City Environmental Quality Review
ENVIRONMENTAL ASSESSMENT STATEMENT (EAS) FULL FORM

Please fill out and submit to the appropriate agency (see instructions)

Part I: GENERAL INFORMATION

PROJECT NAME Marcus Garvey Extension

1. *Reference Numbers*

CEQR REFERENCE NUMBER (to be assigned by lead agency)	BSA REFERENCE NUMBER (if applicable)
18DCP101K	
ULURP REFERENCE NUMBER (if applicable)	OTHER REFERENCE NUMBER(S) (if applicable) (*e.g.*, legislative intro, CAPA)
180490ZSK, 180489ZMK, 180488ZSKN, 180487ZRK, 180486PCK, 180485HAK	

2a. *Lead Agency Information*			**2b. *Applicant Information***		
NAME OF LEAD AGENCY New York City Department of City Planning			NAME OF APPLICANT Brownsville Livonia Associates LLC*		
NAME OF LEAD AGENCY CONTACT PERSON Robert Dobruskin			NAME OF APPLICANT'S REPRESENTATIVE OR CONTACT PERSON Josh Weisstuch, L+M Development Partners		
ADDRESS 120 Broadway, 31st Floor			ADDRESS 419 Park Avenue South, 18th Floor		
CITY New York	STATE NY	ZIP 10271	CITY New York	STATE NY	ZIP 10016
TELEPHONE 212-720-3423	EMAIL rdobrus@planning.nyc.gov		TELEPHONE 646-527-2478	EMAIL jweisstuch@lmdevpartners.com	

3. *Action Classification and Type*

SEQRA Classification

☐ UNLISTED ☒ TYPE I: Specify Category (see 6 NYCRR 617.4 and NYC Executive Order 91 of 1977, as amended): 617.4(b)(9)

Action Type (refer to Chapter 2, "Establishing the Analysis Framework" for guidance)

☐ LOCALIZED ACTION, SITE SPECIFIC ☒ LOCALIZED ACTION, SMALL AREA ☐ GENERIC ACTION

4. *Project Description*

Brownsville Livonia Associates LLC (the "applicant") is seeking several discretionary land use approvals, including zoning map and related text amendments, and special permits to establish a Large Scale General Development (LSGD) (collectively, the "Proposed Actions") in order to facilitate the development of seven new mixed-use buildings in the Brownsville neighborhood of Brooklyn, Community District 16. The proposed mixed-use buildings collectively would include approximately 843 affordable dwelling units (DUs), approximately 35,049 gross square feet (gsf) of retail space, and approximately 98,032 gsf of community facility space (the "Proposed Project"). The Proposed Project also would include 24 parking spaces at two of the proposed buildings. In addition to the approvals described above, the Proposed Actions include disposition and acquisition actions by the City of New York. For more information, see below and Attachment A, "Project Description."

*The New York City Department of Housing Preservation and Development (HPD) is a co-applicant for the disposition of City-owned property that would facilitate the development of one of the new buildings. The New York City Department of Parks and Recreation (NYC Parks) and New York City Citywide Administrative Services (DCAS) are co-applicants for the acquisition of property that would contain a new community garden.

Project Location

BOROUGH Brooklyn	COMMUNITY DISTRICT(S) 16	STREET ADDRESS 401 Chester Street, 193-215 Livonia Avenue, 194-216 Livonia Avenue, 169-191 Livonia Avenue, 172-192 Livonia Avenue, 437-495 Chester Street, 251 Chester Street.
TAX BLOCK(S) AND LOT(S) Site A: Block 3589, Lot 21; Site B: Block 3574, p/o Lot 1; Site C: Block 3588, Lots 27, 32-36; Site D: Block 3573, p/o Lot 1; Site E: Block 3587, p/o Lot 1 and Lot 27; Site F: Block 3602, Lot 12; and Site G: Block 3560, Lot 1. See also Figure 2.		ZIP CODE 11212

DESCRIPTION OF PROPERTY BY BOUNDING OR CROSS STREETS The proposed LSGD area is generally bounded by Blake Avenue to the north, Rockaway Avenue to the east, Thomas S Boyland (Hopkins) Street to the west, and Newport Street to the south.

EXISTING ZONING DISTRICT, INCLUDING SPECIAL ZONING DISTRICT DESIGNATION, IF ANY R6 | ZONING SECTIONAL MAP NUMBER 17d

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

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

- ☐ CITY MAP AMENDMENT
- ☒ ZONING MAP AMENDMENT
- ☒ ZONING TEXT AMENDMENT
- ☐ SITE SELECTION—PUBLIC FACILITY
- ☐ HOUSING PLAN & PROJECT
- ☒ SPECIAL PERMIT (if appropriate, specify type: ☐ modification; ☐ renewal; ☐ other); EXPIRATION DATE:
- ☐ ZONING CERTIFICATION
- ☐ ZONING AUTHORIZATION
- ☒ ACQUISITION—REAL PROPERTY
- ☒ DISPOSITION—REAL PROPERTY
- ☐ OTHER, explain:
- ☐ CONCESSION
- ☐ UDAAP
- ☐ REVOCABLE CONSENT
- ☐ FRANCHISE

SPECIFY AFFECTED SECTIONS OF THE ZONING RESOLUTION 74-743; 74-532

***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: The applicant may seek construction funding from HPD and/or the New York City Housing Development Corporation (HDC) at a later date.
- ☐ RULEMAKING
- ☐ CONSTRUCTION OF PUBLIC FACILITIES
- ☐ 384(b)(4) APPROVAL
- ☐ OTHER, explain:
- ☐ POLICY OR PLAN, specify:
- ☐ FUNDING OF PROGRAMS, specify:
- ☐ PERMITS, specify:

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:

***State or Federal Actions/Approvals/Funding*:** ☒ YES ☐ NO If "yes," specify: Potential construction funding from New York State Homes aned Community Renewal (HCR)

6. *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.): 528,640 sf = Proposed LSGD (154,623 sf = Rezoning Area)

Waterbody area (sq. ft.) and type: 0

Roads, buildings, and other paved surfaces (sq. ft.): 528,640 sf

Other, describe (sq. ft.): 0

7. *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): 908,460

NUMBER OF BUILDINGS: 7

GROSS FLOOR AREA OF EACH BUILDING (sq. ft.): Building A: 134,498; Building B: 111,932; Building C: 96,975; Building D: 95,303; Building E: 105,753; Building F: 221,294; Building G: 142,705. See Figure 1 for building lettering.

HEIGHT OF EACH BUILDING (ft.): Buildings A-E (95 feet); Buildings F and G (100 feet)

NUMBER OF STORIES OF EACH BUILDING: Buildings A-E (8 stories); Buildings F and G (9 stories)

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: 528,640 (Proposed LSGD; 150,600 sf to be rezoned)

The total square feet not owned or controlled by the applicant: 0

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 disturbance (if known):

AREA OF TEMPORARY DISTURBANCE: 0 sq. ft. (width x length)

VOLUME OF DISTURBANCE: 2,166,360 cubic ft. (width x length x depth)

AREA OF PERMANENT DISTURBANCE: 154,740 sq. ft. (width x length)

8. *Analysis Year* CEQR Technical Manual Chapter 2

ANTICIPATED BUILD YEAR (date the project would be completed and operational): 2024

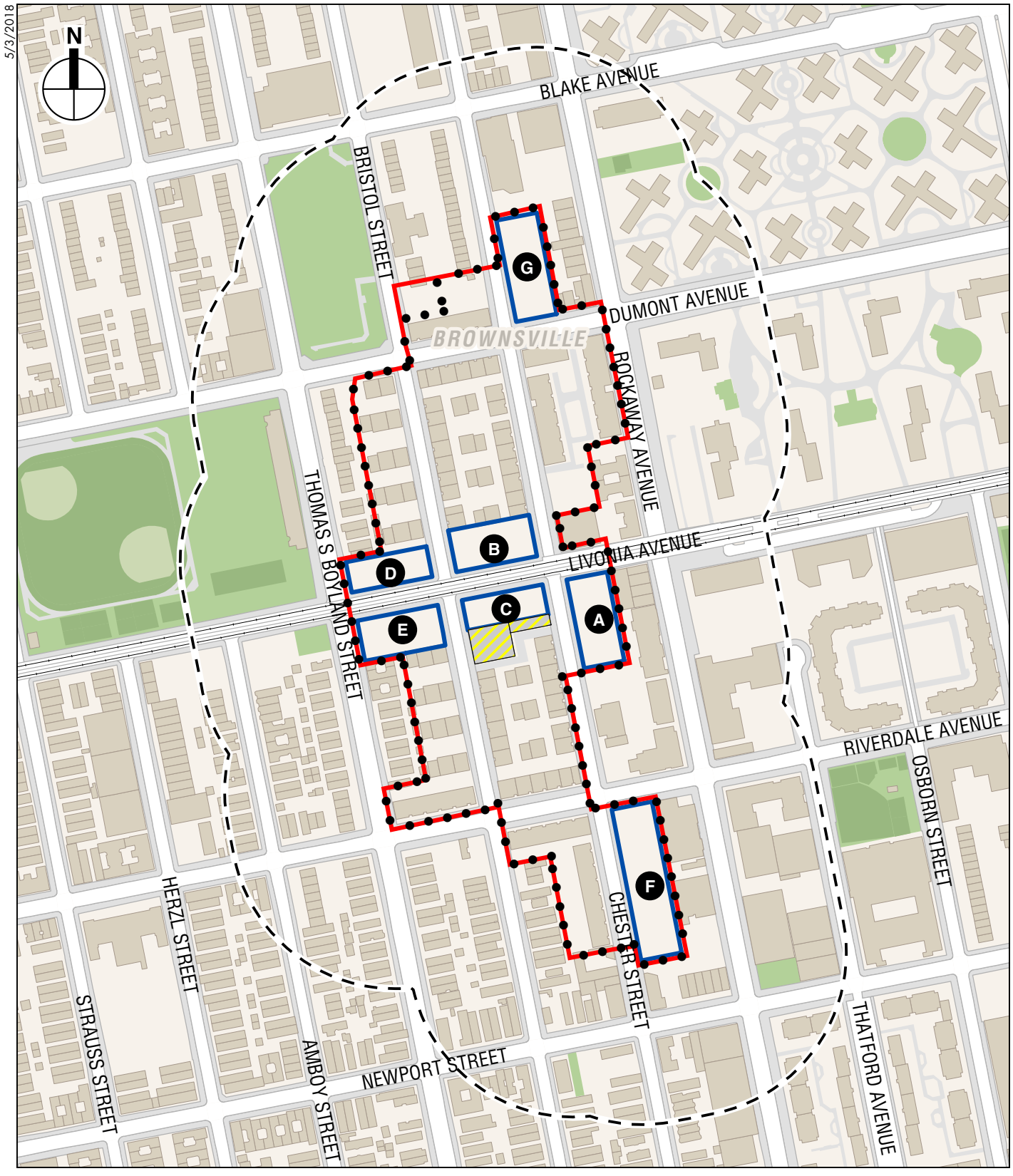
ANTICIPATED PERIOD OF CONSTRUCTION IN MONTHS: 48 months total for the all seven buildings, each individual building would take approximately 18–24 months to construct.

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

BRIEFLY DESCRIBE PHASES AND CONSTRUCTION SCHEDULE: TO COME

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

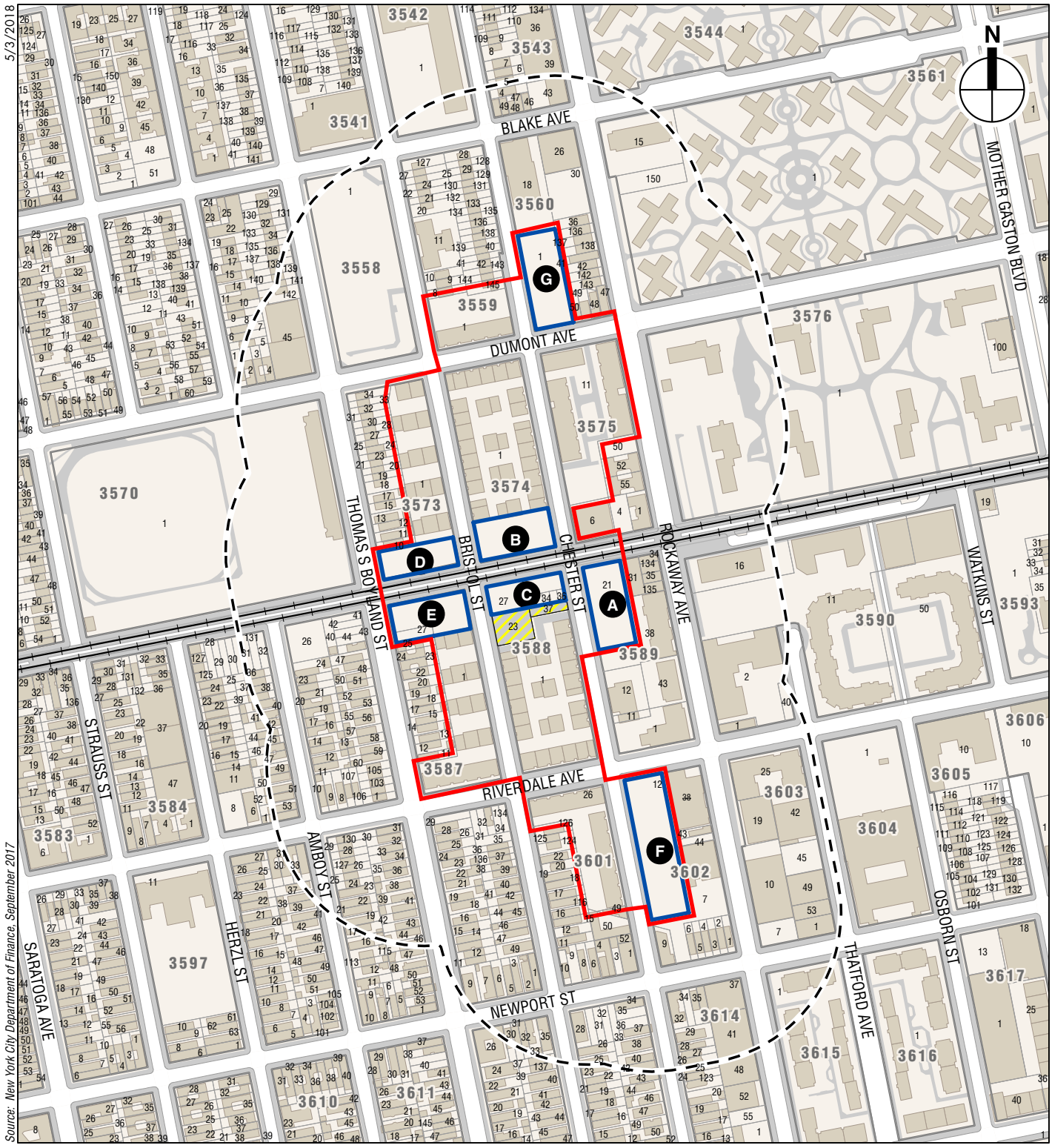
☒ RESIDENTIAL ☐ MANUFACTURING ☒ COMMERCIAL ☒ PARK/FOREST/OPEN SPACE ☐ OTHER, specify:



Marcus Garvey Extension

Project Location

Figure 1



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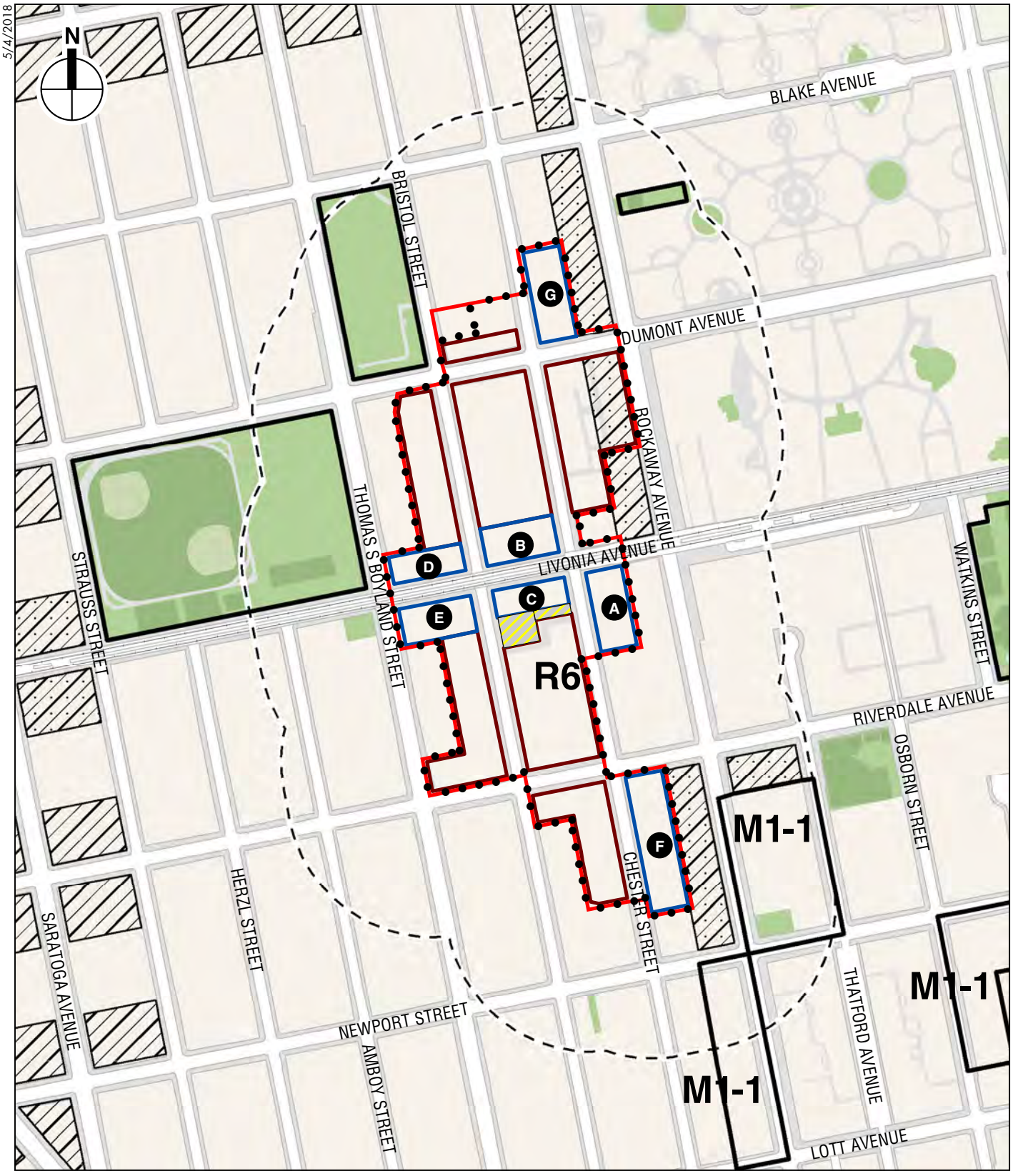
Tax Map
Figure 2



