to strengthen, educate and build healthy, happy and productive youth, one garden at a time. We do this by instilling meaningful life lessons, providing support through education, raising awareness, and encouraging positive self-esteem. In addition we are working to instill civic pride in our youth with the hope of preventing our children from becoming a part of the juvenile criminal system, as well as, helping to reduce recidivism amongst those who are already involved in the system. ILEOF manages 6 community farms (including Powell Street Garden which is adjacent to C1) in Brownsville, 2 seasonal farm stands (one of these at Powell Street Garden), 1 youth program, and a food bag program.

Our discussions with Brownsville Partnership indicate that Site C1 is a promising site for an extension of our community garden, our food bag, community education programs.

We look forward to the possibilities of this very exciting partnership.

Sincerely,

Brenda Duchene
Executive Director/Founder
Isabahlia Ladies of Elegance foundation

# HISTORIC AND CULTURAL RESOURCES APPENDIX

Landmarks Preservation Commission

1 Centre Street
9th Floor North
New York, NY 10007

Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

# ENVIRONMENTAL REVIEW

**Project number:** HOUSING PRESERVATION AND DEV / LA-CEQR-K
**Project:** LIVONIA HOUSING
**Date Received:** 10/22/2019

**Properties with no Architectural or Archaeological significance:**

1) LIVONIA AVENUE, BBL: 3035860026
2) 651 MOTHER GASTON BLVD, BBL: 3038110017
3) 649 MOTHER GASTON BLVD, BBL: 3038110018
4) 647 MOTHER GASTON BLVD, BBL: 3038110019
5) 643 MOTHER GASTON BLVD, BBL: 3038110021
6) LIVONIA AVENUE, BBL: 3038110023
7) 352 LIVONIA AVENUE, BBL: 3038110024
8) LIVONIA AVENUE, BBL: 3038110025
9) LIVONIA AVENUE, BBL: 3038110026
10) CHRISTOPHER AVENUE, BBL: 3038110027
11) 354 LIVONIA AVENUE, BBL: 3038110124
12) LIVONIA AVENUE, BBL: 3038120019
13) LIVONIA AVENUE, BBL: 3038120020
14) 368 LIVONIA AVENUE, BBL: 3038120021
15) LIVONIA AVENUE, BBL: 3038120022
16) 372 LIVONIA AVENUE, BBL: 3038120121
17) LIVONIA AVENUE, BBL: 3038130115
18) LIVONIA AVENUE, BBL: 3035860040

LPC DESIGNATED AND S/NR ELIGIBLE BETSEY HEAD PLAY CENTER WITHIN RADIUS OF DEVELOPMENT SITE 4 (166 LIVONIA AVENUE AND BBL 3586/26). NO INTEREST AROUND DEVELOPMENT SITES 1-3.

No adverse impacts anticipated to Betsey Head Play Center as a result of this action.

Gina Santucci

10/24/2019

SIGNATURE DATE

Gina Santucci, Environmental Review Coordinator

**File Name:** 34598_FSO_DNP_10242019.docx

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

**ANDREW M. CUOMO**
Governor

**ERIK KULLESEID**
Commissioner

December 27, 2019

Ms. DeeDee Browne
Project Coordinator
Environmental Studies Corp.
55 Watermill Lane
Suite 200
Great Neck, NY 11021

Re: HPD
Livonia Four Proposed Mixed Developments
Livonia Ave. between Powells St. and Mother Gaston Blvd., Brooklyn, NY
19PR07519

Dear Ms. Browne:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

# HAZARDOUS MATERIALS APPENDIX

NYC Environmental Protection

**Vincent Sapienza, P.E.**
*Commissioner*

**Angela Licata**
*Deputy Commissioner of Sustainability*

59-17 Junction Blvd.
Flushing, NY 11373

Tel. (718) 595-4398
Fax (718) 595-4422
alicata@dep.nyc.gov

March 11, 2020

Matthew Juliana
Deputy Director, Environmental Planning
New York City Department of Housing Preservation and Development
100 Gold Street
New York, NY 10038

**Re: Livonia Avenue Rezoning**
**Block 3813, Lot 115; Block 3812, Lots 17, 18, 19, 20, 21, 22, 24, and 121; Block 3811, Lots 17, 18, 19, 20, 21, 23, 24, 26, 26, 27, and 124; and Block 3586, Lots 26, 40, 41, 42, 43, 44, and 45**
**CEQR # 20HPD054K**

Dear Mr. Juliana:

The New York City Department of Environmental Protection, Bureau of Sustainability (DEP) has reviewed the January 2020 Environmental Assessment Statement (EAS), the October and November 2018 Phase I Environmental Site Assessments (Phase I), and the December 2019 Phase II Environmental Site Assessment Work Plans (Work Plan) and Health and Safety Plans (HASP) prepared by Environmental Studies Corporation, on behalf of the New York City Department of Housing Preservation and Development (HPD) (applicant) for the above referenced project. It is our understanding that the applicant is seeking the approval of several actions (the Proposed Actions) from the City Planning Commission to facilitate the construction of four mixed-use primarily affordable housing buildings located along Livonia Avenue in the Brownsville neighborhood of Brooklyn Community District 16. The four buildings would be located within two Project Areas: Project Area 1 comprises Block 3813, Lot 115; Block 3812, Lots 17, 18, 19, 20, 21, 22, 24, and 121; Block 3811, Lots 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, and 124, and Project Area 2 comprises Block 3586, Lots 26, 40, 41, 42, 43, 44, and 45. The majority of tax lots within the Project Areas are City-owned, but also include five privately owned properties within Project Area 1 (Block 3812, Lots 17, 18, and 24; Block 3811, Lots 20 and 25), and three privately-owned properties within Project Area 2 (Block 3586, Lots 40, 44, and 45). Project Area 2 also includes three lots owned by the New York City Department of Parks and Recreation. Three Development Sites represent a portion of Project Area 1 (Block 3813, Lot 115 (Projected Development Site 1; aka Site C1); Block 3812, Lots 19-22, and 121 (Projected Development Site 2; aka Site C2); Block 3811, Lots 17-19, 21, 23-27, and 124 (Projected Development Site 3; aka Site C3); and one Development Site represents a portion of Project Area 2 (Block 3586, Lots 26 and 40 (Projected Development Site 4; aka Site C4). The Proposed Actions would also facilitate the construction on properties not controlled by the applicant of two additional mixed-use partially affordable housing buildings in the vicinity on or near Livonia Avenue including on Block 3812, Lot 24 (Projected Development Site

5) and on Block 3586, Lots 44 and 45 (Projected Development Site 6). The Proposed Actions include the following: zoning map amendment to rezone Project Areas 1 and 2 from an R6 zoning district to an R7-2 zoning district, for which Catholic Charities and Radson Development are co-applicants; a zoning text amendment to Appendix F to establish Project Areas 1 and 2 as Mandatory Inclusionary Housing Areas, for which Catholic Charities and Radson Development are co-applicants; the designation of the Development Sites as an Urban Development Action Area, approval of the project as an Urban Development Action Area Project, and the disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26, collectively, the Disposition Area) to a developer selected by HPD; and amendment to the Brownsville II Urban Renewal Plan to permit residential use on Sites C1 (URA Site 142), C2 (URA Site 141), and C3 (URA Site 140). The Proposed Actions would facilitate the redevelopment of the 6 Projected Development Sites with six new, mixed-use residential, commercial, and community facility developments (the Proposed Development). In total, the Proposed Development would include approximately 625,207 gross square feet (gsf) of floor area including approximately 469,117 gsf of residential floor area for 505 dwelling units, 463 of which would be affordable, 42,554 gsf of commercial floor area, 63,331 gsf of community facility floor area, and 50,206 gsf of community facility with sleeping accommodations floor area for 63 supportive housing units. The Proposed Actions could also result in new development on Potential Development Site 1 (Block 3812, Lots 17 and 18) and Potential Development Site 2 (Block 3811, Lot 20) consisting of up to approximately 53,300 gsf of floor area including approximately 43,250 gsf of residential floor area for 41 dwelling units, 9 of which would be affordable, 5,500 gsf of commercial floor area, and 4,550 gsf of community facility floor area. No additional development would be anticipated on Other Site 1 (Block 3586, Lot 41), Other Site 2 (Block 3586, Lot 42), and Other Site 3 (Block 3586, Lot 43).

**Site C1: Block 3813, Lot 115**

The October 2018 Phase I report revealed that historical on-site and surrounding area land uses consisted of a variety of residential, commercial, and industrial uses including residential dwellings, a distillery, a moving company, a doll and toy store, grocery stores, an electrical contractor, a liquor store, a shoe store, a shoe repair store, a barber shop, insurance agencies, a cigar store, stationary stores, a roofing and siding contractor, a dry cleaner, an elevated rail line, a church, woodworking shops, mattress manufacturing, lumber yards, bottling companies, a knitting mill, a school, synagogues, a playground, etc. Regulatory databases identified 9 spills within 1/8 mile; 10 underground storage tank sites and 13 aboveground storage tank sites within 1/4 mile; 25 leaking storage tank sites, 7 brownfield sites, and 1 voluntary cleanup program site within 1/2 mile; and 1 manufactured gas plant site within 1 mile of the subject property.

The December 2019 Work Plan proposes to advance four (4) soil borings (B-1, B-2, B-3 and B-4). Two soil samples will be collected per soil boring location. One (1) soil sample will be collected from 0 to 2 feet below grade surface (bgs) and one (1) soil sample will be collected at 14 to 16 feet bgs or to the proposed foundation bottom elevation. Two (2) temporary groundwater monitoring wells (GW-1 and GW-2) will be completed. Soil and groundwater samples will be analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260, semi-volatile organic compounds

(SVOCs) by EPA Method 8270, pesticides by EPA Method 8081, polychlorinated biphenyls (PCBs) by EPA Method 8082, and Target Analyte List (TAL) metals (total and dissolved for groundwater samples). Three (3) soil vapor samples (SV-1, SV-2 and SV-3) will be collected and analyzed for VOCs by EPA Method TO-15.

**Site C2: Block 3812, Lots 19, 20, 21, 22, and 121**

The November 2018 Phase I report revealed that historical on-site and surrounding area land uses consisted of a variety of residential, commercial, and industrial uses including mixed-use buildings, an industrial warehouse, residential dwellings, grocery stores, restaurants and cafes, a window shade company, a bakery, a jewelry store, a hardware store, an upholstery store, a medical office, a coat and apron company, sash and door storage, a mattress manufacturing company, a dry cleaner, an elevated rail line, a library, a church, a community center, etc. Regulatory databases identified 6 spills within 1/8 mile; 10 underground storage tank sites and 12 aboveground storage tank sites within 1/4 mile; 24 leaking storage tank sites, 7 brownfield sites, and 1 voluntary cleanup program site within 1/2 mile; and 1 manufactured gas plant site within 1 mile of the subject property.

The December 2019 Work Plan proposes to advance three (3) soil borings (B-1, B-2 and B-3). Two soil samples will be collected per soil boring location. One (1) soil sample will be collected from 0 to 2 feet bgs and one (1) soil sample will be collected at 10 to 12 feet bgs or to the proposed foundation bottom elevation. One (1) temporary groundwater monitoring well (GW-1) will be completed. Soil and groundwater samples will be analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, PCBs by EPA Method 8082, and TAL metals (total and dissolved for the groundwater sample). Three (3) soil vapor samples (SV-1, SV-2 and SV-3) will be collected and analyzed for VOCs by EPA Method TO-15.

**Site C3: Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27, and 124)**

The November 2018 Phase I report revealed that historical on-site and surrounding area land uses consisted of a variety of residential, commercial, and industrial uses including mixed-use buildings, retail stores, grocery stores, candy stores and confectionaries, furniture stores, real estate offices, a TV store, dry cleaners, a chemical company, a tin smith shop, a printer, a dry cleaner, an elevated rail line, residential dwellings, a park, woodworking shops, mattress manufacturing, lumber yards, bottling companies, a knitting mill, a community center, churches, a library, a school, leather goods manufacturing, auto wrecking, beverage bottling, etc. Regulatory databases identified 7 spills within 1/8 mile; 10 underground storage tank sites and 12 aboveground storage tank sites within 1/4 mile; 27 leaking storage tank sites, 7 brownfield sites, and 1 voluntary cleanup program site within 1/2 mile; and 1 manufactured gas plant site within 1 mile of the subject property.

The December 2019 Work Plan proposes to advance four (4) soil borings (B-1, B-2, B-3 and B-4). Two soil samples will be collected per soil boring location. One (1) soil sample will be collected from 0 to 2 feet bgs and one (1) soil sample will be collected at 10 to 12 feet bgs or to the proposed foundation bottom elevation. One (1) temporary groundwater monitoring well

(GW-1) will be completed. Soil and groundwater samples will be analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, PCBs by EPA Method 8082, and TAL metals (total and dissolved for the groundwater sample). Three (3) soil vapor samples (SV-1, SV-2 and SV-3) will be collected and analyzed for VOCs by EPA Method TO-15.

**Site C4: Block 3586, Lots 26 and 40**

The November 2018 Phase I report revealed that historical on-site and surrounding area land uses consisted of a variety of residential, commercial, and industrial uses including a lumber yard, a contractor's storage lot, a community garden, auto-repair garages, a laundry company, textile and dyers, wire products manufacturing, beverage bottling, aerosol filling, store fixture manufacturing, refrigerator manufacturing, metal products manufacturing, a gasoline filling station, a playground, dry cleaners, etc. Regulatory databases identified 7 spills within 1/8 mile; 2 underground storage tank sites and 9 aboveground storage tank sites within 1/4 mile; 27 leaking storage tank sites, and 2 brownfield sites within 1/2 mile; and 1 manufactured gas plant site within 1 mile of the subject property.

The December 2019 Work Plan proposes to advance four (4) soil borings (B-1, B-2, B-3 and B-4). Two soil samples will be collected per soil boring location. One (1) soil sample will be collected from 0 to 2 feet bgs and one (1) soil sample will be collected at 12 to 14 feet bgs or to the proposed foundation bottom elevation. One (1) temporary groundwater monitoring well (GW-1) will be completed. Soil and groundwater samples will be analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, PCBs by EPA Method 8082, and TAL metals (total and dissolved for the groundwater sample). Three (3) soil vapor samples (SV-1, SV-2 and SV-3) will be collected and analyzed for VOCs by EPA Method TO-15.

Based upon our review of the submitted documentation, we have the following comments and recommendations to HPD:

**Site C1, Site C2, Site C3, and Site C4**

- HPD should inform the applicant that two soil samples should be collected from each soil boring. One surface soil sample should be collected from the 0-2 feet bgs interval and one subsurface soil sample should be collected between 2 feet bgs and the maximum proposed excavation depth (based on visual/olfactory evidence of impacts and/or elevated soil screening readings obtained using accepted field instruments). If no evidence or elevated readings are noted during borehole advancement, the subsurface soil sample should be collected from the two foot interval below the proposed maximum excavation depth(s) and/or the groundwater interface (whichever is encountered first).

DEP finds the December 2019 Work Plans and HASPs for the proposed project acceptable, as long as the aforementioned information is incorporated into the Work Plans. HPD should inform the applicant that upon completion of the investigation activities, the applicant should submit a detailed Phase II report for DEP review and approval. The report should include, at a minimum,

an executive summary, narrative of the field activities, laboratory data and conclusions, comparison of soil, groundwater, and soil vapor analytical results (i.e., New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Part 375, NYSDEC Water Quality Regulations, and the New York State Department of Health's October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York), updated site plans depicting sample locations, boring logs, and remedial recommendations, if warranted.

**Block 3812, Lot 24; Block 3586, Lots 44 and 45 (Projected Development Sites 5 and 6) and Block 3812, Lots 17 and 18; Block 3811, Lot 20 (Potential Development Sites 1 and 2)**

- Based on prior on-site and/or surrounding area land uses which could result in environmental contamination, DEP concurs with the EAS recommendation that an (E) Designation for hazardous materials should be placed on the zoning map pursuant to Section 11-15 of the New York City Zoning Resolution for the subject properties. The (E) Designation will ensure that testing and mitigation will be provided as necessary before any future development and/or soil disturbance. Further hazardous materials assessments should be coordinated through the Mayor's Office of Environmental Remediation.

Future correspondence and submittals related to this project should include the following CEQR # **20HPD054K**. If you have any questions, you may contact me at (718) 595-4358.

Sincerely,

Wei Yu
Deputy Director, Hazardous Materials

c: R. Weissbard
T. Estesen
M. Wimbish
R. Lucas
S. Owrang - HPD

Environmental Protection

**Vincent Sapienza, P.E.**
*Commissioner*

**Angela Licata**
*Deputy Commissioner of Sustainability*

59-17 Junction Blvd.
Flushing, NY 11373

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October 13, 2020

Matthew Juliana
Director, Environmental Planning
New York City Department of Housing Preservation and Development
100 Gold Street
New York, NY 10038

**Re: Livonia Avenue Rezoning**
**Site C1: Block 3813, Lot 115**
**Site C2: Block 3812, Lots 19, 20, 21, 22, and 121**
**Site C3: Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27, and 124**
**Site C4: Block 3586, Lots 26 and 40**
**CEQR # 20HPD054K**

Dear Mr. Juliana:

The New York City Department of Environmental Protection, Bureau of Sustainability (DEP) has reviewed the June 2020 Phase II Environmental Site Assessment (Phase II) and the July 2020 Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) prepared by Environmental Studies Corporation, on behalf of the New York City Department of Housing Preservation and Development (HPD) (applicant) for the above referenced project. It is our understanding that the applicant is seeking the approval of several actions (the Proposed Actions) from the City Planning Commission to facilitate the construction of four mixed-use primarily affordable housing buildings located along Livonia Avenue in the Brownsville neighborhood of Brooklyn Community District 16. The four buildings would be located within two Project Areas: Project Area 1 comprises Block 3813, Lot 115; Block 3812, Lots 17, 18, 19, 20, 21, 22, 24, and 121; Block 3811, Lots 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, and 124, and Project Area 2 comprises Block 3586, Lots 26, 40, 41, 42, 43, 44, and 45. The majority of tax lots within the Project Areas are City-owned, but also include five privately owned properties within Project Area 1 (Block 3812, Lots 17, 18, and 24; Block 3811, Lots 20 and 25), and three privately-owned properties within Project Area 2 (Block 3586, Lots 40, 44, and 45). Project Area 2 also includes three lots owned by the New York City Department of Parks and Recreation. Three Development Sites represent a portion of Project Area 1 (Block 3813, Lot 115 (Projected Development Site 1; aka Site C1); Block 3812, Lots 19-22, and 121 (Projected Development Site 2; aka Site C2); Block 3811, Lots 17-19, 21, 23-27, and 124 (Projected Development Site 3; aka Site C3); and one Development Site represents a portion of Project Area 2 (Block 3586, Lots 26 and 40 (Projected Development Site 4; aka Site C4). The Proposed Actions would also facilitate the construction on properties not controlled by the applicant of two additional mixed-use partially affordable housing buildings in the vicinity on or near Livonia Avenue including on Block 3812, Lot 24 (Projected Development Site 5) and on Block

3586, Lots 44 and 45 (Projected Development Site 6). The Proposed Actions include the following: zoning map amendment to rezone Project Areas 1 and 2 from an R6 zoning district to an R7-2 zoning district, for which Catholic Charities and Radson Development are co-applicants; a zoning text amendment to Appendix F to establish Project Areas 1 and 2 as Mandatory Inclusionary Housing Areas, for which Catholic Charities and Radson Development are co-applicants; the designation of the Development Sites as an Urban Development Action Area, approval of the project as an Urban Development Action Area Project, and the disposition of City-owned property (Block 3813, Lot 115; Block 3812, Lots 19-22 and 121; Block 3811, Lots 17-19, 21, 23, 24, 26, 27, and 124; and Block 3586, Lot 26, collectively, the Disposition Area) to a developer selected by HPD; and amendment to the Brownsville II Urban Renewal Plan to permit residential use on Sites C1 (URA Site 142), C2 (URA Site 141), and C3 (URA Site 140). The Proposed Actions would facilitate the redevelopment of the 6 Projected Development Sites with six new, mixed-use residential, commercial, and community facility developments (the Proposed Development). In total, the Proposed Development would include approximately 625,207 gross square feet (gsf) of floor area including approximately 469,117 gsf of residential floor area for 505 dwelling units, 463 of which would be affordable, 42,554 gsf of commercial floor area, 63,331 gsf of community facility floor area, and 50,206 gsf of community facility with sleeping accommodations floor area for 63 supportive housing units. The Proposed Actions could also result in new development on Potential Development Site 1 (Block 3812, Lots 17 and 18) and Potential Development Site 2 (Block 3811, Lot 20) consisting of up to approximately 53,300 gsf of floor area including approximately 43,250 gsf of residential floor area for 41 dwelling units, 9 of which would be affordable, 5,500 gsf of commercial floor area, and 4,550 gsf of community facility floor area. No additional development would be anticipated on Other Site 1 (Block 3586, Lot 41), Other Site 2 (Block 3586, Lot 42), and Other Site 3 (Block 3586, Lot 43).

**Site C1: Block 3813, Lot 115**

During the May 2020 fieldwork, 4 soil borings (B-1, B-2, B-3, and B-4) were advanced at the site to depths of 16-30 feet below grade surface (bgs). Two soil samples were collected from each soil boring location. One soil sample was collected from the surface at a depth of 0 to 2 feet bgs, and another deeper soil sample was collected at a depth 10 - 12 feet bgs. One groundwater sample (GW-1) was collected from a temporary monitoring well. Soil and groundwater samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, pesticides by EPA Method 8081, polychlorinated biphenyls (PCBs) by EPA Method 8082, and Target Analyte List (TAL) metals (filtered and unfiltered for groundwater samples). Three soil vapor samples (SV-1, SV-2, and SV-3) were collected and analyzed for VOCs by EPA Method TO-15.

The soil analytical results revealed that VOCs and PCBs were either non-detect (ND) or below their New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs). Several SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno (1,2,3-c,d) pyrene), several pesticides (4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and

dieldrin), and several metals (copper, lead, mercury, and zinc) were detected above their NYSDEC Unrestricted Use SCOs and/or Restricted Residential Use SCOs.

The groundwater analytical results revealed that SVOCs, pesticides, and PCBs were either ND or below their NYSDEC Technical and Operational Guidance Series 1.1.1 Class GA Ambient Water Quality Standards (AWQS). One VOC (chloroform) and several metals (chromium, lead, magnesium, manganese, nickel, and sodium) were detected above their AWQS.

The soil vapor analytical results revealed that several VOCs (1,2,4 trimethylbenzene, 1,2-dichlorotetrafluoroethane, 1,3,5 trimethylbenzene, 1,3-butadiene, 2-butanone, 2-hexanone, acetone, benzene, carbon disulfide, chloroform, chloromethane, cyclohexane, dichlorodifluoromethane, ethyl benzene, isopropanol, n-heptane, n-hexane, o-xylene, m&p xylene, p-ethyltoluene, styrene, tetrachloroethlene (PCE), toluene, and trichlorofluoromethane) were detected.

The July 2020 RAP proposes the excavation, transportation and off-site disposal of soil in accordance with all applicable federal, state, and local regulations; removal of underground storage tanks, if encountered, and closure of petroleum spills in compliance with applicable local, state, and federal laws and regulations; a New York City Department of Environmental Protection Sewer Discharge Permit will be obtained prior to the start of any de-watering activities; stockpiled soil will be covered with appropriately anchored plastic tarps; dust control; air monitoring; installation of a vapor barrier system consisting of 46-mil Grace Preprufe 300R (or equal) below cellar areas, 0.5 mm Grace Florprufe 120R (or equal) below ground floor slab areas, 32-mil Grace Preprufe 160R (or equal) will be used for foundation wall and Grace Bituthene 3000 (or equal) for post applied applications (if the type of vapor barrier is changed an amendment must first be approved by NYCDEP); and placement of 2-feet of certified clean soil in landscaped areas that are not capped with asphalt or concrete. The July 2020 CHASP addresses worker and community health and safety during construction.

**Site C2: Block 3812, Lots 19, 20, 21, 22, and 121**

During the May 2020 fieldwork, 3 soil borings (B-1, B-2, and B-3) were advanced at the site to depths of 16-30 feet bgs. Two soil samples were collected from each soil boring location. One soil sample was collected from the surface at a depth of 0 to 2 feet bgs, and another deeper soil sample was collected at a depth 10 - 12 feet bgs. One groundwater sample (GW-1) was collected from a temporary monitoring well. Soil and groundwater samples were analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, PCBs by EPA Method 8082, and TAL metals (filtered and unfiltered for groundwater samples). Three soil vapor samples (SV-1, SV-2, and SV-3) were collected and analyzed for VOCs by EPA Method TO-15.

The soil analytical results revealed that VOCs and PCBs were either ND or below their NYSDEC 6 NYCRR Part 375 Unrestricted Use SCOs. Several SVOCs (benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno (1,2,3-c,d) pyrene), two pesticides (4,4'-DDE and 4,4'-DDT), and several metals (copper, lead,

mercury, and zinc) were detected above their NYSDEC Unrestricted Use SCOs and/or Restricted Residential Use SCOs.

The groundwater analytical results revealed that VOCs, pesticides, and PCBs were either ND or below their NYSDEC AWQS. One SVOC (chrysene) and several metals (lead, manganese, and sodium) were detected above their AWQS.

The soil vapor analytical results revealed that several VOCs (1,1-dichloroethylene, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, 1,3-dichlorobenzene, 2-butanone, acetone, benzene, bromomethane, carbon tetrachloride, chloroform, cyclohexane, dichlorodifluoromethane, ethyl benzene, isopropanol, methyl methacrylate, n-heptane, n-hexane, o-xylene, m&p xylene, PCE, toluene, trichloroethylene (TCE), and trichlorofluoromethane) were detected. PCE was detected at concentrations up to 94 $\mu g/m^3$ and TCE was detected at concentrations up to 5.7 $\mu g/m^3$. PCE and TCE were detected above their Air Guideline Values (September 2013 and August 2015 updates) in the New York State Department of Health's (NYSDOH) October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

The July 2020 RAP proposes the excavation, transportation and off-site disposal of soil in accordance with all applicable federal, state, and local regulations; removal of underground storage tanks, if encountered, and closure of petroleum spills in compliance with applicable local, state, and federal laws and regulations; a New York City Department of Environmental Protection Sewer Discharge Permit will be obtained prior to the start of any de-watering activities; stockpiled soil will be covered with appropriately anchored plastic tarps; dust control; air monitoring; installation of a vapor barrier system consisting of 46-mil Grace Preprufe 300R (or equal) below cellar areas, 0.5 mm Grace Florprufe 120R (or equal) below ground floor slab areas, 32-mil Grace Preprufe 160R (or equal) will be used for foundation wall and Grace Bituthene 3000 (or equal) for post applied applications (if the type of vapor barrier is changed an amendment must first be approved by NYCDEP); and placement of 2-feet of certified clean soil in landscaped areas that are not capped with asphalt or concrete. The July 2020 CHASP addresses worker and community health and safety during construction.

**Site C3: Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27, and 124**

During the May 2020 fieldwork, 4 soil borings (B-1, B-2, B-3, and B-4) were advanced at the site to depths of 16-30 feet bgs. Two soil samples were collected from each soil boring location. One soil sample was collected from the surface at a depth of 0 to 2 feet bgs, and another deeper soil sample was collected at a depth 10 - 12 feet bgs. One groundwater sample (GW-1) was collected from a temporary monitoring well. Soil and groundwater samples were analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, PCBs by EPA Method 8082, and TAL metals (filtered and unfiltered for groundwater samples). Three soil vapor samples (SV-1, SV-2, and SV-3) were collected and analyzed for VOCs by EPA Method TO-15.

The soil analytical results revealed that VOCs and PCBs were either ND or below their NYSDEC 6 NYCRR Part 375 Unrestricted Use SCOs. Several SVOCs (acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene,

dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, hexachlorobenzene, indeno(123-cd)pyrene, naphthalene, phenanthrene, and pyrene), several pesticides (4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and dieldrin), and several metals (arsenic, barium, cadmium, copper, lead, nickel, mercury, and zinc) were detected above their NYSDEC Unrestricted Use SCOs and/or Restricted Residential Use SCOs.

The groundwater analytical results revealed that pesticides and PCBs were either ND or below their NYSDEC. One VOC (chloroform), several SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene) and several metals (chromium, lead, manganese, nickel, and sodium) were detected above their AWQS.

The soil vapor analytical results revealed that several VOCs (1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, 2-butanone, acetone, benzene, carbon disulfide, chloroform, cis-1,2-dichloroethylene, cyclohexane, dichlorodifluoromethane, ethyl benzene, isopropanol, methyl methacrylate, n-heptane, n-hexane, o-xylene, m&p xylene, styrene, PCE, toluene, TCE, and trichlorofluoromethane) were detected. PCE was detected at concentrations up to 4,700 $\mu g/m^3$ and TCE was detected at concentrations up to 98 $\mu g/m^3$. PCE and TCE were detected above their Air Guideline Values (September 2013 and August 2015 updates) in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

The July 2020 RAP proposes the excavation, transportation and off-site disposal of soil in accordance with all applicable federal, state, and local regulations; removal of underground storage tanks, if encountered, and closure of petroleum spills in compliance with applicable local, state, and federal laws and regulations; a New York City Department of Environmental Protection Sewer Discharge Permit will be obtained prior to the start of any de-watering activities; stockpiled soil will be covered with appropriately anchored plastic tarps; dust control; air monitoring; installation of a vapor barrier system consisting of 46-mil Grace Preprufe 300R (or equal) below cellar areas, 0.5 mm Grace Florprufe 120R (or equal) below ground floor slab areas, 32-mil Grace Preprufe 160R (or equal) will be used for foundation wall and Grace Bituthene 3000 (or equal) for post applied applications (if the type of vapor barrier is changed an amendment must first be approved by NYCDEP); and placement of 2-feet of certified clean soil in landscaped areas that are not capped with asphalt or concrete. The July 2020 CHASP addresses worker and community health and safety during construction.

**Site C4: Block 3586, Lots 26 and 40**

During the May 2020 fieldwork, 4 soil borings (B-1, B-2, B-3, and B-4) were advanced at the site to depths of 16-30 feet bgs. Two soil samples were collected from each soil boring location. One soil sample was collected from the surface at a depth of 0 to 2 feet bgs, and another deeper soil sample was collected at a depth 10 - 12 feet bgs. One groundwater sample (GW-1) was collected from a temporary monitoring well. Soil and groundwater samples were analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, PCBs by EPA Method 8082, and TAL metals (filtered and unfiltered for groundwater samples). Three soil vapor samples (SV-1, SV-2, and SV-3) were collected and analyzed for VOCs by EPA Method TO-15.

The soil analytical results revealed that VOCs, pesticides, and PCBs were either ND or below their NYSDEC 6 NYCRR Part 375 Unrestricted Use SCOs. Several SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(123-cd)pyrene), and several metals (lead, mercury, and zinc) were detected above their NYSDEC Unrestricted Use SCOs and/or Restricted Residential Use SCOs.

The groundwater analytical results revealed that SVOCs, pesticides, and PCBs were either ND or below their NYSDEC AWQS. One VOC (chloroform) and several metals (chromium, manganese, and sodium) were detected above their AWQS.

The soil vapor analytical results revealed that several VOCs (1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, 2-butanone, acetone, benzene, chloroform, cyclohexane, dichlorodifluoromethane, ethyl benzene, methyl methacrylate, n-heptane, n-hexane, o-xylene, m&p xylene, PCE, toluene, and trichlorofluoromethane) were detected. PCE was detected at concentrations up to 280 $\mu g/m^3$. PCE was detected above its Air Guideline Value (September 2013 update) in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

The July 2020 RAP proposes the excavation, transportation and off-site disposal of soil in accordance with all applicable federal, state, and local regulations; removal of underground storage tanks, if encountered, and closure of petroleum spills in compliance with applicable local, state, and federal laws and regulations; a New York City Department of Environmental Protection Sewer Discharge Permit will be obtained prior to the start of any de-watering activities; stockpiled soil will be covered with appropriately anchored plastic tarps; dust control; air monitoring; installation of a vapor barrier system consisting of 46-mil Grace Preprufe 300R (or equal) below cellar areas, 0.5 mm Grace Florprufe 120R (or equal) below ground floor slab areas, 32-mil Grace Preprufe 160R (or equal) will be used for foundation wall and Grace Bituthene 3000 (or equal) for post applied applications (if the type of vapor barrier is changed an amendment must first be approved by NYCDEP); and placement of 2-feet of certified clean soil in landscaped areas that are not capped with asphalt or concrete. The July 2020 CHASP addresses worker and community health and safety during construction.

Based upon our review of the submitted documentation, we have the following comments and recommendations to HPD:

**Site C3: Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27, and 124**

- It should be noted that the historical on-site use of the subject property consisted of a dry cleaner. The soil vapor analytical results revealed that PCE and TCE were detected at concentrations up to 4,700 $\mu g/m^3$ and 98 $\mu g/m^3$, respectively. In addition, PCE and TCE were detected above their Air Guideline Values (September 2013 and August 2015 updates) in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Therefore, HPD should inform the applicant that in addition to the proposed vapor barrier system, an active sub-slab depressurization system (SSDS) should be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed active SSDS should be included in the RAP and submitted for DEP review

and approval. Soil disturbance should not occur without DEP's written approval of the RAP and CHASP.

**Site C2: Block 3812, Lots 19, 20, 21, 22, and 121**

- It should be noted that the historical on-site use of the subject property consisted of a dry cleaner. The soil vapor analytical results revealed that PCE and TCE were detected at concentrations up to 94 $\mu g/m^3$ and 5.7 $\mu g/m^3$, respectively. In addition, PCE and TCE were detected above their Air Guideline Values (September 2013 and August 2015 updates) in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Therefore, HPD should inform the applicant that in addition to the proposed vapor barrier system, a passive SSDS with the capability of being converted to an active SSDS if warranted based on future conditions should be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS should be included in the RAP and submitted for DEP review and approval. Soil disturbance should not occur without DEP's written approval of the RAP and CHASP.

**Site C4: Block 3586, Lots 26 and 40**

- It should be noted that the historical on-site use of the subject property consisted of lumber yard operations. The soil vapor analytical results revealed that PCE was detected at concentrations up to 280 $\mu g/m^3$. In addition, PCE was detected above its Air Guideline Value (September 2013 update) in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Therefore, HPD should inform the applicant that in addition to the proposed vapor barrier system, a passive SSDS with the capability of being converted to an active SSDS if warranted based on future conditions should be incorporated into the design plan of the proposed project. Design diagrams and specifications of the proposed SSDS should be included in the RAP and submitted for DEP review and approval. Soil disturbance should not occur without DEP's written approval of the RAP and CHASP.

**Site C1: Block 3813, Lot 115**

- DEP finds the July 2020 RAP and CHASP for the proposed project acceptable. HPD should instruct the applicant that at the completion of the project, a Professional Engineer (P.E.) certified Remedial Closure Report should be submitted for DEP review and approval for the proposed project. The P.E. certified Remedial Closure Report should indicate that all remedial requirements have been properly implemented (i.e., transportation/disposal manifests for removal and disposal of soil in accordance with NYSDEC regulations; two feet of DEP approved certified clean fill/top soil capping requirement in any landscaped/grass covered areas not capped with concrete/asphalt; installation of vapor barrier, etc.).

Future correspondence and submittals related to this project should include the following CEQR # **20HPD054K**. If you have any questions, you may contact me at (718) 595-4358.

Sincerely,

Wei Yu
Deputy Director, Hazardous Materials

c: R. Weissbard
T. Estesen
R. Lucas
M. Wimbish
S. Owrang - HPD

# INFRASTRUCTURE APPENDIX

## COMPARISON OF EXISTING AND WITH-ACTION VOLUME

**CSO SUBCATCHMENT AREA:**[1]

**EXISTING**

| | | Area = 84,075 SF (1.93 ACRES) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | PROJECTED DEVELOPMENT SITES 1-5 | | | | | | | | SITES 1-5 |
| RAINFALL VOLUME (in) | RAINFALL DURATION (hr)[3] | RUNOFF VOLUME DIRECT DRAINAGE (MG)[4] | RUNOFF VOLUME TO CSS (MG) | SANITARY VOLUME TO CSS (MG) | TOTAL VOLUME TO CSS (MG) | RUNOFF VOLUME TO RIVER (MG) | RUNOFF VOLUME TO CSS (MG) | SANITARY VOLUME TO CSS (MG) | TOTAL VOLUME TO CSS (MG) | TOTAL VOLUME TO CSS (MG) |
| 0.00 | 3.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.40 | 3.80 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 1.20 | 11.30 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 2.50 | 19.50 | 0.00 | 0.03 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |

**With-Action**

| | | Area = 84,075 SF (1.93 ACRES) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | PROJECTED DEVELOPMENT SITES 1-5 | | | | | | | | SITES 1-5 |
| RAINFALL VOLUME (in) | RAINFALL DURATION (hr)[3] | RUNOFF VOLUME DIRECT DRAINAGE (MG)[4] | RUNOFF VOLUME TO CSS (MG) | SANITARY VOLUME TO CSS (MG) | TOTAL VOLUME TO CSS (MG) | RUNOFF VOLUME TO RIVER (MG) | RUNOFF VOLUME TO CSS (MG) | SANITARY VOLUME TO CSS (MG) | TOTAL VOLUME TO CSS (MG) | TOTAL VOLUME TO CSS (MG) |
| 0.00 | 3.80 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 0.40 | 3.80 | 0.00 | 0.02 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 |
| 1.20 | 11.30 | 0.00 | 0.05 | 0.07 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 |
| 2.50 | 19.50 | 0.00 | 0.09 | 0.11 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 |

[1] If the proposed project crosses over several different CSO subcatchment areas, the above summary table should be completed for each CSO sub-catchment area.

[2] If proposed project includes a phased implementation plan or discrete sites, assess volumes using additional cells above (e.g., Site B).

[3] Based on ***Intensity/duration/Frequency Rainfall Analysis, New York City and the Catskill Mountain Water Supply Reservoirs,*** Vieux & Associates, Inc., April 4, 2006. The 24-hour rainfall volume is based on average rainfall intensity over 24-hours (inch/per) times 24 hrs. (Duration information provided by T. Newman & P. Jadhav, HydroQual).

[4] The volume (calculated in WS2) of stormwater runoff from any portion of the proposed project site draining to a separate storm sewer or as overland flow directly to a waterbody should be entered here.