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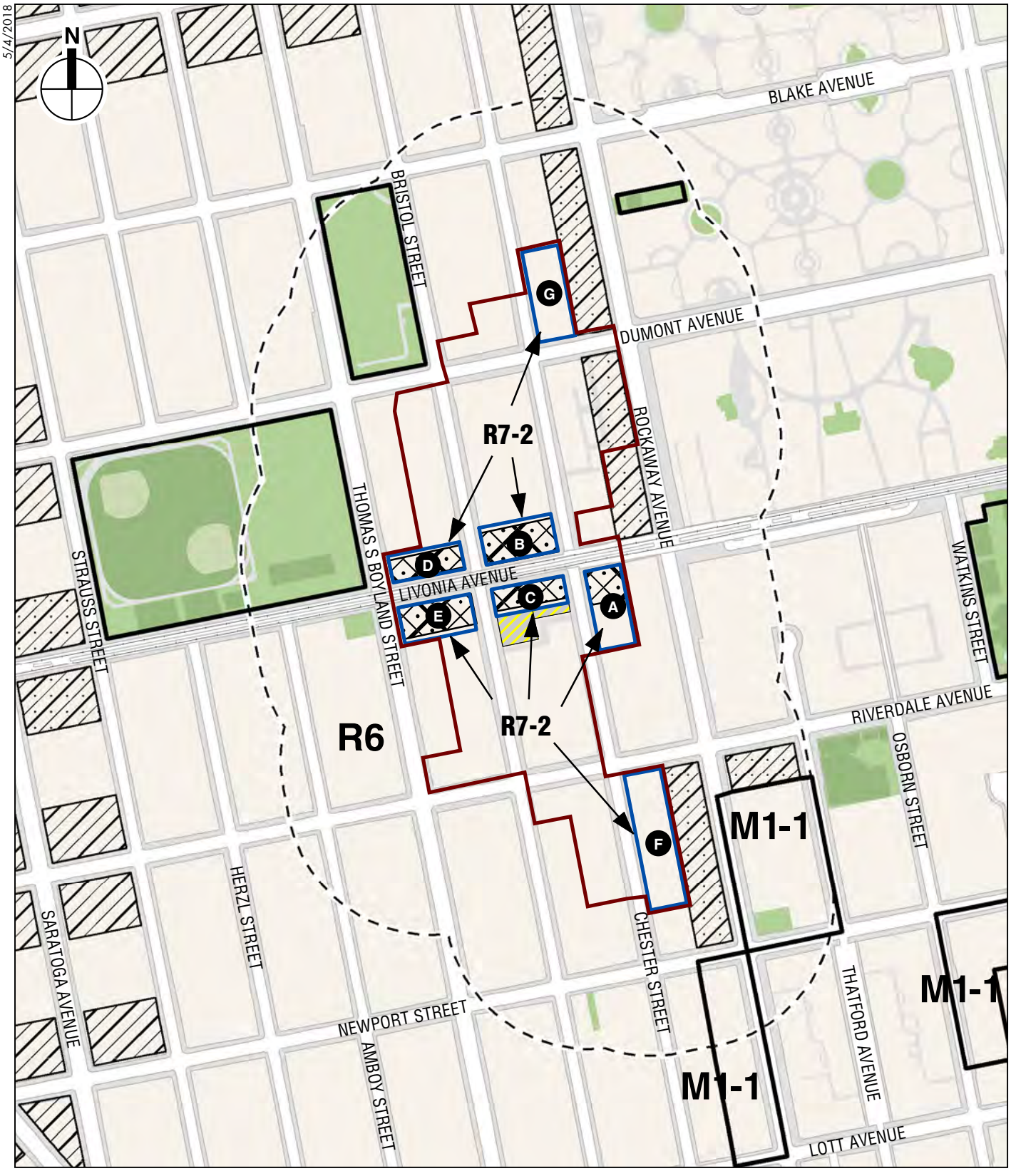
Existing Zoning

Figure 3a



Proposed LSGD Boundary (Including existing MGV)

Rezoning Area (Proposed R7-2 District)/Project Sites

Study Area (400-foot boundary)

Zoning Districts

C1-3 Commercial Overlay District

C2-3 Commercial Overlay District

C2-4 Commercial Overlay District

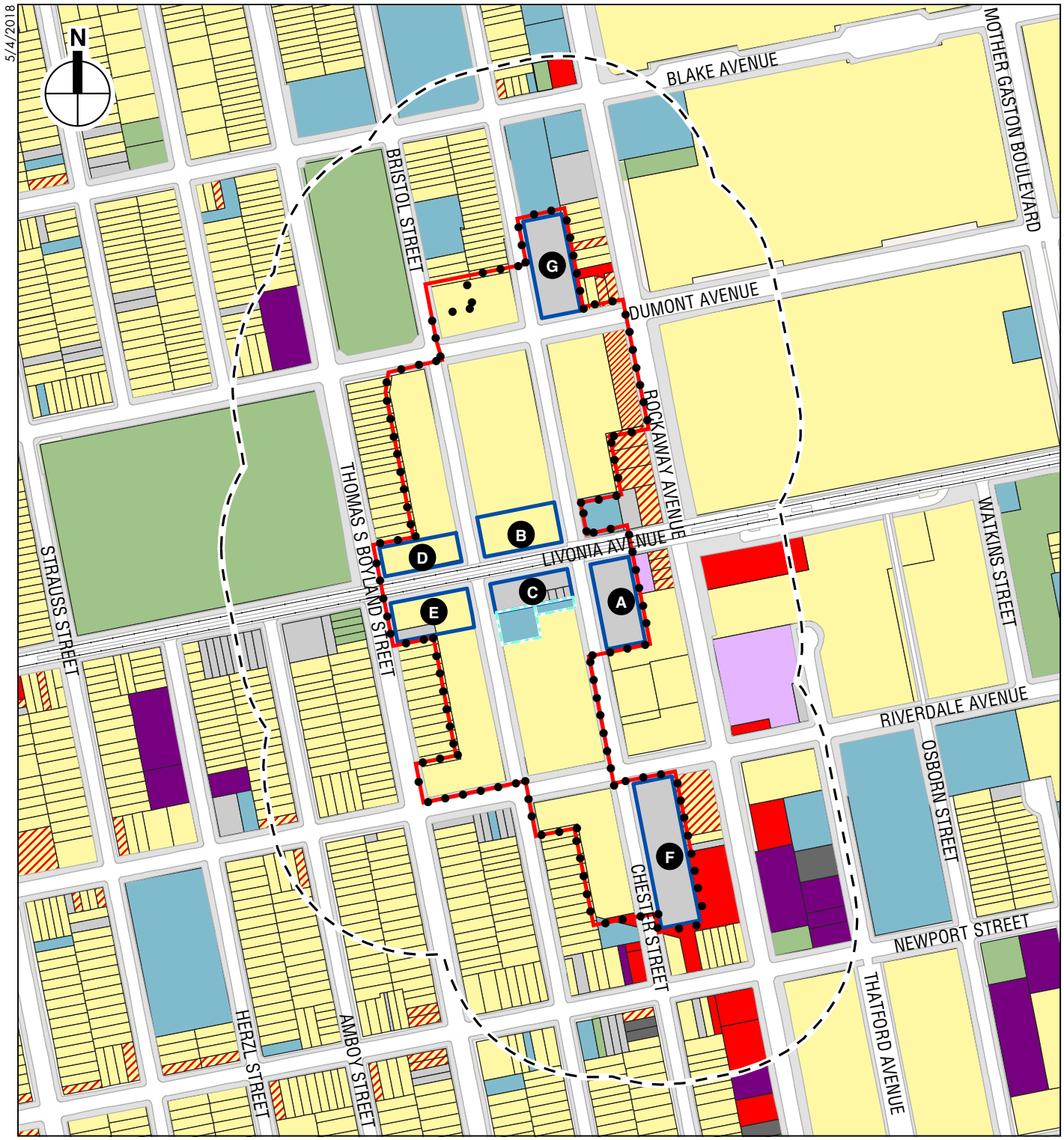
Lots not part of Project Area or LSGD

0 400 FEET

Marcus Garvey Extension

Proposed Zoning

Figure 3b

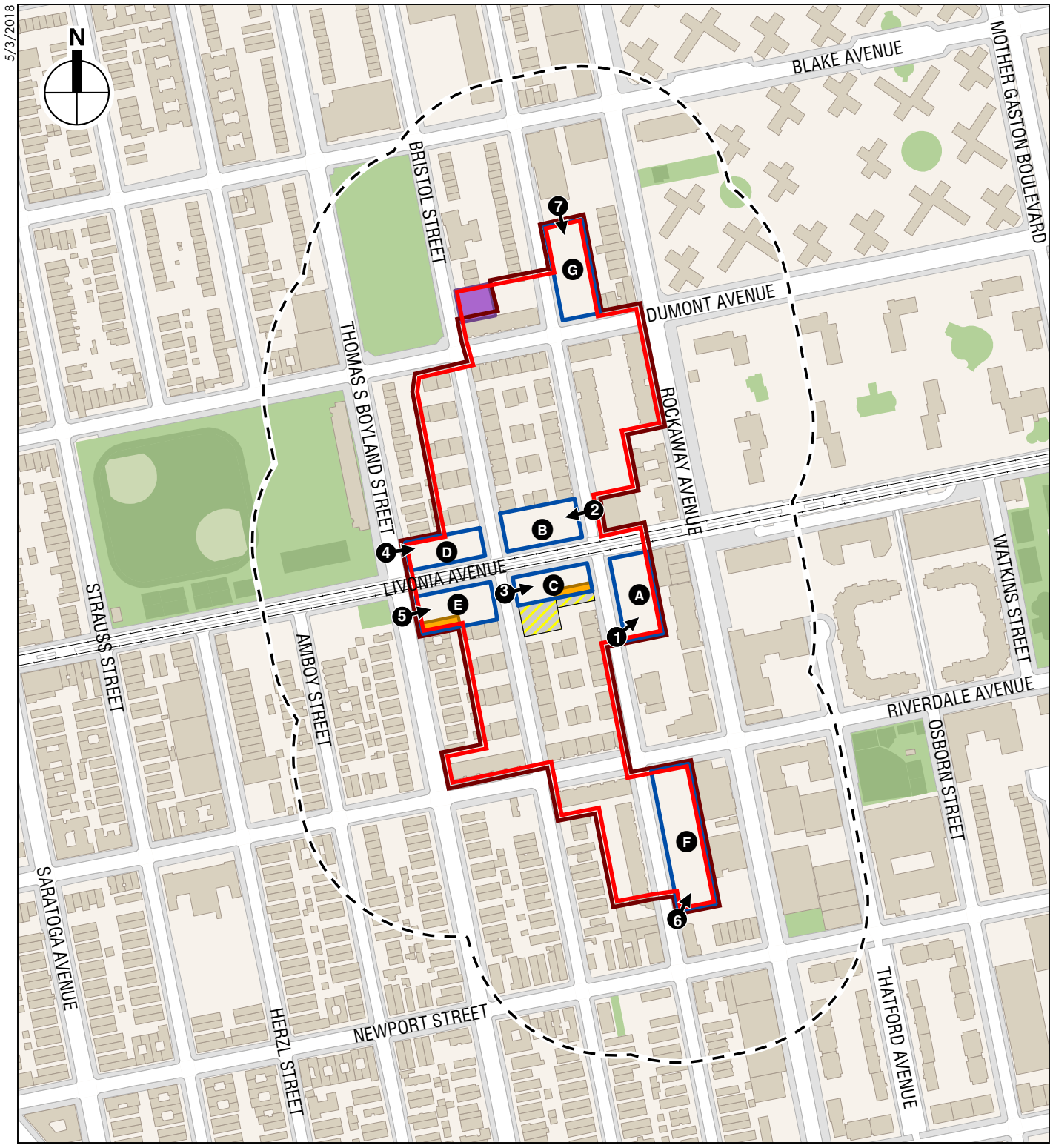


0 200 FEET

- *Project Area*
- *Proposed Rezoning Area/Project Sites*
- *Proposed Large-Scale General Development (LSGD) Boundary*
- *Study Area (400-foot boundary)*
- *Lots not part of Project Area or LSGD*
- *Commercial and Office Buildings*
- *Industrial and Manufacturing*
- *Open Space and Outdoor Recreation*
- *Parking Facilities*
- *Public Facilities and Institutions*
- *Residential*
- *Residential with Commercial Below*
- *Transportation and Utility*
- *Vacant Land*

Marcus Garvey Extension

Land Use
Figure 4



Marcus Garvey Extension

Proposed Project
Figure 5



1



2

Photographs

Figure 6a

Marcus Garvey Extension



3



4



5



6



7

DESCRIPTION OF EXISTING AND PROPOSED CONDITIONS

The information requested in this table applies to the directly affected area. The directly affected area consists of the project site and the area subject to any change in regulatory control. The increment is the difference between the No-Action and the With-Action conditions.

	EXISTING CONDITION	NO-ACTION CONDITION	WITH-ACTION CONDITION	INCREMENT
LAND USE				
Residential	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify the following:				
Describe type of residential structures		4-story multifamily residential buildings	8-and 9-story multifamily residential buildings	
No. of dwelling units		438	843	+405
No. of low- to moderate-income units		88	843	+755
Gross floor area (sq. ft.)		394,242	775,379	+381,137
Commercial	☐ YES ☒ NO	☐ YES ☒ NO	☒ YES ☐ NO	
If "yes," specify the following:				
Describe type (retail, office, other)			Local retail	
Gross floor area (sq. ft.)			35,049	+35,049
Manufacturing/Industrial	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," specify the following:				
Type of use				
Gross floor area (sq. ft.)				
Open storage area (sq. ft.)				
If any unenclosed activities, specify:				
Community Facility	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify the following:				
Type		General community facility use and medical office	General community facility use and medical office	
Gross floor area (sq. ft.)		63,924 (app. 21,308 gsf or 33 percent assumed to be medical office and 42,616 gsf or 67 percent assumed to be general community facility/non-profit space)	98,032 (app. 32,678 gsf or 33 percent assumed to be medical office and 65,354 gsf or 67 percent assumed to be general community facility/non-profit space)	+34,108
Vacant Land	☒ YES ☐ NO	☒ YES ☐ NO	☐ YES ☒ NO	
If "yes," describe:	Vacant/underutilized parking	HPD Lot on Site E would remain undeveloped		
Publicly Accessible Open Space	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," specify type (mapped City, State, or Federal parkland, wetland—mapped or otherwise known, other):	3,000 sf GreenThumb garden on Site C	3,000 sf GreenThumb garden on Site C	6,128 sf open space on Bristol Street to include relocated GreenThumb garden	+3,128
Other Land Uses	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," describe:				
PARKING				
Garages	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify the following:				
No. of public spaces	0	0	0	0
No. of accessory spaces	0	513	24	-489
Operating hours		24 hours/day	24 hours/day	
Attended or non-attended		Non-attended	Non-attended	
Lots	☒ YES ☐ NO	☐ YES ☒ NO	☐ YES ☐ NO	

	EXISTING CONDITION	NO-ACTION CONDITION	WITH-ACTION CONDITION	INCREMENT
If "yes," specify the following:				
No. of public spaces	0	0	0	0
No. of accessory spaces	294	0	0	0
Operating hours	The parking lot on Site B has operating hours of 8 AM to 8 PM. All other lots are not in use.		0	
Other (includes street parking)	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	
If "yes," describe:				
POPULATION				
Residents	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify number:		1,205	2,318	+1,113
Briefly explain how the number of residents was calculated:	Community District 16 average persons per household (2.75) multiplied by the number of DUs.			
Businesses	☐ YES ☒ NO	☐ YES ☒ NO	☒ YES ☐ NO	
If "yes," specify the following:				
No. and type		Community facility uses	Retail and community facility uses	Retail and community facility
No. and type of workers by business		64	186	+122
No. and type of non-residents who are not workers				
Briefly explain how the number of businesses was calculated:	1 employee per 400 sf of retail space; 1 employee per 1,000 sf of community facility space.			
Other (students, visitors, concert-goers, *etc.*)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If any, specify type and number:				
Briefly explain how the number was calculated:				
ZONING				
Zoning classification	R6	R6	R7-2/C2-4	+ R7-2, C2-4
Maximum amount of floor area that can be developed	414,122 on the seven Project Sites under R6QH	414,122 on the seven Project Sites under R6QH	583,891 on the seven Project Sites under R7-2QH	+169,769
Predominant land use and zoning classifications within land use study area(s) or a 400 ft. radius of proposed project	Residential, Commercial, Community Facility, Open Space R6, M1-1, C1-3, C2-3	Residential, Commercial, Community Facility, Open Space R6, M1-1, C1-3, C2-3	Residential, Commercial, Community Facility, Open Space R6, R7-2, C2-4, C1-3, C2-3, M1-1	+ R7-2, C2-4
Attach any additional information that may be needed to describe the project. If your project involves changes that affect one or more sites not associated with a specific development, it is generally appropriate to include total development projections in the above table and attach separate tables outlining the reasonable development scenarios for each site.				