**SURFACE CALCULATIONS**

CSO SUBCATHMENT OR RECEIVING WATERBODY FOR STORM SEWER OR DIRECT DISCHARGE: Projected Development Sites 1-5

| | EXISTING | | | | | |
|---|---|---|---|---|---|---|
| | WEIGHTED RUNOFF COEFFICIENT, C | | | | | |
| | SURFACE TYPE[1] | ROOF[2] | PAVT & WALKS | OTHER[3] | GRASS & SOFT SCAPE | TOTAL |
| SITES 1-6 | AREA, % | 7% | 0% | 0% | 93% | 100% |
| | SURFACE AREA, SF | 6000 | 0 | 0 | 78075 | 84075 |
| | RUNOFF COEFFICIENT | 1.00 | 0.85 | 0.85 | 0.20 | **0.26** |
| | | | | | | |
| | AREA, % | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
| | SURFACE AREA, SF | XX,XXX | XX,XXX | XX,XXX | XX,XXX | 0 |
| | RUNOFF COEFFICIENT | 1.00 | 0.85 | 0.85 | 0.20 | **#VALUE!** |

**NOTES:**

1 Runoff coefficients for each surface type are as per DEP.

2 Total roof areas onsite.

3 Identify any other surfaces onsite and obtain runoff coefficients from DEP.

CSO SUBCATHMENT OR RECEIVING WATERBODY FOR STORM SEWER OR DIRECT DISCHARGE: Projected Development Sites 1-5

| | WITH-ACTION SCENARIO (PROJECT + NO-ACTION SCENARIO) | | | | | |
|---|---|---|---|---|---|---|
| | WEIGHTED RUNOFF COEFFICIENT, C | | | | | |
| | SURFACE TYPE[1] | ROOF[2] | PAVT & WALKS | OTHER[3] | GRASS & SOFT SCAPE | TOTAL |
| SITES 1-6 | AREA, % | 55% | 12% | 0% | 32% | 100% |
| | SURFACE AREA, SF | 46635 | 10167 | 0 | 27273 | 84075 |
| | RUNOFF COEFFICIENT | 1.00 | 0.85 | 0.85 | 0.20 | **0.72** |
| | | | | | | |
| | AREA, % | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
| | SURFACE AREA, SF | XX,XXX | XX,XXX | XX,XXX | XX,XXX | 0 |
| | RUNOFF COEFFICIENT | 1.00 | 0.85 | 0.85 | 0.20 | **#VALUE!** |

**NOTES:**

1 Runoff coefficients for each surface type are as per NYCDEP.

2 Total roof areas onsite.

3 Identify any other surfaces onsite and obtain runoff coefficients from NYCDEP.

**EXISTING:**

**CSO SUBCATCHMENT AREA:** Projected Deve lopment Sites 1-5

| Rainfall, in | Duration, hr | Total Area (A), acre | Weighted Runoff Coefficient (C) | Stormwater to CSS, MG | Daily Sanitary Sewage Generation per CEQR TM, MGD | Sanitary to CSS , MG |
|---|---|---|---|---|---|---|
| 0.00 | 3.80 | 1.93 | 0.26 | 0.00 | 0.00 | 0.000 |
| 0.40 | 3.80 | 1.93 | 0.26 | 0.01 | 0.00 | 0.000 |
| 1.20 | 11.30 | 1.93 | 0.26 | 0.02 | 0.00 | 0.000 |
| 2.50 | 19.50 | 1.93 | 0.26 | 0.03 | 0.00 | 0.001 |

**RECEIVING WATERBODY FOR STORM SEWER OR DIRECT DISCHARGE:**

| Rainfall, in | Duration, hr | Total Area (A), acre | Weighted Runoff Coefficient (C) | Stormwater Runoff, MG | Daily Sanitary Sewage Generation per CEQR TM, MGD | Sanitary to CSS, MG | TOTAL Sanitary to CSS, MG | TOTAL TO CSS, MG |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 3.80 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.00 |
| 0.40 | 3.80 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.01 |
| 1.20 | 11.30 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.02 |
| 2.50 | 19.50 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.001 | 0.03 |

**WITH-ACTION SCENARIO (PROPOSED PROJECT + WITHOUT ACTION SCENARIO):**

**CSO SUBCATCHMENT AREA:** Projected Deve lopment Sites 1-5

| Rainfall (I), in | Duration, hr | Total Area (A), acre | Weighted Runoff Coefficient (C) | Stormwater to CSS, MG | Daily Sanitary Sewage Generation per CEQR TM, MGD | Sanitary to CSS , MG |
|---|---|---|---|---|---|---|
| 0.00 | 3.80 | 1.93 | 0.72 | 0.00 | 0.14 | 0.022 |
| 0.40 | 3.80 | 1.93 | 0.72 | 0.02 | 0.14 | 0.022 |
| 1.20 | 11.30 | 1.93 | 0.72 | 0.05 | 0.14 | 0.066 |
| 2.50 | 19.50 | 1.93 | 0.72 | 0.09 | 0.14 | 0.114 |

**RECEIVING WATERBODY FOR STORM SEWER OR DIRECT DISCHARGE:**

| Rainfall (I), in | Duration, hr | Total Area (A), acre | Weighted Runoff Coefficient (C) | Stormwater Runoff, MG | Daily Sanitary Sewage Generation per CEQR TM, MGD | Sanitary to CSS, MG | TOTAL Sanitary to CSS , MG | TOTAL TO CSS, MG |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 3.80 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.022 | 0.02 |
| 0.40 | 3.80 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.022 | 0.04 |
| 1.20 | 11.30 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.066 | 0.11 |
| 2.50 | 19.50 | 0 | 0.00 | 0.00 | 0.00 | 0.000 | 0.114 | 0.21 |

## LEGEND

| | |
|---|---|
| Sewer Manhole | S |
| WaterManhole | W |
| Electric Manhole | E |
| Monitoring Well | MW |
| Tree & Caliper | 8" |
| Catch Basin | |
| Water Valve | |
| Gas Valve | |
| Fire Hydrant | HYD |
| Light Pole | L.P. |
| Traffic Signal | |
| Traffic Sign | T.S. |
| Pedestrian Ramp | |
| Top Curb Elevation | TC48.65 |
| Bottom Curb Elevation | BC48.40 |
| Legal Grade | LG49.52 |
| Rim Elevation | RIM=48.97 |
| Invert | Inv=36.9 |
| Top Catch Basin Elevation | TCB48.65 |
| Bottom Catch Basin Elevation | BCB48.40 |
| Spot Elevation | +48.56 |
| Chain Link Fence | |
| Steel Face Curb | |
| Concrete or Stone Curb | |
| Drop Curb | |
| Sewer Line | |
| Water Line | |
| Gas Line | |

*Notes:*

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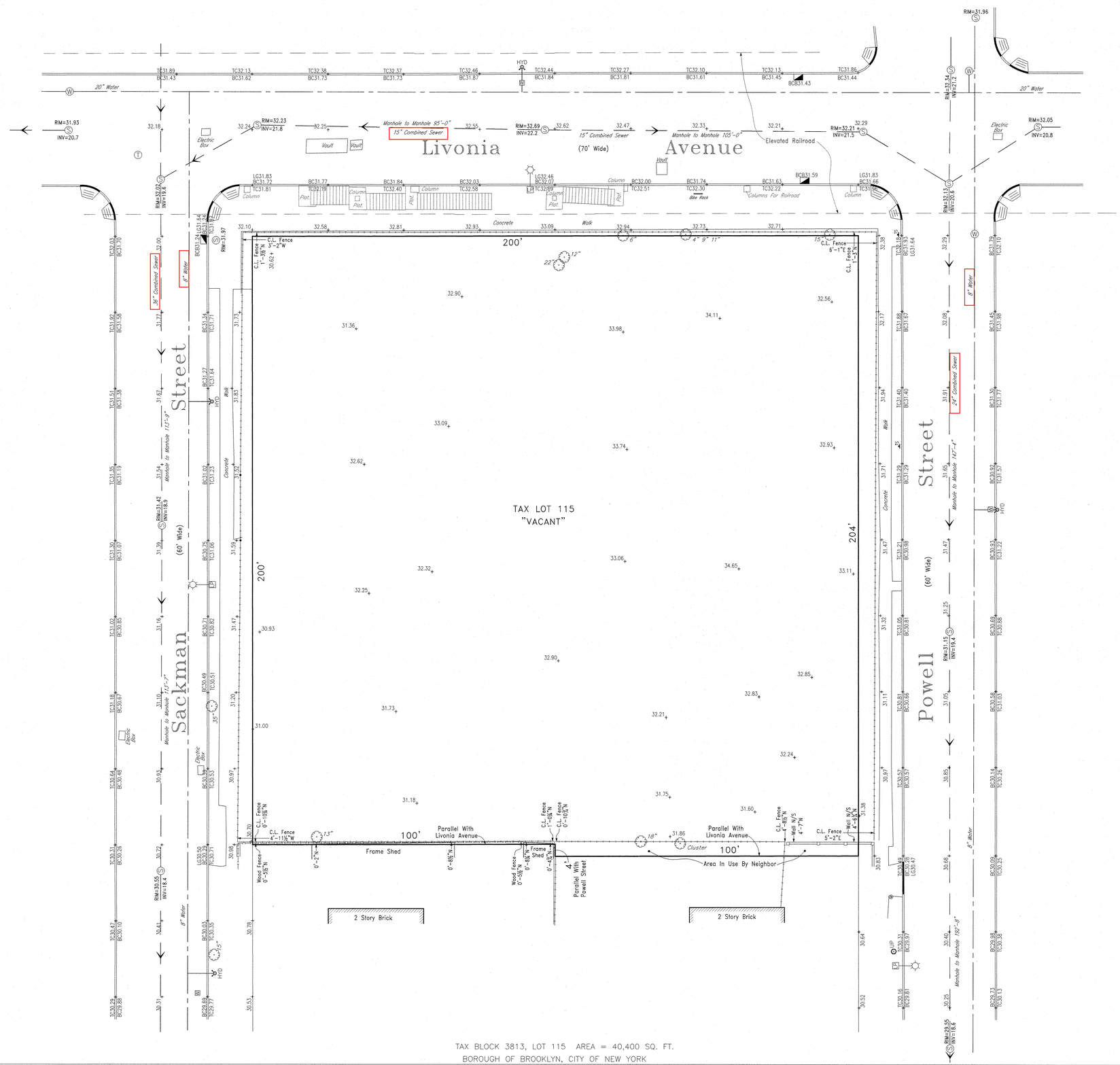
4) LEGAL GRADES REFER TO TOP OF CURB.
5) THERE ARE NO VISIBLE STREAMS OR WATERCOURSES ON THE PROPERTY AS SHOWN ON THIS SURVEY.
6) UNDERGROUND FOUNDATIONS OR SUBSTRUCTURES NOT VISIBLE NOT SHOWN.




TAX BLOCK 3813, LOT 115 AREA = 40,400 SQ. FT.
BOROUGH OF BROOKLYN, CITY OF NEW YORK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ERLANDSEN-CROWELL & SHAW
FOUNDED IN 1852 BY E.W. CONKLIN
Civil Engineers & City Surveyors
241 JERICHO TPKE NEW HYDE PARK, NY 11040 516-326-4353 718-526-0339


DATE: October 17, 2018

Scale: 1"=16'

69673

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## LEGEND

| | |
|---|---|
| Sewer Manhole | S |
| WaterManhole | W |
| Electric Manhole | E |
| Monitoring Well | Monitor Well |
| Tree & Caliper | 8" |
| Catch Basin | |
| Water Valve | |
| Gas Valve | |
| Fire Hydrant | HYD |
| Light Pole | L.P. |
| Traffic Signal | T.S. |
| Traffic Sign | |
| Pedestrian Ramp | |
| Top Curb Elevation | TC48.65 |
| Bottom Curb Elevation | BC48.40 |
| Legal Grade | LG49.52 |
| Rim Elevation | RIM=48.97 |
| Invert | Inv=36.9 |
| Top Catch Basin Elevation | TCB48.65 |
| Bottom Catch Basin Elevation | BCB48.40 |
| Spot Elevation | +48.56 |
| Chain Link Fence | |
| Steel Face Curb | |
| Concrete or Stone Curb | |
| Drop Curb | |
| Sewer Line | |
| Water Line | |
| Gas Line | |

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4) LEGAL GRADES REFER TO TOP OF CURB.
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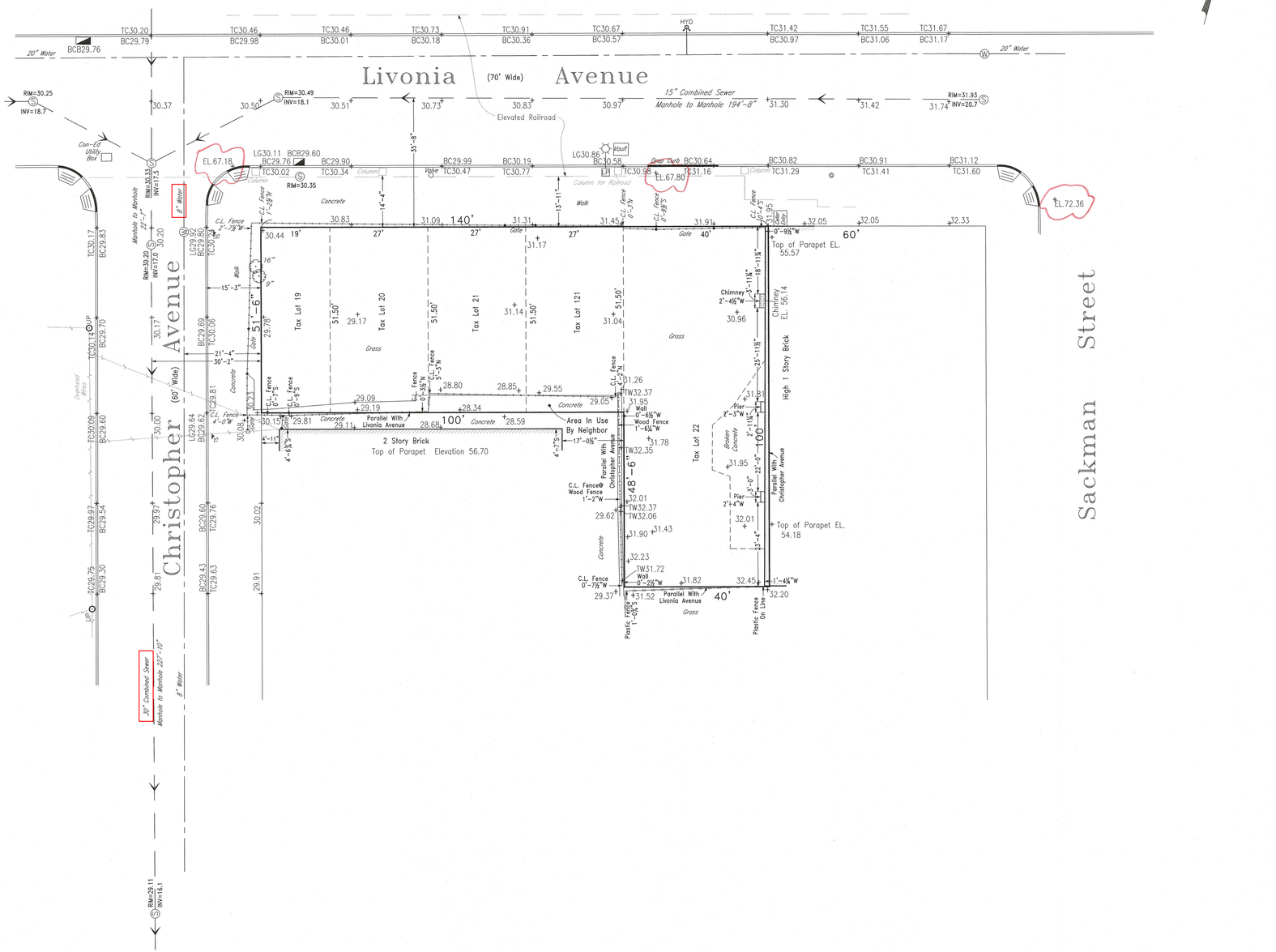


Site C2 (368 Livonia Avenue)

TAX BLOCK 3812, LOTS 19, 20, 21, 22 & 121 AREA = 9,150 SQ. FT.
BOROUGH OF BROOKLYN, CITY OF NEW YORK

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ERLANDSEN-CROWELL & SHAW
FOUNDED IN 1852 BY E.W. CONKLIN
Civil Engineers & City Surveyors
241 JERICHO TPKE NEW HYDE PARK, NY 11040 516-326-4353 718-526-0339

DATE: October 17, 2018
ADDITIONAL INFORMATION: April 26, 2019
Scale: 1"=16'

69685

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## LEGEND

| | |
|---|---|
| Sewer Manhole | S |
| WaterManhole | W |
| Electric Manhole | E |
| Monitoring Well | MW |
| Tree & Caliper | 8" |
| Catch Basin | |
| Water Valve | |
| Gas Valve | |
| Fire Hydrant | HYD |
| Light Pole | L.P. |
| Utility Pole | UP |
| Traffic Signal | |
| Traffic Sign | T.S. |
| Pedestrian Ramp | |
| Top Curb Elevation | TC48.65 |
| Bottom Curb Elevation | BC48.40 |
| Legal Grade | LG49.52 |
| Rim Elevation | RIM=48.97 |
| Invert | Inv=36.9 |
| Top Catch Basin Elevation | TCB48.65 |
| Bottom Catch Basin Elevation | BCB48.40 |
| Spot Elevation | +48.56 |
| Chain Link Fence | |
| Steel Face Curb | |
| Concrete or Stone Curb | |
| Drop Curb | |
| Sewer Line | |
| Water Line | |
| Gas Line | |

*Notes:*

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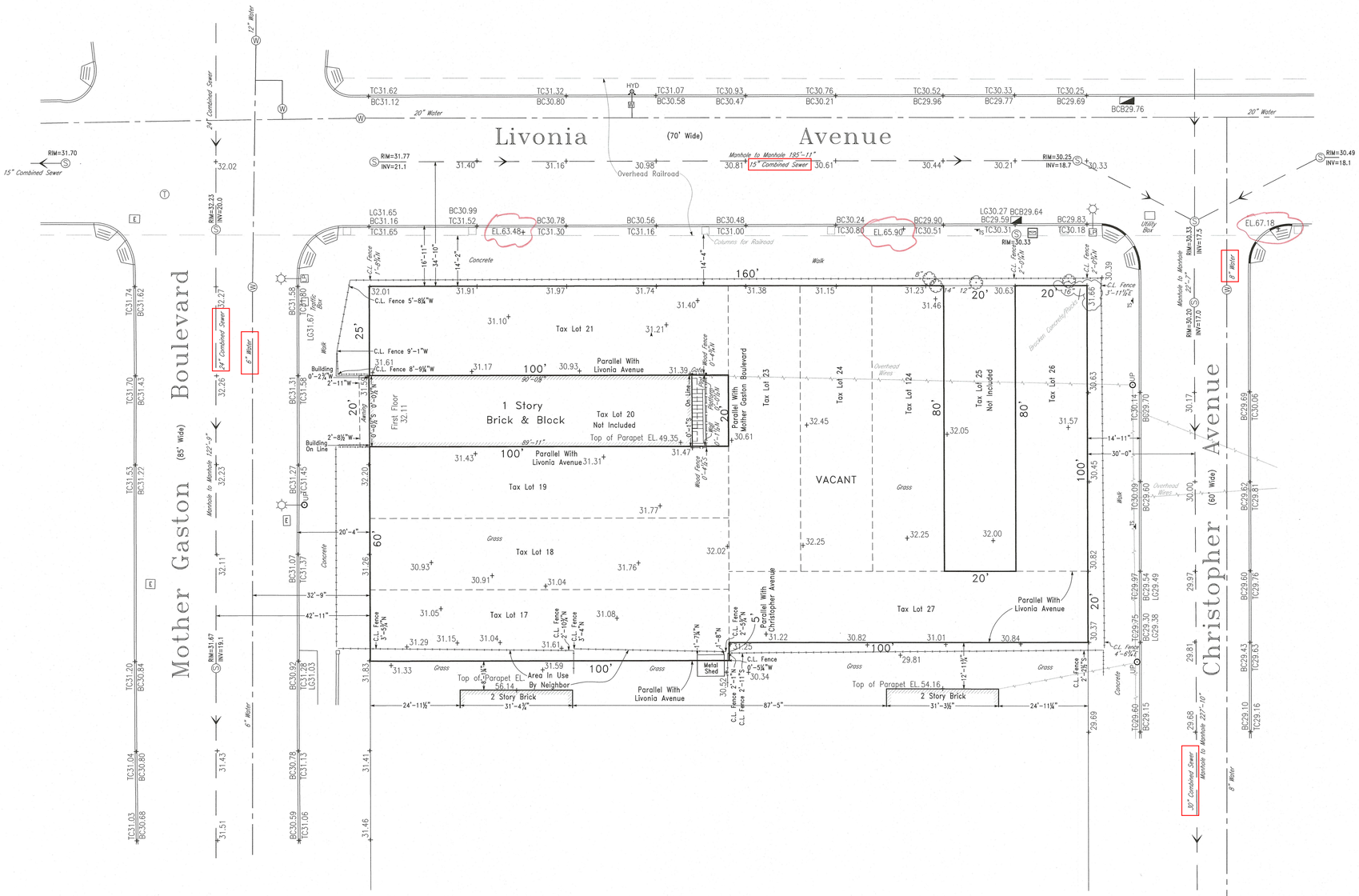


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Site C3

TAX BLOCK 3811, LOTS 17, 18, 19, 21, 23, 24, 26, 27 & 124 AREA = 16,900 SQ. FT.
BOROUGH OF BROOKLYN, CITY OF NEW YORK


ERLANDSEN-CROWELL & SHAW
FOUNDED IN 1852 BY E.W. CONKLIN
Civil Engineers & City Surveyors
241 JERICHO TPKE NEW HYDE PARK, NY 11040 516-326-4353 718-526-0339


DATE: October 17, 2018
ADDITIONAL INFORMATION: April 26, 2019

Scale: 1"=16'

69687

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## LEGEND

| | |
|---|---|
| Sewer Manhole | Ⓢ |
| WaterManhole | Ⓦ |
| Electric Manhole | Ⓔ |
| Monitoring Well | MW |
| Tree & Caliper | 8" |
| Catch Basin | |
| Water Valve | W |
| Gas Valve | G |
| Fire Hydrant | HYD |
| Light Pole | L.P. |
| Traffic Signal | |
| Traffic Sign | T.S. |
| Pedestrian Ramp | |
| Top Curb Elevation | TC48.65 |
| Bottom Curb Elevation | BC48.40 |
| Legal Grade | LG49.52 |
| Rim Elevation | RIM=48.97 |
| Invert | Inv=36.9 |
| Top Catch Basin Elevation | TCB48.65 |
| Bottom Catch Basin Elevation | BCB48.40 |
| Spot Elevation | +48.56 |
| Chain Link Fence | |
| Steel Face Curb | |
| Concrete or Stone Curb | |
| Drop Curb | |
| Sewer Line | |
| Water Line | |
| Gas Line | |

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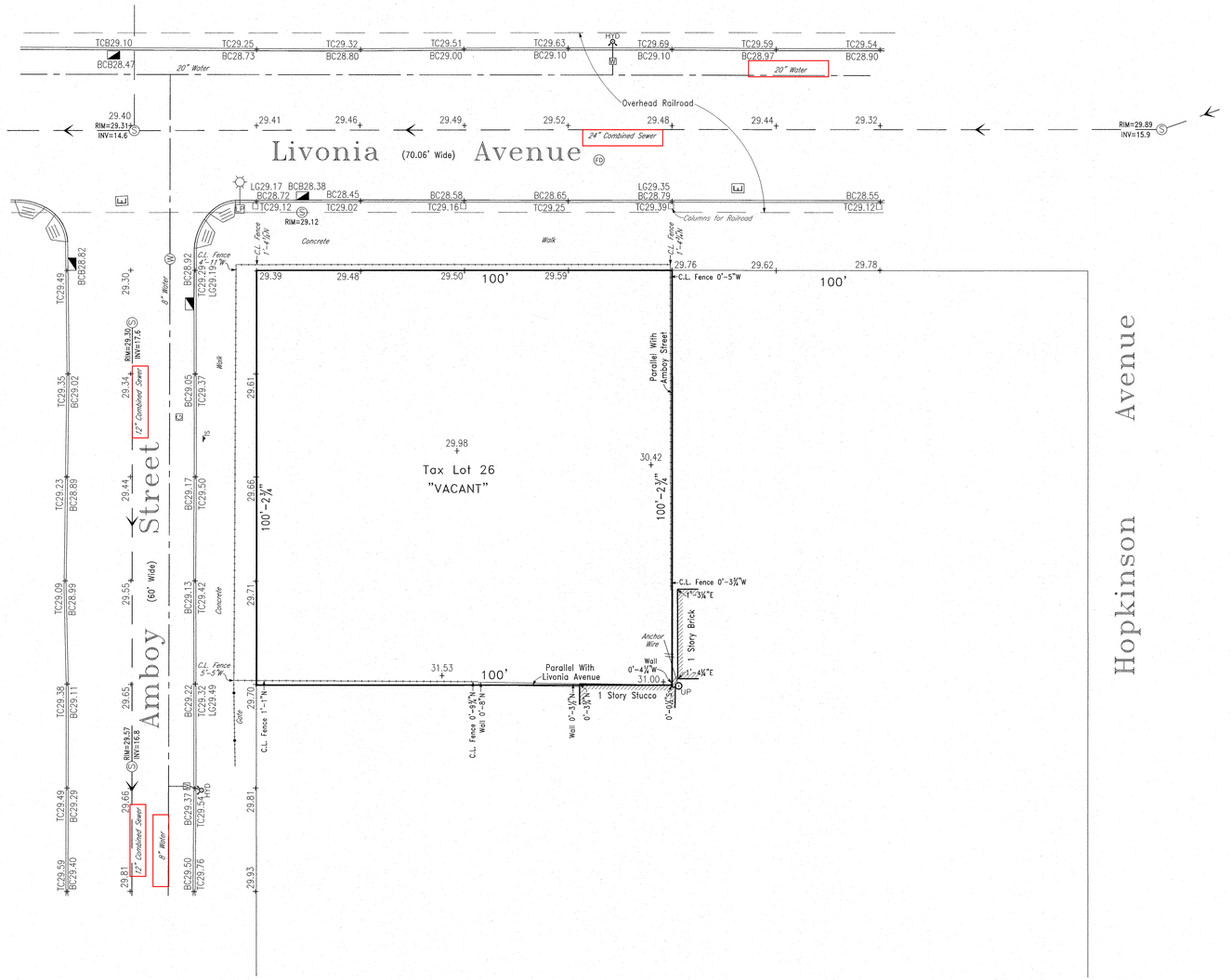


TAX BLOCK 3586, LOT 26 AREA = 10,023 SQ. FT.
BOROUGH OF BROOKLYN, CITY OF NEW YORK

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FOUNDED IN 1852 BY E.W. CONKLIN
Civil Engineers & City Surveyors
241 JERICHO TPKE NEW HYDE PARK, NY 11040 516-326-4353 718-526-0339

DATE: October 22, 2018

Scale: 1"=16'

69674

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# TRANSPORTATION APPENDIX

# Livonia Avenue, Brooklyn NY

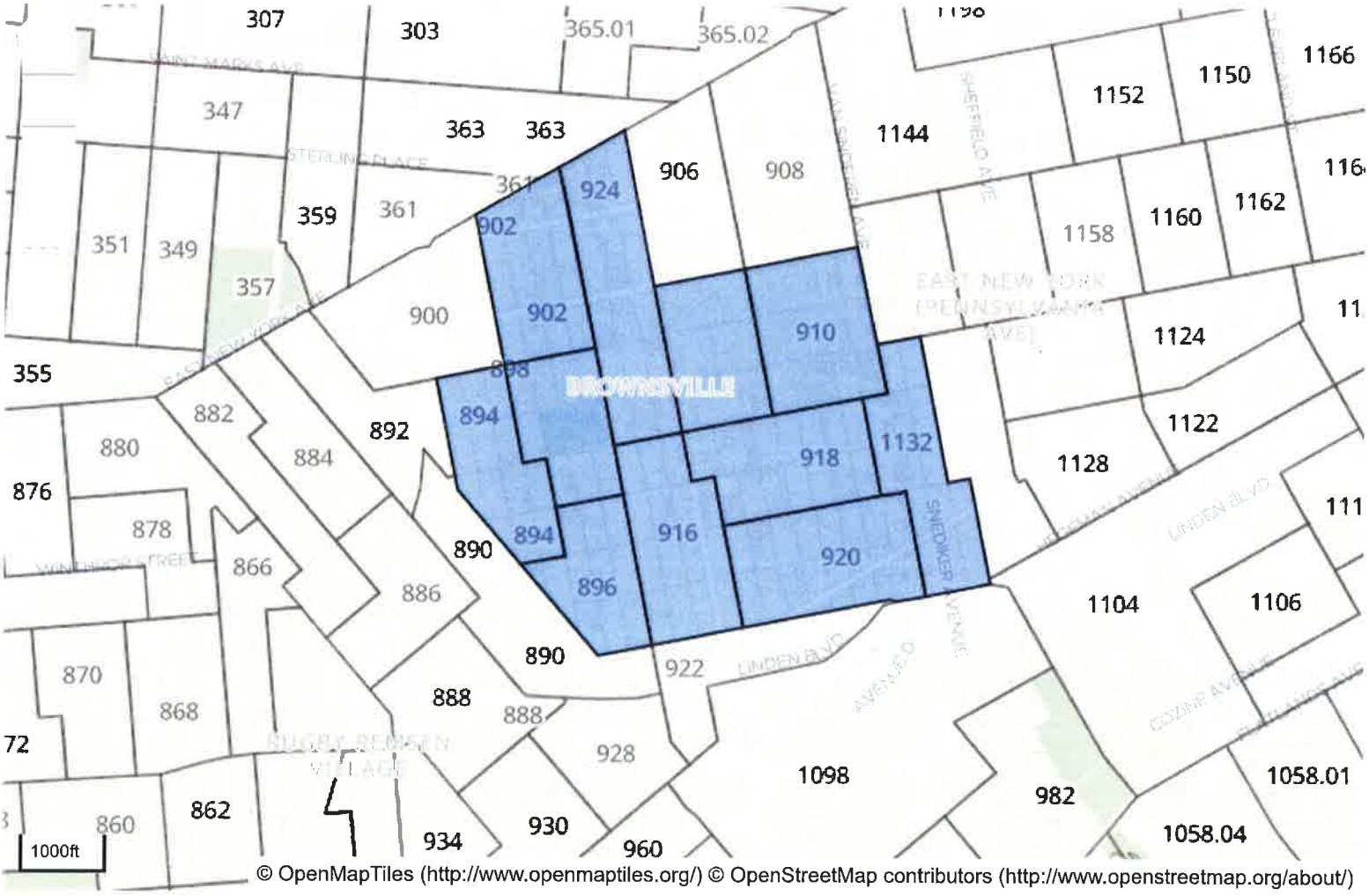
## Mixed-Use Developments

### Transportation Appendix

May 10, 2022

NYC PLANNING (http://www1.nyc.gov/site/planning/index.page) **Population FactFinder (/)**

**Census Block** **Census Tract** **Neighborhood (NTA)** **PUMA**

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Draw

Select individual census tracts to add them to the profile.

Polygon Radius

## View Profile
**11 Tracts**

Advanced Options

Clear Selection

# Exhibit A

## Modal Split Information

**2015-2019 ACS 5-YEAR Journey-to-Work (JTW) for Census Tract numbers 894, 896, 898, 902, 910, 912, 916,918, 920, 924 and 1132 in Brooklyn, NY**

*Livonia Avenue, Brooklyn New York*

| Census Tract | Total Workers | Car or Van Drive-Alone | Carpool | Bus | Street Car | Subway | R.R. | Ferry | Taxi | Motor cycle | Bicycle | Walked | Other Means | Worked @ Home | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 894 | 1034 | 141 | 56 | 244 | 0 | 463 | 85 | 0 | 0 | 0 | 0 | 20 | 0 | 25 | 1,034 |
| 896 | 1255 | 292 | 22 | 133 | 0 | 566 | 0 | 0 | 0 | 0 | 0 | 231 | 0 | 11 | 1,255 |
| 898 | 762 | 121 | 6 | 145 | 0 | 458 | 16 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 762 |
| 902 | 1244 | 164 | 32 | 85 | 6 | 748 | 35 | 0 | 16 | 0 | 17 | 60 | 7 | 74 | 1,244 |
| 910 | 822 | 66 | 63 | 47 | 0 | 624 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 822 |
| 912 | 1434 | 122 | 17 | 219 | 0 | 859 | 20 | 0 | 29 | 0 | 0 | 107 | 0 | 61 | 1,434 |
| 916 | 1179 | 207 | 170 | 196 | 0 | 536 | 21 | 0 | 13 | 0 | 0 | 16 | 0 | 20 | 1,179 |
| 918 | 867 | 286 | 49 | 30 | 0 | 465 | 0 | 0 | 0 | 0 | 6 | 26 | 0 | 5 | 867 |
| 920 | 742 | 144 | 8 | 102 | 0 | 429 | 37 | 0 | 0 | 0 | 0 | 11 | 0 | 11 | 742 |
| 924 | 878 | 147 | 5 | 175 | 0 | 447 | 0 | 0 | 25 | 0 | 0 | 51 | 0 | 28 | 878 |
| 1132 | 921 | 260 | 15 | 85 | 0 | 515 | 0 | 0 | 9 | 0 | 10 | 11 | 0 | 16 | 921 |
| Total | 11,138 | 1,950 | 443 | 1,461 | 6 | 6,110 | 236 | 0 | 92 | 0 | 33 | 549 | 7 | 251 | 11,138 |
| | | *0.175* | *0.040* | *0.131* | *0.00* | *0.549* | *0.021* | *0.00* | *0.01* | *0.00* | *0.00* | *0.049* | *0.00* | *0.023* | *1.00* |

### Modal Split summary

| | |
|---|---|
| **Auto** | **0.215** |
| **Taxi** | **0.008** |
| **Bus** | **0.132** |
| **Subway** | **0.570** |
| **Walk** | **0.049** |
| **Other** | **0.026** |
| **Total** | **1.000** |

# Exhibit B

## Vehicle Occupancy Information

**2015-2019 ACS 5-YEAR Journey-to-Work (JTW) for Census Tract numbers 894, 896, 898, 902, 910, 912, 916,918, 920, 924 and 1132 in Brooklyn, NY**

***Livonia Avenue, Brooklyn New York***

| Census Tract | Total | Drove alone | carpool Total | 2person | 3 Person | 4 Person | 5 or 6 Persor | 7 or more Person | Total |
|---|---|---|---|---|---|---|---|---|---|
| 894 | 197 | 141 | 56 | 44 | 12 | 0 | 0 | 0 | 56 |
| 896 | 314 | 292 | 22 | 22 | 0 | 0 | 0 | 0 | 22 |
| 898 | 127 | 121 | 6 | 6 | 0 | 0 | 0 | 0 | 6 |
| 902 | 196 | 164 | 32 | 16 | 7 | 9 | 0 | 0 | 32 |
| 910 | 129 | 66 | 63 | 63 | 0 | 0 | 0 | 0 | 63 |
| 912 | 139 | 122 | 17 | 17 | 0 | 0 | 0 | 0 | 17 |
| 916 | 377 | 207 | 170 | 116 | 0 | 11 | 43 | 0 | 170 |
| 918 | 335 | 286 | 49 | 49 | 0 | 0 | 0 | 0 | 49 |
| 920 | 152 | 144 | 8 | 0 | 0 | 8 | 0 | 0 | 8 |
| 924 | 152 | 147 | 5 | 0 | 0 | 0 | 5 | 0 | 5 |
| 1132 | 275 | 260 | 15 | 7 | 8 | 0 | 0 | 0 | 15 |
| | 2,393 | 1,950 | 443 | 340 | 27 | 28 | 48 | 0 | 443 |
| | | 1,950 | | 170 | 9 | 7 | 9 | 0 | 2,145 |
| **Vehicle Occupancy =** | | | **1.12** | | | | | | |




Livonia Avenue Mixed-Use Development, Brooklyn, NY

Project Study Area Map and Traffic Flow

- Site Development C1: Block 3813, Lot 115
- Site Development C2: Block 3812, Lots 19-22 and 121
- Site Development C3: Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27 and 124
- Site Development C4: Block 3586, Lot 40
- Site Development C5: Block 3812, Lot 24

Figure 1

# Table 2 : Transportation Planning Factors

## *Livonia Avenue, Brooklyn NY*

## *Site 1 (Block 3813, Lot 115)*

| Land Use: | Residential | Supermarket | | local retail | Community |
|---|---|---|---|---|---|
| | | Weekday | Saturday | | farm |
| | d.u. | gsf | gsf | gsf | gsf |
| Size/Units: | 226 | 15,629 | | 4,136 | 13,119 |
| | **(1)** | **(1)** | **(1)** | **(1)** | **(1)** |
| Trip Generation: | | | | | |
| Weekday | 8.075 | 175 | | 205 | 44.7 |
| Saturday | 9.6 | | 231 | 240 | 26.1 |
| | per d.u. | per 1,000 gsf | per 1,000 gsf | per 1,000 gsf | per 1,000 gsf |
| | | **(6)** | **(6)** | **(6)** | **(6)** |
| Linked-Trip: | 0% | 70% | 70% | 70% | 70% |
| Temporal Dist.: | **(1)** | **(1)** | **(1)** | **(1)** | **(1)** |
| AM Peak Hour | 10% | 5% | | 3% | 4% |
| MD Peak Hour | 5% | 6% | | 19% | 9% |
| PM Peak Hour | 11% | 10% | | 10% | 5% |
| Sat. MD Peak Hour | 8% | | 9% | 10% | 9% |
| | **(2)** | **(4)** | **(4)** | **(5)** | **(4)** |
| Modal Split : | all periods | all periods | all periods | all periods | all periods |
| Auto | 21.5% | 21% | 14% | 11% | 5% |
| Taxi | 0.8% | 3% | 5% | 0% | 1% |
| Subway | 57% | 14% | 8% | 3% | 3% |
| Bus | 13.2% | 4% | 6% | 2% | 6% |
| Walk & Other | 7.5% | 58% | 67% | 84% | 85% |
| Total | 100% | 100% | 100% | 100% | 100% |
| | **(6)** | **(6)** | **(6)** | **(4)** | **(4)** |
| In/Out Splits: | In/Out | In/Out | In/Out | In/Out | In/Out |
| AM Peak Hour | 15/85 | 45/55 | | 50/50 | 61/39 |
| MD Peak Hour | 50/50 | 46/54 | | 50/50 | 55/45 |
| PM Peak Hour | 70/30 | 47/53 | | 50/50 | 29/71 |
| Sat. MD Peak Hour | 50/50 | | 46/54 | 55/45 | 49/51 |
| Vehicle Occupancy: | **(2&4)** | **(4)** | **(4)** | **(4)** | **(4)** |
| Auto | 1.12 | 1.58 | 1.9 | 2 | 1.65 |
| Taxi | 1.4 | 1.58 | 1.9 | 2 | 1.4 |
| Truck Trip Gen.: | **(1)** | **(4)** | **(4)** | **(4)** | **(4)** |
| Weekday | 0.06 | 0.35 | | 0.35 | 0.29 |
| Saturday | 0.02 | | 0.04 | 0.04 | 0.29 |
| | per 1,000 gsf | per 1,000 gsf | per 1,000 gsf | per 1,000 gsf | per 1,000 gsf |
| | **(1)** | **(4)** | **(4)** | **(4)** | **(4)** |
| AM Peak Hour | 12% | 8% | | 8% | 9.6% |
| MD Peak Hour | 9% | 11% | | 11% | 11% |
| PM Peak Hour | 2% | 2% | | 1% | 1% |
| Sat. MD Peak Hour | 9% | | 11% | 11% | 0% |
| AM/MD/PM/Sat. MD | 50/50 | 50/50 | 50/50 | 50/50 | 50/50 |

*Note: 32,941 gsf commercial development would consist of 15,629 gsf of supermarket, 4,136 gsf of local retail, and 13,176 gsf of parking for 15 parking spaces accessory to the supermarket.*

(1)-2020 CEQR Technical Manual, Table 16-2.

(2)-2015-2019 (ACS)-Journey-to-Work (JTW)Census Tract #'s 894, 896, 898, 902, 910, 912, 916, 918, 920, 924 and 1132 in Brooklyn N.Y.

(3)_Stevenson Commons EIS, Table 11-5.

(4)-Gowanus Neighborhood Rezoning and Related Action EIS, Table 14-8.

(5)-modal split and vehicle occ. Rates, provided by NYCDOT for a local retail space in a Transit Zone (TZ).

(6)-East New York Rezoning FEIS, Tables 13-8 & 13-9-Proposed uses are accessory (support) to the proposed development.

# Table 3 : Estimated Person Trips

***Livonia Avenue, Brooklyn NY***

***Site1 (Block 3813, Lot 115)***

| Land Use: | Residential | Supermarket | | local retail | Community farm | Total | Subway |
|---|---|---|---|---|---|---|---|
| | | Weekday | Saturday | | | | Bus |
| | d.u. | gsf | gsf | gsf | gsf | | Walk/other |
| Size/Units: | 226 | 15,629 | 15,629 | 4,136 | 13,119 | | Total pedestrians |
| | | | | | | | |
| Peak hour Trips | | | | | | | |
| AM Peak Hour | 182 | 41 | | 8 | 7 | 238 | |
| Midday Peak Hour | 91 | 49 | | 48 | 16 | 205 | |
| PM Peak Hour | 201 | 82 | | 25 | 9 | 317 | |
| Sat. MD Peak Hour | 174 | | 97 | 30 | 9 | 310 | |
| | | | | | | | |
| **Person Trips:** | | | | | | | |
| ***AM Peak Hour*** | | | | | | | |
| Auto | 39 | 9 | | 1 | 0 | 49 | |
| Taxi | 1 | 1 | | 0 | 0 | 3 | |
| Subway | 104 | 6 | | 0 | 0 | 110 | 110 |
| Bus | 24 | 2 | | 0 | 0 | 26 | 26 |
| Walk & Other | 14 | 24 | | 6 | 6 | 50 | 50 |
| Total | 182 | 41 | | 8 | 7 | 239 | 186 |
| ***Midday Peak Hour*** | | | | | | | |
| Auto | 20 | 10 | | 5 | 1 | 36 | |
| Taxi | 1 | 1 | | 0 | 0 | 2 | |
| Subway | 52 | 7 | | 1 | 0 | 60 | 60 |
| Bus | 12 | 2 | | 1 | 1 | 16 | 16 |
| Walk & Other | 7 | 29 | | 41 | 13 | 89 | 89 |
| Total | 92 | 49 | | 48 | 15 | 204 | 165 |
| ***PM Peak Hour*** | | | | | | | |
| Auto | 43 | 17 | | 3 | 0 | 63 | |
| Taxi | 2 | 2 | | 0 | 0 | 4 | |
| Subway | 114 | 11 | | 1 | 0 | 127 | 127 |
| Bus | 26 | 3 | | 1 | 1 | 31 | 31 |
| Walk & Other | 15 | 48 | | 21 | 7 | 91 | 91 |
| Total | 201 | 82 | | 25 | 9 | 317 | 249 |
| ***Sat. MD Peak Hour*** | | | | | | | |
| Auto | 37 | | 14 | 3 | 0 | 55 | |
| Taxi | 1 | | 5 | 0 | 0 | 6 | |
| Subway | 99 | | 8 | 1 | 0 | 108 | 108 |
| Bus | 23 | | 6 | 1 | 1 | 30 | 30 |
| Walk & Other | 13 | | 65 | 25 | 8 | 111 | 111 |
| Total | 174 | | 98 | 30 | 9 | 310 | 249 |

# Table 4 : Estimated Vehicular Trips

***Livonia Avenue, Brooklyn NY***

***Site 1 (Block 3813, Lot 115)***

| Land Use: | Residential | Supermarket | | local retail | Community farm | Total |
|---|---|---|---|---|---|---|
| | | Weekday | Saturday | | | |
| | d.u. | gsf | gsf | gsf | gsf | |
| Size/Units: | 226 | 15,629 | 15,629 | 4,136 | 13,119 | |
| **Vehicle Trips:** | | | | | | |
| Auto (Total) | 35 | 6 | | 0 | 0 | 41 |
| Taxi | 1 | 1 | | 0 | 0 | 2 |
| Taxi (Balanced) | 2 | 2 | | 0 | 0 | 4 |
| Truck | 2 | 0 | | 0 | 0 | 2 |
| Truck(Balanced) | 2 | 0 | | 0 | 0 | 2 |
| Total | 39 | 8 | | 0 | 0 | 47 |
| ***In/Outbound Trips*** | ***7/32*** | ***4/4*** | | ***0/0*** | ***0/0*** | 11/36 |
| Midday Peak Hour | | | | | | |
| Auto (Total) | 18 | 6 | | 3 | 0 | 27 |
| Taxi | 1 | 1 | | 0 | 0 | 2 |
| Taxi (Balanced) | 2 | 2 | | 0 | 0 | 4 |
| Truck | 1 | 1 | | 0 | 0 | 2 |
| Truck(Balanced) | 2 | 2 | | 0 | 0 | 4 |
| Total | 22 | 10 | | 3 | 0 | 35 |
| ***In/Outbound Trips*** | ***11/11*** | ***4/6*** | | ***2/1*** | ***0/0*** | 17/18 |
| PM Peak Hour | | | | | | |
| Auto (Total) | 38 | 11 | | 1 | 0 | 50 |
| Taxi | 1 | 2 | | 0 | 0 | 3 |
| Taxi (Balanced) | 2 | 4 | | 0 | 0 | 6 |
| Truck | 0 | 0 | | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | | 0 | 0 | 0 |
| Total | 40 | 15 | | 1 | 0 | 56 |
| ***In/Outbound Trips*** | ***28/12*** | ***7/8*** | | ***0/1*** | ***0/0*** | 35/21 |
| Sat. MD Peak Hour | | | | | | |
| Auto (Total) | 33 | | 7 | 2 | 0 | 42 |
| Taxi | 1 | | 3 | 0 | 0 | 4 |
| Taxi (Balanced) | 2 | | 6 | 0 | 0 | 8 |
| Truck | 0 | | 0 | 0 | 0 | 0 |
| Truck(Balanced) | 0 | | 0 | 0 | 0 | 0 |
| Total | 35 | | 13 | 2 | 0 | 50 |
| ***In/Outbound Trips*** | ***18/17*** | | ***6/7*** | ***1/1*** | ***0/0*** | 25/25 |

# Table 5 : Transportation Planning Factors

***Livonia Avenue, Brooklyn NY***

*Site 2 (Block 3812, Lots 19, 20, 21, 22 and 121)*

| Land Use: | Residential | Community Center |
|---|---|---|
| | Support Units | Supportive offices |
| | d.u. | gsf |
| Size/Units: | 81 | 5,052 |
| | **(7)** | **(1)** |
| Trip Generation: | | |
| Weekday | 3.7 | 18 |
| Saturday | 3.7 | 3.9 |
| | per d.u. | per 1,000 s.f. |
| | | (6) |
| Linked-Trip: | 0% | 70% |
| Temporal Dist.: | **(1)** | **(1)** |
| AM Peak Hour | 10% | 12% |
| MD Peak Hour | 5% | 15% |
| PM Peak Hour | 11% | 14% |
| Sat. MD Peak Hour | 8% | 17% |
| | **(2)** | **(4)** |
| Modal Split : | all periods | all periods |
| Auto | 21.5% | 5% |
| Taxi | 0.8% | 1% |
| Subway | 57% | 3% |
| Bus | 13.2% | 6% |
| Walk & Other | 7.5% | 85% |
| Total | 100% | 100% |
| | **(6)** | **(4)** |
| In/Out Splits: | In/Out | In/Out |
| AM Peak Hour | 15/85 | 61/39 |
| MD Peak Hour | 50/50 | 55/45 |
| PM Peak Hour | 70/30 | 29/71 |
| Sat. MD Peak Hour | 50/50 | 49/51 |
| Vehicle Occupancy: | **(2&4)** | **(4)** |
| Auto | 1.12 | 1.65 |
| Taxi | 1.40 | 1.4 |
| Truck Trip Gen.: | **(1)** | **(4)** |
| Weekday | 0.06 | 0.29 |
| Saturday | 0.02 | 0.29 |
| | per 1,000 sqft | per 1,000 s.f. |
| | **(1)** | **(4)** |
| AM Peak Hour | 12% | 9.6% |
| MD Peak Hour | 9% | 11% |
| PM Peak Hour | 2% | 1% |
| Sat. MD Peak Hour | 9% | 0% |
| AM/MD/PM/Sat. MD | 50/50 | 50/50 |

Sources:

(1)-2020 CEQR Technical Manual, Table 16-2.

(2)-2015-2019 (ACS)-Journey-to-Work (JTW)Census Tract #'s 894, 896, 898, 902, 910, 912, 916

(3)_Stevenson Commons EIS, Table 11-5.

(4)-Gowanus Neighborhood Rezoning and Related Action EIS, Table 14-8.

(5)-modal split and vehicle occupancy rates are provided by NYCDOT for a local retail spac

(6)-East New York Rezoning FEIS, Tables 13-8 & 13-9- the proposed uses are accessory (supp

(7)-Zoning for Quality & Affordability Text Amendment (ZQA) FEIS, Page 15-4 and Table 1

# Table 6 : Estimated Person Trips

***Livonia Avenue, Brooklyn NY***

*Site 2 (Block 3812, Lots 19, 20, 21, 22 and 121)*

| Land Use: | Residential Support Units | Community Center Office | Total | subway bus |
|---|---|---|---|---|
| | d.u. | gsf | | walk & other |
| Size/Units: | 81 | 5,052 | | Pedestrian |
| Peak hour Trips | | | | |
| AM Peak Hour | 30 | 3 | 33 | |
| Midday Peak Hour | 15 | 4 | 19 | |
| PM Peak Hour | 33 | 4 | 37 | |
| Sat. MD Peak Hour | 24 | 1 | 25 | |
| **Person Trips:** | | | | |
| ***AM Peak Hour*** | | | | |
| Auto | 6 | 0 | 6 | |
| Taxi | 0 | 0 | 0 | |
| Subway | 17 | 0 | 17 | 17 |
| Bus | 4 | 0 | 4 | 4 |
| Walk & Other | 2 | 3 | 5 | 5 |
| Total | 30 | 3 | 33 | 26 |
| ***Midday Peak Hour*** | | | | |
| Auto | 3 | 0 | 3 | |
| Taxi | 0 | 0 | 0 | |
| Subway | 9 | 0 | 9 | 9 |
| Bus | 2 | 0 | 2 | 2 |
| Walk & Other | 1 | 3 | 5 | 5 |
| Total | 15 | 4 | 19 | 16 |
| ***PM Peak Hour*** | | | | |
| Auto | 7 | 0 | 7 | |
| Taxi | 0 | 0 | 0 | |
| Subway | 19 | 0 | 19 | 19 |
| Bus | 4 | 0 | 5 | 5 |
| Walk & Other | 2 | 3 | 6 | 6 |
| Total | 33 | 4 | 37 | 29 |
| ***Sat. MD Peak Hour*** | | | | |
| Auto | 5 | 0 | 5 | |
| Taxi | 0 | 0 | 0 | |
| Subway | 14 | 0 | 14 | 14 |
| Bus | 3 | 0 | 3 | 3 |
| Walk & Other | 2 | 1 | 3 | 3 |
| Total | 24 | 1 | 25 | 20 |

# Table 7 : Estimated Vehicular Trips

***Livonia Avenue, Brooklyn NY***

*Site 2 (Block 3812, Lots 19, 20, 21, 22 and 121)*

| Land Use: | Residential Support Units d.u. | Community Center Office gsf | Total |
|---|---|---|---|
| Size/Units: | 81 | 5,052 | |
| **Vehicle Trips:** | | | |
| Auto (Total) | 6 | 0 | 6 |
| Taxi | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 |
| Truck | 1 | 0 | 1 |
| Truck(Balanced) | 2 | 0 | 2 |
| Total | 8 | 0 | 8 |
| ***In/Outbound Trips*** | ***2/6*** | ***0/0*** | 2/6 |
| Midday Peak Hour | | | |
| Auto (Total) | 3 | 0 | 3 |
| Taxi | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 |
| Truck | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 |
| Total | 3 | 0 | 3 |
| ***In/Outbound Trips*** | ***2/1*** | ***0/0*** | 2/1 |
| PM Peak Hour | | | |
| Auto (Total) | 6 | 0 | 6 |
| Taxi | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 |
| Truck | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 |
| Total | 6 | 0 | 6 |
| ***In/Outbound Trips*** | ***4/2*** | ***0/0*** | 4/2 |
| Sat. MD Peak Hour | | | |
| Auto (Total) | 5 | 0 | 5 |
| Taxi | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 |
| Truck | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 |
| Total | 5 | 0 | 5 |
| ***In/Outbound Trips*** | ***3/2*** | ***0/0*** | 3/2 |

# Table 8 : Transportation Planning Factors

## *Livonia Avenue, Brooklyn NY*

*Site 3 (Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27 and 124)*

| Land Use: | Residential | Local | Community |
|---|---|---|---|
| | Senior | Retail | Center for Senior |
| | d.u. | gsf | gsf |
| Size/Units: | 140 | 1,700 | 10,000 |
| | **(7)** | **(1)** | **(1)** |
| Trip Generation: | | | |
| Weekday | 3.7 | 205 | 44.7 |
| Saturday | 3.7 | 240 | 26.1 |
| | per d.u. | per 1,000 s.f. | per 1,000 s.f. |
| | | (6) | (6) |
| Linked-Trip: | 0% | 70% | 70% |
| Temporal Dist.: | **(1)** | **(1)** | **(1)** |
| AM Peak Hour | 10% | 3% | 4% |
| MD Peak Hour | 5% | 19% | 9% |
| PM Peak Hour | 11% | 10% | 5% |
| Sat. MD Peak Hour | 8% | 10% | 9% |
| | **(2)** | **(5)** | **(4)** |
| Modal Split : | all periods | all periods | all periods |
| Auto | 21.5% | 11% | 5% |
| Taxi | 0.8% | 0% | 1% |
| Subway | 57% | 3% | 3% |
| Bus | 13.2% | 2% | 6% |
| Walk & Other | 7.5% | 84% | 85% |
| Total | 100% | 100% | 100% |
| | **(6)** | **(4)** | **(4)** |
| In/Out Splits: | In/Out | In/Out | In/Out |
| AM Peak Hour | 15/85 | 50/50 | 61/39 |
| MD Peak Hour | 50/50 | 50/50 | 55/45 |
| PM Peak Hour | 70/30 | 50/50 | 29/71 |
| Sat. MD Peak Hour | 50/50 | 55/45 | 49/51 |
| Vehicle Occupancy: | **(2&4)** | **(4)** | **(4)** |
| Auto | 1.12 | 2 | 1.65 |
| Taxi | 1.30 | 2 | 1.4 |
| Truck Trip Gen.: | **(1)** | **(4)** | **(4)** |
| Weekday | 0.06 | 0.35 | 0.29 |
| Saturday | 0.02 | 0.04 | 0.29 |
| | per 1,000 sqft | per 1,000 s.f. | per 1,000 s.f. |
| | **(1)** | **(4)** | **(4)** |
| AM Peak Hour | 12% | 8% | 9.6% |
| MD Peak Hour | 9% | 11% | 11% |
| PM Peak Hour | 2% | 1% | 1% |
| Sat. MD Peak Hour | 9% | 11% | 0% |
| AM/MD/PM/Sat. MD | 50/50 | 50/50 | 50/50 |

Sources:

(1)-2020 CEQR Technical Manual, Table 16-2.

(2)-2015-2019 (ACS)-Journey-to-Work (JTW)Census Tract #'s 894, 896, 898, 902, 910, 912, 916, 9

(3)_Stevenson Commons EIS, Table 11-5.

(4)-Gowanus Neighborhood Rezoning and Related Action EIS, Table 14-8.

(5)-modal split and vehicle occupancy rates are provided by NYCDOT for a local retail space i

(6)-East New York Rezoning FEIS, Tables 13-8 & 13-9- proposed uses are accessory (supportive

(7)-Zoning for Quality & Affordability Text Amendment (ZQA) FEIS, Page 15-4 and Table 15-4

# Table 9 : Estimated Person Trips

## *Livonia Avenue, Brooklyn NY*

*Site 3 (Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27 and 124)*

| Land Use: | Residential Senior d.u. | Local Retail gsf | Community Senior Center gsf | Total | Subway Bus Walk/other Total pedestrians |
|---|---|---|---|---|---|
| Size/Units: | 140 | 1,700 | 10,000 | | |
| Peak hour Trips | | | | | |
| AM Peak Hour | 52 | 3 | 5 | 60 | |
| Midday Peak Hour | 26 | 20 | 12 | 58 | |
| PM Peak Hour | 57 | 10 | 7 | 74 | |
| Sat. MD Peak Hour | 41 | 12 | 7 | 61 | |
| **Person Trips:** | | | | | |
| ***AM Peak Hour*** | | | | | |
| Auto | 11 | 0 | 0 | 12 | |
| Taxi | 0 | 0 | 0 | 0 | |
| Subway | 30 | 0 | 0 | 30 | 30 |
| Bus | 7 | 0 | 0 | 7 | 7 |
| Walk & Other | 4 | 3 | 5 | 11 | 11 |
| Total | 52 | 3 | 5 | 60 | 48 |
| ***Midday Peak Hour*** | | | | | |
| Auto | 6 | 2 | 1 | 9 | |
| Taxi | 0 | 0 | 0 | 0 | |
| Subway | 15 | 1 | 0 | 16 | 16 |
| Bus | 3 | 0 | 1 | 5 | 5 |
| Walk & Other | 2 | 17 | 10 | 29 | 29 |
| Total | 27 | 20 | 12 | 59 | 49 |
| ***PM Peak Hour*** | | | | | |
| Auto | 12 | 1 | 0 | 13 | |
| Taxi | 0 | 0 | 0 | 1 | |
| Subway | 32 | 0 | 0 | 33 | 33 |
| Bus | 8 | 0 | 0 | 8 | 8 |
| Walk & Other | 4 | 9 | 6 | 19 | 19 |
| Total | 57 | 10 | 7 | 74 | 60 |
| ***Sat. MD Peak Hour*** | | | | | |
| Auto | 9 | 1 | 0 | 11 | |
| Taxi | 0 | 0 | 0 | 0 | |
| Subway | 24 | 0 | 0 | 24 | 24 |
| Bus | 5 | 0 | 0 | 6 | 6 |
| Walk & Other | 3 | 10 | 6 | 19 | 19 |
| Total | 41 | 12 | 7 | 61 | 50 |

# Table 10 : Estimated Vehicular Trips

## *Livonia Avenue, Brooklyn NY*

*Site 3 (Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27 and 124)*

| Land Use: | Residential Senior d.u. | Local Retail gsf | Community Senior Center gsf | Total |
|---|---|---|---|---|
| Size/Units: | 140 | 1,700 | 10,000 | |
| **Vehicle Trips:** | | | | |
| Auto (Total) | 10 | 0 | 0 | 10 |
| Taxi | 0 | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 | 0 |
| Truck | 1 | 0 | 0 | 1 |
| Truck(Balanced) | 2 | 0 | 0 | 2 |
| Total | 12 | 0 | 0 | 12 |
| ***In/Outbound Trips*** | ***3/9*** | ***0/0*** | ***0/0*** | 3/9 |
| Midday Peak Hour | | | | |
| Auto (Total) | 5 | 1 | 0 | 6 |
| Taxi | 0 | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 | 0 |
| Truck | 1 | 0 | 0 | 1 |
| Truck(Balanced) | 2 | 0 | 0 | 2 |
| Total | 7 | 1 | 0 | 8 |
| ***In/Outbound Trips*** | ***3/4*** | ***1/0*** | ***0/0*** | 4/4 |
| PM Peak Hour | | | | |
| Auto (Total) | 11 | 1 | 0 | 12 |
| Taxi | 0 | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 | 0 |
| Truck | 0 | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 | 0 |
| Total | 11 | 1 | 0 | 12 |
| ***In/Outbound Trips*** | ***8/3*** | ***0/1*** | ***0/0*** | 8/4 |
| Sat. MD Peak Hour | | | | |
| Auto (Total) | 8 | 1 | 0 | 9 |
| Taxi | 0 | 0 | 0 | 0 |
| Taxi (Balanced) | 0 | 0 | 0 | 0 |
| Truck | 0 | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 | 0 |
| Total | 8 | 1 | 0 | 9 |
| ***In/Outbound Trips*** | ***4/4*** | ***1/0*** | ***0/0*** | 5/4 |

# Table 11 : Transportation Planning Factors

## *Livonia Avenue, Brooklyn NY*

*Site 4 (Block 3586, Lot 40)*

| Land Use: | | |
|---|---|---|
| | Residential | Community Center |
| | | Recreational |
| Size/Units: | d.u. | gsf |
| | 55 | 26,744 |
| Trip Generation: | **(1)** | **(1)** |
| Weekday | | |
| Saturday | 8.075 | 44.7 |
| | 9.6 | 26.6 |
| | per d.u. | per 1,000 s.f. |
| Linked-Trip: | | (6) |
| Temporal Dist.: | 0% | 70% |
| AM Peak Hour | **(1)** | **(3)** |
| MD Peak Hour | 10% | 5.8% |
| PM Peak Hour | 5% | 7.4% |
| Sat. MD Peak Hour | 11% | 7.6% |
| | 8% | 10% |
| Modal Split : | **(2)** | **(3)** |
| Auto | all periods | all periods |
| Taxi | 21.5% | 4% |
| Subway | 0.8% | 9% |
| Bus | 57% | 12% |
| Walk & Other | 13.2% | 5% |
| Total | 7.5% | 70% |
| | 100% | 100% |
| In/Out Splits: | **(6)** | **(3)** |
| AM Peak Hour | In/Out | In/Out |
| MD Peak Hour | 15/85 | 66/34 |
| PM Peak Hour | 50/50 | 58/42 |
| Sat. MD Peak Hour | 70/30 | 34/66 |
| Vehicle Occupancy: | 50/50 | 58/42 |
| Auto | **(2&4)** | **(3)** |
| Taxi | 1.12 | 1.4 |
| Truck Trip Gen.: | 1.4 | 1.4 |
| Weekday | **(1)** | **(3)** |
| Saturday | 0.06 | 0.04 |
| | 0.02 | 0.01 |
| | per 1,000 sqft | per 1,000 s.f. |
| AM Peak Hour | **(1)** | **(3)** |
| MD Peak Hour | 12% | 7.7% |
| PM Peak Hour | 9% | 11% |
| Sat. MD Peak Hour | 2% | 2% |
| AM/MD/PM/Sat. MD | 9% | 11% |
| Sources: | 50/50 | 50/50 |

(1)-2020 CEQR Technical Manual, Table 16-2.

(2)-2015-2019 (ACS)-Journey-to-Work (JTW)Census Tract #'s 894, 896, 898, 902, 910, 91

(3)_Stevenson Commons EIS, Table 11-5.

(4)-Gowanus Neighborhood Rezoning and Related Action EIS, Table 14-8.

(5)-modal split and vehicle occupancy rates are provided by NYCDOT for a local retai

(6)-East New York Rezoning FEIS, Tables 13-8 & 13-9- proposed uses are accessory (su

# Table 12 : Estimated Person Trips

## *Livonia Avenue, Brooklyn NY*

*Site 4 (Block 3586, Lots 26 and 40)*

| Land Use: | Residential | Recreational Community Center | Total | Subway Bus |
|---|---|---|---|---|
| Size/Units: | d.u. | gsf | | Walk/other |
| | 55 | 26,744 | | Total pedestrians |
| Peak hour Trips | | | | |
| AM Peak Hour | 44 | 21 | 65 | |
| Midday Peak Hour | 22 | 27 | 49 | |
| PM Peak Hour | 49 | 27 | 76 | |
| Sat. MD Peak Hour | 42 | 21 | 64 | |
| **Person Trips:** | | | | |
| ***AM Peak Hour*** | | | | |
| Auto | 10 | 1 | 10 | |
| Taxi | 0 | 2 | 2 | |
| Subway | 25 | 2 | 28 | 28 |
| Bus | 6 | 1 | 7 | 7 |
| Walk & Other | 3 | 15 | 18 | 18 |
| Total | 44 | 21 | 65 | 53 |
| ***Midday Peak Hour*** | | | | |
| Auto | 5 | 1 | 6 | |
| Taxi | 0 | 2 | 3 | |
| Subway | 13 | 3 | 16 | 16 |
| Bus | 3 | 1 | 4 | 4 |
| Walk & Other | 2 | 19 | 20 | 20 |
| Total | 23 | 26 | 49 | 41 |
| ***PM Peak Hour*** | | | | |
| Auto | 11 | 1 | 12 | |
| Taxi | 0 | 2 | 3 | |
| Subway | 28 | 3 | 31 | 31 |
| Bus | 6 | 1 | 8 | 8 |
| Walk & Other | 4 | 19 | 23 | 23 |
| Total | 49 | 27 | 77 | 62 |
| ***Sat. MD Peak Hour*** | | | | |
| Auto | 9 | 1 | 10 | |
| Taxi | 0 | 2 | 2 | |
| Subway | 24 | 3 | 27 | 27 |
| Bus | 6 | 1 | 7 | 7 |
| Walk & Other | 3 | 15 | 18 | 18 |
| Total | 42 | 21 | 64 | 51 |

# Table 13 : Estimated Vehicular Trips

## *Livonia Avenue, Brooklyn NY*

*Site 4 (Block 3586, Lots 26 and 40)*

| Land Use: | Residential | Recreational Community Center | Total |
|---|---|---|---|
| Size/Units: | d.u. | gsf | |
| | 55 | 26,744 | |
| **Vehicle Trips:** | | | |
| AM Peak Hour | | | |
| Auto (Total) | 9 | 1 | 10 |
| Taxi | 0 | 1 | 1 |
| Taxi (Balanced) | 0 | 2 | 2 |
| Truck | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 |
| Total | 9 | 3 | 12 |
| ***In/Outbound Trips*** | ***1/8*** | ***2/1*** | 3/9 |
| Midday Peak Hour | | | |
| Auto (Total) | 4 | 1 | 5 |
| Taxi | 0 | 2 | 2 |
| Taxi (Balanced) | 0 | 4 | 4 |
| Truck | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 |
| Total | 4 | 5 | 9 |
| ***In/Outbound Trips*** | ***2/2*** | ***3/2*** | 5/4 |
| PM Peak Hour | | | |
| Auto (Total) | 10 | 1 | 11 |
| Taxi | 0 | 2 | 2 |
| Taxi (Balanced) | 0 | 4 | 4 |
| Truck | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 |
| Total | 10 | 5 | 15 |
| ***In/Outbound Trips*** | ***7/3*** | ***2/3*** | 9/6 |
| Sat. MD Peak Hour | | | |
| Auto (Total) | 8 | 1 | 9 |
| Taxi | 0 | 1 | 1 |
| Taxi (Balanced) | 0 | 2 | 2 |
| Truck | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 |
| Total | 8 | 3 | 11 |
| ***In/Outbound Trips*** | ***4/4*** | ***2/1*** | 6/5 |

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# Table 14 : Transportation Planning Factors

## *Livonia Avenue, Brooklyn NY*

*Site 5 (Block 3812, Lot 24)*

| Land Use: | Residential | Local Retail | Medical Office |
|---|---|---|---|
| | d.u. | gsf | gsf |
| Size/Units: | 36 | 4,800 | 4,800 |
| | **(1)** | **(1)** | **(5)** |
| Trip Generation: | | | |
| Weekday | 8.075 | 205 | 76 |
| Saturday | 9.6 | 240 | 39 |
| | per d.u. | per 1,000 s.f. | per 1,000 s.f. |
| | | (6) | |
| Linked-Trip: | 0% | 70% | 0% |
| Temporal Dist.: | **(1)** | **(1)** | **(5)** |
| AM Peak Hour | 10% | 3% | 11% |
| MD Peak Hour | 5% | 19% | 13% |
| PM Peak Hour | 11% | 10% | 9% |
| Sat. MD Peak Hour | 8% | 10% | 17% |
| | **(2)** | **(5)** | **(5)** |
| Modal Split : | all periods | all periods | all periods |
| Auto | 21.5% | 11% | 24% |
| Taxi | 0.8% | 0% | 6% |
| Subway | 57% | 3% | 59% |
| Bus | 13.2% | 2% | 9% |
| Walk & Other | 7.5% | 84% | 2% |
| Total | 100% | 100% | 100% |
| | **(6)** | **(4)** | **(5)** |
| In/Out Splits: | In/Out | In/Out | In/Out |
| AM Peak Hour | 15/85 | 50/50 | 62/38 |
| MD Peak Hour | 50/50 | 50/50 | 47/53 |
| PM Peak Hour | 70/30 | 50/50 | 35/65 |
| Sat. MD Peak Hour | 50/50 | 55/45 | 49/51 |
| Vehicle Occupancy: | **(2&4)** | **(4)** | **(5)** |
| Auto | 1.12 | 2 | 1.5 |
| Taxi | 1.4 | 2 | 1.5 |
| Truck Trip Gen.: | **(1)** | **(4)** | **(4)** |
| Weekday | 0.06 | 0.35 | 0.29 |
| Saturday | 0.02 | 0.04 | 0.29 |
| | per 1,000 sqft | per 1,000 s.f. | per 1,000 s.f. |
| | **(1)** | **(4)** | **(4)** |
| AM Peak Hour | 12% | 8% | 3% |
| MD Peak Hour | 9% | 11% | 11% |
| PM Peak Hour | 2% | 1% | 1% |
| Sat. MD Peak Hour | 9% | 11% | 0% |
| AM/MD/PM/Sat. MD | 50/50 | 50/50 | 50/50 |

Sources:

(1)-2020 CEQR Technical Manual, Table 16-2.

(2)-2015-2019 (ACS)-Journey-to-Work (JTW)Census Tract #'s 894,896, 898, 902, 910, 912, 916, 918, 9

(3)_Stevenson Commons EIS, Table 11-5.

(4)-Gowanus Neighborhood Rezoning and Related Action EIS, Table 14-8.

(5)-modal split and vehicle occupancy rates are provided by NYCDOT for a local retail space in a T

(6)-East New York Rezoning FEIS, Tables 13-8 & 13-9- uses are accessory to the proposed developn

# Table 15 : Estimated Person Trips

## *Livonia Avenue, Brooklyn NY*

*Site 5 (Block 3812, Lot 24)*

| Land Use: | Residential | Local Retail | Medical Office | Total | Subway Bus |
|---|---|---|---|---|---|
| | d.u. | gsf | gsf | | Walk/other |
| Size/Units: | 36 | 4,800 | 4,800 | | Total pedestrians |
| | | | | | |
| Peak hour Trips | | | | | |
| AM Peak Hour | 29 | 9 | 40 | 78 | |
| Midday Peak Hour | 15 | 56 | 47 | 118 | |
| PM Peak Hour | 32 | 30 | 33 | 94 | |
| Sat. MD Peak Hour | 28 | 35 | 32 | 94 | |
| | | | | | |
| **Person Trips:** | | | | | |
| ***AM Peak Hour*** | | | | | |
| Auto | 6 | 1 | 10 | 17 | |
| Taxi | 0 | 0 | 2 | 3 | |
| Subway | 17 | 0 | 24 | 41 | 41 |
| Bus | 4 | 0 | 4 | 8 | 8 |
| Walk & Other | 2 | 7 | 1 | 10 | 10 |
| Total | 29 | 9 | 40 | 78 | 59 |
| ***Midday Peak Hour*** | | | | | |
| Auto | 3 | 6 | 11 | 21 | |
| Taxi | 0 | 0 | 3 | 3 | |
| Subway | 8 | 2 | 28 | 38 | 38 |
| Bus | 2 | 1 | 4 | 7 | 7 |
| Walk & Other | 1 | 47 | 1 | 49 | 49 |
| Total | 14 | 56 | 47 | 118 | 94 |
| ***PM Peak Hour*** | | | | | |
| Auto | 7 | 3 | 8 | 18 | |
| Taxi | 0 | 0 | 2 | 2 | |
| Subway | 18 | 1 | 19 | 38 | 38 |
| Bus | 4 | 1 | 3 | 8 | 8 |
| Walk & Other | 2 | 25 | 1 | 28 | 28 |
| Total | 32 | 30 | 33 | 94 | 74 |
| ***Sat. MD Peak Hour*** | | | | | |
| Auto | 6 | 4 | 8 | 17 | |
| Taxi | 0 | 0 | 2 | 2 | |
| Subway | 16 | 1 | 19 | 36 | 36 |
| Bus | 4 | 1 | 3 | 7 | 7 |
| Walk & Other | 2 | 29 | 1 | 32 | 32 |
| Total | 28 | 35 | 32 | 94 | 75 |

# Table 16 : Estimated Vehicular Trips

## *Livonia Avenue, Brooklyn NY*

*Site 5 (Block 3812, Lot 24)*

| Land Use: | Residential | Local Retail | Medical Office | Total |
|---|---|---|---|---|
| | d.u. | gsf | gsf | |
| Size/Units: | 36 | 4,800 | 4,800 | |
| **Vehicle Trips:** | | | | |
| Auto (Total) | 6 | 0 | 6 | 12 |
| Taxi | 0 | 0 | 2 | 2 |
| Taxi (Balanced) | 0 | 0 | 4 | 4 |
| Truck | 0 | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 | 0 |
| Total | 6 | 0 | 10 | 16 |
| ***In/Outbound Trips*** | ***1/5*** | ***0/0*** | ***6/4*** | 7/9 |
| Midday Peak Hour | | | | |
| Auto (Total) | 3 | 3 | 8 | 14 |
| Taxi | 0 | 0 | 2 | 2 |
| Taxi (Balanced) | 0 | 0 | 4 | 4 |
| Truck | 0 | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 | 0 |
| Total | 3 | 3 | 12 | 18 |
| ***In/Outbound Trips*** | ***2/1*** | ***1/2*** | ***6/6*** | 9/9 |
| PM Peak Hour | | | | |
| Auto (Total) | 6 | 2 | 5 | 13 |
| Taxi | 0 | 0 | 1 | 1 |
| Taxi (Balanced) | 0 | 0 | 2 | 2 |
| Truck | 0 | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 | 0 |
| Total | 6 | 2 | 7 | 15 |
| ***In/Outbound Trips*** | ***4/2*** | ***1/1*** | ***3/4*** | 8/7 |
| Sat. MD Peak Hour | | | | |
| Auto (Total) | 5 | 2 | 5 | 12 |
| Taxi | 0 | 0 | 1 | 1 |
| Taxi (Balanced) | 0 | 0 | 2 | 2 |
| Truck | 0 | 0 | 0 | 0 |
| Truck(Balanced) | 0 | 0 | 0 | 0 |
| Total | 5 | 2 | 7 | 14 |
| ***In/Outbound Trips*** | ***3/2*** | ***1/1*** | ***3/4*** | 7/7 |

# Table 17

Livonia Avenue Development Person and Vehicular Trip-Ends by Parcel

| Peak Hour | Person Trip-Ends | | | | | | VehicleTrip-Ends | | | | | | VehicleTrip-Ends (Inbound/Outbound) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parcel | C1 | C2 | C3 | C4 | C5 | Total | C1 | C2 | C3 | C4 | C5 | Total | C1 In/Out | C2 In/Out | C3 In/Out | C4 In/Out | C5 In/Out | Total In/Out |
| Weekday | | | | | | | | | | | | | | | | | | |
| AM Peak Hour | 238 | 33 | 60 | 65 | 78 | 474 | 47 | 8 | 12 | 12 | 16 | 95 | 11/36 | 2/6 | 3/9 | 3/9 | 7/9 | 26/69 |
| Midday Peak Hour | 205 | 19 | 58 | 49 | 118 | 449 | 35 | 3 | 8 | 9 | 18 | 73 | 17/18 | 2/1 | 4/4 | 5/4 | 9/9 | 37/36 |
| PM Peak Hour | 317 | 37 | 74 | 76 | 94 | 598 | 56 | 6 | 12 | 15 | 15 | 104 | 35/21 | 4/2 | 8/4 | 9/6 | 8/7 | 64/40 |
| Saturday | | | | | | | | | | | | | | | | | | |
| Midday Peak Hour | 310 | 25 | 61 | 64 | 94 | 554 | 50 | 5 | 9 | 11 | 14 | 89 | 25/25 | 3/2 | 5/4 | 6/5 | 7/7 | 46/43 |

***Source:Transportation Planning Factors Tables 2 thru 16 (See Transportation Attachment).***

Feb. 17, 2022_May 10, 2022

# Table 18

Livonia Avenue Development Subway and Bus trip-ends by Parcel/Site and Total

| Peak Hour | Subway Trip-Ends | | | | | | BusTrip-Ends | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parcel/Site | C1 | C2 | C3 | C4 | C5 | Total | C1 | C2 | C3 | C4 | C5 | Total |
| <u>Weekday</u> | | | | | | | | | | | | |
| AM Peak Hour | 110 | 17 | 30 | 28 | 41 | 226 | 26 | 4 | 7 | 7 | 8 | 52 |
| Midday Peak Hour | 60 | 9 | 16 | 16 | 38 | 139 | 16 | 2 | 5 | 4 | 7 | 34 |
| PM Peak Hour | 127 | 19 | 33 | 31 | 38 | 248 | 31 | 5 | 8 | 8 | 8 | 60 |
| <u>Saturday</u> | | | | | | | | | | | | |
| Midday Peak Hour | 108 | 14 | 24 | 27 | 36 | 209 | 30 | 3 | 6 | 7 | 7 | 53 |

***Source:Transportation Planning Factors Tables 2 thru 16 (See Transportation Attachment).***

Feb. 17, 2022, and May 10, 2022.

# Table 19

Livonia Avenue Development Pedestrian trip-ends by Parcel/Site and Total

| Peak Hour | Pedestrian Trip-Ends | | | | | |
|---|---|---|---|---|---|---|
| Parcel | C1 | C2 | C3 | C4 | C5 | Total |
| <u>Weekday</u> | | | | | | |
| AM Peak Hour | 186 | 26 | 48 | 53 | 59 | 372 |
| Midday Peak Hour | 165 | 16 | 49 | 41 | 94 | 365 |
| PM Peak Hour | 249 | 29 | 60 | 62 | 74 | 474 |
| <u>Saturday</u> | | | | | | |
| Midday Peak Hour | 249 | 20 | 50 | 51 | 75 | 445 |

***Source:Transportation Planning Factors Tables 2 thru 16 (See Transportation Attachment).***

Feb. 17, 2022, and May 10, 2022

317 and 183 trips during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. Bus trips would increase by 486, 159, 516 and 294 (in + out combined, including trips to and from the Parkchester subway station) in the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. Lastly, pedestrian trips would increase by 590, 219, 633 and 365, during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. These totals include walk-only trips and pedestrians en route to and from nearby subway stations and bus stops.

**TABLE 11-5**
**Transportation Planning Factors**

| Land Use: | Residential - Family | Residential - Senior | Community Facility - Daycare (Students) | Community Facility - Daycare (Parents) | Community Facility - Daycare (Staff) | Community Facility - Recreation Center |
|---|---|---|---|---|---|---|
| Size/Units: | 621 DU | 114 DU | 19,879 gsf | 19,879 gsf | 19,879 gsf | 14,116 gsf |
| Trip Generation: | (1) | (1) | (6) | (6) | (6) | (5) |
| Weekday | 8.075 | 8.075 | 22.0 | 44.0 | 6.0 | 44.7 |
| Saturday | 9.6 | 9.6 | 0.0 | 0.0 | 0.0 | 26.6 |
| | per DU | per DU | per 1,000 gsf | per 1,000 gsf | per 1,000 gsf | per 1,000 gsf |
| Temporal Distribution: | (1) | (1) | (6) | (6) | (6) | (5) |
| AM (8-9 AM) | 10.0% | 10.0% | 25.0% | 25.0% | 25.0% | 5.8% |
| MD (1-2 PM) | 5.0% | 5.0% | 0.0% | 0.0% | 2.5% | 7.4% |
| PM (5-6 PM) | 11.0% | 11.0% | 25.0% | 25.0% | 25.0% | 7.6% |
| SatMD (1-2 PM) | 8.0% | 8.0% | 0.0% | 0.0% | 0.0% | 10.0% |
| Modal Splits: | (2) All Periods | (2) All Periods | (2) All Periods | (2) All Periods | (7) All Periods | (5) All Periods |
| Auto | 40.7% | 40.7% | 40.7% | 40.7% | 50.5% | 4.0% |
| Taxi | 0.7% | 0.7% | 0.7% | 0.7% | 0.0% | 9.0% |
| Bus-to-Subway | 31.3% | 31.3% | 31.3% | 31.3% | 14.5% | 12.0% |
| Bus Only | 19.3% | 19.3% | 19.3% | 19.3% | 22.3% | 5.0% |
| Walk/Other | 8.0% | 8.0% | 8.0% | 8.0% | 12.7% | 70.0% |
| | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| | (3) | (3) | (6) | (6) | (6) | (5) |
| In/Out Splits: | In Out | In Out | In Out | In Out | In Out | In Out |
| AM | 16.0% 84.0% | 36.0% 64.0% | 100% 0% | 50% 50% | 100% 0% | 66% 34% |
| MD | 50.0% 50.0% | 50.0% 50.0% | 0% 0% | 0% 0% | 50% 50% | 58% 42% |
| PM | 67.0% 33.0% | 60.0% 40.0% | 0% 100% | 50% 50% | 0% 100% | 34% 66% |
| Sat MD | 53.0% 47.0% | 53.0% 47.0% | 0% 0% | 0% 0% | 0% 0% | 58% 42% |
| Vehicle Occupancy: | (2,3) All Periods | (2,3) All Periods | (6) All Periods | (6) All Periods | (6) All Periods | (5) All Periods |
| Auto | 1.06 | 1.06 | 1.00 | 1.00 | 1.00 | 1.40 |
| Taxi | 1.40 | 1.40 | 1.00 | 1.00 | 1.00 | 1.40 |
| Truck Trip Generation: | (1) | (1) | (4) | (4) | (4) | (5) |
| Weekday | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.04 |
| Saturday | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| | per DU | per DU | per 1,000 sf | per 1,000 sf | per 1,000 sf | per 1,000 sf |
| | (1) | (1) | (4) | (4) | (4) | (5) |
| AM | 12.0% | 12.0% | 9.6% | 9.6% | 9.6% | 7.7% |
| MD | 9.0% | 9.0% | 11.0% | 11.0% | 11.0% | 11.0% |
| PM | 2.0% | 2.0% | 1.0% | 1.0% | 1.0% | 2.0% |
| Sat MD | 9.0% | 9.0% | 0.0% | 0.0% | 0.0% | 11.0% |
| | In Out | In Out | In Out | In Out | In Out | In Out |
| AM/MD/PM | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% |

**Notes :**

(1) Based on 2014 *City Environmental Quality Review (CEQR) Technical Manual.*
(2) Based on 2014-2018 *American Community Survey (ACS)* Means of Transportation to Work Table for Bronx Census Tracts 16, 20, 38, 42, 74, and 98.
(3) *1965 Lafayette Avenue EAS , 2017.*
(4) *La Central FEIS, 2016.*
(5) *West Harlem Rezoning* FEIS, 2012.
(6) Based on data proveded by NYCDOT.
(7) Based on 2012-2016 *AASHTO CTTP Reverse Journey to Work data for Bronx* Census Tracts 16, 20, 38, 42, 74, and 98.