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 Full 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 Attachment B		
(e) Is the project a large, publicly sponsored project?	☐	☒
o 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?	☐	☒
o If "yes," complete the Consistency Assessment Form.		
2. *SOCIOECONOMIC CONDITIONS*: CEQR Technical Manual Chapter 5		
(a) Would the proposed project:		
o Generate a net increase of more than 200 residential units *or* 200,000 square feet of commercial space?	☒	☐
▪ If "yes," answer *both* questions 2(b)(ii) and 2(b)(iv) below.		
o Directly displace 500 or more residents?	☐	☒
▪ If "yes," answer questions 2(b)(i), 2(b)(ii), and 2(b)(iv) below.		
o Directly displace more than 100 employees?	☐	☒
▪ If "yes," answer questions under 2(b)(iii) and 2(b)(iv) below.		
o Affect conditions in a specific industry?	☐	☒
▪ If "yes," answer question 2(b)(v) below.		
(b) If "yes" to any of the above, attach supporting information to answer the relevant questions below. If "no" was checked for each category above, the remaining questions in this technical area do not need to be answered.		
i. Direct Residential Displacement		
o If more than 500 residents would be displaced, would these residents represent more than 5% of the primary study area population?	☐	☒
o If "yes," is the average income of the directly displaced population markedly lower than the average income of the rest of the study area population?	☐	☐
ii. Indirect Residential Displacement		
o Would expected average incomes of the new population exceed the average incomes of study area populations?	☒	☐
o If "yes:"		
▪ Would the population of the primary study area increase by more than 10 percent?	☐	☒
▪ Would the population of the primary study area increase by more than 5 percent in an area where there is the potential to accelerate trends toward increasing rents?	☐	☒
o If "yes" to either of the preceding questions, would more than 5 percent of all housing units be renter-occupied and unprotected?	☐	☐
iii. Direct Business Displacement		
o Do any of the displaced businesses provide goods or services that otherwise would not be found within the trade area, either under existing conditions or in the future with the proposed project?	☐	☐
o Is any category of business to be displaced the subject of other regulations or publicly adopted plans to preserve,	☐	☐

	YES	NO
enhance, or otherwise protect it?		
iv. Indirect Business Displacement		
o Would the project potentially introduce trends that make it difficult for businesses to remain in the area?	☐	☒
o Would the project capture retail sales in a particular category of goods to the extent that the market for such goods would become saturated, potentially resulting in vacancies and disinvestment on neighborhood commercial streets?	☐	☒
v. Effects on Industry		
o Would the project significantly affect business conditions in any industry or any category of businesses within or outside the study area?	☐	☐
o Would the project indirectly substantially reduce employment or impair the economic viability in the industry or category of businesses?	☐	☐
3. *COMMUNITY FACILITIES*: CEQR Technical Manual Chapter 6		
(a) Direct Effects		
o Would the project directly eliminate, displace, or alter public or publicly funded community facilities such as educational facilities, libraries, health care facilities, day care centers, police stations, or fire stations?	☐	☒
(b) Indirect Effects		
i. Child Care Centers		
o 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)	☒	☐
o If "yes," would the project result in a collective utilization rate of the group child care/Head Start centers in the study area that is greater than 100 percent?	☐	☒
o If "yes," would the project increase the collective utilization rate by 5 percent or more from the No-Action scenario?	☐	☒
ii. Libraries		
o 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)	☐	☒
o If "yes," would the project increase the study area population by 5 percent or more from the No-Action levels?	☐	☐
o If "yes," would the additional population impair the delivery of library services in the study area?	☐	☐
iii. Public Schools		
o 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)	☒	☐
o If "yes," would the project result in a collective utilization rate of the elementary and/or intermediate schools in the study area that is equal to or greater than 100 percent?	☐	☒
o If "yes," would the project increase this collective utilization rate by 5 percent or more from the No-Action scenario?	☐	☒
iv. Health Care Facilities		
o Would the project result in the introduction of a sizeable new neighborhood?	☐	☒
o If "yes," would the project affect the operation of health care facilities in the area?	☐	☐
v. Fire and Police Protection		
o Would the project result in the introduction of a sizeable new neighborhood?	☐	☒
o If "yes," would the project affect the operation of fire or police protection in the area?	☐	☐
4. *OPEN SPACE*: CEQR Technical Manual Chapter 7		
(a) Would the 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?	☐	☒
(c) If "yes," would the project generate more than 50 additional residents or 125 additional employees?	☐	☐
(d) Is the project located within a well-served area in the Bronx, Brooklyn, Manhattan, Queens, or Staten Island?	☐	☒
(e) If "yes," would the project generate more than 350 additional residents or 750 additional employees?	☐	☐
(f) If the project is located in an area that is neither under-served nor well-served, would it generate more than 200 additional residents or 500 additional employees?	☒	☐
(g) If "yes" to questions (c), (e), or (f) above, attach supporting information to answer the following:		
o If in an under-served area, would the project result in a decrease in the open space ratio by more than 1 percent?	☐	☐
o If in an area that is not under-served, would the project result in a decrease in the open space ratio by more than 5	☐	☒

	YES	NO
percent?		
o If "yes," are there qualitative considerations, such as the quality of open space, that need to be considered? Please specify:	☐	☐
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?	☒	☐
(c) If "yes" to either of the above questions, attach supporting information explaining whether the project's shadow would reach any sunlight-sensitive resource at any time of the year. See Attachment F		
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 Attachment G		
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?	☐	☒
(c) If "yes" to either of the above, please provide the information requested in Chapter 10. See Attachment H		
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?	☐	☒
o If "yes," list the resources and attach supporting information on whether the project would affect any of these resources.		
(b) Is any part of the directly affected area within the Jamaica Bay Watershed?	☒	☐
o If "yes," complete the Jamaica Bay Watershed Form and submit according to its instructions. See Appendix 1		
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?	☒	☐
o If "yes," were Recognized Environmental Conditions (RECs) identified? Briefly identify: See Attachment I	☒	☐
(i) Based on the Phase I Assessment, is a Phase II Investigation needed? See Attachment I	☐	☐
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?	☒	☐

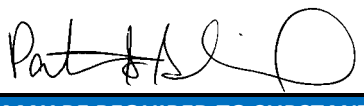
	YES	NO
(c) If the proposed project located in a separately sewered area, would it result in the same or greater development than that listed in Table 13-1 in Chapter 13?	☐	☐
(d) Would the project involve development on a site that is 5 acres or larger where the amount of impervious surface would increase?	☒	☐
(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?	☒	☐
(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 contribute contaminated stormwater to a separate storm sewer system?	☐	☒
(h) Would the project involve construction of a new stormwater outfall that requires federal and/or state permits?	☐	☒
(i) If "yes" to any of the above, conduct the appropriate preliminary analyses and attach supporting documentation. See Attachment J		
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): 41,824		
o 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?	☐	☒
o If "yes," would the proposed project comply with the City's Solid Waste Management Plan?	☐	☐
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): 131,096,081		
(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 appropriate screening analyses, attach back up data as needed for each stage, and answer the following questions:		
o 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.*	☒	☐
o 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/rail trips per station or line?	☐	☐
o 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?	☒	☐
o If "yes," would the proposed project exceed the thresholds in Figure 17-3, Stationary Source Screen Graph in Chapter 17? (Attach graph as needed)	☒	☐
(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?	☐	☒
(f) If "yes" to any of the above, conduct the appropriate analyses and attach any supporting documentation. See Attachment L		
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) Would the proposed project result in the development of 350,000 square feet or more?	☒	☐
(d) If "yes" to any of the above, would the project require a GHG emissions assessment based on guidance in Chapter 18?	☐	☒
o If "yes," would the project result in inconsistencies with the City's GHG reduction goal? (See Local Law 22 of 2008; § 24-	☐	☐

	YES	NO
803 of the Administrative Code of the City of New York). Please attach supporting documentation.		
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?	☐	☒
(e) If "yes" to any of the above, conduct the appropriate analyses and attach any supporting documentation. See Attachment M		
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; 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. Detailed analyses of above indicate that unmitigated significant adverse impacts would not occur.		
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 Attachment A		
19. *CONSTRUCTION*: CEQR Technical Manual Chapter 22		
(a) Would the project's construction activities involve:		
o Construction activities lasting longer than two years?	☒	☐
o Construction activities within a Central Business District or along an arterial highway or major thoroughfare?	☐	☒
o Closing, narrowing, or otherwise impeding traffic, transit, or pedestrian elements (roadways, parking spaces, bicycle routes, sidewalks, crosswalks, corners, *etc.*)?	☒	☐
o Construction of multiple buildings where there is a potential for on-site receptors on buildings completed before the final build-out?	☒	☐
o The operation of several pieces of diesel equipment in a single location at peak construction?	☒	☐
o Closure of a community facility or disruption in its services?	☐	☒
o Activities within 400 feet of a historic or cultural resource?	☐	☒
o Disturbance of a site containing or adjacent to a site containing natural resources?	☐	☒
o 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 Attachment N		

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	SIGNATURE	DATE
Patrick Blanchfield, AKRF, Inc.		June 22, 2018

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
Deputy Director, Environmental Assessment and Review Division	Department of City Planning, acting on behalf of the City Planning Commission
NAME	DATE
Olga Abinader	June 22, 2018

SIGNATURE



A. PROJECT DESCRIPTION

The applicant, Brownsville Livonia Associates LLC, is seeking several discretionary land use approvals, including zoning map and related text amendments and special permits to establish a Large Scale General Development (LSGD) (collectively, the "Proposed Actions") in order to facilitate the development of seven new mixed-use buildings (the "Proposed Project") in the Brownsville neighborhood of Brooklyn, Community District 16.

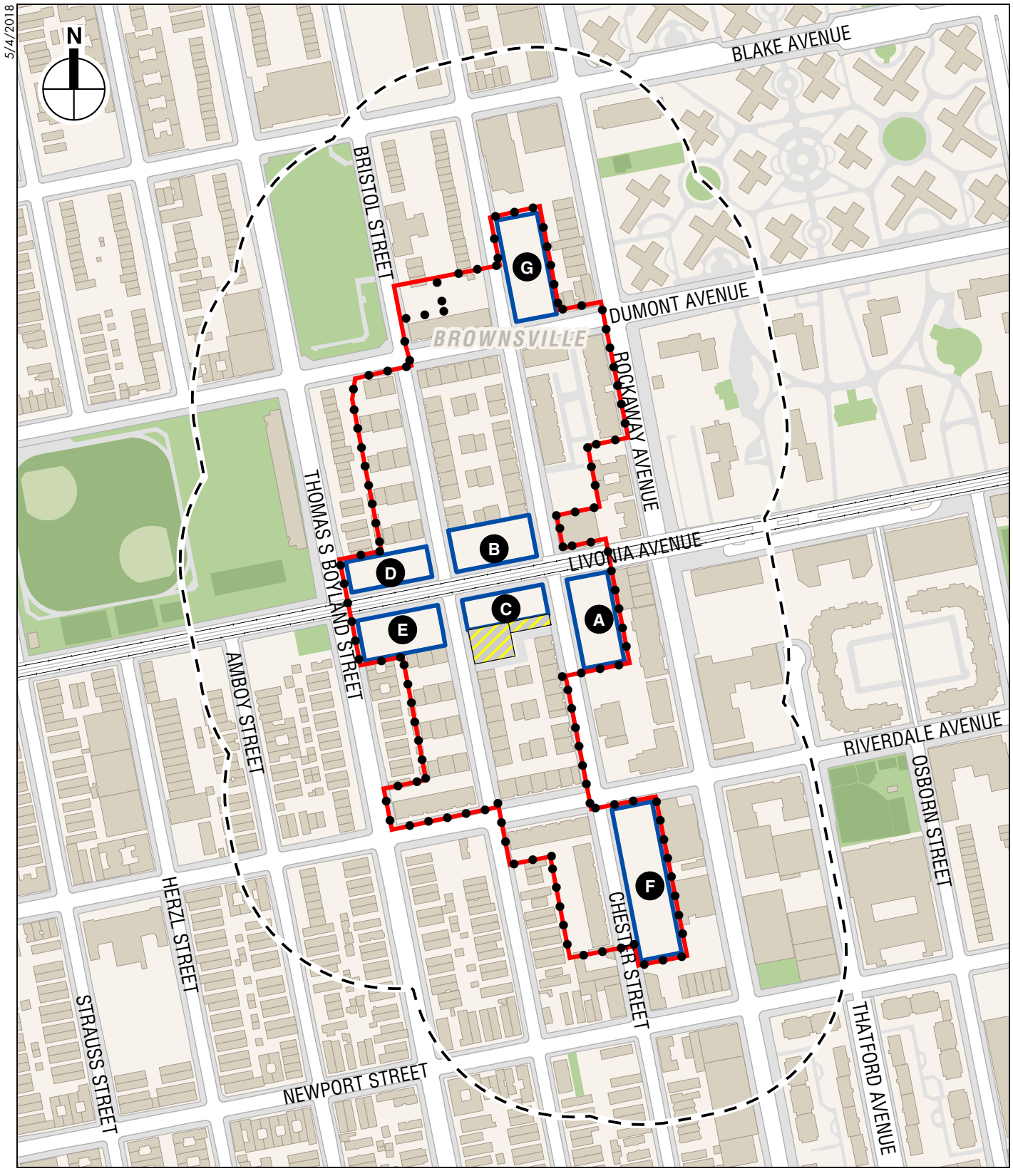
The seven sites (Sites A–G) to be developed by the applicant include Block 3589, Lot 21 (Site A); Block 3574, p/o Lot 1 (Site B); Block 3588, Lots 27 and 32–36 (Site C); Block 3573, p/o Lot 1 (Site D); Block 3587, p/o Lot 1 and Lot 27 (Site E); Block 3602, Lot 12 (Site F); and Block 2560, Lot 1 (Site G) (the "Project Sites"). The Project Sites are generally coterminous with the area proposed for rezoning (the "Rezoning Area"). The LSGD would also encompass the existing Marcus Garvey Apartments, located on Block 3559, p/o Lot 1; Block 3573, p/o Lot 1; Block 3574, p/o Lot 1; Block 3575, Lot 11; Block 3587, p/o Lot 1; Block 3588, Lot 1; and Block 3601, Lot 26. A portion of Block 3559, Lot 1 would be acquired by the New York City Department of Parks and Recreation (NYC Parks) and the New York City Department of Citywide Administrative Services (DCAS) to facilitate the development of a new community garden. Collectively, these blocks and lots constitute the Project Area. Block 2587, Lot 27 is owned by the City of New York under the jurisdiction of the New York City Department of Housing Preservation and Development (HPD) and Block 3588, Lots 32–36 are owned by the City of New York under the jurisdiction of the NYC Parks. The remaining lots are all owned by the applicant or an affiliated entity. **Figure A-1** shows the location of the Project Area and Project Sites.

DESCRIPTION OF THE PROPOSED PROJECT

The Proposed Project involves the development of an approximately 908,460-gross-square-foot (gsf) mixed-use affordable housing development. The Proposed Project would comprise seven eight- to nine-story multifamily residential buildings with local retail space and/or community facility space. As shown in **Figure A-2**, Buildings A–E would be arranged along the north and south sides of Livonia Avenue and Buildings F and G would be one block away to the south and north respectively.

The Proposed Project would contain approximately 775,379 gsf of residential space (843 affordable dwelling units [DUs]),[1] 98,032 gsf of community facility space, 35,049 gsf of local retail space on the ground floors, and 24 accessory parking spaces. The affordability levels and income bands of the proposed DUs have not been finalized. For the purposes of environmental review, it is conservatively assumed that all proposed DUs would be offered at or below 80 percent of Area Median Income (AMI).

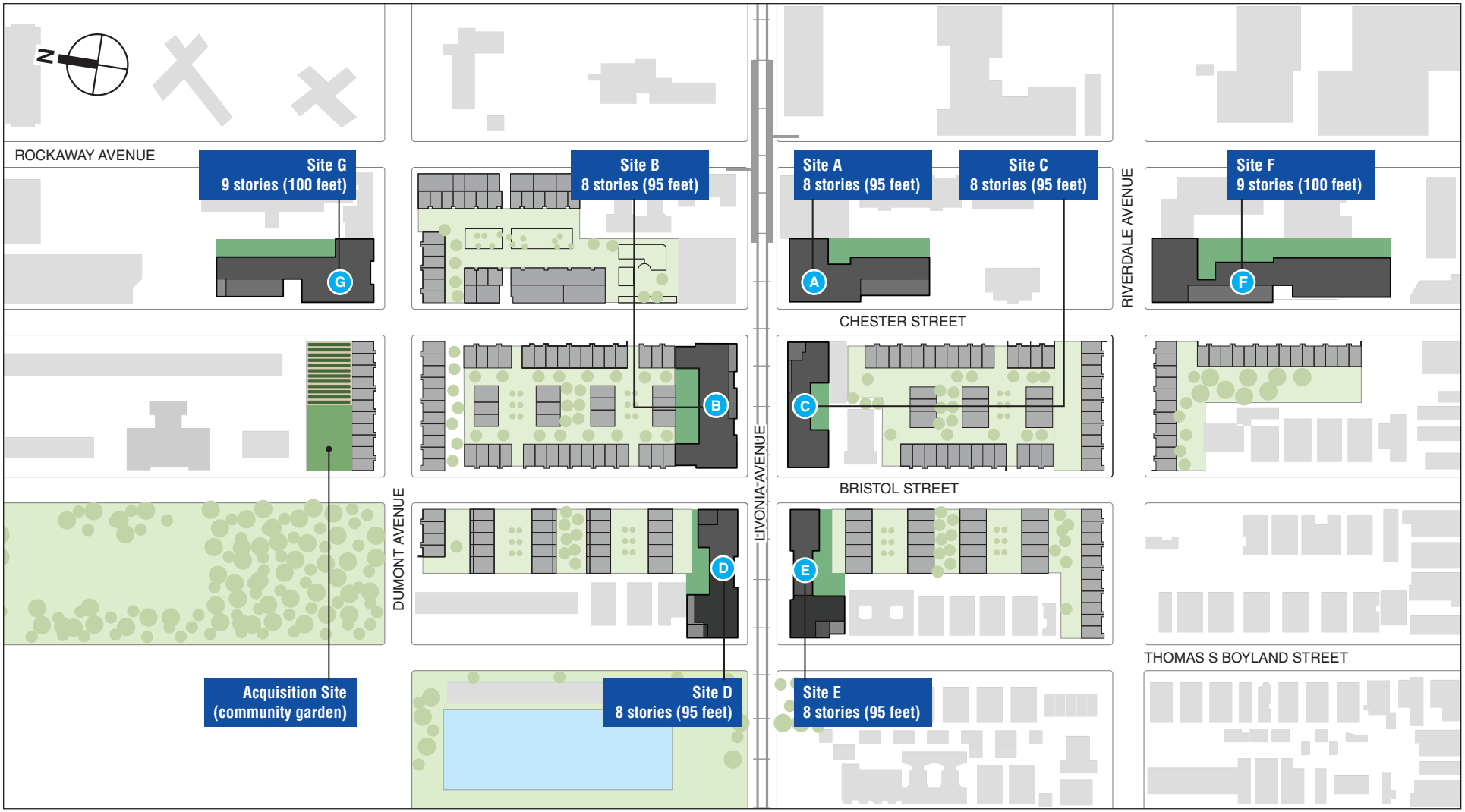
[1] The EAS assumes an average DU size of approximately 900 sf per unit.