# Table 14-8
# Transportation Planning Factors

| Land Use: | Local Retail | Office | | Residential | Destination Retail | | Restaurant | Supermarket | | Auto Repair |
|---|---|---|---|---|---|---|---|---|---|---|
| **Trip Generation:** | (1) | (1) | | (1) | (1) | | (9) | (1) | | (3) |
| Weekday | 205.0 | 18.0 | | 8.075 | 78.2 | | 179.5 | 175.0 | | 19.42 |
| Saturday | 240.0 | 3.9 | | 9.6 | 92.5 | | 195.8 | 231.0 | | 19.42 |
| | per 1,000 sf | per 1,000 sf | | per DU | per 1,000 sf | | per 1,000 sf | per 1,000 sf | | per 1,000 sf |
| **Temporal Distribution:** | (1) | (1) | | (1) | (1) | | (9) | (1) | | (3) |
| AM | 3.0% | 12.0% | | 10.0% | 3.0% | | 3.0% | 5.0% | | 13.2% |
| MD | 19.0% | 15.0% | | 5.0% | 9.0% | | 13.0% | 6.0% | | 11.0% |
| PM | 10.0% | 14.0% | | 11.0% | 9.0% | | 10.0% | 10.0% | | 14.2% |
| SAT | 10.0% | 17.0% | | 8.0% | 11.0% | | 9.0% | 9.0% | | 10.7% |
| **Modal Splits:** | (2) | (24) | (4) | (5) | (20) | | (3) | (2) | | (3) |
| | All Periods | AM/PM/SAT | MD | All Periods | AM/MD/PM | SAT | All Periods | AM/MD/PM | SAT | All Periods |
| Auto | 11.0% | 28.7% | 2.0% | 10.8% | 59.0% | 59.0% | 30.0% | 21.0% | 14.0% | 85.0% |
| Taxi | 0.0% | 4.9% | 1.0% | 0.4% | 3.0% | 5.0% | 5.0% | 3.0% | 5.0% | 5.0% |
| Subway/Railroad | 3.0% | 32.1% | 7.0% | 74.8% | 18.0% | 18.0% | 15.0% | 14.0% | 8.0% | 1.0% |
| Bus | 2.0% | 12.7% | 7.0% | 2.1% | 15.0% | 13.0% | 15.0% | 4.0% | 6.0% | 1.0% |
| School Bus | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Walk/Other | 84.0% | 21.6% | 83.0% | 11.9% | 5.0% | 5.0% | 35.0% | 58.0% | 67.0% | 8.0% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| **In/Out Splits:** | (3) | (4) | | (6) | (8) | | (10) | (11,12) | | (3) |
| | In Out | In | Out | In Out | In | Out | In Out | In | Out | In Out |
| AM | 50% 50% | 94% | 6% | 24% 76% | 61% | 39% | 50% 50% | 57% | 43% | 65% 35% |
| MD | 50% 50% | 39% | 61% | 50% 50% | 55% | 45% | 50% 50% | 46% | 54% | 50% 50% |
| PM | 50% 50% | 5% | 95% | 61% 39% | 47% | 53% | 67% 33% | 47% | 53% | 50% 50% |
| SAT | 55% 45% | 60% | 40% | 45% 55% | 55% | 45% | 50% 50% | 51% | 49% | 50% 50% |
| **Vehicle Occupancy:** | (3) | (4) | | (3,5,7) | (8) | | (10) | (2) | | (3) |
| | | | | AM/PM MD/SAT | AM/MD/PM | SAT | | AM/MD/PM | SAT | |
| Auto | 2.00 | 1.26 | | 1.12 1.57 | 2.00 | 2.70 | 2.20 | 1.58 | 1.90 | 1.30 |
| Taxi | 2.00 | 1.26 | | 1.30 1.82 | 2.00 | 2.80 | 2.30 | 1.58 | 1.90 | 1.30 |
| School Bus | | | | | | | | | | |
| **Truck Trip Generation:** | (1) | (1) | | (1) | (8) | | (10) | (11) | | (3) |
| Weekday | 0.35 | 0.32 | | 0.06 | 0.35 | | 3.60 | 0.35 | | 0.89 |
| Saturday | 0.04 | 0.01 | | 0.02 | 0.02 | | 3.60 | 0.04 | | 0.89 |
| | per 1,000 sf | per 1,000 sf | | per DU | per 1,000 sf | | per 1,000 sf | per 1,000 sf | | per 1,000 sf |
| **Truck Temporal Distribution:** | (1) | (1) | | (1) | (8) | | (10) | (11,12) | | (3) |
| AM | 8.0% | 10.0% | | 12.0% | 7.7% | | 0.0% | 8.0% | | 14.0% |
| MD | 11.0% | 11.0% | | 9.0% | 11.0% | | 6.0% | 11.0% | | 9.0% |
| PM | 2.0% | 2.0% | | 2.0% | 1.0% | | 1.0% | 2.0% | | 1.0% |
| SAT | 11.0% | 11.0% | | 9.0% | 11.0% | | 0.0% | 11.0% | | 0.0% |
| **Truck In/Out Splits:** | In Out | In | Out | In Out | In | Out | In Out | In | Out | In Out |
| All Periods | 50.0% 50.0% | 50.0% | 50.0% | 50.0% 50.0% | 50.0% | 50.0% | 50.0% 50.0% | 50.0% | 50.0% | 50.0% 50.0% |

# Table 14-8 (cont'd)
# Transportation Planning Factors

| Land Use: | Innovation Economy | | Light Industrial | | Warehouse | | Medical Office | School (Grade K-5 Students) | | School Staff | Parents (Grades K-5 Students) | Community Center | Waterfront Park | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trip Generation:** | (13) | | (3) | | (15) | | (16) | (21) (22) | | (21) | (22) | (1) | (1) | (1) |
| Weekday | 18.0 | | 14.7 | | 10.4 | | See note (16) | 2.0 | | 2.0 | 4.0 | 44.7 | 44.0 | 139.0 |
| Saturday | 3.9 per 1,000 sf | | 2.2 per 1,000 sf | | 3.6 per 1,000 sf | | 39.0 per 1,000 sf | 0.0 per Student | | 0.0 per Staff | 0.0 per Parents | 26.1 per 1,000 sf | 62.0 per acre | 196.0 per acre |
| **Temporal Distribution:** | (13) | | (3) | | (15) | | (16) | (21) | | (21) | (21) | (1) | (1) | (1) |
| AM | 12.0% | | 13.2% | | 13.2% | | 11.0% | 50.0% | | 50.0% | 50.0% | 4.0% | 3.0% | 3.0% |
| MD | 15.0% | | 11.0% | | 11.0% | | 13.0% | 0.0% | | 0.0% | 0.0% | 9.0% | 5.0% | 5.0% |
| PM | 14.0% | | 14.2% | | 14.1% | | 9.0% | 5.0% | | 50.0% | 5.0% | 5.0% | 6.0% | 6.0% |
| SAT | 17.0% | | 10.7% | | 11.0% | | 17.0% | 0.0% | | 0.0% | 0.0% | 9.0% | 6.0% | 6.0% |
| **Modal Splits:** | (13) | | (14) | (4) | (14) | | (16) | (23) | | (14) | (23) | (17) | (18) | (18) |
| | AM/PM/SAT | MD | AM/PM/SAT | MD | All Periods | | All Periods | AM/MD/SAT | PM | All Periods | All Periods | All Periods | All Periods | All Periods |
| Auto | 28.7% | 2.0% | 32.2% | 2.0% | 32.2% | | 24.0% | 21.7% | 21.7% | 32.2% | 0.0% | 5.0% | 20.0% | 20.0% |
| Taxi | 4.9% | 1.0% | 0.8% | 1.0% | 0.8% | | 6.0% | 0.0% | 0.0% | 0.8% | 0.0% | 1.0% | 1.0% | 1.0% |
| Subway/Railroad | 32.1% | 7.0% | 40.3% | 7.0% | 40.3% | | 59.0% | 5.7% | 5.7% | 40.3% | 8.0% | 3.0% | 12.0% | 12.0% |
| Bus | 12.7% | 7.0% | 8.8% | 7.0% | 8.8% | | 9.0% | 2.1% | 2.1% | 8.8% | 3.0% | 6.0% | 11.0% | 11.0% |
| School Bus | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 2.0% | 2.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Walk/Other | 21.6% | 83.0% | 17.9% | 83.0% | 17.9% | | 2.0% | 68.5% | 68.5% | 17.9% | 89.0% | 85.0% | 56.0% | 56.0% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| **In/Out Splits:** | (13) | | (3) | | (15) | | (16) | (21) | | (21) | (21) | (17) | (18,19) | (18,19) |
| | In | Out | In | Out | In | Out | In Out | In | Out | In Out | In Out | In Out | In Out | In Out |
| AM | 94.0% | 6% | 88% | 12% | 88% | 12% | 62% 38% | 100% | 0% | 100% 0% | 50% 50% | 61% 39% | 55% 45% | 55% 45% |
| MD | 39.0% | 61% | 50% | 50% | 50% | 50% | 47% 53% | 100% | 0% | 100% 0% | 50% 0% | 55% 45% | 50% 50% | 50% 50% |
| PM | 5.0% | 95% | 12% | 88% | 12% | 88% | 35% 65% | 0% | 100% | 0% 100% | 50% 50% | 29% 71% | 45% 55% | 45% 55% |
| SAT | 60.0% | 40% | 47% | 53% | 50% | 50% | 49% 51% | 100% | 0% | 100% 0% | 50% 0% | 49% 51% | 50% 50% | 50% 50% |
| **Vehicle Occupancy:** | (13) | | (3) | | (15) | | (16) | (21) | | (21) | | (17) | (18) | (18) |
| Auto | 1.26 | | 1.20 | | 1.30 | | 1.50 | 1.30 | | 1.20 | N/A | 1.65 | 2.90 | 2.90 |
| Taxi | 1.26 | | 1.20 | | 1.30 | | 1.50 | 1.30 | | 1.20 | N/A | 1.40 | 3.00 | 3.00 |
| School Bus | | | | | | | | 35.0 | | | | | | |
| **Truck Trip Generation:** | (13) | | (3) | | (15) | | (3) | (21) | | | | (17) | (18,19) | (18,19) |
| Weekday | 0.32 | | 0.67 | | 0.67 | | 0.29 | 0.03 | | N/A | N/A | 0.29 | 0.01 | 0.01 |
| Saturday | 0.01 per 1,000 sf | | 0.67 per 1,000 sf | | 0.02 per 1,000 sf | | 0.29 per 1,000 sf | 0.03 per 1,000 sf | | N/A | N/A | 0.29 per 1,000 sf | 0.01 per 1,000 sf | 0.01 per 1,000 sf |
| **Truck Temporal Distribution:** | (13) | | (3) | | (15) | | (3) | (21) | | | | (17) | (18,19) | (18,19) |
| AM | 10.0% | | 14.0% | | 14.0% | | 3.0% | 9.6% | | N/A | N/A | 9.6% | 6.0% | 6.0% |
| MD | 11.0% | | 9.0% | | 9.0% | | 11.0% | 11.0% | | N/A | N/A | 11.0% | 6.0% | 6.0% |
| PM | 2.0% | | 1.0% | | 1.0% | | 1.0% | 1.0% | | N/A | N/A | 1.0% | 1.0% | 1.0% |
| SAT | 11.0% | | 0.0% | | 9.0% | | 0.0% | 0.0% | | N/A | N/A | 0.0% | 6.0% | 6.0% |
| **Truck In/Out Splits:** | In | Out | In | Out | In | Out | In Out | In | Out | In Out | In Out | In Out | In Out | In Out |
| All Periods | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50% 50% | 50.0% | 50.0% | N/A N/A | N/A N/A | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% |

**Notes:**

(1) Based on data from the 2020 *City Environmental Quality Review* (CEQR) *Technical Manual*.

(2) Based on NYCDOT mode split and vehicle occupancy survey data.

(3) Based on data from the 2015 *East New York Rezoning Proposal FEIS*.

(4) Based on data from the 2016 *25 Kent Avenue EAS*.

(5) Based on American Community Survey journey-to-work 5-Year (2013-2017) data for Brooklyn Census Tracts 39, 71, 75, 77, 117, 119, 121, 129.01, 131, 133, 135, 137, 139 141.

(6) Based on NYCDOT citywide residential survey data.

(7) Midday and Saturday vehicle occupancy determined by applying a multiplier (1.4) to the AM/PM rate.

(8) Based on data from the 2017 *East Harlem Rezoning FEIS*.

(9) Based on data from *ITE Trip Generation Manual, 10th Edition*, Land Use Code 932 (High-Turnover Restaurant). Person trip rate= ITE Trip Rate x 1.52/0.95.

(10) Based on data from the 2015 *Vanderbilt Corridor and One Vanderbilt FEIS*.

(11) Based on data from the 2017 Boulevard at Hylan Plaza Proposal FEIS.

(12) AM data is based on data from the 2014 *Astoria Cove Development FEIS*.

(13) Factors assumed to be similar to those used for the office use.

(14) Based on AASHTO CTPP reverse journey-to-work 5-Year (2012-2016) data for Brooklyn Census Tracts 39, 71, 75, 77, 117, 119, 121, 129.01, 131, 133, 135, 137, 139 and 14:

(15) Based on data from the 2010 *Domino Sugar Rezoning FEIS*.

(16) Based on NYCDOT medical office trip generation and mode choice data. Weekday daily trip estimate based on following equation: 141.77 + 66.626 x gross SF (in thousand

(17) Based on data from the 2007 *Jamaica Plan Rezoning FGEIS*.

(18) Based on data from the 2005 *Brooklyn Bridge Park FEIS*.

(19) Assumes Saturday person in/out splits; and truck trip generation rates and temporal distributions are similar to does applied to the weekday midday.

(20) Based on data from the 2017 Industry City Redevelopment FEIS.

(21) Based on data from the 2011 *Brownsville Ascend Charter School Assessment*.

(22) Assumes 5% absentee rate, and a student to parent ratio of 1 to 0.7 based on data from a November 2012 survey conducted at PS 35 in Queens.

(23) Based on data provided by NYCDOT.

(24) Based on NYCDCP ZED mode choice survey data.

New Medical Office Rates as of 1/4/19

| Weekdays | | |
|---|---|---|
| Average Daily Person Trips | 76 trips per 1,000 sq ft | |
| Equation | 66.626x + 141.77 | 141.77 |

GSF
x (size of gsf in 1,000 sq ft) 0
R^2 = 0.8703

| Medical Office | Weekday AM Peak | Weekday Midday Peak | Weekday PM Peak | Saturday Peak |
|---|---|---|---|---|
| Temporal Distribution (%) | 11% | 13% | 9% | 17% |
| Directional split (in/out) | 62%/38% | 47%/53% | 35%/65% | 49%/51% |

| mode split (Weekday) | Medical office-Brooklyn : Transit zone |
|---|---|
| Auto | 24% |
| Taxi | 6% |
| Subway | 59% |
| Bus | 9% |
| Walk only | 1% |
| Vehicle occupancy | 1.50 |

**TABLE 13-8**
**Transportation Planning Factors**

| Land Use: | Local Retail | Office | Residential (Market Rate) | Residential (Affordable) | Hotel | Light Industrial | Restaurant | Auto Repair | Auto Dealership | Warehouse | FRESH (Supermarket) | Pre-K (Student) (14,23) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Size/Units:** | 681,436 gsf | 132,695 gsf | 2,954 DU | 3,538 DU | -418 Rooms | -27,035 gsf | 51,400 gsf | -118,365 gsf | -10,000 gsf | -73,170 gsf | 20,000 gsf | 263 Students |
| **Trip Generation:** | (1) | (1) | (1) | (1) | (1) | (2) | (5) | (2) | (6) | (7) | (9,10) | (12) |
| Weekday | 205 | 18.0 | 8.075 | 8.075 | 9.4 | 14.7 | 173.0 | 19.42 | 2.63 | 4.87 | 205 | 2 |
| Saturday | 240 | 3.9 | 9.600 | 9.600 | 9.4 | 2.2 | 139.0 | 19.42 | 2.63 | 1.68 | 271 | 0 |
| | per 1,000 sf | per 1,000 sf | per DU | per DU | per room | per 1,000 sf | per 1,000 sf | per 1,000 sf | per 1,000 sf | per 1,000 sf | per 1,000 sf | per Student |
| **Temporal Distribution:** | (1) | (1) | (1) | (1) | (1) | (2) | (5) | (2) | (6) | (7,8) | (9,11) | (12) |
| AM | 3.0% | 12.0% | 10.0% | 10.0% | 8.0% | 13.2% | 1.0% | 13.2% | 12.0% | 11.8% | 3.0% | 50.0% |
| MD | 19.0% | 15.0% | 5.0% | 5.0% | 14.0% | 11.0% | 13.7% | 11.0% | 12.0% | 11.0% | 12.0% | 0.0% |
| PM | 10.0% | 14.0% | 11.0% | 11.0% | 13.0% | 14.2% | 7.7% | 14.2% | 9.0% | 12.6% | 10.0% | 5.0% |
| SatMD | 10.0% | 17.0% | 8.0% | 8.0% | 9.0% | 10.7% | 11.6% | 10.7% | 12.0% | 10.6% | 12.0% | 0.0% |
| | (2) | (3) (20) | (4) | (4) | (2) | (3) (20) | (5) | (2) | (6) | (8) | (9) | (12) |
| **Modal Splits:** | All Periods | AM/PM/SAT MD | All Periods | All Periods | All Periods | AM/PM/SAT MD | All Periods | All Periods | All Periods | All Periods | All Periods | AM/MD/SAT PM |
| Auto | 5.0% | 45.3% 2.0% | 30.7% | 16.3% | 30.1% | 45.3% 2.0% | 30.0% | 85.0% | 100.0% | 51.0% | 4.0% | 15.0% 56.3% |
| Taxi | 1.0% | 0.4% 3.0% | 0.9% | 0.4% | 12.3% | 0.4% 3.0% | 5.0% | 5.0% | 0.0% | 2.0% | 3.0% | 0.0% 0.0% |
| Subway/Railroad | 3.0% | 26.9% 6.0% | 54.3% | 58.4% | 18.8% | 26.9% 6.0% | 15.0% | 1.0% | 0.0% | 28.0% | 5.0% | 3.3% 12.4% |
| Bus | 6.0% | 15.4% 6.0% | 8.9% | 17.9% | 5.5% | 15.4% 6.0% | 15.0% | 1.0% | 0.0% | 7.0% | 5.0% | 1.7% 6.4% |
| School Bus | 0.0% | 0.0% 0.0% | 0.0% | 0.0% | 0.0% | 0.0% 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 55.0% 0.0% |
| Walk/Other | 85.0% | 12.0% 83.0% | 5.2% | 7.1% | 33.3% | 12.0% 83.0% | 35.0% | 8.0% | 0.0% | 12.0% | 83.0% | 25.0% 25.0% |
| | 100.0% | 100.0% 100% | 100.0% | 100.0% | 100.0% | 100.0% 100% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% 100.0% |
| | (2) | (2) | (2) | (2) | (2) | (2) | (5) | (2) | (6) | (8) | (9,11) | (12) |
| **In/Out Splits:** | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out |
| AM | 50% 50% | 96.0% 4.0% | 15.0% 85.0% | 15.0% 85.0% | 41% 59% | 88% 12% | 94% 6% | 65% 35% | 67% 33% | 88% 12% | 45% 55% | 100% 0% |
| MD | 50% 50% | 39.0% 61.0% | 50.0% 50.0% | 50.0% 50.0% | 68% 32% | 50% 50% | 65% 35% | 50% 50% | 50% 50% | 50% 50% | 46% 54% | 0% 0% |
| PM | 50% 50% | 5.0% 95.0% | 70.0% 30.0% | 70.0% 30.0% | 59% 41% | 12% 88% | 65% 35% | 50% 50% | 15% 85% | 12% 88% | 47% 53% | 0% 100% |
| Sat MD | 55% 45% | 60.0% 40.0% | 50.0% 50.0% | 50.0% 50.0% | 56% 44% | 47% 53% | 63% 37% | 50% 50% | 50% 50% | 50% 50% | 46% 54% | 0% 0% |
| | | | (2,4,19) | (2,4,19) | | | | | | | | |
| **Vehicle Occupancy:** | (2) | (2,3) | AM/PM MD/SMD | AM/PM MD/SMD | (2) | (2) | (5) | (2) | (6) | (8) | (9,11) | (12) |
| Auto | 2.00 | 1.12 | 1.065 1.49 | 1.064 1.49 | 1.60 | 1.20 | 2.2 | 1.30 | 1.30 | 1.30 | 1.65 | 1.30 |
| Taxi | 2.00 | 1.20 | 1.30 1.30 | 1.30 1.30 | 1.40 | 1.20 | 2.3 | 1.30 | 1.50 | 1.30 | 1.40 | 1.30 |
| School Bus | | | | | | | | | | | | 35.00 |
| **Truck Trip Generation:** | (1) | (1) | (1) | (1) | (21) | (2) | (5) | (2) | (6) | (8) | (9,11) | (15) |
| Weekday | 0.35 | 0.32 | 0.06 | 0.06 | 0.06 | 0.67 | 3.60 | 0.89 | 0.15 | 0.67 | 0.35 | 0.03 |
| Saturday | 0.04 | 0.01 | 0.02 | 0.02 | 0.01 | 0.67 | 3.60 | 0.89 | 0.15 | 0.67 | 0.04 | 0.03 |
| | per 1,000 sf | per 1,000 sf | per DU | per DU | per room | per 1,000 sf | per 1,000 sf | per 1,000 sf | per 1,000 sf | per 1,000 sf | per 1,000 sf | per Student |
| | (1) | (1) | (1) | (1) | (21) | (2) | (5) | (2) | (6) | (8) | (9,11) | (15) |
| AM | 8.0% | 10.0% | 12.0% | 12.0% | 12.0% | 14.0% | 6.0% | 14.0% | 9.6% | 14.0% | 10.0% | 9.6% |
| MD | 11.0% | 11.0% | 9.0% | 9.0% | 9.0% | 9.0% | 6.0% | 9.0% | 11.0% | 9.0% | 8.0% | 11.0% |
| PM | 2.0% | 2.0% | 2.0% | 2.0% | 2.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 5.0% | 1.0% |
| Sat MD | 11.0% | 11.0% | 9.0% | 9.0% | 9.0% | 0.0% | 0.0% | 0.0% | 11.0% | 0.0% | 10.0% | 0.0% |
| | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out | In Out |
| AM/MD/PM | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% | 50.0% 50.0% |

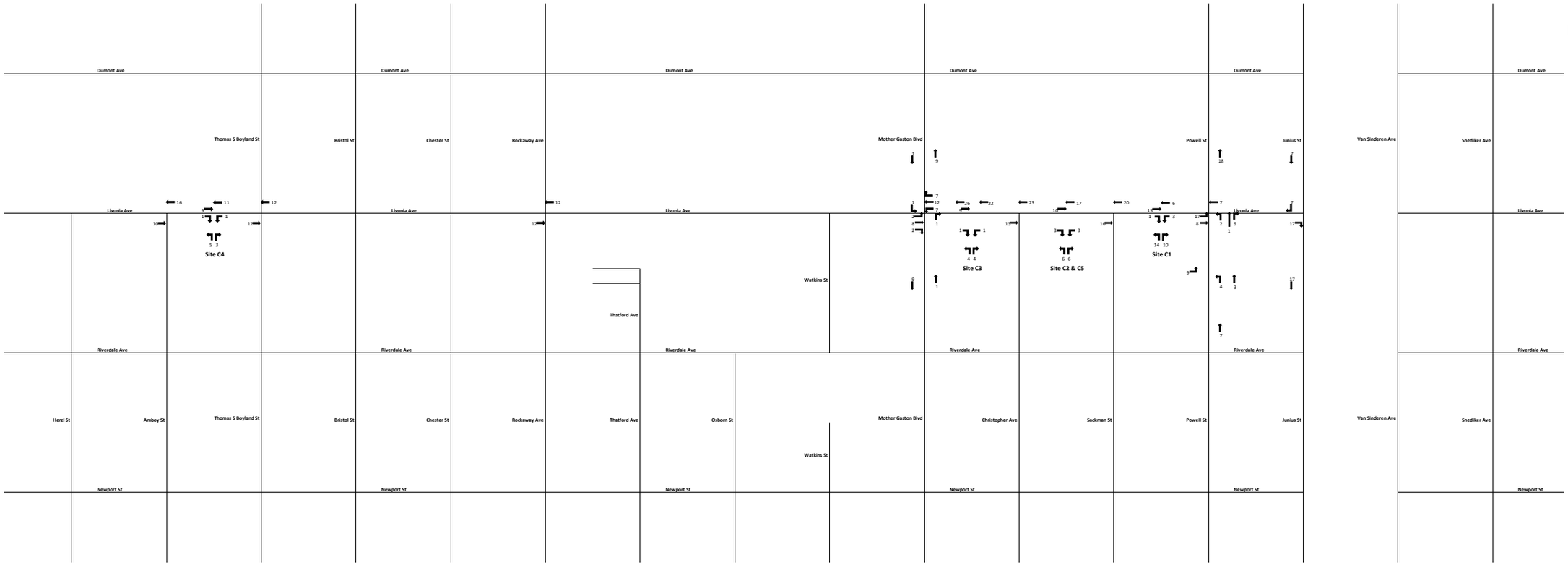
**This table has been revised for the FEIS.**

## TABLE 13-9 (continued)
## RWCDS Travel Demand Forecast

| Land Use: / Size/Units: | House of Worship 7,873 gsf | | Medical Office 91,981 gsf | | PS/IS School Grades K-4 (Student) 463 students | | PS/IS School Grades 5-7 (Student) 318 students | | PS/IS School Grade 8 (Student) 101 students | | PS/IS School (Staff) 82 staff | | PS/IS School (Parent) 122 parents | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Peak Hour Trips:** | | | | | | | | | | | | | | | | |
| AM | 12 | | 470 | | 464 | | 318 | | 102 | | 82 | | 244 | | 8,582 | |
| MD | 6 | | 1,286 | | 0 | | 0 | | 0 | | 0 | | 0 | | 13,502 | |
| PM | 10 | | 1,404 | | 48 | | 32 | | 12 | | 82 | | 26 | | 12,182 | |
| Sat MD | 26 | | 1,286 | | 0 | | 0 | | 0 | | 0 | | 0 | | 12,316 | |
| **Person Trips:** | | | | | | | | | | | | | | | | |
| **AM** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto | 0 | 0 | 126 | 15 | 70 | 0 | 48 | 0 | 15 | 0 | 34 | 0 | 0 | 0 | 447 | 923 |
| Taxi | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -7 | 7 |
| Subway/Railroad | 0 | 0 | 139 | 17 | 15 | 0 | 21 | 0 | 41 | 0 | 32 | 0 | 0 | 0 | 770 | 2,543 |
| Bus | 0 | 0 | 75 | 10 | 8 | 0 | 10 | 0 | 20 | 0 | 16 | 0 | 0 | 0 | 335 | 667 |
| School Bus | 0 | 0 | 0 | 0 | 255 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 482 | 0 |
| Walk/Other | 8 | 4 | 71 | 8 | 116 | 0 | 159 | 0 | 26 | 0 | 0 | 0 | 122 | 122 | 1,372 | 1,043 |
| Total | 8 | 4 | 419 | 51 | 464 | 0 | 318 | 0 | 102 | 0 | 82 | 0 | 122 | 122 | 3,399 | 5,183 |
| **MD** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto | 0 | 0 | 195 | 189 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 673 | 642 |
| Taxi | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 62 |
| Subway/Railroad | 0 | 0 | 216 | 208 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,135 | 1,128 |
| Bus | 0 | 0 | 119 | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 653 | 619 |
| School Bus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk/Other | 3 | 3 | 112 | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,284 | 4,259 |
| Total | 3 | 3 | 655 | 631 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,792 | 6,710 |
| **PM** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto | 0 | 0 | 202 | 219 | 0 | 27 | 0 | 10 | 0 | 2 | 0 | 34 | 0 | 0 | 1,107 | 766 |
| Taxi | 0 | 0 | 14 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 28 |
| Subway/Railroad | 0 | 0 | 223 | 240 | 0 | 6 | 0 | 4 | 0 | 5 | 0 | 32 | 0 | 0 | 2,592 | 1,404 |
| Bus | 0 | 0 | 121 | 132 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 16 | 0 | 0 | 854 | 597 |
| School Bus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk/Other | 7 | 3 | 114 | 124 | 0 | 12 | 0 | 16 | 0 | 3 | 0 | 0 | 13 | 13 | 2,354 | 2,447 |
| Total | 7 | 3 | 674 | 730 | 0 | 48 | 0 | 32 | 0 | 12 | 0 | 82 | 13 | 13 | 6,940 | 5,242 |
| **Sat MD** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto | 2 | 1 | 158 | 227 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 847 | 853 |
| Taxi | 0 | 0 | 10 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 43 |
| Subway/Railroad | 0 | 0 | 174 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,729 | 1,771 |
| Bus | 1 | 0 | 96 | 137 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 684 | 672 |
| School Bus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk/Other | 16 | 6 | 89 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,032 | 2,640 |
| Total | 19 | 7 | 527 | 759 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,337 | 5,979 |
| **Vehicle Trips :** | | | | | | | | | | | | | | | | |
| **AM** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto (Total) | 0 | 0 | 85 | 10 | 54 | 54 | 37 | 37 | 12 | 12 | 23 | 0 | 0 | 0 | 370 | 1,017 |
| Taxi | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -9 | 11 |
| Taxi Balanced | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| School Bus | 0 | 0 | 0 | 0 | 8 | 8 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 17 |
| Truck | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 28 |
| Total | 0 | 0 | 91 | 16 | 63 | 63 | 40 | 40 | 12 | 12 | 23 | 0 | 0 | 0 | 417 | 1,064 |
| **MD** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto (Total) | 0 | 0 | 131 | 127 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 373 | 369 |
| Taxi | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 34 |
| Taxi Balanced | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 53 |
| School Bus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Truck | 0 | 0 | 2 | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Total | 0 | 0 | 149 | 145 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 466 | 462 |
| **PM** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto (Total) | 0 | 0 | 134 | 146 | 21 | 21 | 8 | 8 | 2 | 2 | 0 | 23 | 0 | 0 | 989 | 618 |
| Taxi | 0 | 0 | 9 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 17 |
| Taxi Balanced | 0 | 0 | 19 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| School Bus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Truck | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Total | 0 | 0 | 153 | 165 | 21 | 21 | 8 | 8 | 2 | 2 | 0 | 23 | 0 | 0 | 1,031 | 660 |
| **Sat MD** | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
| Auto (Total) | 1 | 0 | 61 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 468 | 464 |
| Taxi | 0 | 0 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 21 |
| Taxi Balanced | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 46 |
| School Bus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Truck | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Total | 1 | 0 | 70 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 517 | 513 |

70% linked-trip credit applied to local retail use.
25% linked-trip credit applied to restaurant and FRESH (supermarket) uses.
Pre-K and PS/IS student absentee rate assumed to be 5%

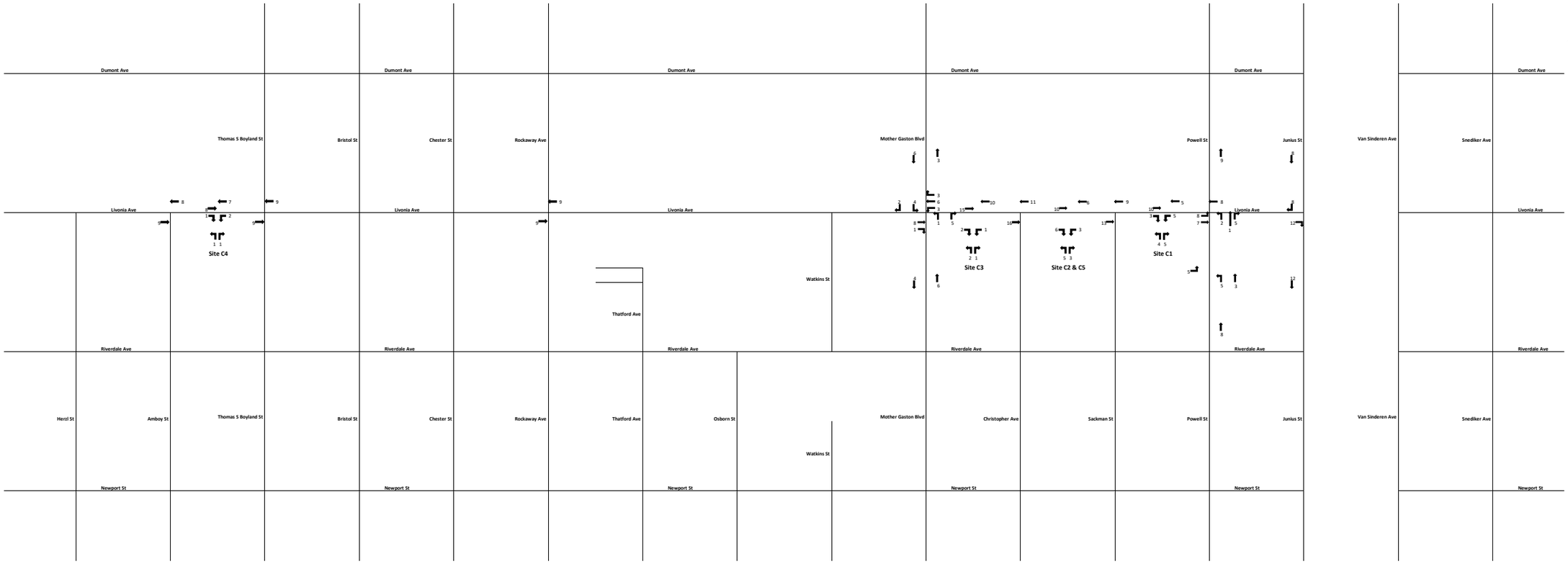
**This table has been revised for the FEIS.**




AM Peak Hour
Project Generated Vehicle Trips:

| | vehicles In/Out | Autos In/Out | Taxis In/Out | Trucks In/Out |
|---|---|---|---|---|
| C1: | 11/36 | 8/33 | 2/2 | 1/1 |
| C2: | 2/6 | 1/5 | - | 1/1 |
| C3: | 3/9 | 2/8 | - | 1/1 |
| C4: | 3/9 | 2/8 | 1/1 | - |
| C5: | 7/9 | 5/7 | 2/2 | - |
| ***Total*** | ***26/69*** | ***18/61*** | ***5/5*** | ***3/3*** |

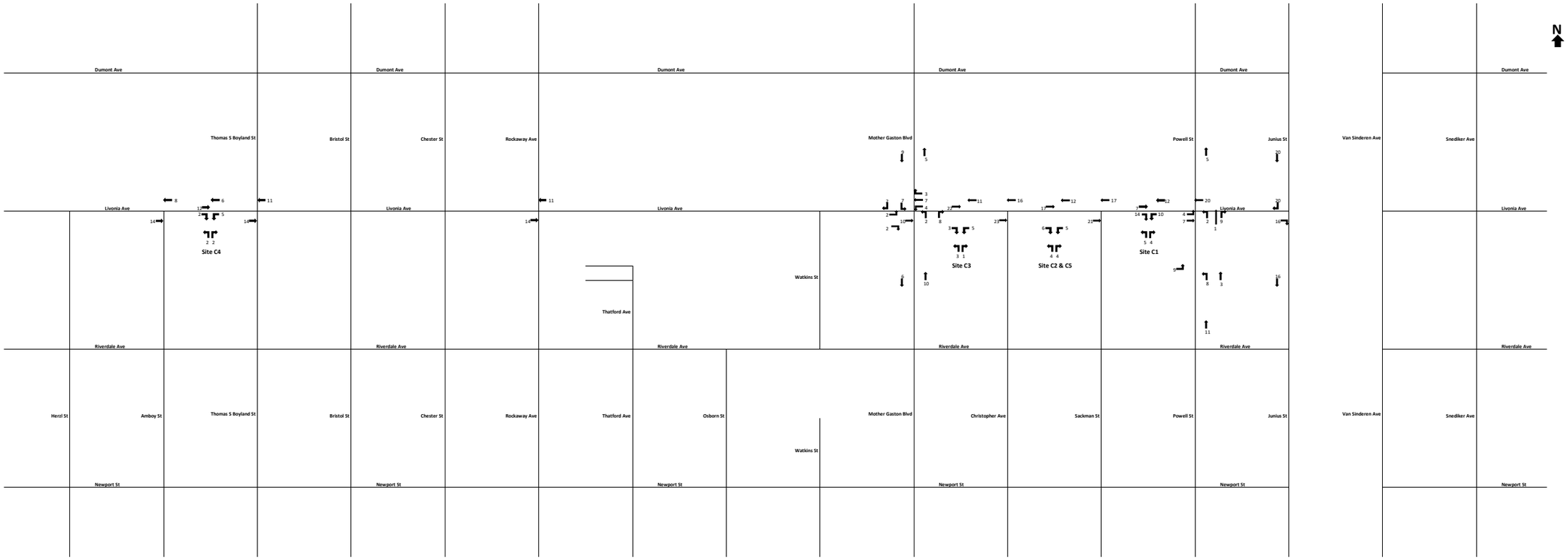
**Project Generated Vehicle Trips**
**Weekday AM Peak Hour**
**Figure 2**




Midday Peak Hour
Project Generated Vehicle Trips:

| | vehicles | Autos | Taxis | Trucks |
|---|---|---|---|---|
| | In/Out | In/Out | In/Out | In/Out |
| C1: | 17/18 | 13/14 | 2/2 | 2/2 |
| C2: | 2/1 | 2/1 | - | - |
| C3: | 4/4 | 3/3 | - | 1/1 |
| C4: | 5/4 | 3/2 | 2/2 | - |
| C5: | 9/9 | 7/7 | 2/2 | - |
| ***Total*** | ***37/36*** | ***28/27*** | ***6/6*** | ***3/3*** |

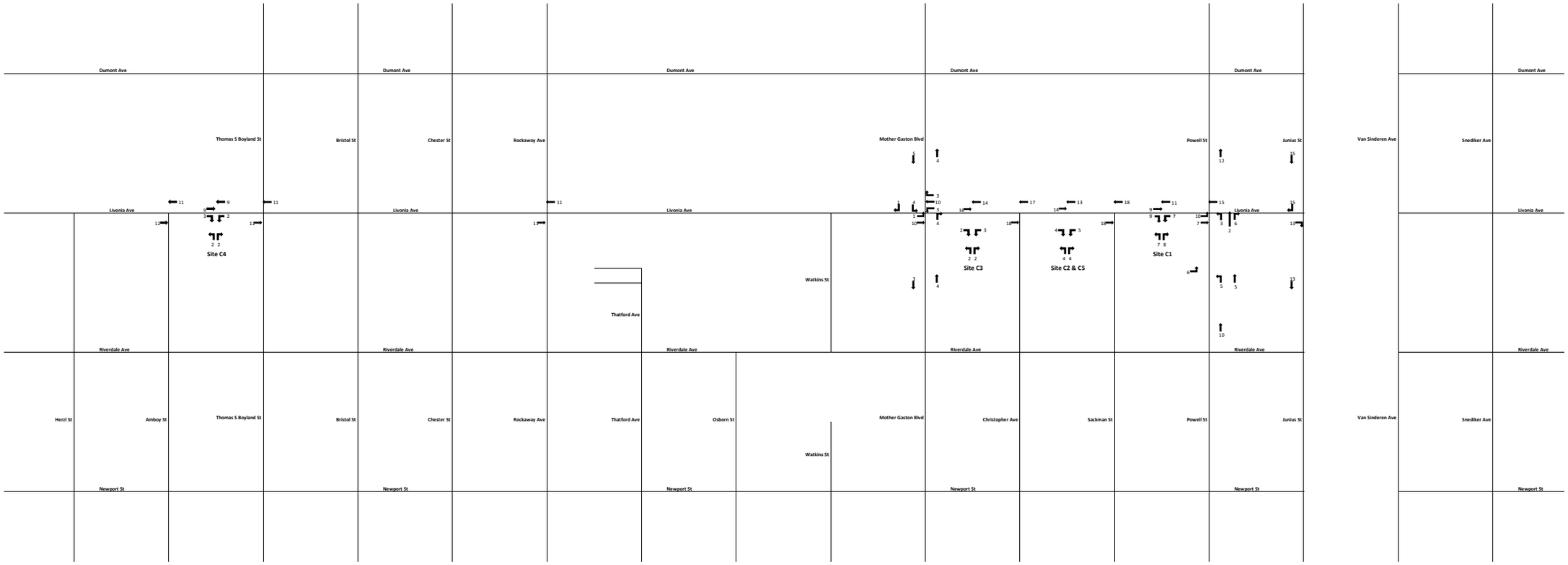
**Project Generated Vehicle Trips**
**Weekday MD Peak Hour**
**Figure 3**




PM Peak Hour
Project Generated Vehicle Trips:

| | vehicles In/Out | Autos In/Out | Taxis In/Out | Trucks In/Out |
|---|---|---|---|---|
| C1: | 35/21 | 32/18 | 3/3 | - |
| C2: | 4/2 | 4/2 | - | - |
| C3: | 8/4 | 8/4 | - | - |
| C4: | 9/6 | 7/4 | 2/2 | - |
| C5: | 8/7 | 7/6 | 1/1 | - |
| ***Total*** | ***64/40*** | ***58/34*** | ***6/6*** | ***0/0*** |

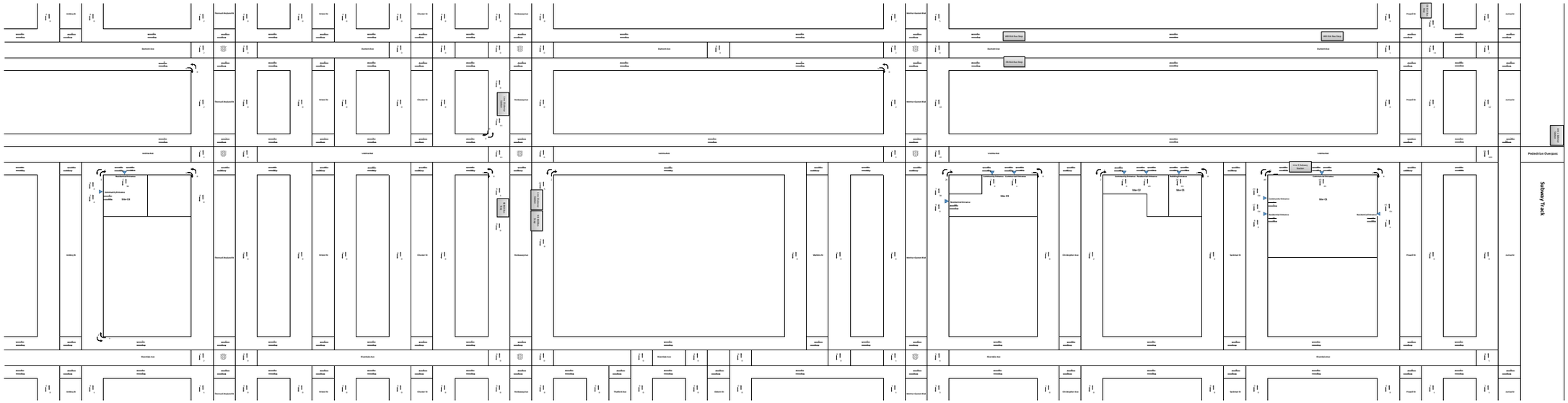
**Project Generated Vehicle Trips**
**Weekday PM Peak Hour**
**Figure 4**