Marcus Garvey Extension

Project Location
Figure A-1

5.4.18



Illustrative Site Plan

Marcus Garvey Extension

Figure A-2

Buildings A, B, C, D, and E would be eight-story, approximately 95-foot-tall mixed-use residential buildings.

- Building A would contain approximately 114 affordable DUs, 8,700 gsf of retail space, and 21,039 gsf of community facility space;
- Building B would contain approximately 96 affordable DUs, 10,458 gsf of retail space, and 13,591 gsf of community facility space;
- Building C would contain approximately 85 affordable DUs, 7,853 gsf of retail space, and 11,252 gsf of community facility space;
- Building D would contain 81 affordable DUs and 19,507 gsf of community facility space; and
- Building E would contain 92 affordable DUs, 8,038 gsf of retail space and 10,125 gsf of community facility space.

Buildings F and G would be nine-story, approximately 100-foot-tall mixed-use residential buildings.

- Building F would contain 230 affordable DUs and 13,776 gsf of community facility space, and 12 accessory parking spaces; and
- Building G would contain 145 affordable DUs, 8,742 gsf of community facility space, and 12 spaces of accessory parking.

The Proposed Project would replace existing underutilized parking lots, two vacant lots,[2] and a GreenThumb[3] garden known as the MHBA Living Laboratory Community Garden, which would be replaced with a larger, comparable garden site on Bristol Street, between Dumont and Blake Avenues. Illustrative renderings of the Proposed Project are shown in **Figure A-3**.

PROPOSED ACTIONS

The Proposed Project would require the following discretionary land use actions outlined below.

ZONING MAP AMENDMENTS

The Proposed Actions include a zoning map amendment to replace the existing R6 zoning district with an R7-2 zoning district on Project Sites A–G within the proposed LSGD. In addition, a C2-4 commercial overlay would be mapped along the north side of Livonia Avenue to a depth of 75 feet between Thomas S Boyland Street and Bristol Street, and to a depth of 100 feet between Bristol Street and Chester Street. A C2-4 commercial overlay would also be mapped along the south side of Livonia Avenue to a depth of 100 feet between Thomas S Boyland Street and Bristol Street, to a depth of 75 feet between Bristol Street and Chester Street; and to a depth of 100 feet between Chester Street and a line midway between Chester Street and Rockaway Avenue (see **Figure A-4**).

ZONING TEXT AMENDMENTS

The applicant is seeking the following zoning text amendment:

[2] One of the two vacant lots—Block 3560, Lot 1—has been operating as Project EATS, a temporary urban farm since 2015.

[3] NYC Parks' GreenThumb Program provides funding and material support to over 550 community gardens in all five boroughs of New York City. The gardens are on City-owned property, maintained by volunteer gardeners and access to the public is limited. Some gardens are green spaces meant for relaxation and as a community meeting space, others are full–fledged farms, and many are a mix of the types.



View East Along Livonia Avenue (at Thomas S. Boyland Street)
(Buildings B, D, and E)

Figure A-3a



View South Along Bristol Street (towards Livonia Avenue)
(Buildings B and C)

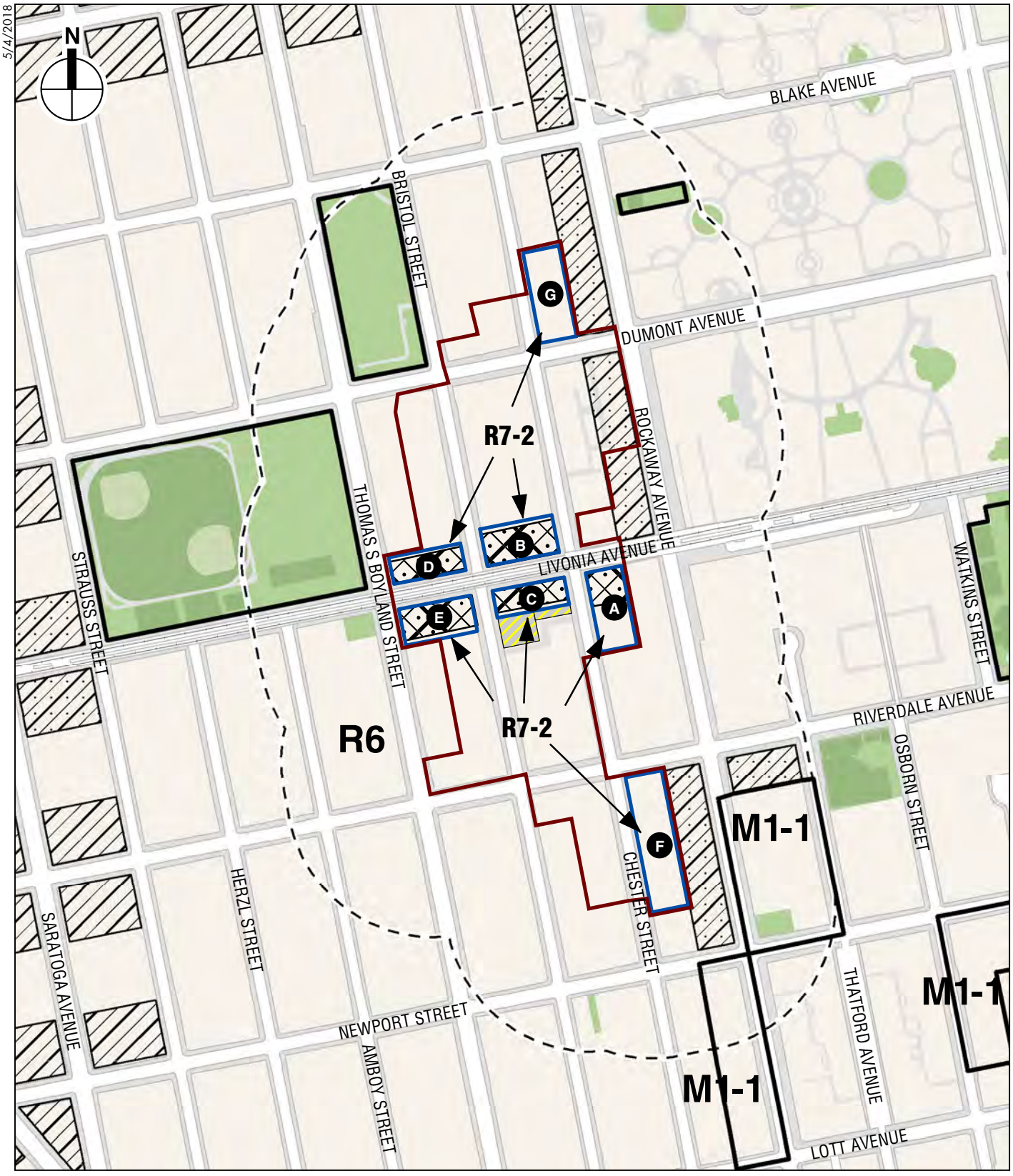


Northwest Corner of Livonia Avenue and Chester Street
(Buildings B and D)



Retail Along Livonia Avenue

Figure A-3d



Marcus Garvey Extension

Proposed Zoning

Figure A-4

- Zoning text amendment of Zoning Resolution (ZR) *Appendix F: Inclusionary Housing Designated Areas and Mandatory Inclusionary Housing (MIH) Areas* for Community District 16, Brooklyn to establish the Project Area as an MIH Area.

CITY PLANNING COMMISSION SPECIAL PERMITS

The applicant is seeking the following New York City Planning Commission (CPC) special permits:

- Zoning special permit pursuant to ZR Section 74-743 to allow, within an LSGD, the location of buildings without regard for the applicable regulations regarding lot coverage, height and setback, distance between buildings, and minimum distance between legally required windows and walls; and
- Zoning special permit pursuant to ZR Section 74-532 to eliminate the parking requirement of 294 accessory off-street parking spaces for existing buildings within the LSGD.

DISPOSITION OF CITY-OWNED PROPERTY AND URBAN DEVELOPMENT ACTION AREA PROJECT (UDAAP) DESIGNATION

HPD is seeking UDAAP designation and project approval in connection with the disposition of City-Owned property identified as Block 3588, Lots 32, 33, 34, 35, 36, and Block 3587, Lot 27 (the "Disposition Sites") (see **Figure A-5**).

ACQUISITION OF CITY-OWNED PROPERTY

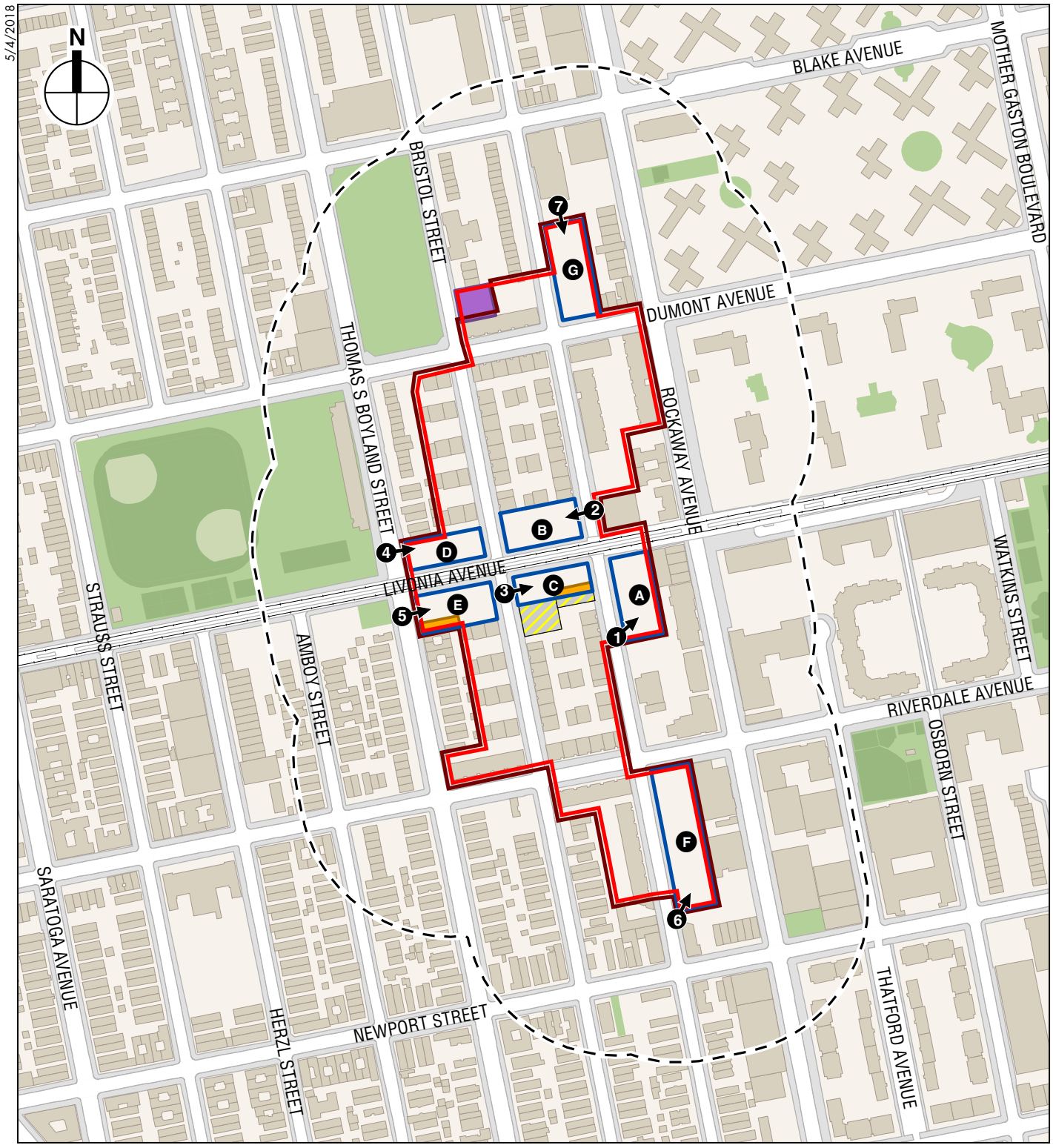
NYC Parks and DCAS are applicants for a site selection and acquisition action affecting a portion of Block 3559, Lot 1 that is currently part of Marcus Garvey Apartments. The affected portion of Lot 1 (the "Acquisition Site") would be acquired for use as a replacement community garden. The site proposed for acquisition is currently owned by the applicant (see **Figure A-5**).

PURPOSE AND NEED

The Proposed Actions would facilitate the productive use of the Project Sites by replacing underutilized sites with new mixed-use developments that include affordable housing, retail space intended to activate the Livonia Avenue corridor, as well as community facility space to serve the needs of the community.

The Marcus Garvey Apartments is a residential complex composed of several blocks of three-story duplex apartment buildings in the Brownsville neighborhood. Constructed in the mid-1970s as a part of the Marcus Garvey Urban Renewal Plan's scheme for the neighborhood, it includes 625 affordable DUs. The existing Marcus Garvey Apartments are composed of Block 3559, Lot 1; Block 3573, Lot 1; Block 3574, Lot 1; Lot 3575, Lot 11; Block 3587, Lot 1; Block 3588, Lot 1; and Block 3601, Lot 26. Several of the Project Sites were intended for use as accessory parking for existing Marcus Garvey Apartments tenants; however, the parking lots went largely underutilized for years and are no longer used by any tenants.

The complex was purchased in 2014 by Marcus Garvey Preservation LLC (the "Owner"), an entity whose managing member is solely owned by L+M Development Partners, Inc. (L+M). The Owner recently completed a comprehensive rehabilitation of the Marcus Garvey Apartments that included kitchen and bathroom replacements, boiler replacements, window repairs, façade pointing, laundry room repairs, sidewalk and courtyard repairs, security upgrades, repainting common areas, installation of new electric feeder infrastructure, new landscaping, and a new playground. Additional sustainability measures were taken in connection with the rehabilitation and included the



Marcus Garvey Extension

Proposed Project
Figure A-5

implementation of a comprehensive onsite energy generation system of solar, battery and fuel cell generating over a megawatt/hour of electricity providing Con Edison with needed load relief.

In June 2017, HPD released the Brownsville Plan, which is the result of a community-based process to develop a shared vision and plan for the future of Brownsville. The Brownsville Plan represents a $150 million investment that includes improvements to local parks and roadways, new community space, retail space, a health center, and other improvements over the next 5 years. Working with residents, elected officials, community-based organizations, and other government agencies, HPD held a series of public workshops and community meetings. The Proposed Project would support the City's goals for Brownsville by building new affordable housing, expanding retail opportunities, and creating workforce development opportunities for neighborhood residents. The applicant is laying the groundwork for supporting a larger and more dynamic community in Brownsville.

Absent the Proposed Actions, the Project Sites would be developed as-of-right under the existing R6 zoning, which only permits residential and community facility development. A need for increased access to retail and community spaces in Brownsville was identified by the City in HPD's *Brownville Plan*, released in June 2017. The current zoning prevents the development of a commercial corridor along Livonia Avenue, restricting as-of-right development to residential and community facility uses and forgoing the benefits for the neighborhood of a vibrant retail corridor at ground level along Livonia Avenue. The requested commercial overlay would allow retail uses along Livonia Avenue, which would enliven the corridor and provide an amenity for Brownsville residents.

The zoning map amendments would allow the applicant to develop the proposed buildings at a higher density than currently allowed by zoning, thereby maximizing the amount of affordable housing provided with the Proposed Project. The anticipated future as-of-right development on the Project Sites would not include the permanent affordable housing provided under MIH (and substantially fewer affordable DUs as compared to the Future with the Proposed Project [the "With Action" condition]) as the Project Area would not be located within an MIHA. According to the City's updated housing plan, *Housing New York:2.0*, there continues to be a need for stable affordable housing in New York City, including housing for low-income families, homeless households, seniors, and those with special needs. Increasing the supply of affordable DUs for a range of incomes and household types is key to promoting a sustainable neighborhood. The Proposed Project intends to transform the Project Sites into thriving components of the local urban fabric through the development of mixed-use buildings containing affordable housing, neighborhood retail, and community facility space.