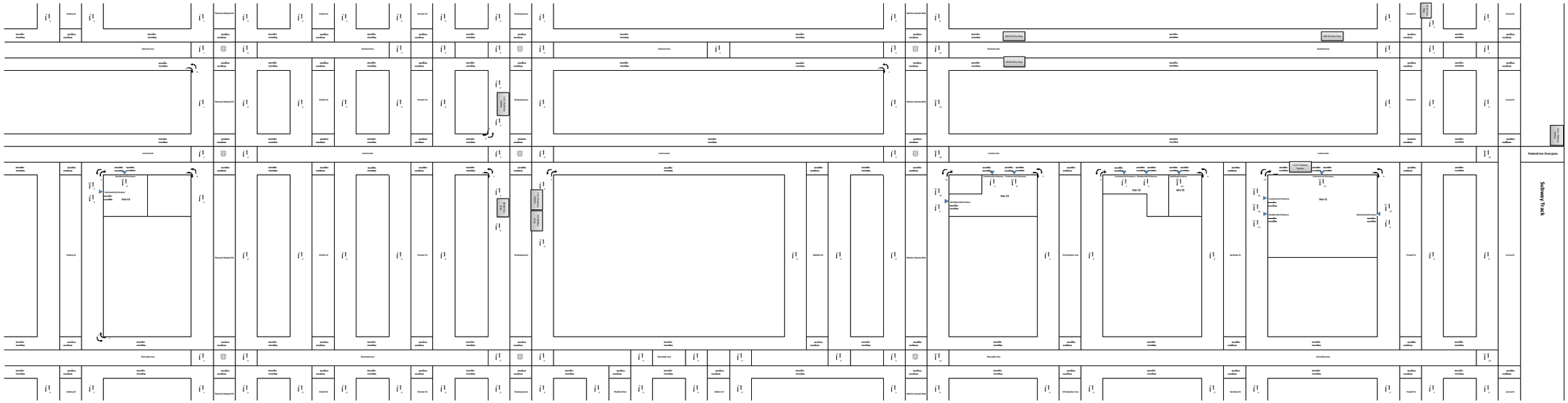



Saturday Midday Peak Hour
Project Generated Vehicle Trips:

| | vehicles In/Out | Autos In/Out | Taxis In/Out | Trucks In/Out |
|---|---|---|---|---|
| C1: | 25/25 | 21/21 | 4/4 | - |
| C2: | 3/2 | 3/2 | - | - |
| C3: | 5/4 | 5/4 | - | - |
| C4: | 6/5 | 5/4 | 1/1 | - |
| C5: | 7/7 | 6/6 | 1/1 | - |
| ***Total*** | ***46/43*** | ***40/37*** | ***6/6*** | ***0/0*** |

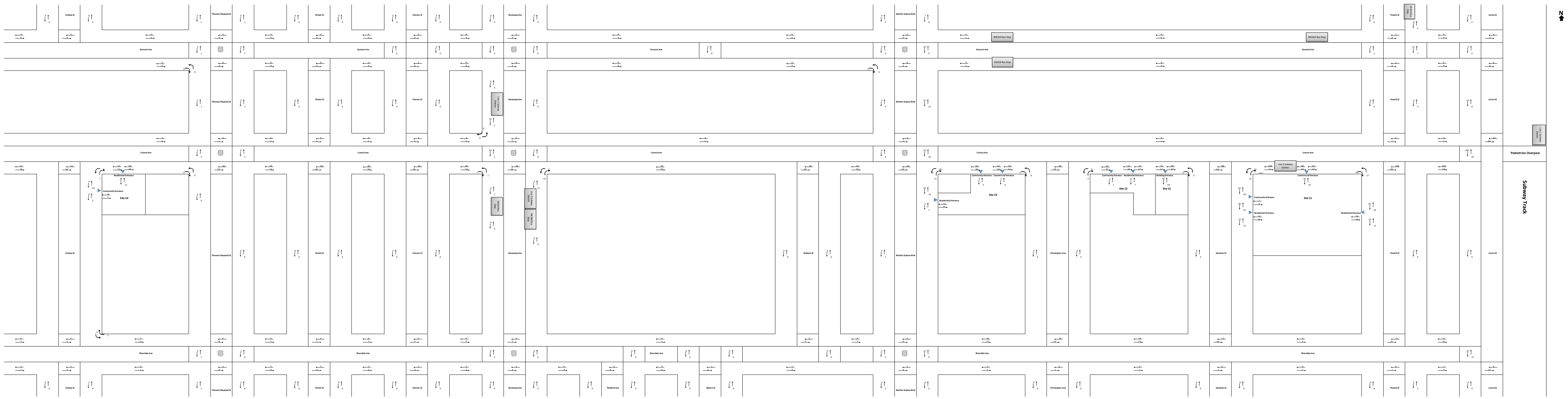
**Project Generated Vehicle Trips**
**Saturday MD Peak Hour**
**Figure 5**


Site C5
Site C4
Site C3
Site C2
Site C1
Subway Tracks
Pedestrian Overpass
Residential Entrance
Commercial Entrance
Loading/Utility Entrance
Bus Stop
Subway Entrance
Bus Stop
Subway Entrance
Bus Stop
Subway



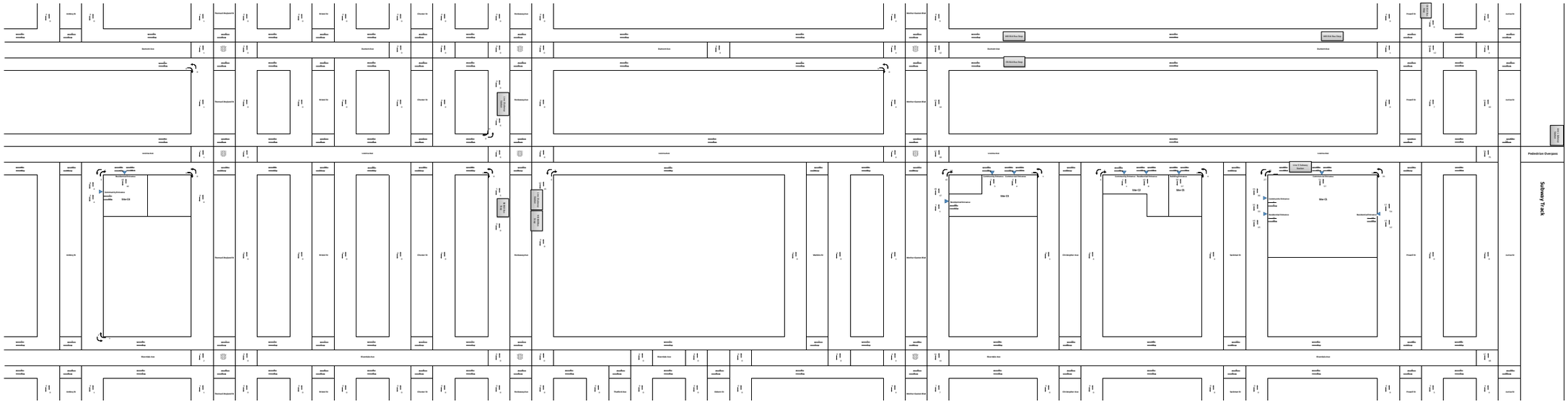

| | | | |
|---|---|---|---|
| Inbound | 1,000 | 1,000 | 2,000 |
| Outbound | 1,000 | 1,000 | 2,000 |
| Total | 2,000 | 2,000 | 4,000 |

**Project Generated Pedestrian Trips**
**Weekday MD Peak Hour**
**Figure 7**




| | Ped | in | out |
|---|---|---|---|
| Site C1 | 254 | 154 | 100 |
| Site C2 | 26 | 18 | 8 |
| Site C3 | 60 | 39 | 21 |
| Site C4 | 62 | 35 | 27 |
| Site C5 | 74 | 40 | 34 |
| All Sites Total | 476 | 286 | 190 |

**Project Generated Pedestrian Trips**
**Weekday PM Peak Hour**
**Figure 8**


Site C5
Site C4
Site C3
Site C2
Site C1
Subway Tracks
Pedestrian Overpass
Project Generated Pedestrian Trips
Saturday MD Peak Hour
Figure 9

# AIR QUALITY APPENDIX

Environmental Protection

**Rohit T. Aggarwala**
*Commissioner*

**Angela Licata**
*Deputy Commissioner of Sustainability*

59-17 Junction Blvd.
Flushing, NY 11373

Tel (718) 595-4398
alicata@dep.nyc.gov

May 13, 2022

Shahandeh Owrang
Project Manager
New York City Department of Housing Preservation and Development
100 Gold St
New York, NY 10038

**Re: Livonia 4**
**Block 3813, Lot 115; Block 3812, Lots 17, 18, 19, 20, 21, 22, 24, 121; Block 3811, Lots 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 124; Block 3586, Lots 26, 40, 41, 42, 43, 44, 45**
**CEQR # 20HPD054K**

Dear Shahandeh:

The New York City Department of Environmental Protection, Bureau of Environmental Planning and Analysis (DEP) has reviewed the February 2022 Air Quality attachment of the Environmental Assessment Statement (EAS) and backup materials. NYC Department of Housing Preservation and Development ('Applicant') seeks a zoning map amendment, zoning text amendment, UDAAP designation, approval, and disposition ('Proposed Actions') to facilitate the development of four mixed-use primarily affordable housing buildings, located at the above-mentioned blocks and lots, in the Brownsville neighborhood of Brooklyn, Community District 16 ('Development Sites'). The project build year is 2026.

Per HPD request, we have reviewed above mentioned materials. Based on the air quality analysis performed for the proposed project, DEP has concluded that the proposed project would not result in significant adverse impacts from air quality. Below is the summary of the assessment.

**Air Quality:**

Based on mobile source analysis performed, the Proposed Project would not significantly increase vehicle miles traveled in a large area and the $PM_{2.5}$ concentrations do not exceed the de minimis criteria. Therefore, the project would not result in significant impacts from mobile sources.

As it pertains to stationary sources, based on modeling analysis performed, the Applicant has proposed the restrictive measures on the HVAC systems to avoid potential impacts from the stationary sources. The following measures would be memorialized and enforced through the Land Disposition Agreement (LDA) between HPD and the Project Sponsor for Projected Development Sites 1 through 4:

1. Block 3813, Lot 115 (Projected Development Site 1): Any new residential, commercial, or community facility development on the above-referenced property exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC) system(s), ensure that the stack is located at the building's highest level at a minimum of 133 feet above the grade, and that the stack is located at least 120 feet from the northern lot line facing Livonia Avenue to avoid any potential significant adverse air quality impacts.

2. Block 3812, Lots 19, 20, 21, 22, 121 (Projected Development Site 2): Any new residential or community facility development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC) system(s) and must be fitted with low NOx (30 ppm) burners, ensure that the HVAC stack is located at the building's highest level at a minimum of 118 feet above the grade, and that the stack is located at least 35 feet from the eastern lot line facing Sackman Street and at least 35 feet from the western lot line facing Christopher Avenue to avoid any potential significant adverse air quality impacts.

3. Block 3811, Lots 17, 18, 19, 21, 23, 24, 25, 26, 27, 124 (Projected Development Site 3): Any new residential, commercial, or community facility development on the above-referenced property must ensure that the heating, ventilating, air conditioning (HVAC), and hot water system(s) stack is located at the building's highest level at a minimum of 128 feet above the grade, and that the stack is located at least 70 feet from the northern lot line facing Livonia Avenue and 50 feet from the eastern lot line facing Christopher Avenue to avoid any potential significant adverse air quality impacts.

4. Block 3586, Lot 26 (Projected Development Site 4): Any new residential or community facility development on the above-referenced property must ensure that the heating, ventilating, air conditioning (HVAC), and hot water system(s) stack is located at the building's highest level at a minimum of 128 feet above the grade to avoid any potential significant adverse air quality impacts.

Projected Development Site 5 and the Potential Development Sites, which are not part of the proposed project, would be mapped with E-Designations as specified below:

5. Block 3812, Lot 24 (Projected Development Site 5): Any new residential, commercial, or community facility development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s) and must be fitted with low NOx (30 ppm) burners, ensure that the stack is located at a minimum of 122 feet above the grade, and that the stack is located at least 35 feet from the eastern lot line facing Sackman Street to avoid any potential significant adverse air quality impacts.

6. Block 3812, Lots 17, 18 (Potential Development Site 1): Any new residential, commercial, or community facility development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s), ensure that the stack is located at a minimum of 122 feet above the grade, and that the stack is located at least 40 feet from the eastern lot line facing Sackman Street and at least 30 feet from the northern lot line facing Livonia Avenue to avoid any potential significant adverse air quality impacts.

7. Block 3811, Lot 20 (Potential Development Site 2): Any new residential, commercial, or community facility development on the above-referenced property must exclusively use line-electric power as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s) to avoid any potential significant adverse air quality impacts.

For industrial sources, the modeling analysis performed for the emission source identified, shows that the concentrations of non-criteria pollutants would not exceed the SGC/AGC values and the $PM_{2.5}$ concentrations do not exceed the de minimis criteria. Therefore, there is no significant adverse air quality impacts from industrial sources from the surrounding area on the Proposed Project.

Lastly, as it pertains to large or major sources, there are no existing sources of emissions within 1,000 feet of the Proposed Project. Therefore, there is no potential for significant adverse air quality impacts from large or major sources from the surrounding area on the Proposed Project.

If you have any questions, you may contact Chung Chan at chungc2@dep.nyc.gov.

Sincerely,

Chung Chan

Chung Chan,
Director
Air Quality and Noise Review and Planning

# NOISE
# APPENDIX

# HUD DNL Calculations for Livonia Sites

## Airport

HUD requires the analysis of aircraft-generated noise for all airports within 15 miles of the proposed project site. There are two airports within 15 miles of the project sites: LaGuardia International Airport and John F. Kennedy International Airport. Review of the federally approved noise contour maps for each airport indicate that none of the project sites are within the noise contours.

## Rail

HUD requires analysis of rail-generated noise if the railroad tracks are within 3,000 feet of the proposed project site. There are two railways that are within 3,000 feet of the project sites: the elevated tracks running along Livonia Avenue (MTA 2, 3, and 4 subway lines) and elevated tracks running along Van Sinderen Avenue (MTA L subway line). The Van Sinderen Avenue elevated rail is not within 3,000 feet of Site C4, and will not be included in the analysis of that site.

The effective distance was measured from each of the four sites, and MTA's published schedules (effective June 24, 2018) for the 2, 3, 4, and L subway lines were consulted to determine the total number of train operations. The rail noise analysis assumes an average train speed of 25 miles per hour, 1 engine per train, 10 cars per train, and 10% night fraction of average total trips. It is also assumed that there are no railway whistles or horns, and that the tracks are bolted.

## Roadway

HUD requires the analysis of roadway-generated noise for all major roadways within 1,000 feet of the proposed project. For the purposes of this analysis, it is assumed that all roads generating more than 10,000 AADT are major roadways, and as such will be factored into the DNL calculation. Two roadways within 1,000 feet of the proposed project sites fit within these parameters: Rockaway Avenue and Mother Gaston Boulevard. Rockaway Avenue is not within 1,000 feet of Site C1, C2, or C3 and will therefore not be considered in the analysis of those sites. Mother Gaston Boulevard is not within 1,000 feet of Site C4, and will not be considered in the analysis of that site.

For the purposes of the HUD DNL Calculator NYS DOT AADT counts will be broken into cars, medium trucks, and heavy trucks. NYS DOT traffic count data for heavy vehicles will be split between medium and heavy trucks.

The night fraction of AADT is assumed to be 15%, per HUD guidelines.

Road gradient for heavy trucks is assumed to be 2%.

## *Site C1 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C1 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Mother Gaston Boulevard** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 537 | 537 | 537 |
| Distance to Stop Sign | 531 | 531 | 531 |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10360 | 575 | 575 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 45.599 | 53.042 | 59.4247 |
| Calculate Road #1 DNL | 60.4904 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) | |
|---|---|---|
| **Rail # 1** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

| Railroad #2 Track Identifier: | Van Sinderen (L line) | |
|---|---|---|
| **Rail # 2** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 556 | |
| Average Train Speed | 25 | |

| | | |
|---|---|---|
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 400 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 55.3723 | |
| Calculate Rail #2 DNL | 55.3723 | Reset |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **76.5215** |
| Combined DNL including Airport | **N/A** |
| Site DNL with Loud Impulse Sound | |

Calculate

## *Site C2 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C2 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Mother Gaston Boulevard** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 302 | 302 | 302 |
| Distance to Stop Sign | 285 | 285 | 285 |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10360 | 575 | 575 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 47.0452 | 54.4883 | 63.1742 |
| Calculate Road #1 DNL | 63.7793 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) | |
|---|---|---|
| **Rail # 1** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

| Railroad #2 Track Identifier: | Van Sinderen (L line) | |
|---|---|---|
| **Rail # 2** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 885 | |
| Average Train Speed | 25 | |

| | | | | |
|---|---|---|---|---|
| Engines per Train | 1 | | | |
| Railway cars per Train | 10 | | | |
| Average Train Operations (ATO) | 400 | | | |
| Night Fraction of ATO | 10 | | | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | | Yes: ☐ No: ☐ | |
| Bolted Tracks? | Yes: ☑ No: ☐ | | Yes: ☐ No: ☐ | |
| **Train DNL** | 52.3443 | | | |
| Calculate Rail #2 DNL | 52.3443 | Reset | | |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **76.7844** |
| Combined DNL including Airport | **N/A** |
| Site DNL with Loud Impulse Sound | |

Calculate

## *Site C3 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C3 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Mother Gaston Boulevard** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 25 | 25 | 25 |
| Distance to Stop Sign | 25 | 25 | 25 |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10360 | 575 | 575 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 57.437 | 64.8801 | 79.4052 |
| Calculate Road #1 DNL | 79.6145 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) | |
|---|---|---|

**Rail # 1**

| Train Type | Electric ☑ | Diesel ☐ |
|---|---|---|
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

| Railroad #2 Track Identifier: | Van Sinderen (L line) | |
|---|---|---|

**Rail # 2**

| Train Type | Electric ☑ | Diesel ☐ |
|---|---|---|
| Effective Distance | 1051 | |
| Average Train Speed | 25 | |

| | | | | |
|---|---|---|---|---|
| Average Train Speed | 25 | | | |
| Engines per Train | 1 | | | |
| Railway cars per Train | 10 | | | |
| Average Train Operations (ATO) | 400 | | | |
| Night Fraction of ATO | 10 | | | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | | Yes: ☐ No: ☐ | |
| Bolted Tracks? | Yes: ☑ No: ☐ | | Yes: ☐ No: ☐ | |
| **Train DNL** | 51.2244 | | | |
| Calculate Rail #2 DNL | 51.2244 | Reset | | |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **81.3866** |
| Combined DNL including Airport | **N/A** |
| Site DNL with Loud Impulse Sound | |

Calculate

## *Site C4 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C4 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Rockaway Avenue** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 910 | 910 | 910 |
| Distance to Stop Sign | | | |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10964 | 609 | 609 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 42.8835 | 40.33 | 53.6854 |
| Calculate Road #1 DNL | 54.1986 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) |
|---|---|

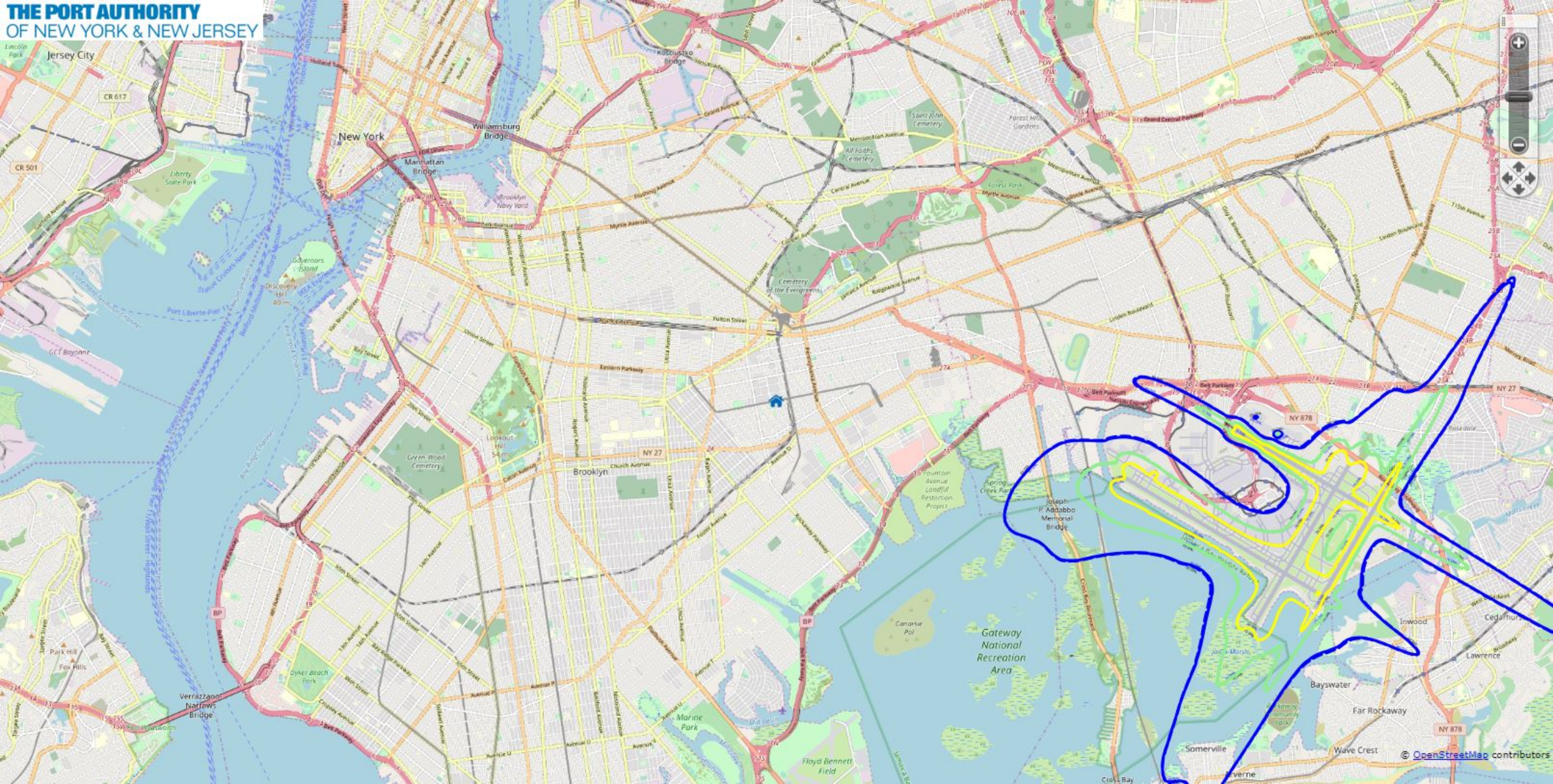
**Rail # 1**

| Train Type | Electric ☑ | Diesel ☐ |
|---|---|---|
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **76.5215** |

## *Airport Maps*


THE PORT AUTHORITY
OF NEW YORK & NEW JERSEY
Jersey City
New York
Brooklyn
Williamsburg Bridge
Manhattan Bridge
Verrazzano Narrows Bridge
Joseph P. Addabbo Memorial Bridge
Gateway National Recreation Area
Governors Island
Liberty State Park
Green-Wood Cemetery
Cemetery of the Evergreens
Forest Park
Marine Park
Floyd Bennett Field
Dyker Beach Park
Park Hill
Fox Hills
Inwood
Lawrence
Cedarhurst
Bayswater
Far Rockaway
Somerville
Wave Crest
Belt Parkway
Brooklyn Queens Expressway
Grand Central Parkway
Jamaica Avenue
Fulton Street
Eastern Parkway
Church Avenue
Flatbush Avenue
Ocean Parkway
Cross Bay Boulevard
Rockaway Boulevard
Linden Boulevard
Conarsie Pol
Spring Creek Park
Fountain Avenue Landfill Restoration Project
Jamaica Bay Wildlife Refuge
Lookout Hill
Discovery Hill
Kosciuszko Bridge
Brooklyn Navy Yard
Saint John Cemetery
All Faiths Cemetery
Forest Hills Gardens
Statue Cruises New York Ferry
Port Liberte-Pier 11
GCT Bayonne
Bay Ridge Channel
Buttermilk Channel
Upper East River Ferry
IKEA Express
CR 617
CR 501
NY 27
NY 878
BP
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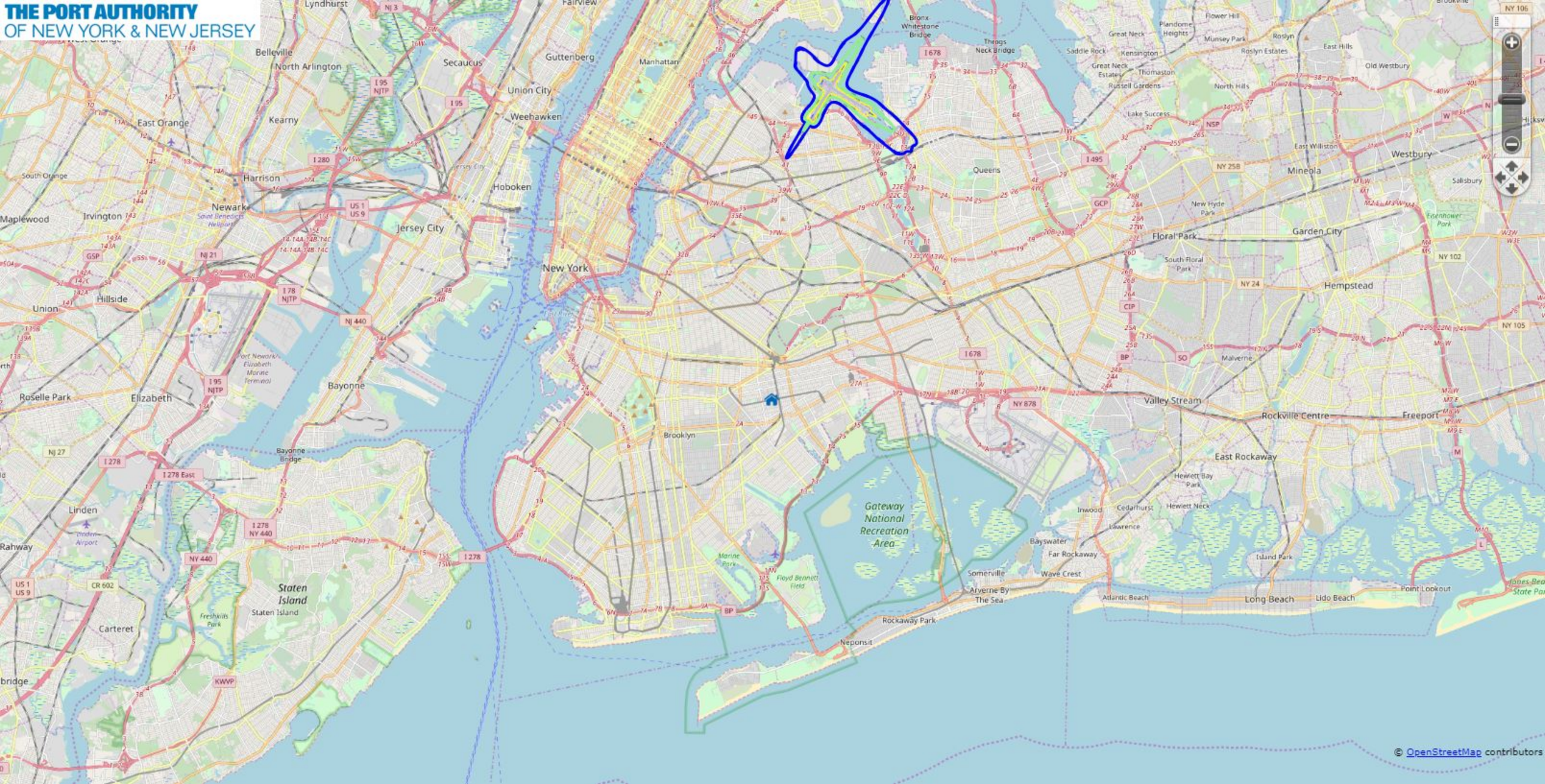
THE PORT AUTHORITY
OF NEW YORK & NEW JERSEY
Belleville
North Arlington
Lyndhurst
Secaucus
Guttenberg
Fairview
Manhattan
Union City
Weehawken
Bronx Whitestone Bridge
Throgs Neck Bridge
Great Neck
Plandome Heights
Flower Hill
Munsey Park
Roslyn
Roslyn Estates
East Hills
Old Westbury
Saddle Rock
Kensington
Great Neck Estates
Thomaston
Russell Gardens
North Hills
Lake Success
East Williston
Westbury
Mineola
Salisbury
East Orange
Kearny
South Orange
Harrison
Hoboken
Jersey City
Newark
Saint Benedicts Heliport
Irvington
Maplewood
Queens
New Hyde Park
Floral Park
Garden City
South Floral Park
Eisenhower Park
New York
Hillside
Union
Elizabeth
Roselle Park
Bayonne
Port Newark/ Elizabeth Marine Terminal
Brooklyn
Hempstead
Malverne
Valley Stream
Rockville Centre
Freeport
East Rockaway
Hewlett Bay Park
Hewlett Neck
Inwood
Cedarhurst
Lawrence
Bayswater
Far Rockaway
Island Park
Wave Crest
Somerville
Arverne By The Sea
Atlantic Beach
Long Beach
Lido Beach
Point Lookout
Rockaway Park
Neponsit
Gateway National Recreation Area
Floyd Bennett Field
Marine Park
Bayonne Bridge
Linden
Linden Airport
Rahway
Carteret
Staten Island
Freshkills Park
I 95 NJTP
I 280
I 78 NJTP
I 278
I 278 East
I 278 NY 440
I 678
I 495
I 95
US 1 US 9
NJ 3
NJ 21
NJ 440
NJ 27
NY 440
CR 602
KWVP
GSP
GCP
CIP
NSP
NY 25B
NY 24
NY 878
NY 106
NY 102
NY 105
BP
SO
Throgs Neck Bridge
Bronx Whitestone Bridge
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## *Roadway Data*

# New York State Department of Transportation

## Traffic Count Hourly Report

ROAD #: ROAD NAME: **MTHR GASTN BLV** FROM: **LINDEN BLVD** TO: **EASTERN PKWY** COUNTY: **Kings**

DIRECTION: Northbound FACTOR GROUP: 30 REC. SERIAL #: 2052 FUNC. CLASS: 17 TOWN:

STATE DIR CODE: 1 WK OF YR: 50 PLACEMENT: AT BLAKE AVE NHS: no LION#:

DATE OF COUNT: 12/12/2011 @ REF MARKER: JURIS: Other BIN:

NOTES LANE 0: NB 2 LANES ADDL DATA: CC Stn: RR CROSSING:

COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R11WW51 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: ATI INITIALS: EEM PROCESSED BY: ORG CODE: DOT INITIALS: MLA

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | M | | | | | | | | | | | | | **348** | **286** | **387** | **421** | **428** | **369** | **322** | **308** | **248** | **306** | **168** | **164** | | | |
| 13 | T | **87** | **57** | **28** | **16** | **36** | **76** | **150** | **447** | **490** | **346** | **284** | **266** | **314** | **316** | **321** | **407** | **417** | **390** | **315** | **282** | **247** | **217** | **157** | **131** | 5797 | 490 | 8 |
| 14 | W | **89** | **50** | **30** | **36** | **42** | **85** | **177** | **396** | **469** | **353** | **308** | **322** | **295** | **366** | **334** | **389** | **466** | **346** | **336** | **279** | **256** | **207** | **152** | **147** | 5930 | 469 | 8 |
| 15 | T | **88** | **57** | **27** | **31** | **28** | **87** | **139** | **412** | **510** | **383** | **301** | **320** | **301** | **304** | **354** | **440** | **446** | **419** | **304** | **302** | **209** | **195** | **191** | **153** | 6001 | 510 | 8 |
| 16 | F | **114** | **72** | **49** | **35** | **42** | **80** | **168** | **483** | | | | | | | | | | | | | | | | | | | |
| 17 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| | | | | | | | | | | | | | | | | | | | | | | | | | ADT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **92** | **58** | **33** | **29** | **36** | **80** | **155** | **424** | **479** | **353** | **291** | **296** | **307** | **311** | **341** | **405** | **429** | **373** | **312** | **287** | **235** | **226** | **163** | **146** | **5861** |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor |
|---|---|---|---|---|---|---|---|
| 5 | 92 | 5 | 92 | 479 | 8% | 0.978 | 1.004 |

**ESTIMATED (one way)**

**AADT**

**5838**

# New York State Department of Transportation

## Traffic Count Hourly Report

ROAD #: ROAD NAME: **MTHR GASTN BLV** FROM: **LINDEN BLVD** TO: **EASTERN PKWY** COUNTY: **Kings**

DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: 2019 FUNC. CLASS: 17 TOWN:

STATE DIR CODE: 2 WK OF YR: 50 PLACEMENT: AT BLAKE AVE NHS: no LION#:

DATE OF COUNT: 12/12/2011 @ REF MARKER: JURIS: Other BIN:

NOTES LANE 0: SB 2 LANES ADDL DATA: CC Stn: RR CROSSING:

COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R11WW51 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: ATI INITIALS: EEM PROCESSED BY: ORG CODE: DOT INITIALS: MLA

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | M | | | | | | | | | | | | | **267** | **390** | **316** | **444** | **514** | **501** | **429** | **307** | **220** | **201** | **178** | **113** | | | |
| 13 | T | **107** | **41** | **40** | **22** | **22** | **64** | **123** | **272** | **306** | **294** | **281** | **261** | **316** | **322** | **324** | **415** | **467** | **492** | **452** | **382** | **263** | **193** | **157** | **156** | 5772 | 492 | 17 |
| 14 | W | **91** | **55** | **34** | **39** | **36** | **46** | **123** | **253** | **351** | **322** | **253** | **285** | **277** | **345** | **366** | **429** | **506** | **459** | **432** | **345** | **237** | **218** | **191** | **120** | 5813 | 506 | 16 |
| 15 | T | **117** | **46** | **40** | **26** | **21** | **45** | **128** | **273** | **363** | **340** | **297** | **301** | **322** | **368** | **397** | **418** | **516** | **493** | **386** | **350** | **250** | **195** | **182** | **137** | 6011 | 516 | 16 |
| 16 | F | **110** | **68** | **46** | **24** | **42** | **50** | **138** | **267** | **207** | | | | | | | | | | | | | | | | | | |
| 17 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| | | | | | | | | | | | | | | | | | | | | | | | | | ADT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **104** | **51** | **39** | **27** | **29** | **50** | **125** | **260** | **300** | **312** | **271** | **276** | **289** | **348** | **343** | **417** | **490** | **475** | **416** | **338** | **237** | **198** | **173** | **129** | **5697** |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor |
|---|---|---|---|---|---|---|---|
| 5 | 93 | 5 | 93 | 490 | 9% | 0.978 | 1.004 |

**ESTIMATED (one way)**

**AADT**

**5674**

**STATION: 021337**

# New York State Department of Transportation
## Roadway Traffic Count Hourly Report

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTE/ROAD: | ROCKAWAY AVE | FROM: | LINDEN BLVD | TO: | EASTERN PKY | REGION-COUNTY: | 11-KINGS |
| FED DIR CODE: | 1, 5 | REF. MARKER: | | FUNC. CLASS: | 14 - U Principal Arterial - Other | MUNI: | Brooklyn-City-2034 |
| ST DIR CODE: | 7 | END MILEPOST: | 1.77 | FACTOR GROUP: | 30 | BIN: | |
| DOT ID: | 256428 | LANES BY DIR: | 1 North 1 South | CC STN: | | RR CROSSING: | |
| BEGIN DATE: | 5/6/2014 | WEEK OF YEAR: | 18 | ADDL DATA: | | HPMS SAMPLE: | |
| NOTES 1: | | PLACEMENT: | 97 FT. N OF RIVERDALE AVE | JURISDICTION: | 04-City or village | 1 WAY CODE: | |
| NOTES 2: | | | | | | COUNT TYPE: | Axle |
| TAKEN BY: | DOT-AM | PROCESSED BY: | DOT-AC | BATCH ID: | DOT-DOTR11WW1 | SPEED LIMIT: | 25 |

| DATE | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 | 22-23 | 23-24 | DAILY TOTAL | HIGH COUNT | HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/06, Tue | | | | | | | | | | | | | | | | | | | | | **613** | **585** | **515** | **441** | 2154 | | |
| 5/07, Wed | **272** | **198** | **159** | **170** | **169** | **249** | **440** | **599** | **638** | **722** | **715** | **754** | **737** | **682** | **721** | **762** | **783** | **783** | **745** | **716** | **661** | **617** | **566** | **451** | 13309 | 783 | 17-18 |
| 5/08, Thu | **285** | **224** | **181** | **160** | **192** | **252** | **424** | **625** | **614** | **681** | **683** | **743** | **719** | **725** | **700** | **769** | **763** | **778** | **722** | **726** | **682** | **614** | **685** | **521** | 13468 | 778 | 17-18 |
| 5/09, Fri | **250** | **206** | **190** | **172** | **184** | **232** | **448** | **654** | **684** | **738** | **690** | **791** | | | | | | | | | | | | | 5239 | | |
| **AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)** | | | | | | | | | | | | | | | | | | | | | | | | | **AWDT** | | |
| | **264** | **206** | **173** | **164** | **178** | **240** | **429** | **615** | **634** | **701** | **683** | **749** | **715** | **691** | **698** | **752** | **759** | **766** | **720** | **708** | **640** | **594** | **578** | **463** | 13121 | | |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY Roadway High Hour | Roadway % of day | North High Hour | North % of day | South High Hour | South % of day |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 64 | 3 | 64 | 766 | 5.8 | 398 | 5.7 | 376 | 6.1 |

| ESTIMATED AADT | | |
|---|---|---|
| Roadway | North | South |
| 12183 | 6443 | 5740 |

**FACTOR**

| Month | Seasonal | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Axl |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.08 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 |

**STATION: 021337**

# New York State Department of Transportation
## NB Traffic Count Hourly Report

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTE/ROAD: | ROCKAWAY AVE | FROM: | LINDEN BLVD | TO: | EASTERN PKY | REGION-COUNTY: | 11-KINGS |
| FED DIR CODE: | 1 | REF. MARKER: | | FUNC. CLASS: | 14 - U Principal Arterial - Other | MUNI: | Brooklyn-City-2034 |
| ST DIR CODE: | 7 | END MILEPOST: | 1.77 | FACTOR GROUP: | 30 | BIN: | |
| DOT ID: | 256428 | LANES BY DIR: | 1 North | CC STN: | | RR CROSSING: | |
| BEGIN DATE: | 5/6/2014 | WEEK OF YEAR: | 18 | ADDL DATA: | | HPMS SAMPLE: | |
| NOTES 1: | | PLACEMENT: | 97 FT. N OF RIVERDALE AVE | JURISDICTION: | 04-City or village | 1 WAY CODE: | |
| NOTES 2: | | | | | | COUNT TYPE: | Axle |
| TAKEN BY: | DOT-AM | PROCESSED BY: | DOT-AC | BATCH ID: | DOT-DOTR11WW1 | SPEED LIMIT: | 25 |

| DATE | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 | 22-23 | 23-24 | DAILY TOTAL | HIGH COUNT | HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/06, Tue | | | | | | | | | | | | | | | | | | | | | **326** | **283** | **259** | **210** | 1078 | | |
| 5/07, Wed | **129** | **94** | **79** | **88** | **96** | **143** | **240** | **358** | **347** | **405** | **392** | **393** | **389** | **382** | **374** | **400** | **397** | **388** | **399** | **392** | **330** | **330** | **288** | **218** | 7051 | 405 | 09-10 |
| 5/08, Thu | **142** | **114** | **91** | **82** | **95** | **148** | **240** | **351** | **321** | **358** | **363** | **390** | **376** | **397** | **375** | **411** | **396** | **408** | **393** | **391** | **358** | **321** | **371** | **266** | 7158 | 411 | 15-16 |
| 5/09, Fri | **115** | **100** | **99** | **83** | **105** | **123** | **242** | **374** | **363** | **405** | **362** | **408** | | | | | | | | | | | | | 2779 | | |
| **AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)** | | | | | | | | | | | | | | | | | | | | | | | | | **AWDT** | | |
| | **129** | **101** | **88** | **83** | **97** | **136** | **236** | **355** | **337** | **382** | **366** | **390** | **376** | **382** | **368** | **398** | **389** | **391** | **389** | **384** | **332** | **306** | **300** | **227** | 6942 | | |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY Roadway High Hour | Roadway % of day | North High Hour | North % of day | South High Hour | South % of day |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 64 | 3 | 64 | 766 | 5.8 | 398 | 5.7 | 376 | 6.1 |

| ESTIMATED AADT | | |
|---|---|---|
| Roadway | North | South |
| 12183 | 6443 | 5740 |

**FACTOR**

| Month | Seasonal | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Axl |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.08 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 |

**STATION: 021337**

# New York State Department of Transportation
## SB Traffic Count Hourly Report

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTE/ROAD: | ROCKAWAY AVE | FROM: | LINDEN BLVD | TO: | EASTERN PKY | REGION-COUNTY: | 11-KINGS |
| FED DIR CODE: | 5 | REF. MARKER: | | FUNC. CLASS: | 14 - U Principal Arterial - Other | MUNI: | Brooklyn-City-2034 |
| ST DIR CODE: | 7 | END MILEPOST: | 1.77 | FACTOR GROUP: | 30 | BIN: | |
| DOT ID: | 256428 | LANES BY DIR: | 1 South | CC STN: | | RR CROSSING: | |
| BEGIN DATE: | 5/6/2014 | WEEK OF YEAR: | 18 | ADDL DATA: | | HPMS SAMPLE: | |
| NOTES 1: | | PLACEMENT: | 97 FT. N OF RIVERDALE AVE | JURISDICTION: | 04-City or village | 1 WAY CODE: | |
| NOTES 2: | | | | | | COUNT TYPE: | Axle |
| TAKEN BY: | DOT-AM | PROCESSED BY: | DOT-AC | BATCH ID: | DOT-DOTR11WW1 | SPEED LIMIT: | 25 |

| DATE | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 | 22-23 | 23-24 | DAILY TOTAL | HIGH COUNT | HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/06, Tue | | | | | | | | | | | | | | | | | | | | | **287** | **302** | **256** | **231** | 1076 | | |
| 5/07, Wed | **143** | **104** | **80** | **82** | **73** | **106** | **200** | **241** | **291** | **317** | **323** | **361** | **348** | **300** | **347** | **362** | **386** | **395** | **346** | **324** | **331** | **287** | **278** | **233** | 6258 | 395 | 17-18 |
| 5/08, Thu | **143** | **110** | **90** | **78** | **97** | **104** | **184** | **274** | **293** | **323** | **320** | **353** | **343** | **328** | **325** | **358** | **367** | **370** | **329** | **335** | **324** | **293** | **314** | **255** | 6310 | 370 | 17-18 |
| 5/09, Fri | **135** | **106** | **91** | **89** | **79** | **109** | **206** | **280** | **321** | **333** | **328** | **383** | | | | | | | | | | | | | 2460 | | |
| **AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)** | | | | | | | | | | | | | | | | | | | | | | | | | **AWDT** | | |
| | **138** | **105** | **85** | **82** | **82** | **104** | **193** | **260** | **296** | **318** | **318** | **359** | **339** | **308** | **330** | **354** | **370** | **376** | **331** | **324** | **308** | **289** | **278** | **235** | 6182 | | |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY Roadway High Hour | Roadway % of day | North High Hour | North % of day | South High Hour | South % of day |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 64 | 3 | 64 | 766 | 5.8 | 398 | 5.7 | 376 | 6.1 |

| ESTIMATED AADT | | |
|---|---|---|
| Roadway | North | South |
| 12183 | 6443 | 5740 |

**FACTOR**

| Month | Seasonal | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Axl |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.08 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 |

# HUD DNL Calculations for Livonia Sites

## Airport

HUD requires the analysis of aircraft-generated noise for all airports within 15 miles of the proposed project site. There are two airports within 15 miles of the project sites: LaGuardia International Airport and John F. Kennedy International Airport. Review of the federally approved noise contour maps for each airport indicate that none of the project sites are within the noise contours.