In order to facilitate the assemblage of Site C for development, a City-owned portion of the site currently occupied by MHBA Living Laboratory Community Garden, an NYC Parks GreenThumb garden, would be disposed to the applicant. A replacement site (aka the Acquisition Site described above) would be provided on property currently owned by a related entity to the applicant. The replacement site would be acquired by the City and administered under the GreenThumb Program. The new garden space on Bristol Street (north of Dumont Avenue) would measure approximately 5,230 sf, with approximately half of the space reserved as replacement space for MHBA Living Laboratory Community Garden on Site C. The remaining portion of the relocated GreenThumb garden would be available for use as an urban farm by Project EATS, which currently operates an urban farm on applicant-owned property on Site G. As noted above, the urban farm on Site G has been operating as Project EATS on a year-to year lease basis since 2015. It is anticipated that Project EATS would have the opportunity to enter into a GreenThumb License Agreement with NYC Parks to use a portion of the Acquisition Site. As discussed below, irrespective of the Proposed Actions, Site G would be developed by the applicant with housing in the No Action and With Action

conditions. In the future, Project EATS may be afforded an opportunity to operate on a smaller applicant-controlled site on the west side of Chester Street (adjacent to the Acquisition Site and across from the existing urban farm on Site G). If so, Project EATS and the applicant would negotiate the terms of use through a lease, license agreement or comparable mechanism.

The Project Sites are currently vacant and underutilized. With the Proposed Actions, the applicant would proceed with its plan to create such a vibrant commercial corridor along Livonia Avenue, continuing on the City's efforts to revitalize the area that began with the City Request for Proposal (RFP) sites known as Livonia I and II. The initial phase of development along Livonia Avenue is intended to activate the commercial corridor with a combination of ground-floor retail and community facility spaces, while providing much-needed affordable housing above.

The requested special permit would allow for a comprehensive planning approach for the Marcus Garvey LSGD that provides flexibility in design, massing, and placement of the new buildings. The proposed developments at the north and south ends of Chester Street provides opportunity for greater density and the provision of the Proposed Project's largest affordable housing buildings. The larger buildings along Chester Street would be closer in size and scale to the residential buildings located further east along Rockaway and Thatford Avenues.

With the development resulting from the Proposed Actions, residents of Brownsville and neighboring communities would have access to several community services and amenities where before there are presently vacant lots. These amenities could include quality grocers, sit-down restaurants, a bank, and social service providers, all amenities specified as desirable by the City's workshop sessions with the local community and applicant. It is the applicant's intention to transform the Project Area into a lively urban corridor offering a diversity of housing options, shopping, entertainment, jobs, and services to the surrounding Brownsville neighborhood.

The area is particularly well suited to supporting such a dense, mixed-use corridor considering the number of transit connections available to customers and residents traveling to and from the neighborhood. The No. 3 train stops at Rockaway Avenue in the center of the Project Area and the B7 and B45 bus services are each a block away. The applicant is also engaging in the revitalization of the neighborhood through workforce development, afterschool, and urban farm partners.

FRAMEWORK FOR ANALYSIS

This document has been prepared in accordance with the guidelines presented in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*. For each technical area, the analysis includes a description of existing conditions, and an assessment of conditions in the Future without the Proposed Project (the "No Action" condition) and the With Action condition.

EXISTING CONDITIONS

The analysis framework begins with an assessment of existing conditions on the Project Sites and in the relevant study area because these can be most directly measured and observed. The Project Sites currently contain underutilized parking lots, a community garden, and two vacant lots. The assessment of existing conditions does not represent the condition against which the Proposed Project is measured, but serves as a starting point for the projection of No Action and With Action conditions and the analysis of project impacts. Existing conditions are presented in **Table A-1**.

Table A-1
Existing Condition

Site	Block/Lot	Lot Size (SF)*	Current Use
A	3589/21	22,000	Parking lot
B	3574/po1	18,500	Parking lot
C	3588/27 and 32–36	15,000	Parking lot; DPR garden site
D	3573/po1	15,000	Parking lot
E	3587/po1, 27	17,500	Parking lot; vacant City-owned lot
F	3602/12	37,500	Parking lot
G	3560/1	25,100	Vacant

Notes:
Current use based on AKRF field surveys conducted in March 2017.
***** Lot Size for partial lots approximates project site area.
Sources:
L+M Development Partners, Inc. and Curtis + Ginsberg Architects, LLP, and AKRF, Inc.

FUTURE WITHOUT THE PROPOSED PROJECT

The No Action condition describes a future baseline condition to which the changes that are expected to result from the Proposed Project are compared. In the No Action condition, the Project Sites would be redeveloped under existing zoning. The No Action development would total 471,494 gsf, including 394,242 gsf of residential space (438 DUs, 88 of which would be affordable) and 63,924 gsf of community facility space. It is assumed that development under the No Action scenario would utilize the new as-of-right Affordable New York Housing Program, which is a tax abatement program that replaced the as-of-right 421-a program. The No Action scenario assumes that 20 percent of the units (88 DUs) would be affordable to households at or below 50 percent of AMI to meet the requirements of the Affordable New York Housing Program. All existing parking would be maintained under the No Action condition within below-grade parking facilities. For each technical analysis, approved or designated development projects within the appropriate study area that are likely to be completed by the 2024 analysis year are considered. The No Action condition on the Project Sites is presented in **Table A-2**.

Table A-2
Reasonable Worst-Case Development Scenario

	No Action (R6)				With Action (R7-2 and R7-2/C2-4)				Increment Development for Analysis			
Site	Residential (DUs)	Retail (GSF)	Com Fac (GSF)	Parking (Spaces)	Residential (DUs)	Retail (GSF)	Com Fac (GSF)	Parking (Spaces)	Residential (DUs)	Retail (GSF)	Com Fac (GSF)	Parking (Spaces)
A	63	0	12,265	31	114	8,700	21,039	0	51	8,700	8,774	-31
B	54	0	10,472	69	96	10,458	13,591	0	42	10,458	3,119	-69
C	41	0	7,372	41	85	7,853	11,252	0	44	7,853	3,880	-41
D	45	0	6,925	65	81	0	19,507	0	36	0	12,582	-65
E	46	0	6,890	64	92	8,038	10,125	0	46	8,038	3,235	-64
F	114	0	12,000	131	230	0	13,776	12	116	0	1,776	-119
G	76	0	8,000	112	145	0	8,742	12	69	0	742	-100
Total	**438**	**0**	**63,924**	**513**	**843**	**35,049**	**98,032**	**24**	**405**	**35,049**	**34,108**	**-489**

Sources: L+M Development Partners, Inc.; Curtis + Ginsberg Architects, LLP; and AKRF, Inc.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

The identification of potential environmental impacts is based upon the comparison of the No Action and With Action conditions. In order to assess future conditions, a Reasonable Worst Case

Development Scenario (RWCDS) for the Proposed Project is determined. In the With Action condition, the existing underutilized parking lots, small garden, and vacant lots on the Project Sites would be replaced by a mixed-use development containing approximately 775,379 gsf of residential space. The Proposed Project will 100 percent affordable, as all 843 DUs generated under the Proposed Actions would be affordable. Furthermore, the EAS assumes the DUs would be affordable up to 80 percent AMI.

With the Proposed Actions, the Rezoning Area would be designated as an MIH Area. Under the MIH program, when new housing capacity is approved through land use actions, the CPC and the New York City Council can choose to impose either one or both of the two basic options regarding affordable housing set-asides, income bands, and maximum income requirements. Option 1 requires that 25 percent of the residential floor area be set aside for DUs affordable to households earning an average of 60 percent of AMI. Option 2 requires that 30 percent of the residential floor area be set aside for households earning an average of 80 percent AMI. The applicant is expected to seek public financing from HPD, New York State Home and Community Renewal (HCR), and New York City Housing Development Corporation (HDC) and Low Income Housing Tax Credits (LIHTC), which require all or a portion of DUs be affordable at 60 percent AMI. The financing structure would adhere to the appropriate funding agencies' term sheet. At this time, it is not known which MIH option will be selected for the Proposed Project. For purposes of analysis, it is conservatively assumed that all 843 proposed DUs would be offered at or below 80 percent AMI.

In total, the With Action condition includes 843 DUs, 98,032 gsf of community facility uses, 35,049 gsf of local retail on the ground floors, and 24 accessory parking spaces. The Proposed Actions would result in a net increase of 405 DUs, 35,049 gsf of retail space, 34,108 gsf of community facility space. The RWCDS, including incremental development generated as a result of the Proposed Actions, is presented in **Table A-2**. In certain technical areas (e.g., traffic, air quality, and noise) this comparison can be quantified and the severity of impact rated in accordance with the *CEQR Technical Manual*. In other technical areas, (e.g., neighborhood character) the analysis is qualitative in nature. The methodology for each analysis is presented at the start of each technical analysis. As summarized below and in the attachments to this Environmental Assessment Statement (EAS), the Proposed Project would not result in any significant adverse impacts.

B. ADDITIONAL TECHNICAL ANALYSES

LAND USE, ZONING, AND PUBLIC POLICY

See Attachment B, "Land Use, Zoning, and Public Policy."

SOCIOECONOMIC CONDITIONS

See Attachment C, "Socioeconomic Conditions."

COMMUNITY FACILITIES AND SERVICES

See Attachment D, "Community Facilities and Services."

OPEN SPACE

See Attachment E, "Open Space."

SHADOWS

See Attachment F, "Shadows."

HISTORIC AND CULTURAL RESOURCES

See Attachment G, "Historic and Cultural Resources."

URBAN DESIGN AND VISUAL RESOURCES

See Attachment H, "Urban Design and Visual Resources."

NATURAL RESOURCES

A natural resources assessment is conducted when a natural resource is present on or near a project site and when an action involves the disturbance of that resource. The *CEQR Technical Manual* defines natural resources as water resources, including surface waterbodies and groundwater; wetland resources, including freshwater and tidal wetlands; upland resources, including beaches, dunes, and bluffs, thickets, grasslands, meadows and old fields, woodlands and forests, and gardens and other ornamental landscaping; and built resources, including piers and other waterfront structures. The Project Sites are occupied by underutilized surface parking lots, a small garden, and two vacant lots are located in a fully developed area in Brooklyn. There are no significant natural resources on the site, and the Proposed Project would not result in any significant adverse impacts on natural resources.

The Project Area is located within the Jamaica Bay watershed. See **Appendix 1.**

HAZARDOUS MATERIALS

See Attachment I, "Hazardous Materials."

WATER AND SEWER INFRASTRUCTURE

See Attachment J, "Water and Sewer Infrastructure."

SOLID WASTE AND SANITATION SERVICES

The *CEQR Technical Manual* specifies that few projects generate substantial amounts of solid waste (50 tons a week or more) that would result in a significant adverse impact. The Proposed Project would generate fewer than 50 tons a week. Therefore, no further analysis is required. The Proposed Project would not result in any significant adverse impacts to solid waste and sanitation services.

ENERGY

According to the *CEQR Technical Manual*, a detailed assessment of energy impacts would be limited to actions that could significantly affect the transmission or generation of energy or that generate substantial consumption of energy. The Proposed Project would be served by available energy suppliers, and the Proposed Project is not expected to generate a significant demand for energy. Therefore, no further analysis is required, and the Proposed Project would not result in significant adverse impacts to the consumption or supply of energy.

TRANSPORTATION

See Attachment K, "Transportation."

AIR QUALITY

See Attachment L, "Air Quality."

GREENHOUSE GAS EMISSIONS

Increased greenhouse gas (GHG) emissions are changing the global climate, which is predicted to lead to wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. According to the *CEQR Technical Manual*, GHG emissions assessment is typically conducted only for larger projects undergoing an Environmental Impact Statement (EIS), as well as in certain cases when the project would undergo and EIS and would result in development of 350,000 sf or greater, when the project is a City capital project, or when the project includes larger-scale power generation or has the potential to fundamentally change the City's solid waste management system. A GHG emissions assessment has not been performed, as the Proposed Project does not meet any of the criteria that would warrant assessment.

NOISE

See Attachment M, "Noise."

PUBLIC HEALTH

The Proposed Project would not result in any significant unmitigated adverse impacts to air quality, water quality, hazardous materials, noise, or any other CEQR analysis area. Therefore, no further analysis of public health is required, and no significant adverse impacts to public health are expected to occur as a result of the Proposed Project.

NEIGHBORHOOD CHARACTER

As defined in the *CEQR Technical Manual*, neighborhood character is considered to be an amalgam of the various elements that define a neighborhood's distinct personality. These elements may include a neighborhood's land use, urban design, visual resources, historic resources, socioeconomics, traffic, and/or noise. An assessment of neighborhood character is generally needed when a Proposed Project has the potential to result in significant adverse impacts in any of the technical areas listed above, or when the Proposed Project may have moderate effects on several of the elements that define a neighborhood's character. As discussed above and in the attachments to this EAS, the Proposed Project would not have significant adverse impacts to or result in any moderate effects in these technical areas related to neighborhood character. The Proposed Project would result in benefits associated with an increased supply of affordable housing, new commercial and community facility amenity space for residents, and enhanced urban sign conditions. The Proposed Actions would result in the development of seven new buildings that would change the streetscape and enhance neighborhood character by making more efficient use of the Project Sites and generating new activity and enhancing the pedestrian experience particularly along Livonia Avenue. Therefore, the Proposed Project would not result in any significant adverse neighborhood character impacts and a detailed neighborhood character analysis of is not warranted.

CONSTRUCTION

See Attachment N, "Construction." ✷

Attachment B: Land Use, Zoning, and Public Policy

A. INTRODUCTION

As described in Attachment A, "Project Description & Screenings," the Proposed Actions would facilitate the construction of affordable housing, retail, and community facility space on seven parcels located in the Brownsville neighborhood of Brooklyn (the "Proposed Project"). This attachment assesses the potential impacts of the Proposed Project on land use, zoning, and public policy, as compared with conditions in the Future without the Proposed Project (the "No Action" condition). As described below, the assessment concludes that the Proposed Project would be compatible with existing uses in the surrounding area, and would not result in any significant adverse impacts to land use, zoning, or public policy.

B. METHODOLOGY

The Project Sites and Project Area are located in the Brownsville neighborhood of Brooklyn. The analysis of land use, zoning, and public policy assesses the area within 400 feet of the Project Area, which is where the Proposed Project could reasonably be expected to cause potential effects, according to the 2014 *City Environmental Quality Review* (*CEQR) Technical Manual*. The land use study area is generally bounded by Blake Avenue to the north, Newport Street to the south, Herzl Street to the west, and Thatford Avenue to the east (see **Figure B-1**).

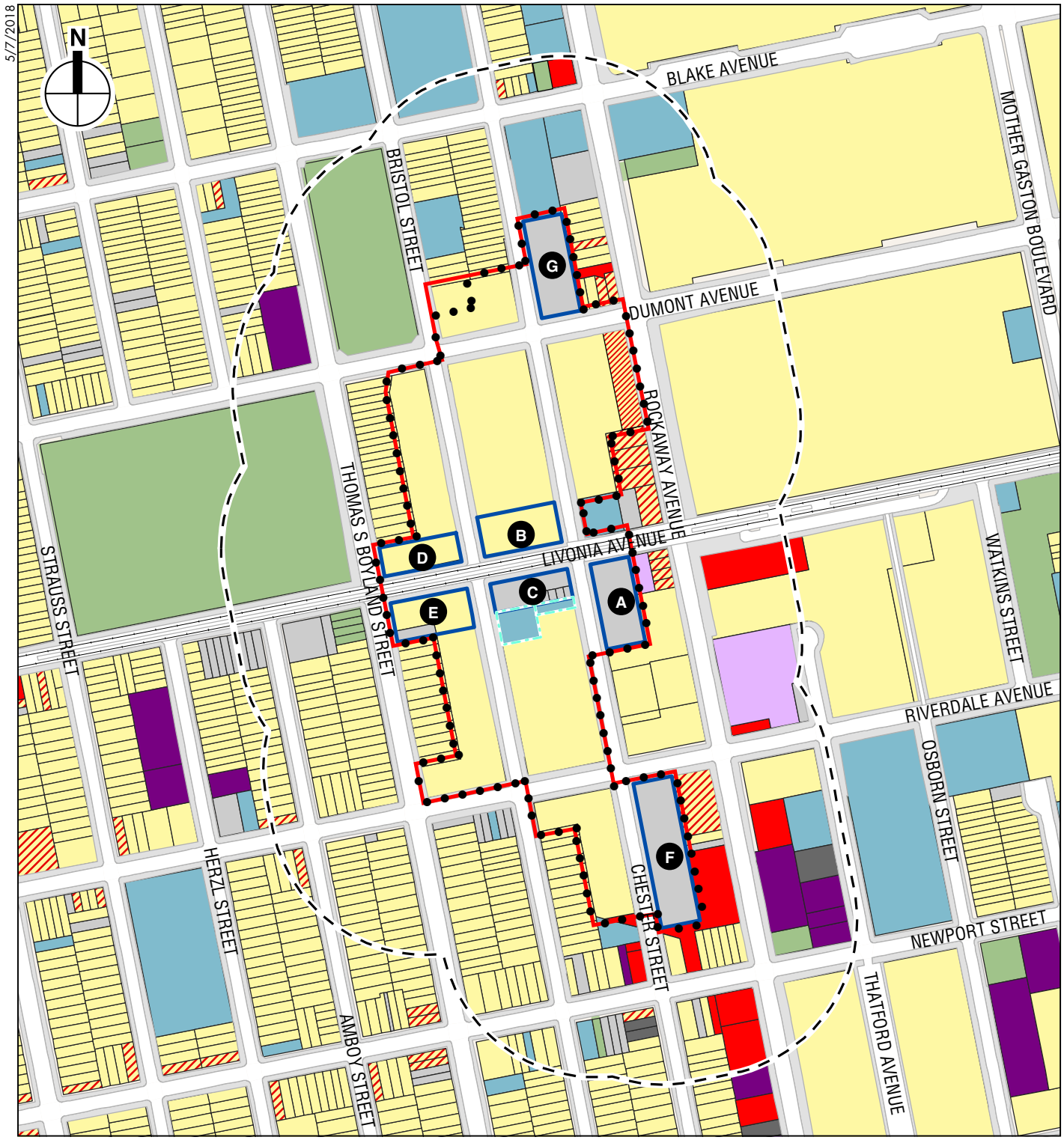
The analysis begins by considering existing conditions in the study area in terms of land use, zoning, and public policy. The analysis then considers land use, zoning, and public policy in the No Action condition in the 2024 analysis year by identifying developments and potential policy changes expected to occur within that timeframe. Probable impacts of the Proposed Project are then identified by comparing conditions in the Future with the Proposed Project (the "With Action" condition) with those conditions in No Action condition.