## Rail

HUD requires analysis of rail-generated noise if the railroad tracks are within 3,000 feet of the proposed project site. There are two railways that are within 3,000 feet of the project sites: the elevated tracks running along Livonia Avenue (MTA 2, 3, and 4 subway lines) and elevated tracks running along Van Sinderen Avenue (MTA L subway line). The Van Sinderen Avenue elevated rail is not within 3,000 feet of Site C4, and will not be included in the analysis of that site.

The effective distance was measured from each of the four sites, and MTA's published schedules (effective June 24, 2018) for the 2, 3, 4, and L subway lines were consulted to determine the total number of train operations. The rail noise analysis assumes an average train speed of 25 miles per hour, 1 engine per train, 10 cars per train, and 10% night fraction of average total trips. It is also assumed that there are no railway whistles or horns, and that the tracks are bolted.

## Roadway

HUD requires the analysis of roadway-generated noise for all major roadways within 1,000 feet of the proposed project. For the purposes of this analysis, it is assumed that all roads generating more than 10,000 AADT are major roadways, and as such will be factored into the DNL calculation. Two roadways within 1,000 feet of the proposed project sites fit within these parameters: Rockaway Avenue and Mother Gaston Boulevard. Rockaway Avenue is not within 1,000 feet of Site C1, C2, or C3 and will therefore not be considered in the analysis of those sites. Mother Gaston Boulevard is not within 1,000 feet of Site C4, and will not be considered in the analysis of that site.

For the purposes of the HUD DNL Calculator NYS DOT AADT counts will be broken into cars, medium trucks, and heavy trucks. NYS DOT traffic count data for heavy vehicles will be split between medium and heavy trucks.

The night fraction of AADT is assumed to be 15%, per HUD guidelines.

Road gradient for heavy trucks is assumed to be 2%.

## *Site C1 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C1 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Mother Gaston Boulevard** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 537 | 537 | 537 |
| Distance to Stop Sign | 531 | 531 | 531 |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10360 | 575 | 575 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 45.599 | 53.042 | 59.4247 |
| Calculate Road #1 DNL | 60.4904 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) | |
|---|---|---|
| **Rail # 1** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

| Railroad #2 Track Identifier: | Van Sinderen (L line) | |
|---|---|---|
| **Rail # 2** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 556 | |
| Average Train Speed | 25 | |

| | | |
|---|---|---|
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 400 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 55.3723 | |
| Calculate Rail #2 DNL | 55.3723 | Reset |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **76.5215** |
| Combined DNL including Airport | **N/A** |
| Site DNL with Loud Impulse Sound | |

Calculate

## *Site C2 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C2 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Mother Gaston Boulevard** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 302 | 302 | 302 |
| Distance to Stop Sign | 285 | 285 | 285 |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10360 | 575 | 575 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 47.0452 | 54.4883 | 63.1742 |
| Calculate Road #1 DNL | 63.7793 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) | |
|---|---|---|
| **Rail # 1** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

| Railroad #2 Track Identifier: | Van Sinderen (L line) | |
|---|---|---|
| **Rail # 2** | | |
| **Train Type** | **Electric** ☑ | **Diesel** ☐ |
| Effective Distance | 885 | |
| Average Train Speed | 25 | |

| | | | | |
|---|---|---|---|---|
| Engines per Train | 1 | | | |
| Railway cars per Train | 10 | | | |
| Average Train Operations (ATO) | 400 | | | |
| Night Fraction of ATO | 10 | | | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | | Yes: ☐ No: ☐ | |
| Bolted Tracks? | Yes: ☑ No: ☐ | | Yes: ☐ No: ☐ | |
| **Train DNL** | 52.3443 | | | |
| Calculate Rail #2 DNL | 52.3443 | Reset | | |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **76.7844** |
| Combined DNL including Airport | **N/A** |
| Site DNL with Loud Impulse Sound | |

Calculate

## *Site C3 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C3 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Mother Gaston Boulevard** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 25 | 25 | 25 |
| Distance to Stop Sign | 25 | 25 | 25 |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10360 | 575 | 575 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 57.437 | 64.8801 | 79.4052 |
| Calculate Road #1 DNL | 79.6145 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) | |
|---|---|---|

**Rail # 1**

| Train Type | Electric ☑ | Diesel ☐ |
|---|---|---|
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

| Railroad #2 Track Identifier: | Van Sinderen (L line) | |
|---|---|---|

**Rail # 2**

| Train Type | Electric ☑ | Diesel ☐ |
|---|---|---|
| Effective Distance | 1051 | |
| Average Train Speed | 25 | |

| | | | | |
|---|---|---|---|---|
| Average Train Speed | 25 | | | |
| Engines per Train | 1 | | | |
| Railway cars per Train | 10 | | | |
| Average Train Operations (ATO) | 400 | | | |
| Night Fraction of ATO | 10 | | | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | | Yes: ☐ No: ☐ | |
| Bolted Tracks? | Yes: ☑ No: ☐ | | Yes: ☐ No: ☐ | |
| **Train DNL** | 51.2244 | | | |
| Calculate Rail #2 DNL | 51.2244 | Reset | | |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **81.3866** |
| Combined DNL including Airport | **N/A** |
| Site DNL with Loud Impulse Sound | |

Calculate

## *Site C4 HUD Calculation*

# DNL Calculator

| | |
|---|---|
| **Site ID** | Site C4 |
| **Record Date** | 07/02/2019 |
| **User's Name** | |

| | |
|---|---|
| **Road # 1 Name:** | **Rockaway Avenue** |

**Road #1**

| **Vehicle Type** | **Cars** ☑ | **Medium Trucks** ☑ | **Heavy Trucks** ☑ |
|---|---|---|---|
| Effective Distance | 910 | 910 | 910 |
| Distance to Stop Sign | | | |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 10964 | 609 | 609 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 2 |
| Vehicle DNL | 42.8835 | 40.33 | 53.6854 |
| Calculate Road #1 DNL | 54.1986 | Reset | |

| Railroad #1 Track Identifier: | Livonia (2, 3, and 4 lines) |
|---|---|

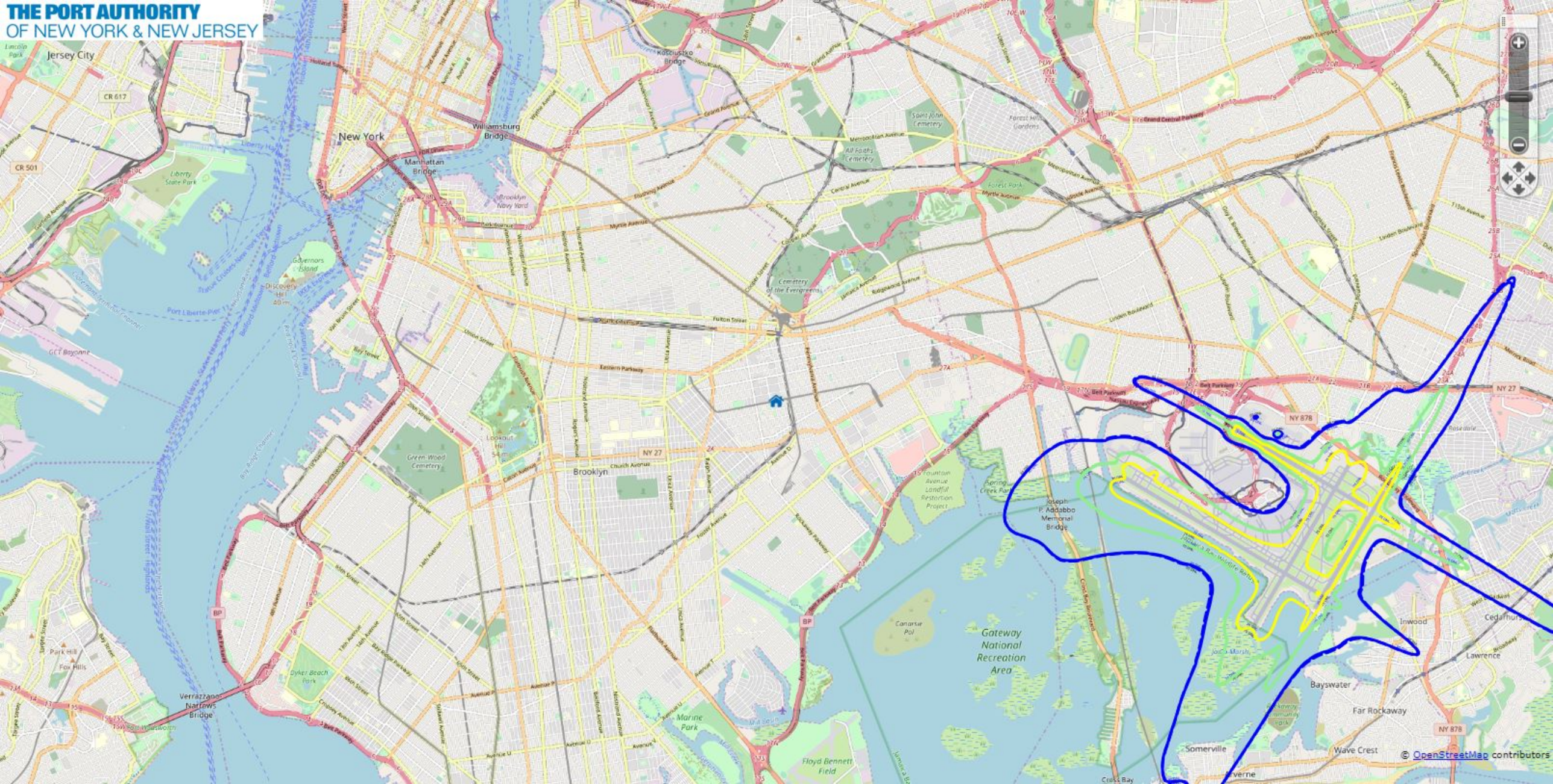
**Rail # 1**

| Train Type | Electric ☑ | Diesel ☐ |
|---|---|---|
| Effective Distance | 45 | |
| Average Train Speed | 25 | |
| Engines per Train | 1 | |
| Railway cars per Train | 10 | |
| Average Train Operations (ATO) | 1200 | |
| Night Fraction of ATO | 10 | |
| Railway whistles or horns? | Yes: ☐ No: ☑ | Yes: ☐ No: ☐ |
| Bolted Tracks? | Yes: ☑ No: ☐ | Yes: ☐ No: ☐ |
| **Train DNL** | 76.5215 | |
| Calculate Rail #1 DNL | 76.5215 | Reset |

Add Road Source | Add Rail Source

| | |
|---|---|
| Airport Noise Level | |
| Loud Impulse Sounds? | ○ **Yes** ◉ **No** |
| Combined DNL for all Road and Rail sources | **76.5215** |

## *Airport Maps*


THE PORT AUTHORITY
OF NEW YORK & NEW JERSEY
Jersey City
New York
Brooklyn
Williamsburg Bridge
Manhattan Bridge
Verrazzano Narrows Bridge
Joseph P. Addabbo Memorial Bridge
Gateway National Recreation Area
Governors Island
Liberty State Park
Green-Wood Cemetery
Cemetery of the Evergreens
Forest Park
Marine Park
Floyd Bennett Field
Dyker Beach Park
Park Hill
Fox Hills
Inwood
Lawrence
Cedarhurst
Bayswater
Far Rockaway
Somerville
Wave Crest
Belt Parkway
Brooklyn Queens Expressway
Grand Central Parkway
Jamaica Avenue
Fulton Street
Eastern Parkway
Church Avenue
Flatbush Avenue
Ocean Parkway
Cross Bay Boulevard
Rockaway Boulevard
Linden Boulevard
Conarsie Pol
Spring Creek Park
Fountain Avenue Landfill Restoration Project
Jamaica Bay Wildlife Refuge
Lookout Hill
Discovery Hill
Kosciuszko Bridge
Brooklyn Navy Yard
Saint John Cemetery
All Faiths Cemetery
Forest Hills Gardens
Statue Cruises New York Ferry
Port Liberte-Pier 11
GCT Bayonne
Bay Ridge Channel
Buttermilk Channel
Upper East River Ferry
IKEA Express
CR 617
CR 501
NY 27
NY 878
BP
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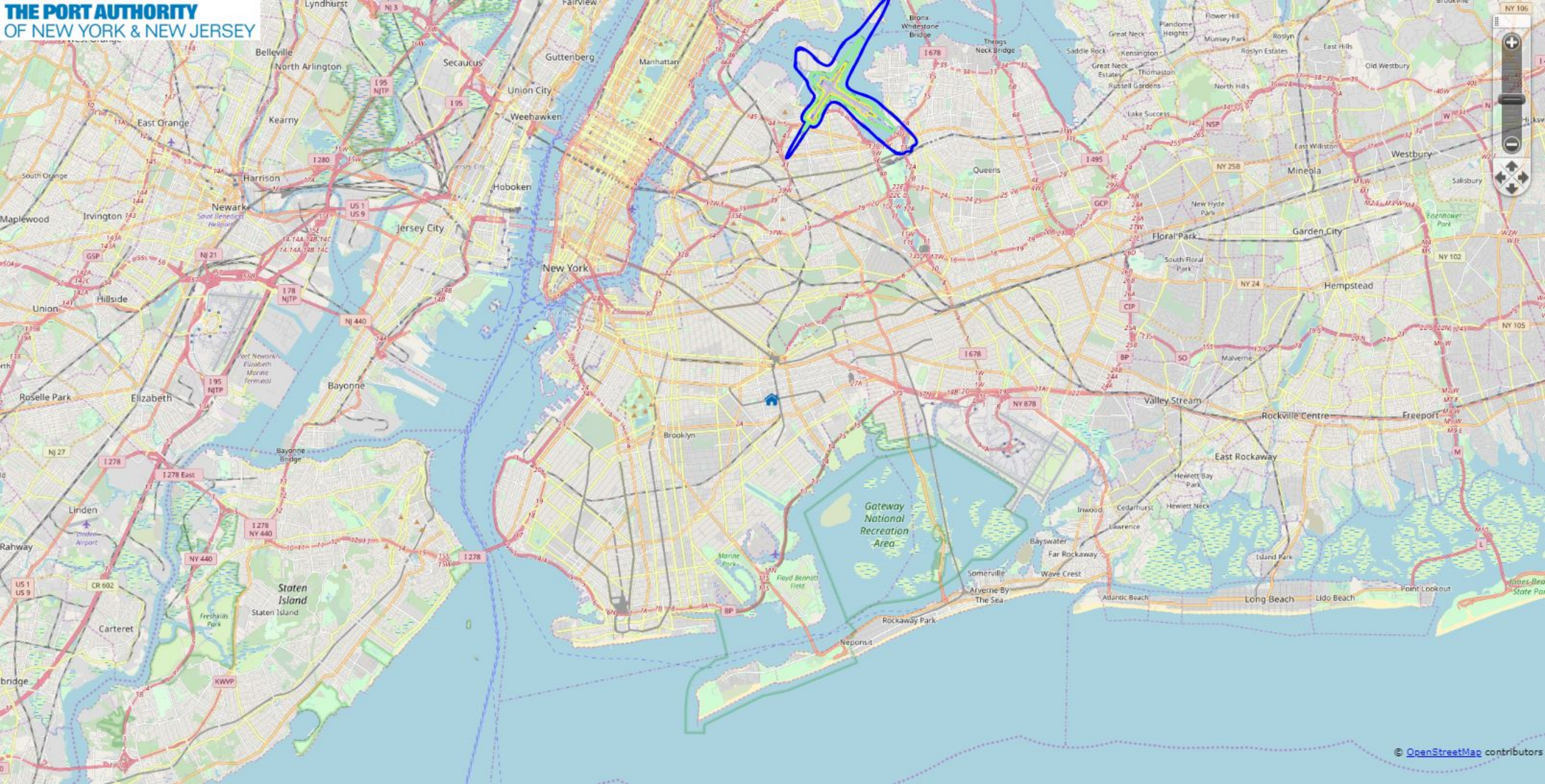
THE PORT AUTHORITY
OF NEW YORK & NEW JERSEY
Belleville
North Arlington
Lyndhurst
Secaucus
Guttenberg
Fairview
Manhattan
Union City
Weehawken
Bronx Whitestone Bridge
Throgs Neck Bridge
Great Neck
Plandome Heights
Flower Hill
Munsey Park
Roslyn
Roslyn Estates
East Hills
Old Westbury
Saddle Rock
Kensington
Great Neck Estates
Thomaston
Russell Gardens
North Hills
Lake Success
East Williston
Westbury
Mineola
Salisbury
East Orange
Kearny
South Orange
Harrison
Hoboken
Jersey City
Newark
Saint Benedicts Heliport
Irvington
Maplewood
Queens
New Hyde Park
Floral Park
Garden City
South Floral Park
Eisenhower Park
New York
Hillside
Union
Elizabeth
Roselle Park
Bayonne
Port Newark/ Elizabeth Marine Terminal
Brooklyn
Hempstead
Malverne
Valley Stream
Rockville Centre
Freeport
East Rockaway
Hewlett Bay Park
Hewlett Neck
Inwood
Cedarhurst
Lawrence
Bayswater
Far Rockaway
Island Park
Wave Crest
Somerville
Arverne By The Sea
Atlantic Beach
Long Beach
Lido Beach
Point Lookout
Rockaway Park
Neponsit
Gateway National Recreation Area
Floyd Bennett Field
Marine Park
Bayonne Bridge
Linden
Linden Airport
Rahway
Carteret
Staten Island
Freshkills Park
I 95 NJTP
I 280
I 78 NJTP
I 278
I 278 East
I 278 NY 440
I 678
I 495
I 95
US 1 US 9
NJ 3
NJ 21
NJ 440
NJ 27
NY 440
CR 602
KWVP
GSP
GCP
CIP
NSP
NY 25B
NY 24
NY 878
NY 106
NY 102
NY 105
BP
SO
Throgs Neck Bridge
Bronx Whitestone Bridge
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## *Roadway Data*

# New York State Department of Transportation

## Traffic Count Hourly Report

ROAD #: ROAD NAME: **MTHR GASTN BLV** FROM: **LINDEN BLVD** TO: **EASTERN PKWY** COUNTY: **Kings**

DIRECTION: Northbound FACTOR GROUP: 30 REC. SERIAL #: 2052 FUNC. CLASS: 17 TOWN:

STATE DIR CODE: 1 WK OF YR: 50 PLACEMENT: AT BLAKE AVE NHS: no LION#:

DATE OF COUNT: 12/12/2011 @ REF MARKER: JURIS: Other BIN:

NOTES LANE 0: NB 2 LANES ADDL DATA: CC Stn: RR CROSSING:

COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R11WW51 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: ATI INITIALS: EEM PROCESSED BY: ORG CODE: DOT INITIALS: MLA

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | M | | | | | | | | | | | | | **348** | **286** | **387** | **421** | **428** | **369** | **322** | **308** | **248** | **306** | **168** | **164** | | | |
| 13 | T | **87** | **57** | **28** | **16** | **36** | **76** | **150** | **447** | **490** | **346** | **284** | **266** | **314** | **316** | **321** | **407** | **417** | **390** | **315** | **282** | **247** | **217** | **157** | **131** | 5797 | 490 | 8 |
| 14 | W | **89** | **50** | **30** | **36** | **42** | **85** | **177** | **396** | **469** | **353** | **308** | **322** | **295** | **366** | **334** | **389** | **466** | **346** | **336** | **279** | **256** | **207** | **152** | **147** | 5930 | 469 | 8 |
| 15 | T | **88** | **57** | **27** | **31** | **28** | **87** | **139** | **412** | **510** | **383** | **301** | **320** | **301** | **304** | **354** | **440** | **446** | **419** | **304** | **302** | **209** | **195** | **191** | **153** | 6001 | 510 | 8 |
| 16 | F | **114** | **72** | **49** | **35** | **42** | **80** | **168** | **483** | | | | | | | | | | | | | | | | | | | |
| 17 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| | | | | | | | | | | | | | | | | | | | | | | | | | ADT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **92** | **58** | **33** | **29** | **36** | **80** | **155** | **424** | **479** | **353** | **291** | **296** | **307** | **311** | **341** | **405** | **429** | **373** | **312** | **287** | **235** | **226** | **163** | **146** | **5861** |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor |
|---|---|---|---|---|---|---|---|
| 5 | 92 | 5 | 92 | 479 | 8% | 0.978 | 1.004 |

**ESTIMATED (one way)**

**AADT**

**5838**

# New York State Department of Transportation

## Traffic Count Hourly Report

ROAD #: ROAD NAME: **MTHR GASTN BLV** FROM: **LINDEN BLVD** TO: **EASTERN PKWY** COUNTY: **Kings**

DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: 2019 FUNC. CLASS: 17 TOWN:

STATE DIR CODE: 2 WK OF YR: 50 PLACEMENT: AT BLAKE AVE NHS: no LION#:

DATE OF COUNT: 12/12/2011 @ REF MARKER: JURIS: Other BIN:

NOTES LANE 0: SB 2 LANES ADDL DATA: CC Stn: RR CROSSING:

COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R11WW51 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: ATI INITIALS: EEM PROCESSED BY: ORG CODE: DOT INITIALS: MLA

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | M | | | | | | | | | | | | | **267** | **390** | **316** | **444** | **514** | **501** | **429** | **307** | **220** | **201** | **178** | **113** | | | |
| 13 | T | **107** | **41** | **40** | **22** | **22** | **64** | **123** | **272** | **306** | **294** | **281** | **261** | **316** | **322** | **324** | **415** | **467** | **492** | **452** | **382** | **263** | **193** | **157** | **156** | 5772 | 492 | 17 |
| 14 | W | **91** | **55** | **34** | **39** | **36** | **46** | **123** | **253** | **351** | **322** | **253** | **285** | **277** | **345** | **366** | **429** | **506** | **459** | **432** | **345** | **237** | **218** | **191** | **120** | 5813 | 506 | 16 |
| 15 | T | **117** | **46** | **40** | **26** | **21** | **45** | **128** | **273** | **363** | **340** | **297** | **301** | **322** | **368** | **397** | **418** | **516** | **493** | **386** | **350** | **250** | **195** | **182** | **137** | 6011 | 516 | 16 |
| 16 | F | **110** | **68** | **46** | **24** | **42** | **50** | **138** | **267** | **207** | | | | | | | | | | | | | | | | | | |
| 17 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| | | | | | | | | | | | | | | | | | | | | | | | | | ADT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **104** | **51** | **39** | **27** | **29** | **50** | **125** | **260** | **300** | **312** | **271** | **276** | **289** | **348** | **343** | **417** | **490** | **475** | **416** | **338** | **237** | **198** | **173** | **129** | **5697** |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor |
|---|---|---|---|---|---|---|---|
| 5 | 93 | 5 | 93 | 490 | 9% | 0.978 | 1.004 |

**ESTIMATED (one way)**

**AADT**

**5674**

**STATION: 021337**

# New York State Department of Transportation
## Roadway Traffic Count Hourly Report

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTE/ROAD: | ROCKAWAY AVE | FROM: | LINDEN BLVD | TO: | EASTERN PKY | REGION-COUNTY: | 11-KINGS |
| FED DIR CODE: | 1, 5 | REF. MARKER: | | FUNC. CLASS: | 14 - U Principal Arterial - Other | MUNI: | Brooklyn-City-2034 |
| ST DIR CODE: | 7 | END MILEPOST: | 1.77 | FACTOR GROUP: | 30 | BIN: | |
| DOT ID: | 256428 | LANES BY DIR: | 1 North 1 South | CC STN: | | RR CROSSING: | |
| BEGIN DATE: | 5/6/2014 | WEEK OF YEAR: | 18 | ADDL DATA: | | HPMS SAMPLE: | |
| NOTES 1: | | PLACEMENT: | 97 FT. N OF RIVERDALE AVE | JURISDICTION: | 04-City or village | 1 WAY CODE: | |
| NOTES 2: | | | | | | COUNT TYPE: | Axle |
| TAKEN BY: | DOT-AM | PROCESSED BY: | DOT-AC | BATCH ID: | DOT-DOTR11WW1 | SPEED LIMIT: | 25 |

| DATE | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 | 22-23 | 23-24 | DAILY TOTAL | HIGH COUNT | HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/06, Tue | | | | | | | | | | | | | | | | | | | | | **613** | **585** | **515** | **441** | 2154 | | |
| 5/07, Wed | **272** | **198** | **159** | **170** | **169** | **249** | **440** | **599** | **638** | **722** | **715** | **754** | **737** | **682** | **721** | **762** | **783** | **783** | **745** | **716** | **661** | **617** | **566** | **451** | 13309 | 783 | 17-18 |
| 5/08, Thu | **285** | **224** | **181** | **160** | **192** | **252** | **424** | **625** | **614** | **681** | **683** | **743** | **719** | **725** | **700** | **769** | **763** | **778** | **722** | **726** | **682** | **614** | **685** | **521** | 13468 | 778 | 17-18 |
| 5/09, Fri | **250** | **206** | **190** | **172** | **184** | **232** | **448** | **654** | **684** | **738** | **690** | **791** | | | | | | | | | | | | | 5239 | | |
| **AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)** | | | | | | | | | | | | | | | | | | | | | | | | | **AWDT** | | |
| | **264** | **206** | **173** | **164** | **178** | **240** | **429** | **615** | **634** | **701** | **683** | **749** | **715** | **691** | **698** | **752** | **759** | **766** | **720** | **708** | **640** | **594** | **578** | **463** | 13121 | | |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY Roadway High Hour | Roadway % of day | North High Hour | North % of day | South High Hour | South % of day |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 64 | 3 | 64 | 766 | 5.8 | 398 | 5.7 | 376 | 6.1 |

| ESTIMATED AADT | | |
|---|---|---|
| Roadway | North | South |
| 12183 | 6443 | 5740 |

**FACTOR**

| Month | Seasonal | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Axl |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.08 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 |

**STATION: 021337**

# New York State Department of Transportation
## NB Traffic Count Hourly Report

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTE/ROAD: | ROCKAWAY AVE | FROM: | LINDEN BLVD | TO: | EASTERN PKY | REGION-COUNTY: | 11-KINGS |
| FED DIR CODE: | 1 | REF. MARKER: | | FUNC. CLASS: | 14 - U Principal Arterial - Other | MUNI: | Brooklyn-City-2034 |
| ST DIR CODE: | 7 | END MILEPOST: | 1.77 | FACTOR GROUP: | 30 | BIN: | |
| DOT ID: | 256428 | LANES BY DIR: | 1 North | CC STN: | | RR CROSSING: | |
| BEGIN DATE: | 5/6/2014 | WEEK OF YEAR: | 18 | ADDL DATA: | | HPMS SAMPLE: | |
| NOTES 1: | | PLACEMENT: | 97 FT. N OF RIVERDALE AVE | JURISDICTION: | 04-City or village | 1 WAY CODE: | |
| NOTES 2: | | | | | | COUNT TYPE: | Axle |
| TAKEN BY: | DOT-AM | PROCESSED BY: | DOT-AC | BATCH ID: | DOT-DOTR11WW1 | SPEED LIMIT: | 25 |

| DATE | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 | 22-23 | 23-24 | DAILY TOTAL | HIGH COUNT | HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/06, Tue | | | | | | | | | | | | | | | | | | | | | **326** | **283** | **259** | **210** | 1078 | | |
| 5/07, Wed | **129** | **94** | **79** | **88** | **96** | **143** | **240** | **358** | **347** | **405** | **392** | **393** | **389** | **382** | **374** | **400** | **397** | **388** | **399** | **392** | **330** | **330** | **288** | **218** | 7051 | 405 | 09-10 |
| 5/08, Thu | **142** | **114** | **91** | **82** | **95** | **148** | **240** | **351** | **321** | **358** | **363** | **390** | **376** | **397** | **375** | **411** | **396** | **408** | **393** | **391** | **358** | **321** | **371** | **266** | 7158 | 411 | 15-16 |
| 5/09, Fri | **115** | **100** | **99** | **83** | **105** | **123** | **242** | **374** | **363** | **405** | **362** | **408** | | | | | | | | | | | | | 2779 | | |
| **AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)** | | | | | | | | | | | | | | | | | | | | | | | | | **AWDT** | | |
| | **129** | **101** | **88** | **83** | **97** | **136** | **236** | **355** | **337** | **382** | **366** | **390** | **376** | **382** | **368** | **398** | **389** | **391** | **389** | **384** | **332** | **306** | **300** | **227** | 6942 | | |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY Roadway High Hour | Roadway % of day | North High Hour | North % of day | South High Hour | South % of day |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 64 | 3 | 64 | 766 | 5.8 | 398 | 5.7 | 376 | 6.1 |

| ESTIMATED AADT | | |
|---|---|---|
| Roadway | North | South |
| 12183 | 6443 | 5740 |

**FACTOR**

| Month | Seasonal | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Axl |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.08 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 |

**STATION: 021337**

# New York State Department of Transportation
## SB Traffic Count Hourly Report

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTE/ROAD: | ROCKAWAY AVE | FROM: | LINDEN BLVD | TO: | EASTERN PKY | REGION-COUNTY: | 11-KINGS |
| FED DIR CODE: | 5 | REF. MARKER: | | FUNC. CLASS: | 14 - U Principal Arterial - Other | MUNI: | Brooklyn-City-2034 |
| ST DIR CODE: | 7 | END MILEPOST: | 1.77 | FACTOR GROUP: | 30 | BIN: | |
| DOT ID: | 256428 | LANES BY DIR: | 1 South | CC STN: | | RR CROSSING: | |
| BEGIN DATE: | 5/6/2014 | WEEK OF YEAR: | 18 | ADDL DATA: | | HPMS SAMPLE: | |
| NOTES 1: | | PLACEMENT: | 97 FT. N OF RIVERDALE AVE | JURISDICTION: | 04-City or village | 1 WAY CODE: | |
| NOTES 2: | | | | | | COUNT TYPE: | Axle |
| TAKEN BY: | DOT-AM | PROCESSED BY: | DOT-AC | BATCH ID: | DOT-DOTR11WW1 | SPEED LIMIT: | 25 |

| DATE | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 | 22-23 | 23-24 | DAILY TOTAL | HIGH COUNT | HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/06, Tue | | | | | | | | | | | | | | | | | | | | | **287** | **302** | **256** | **231** | 1076 | | |
| 5/07, Wed | **143** | **104** | **80** | **82** | **73** | **106** | **200** | **241** | **291** | **317** | **323** | **361** | **348** | **300** | **347** | **362** | **386** | **395** | **346** | **324** | **331** | **287** | **278** | **233** | 6258 | 395 | 17-18 |
| 5/08, Thu | **143** | **110** | **90** | **78** | **97** | **104** | **184** | **274** | **293** | **323** | **320** | **353** | **343** | **328** | **325** | **358** | **367** | **370** | **329** | **335** | **324** | **293** | **314** | **255** | 6310 | 370 | 17-18 |
| 5/09, Fri | **135** | **106** | **91** | **89** | **79** | **109** | **206** | **280** | **321** | **333** | **328** | **383** | | | | | | | | | | | | | 2460 | | |
| **AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)** | | | | | | | | | | | | | | | | | | | | | | | | | **AWDT** | | |
| | **138** | **105** | **85** | **82** | **82** | **104** | **193** | **260** | **296** | **318** | **318** | **359** | **339** | **308** | **330** | **354** | **370** | **376** | **331** | **324** | **308** | **289** | **278** | **235** | 6182 | | |

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY Roadway High Hour | Roadway % of day | North High Hour | North % of day | South High Hour | South % of day |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 64 | 3 | 64 | 766 | 5.8 | 398 | 5.7 | 376 | 6.1 |

| ESTIMATED AADT | | |
|---|---|---|
| Roadway | North | South |
| 12183 | 6443 | 5740 |

**FACTOR**

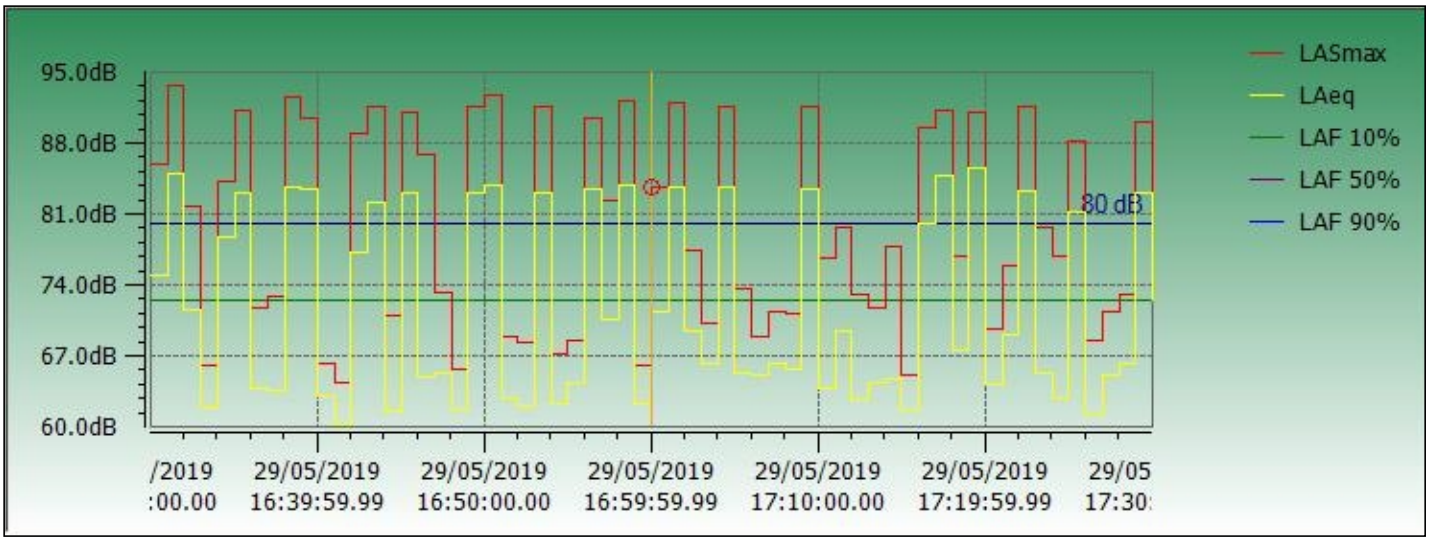
| Month | Seasonal | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Axl |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.08 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 |

## *Appendix A: Noise Backup Data and Calibration Certificate*

**Casella CEL Ltd.**

**Report On CEL-63X**

| **Instrument Model** | **CEL-633C** | | |
|---|---|---|---|
| Battery Low | Yes | Calibration (Before) Offset | 9.8 |
| Duration | 01:01:00 HH:MM:SS | Calibration (Before) SPL | 114 dB |
| Overload | No | Calibration Drift | -0.1 dB |
| Pause Duration | 00:00:00 HH:MM:SS | LAFmax with Time | 95.5 dB (5/29/2019 4:50:48 PM) |
| Response | Random | LAFmax | 95.5 dB |
| Run Number | 266 | LAFmin | 53.8 dB |
| Serial Number | 4278006 | LAFmin with Time | 53.8 dB (5/29/2019 4:46:39 PM) |
| Site | Unallocated | LAeq | 78.9 dB |
| Location | Unallocated | LAF 10% | 78 dB |
| Person | Unallocated | LAF 50% | 63 dB |
| Process | Unallocated | LAF 90% | 58 dB |
| Result | Cumulative | End Date & Time | 5/29/2019 5:31:03 PM |
| Calibration (After) Date | 5/29/2019 5:51:15 PM | Start Date & Time | 5/29/2019 4:30:03 PM |
| Calibration (Before) Date | 5/29/2019 4:15:35 PM | | |
| Notes | | | |