C. EXISTING CONDITIONS

LAND USE

PROJECT SITES

The Project Sites include seven parcels: Site A (Block 3589, Lot 21), Site B (Block 3574, p/o Lot 1), Site C (Block 3588, Lot 27), Site D (Block 3573, p/o Lot 1), Site E (Block 3587, p/o Lot 1 and Lot 27), Site F (Block 3602, Lot 12), and Site G (Block 3560, Lot 1). The seven Project Sites are located between Rockaway Avenue and Thomas S Boyland Street, and Blake Avenue and Newport Street in the Brownsville neighborhood of Brooklyn, Community District 16. The lot area of the seven Project Sites is approximately 324,590 square feet (sf). The seven Project Sites are currently either underutilized parking lots (Sites A–F) or vacant land utilized as a temporary urban farm (Site G) since 2015.



Marcus Garvey Extension

Land Use

Figure B-1

PROJECT AREA

The remainder of the Project Area, in addition to the Project Sites, is composed of the existing Marcus Garvey Apartments housing complex. The Marcus Garvey Apartments is a residential complex composed of several blocks of three-story duplex apartment buildings in the Brownsville neighborhood. Constructed in the mid-1970s as a part of the Marcus Garvey Urban Renewal Plan's scheme for the neighborhood, it includes 625 affordable dwelling units (DUs). The existing Marcus Garvey Apartments are composed of Block 3559, Lot 1; Block 3573, Lot 1; Block 3574, Lot 1; Lot 3575, Lot 11; Block 3587, Lot 1; Block 3588, Lot 1; and Block 3601, Lot 26. Several of the Project Sites were intended for use as accessory parking for existing Marcus Garvey Apartments tenants; however, the parking lots went largely underutilized for years and are no longer used by any tenants. The complex was purchased in 2014 by Marcus Garvey Preservation LLC (the "Owner"), an entity whose managing member is solely owned by L+M Development Partners, Inc. (L+M). The Owner recently completed a comprehensive rehabilitation of the Marcus Garvey Apartments that included kitchen and bathroom replacements, boiler replacements, window repairs, façade pointing, laundry room repairs, sidewalk and courtyard repairs, security upgrades, repainting common areas, installation of new electric feeder infrastructure, new landscaping, and a new playground.

STUDY AREA

The 400-foot study area contains a mix of residential, commercial, community facility, industrial, transportation and utility, vacant land, and parking uses (see **Figure B-1**).

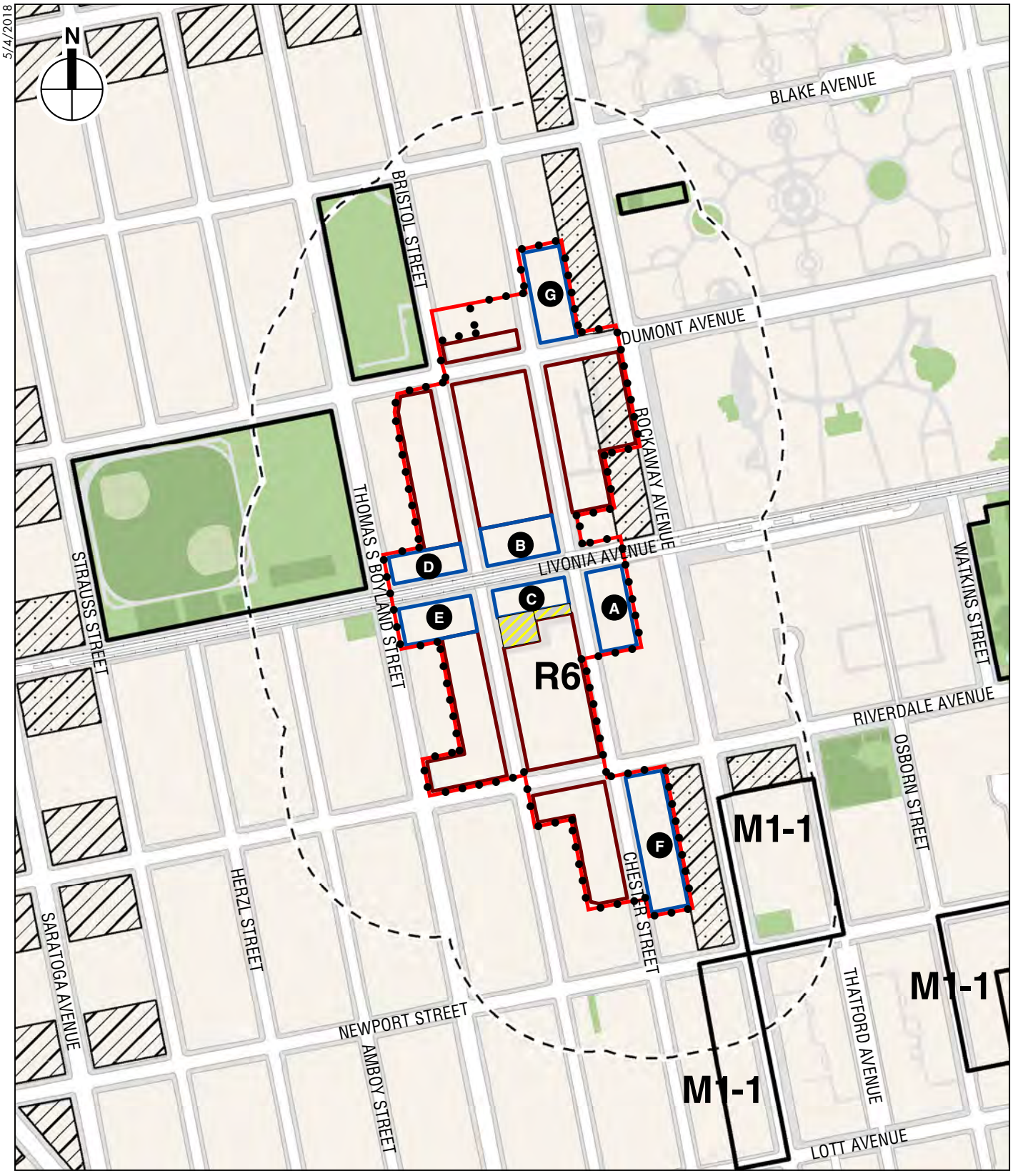
DUs within the study area generally consist of one- to two-story single-family homes, multifamily walkup apartment buildings with ground-level retail, and New York City Housing Authority (NYCHA) multifamily elevator apartment buildings along Rockaway Avenue to the east of the Project Sites.

Other land uses in the study area include retail, parking, industrial, transportation and utility, and community facilities. Retail uses in the study area are located on Rockaway Avenue, typically located on the ground floor of residential buildings, and include convenience stores, hardware stores, restaurants, and personal-care stores. Community facility uses in the study area include a social services organization, a multiservice family health center, child care facilities, religious facilities, and public schools (P.S. 165 Ida Posner, P.S. 183 Robert L. Stevenson, Frederick Douglass Academy VII High School, Mott Hall Bridges Academy [MHBA], P.S./I.S. 323, P.S. 41 Francis White, and P.S. 284 Lew Wallace School). Transportation and utility uses include a Verizon data center. Industrial uses include several low-rise light industrial facilities such as a syrup manufacturer in the southeastern portion of the study area.

ZONING

PROJECT SITES

The Project Sites are mapped entirely within an R6 zoning district (see **Figure B-2**). R6 districts are medium-density residential districts that permit a wide variety of housing types. Buildings in R6 districts can be developed in accordance with either height factor or *Quality Housing* regulations. Standard height factor regulations produce small multifamily 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 apartment buildings in the neighborhood that pre-date New York City's 1961 Zoning Resolution.



Project Area

Proposed Rezoning Area/Project Sites

Existing MGV to be Part of LSGD (R6)

Study Area (400-foot boundary)

Proposed Large-Scale General Development (LSGD) Boundary

Zoning Districts

C1-3 Commercial Overlay District

C2-3 Commercial Overlay District

Lots not part of Project Area or LSGD

Marcus Garvey Extension

Existing Zoning

Figure B-2

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. 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 market-rate DUs, and may be further modified in certain areas, such as within the Transit Zone, the Manhattan Core, or for lots less than 10,000 sf. The Transit Zone includes areas of the City beyond the Manhattan Core within ½-mile of a subway station where auto ownership rates are among the lowest in the City. 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 FAR, 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 within Mandatory Inclusionary Housing Areas (MIHAs) or that provide certain senior facilities.

Off-street parking is generally required for 50 percent of a building's DUs, 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 sf. Parking can be waived if five or fewer spaces are required.

PROJECT AREA

Like the Project Sites, the remainder of the Project Area is also mapped entirely with an R6 zoning district. In addition, a small portion of the Project Area located along Rockaway Avenue between Livonia Avenue and Dumont Avenue, is mapped with a C2-3 commercial overlay district.

C2-3 commercial overlay districts are mapped within residential districts 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. These districts preserve the underlying residential zoning regulations while allowing for ground-level retail uses in residential buildings. Typical retail uses include neighborhood grocery stores, restaurants, and beauty parlors, as well as a wider range of uses such as funeral homes and automotive repair services. When mapped in R6 through R10 districts, the maximum commercial FAR is 2.0, and commercial buildings are subject to commercial bulk rules.

STUDY AREA

As with the Project Sites and Project Area, the study area contains an R6 zoning district, a C2-3 commercial overlay, as well as an M1-1 zoning district located in the southeast portion of the study area.

M1-1 zoning districts are manufacturing districts that typically include light industrial uses such as woodworking shops, repair shops, and wholesale service and storage facilities. Industrial uses are allowed in M1 districts provided they meet the stringent M1 performance standards. Office, hotels, and most retail uses are also permitted. M1-1 districts have an FAR of 1.0 with heights governed by a sky exposure plane. Parking is required. The New York City Department of City Planning (DCP) is proposing a zoning text amendment to establish a new New York City Planning Commission (CPC) Special Permit for new in M1 districts citywide. The proposal, which was referred in April 2018, is intended to limit the potential for conflicts between uses as well as achieve a balanced mix of uses and jobs in neighborhoods by ensuring that sufficient opportunities for industrial, commercial, and institutional growth remain.

Table B-1 lists the zoning districts in the study area and their descriptions.

Table B-1
Zoning Districts Located in the Study Area

Zoning District	Maximum FAR[1]	Uses / Zone Type
R6	3.0 (2.2 on narrow streets); 2.42 max FAR under height factor regulations	Contextual district; high lot coverage, medium-density residential district
M1-1	1.0 manufacturing	Industrial and Manufacturing district; low-rise structures; commercial and community facilities allowed
C2-3	2.0 commercial	Residential districts with commercial overlays[2]

Notes:
[1] FAR is a measure of density establishing the amount of development allowed in proportion to the lot area. For example, a lot of 10,000 sf with a FAR of 1 has an allowable building area of 10,000 sf. The same lot with an FAR of 10 has an allowable building area of 100,000 sf.
[2] In mixed-use buildings, commercial uses must always be located beneath residential uses.
Source: *New York City Zoning Resolution.*

PUBLIC POLICY

HOUSING NEW YORK: A FIVE-BOROUGH, TEN-YEAR PLAN

On May 5, 2014, the de Blasio administration released *Housing New York: A Five-Borough, Ten-Year Plan* (*Housing New York),* a plan intended to build and preserve 200,000 affordable DUs over the coming decade to support New Yorkers with a range of incomes. The plan details the key policies and programs for implementation, including developing affordable housing on underused public and private sites. *Housing New York* calls for community engagement at the early stages of the planning process, so that community input informs land use and zoning changes intended to generate new affordable housing. Lastly, *Housing New York* calls for providing high-quality affordable housing to the most vulnerable residents of New York City. Investing in quality affordable housing for the City's special needs, homeless, and senior households, as well as for people with disabilities will reduce the demand for social expenditures in the long term and provide a more cost-efficient strategy for addressing a critical housing need. In Fiscal Year 2017, under *Housing New York,* the City financed the creation and preservation of more than 24,000 affordable DUs across the five boroughs, exceeding projections by more than 4,000 DUs. In the third full fiscal year of *Housing New York,* the City financed approximately 7,700 new construction DUs and approximately 16,600 DUs through preservation. The Fiscal 2017 affordable housing production figure is the second highest in New York City history. In October of 2017, the City announced a new goal of preserving and/or creating 300,000 affordable DUs by 2026.

ONE NEW YORK: THE PLAN FOR A STRONG AND JUST CITY

In April 2015, the de Blasio administration released *OneNYC*, a plan for growth, sustainability, resiliency, and equity. *OneNYC* is the update for the sustainability plan started under the Bloomberg administration, previously known as *PlaNYC 2030: A Greener, Greater New York.* While *OneNYC* still centers on growth, sustainability, and resiliency, the de Blasio administration added equity as a core principle to address the high poverty rate and rising income inequality. The new plan also addresses pressing issues such as population growth, aging infrastructure, and global climate change. This plan is being fulfilled through multiple programs and initiatives, such as creating and preserving affordable housing.

FOOD RETAIL EXPANSION TO SUPPORT HEALTH PROGRAM

The Food Retail Expansion to Support Health (FRESH) program promotes the establishment and expansion of grocery stores in underserved communities through financial and zoning incentives for developers. These incentives include tax reductions, sales tax exemptions, additional development rights, and reductions in required parking. The Proposed Project is located in an area designated under the FRESH program as eligible for both zoning and discretionary tax incentives.

BROWNSVILLE PLAN

In June 2017, the New York City Department of Housing Preservation and Development (HPD) released the Brownsville Plan, which is the result of a community-based 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 held a series of public workshops and community meetings. The Brownsville Plan represents a $150 million investment that includes improvements to local parks and roadways, new community space, retail space, a health center, and other improvements over the next 5 years. Neighborhood strategies outlined in the Brownsville Plan include promoting active mixed-use corridors, improving connections, creating active and safe public spaces, providing resources to support healthy lifestyles, connecting Brownsville residents to jobs and training, supporting small businesses and aspiring entrepreneurs, improving housing stability, and providing support and capacity building opportunities. Part of the plan includes a City Request for Proposal (RFP) from developers to build on three groups of vacant, City-owned, sites in the neighborhood, including several along Livonia Avenue. The RFP lays out themes for each of the three proposed development sites. For the Livonia Avenue group of sites, which is located near the Proposed Project, these themes include gardening and health food stores, sit-down restaurants, services and community spaces that promote health, and building design the promotes healthy living.

JAMAICA BAY WATERSHED PROTECTION PLAN

The Project Area is located within the Jamaica Bay watershed. On July 20, 2005, Mayor Bloomberg signed a City Council bill requiring the New York City Department of Environmental Protection (DEP) to create a watershed protection plan for the watershed and sewershed of Jamaica Bay. The final *Jamaica Bay Watershed Protection Plan* was submitted to the City Council on October 1, 2007. The legislation established a pathway towards restoring and maintaining the water quality and ecological integrity of the Bay by evaluating threats to the Bay and coordinating environmental remediation and protection efforts in a focused and cost-effective manner.

D. FUTURE WITHOUT THE PROPOSED PROJECT

LAND USE

PROJECT SITES

Absent the Proposed Project, it is anticipated that the existing parcels will be redeveloped with seven four-story mixed-use buildings. The seven buildings are anticipated to include 438 DUs (including 88 affordable DUs), approximately 63,924 sf of community facilities, and 513 below-grade accessory parking spaces. In the No Action condition, the HPD Lot on Site E would remain undeveloped and the existing interim GreenThumb garden on Site C, MHBA Living Laboratory Community Garden, would remain in its existing condition.

PROJECT AREA

In the No Action condition, the remainder of the Project Area apart from the Project Sites would remain in its existing condition. The City-owned lots on Sites C and E (including the MHBA Living Laboratory Community Garden) to be acquired by the applicant with the Proposed Project would remain in City hands, and the p/o Block 3559, Lot 1 that would be transferred to New York City Department of Parks and Recreation (NYC Parks) for a future community garden would remain under the control of the Owner. The Project EATS urban farm on Site G may be afforded an opportunity to operate on a smaller Applicant-controlled site on the west side of Chester Street (adjacent to the Acquisition Site and across from the existing urban farm on Site G). The terms of use would be negotiated between Project EATS and the Applicant through a lease, license agreement or comparable mechanism.

STUDY AREA

Within 400 feet of the Project Sites there are five background development projects that are currently anticipated to be completed by 2024. Three of these are 342 Amboy Street, 136 Livonia Avenue, and 138 Livonia Avenue, and are located adjacent to each other on Block 3585, Lots 32, 31, and 131 respectively. All three buildings will be four stories and contain seven DUs each for a total of 21 new DUs. The former P.S. 125 building at 589 Rockaway Avenue would be rehabilitated to provide 58,286 sf of community facility space intended to be used as a healthcare and school facility. A rezoning proposed for part of the block bounded by Riverdale Avenue and Newport Street, and Rockaway and Thatford Avenues known as 803 Rockaway Avenue Rezoning is expected to generate approximately 200 DUs, 62 supportive housing units, 39,000 sf of light manufacturing space, 29,351 sf of community facility space, and 11,471 sf of retail space by 2024.