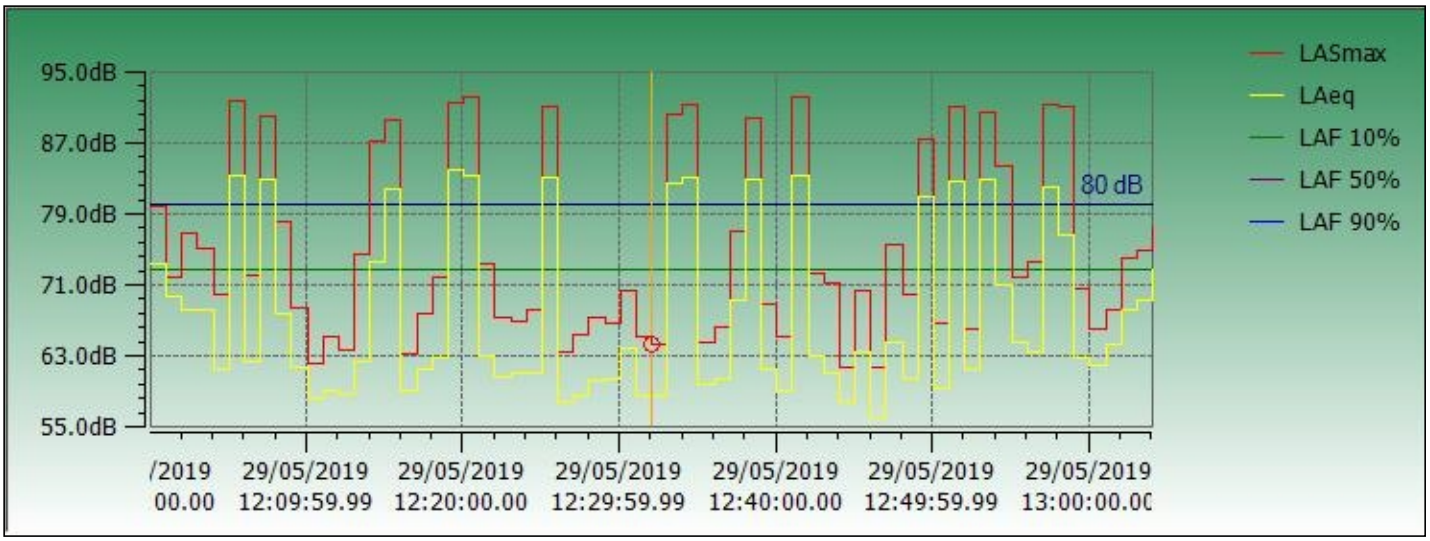


**Casella CEL Ltd.**

**Report On CEL-63X**

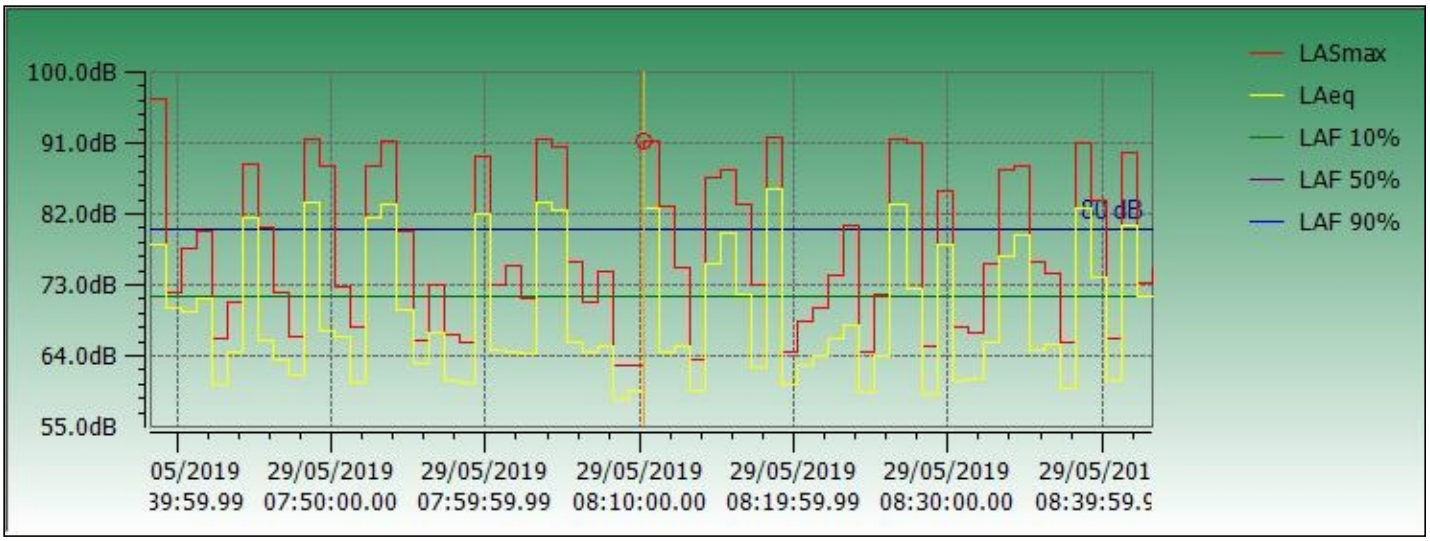
| | |
|---|---|
| **Instrument Model** | **CEL-633C** |
| Battery Low | No |
| Duration | 01:04:59 HH:MM:SS |
| Overload | No |
| Pause Duration | 00:00:00 HH:MM:SS |
| Response | Random |
| Run Number | 265 |
| Serial Number | 4278006 |
| Site | Unallocated |
| Location | Unallocated |
| Person | Unallocated |
| Process | Unallocated |
| Result | Cumulative |
| Calibration (After) Date | 5/29/2019 1:08:35 PM |
| Calibration (Before) Date | 5/29/2019 11:49:42 AM |
| Notes | |

| | |
|---|---|
| Calibration (Before) Offset | 9.5 |
| Calibration (Before) SPL | 114 dB |
| Calibration Drift | 0.2 dB |
| LAFmax with Time | 93.3 dB (5/29/2019 12:41:44 PM) |
| LAFmax | 93.3 dB |
| LAFmin | 52 dB |
| LAFmin with Time | 52.0 dB (5/29/2019 12:46:41 PM) |
| LAeq | 76.5 dB |
| LAF 10% | 72.5 dB |
| LAF 50% | 60.5 dB |
| LAF 90% | 55.5 dB |
| End Date & Time | 5/29/2019 1:05:03 PM |
| Start Date & Time | 5/29/2019 12:00:04 PM |



| | |
|---|---|
| **Instrument Model** | **CEL-633C** |
| Battery Low | Yes |
| Duration | 01:06:00 HH:MM:SS |
| Overload | No |
| Pause Duration | 00:00:00 HH:MM:SS |
| Response | Random |
| Run Number | 263 |
| Serial Number | 4278006 |
| Site | Unallocated |
| Location | Unallocated |
| Person | Unallocated |
| Process | Unallocated |
| Result | Cumulative |
| Calibration (After) Date | 5/29/2019 8:51:18 AM |
| Calibration (Before) Date | 5/29/2019 7:35:31 AM |
| Notes | |

| | |
|---|---|
| Calibration (Before) Offset | 9.5 |
| Calibration (Before) SPL | 114 dB |
| Calibration Drift | 0.2 dB |
| LAFmax with Time | 96.6 dB (5/29/2019 7:38:16 AM) |
| LAFmax | 96.6 dB |
| LAFmin | 53.5 dB |
| LAFmin with Time | 53.5 dB (5/29/2019 8:01:17 AM) |
| LAeq | 76.4 dB |
| LAF 10% | 74 dB |
| LAF 50% | 62 dB |
| LAF 90% | 57.5 dB |
| End Date & Time | 5/29/2019 8:44:16 AM |
| Start Date & Time | 5/29/2019 7:38:16 AM |



| | |
|---|---|
| **Instrument Model** | **CEL-633C** |
| Battery Low | No |
| Duration | 01:00:01 HH:MM:SS |
| Overload | No |
| Pause Duration | 00:00:00 HH:MM:SS |
| Response | Random |
| Run Number | 89 |
| Serial Number | 2670911 |
| Site | Unallocated |
| Location | Unallocated |
| Person | Unallocated |
| Process | Unallocated |
| Result | Cumulative |
| Calibration (After) Date | 5/29/2019 5:51:10 PM |
| Calibration (Before) Date | 5/29/2019 4:15:41 PM |
| Notes | |
| Calibration (Before) Offset | 0.4 |
| Calibration (Before) SPL | 114 dB |
| Calibration Drift | 0.2 dB |
| LAFmax with Time | 96.6 dB (5/29/2019 4:58:11 PM) |
| LAFmax | 96.6 dB |
| LAFmin | 52.9 dB |
| LAFmin with Time | 52.9 dB (5/29/2019 4:46:29 PM) |
| LAeq | 79.7 dB |
| LAF 10% | 80.5 dB |
| LAF 50% | 64.5 dB |
| LAF 90% | 58 dB |
| End Date & Time | 5/29/2019 5:32:52 PM |
| Start Date & Time | 5/29/2019 4:32:51 PM |

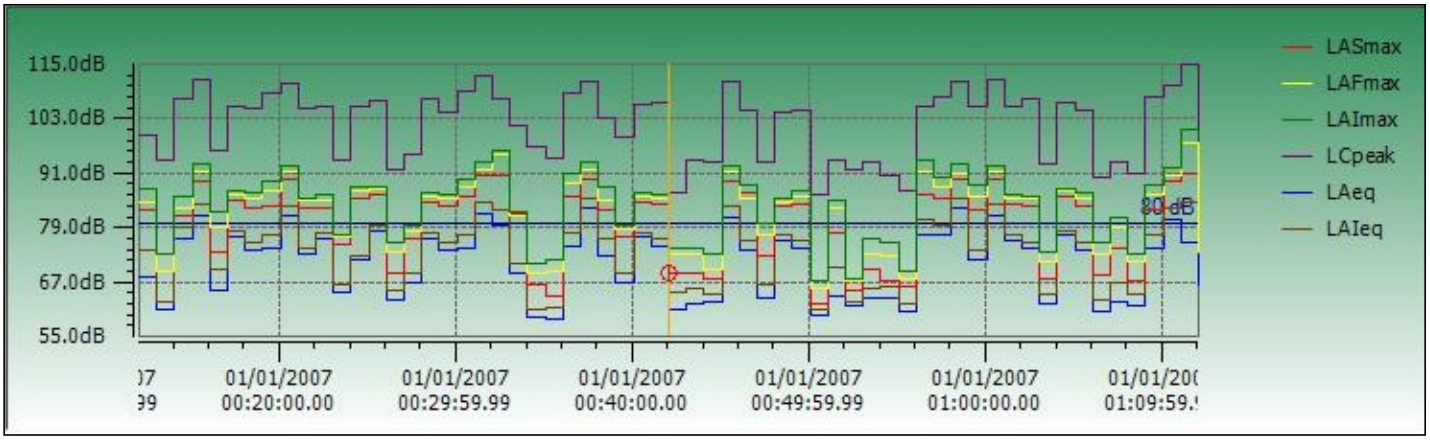
| | |
|---|---|
| **Instrument Model** | **CEL-633C** |
| Battery Low | No |
| Duration | 01:00:01 HH:MM:SS |
| Overload | No |
| Pause Duration | 00:00:00 HH:MM:SS |
| Response | Random |
| Run Number | 88 |
| Serial Number | 2670911 |
| Site | Unallocated |
| Location | Unallocated |
| Person | Unallocated |
| Process | Unallocated |
| Result | Cumulative |
| Calibration (After) Date | 5/29/2019 1:08:04 PM |
| Calibration (Before) Date | 5/29/2019 11:49:43 AM |
| Notes | |

| | |
|---|---|
| Calibration (Before) Offset | 0.4 |
| Calibration (Before) SPL | 114 dB |
| Calibration Drift | 0.1 dB |
| LAFmax with Time | 94.3 dB (5/29/2019 12:41:37 PM) |
| LAFmax | 94.3 dB |
| LAFmin | 50.8 dB |
| LAFmin with Time | 50.8 dB (5/29/2019 12:27:32 PM) |
| LAeq | 77.4 dB |
| LAF 10% | 73.5 dB |
| LAF 50% | 62 dB |
| LAF 90% | 55 dB |
| End Date & Time | 5/29/2019 1:02:44 PM |
| Start Date & Time | 5/29/2019 12:02:43 PM |

| | |
|---|---|
| **Instrument Model** | **CEL-633C** |

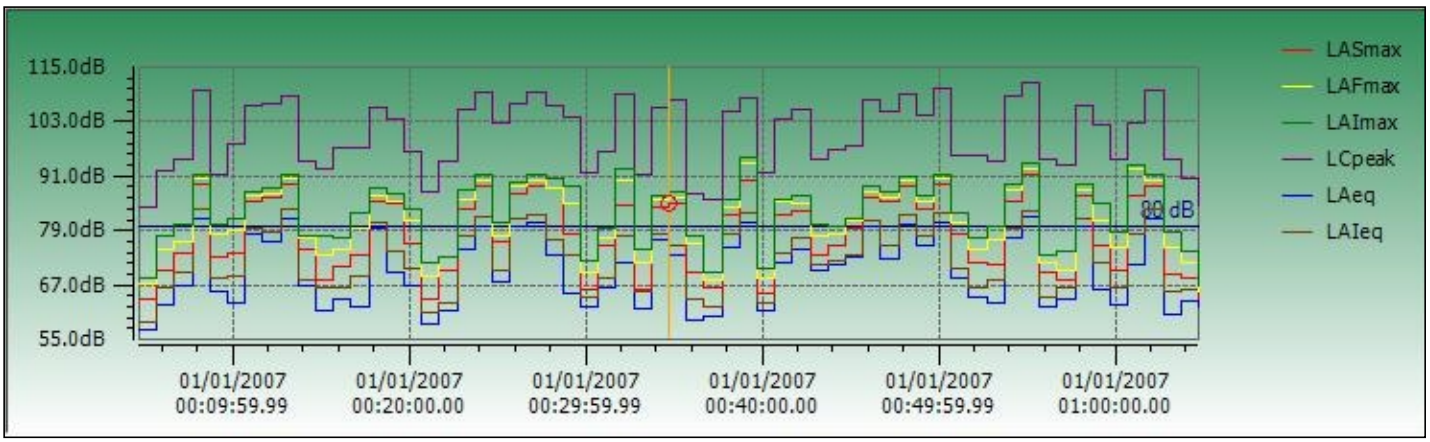
| | | | |
|---|---|---|---|
| Battery Low | No | Calibration (Before) Offset | 0.4 |
| Duration | 01:00:01 HH:MM:SS | Calibration (Before) SPL | 114 dB |
| Overload | No | Calibration Drift | -0.1 dB |
| Pause Duration | 00:00:00 HH:MM:SS | LAFmax with Time | 94.9 dB (5/29/2019 7:49:10 AM) |
| Response | Random | LAFmax | 94.9 dB |
| Run Number | 87 | LAFmin | 53.5 dB |
| Serial Number | 2670911 | LAFmin with Time | 53.5 dB (5/29/2019 7:57:54 AM) |
| Site | Unallocated | LAeq | 77.9 dB |
| Location | Unallocated | LAF 10% | 76 dB |
| Person | Unallocated | LAF 50% | 64 dB |
| Process | Unallocated | LAF 90% | 58 dB |
| Result | Cumulative | End Date & Time | 5/29/2019 8:40:46 AM |
| Calibration (After) Date | 5/29/2019 8:52:19 AM | Start Date & Time | 5/29/2019 7:40:45 AM |
| Calibration (Before) Date | 5/29/2019 7:35:52 AM | | |
| Notes | | | |

| Instrument Model | CEL-633A | | |
|---|---|---|---|
| LAeq | 76 dB | Battery Low | No |
| LCpeak with Time | 114.9 dB (1/1/2007 1:12:04 AM) | Duration | 01:00:03 HH:MM:SS |
| Lepd(Projected) | 76 dB | End Date & Time | 1/1/2007 1:12:08 AM |
| Lex8h(Projected) | 76 dB | Overload | No |
| LAFmax with Time | 97.7 dB (1/1/2007 1:12:04 AM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 100.7 dB (1/1/2007 1:12:04 AM) | Response | Random |
| LAFmin with Time | 53.9 dB (1/1/2007 1:11:02 AM) | Run Number | 3 |
| LAImin with Time | 54.7 dB (1/1/2007 12:34:34 AM) | Serial Number | 4637978 |
| LZeq | 86.2 dB | Start Date & Time | 1/1/2007 12:12:05 AM |
| LCeq | 84.8 dB | Site | Unallocated |
| LCeq-LAeq | 8.8 dB | Location | Unallocated |
| LAIeq | 78.6 dB | Person | Unallocated |
| LAE | 111.6 dB | Process | Unallocated |
| Calibration (Before) Date | 1/1/2007 12:00:26 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 63.5 dB |
| Calibration (After) Date | 1/1/2007 1:26:49 AM | LAF 90% | 58 dB |
| Calibration Drift | -3.2 dB | LAF 95% | 57 dB |
| LAF 10% | 81 dB | | |
| Notes | | | |




| Instrument Model | CEL-633A | | |
|---|---|---|---|
| LAeq | 75.5 dB | Battery Low | No |
| LCpeak with Time | 111.5 dB (1/1/2007 12:54:46 AM) | Duration | 01:00:03 HH:MM:SS |
| Lepd(Projected) | 75.5 dB | End Date & Time | 1/1/2007 1:04:46 AM |
| Lex8h(Projected) | 75.5 dB | Overload | No |
| LAFmax with Time | 93.9 dB (1/1/2007 12:38:49 AM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 95.3 dB (1/1/2007 12:38:49 AM) | Response | Random |
| LAFmin with Time | 50.3 dB (1/1/2007 12:12:12 AM) | Run Number | 1 |

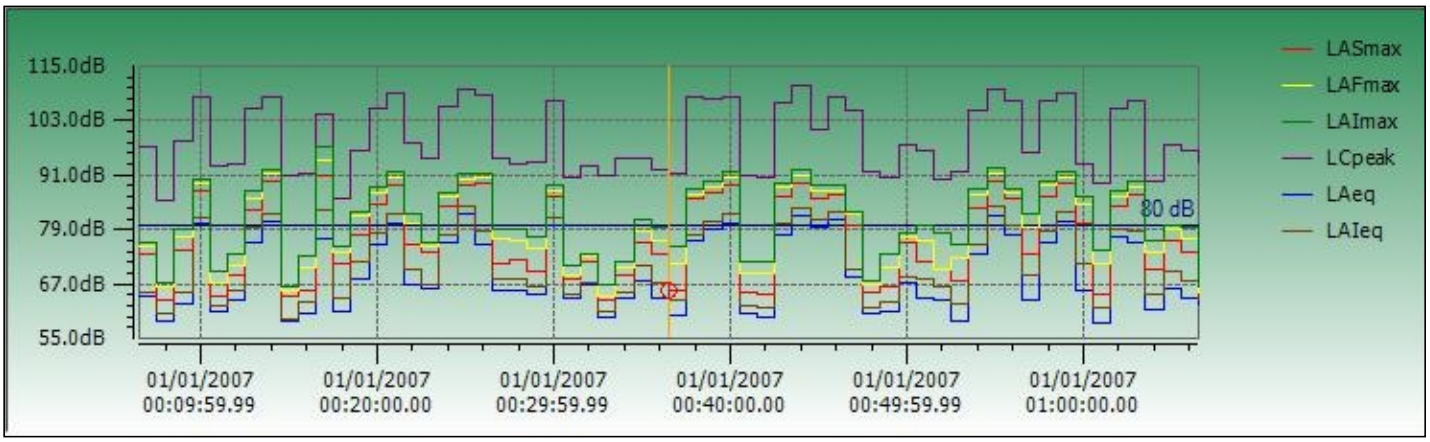
| | | | |
|---|---|---|---|
| LAImin with Time | 50.8 dB (1/1/2007 12:12:12 AM) | Serial Number | 4637978 |
| LZeq | 85.4 dB | Start Date & Time | 1/1/2007 12:04:43 AM |
| LCeq | 84.2 dB | Site | Unallocated |
| LCeq-LAeq | 8.7 dB | Location | Unallocated |
| LAleq | 77.6 dB | Person | Unallocated |
| LAE | 111.1 dB | Process | Unallocated |
| Calibration (Before) Date | 1/1/2007 12:00:49 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 63.5 dB |
| Calibration (After) Date | 1/1/2007 1:12:23 AM | LAF 90% | 57 dB |
| Calibration Drift | 0.2 dB | LAF 95% | 56 dB |
| LAF 10% | 79 dB | | |
| Notes | | | |



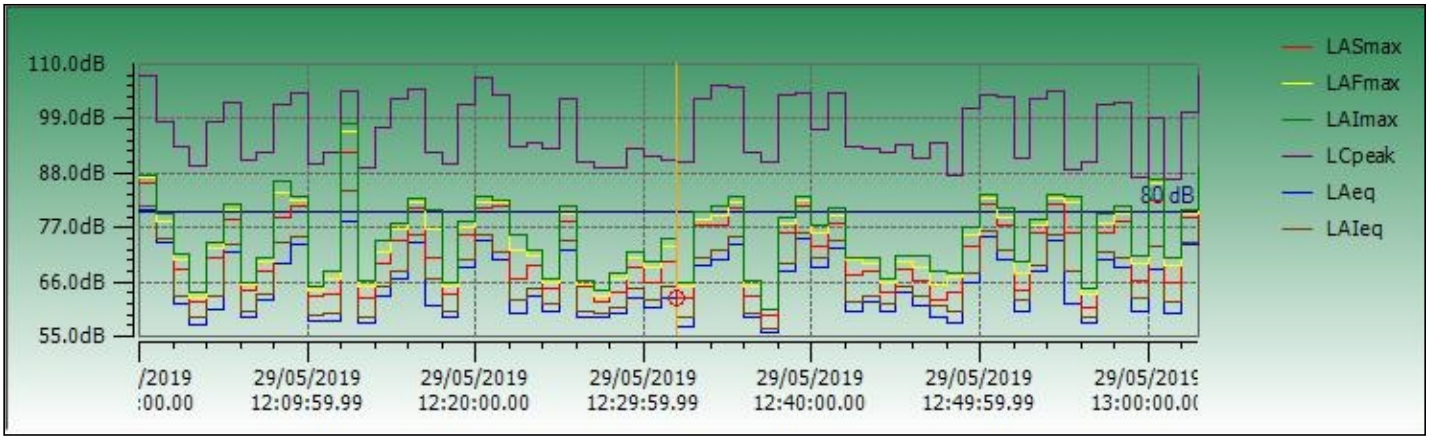

| **Instrument Model** | **CEL-633A** | | |
|---|---|---|---|
| LAeq | 75.4 dB | Battery Low | No |
| LCpeak with Time | 110.7 dB (1/1/2007 12:43:57 AM) | Duration | 01:00:07 HH:MM:SS |
| Lepd(Projected) | 75.4 dB | End Date & Time | 1/1/2007 1:06:38 AM |
| Lex8h(Projected) | 75.4 dB | Overload | No |
| LAFmax with Time | 94.4 dB (1/1/2007 12:17:17 AM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 97.1 dB (1/1/2007 12:17:17 AM) | Response | Random |
| LAFmin with Time | 52.4 dB (1/1/2007 1:00:15 AM) | Run Number | 2 |
| LAImin with Time | 52.6 dB (1/1/2007 1:00:16 AM) | Serial Number | 4637978 |
| LZeq | 85.1 dB | Start Date & Time | 1/1/2007 12:06:31 AM |
| LCeq | 83.8 dB | Site | Unallocated |
| LCeq-LAeq | 8.4 dB | Location | Unallocated |
| LAleq | 77.6 dB | Person | Unallocated |
| LAE | 111 dB | Process | Unallocated |
| Calibration (Before) Date | 1/1/2007 12:00:44 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 63.5 dB |
| Calibration (After) Date | 1/1/2007 1:10:11 AM | LAF 90% | 57 dB |

| | | | |
|---|---|---|---|
| Calibration Drift | 0.1 dB | LAF 95% | 56 dB |
| LAF 10% | 79 dB | | |

Notes

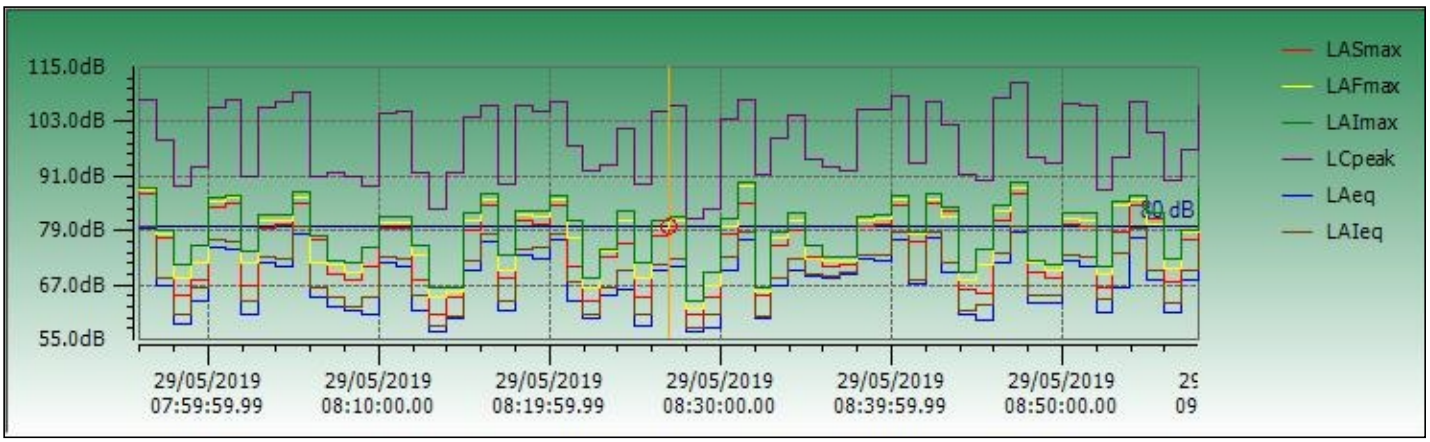


| Instrument Model | CEL-633C | | |
|---|---|---|---|
| LAeq | 70.4 dB | Battery Low | No |
| LCpeak with Time | 107.8 dB (5/29/2019 1:03:21 PM) | Duration | 01:03:38 HH:MM:SS |
| Lepd(Projected) | 70.4 dB | End Date & Time | 5/29/2019 1:03:37 PM |
| Lex8h(Projected) | 70.4 dB | Overload | No |
| LAFmax with Time | 96.4 dB (5/29/2019 12:12:45 PM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 97.9 dB (5/29/2019 12:12:45 PM) | Response | Random |
| LAFmin with Time | 51.0 dB (5/29/2019 12:13:01 PM) | Run Number | 2 |
| LAImin with Time | 52.1 dB (5/29/2019 12:38:07 PM) | Serial Number | 2451112 |
| LZeq | 84.3 dB | Start Date & Time | 5/29/2019 11:59:59 AM |
| LCeq | 82.2 dB | Site | Unallocated |
| LCeq-LAeq | 11.8 dB | Location | Unallocated |
| LAIeq | 72.6 dB | Person | Unallocated |
| LAE | 106.2 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 11:56:25 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 60 dB |
| Calibration (After) Date | 5/29/2019 1:05:54 PM | LAF 90% | 55 dB |
| Calibration Drift | 0.0 dB | LAF 95% | 54.5 dB |
| LAF 10% | 74 dB | | |
| Notes | | | |




| Instrument Model | CEL-633C | | |
|---|---|---|---|
| LAeq | 72 dB | Battery Low | No |
| LCpeak with Time | 111.6 dB (5/29/2019 8:47:13 AM) | Duration | 01:02:55 HH:MM:SS |
| Lepd(Projected) | 72 dB | End Date & Time | 5/29/2019 8:58:53 AM |
| Lex8h(Projected) | 72 dB | Overload | No |
| LAFmax with Time | 88.6 dB (5/29/2019 8:31:16 AM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 89.6 dB (5/29/2019 8:31:16 AM) | Response | Random |
| LAFmin with Time | 48.8 dB (5/29/2019 8:13:54 AM) | Run Number | 1 |

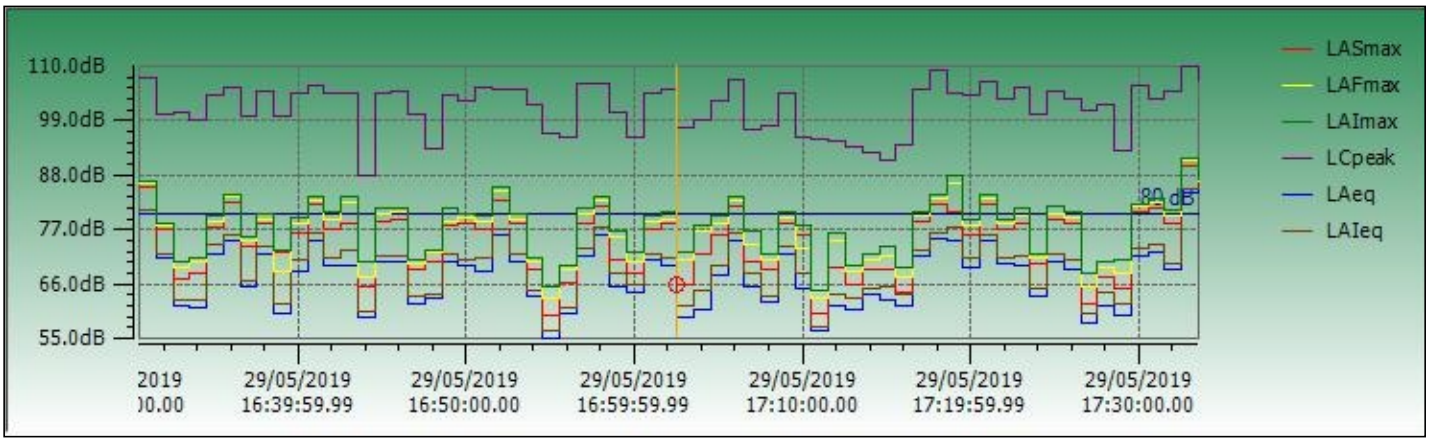
| | | | |
|---|---|---|---|
| LAImin with Time | 50.0 dB (5/29/2019 7:57:39 AM) | Serial Number | 2451112 |
| LZeq | 85.1 dB | Start Date & Time | 5/29/2019 7:55:58 AM |
| LCeq | 83.9 dB | Site | Unallocated |
| LCeq-LAeq | 11.9 dB | Location | Unallocated |
| LAIeq | 73.6 dB | Person | Unallocated |
| LAE | 107.8 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 7:52:30 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 61.5 dB |
| Calibration (After) Date | 5/29/2019 9:03:58 AM | LAF 90% | 55 dB |
| Calibration Drift | 0.1 dB | LAF 95% | 53.5 dB |
| LAF 10% | 76 dB | | |
| Notes | | | |



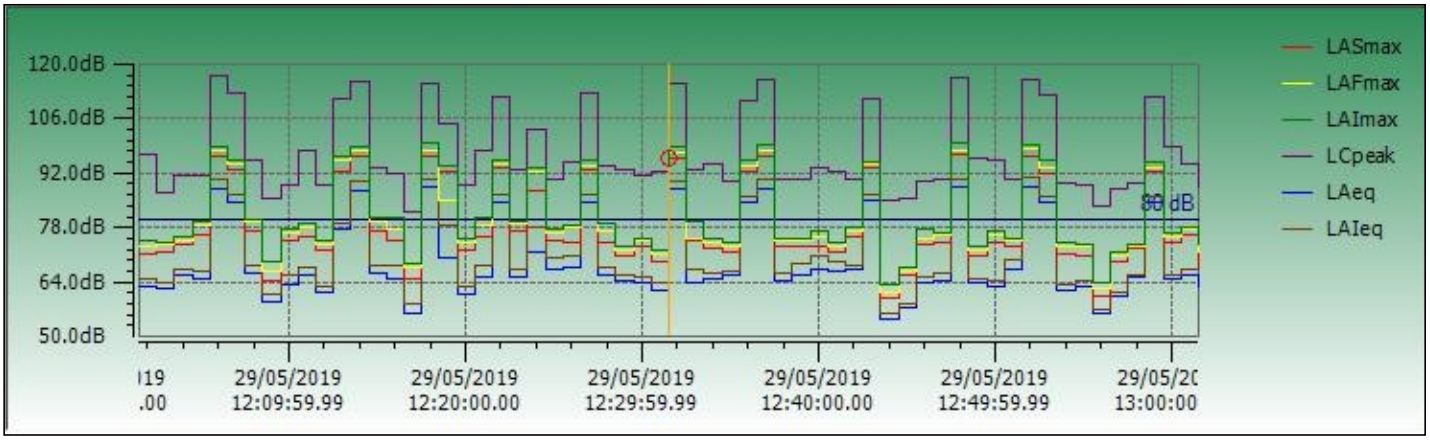

| **Instrument Model** | **CEL-633C** | | |
|---|---|---|---|
| LAeq | 72 dB | Battery Low | No |
| LCpeak with Time | 110.0 dB (5/29/2019 5:33:13 PM) | Duration | 01:03:01 HH:MM:SS |
| Lepd(Projected) | 72 dB | End Date & Time | 5/29/2019 5:33:34 PM |
| Lex8h(Projected) | 72 dB | Overload | No |
| LAFmax with Time | 90.9 dB (5/29/2019 5:33:20 PM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 91.6 dB (5/29/2019 5:33:20 PM) | Response | Random |
| LAFmin with Time | 51.6 dB (5/29/2019 4:55:15 PM) | Run Number | 3 |
| LAImin with Time | 51.9 dB (5/29/2019 4:55:15 PM) | Serial Number | 2451112 |
| LZeq | 88.2 dB | Start Date & Time | 5/29/2019 4:30:33 PM |
| LCeq | 85.1 dB | Site | Unallocated |
| LCeq-LAeq | 13.1 dB | Location | Unallocated |
| LAIeq | 73.2 dB | Person | Unallocated |
| LAE | 107.7 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 4:20:20 PM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 62.5 dB |
| Calibration (After) Date | 5/29/2019 5:47:36 PM | LAF 90% | 56.5 dB |

| | | | |
|---|---|---|---|
| Calibration Drift | 0.4 dB | LAF 95% | 55 dB |
| LAF 10% | 76 dB | | |

Notes

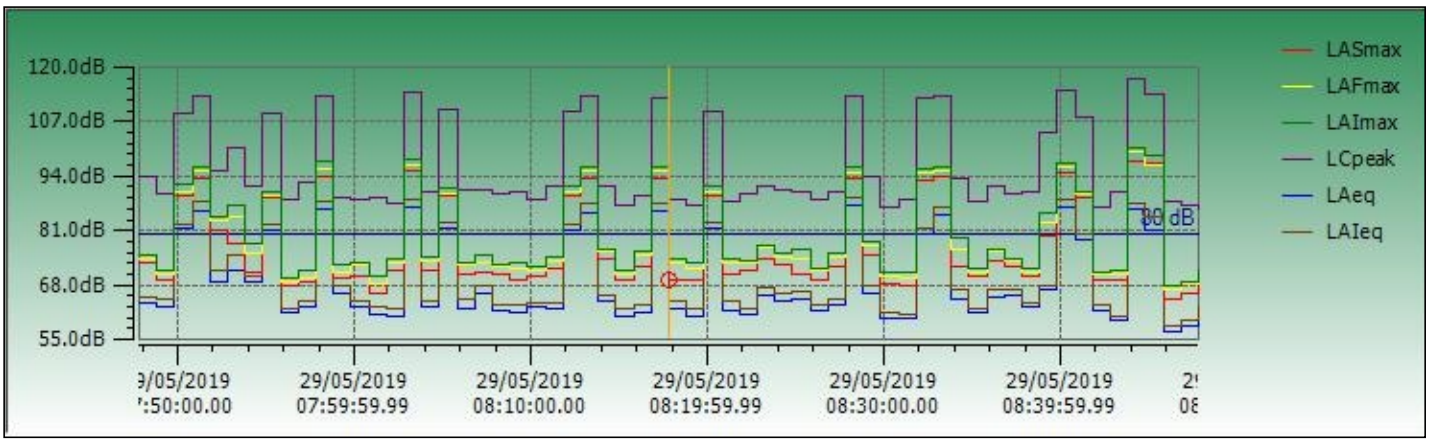


| Instrument Model | CEL-633C | | |
|---|---|---|---|
| LAeq | 80.5 dB | Battery Low | No |
| LCpeak with Time | 116.9 dB (5/29/2019 12:06:10 PM) | Duration | 01:00:07 HH:MM:SS |
| Lepd(Projected) | 80.5 dB | End Date & Time | 5/29/2019 1:01:38 PM |
| Lex8h(Projected) | 80.5 dB | Overload | No |
| LAFmax with Time | 98.2 dB (5/29/2019 12:51:51 PM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 99.6 dB (5/29/2019 12:47:47 PM) | Response | Random |
| LAFmin with Time | 45.7 dB (5/29/2019 12:03:25 PM) | Run Number | 77 |
| LAImin with Time | 46.9 dB (5/29/2019 12:03:20 PM) | Serial Number | 1488256 |
| LZeq | 87.1 dB | Start Date & Time | 5/29/2019 12:01:31 PM |
| LCeq | 86.3 dB | Site | Unallocated |
| LCeq-LAeq | 5.8 dB | Location | Unallocated |
| LAIeq | 82.6 dB | Person | Unallocated |
| LAE | 116.1 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 11:42:55 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 60 dB |
| Calibration (After) Date | 5/29/2019 1:13:32 PM | LAF 90% | 53 dB |
| Calibration Drift | -0.7 dB | LAF 95% | 51.5 dB |
| LAF 10% | 72.5 dB | | |
| Notes | | | |




| Instrument Model | CEL-633C | | |
|---|---|---|---|
| LAeq | 78.9 dB | Battery Low | No |
| LCpeak with Time | 117.4 dB (5/29/2019 8:44:49 AM) | Duration | 01:00:17 HH:MM:SS |
| Lepd(Projected) | 78.9 dB | End Date & Time | 5/29/2019 8:48:06 AM |
| Lex8h(Projected) | 78.9 dB | Overload | No |
| LAFmax with Time | 99.7 dB (5/29/2019 8:44:49 AM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 100.9 dB (5/29/2019 8:44:49 AM) | Response | Random |
| LAFmin with Time | 46.8 dB (5/29/2019 8:46:45 AM) | Run Number | 76 |

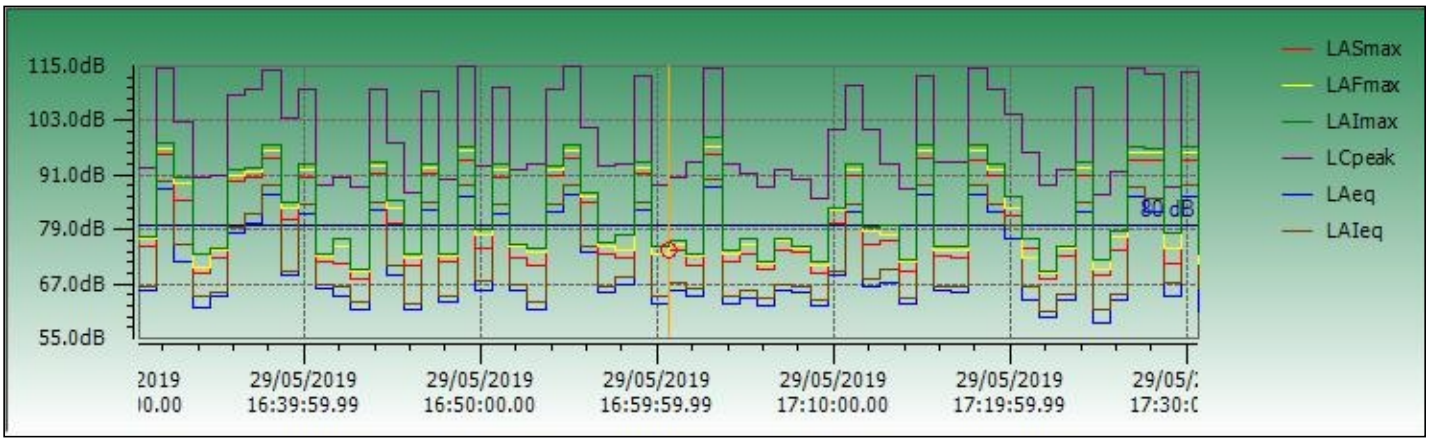
| | | | |
|---|---|---|---|
| LAImin with Time | 47.6 dB (5/29/2019 8:46:50 AM) | Serial Number | 1488256 |
| LZeq | 86.5 dB | Start Date & Time | 5/29/2019 7:47:49 AM |
| LCeq | 85.5 dB | Site | Unallocated |
| LCeq-LAeq | 6.6 dB | Location | Unallocated |
| LAIeq | 80.8 dB | Person | Unallocated |
| LAE | 114.5 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 7:43:16 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 60 dB |
| Calibration (After) Date | 5/29/2019 9:13:56 AM | LAF 90% | 52 dB |
| Calibration Drift | 0.2 dB | LAF 95% | 50.5 dB |
| LAF 10% | 71 dB | | |
| Notes | | | |



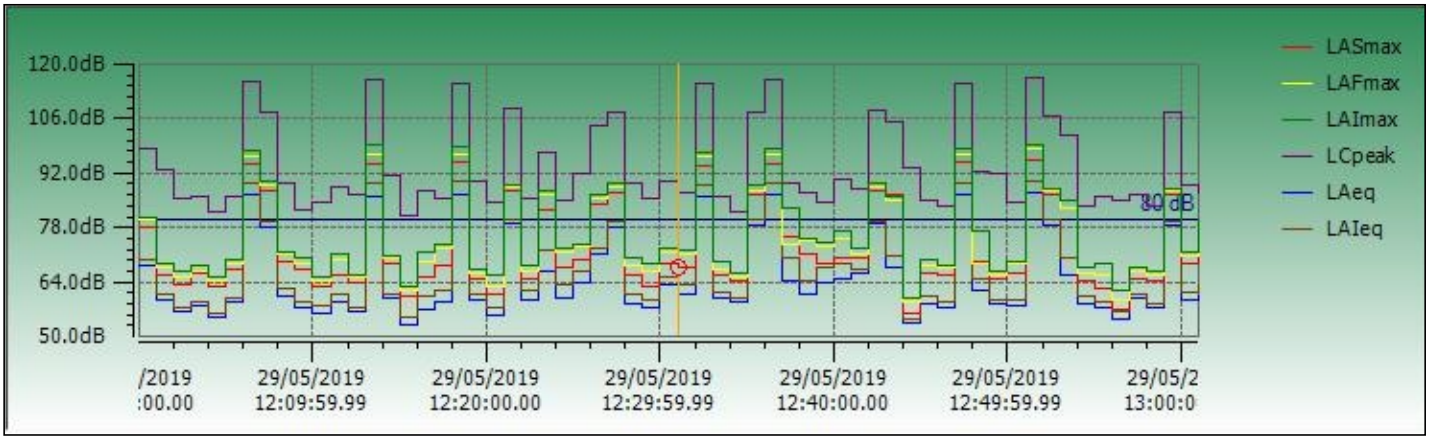

| **Instrument Model** | **CEL-633C** | | |
|---|---|---|---|
| LAeq | 80.5 dB | Battery Low | No |
| LCpeak with Time | 114.8 dB (5/29/2019 4:49:06 PM) | Duration | 01:00:09 HH:MM:SS |
| Lepd(Projected) | 80.5 dB | End Date & Time | 5/29/2019 5:30:50 PM |
| Lex8h(Projected) | 80.5 dB | Overload | No |
| LAFmax with Time | 97.4 dB (5/29/2019 5:03:04 PM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 99.4 dB (5/29/2019 5:03:04 PM) | Response | Random |
| LAFmin with Time | 49.0 dB (5/29/2019 4:34:54 PM) | Run Number | 78 |
| LAImin with Time | 49.2 dB (5/29/2019 4:34:54 PM) | Serial Number | 1488256 |
| LZeq | 87.8 dB | Start Date & Time | 5/29/2019 4:30:41 PM |
| LCeq | 87 dB | Site | Unallocated |
| LCeq-LAeq | 6.5 dB | Location | Unallocated |
| LAIeq | 82.7 dB | Person | Unallocated |
| LAE | 116.1 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 4:11:10 PM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 61 dB |
| Calibration (After) Date | 5/29/2019 5:55:51 PM | LAF 90% | 54 dB |

| | | | |
|---|---|---|---|
| Calibration Drift | 0.0 dB | LAF 95% | 53 dB |
| LAF 10% | 76 dB | | |