ZONING AND PUBLIC POLICY

There are no changes to zoning or public policy expected on the Project Sites and Project Area by 2024. Within the study area, the proposed 803 Rockaway Avenue Rezoning would change an existing M1-1 zoning district to an MX district (M1-4/R7A and M1-4/R6A). The affected area is generally bounded by Newport Street, Riverdale Avenue, Rockaway Avenue, and Thatford Avenue. The rezoning to an MX district (M1-4/R6A and M1-4/R7A districts) is intended to allow new residential development to FARs of 3.6 and 4.6, respectively. The residential component of the rezoning would be split between R7A along the Rockaway Avenue frontage and R6A along the Thatford Avenue frontage to maintain a consistent scale with the surrounding neighborhood. The M1-4 district would allow the light industrial uses and would require no

parking. An associated zoning text amendment will be being sought to create a new MX district and designate the rezoning area as a MIHA.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE

PROJECT SITES

The Proposed Actions would facilitate the redevelopment of the Project Sites with seven mixed-use buildings, each eight to nine stories tall, containing residential, retail, and community facility uses. A vacant lot on Site E and the MHBA Living Laboratory Community Garden on Site C, both on City-owned lots, would be acquired by the applicant for inclusion in this mixed-use development. In total, the Proposed Project would result in approximately 843 DUs (all affordable DUs), 35,049 gsf of neighborhood retail space, 98,032 sf of community facility space, and 24 accessory parking spaces. The Proposed Project would introduce similar uses (residential and community facility uses) to the No Action condition only at a higher density, with the addition of new ground-floor retail space. With the Proposed Actions and the retail spaces that they would introduce, a vibrant commercial corridor would be created along Livonia Avenue, continuing on the City's efforts to revitalize the area that include the City's nearby RFP sites known as Livonia I and II and the recently released Brownsville Plan.

The proposed mixed-use buildings along Livonia Avenue are intended to activate the commercial corridor with a combination of ground-floor retail and community facility spaces, while providing much-needed affordable housing above. The proposed redevelopment at the north and south ends of Chester Street (Sites F and G) provides opportunity for greater density and the provision of the Proposed Project's largest affordable housing buildings. With the development resulting from the Proposed Actions, residents of Brownsville and neighboring communities would have access to several community services and amenities that historically have been vacant lots.[1] These amenities could include quality grocers, sit-down restaurants, a bank, and social service providers, all amenities specified as desirable by the City's workshop sessions with the local community and applicant as part of the Brownsville Plan.[2] It is the applicant's intention to transform the Project Area into a lively urban corridor offering a diversity of housing options, shopping, entertainment, jobs, and services to the surrounding Brownsville neighborhood.

PROJECT AREA

The predominantly residential land uses within the remainder of the Project Area would not be different from those without the Proposed Project. The existing MHBA Living Laboratory Community Garden on Site C would be replaced by a new, larger community garden nearby on the western portion of Block 3559, Lot 1, to be acquired by NYC Parks. This location would be closer to MHBA than the site of the original MHBA Living Laboratory Community Garden that would be disposed.

[1] The vacant lot on Site G (Block 3560, Lot 1) has been operating temporarily as an urban farm since 2015.

[2] https://www1.nyc.gov/assets/hpd/downloads/pdf/community/the-brownsville-plan.pdf

STUDY AREA

The Proposed Project would be consistent with existing land uses in the surrounding area. The proposed residential, retail, and community facility uses would be consistent with land uses in the study area, which include multifamily apartment buildings, ground-floor retail space, and community facilities, as well as light industrial, transportation, and utility uses that meet stringent M1-1 performance standards. The Proposed Project would also provide much-needed affordable housing for the community, as well as desired retail opportunities for local residents. Overall, the Proposed Actions would not adversely affect the land use character of the study area and would not result in any significant land use impacts.

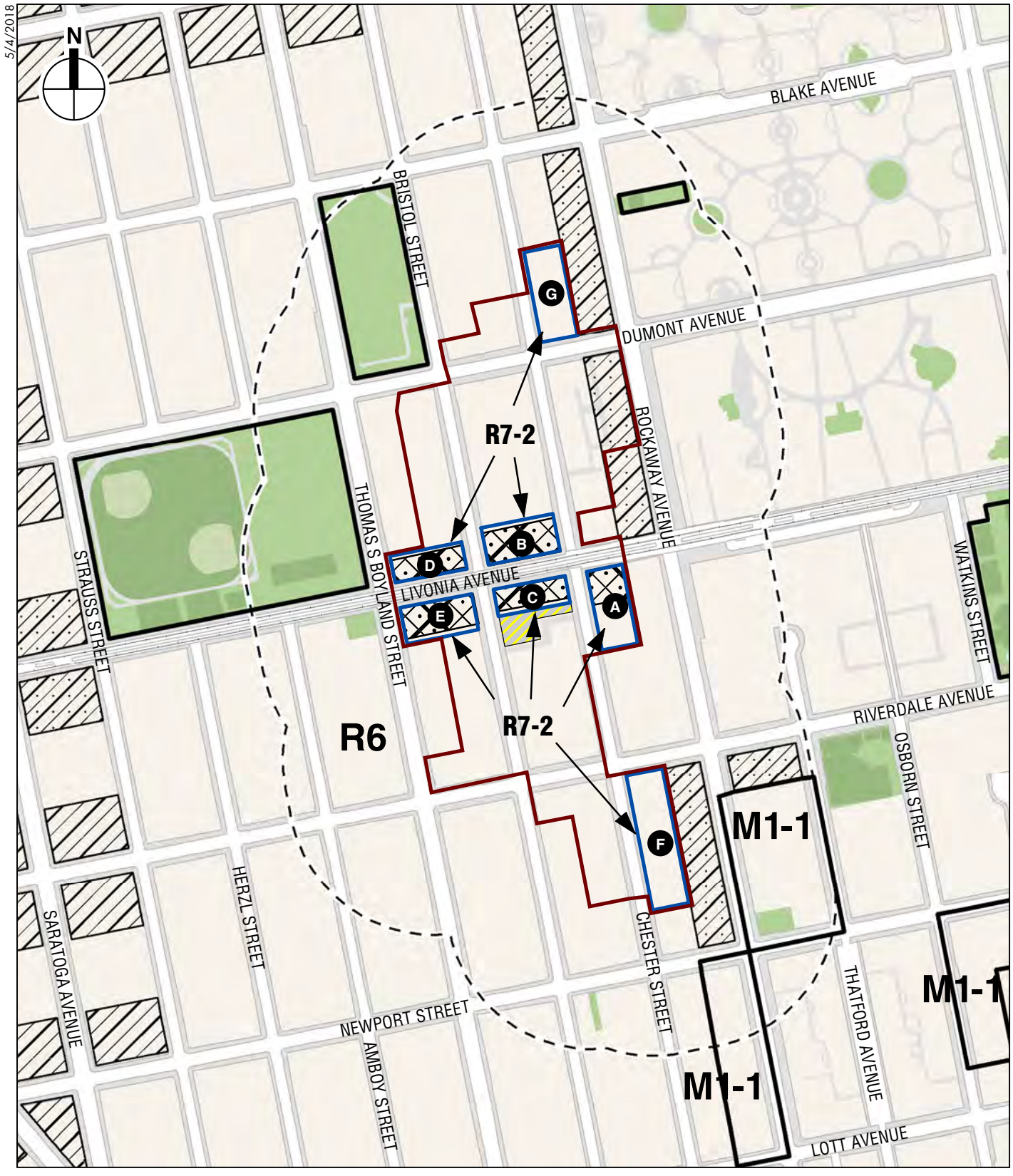
ZONING

PROJECT SITES

The Proposed Actions would rezone the seven Project Sites from an R6 district to R7-2 districts and map a C2-4 commercial overlay along Livonia Avenue to allow retail use on Sites A, B, C, D, and E (see **Figure B-3**). R7 districts are medium-density apartment house districts. Regulations for residential development in R7-1 and R7-2 districts are essentially the same except that R7-2 districts have lower parking requirements. Off-street parking is generally required for 50 percent of a building's DUs, but requirements are lower for IRHUs and are further modified in certain areas, such as within the Transit Zone. 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.

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. 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.

The Proposed Project would be developed under *Quality Housing* regulations. 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 FARs 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 New York City. Under the optional *Quality Housing* regulations, buildings on wide streets have an FAR is 4.0 and the base height before setback is 40 feet 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 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. Under MIH, higher maximum FAR and heights are allowed in R7-2 districts. For sites within 100 feet of a wide street, the R7-2 district allows a maximum FAR of 4.6 (3.6 is allowed beyond 100 feet of a wide street). A maximum height of 13 stories (or 135 feet) is allowed for buildings developed under MIH or that provide certain senior facilities. The building heights of Sites A through G would be restricted through the Large Scale General Development (LSGD) to 95 feet (Sites A–E) and 100 feet (Sites F and G). In addition, waivers sought in



Marcus Garvey Extension

Proposed Zoning

Figure B-3

connection with the LSGD would allow the proposed buildings to exceed the maximum base height of 75 feet. Buildings A through E would have base heights of 85 feet and Buildings F and G would have base heights of 80 feet.

Although the Proposed Project would include zoning text and map amendments, the changes would be consistent with the mix of zoning in the surrounding area. Similar medium-density housing exists throughout the study area, as do ground-floor retail uses along Rockaway Avenue. Therefore, the Proposed Actions would not result in any significant adverse zoning impacts on the Project Sites.

PROJECT AREA

The Proposed Project would designate the entire Project Area apart from the p/o Block 3559, Lot 1 that is to be acquired by NYC Parks as a LSGD. The special permits sought by the applicant concerning location of buildings with respect to lot coverage, height, and setback, distance between buildings, minimum distance between legally required windows and walls, and accessory parking requirements would apply only within the LSGD. The LSGD would allow for a comprehensive planning approach that provides flexibility in design and massing, including the ability to distribute floor area across lots and modify bulk distribution, height, and placement of the new buildings. Bulk would be distributed from the sites along Livonia Avenue to Sites F and G on Chester Street. The proposed developments at the north and south ends of Chester Street provides opportunity for greater density and the provision of the Proposed Project's largest affordable housing buildings. The larger buildings along Chester Street would be closer in size and scale to the residential buildings located further east along Rockaway and Thatford Avenues.

The Project Area would also be designated as a MIHA. Under the MIH program, when new housing capacity is approved through land use actions, CPC and the New York City Council can choose to impose either one or both of the two basic options regarding affordable housing set-asides, income bands, and maximum income requirements. Option 1 requires that 25 percent of the residential floor area be set aside for DUs affordable to households earning an average of 60 percent of Area Median Income (AMI). Option 2 requires that 30 percent of the residential floor area be set aside for households earning an average of 80 percent AMI. The applicant is expected to seek public financing from HPD, New York State Home and Community Renewal (HCR), and New York City Housing Development Corporation (HDC) and Low Income Housing Tax Credits (LIHTC), which require all or a portion of DUs be affordable at 60 percent AMI. The financing structure would adhere to the appropriate funding agencies' term sheet.

At this time, it is not known which MIH option will be selected for the Proposed Project. For purposes of analysis, it is conservatively assumed that all 843 proposed DUs would be offered at or below 80 percent AMI.

STUDY AREA

The underlying zoning (R6, C2-3, and M1-1 zoning districts) of the study area would remain unchanged from existing conditions in the With Action condition. Only the zoning and MIH designations of the Project Area would be affected, and the special permits sought by the Proposed Project would apply only within the LSGD. The Proposed Project's zoning would be compatible with the surrounding residential, commercial, and community facility uses existing in the study area. Therefore, the Proposed Actions would not result in any significant adverse zoning impacts on the study area.

PUBLIC POLICY

HOUSING NEW YORK

As noted above, a major public policy goal in the City is to build or preserve 300,000 affordable DUs. The Proposed Project would help to achieve that goal by creating approximately 843 affordable DUs by 2024 for a range of household incomes, including permanent affordable housing through MIH. Therefore, the Proposed Project would be consistent with this policy.

ONENYC

The mission of *OneNYC* is a plan for growth, sustainability, resiliency, and equity. The Proposed Project would introduce seven new buildings with sustainable features, and would include over 800 DUs of affordable housing. Sustainability features of the Proposed Project would include LED lighting, low flow fixtures, and high-efficiency boilers. The Proposed Project would also introduce new neighborhood retail opportunities to the area, which is calling for an expansion of such outlets. The investment proposed for the neighborhood by the Proposed Project is intended to activate the Livonia Avenue corridor and improve the quality of the streetscapes in the neighborhood, helping to promote *OneNYC*'s goal of equity. Therefore, the Proposed Project is consistent with *OneNYC*'s goals for growth, sustainability, and equity.

BROWNSVILLE PLAN

The Proposed Project would support the City's goals for Brownsville as outlined in the Brownsville Plan by building new affordable housing, expanding retail opportunities, and creating construction and permanent employment opportunities for neighborhood residents. The Proposed Project would activate the Livonia Avenue corridor with ground-floor retail uses, consistent with the Brownsville Plan's neighborhood strategy of increasing access to services and amenities that bring activity to Brownsville's streets. The elimination of vacant lots entailed by the Proposed Project would also respond to the Brownsville Plan's strategy of improving connections throughout the neighborhood that reduce social isolation and improve safety by further integrating the neighborhood. The large amount of community facility space that would be provided by the Proposed Project would create high quality spaces for gathering, programming, and community building, as outlined in neighborhood strategy number three. Finally, the applicant's commitment to long-term affordable housing under the Proposed Project would further the objectives of strategy number seven, "improving housing stability and support residents at risk of displacement."

Overall, the Proposed Actions would not result in significant adverse impacts to land use, zoning, or public policy. ✷

A. INTRODUCTION

This attachment considers the potential for the Proposed Project to result in significant adverse impacts to socioeconomic conditions in the study area. As stated in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, the socioeconomic character of an area includes its population, housing, and economic activities. Socioeconomic impacts may occur when a project directly or indirectly affects any of these elements. The analyses conclude that the Proposed Project would not result in significant adverse impacts associated with socioeconomic conditions.

As described in Attachment A, "Project Description & Screenings," the Proposed Actions would facilitate the development of seven mixed-use buildings in the Brownsville neighborhood of Brooklyn. The incremental development associated with the Proposed Project (i.e., the amount of development expected on the sites in excess of the Future without the Proposed Project, or the "No Action" condition) would be 405 dwelling units (DUs) (all affordable); 35,049 gross square feet (gsf) of neighborhood retail space, and 34,108 gsf of community facility space.

In accordance with *CEQR Technical Manual* guidelines, this analysis considers whether development of the Proposed Project could result in significant adverse socioeconomic impacts due to (1) direct displacement of residential population; (2) direct displacement of existing businesses; (3) indirect displacement of residential population; (4) indirect displacement of businesses; and (5) adverse effects on a specific industry. There are no existing DUs on the Project Sites; therefore, the Proposed Project would not directly displace any residents, and would not result in significant adverse socioeconomic impacts due to direct residential displacement. The Proposed Project would replace vacant and/or underutilized parking lots, and would not directly displace any businesses. Therefore, the Proposed Project would not result in significant adverse socioeconomic impacts due to direct business displacement.

The Proposed Project would introduce an increment of 405 DUs over the No Action condition, which exceeds initial screening thresholds for indirect residential displacement; therefore, a preliminary assessment has been prepared. The preliminary assessment finds that the Proposed Project would not result in significant adverse impacts due to indirect residential displacement. With respect to indirect business displacement, a screening-level assessment finds that the Proposed Project would not result in significant adverse impacts due to indirect business displacement within the study area. The Proposed Project's retail increment (35,049 gsf) is well below the 200,000-sf threshold cited in the *CEQR Technical Manual* as an amount that could significantly affect commercial real estate market conditions. The Proposed Project would not introduce any land use trends, which do not already exist within the study area; retail added by the Proposed Project would be service-oriented, supporting the existing and future study area populations.

A screening-level assessment finds the Proposed Project would not result in significant adverse impacts on specific industries. The Proposed Project would not directly displace any uses, and does not have the potential to substantially alter market conditions in a manner that could lead to

indirect business displacement. Similar to the Proposed Project, the study area is primarily residential with some service-oriented retail activity. Therefore, the Proposed Project's uses would not substantively affect business conditions in specific industries within or outside the study area, nor would it indirectly reduce employment or impair the economic viability of any specific industry or category of business.

B. METHODOLOGY

BACKGROUND

Although socioeconomic changes may not result in impacts under CEQR, they are disclosed if they 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 the area. In some cases, these changes may be substantial but not adverse. In other cases, these changes may be good for some groups but bad for others. The objective of the CEQR analysis is to disclose whether any changes created by the Proposed Project would have a significant impact compared with what would happen in the No Action condition.

An assessment of socioeconomic impacts distinguishes between impacts on the residents and businesses in an area and separates these impacts into direct and indirect displacement for both of those segments. Direct displacement occurs when residents or businesses are involuntarily displaced from the actual site of the Proposed Project or sites directly affected by it. For example, direct displacement would occur if a currently occupied site were redeveloped for new uses or structures or if a proposed easement or right-of-way encroached on a portion of a parcel and rendered it unfit for its current use. In these cases, the occupants of a particular structure to be displaced can usually be identified, and therefore the disclosure of direct displacement focuses on specific businesses and a known number of residents and workers.

Indirect or secondary displacement occurs when residents, business, or employees are involuntarily displaced due to a change in socioeconomic conditions in the area caused by a proposed project. Examples include the displacement of lower-income residents who are forced to move due to rising rents caused by higher-income housing introduced by a proposed project. Examples of indirect business displacement include higher-paying commercial tenants replacing industrial uses when new uses introduced by a proposed project cause commercial rents to increase. Unlike direct displacement, the exact occupants to be indirectly displaced are not known. Therefore, an assessment of indirect displacement usually identifies the size and type of groups of residents, businesses, or employees potentially affected.

Some projects may affect the operation and viability of a specific industry not necessarily tied to a specific location. An example would be new regulations that prohibit or restrict the use of certain processes that are critical to certain industries. In these cases, the CEQR review process may involve an assessment of the economic impacts of the project on that specific industry.

DETERMINING WHETHER A SOCIOECONOMIC ASSESSMENT IS APPROPRIATE

According to the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if a project may be reasonably expected to create socioeconomic changes in the area affected by the project that would not be expected to occur in the absence of the project. The following screening assessment considers threshold circumstances identified in the *CEQR Technical Manual* (enumerated below) that can lead to socioeconomic changes warranting further assessment.