Notes



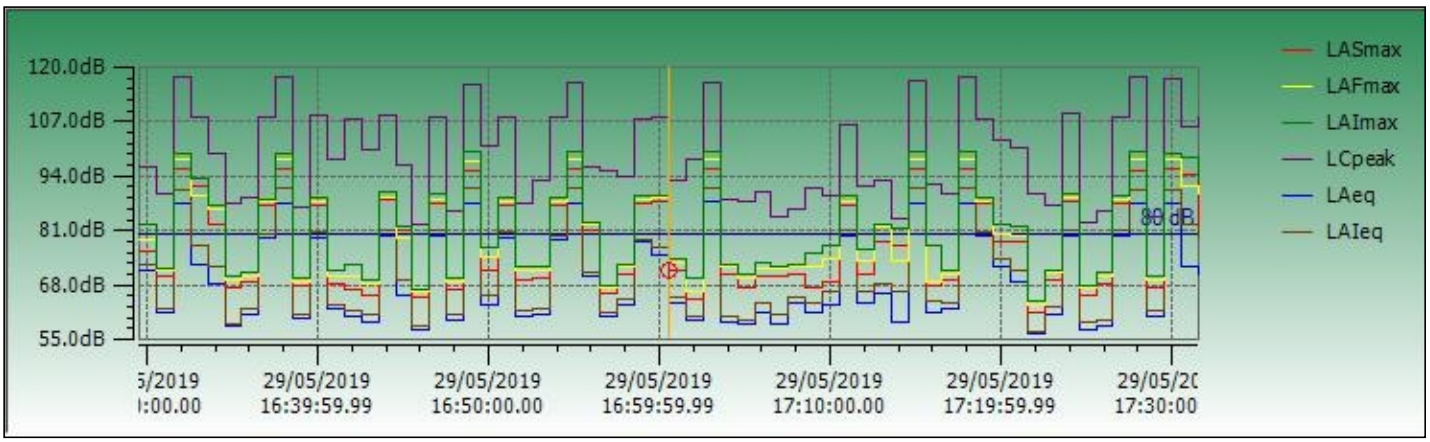
| **Instrument Model** | **CEL-633C** | | |
|---|---|---|---|
| LAeq | 77.7 dB | Battery Low | Yes |
| LCpeak with Time | 116.5 dB (5/29/2019 12:51:53 PM) | Duration | 01:02:00 HH:MM:SS |
| Lepd(Projected) | 77.7 dB | End Date & Time | 5/29/2019 1:02:00 PM |
| Lex8h(Projected) | 77.7 dB | Overload | No |
| LAFmax with Time | 98.2 dB (5/29/2019 12:51:54 PM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 99.3 dB (5/29/2019 12:51:54 PM) | Response | Random |
| LAFmin with Time | 46.0 dB (5/29/2019 12:03:26 PM) | Run Number | 139 |
| LAImin with Time | 46.2 dB (5/29/2019 12:03:26 PM) | Serial Number | 1274486 |
| LZeq | 85.4 dB | Start Date & Time | 5/29/2019 12:00:00 PM |
| LCeq | 84.1 dB | Site | Unallocated |
| LCeq-LAeq | 6.4 dB | Location | Unallocated |
| LAleq | 80.6 dB | Person | Unallocated |
| LAE | 113.4 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 11:43:17 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 57.5 dB |
| Calibration (After) Date | 5/29/2019 1:13:29 PM | LAF 90% | 52 dB |
| Calibration Drift | 0.1 dB | LAF 95% | 50.5 dB |
| LAF 10% | 68 dB | | |
| Notes | | | |




| **Instrument Model** | **CEL-633C** | | |
|---|---|---|---|
| LAeq | 80 dB | Battery Low | Yes |
| LCpeak with Time | 117.8 dB (5/29/2019 5:27:46 PM) | Duration | 01:03:00 HH:MM:SS |
| Lepd(Projected) | 80 dB | End Date & Time | 5/29/2019 5:32:33 PM |
| Lex8h(Projected) | 80 dB | Overload | No |
| LAFmax with Time | 98.1 dB (5/29/2019 4:55:15 PM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 100.0 dB (5/29/2019 5:15:25 PM) | Response | Random |
| LAFmin with Time | 49.5 dB (5/29/2019 5:25:05 PM) | Run Number | 141 |

| | | | |
|---|---|---|---|
| LAImin with Time | 49.8 dB (5/29/2019 4:34:58 PM) | Serial Number | 1274486 |
| LZeq | 88.1 dB | Start Date & Time | 5/29/2019 4:29:33 PM |
| LCeq | 86.7 dB | Site | Unallocated |
| LCeq-LAeq | 6.7 dB | Location | Unallocated |
| LAIeq | 83.2 dB | Person | Unallocated |
| LAE | 115.8 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 4:11:21 PM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 59.5 dB |
| Calibration (After) Date | 5/29/2019 5:56:07 PM | LAF 90% | 54 dB |
| Calibration Drift | -0.2 dB | LAF 95% | 53 dB |
| LAF 10% | 74 dB | | |

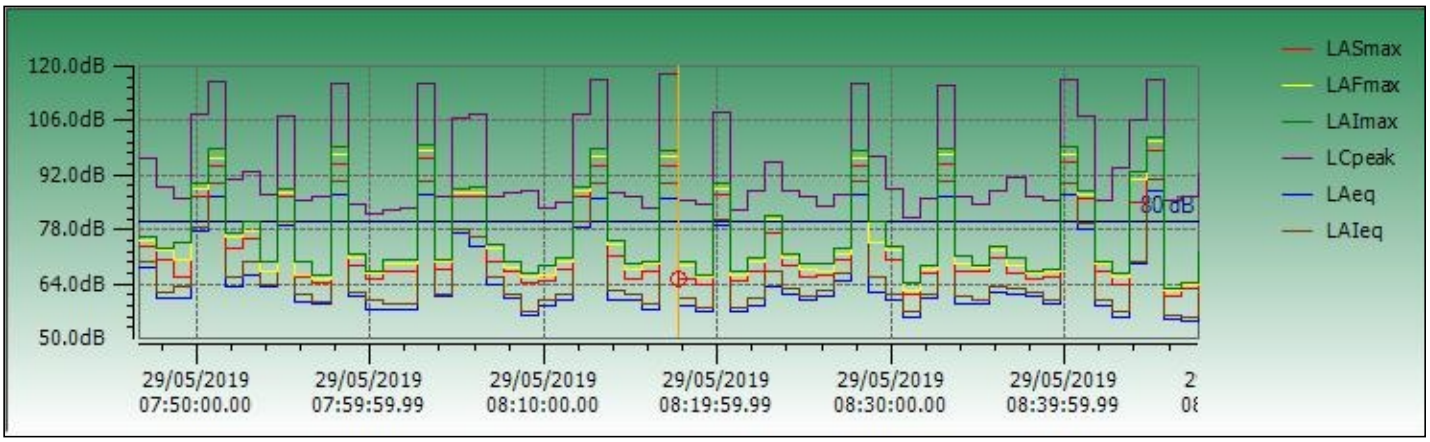
Notes




| | | | |
|---|---|---|---|
| **Instrument Model** | **CEL-633C** | | |
| LAeq | 78.9 dB | Battery Low | Yes |
| LCpeak with Time | 118.0 dB (5/29/2019 8:17:19 AM) | Duration | 01:02:00 HH:MM:SS |
| Lepd(Projected) | 78.9 dB | End Date & Time | 5/29/2019 8:48:42 AM |
| Lex8h(Projected) | 78.9 dB | Overload | No |
| LAFmax with Time | 100.6 dB (5/29/2019 8:44:50 AM) | Pause Duration | 00:00:00 HH:MM:SS |
| LAImax with Time | 101.7 dB (5/29/2019 8:44:50 AM) | Response | Random |
| LAFmin with Time | 48.1 dB (5/29/2019 8:46:53 AM) | Run Number | 137 |
| LAImin with Time | 48.4 dB (5/29/2019 8:46:52 AM) | Serial Number | 1274486 |
| LZeq | 86.1 dB | Start Date & Time | 5/29/2019 7:46:42 AM |
| LCeq | 85 dB | Site | Unallocated |
| LCeq-LAeq | 6.1 dB | Location | Unallocated |
| LAIeq | 82.1 dB | Person | Unallocated |
| LAE | 114.6 dB | Process | Unallocated |
| Calibration (Before) Date | 5/29/2019 7:43:11 AM | Result | Cumulative |
| Calibration (Before) SPL | 114 dB | LAF 50% | 57.5 dB |
| Calibration (After) Date | 5/29/2019 9:13:17 AM | LAF 90% | 51.5 dB |

| | | | |
|---|---|---|---|
| Calibration Drift | 0.3 dB | LAF 95% | 51 dB |
| LAF 10% | 68.5 dB | | |

Notes



# Certificate of Conformity and Calibration

| | | | |
|---|---|---|---|
| **Instrument Type:-** | **CEL-633C** | | |
| Serial Number | 2670911 | | |
| Firmware revision | V006-03 | | |
| Microphone Type:- | CEL-251 | Preamplifier Type:- | CEL-495 |
| Serial Number | 02540 | Serial Number | 004208 |
| Instrument Class/Type:- | 1 | | |



## Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:-** *The test sequences performed in this report are in accordance with the current Sound level meter Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

| | | | |
|---|---|---|---|
| **Test Conditions:-** | 19.8 °C | **Test Engineer:-** | Stephen Potten |
| | 51.2 %RH | **Date of Issue:-** | November 26, 2018 |
| | 1020.2 mBar | | |

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

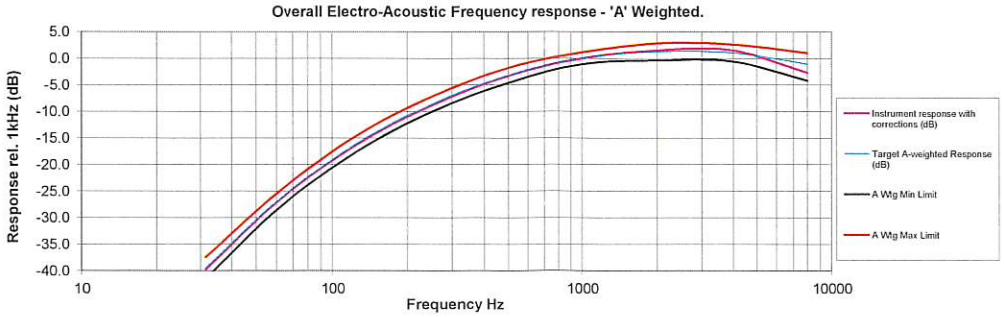
## Test Summary:-

| | |
|---|---|
| Self Generated Noise Test | **All Tests Pass** |
| Electrical Signal Test Of Frequency Weightings | **All Tests Pass** |
| Frequency & Time Weightings At 1 kHz | **All Tests Pass** |
| Level Linearity On The Reference Level Range | **All Tests Pass** |
| Toneburst Response Test | **All Tests Pass** |
| C-peak Sound Levels | **All Tests Pass** |
| Overload Indication | **All Tests Pass** |
| Acoustic Tests | **All Tests Pass** |

## Combined Electro-Acoustic Frequency Response - *A Weighted*

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.





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Web: www.casellausa.com

CASELLA CEL

Certificate of
Conformance and Calibration for

## CEL-120 Acoustic Calibrator

Applicable Standards :-IEC 60942: 2003 & ANSI S1.40: 2006

CEL-120/1 Class 1 ☑

CEL-120/2 Class 2 ☐

Serial No: 2383995

Firmware: 04

Temperature: 19 °C Pressure: 1013 mb %RH 48

| Frequency = 1.00kHz ± 2Hz T.H.D. = < 1% | Calibration Level | |
|---|---|---|
| SPL @ 114.0dB Setting | 114.01 | dB |
| SPL @ 94.0dB Setting (CEL-120/1 only) | 93.98 | dB/N.A |

Engineer :- Date :- 17 OCT 2018

Company test equipment and acoustic working standards, used for conformance testing, are subject to periodic calibration, traceable to UK national standards, in accordance with the company's ISO9001 Quality System.

**DECLARATION OF CONFORMITY**

This certificate confirms that the instrument specified above has been produced and tested to comply with the manufacturer's published specifications and the relevant European Community CE directives.

**Casella CEL ( U.K. ),**
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E-mail: info@casellacel.com
Web: www.casellameasurement.com

1980132A-01

CASELLA CEL

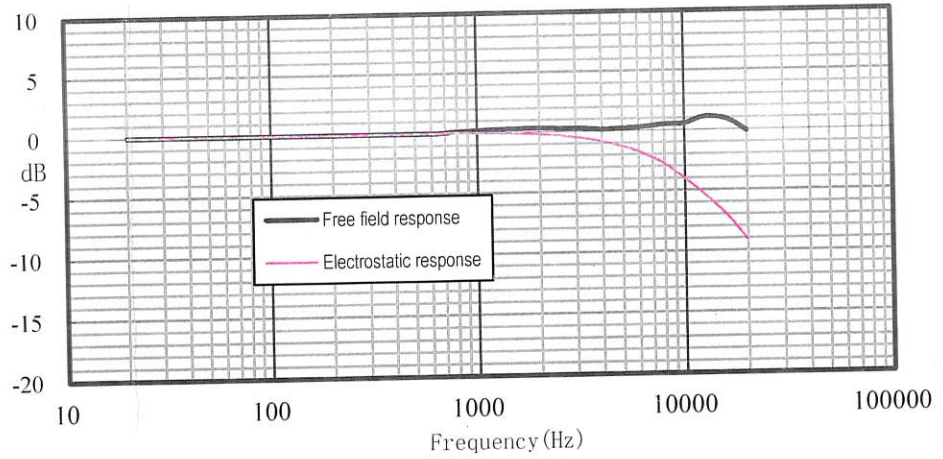
## Calibration Chart for 1/2" Prepolarized Condenser Microphone Type CEL 251

**Serial No:** 02540

**Open Circuit Sensitivity Level:**
-26.3 dB re 1 V/Pa
or 48.4 mV/Pa

**Conditions of Test:**
Frequency: 250 Hz
Barometric Pressure: 101.3 kPa
Relative Humidity: 50 %
Temperature: 23 ℃
Signature: Qiao
Date: 06/11/2018

**Specifications:**
Outside Diameter:
13.2mm with protecting grid
12.7mm without protecting grid
Mounting Thread:
11.7 mm. 60 UNS 2
Capacitance: 16.0 pF(nominal)
Ambient Pressure:
-0.02 to +0.02 dB/kPa for ±10% pressure change at 250 Hz
Temperature Coefficient:
-10℃ to +50℃
Approx. –0.015 dB/K at 250 Hz
Dynamic Range: SPL below which the total harmonic distortion remains less than 3%: 146dB



CASELLA CEL

Certificate of
Conformance and Calibration for

# CEL-120 Acoustic Calibrator

Applicable Standards :-IEC 60942: 2003 & ANSI S1.40: 2006

CEL-120/1 Class 1 [✓]

CEL-120/2 Class 2 [ ]

Serial No: 3574248

Firmware: 04

Temperature: 22.8 °C Pressure: 1004.8 mb %RH 62.7

| Frequency = 1.00kHz ± 2Hz T.H.D. = < 1% | Calibration Level | |
|---|---|---|
| SPL @ 114.0dB Setting | 114.02 | dB |
| SPL @ 94.0dB Setting (CEL-120/1 only) | 93.94 | dB/N.A |

Engineer :- L. Cole Date :- 30 JUL 2018

Company test equipment and acoustic working standards, used for conformance testing, are subject to periodic calibration, traceable to UK national standards, in accordance with the company's ISO9001 Quality System.

DECLARATION OF CONFORMITY

This certificate confirms that the instrument specified above has been produced and tested to comply with the manufacturer's published specifications and the relevant European Community CE directives.

Casella CEL ( U.K. ),
Regent House, Wolseley Road, Kempston, Bedford. MK42 7JY
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Web: www.casellameasurement.com

198032A-01

CASELLA

# Certificate of Conformity and Calibration

| | | | |
|---|---|---|---|
| **Instrument Model:-** | **CEL-633C** | **Preamplifier Type:-** | **CEL-495** |
| Serial Number | 1274486 | Serial Number | 3409 |
| Firmware revision | V006-01 | | |
| **Microphone Type:-** | **CEL-251** | As Received:- | 114.7 |
| Serial Number | 1710 | As Adjusted:- | 114.0 |
| **Instrument Class/Type:-** | 1 | | |



## Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:-** *The test sequences performed in this report are in accordance with the current Sound level meter Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

| | | | |
|---|---|---|---|
| **Test Conditions:-** | 23.5 °C | Test Engineer:- | Ken Umbeer |
| | 79.9 %RH | Date of Issue:- | July 30, 2018 |
| | 1020.3 mBar | Date Due:- | July 30, 2019 |

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to NIST. This product is certified as being compliant to the requirements of the CE Directive.

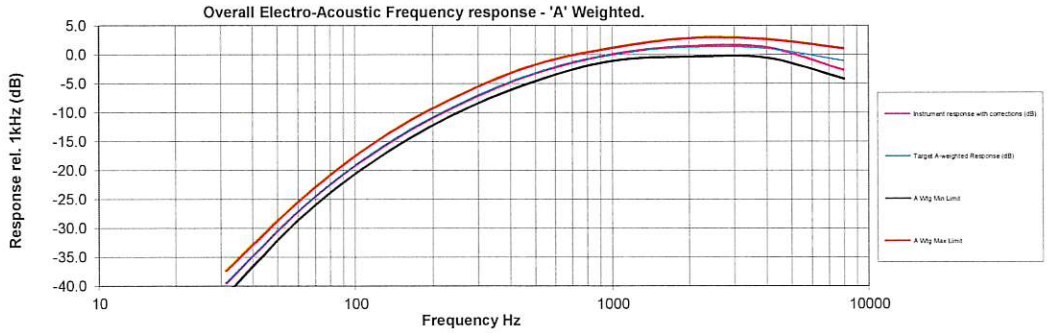
## Test Summary:-

| | |
|---|---|
| Self Generated Noise Test | **All Tests Pass** |
| Electrical Signal Test Of Frequency Weightings | **All Tests Pass** |
| Frequency & Time Weightings At 1 kHz | **All Tests Pass** |
| Level Linearity On The Reference Level Range | **All Tests Pass** |
| Toneburst Response Test | **All Tests Pass** |
| C-peak Sound Levels | **All Tests Pass** |
| Overload Indication | **All Tests Pass** |
| Acoustic Tests | **All Tests Pass** |

## Combined Electro-Acoustic Frequency Response - *A Weighted*

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.





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Toll Free. (800) 366-2966
Tel: (603) 672-0031 Fax: (603) 672-8053
E-mail: info@casellausa.com
Web: www.casellausa.com

# Certificate of Conformity and Calibration

| | |
|---|---|
| **Instrument Type:-** | **CEL-633C** |
| Serial Number | 4278006 |
| Firmware revision | V006-01 |
| **Microphone Type:-** | **CEL-251** |
| Serial Number | 02467 |
| **Preamplifier Type:-** | **CEL-495** |
| Serial Number | 003570 |
| Instrument Class/Type:- | 1 |



## Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:-** *The test sequences performed in this report are in accordance with the current Sound level meter Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

| | | | |
|---|---|---|---|
| **Test Conditions:-** | 26 °C | **Test Engineer:-** | Stephen Potten |
| | 42 %RH | **Date of Issue:-** | January 22, 2018 |
| | 1011 mBar | | |

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

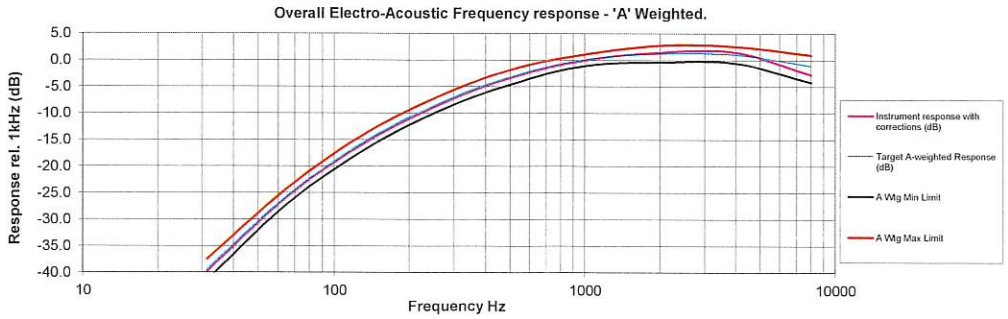
## Test Summary:-

| | |
|---|---|
| Self Generated Noise Test | **All Tests Pass** |
| Electrical Signal Test Of Frequency Weightings | **All Tests Pass** |
| Frequency & Time Weightings At 1 kHz | **All Tests Pass** |
| Level Linearity On The Reference Level Range | **All Tests Pass** |
| Toneburst Response Test | **All Tests Pass** |
| C-peak Sound Levels | **All Tests Pass** |
| Overload Indication | **All Tests Pass** |
| Acoustic Tests | **All Tests Pass** |

## Combined Electro-Acoustic Frequency Response - *A Weighted*

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.





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# Certificate of Conformity and Calibration



**Instrument Type:-** CEL-633C

Serial Number 1488256
Firmware revision V006-02

Microphone Type:- CEL-251
Serial Number 02803

Preamplifier Type:- CEL-495
Serial Number 003987

Instrument Class/Type:- 1

## Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:-** *The test sequences performed in this report are in accordance with the current Sound level meter Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

**Test Conditions:-** 29 °C, 45 %RH, 1006 mBar

**Test Engineer:-** Stephen Potten
**Date of Issue:-** August 3, 2018

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

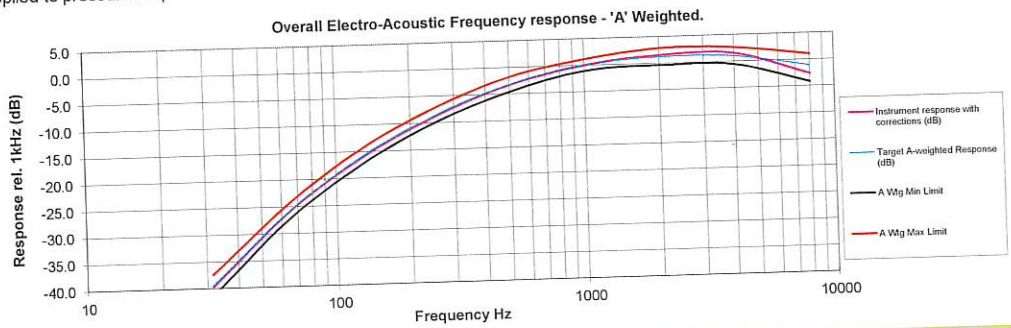
## Test Summary:-

| | |
|---|---|
| Self Generated Noise Test | All Tests Pass |
| Electrical Signal Test Of Frequency Weightings | All Tests Pass |
| Frequency & Time Weightings At 1 kHz | All Tests Pass |
| Level Linearity On The Reference Level Range | All Tests Pass |
| Toneburst Response Test | All Tests Pass |
| C-peak Sound Levels | All Tests Pass |
| Overload Indication | All Tests Pass |
| Acoustic Tests | All Tests Pass |

## Combined Electro-Acoustic Frequency Response - *A Weighted*

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.





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CE

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An IDEAL Company

# EU Declaration of Conformity

**Casella**
**Regent House, Wolseley Road**
**Kempston, Bedford, MK42 7JY, UK**

**Instrument Type:-** **CEL-62x and CEL-63x Series Sound Level Meters**

---

**EMC Immunity and Emission Standards Applied:-**

The above instrumentation has been designed and tested to comply with the EMC directive **2014/30/EU** and the following EMC / ESD standards:-

| | |
|---|---|
| **IEC 61000-6-1 Edition 2.0 2005-03** | Electromagnetic compatibility (EMC) Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments. |
| **IEC 61000-6-2:2005** | Electromagnetic compatibility (EMC) Part 6-2: Generic standards – Immunity for industrial environments. |
| **IEC 61000-6-3:2006 inc. amendment 1:2010** | Electromagnetic compatibility (EMC) Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments. |
| **IEC 61000-6-4:2006 inc. amendment 1:2011** | Electromagnetic compatibility (EMC) Part 6-4: Generic standards – Emission standard for industrial environments. |

**Safety - Low Voltage Directive 2014/35/EU**

The instrument(s) listed contain no hazardous voltages and external power supplies are classified as SELV (Safety Extra Low Voltage) devices.

**Restriction of Hazardous Substances Directive 2011/65/EU (RoHS 2)**

Instrument complies to the restricted use of specific hazardous substances

**Product Specific Standards:-**

| | |
|---|---|
| **IEC 61672-1:2013** | Electroacoustics – Sound Level Meters |

This is to certify that the above product(s) have been designed, tested and built to comply with the requirements of identified product specific standards, and also general protection requirements of the EMC Directive.

Andrew Mitham, Lead Electronics Engineer
AP24-04

A. J. Mitham

Date of Issue
26/09/2016

www.casellasolutions.com

CASELLA

# Certificate of Conformity and Calibration



**Instrument Model:-** **CEL-632A**

| | |
|---|---|
| Serial Number | 1488256 |
| Firmware revision | V006-02 |

**Microphone Type:-** **CEL-252**
Serial Number 74398

**Preamplifier Type:-** **CEL-495**
Serial Number **003987**

**Instrument Class/Type:-** **2**

**Applicable standards:-**

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:- The test sequences performed in this report are in accordance with the current Sound level meter** *Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

**Test Conditions:-** 29 °C, 45 %RH, 1006 mBar

**Test Engineer:-** Stephen Potten
**Date of Issue:-** August 3, 2018

**Declaration of conformity:-**

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

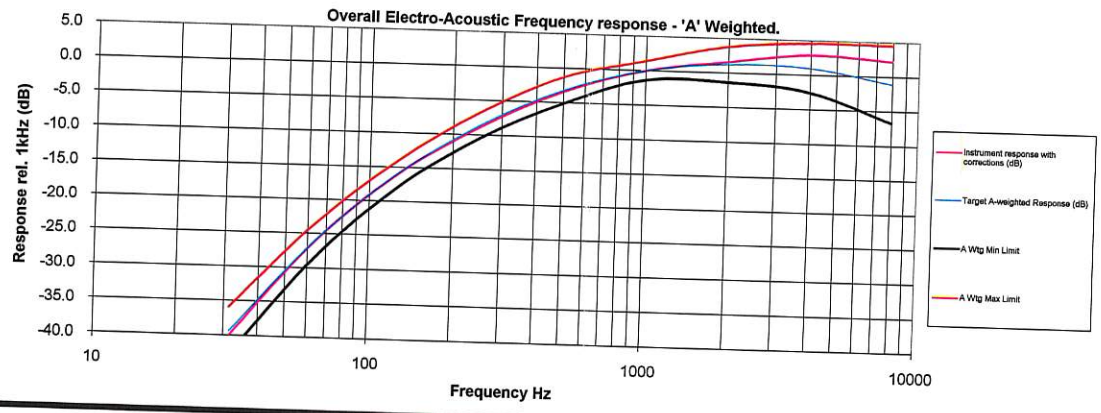
**Test Summary:-**

| | |
|---|---|
| Self Generated Noise Test | **All Tests Pass** |
| Electrical Signal Test Of Frequency Weightings | **All Tests Pass** |
| Frequency & Time Weightings At 1 kHz | **All Tests Pass** |
| Level Linearity On The Reference Level Range | **All Tests Pass** |
| Toneburst Response Test | **All Tests Pass** |
| C-peak Sound Levels | **All Tests Pass** |
| Overload Indication | **All Tests Pass** |
| Acoustic Tests | **All Tests Pass** |

## Combined Electro-Acoustic Frequency Response - A Weighted

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.





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Tel: +86-21-31263188
Fax: +86-21-61605906
Email: info@casellasolutions.cn

**Casella Australia**
Ideal Industries (Aust) PTY. LTD
Unit 17, 35 Dunlop Rd, Mulgrave.
Vic. 3170, Australia.
Email: australia@casellasolutions.com


Tested to CEL-63X test sheet TP444 revision 01-00

# Certificate of Conformity and Calibration

| | |
|---|---|
| **Instrument Type:-** | **CEL-633C** |
| Serial Number | 4278006 |
| Firmware revision | V006-01 |
| **Microphone Type:-** | **CEL-251** |
| Serial Number | 02467 |
| **Preamplifier Type:-** | **CEL-495** |
| Serial Number | 003570 |
| Instrument Class/Type:- | 1 |



## Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:-** *The test sequences performed in this report are in accordance with the current Sound level meter Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

| | | | |
|---|---|---|---|
| **Test Conditions:-** | 26 °C | **Test Engineer:-** | Stephen Potten |
| | 42 %RH | **Date of Issue:-** | January 22, 2018 |
| | 1011 mBar | | |

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

## Test Summary:-

| | |
|---|---|
| Self Generated Noise Test | **All Tests Pass** |
| Electrical Signal Test Of Frequency Weightings | **All Tests Pass** |
| Frequency & Time Weightings At 1 kHz | **All Tests Pass** |
| Level Linearity On The Reference Level Range | **All Tests Pass** |
| Toneburst Response Test | **All Tests Pass** |
| C-peak Sound Levels | **All Tests Pass** |
| Overload Indication | **All Tests Pass** |
| Acoustic Tests | **All Tests Pass** |

## Combined Electro-Acoustic Frequency Response - *A Weighted*

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

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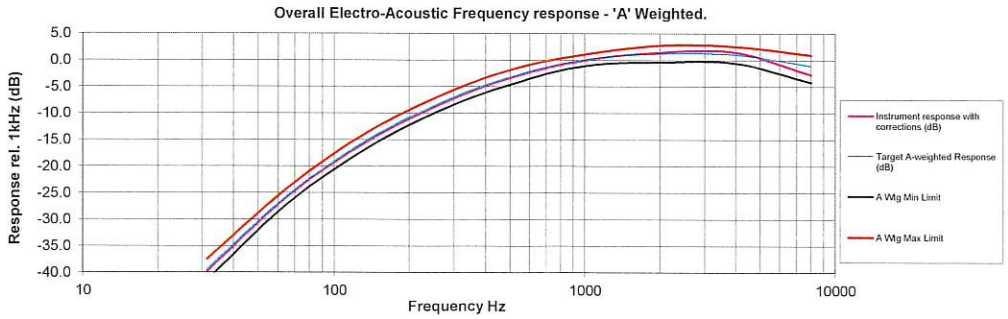



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Web: www.casellausa.com

# Certificate of Conformity and Calibration

| | |
|---|---|
| **Instrument Type:-** | **CEL-633C** |
| Serial Number | 4278006 |
| Firmware revision | V006-01 |
| Microphone Type:- | CEL-251 |
| Serial Number | 02470 |
| Preamplifier Type:- | CEL-495 |
| Serial Number | 003570 |
| Instrument Class/Type:- | 1 |



## Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:-** *The test sequences performed in this report are in accordance with the current Sound level meter Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

| | | | |
|---|---|---|---|
| **Test Conditions:-** | 26 °C | **Test Engineer:-** | Stephen Potten |
| | 42 %RH | **Date of Issue:-** | January 22, 2018 |
| | 1011 mBar | | |

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

## Test Summary:-

| | |
|---|---|
| Self Generated Noise Test | **All Tests Pass** |
| Electrical Signal Test Of Frequency Weightings | **All Tests Pass** |
| Frequency & Time Weightings At 1 kHz | **All Tests Pass** |
| Level Linearity On The Reference Level Range | **All Tests Pass** |
| Toneburst Response Test | **All Tests Pass** |
| C-peak Sound Levels | **All Tests Pass** |
| Overload Indication | **All Tests Pass** |
| Acoustic Tests | **All Tests Pass** |

## Combined Electro-Acoustic Frequency Response - *A Weighted*

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

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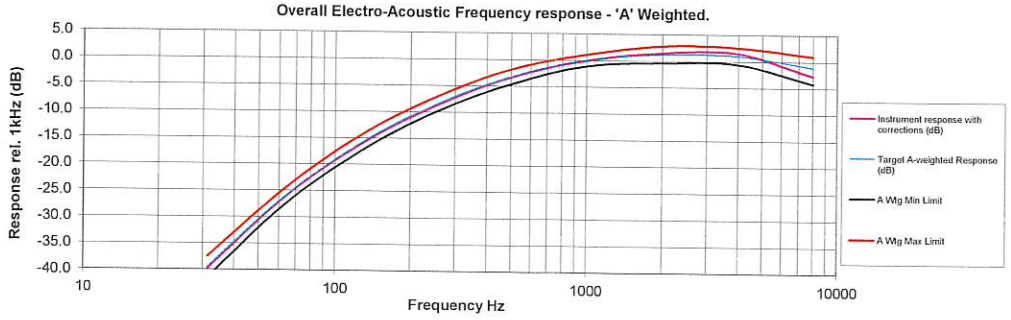



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Tested to CEL-63X test sheet TP444 revision 01-00

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# CASELLA CEL - SERVICE RETURN SHEET

**CUSTOMER INFORMATION**

DATE RECEIVED: July 25, 2018

OUR SERVICE JOB #: 13282

COMPANY NAME: Equity Environmental Engineering
500 International Drive, Suite 150
Mount Olive, NJ 07828

CONTACT NAME: Amber Kartalyan
amber.kartalyan@equityenvironmental.com

**LIST OF INSTRUMENTS RETURNED**

| MODEL: | S/N |
|---|---|
| 120/2 | 4667874 |
| | |
| 633C | 1274486 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

**ENVIRONMENTAL CONDITIONS**

| | | |
|---|---|---|
| TEMPERATURE : | 24 | °C |
| HUMIDITY : | 79.9 | %RH |
| AIR PRESSURE : | 1020.3 | mbar |
| OFFSET CORRECTION : | 0.06 | dB |

SERVICE REQ.: Calibration

DESC. OF FAULT: Calibration

ACTION TAKEN: CEL-120/2 S/N: 4667874: & CEL-633.C1 S/N: 1274486: Both pass calibration.

SERVICE ENGINEER : Ken Umbeer

DATE FINISHED: July 30, 2018

# Certificate of Conformity and Calibration

CASELLA CEL

**Instrument Model:** CEL-120/2 Acoustic Calibrator **Certificate #:** 68667

**Serial Number:** 4667874



## Calibration References:

Casella CEL hereby certifies that the above listed sound measuring instrument has been tested according to the manufacturer's specifications and meets the requirements of the relevant American National Standards Institute (ANSI) Standard for Sound Calibrators S1.40 - 1983 (R1997). This instrument was calibrated against standards which are either traceable to the National Institute of Standards and Technology (NIST) or they have been derived by approved ratio techniques.

## Test Conditions:

| | | | |
|---|---|---|---|
| 23.5 | °C | **Date of Issue:-** | July 30, 2018 |
| 79.9 | %RH | **Due Date:-** | July 30, 2019 |
| 1020.3 | mBar | **Service Engineer:-** | Ken Umbeer |

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards. This product is certified as being compliant to the requirements of the CE Directive. Test accuracy ratio (TAR) ≥1.

## Summary:

The data represents the response of the sound level meter calibrator to the reference source corrected for atmospheric conditions at the time of calibration.

| | Nominal Value | Tolerance | As Received | As Adjusted |
|---|---|---|---|---|
| Frequency (Hz) | 1000.0 | ±5.0 | 1000.0 | 1000.0 |
| Level (dB) | 114.0 | ±0.3 | 114.1 | 114.0 |

| Standards Used in Calibration: | | Serial Number | Calibration Due Date | Certificate Number |
|---|---|---|---|---|
| **Sound Level Meter:** | CEL-620.A1 | 5130002 | 1/30/2019 | 28473-2 |
| **Multimeter:** | Fluke 45 | 4995184 | 1/16/2019 | 1626798 |


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**Casella China（中国）**
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CASELLA

# Certificate of Conformity and Calibration

| | | | |
|---|---|---|---|
| **Instrument Model:-** | **CEL-633C** | **Preamplifier Type:-** | **CEL-495** |
| Serial Number | 1274486 | Serial Number | 3409 |
| Firmware revision | V006-01 | | |
| **Microphone Type:-** | **CEL-251** | As Received:- | 114.7 |
| Serial Number | 1710 | As Adjusted:- | 114.0 |
| **Instrument Class/Type:-** | 1 | | |



## Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

**Note:-** *The test sequences performed in this report are in accordance with the current Sound level meter Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

| | | | |
|---|---|---|---|
| **Test Conditions:-** | 23.5 °C | Test Engineer:- | Ken Umbeer |
| | 79.9 %RH | Date of Issue:- | July 30, 2018 |
| | 1020.3 mBar | Date Due:- | July 30, 2019 |

## Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to NIST. This product is certified as being compliant to the requirements of the CE Directive.

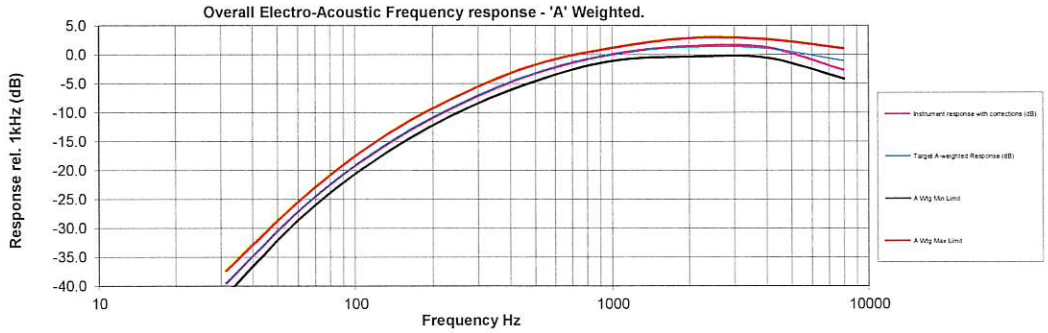
## Test Summary:-

| | |
|---|---|
| Self Generated Noise Test | **All Tests Pass** |
| Electrical Signal Test Of Frequency Weightings | **All Tests Pass** |
| Frequency & Time Weightings At 1 kHz | **All Tests Pass** |
| Level Linearity On The Reference Level Range | **All Tests Pass** |
| Toneburst Response Test | **All Tests Pass** |
| C-peak Sound Levels | **All Tests Pass** |
| Overload Indication | **All Tests Pass** |
| Acoustic Tests | **All Tests Pass** |

## Combined Electro-Acoustic Frequency Response - *A Weighted*

**Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)**

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.





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# INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

## Pine Environmental Services, Inc

**Instrument ID** 34405
**Description** CEL-63X Sound Level Meter
**Calibrated** 5/6/2019

**Manufacturer** Casella
**Model Number** CEL-63X
**Serial Number** 2451112
**Location** New Jersey
**Temp** 71

**Classification**
**Status** pass
**Frequency** Yearly EOM
**Department** Lab
**Humidity** 42

### Calibration Specifications

**Group #** 1
**Group Name** Acoustic Tests Performed
**Test Performed: Yes** **As Found Result: Fail** **As Left Result: Pass**

### Test Instruments Used During the Calibration

| | | | | (As Of Cal Entry Date) | |
|---|---|---|---|---|---|
| Test Instrument ID | Description | Manufacturer | Serial Number | Last Cal Date | Next Cal Date |
| B&K 4226 | Brüel & Kjær 4226 | Brüel & Kjær | 2590968 | 5/10/2018 | 5/10/2019 |
| B&K 4228 | Brüel & Kjær 4228 | Brüel & Kjær | 2667476 | 5/7/2018 | 5/7/2019 |

**Notes about this calibration**

**Calibration Result** Calibration Successful
**Who Calibrated** Kevin Cole

**Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.**

# INSTRUMENT CALIBRATION REPORT

**Pine Environmental Services LLC**
92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

## Pine Environmental Services, Inc.

**Instrument ID** 34405
**Description** CASELLA CEL Sound Level Meter
**Calibrated** 5/24/2019 4:26:59PM

**Manufacturer** Casella
**Model Number** CEL-633C
**Serial Number/ Lot Number** 2451112
**Location** New Jersey
**Department**

**State Certified**
**Status** Pass
**Temp °C** 23
**Humidity %** 32

### Calibration Specifications

**Group #** 1
**Group Name** 114 db check - data transfer
**Test Performed: Yes** **As Found Result: Pass** **As Left Result: Pass**

**Test Instruments Used During the Calibration**

| Test Standard ID | Description | Manufacturer | Model Number | Serial Number / Lot Number | (As Of Cal Entry Date) Next Cal Date / Last Cal Date/ Expiration Date Opened Date |
|---|---|---|---|---|---|

**Notes about this calibration**

**Calibration Result** Calibration Successful
**Who Calibrated** Roger Rambough

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

**Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment**
**Please call 800-301-9663 for Technical Assistance**

# INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

## Pine Environmental Services, Inc

**Instrument ID** R197576
**Description** CEL-63X Sound Level Meter
**Calibrated** 11/15/2018

**Manufacturer** Casella
**Model Number** CEL-63X
**Serial Number** 4637978
**Location** New Jersey
**Temp** 70

**Classification**
**Status** pass
**Frequency** Yearly EOM
**Department** Lab
**Humidity** 26

**Calibration Specifications**

**Group #** 1
**Group Name** Acoustic Tests Performed
**Test Performed: Yes** **As Found Result: Pass** **As Left Result: Pass**

**Test Instruments Used During the Calibration**

| | | | | (As Of Cal Entry Date) | |
|---|---|---|---|---|---|
| Test Instrument ID | Description | Manufacturer | Serial Number | Last Cal Date | Next Cal Date |
| B&K 4226 | Brüel & Kjær 4226 | Brüel & Kjær | 2590968 | 5/10/2018 | 5/10/2019 |
| B&K 4228 | Brüel & Kjær 4228 | Brüel & Kjær | 2667476 | 5/7/2018 | 5/7/2019 |

**Notes about this calibration**

**Calibration Result** Calibration Successful
**Who Calibrated** David Galego

**Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.**

# INSTRUMENT CALIBRATION REPORT

**Pine Environmental Services LLC**
92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

## Pine Environmental Services, Inc.

**Instrument ID** R197576
**Description** Casella 63x
**Calibrated** 5/24/2019 4:28:37PM

**Manufacturer** Casella
**Model Number** 63x
**Serial Number/ Lot Number** 4637978
**Location** New Jersey
**Department**

**State Certified**
**Status** Pass
**Temp °C** 23
**Humidity %** 32

### Calibration Specifications

**Group #** 1
**Group Name** 114db with Cel 110
**Test Performed: N/A** **As Found Result:** **As Left Result:**

### Test Instruments Used During the Calibration

| Test Standard ID | Description | Manufacturer | Model Number | Serial Number / Lot Number | (As Of Cal Entry Date) Next Cal Date / Last Cal Date/ Expiration Date Opened Date |
|---|---|---|---|---|---|

**Notes about this calibration**

**Calibration Result** Calibration Successful
**Who Calibrated** Roger Rambough

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

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