1. ***Direct Residential Displacement: Would the project directly displace residential population to the extent that the socioeconomic character of the neighborhood would be substantially altered? Displacement of fewer than 500 residents would not typically be expected to alter the socioeconomic character of a neighborhood.***

   The Project Sites do not contain any residential uses. Therefore, the Proposed Project would not directly displace any residents on the Project Sites, and an assessment of direct residential displacement is not warranted.

2. ***Direct Business Displacement: Would the project directly displace more than 100 employees? If so, assessments of direct business displacement and indirect business displacement are appropriate. Would the project directly displace a business whose products or services are uniquely dependent on its location, are the subject of policies or plans aimed at its preservation, or serve a population uniquely dependent on its services in its present location? If so, an assessment of direct business displacement is warranted.***

   There are no businesses on the Project Sites; therefore, the Proposed Project would not directly displace any businesses or employment.

3. ***Indirect Displacement due to Increased Rents: Would the project result in substantial new development that is markedly different from existing uses, development, and activities within the neighborhood? Residential development of 200 units or less or commercial development of 200,000 square feet or less would typically not result in significant socioeconomic impacts. For projects exceeding these thresholds, assessments of indirect residential displacement and indirect business displacement are appropriate.***

   The Proposed Project would result in incremental residential development exceeding the 200-DU threshold warranting an assessment of potential indirect residential displacement due to increased rents (see Section C, "Preliminary Assessment.")

4. ***Indirect Business Displacement due to Retail Market Saturation: Would the project result in a total of 200,000 square feet or more of retail on a single development site or 200,000 square feet or more of region-serving retail across multiple sites? This type of development may have the potential to draw a substantial amount of sales from existing businesses within the study area, resulting in indirect business displacement due to market saturation.***

   The Proposed Project would not induce indirect business displacement due to market saturation. The Proposed Project would bring an increment of 35,049 sf of retail development to the study area. This retail would be distributed on more than one site, and would not draw a substantial amount of sales from existing businesses within the study area. The Proposed Project's retail component would complement existing retail found within the study area, and its residential component would generate new customers and demand for existing retail businesses found within the study area, as well as the proposed retail uses. Currently beyond the Pitkin Avenue commercial district to the very north of the study area, the neighborhood lacks significant commercial development, particularly near the IRT New Lots Line along Livonia Avenue, despite dense residential development. Existing retail development is similar to that of the Proposed Project, within existing mixed-use and stand-alone buildings and is primarily local convenience stores, and fast food restaurants, such as Popeye's Louisiana Kitchen, located adjacent to Project Sites A–E along Rockaway Avenue, in proximity to the IRT New Lots Line Rockaway Avenue station.

5. ***Adverse Effects on Specific Industries: Is the project expected to affect conditions within a specific industry? This could affect socioeconomic conditions if a substantial number of workers or residents depend on the goods or services provided by the affected businesses,***

or if the project would result in the loss or substantial diminishment of a particularly important product or service within the City.

As the Proposed Project would not result in direct business displacement on the Project Sites, and the potential for any indirect business displacement would be limited and not specific to any industry, an assessment of adverse effects on specific industries is not warranted.

Based on the screening assessment presented above, the Proposed Project warrants an assessment of indirect residential displacement due to increased rents.

ANALYSIS FORMAT

Based on *CEQR Technical Manual* guidelines, the analysis of indirect residential displacement begins with a preliminary assessment. The objective of the preliminary assessment is to learn enough about the potential effects of the Proposed Project to either rule out the possibility of significant adverse impacts, or determine that a more detailed analysis is required to fully determine the extent of the impacts. In this case, a preliminary assessment was sufficient to conclude that the Proposed Project would not result in any significant adverse socioeconomic impacts resulting from indirect residential displacement.

STUDY AREA

According to the *CEQR Technical Manual*, a socioeconomic study area typically reflects the land use study area, and should depend on project size and area characteristics. According to the *CEQR Technical Manual*, a ¼-mile study area is appropriate for a project which produces a small (below 5 percent) increase to the study area population. The Proposed Actions would increase the ¼-mile study area population by approximately 3.27 percent (1,113 new residents) warranting the use of the ¼-mile study area.

Because socioeconomic analyses depend on demographic data, it is appropriate to adjust the study area boundary to conform to the census tract delineation that most closely approximates the desired radius (in this case, a ¼-mile radius surrounding the Project Area[1]). The census tracts that constitute the "socioeconomic study area," or "study area," are shown in **Figure C-1**. The adjusted study area captures an approximately ¼-mile area surrounding the Project Sites and includes the following nine census tracts: 894, 896, 898, 902, 912, 916, 918, 920, and 924. The study area is located entirely within Brooklyn Community District 16.

DATA SOURCES

Information used in the analysis of indirect residential displacement was gathered from the U.S. Census Bureau's 2000 Decennial Census and 2012–2016 American Community Survey (ACS) 5-year Estimates. The New York City Department of City Planning (DCP) Census FactFinder online mapping tool was further used to determine the margin of error (MOE) for single variable ACS estimates presented for the study area.[2] Census data were gathered on population, housing, and income. Analysis was supplemented by a field survey conducted by AKRF staff in October, 2017.

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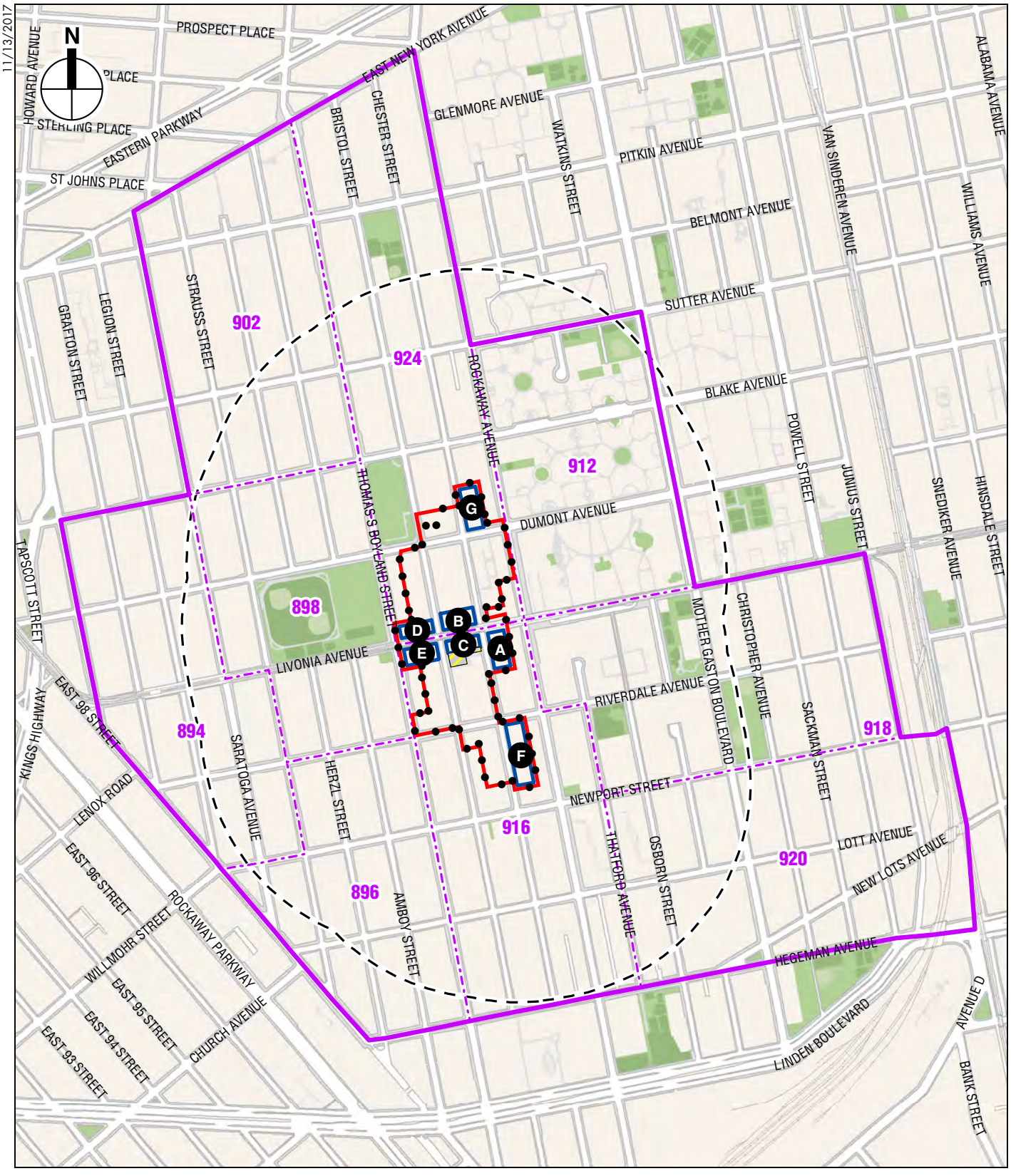
[1] The Project Area is defined as the area encompassing the boundaries of the proposed Large-Scale General Development (LSRD); development sites/Project Sites, and City acquisition site, as shown in Figure A-1.

[2] MOEs describe the precision of an estimate within a 90-percent confidence interval and provide an idea of how much variability (i.e., sampling error) is associated with the estimate. The larger the MOE relative



Marcus Garvey Extension

Socioeconomic Study Area

Figure C-1

C. PRELIMINARY ASSESSMENT

INDIRECT RESIDENTIAL DISPLACEMENT

As described in the *CEQR Technical Manual*, indirect residential displacement usually occurs when a project results in substantial new development that is markedly different from existing uses and activities within a neighborhood. This can contribute to increased property values and increased rents, which can make it difficult for some existing residents to remain in their homes.

Generally, an indirect residential displacement analysis is conducted only in cases in which the potential impact may be experienced by renters living in privately held DUs unprotected by rent control, rent stabilization, or other government regulations restricting rents, and whose incomes or poverty status indicate that they may not support substantial rent increases. Residents who are homeowners, or who are renters living in rent-protected DUs are not considered potentially vulnerable populations under CEQR. This analysis follows the step-by-step assessment guidelines of the *CEQR Technical Manual*.

Step 1: Determine if the proposed actions would add new population with higher average incomes compared to the average incomes of the existing populations and any new population expected to reside in the study area without the project.

EXISTING CONDITIONS AND TRENDS

Based on 2012–2016 ACS data, the study area has an estimated total of 11,521 households. The number of study area households increased by approximately 15 percent since 2000, when there were approximately 10,031 households within the study area.

Household income characteristics for the study area population are described using the average and median household incomes. As shown in **Table C-1**, the 2012–2016 ACS data estimates the average annual household income within the study area to be approximately $43,468, which is lower than the average household incomes for Brooklyn ($75,810) and New York City ($88,437). The study area's average household income decreased since 2000, which is in contrast to increases in the average household income for Brooklyn (13.6 percent increase) and New York City (4.9 percent increase) over the same time period.

As average income can be heavily influenced by extreme outliers (both high and low) within the data, median household income is also presented to supplement the analysis. As shown in **Table C-2**, based on 2012–2016 ACS data the median annual household income in the study area is approximately $31,752 within Brooklyn median annual household income is $50,640, and in New York City median annual household income is $55,191. Median annual household income within the study area is approximately $19,000 less than the Brooklyn median annual household income and approximately $23,500 less than the median annual household income for New York City as a whole.

to the size of the estimate, the greater potential for variability within the data. The MOE is partially dependent on the sample size, because larger sample sizes result in a greater amount of information that more closely approximates the population.

Table C-1
Average Annual Household Income[1] (2000 Census, 2012–2016 ACS)

Area	2000 Census[2]	2012–2016 ACS	Change or Percent Change
Socioeconomic Study Area	$48,715	$43,468[3]	Decrease[4]
Brooklyn	$66,705	$75,810	13.6%
New York City	$84,303	$88,437	4.9%

Notes:
[1] All dollar figures have been adjusted to 2016 dollars based on the U.S. Department of Labor Consumer Price Index, 2016
[2] The socioeconomic study area geography included Census Tracts 904 and 914 as presented in the 2000 Decennial Census; these Census Tracts were merged after 2000 and approximate Census Tract 924 in the 2012–2016 ACS
[3] Based on the MOE for the average household income of the study area (according to the 2012–2016 ACS, MOE of $1,945), there is 90 percent probability that the average household income is between $41,523 and $45,413.
[4] The MOE of the difference between 2000 Census and 2012–2016 ACS data for the study area is greater than one-third of the estimated difference. Therefore, a percent change cannot be estimated with confidence.
Sources:
U.S. Census Bureau, 2000 Decennial Census; 2012-2016 ACS 5-Year Estimates, NYC DCP Population Factfinder

Table C-2
Median Annual Household Income[1] (2000, 2012–2016 ACS)

Area	2000 Census[2]	2012–2016 ACS	Percent Change
Socioeconomic Study Area	$32,568	$31,752[3]	N/A[4]
Brooklyn	$46,305	$50,640	9.4%
New York City	$55,178	$55,191	0.0%

Notes:
[1] All dollar figures have been adjusted to 2016 dollars based on the U.S. Department of Labor Consumer Price Index, 2016.
[2] The socioeconomic study area geography included Census Tracts 904 and 914 as presented in the 2000 Decennial Census; these census tracts were merged after 2000 and approximate Census Tract 924 in the 2012–2016 ACS.
[3] Based on the MOE for median household income within the study area (according to the 2012–2016 ACS, MOE of $3,993), there is 90 percent probability that the median household income is between $27,759 and $35,745.
[4] The MOE of the difference between 2000 Census and 2012–2016 ACS data for the study area is greater than the estimated difference. Therefore, a change cannot be reported with confidence.
Sources:
U.S. Census Bureau, 2000 Decennial Census, and 2012–2016 ACS 5-Year Estimates, DCP Population Factfinder

While average annual household income decreased within the study area between 2000 and 2012–2016, average and median rents within the study area have both increased between 2000 and 2012–2016. **Table C-3** presents census-based average and median rents reported in the socioeconomic study area, Brooklyn, and New York City overall. While the datasets do not provide specific rent information according to affordable housing or other regulations, or by DU size, these data can be utilized to provide a general understanding of the rate at which housing costs are changing within the study area and region.

As shown in **Table C-3,** average and median rents within the study area have increased between 2000 and 2012–2016, with estimated average monthly rents increasing from $669 to $875, and estimated median rents rising from $659 to $848. This estimated change is largely in line with the

changes experienced in New York City overall, where average rents increased by 28.3 percent, and median rents increased by 31.6 percent between 2000 and 2012–2016. As compared to New York City, there were greater monthly rent increases within Brooklyn, which saw a 38.8 percent increase in average monthly rent and a 34.7 percent increase in median monthly rent. Despite the increases to both the average and median rents found within the socioeconomic study area, estimated monthly rents within the study area are still approximately $400 below the average and median rents found within Brooklyn and New York City.

Table C-3
Average and Median Gross Rent[1] (2000, 2012–2016 ACS)

Area	2000 Census[2]		2012–2016 ACS		Change or Percent Change	
	Average	Median	Average	Median	Average	Median
Socioeconomic Study Area	$669	$659	$875[3]	$848[4]	Increase[5]	Increase[6]
Brooklyn	$928	$937	$1,288	$1,262	38.8%	34.7%
New York City	$1,068	$983	$1,370	$1,294	28.3%	31.6%

Notes:
[1] All dollar figures have been adjusted to 2016 dollars based on the U.S. Department of Labor Consumer Price Index, 2016.
[2] The socioeconomic study area geography included Census Tracts 904 and 914 as presented in the 2000 Decennial Census; these Census Tracts were merged after 2000 and approximate Census Tract 924 in the 2012–2016 ACS.
[3] MOE for average gross rent within the study area not reported
[4] Based on the MOE for median gross rent within the study area (according to the 2012-2016 ACS, MOE of $88), there is 90 percent probability that the median gross monthly rent is between $760 and $936.
[5] As MOE for average gross rent is not reported, the percent change cannot be reported with confidence.
[6] The MOE of the difference between 2000 Census and 2012–2016 ACS data for the study area is greater than one-third of the estimated difference. Therefore, a percent change cannot be reported with confidence.
Sources:
U.S. Census Bureau, 2000 Decennial Census, and 2012–2016 ACS 5-Year Estimates. DCP Population FactFinder.

Within the socioeconomic study area, Brooklyn, and New York City, renter-occupied DUs are more common than owner-occupied DUs. However, despite this overall prevalence of rental DUs, within Brooklyn the percentage of owner-occupied DUs has increased by 2.4 percentage points (from 27.1 percent of DUs in 2000 to 29.5 percent in the 2012–2016 ACS), while renter-occupied DUs have decreased by 2.3 percentage points, from 72.9 percent in 2000 to 70.6 percent in the 2012–2016 ACS (see **Table C-4**).

Table C-4
Percentage of Owner-Occupied DUs and Renter-Occupied DUs
(2000, 2012–2016 ACS)

Area	2000 Census[1]		2012–2016 ACS		Percentage Point Change	
	Percentage of Owner-Occupied DUs	Percentage of Renter-Occupied DUs	Percentage of Owner-Occupied DUs	Percentage of Renter-Occupied DUs	Owner-Occupied DUs	Renter-Occupied DUs
Socioeconomic Study Area	21.8%	78.2%	20.4%[2]	79.6%[3]	N/A[4]	N/A[4]
Brooklyn	27.1%	72.9%	29.5%	70.6%	2.4%	-2.3%
New York City	30.2%	69.8%	32.0%	68.0%	1.8%	-1.8%

Notes:
[1] The socioeconomic study area geography included Census Tracts 904 and 914 as presented in the 2000 Decennial Census; these census tracts were merged after 2000 and approximate Census Tract 924 in the 2012–2016 ACS.
[2] Based on the MOE for owner-occupied DUs within the study area (according to the 2012–2016 ACS, MOE of 1.6 percent), there is 90 percent probability that the percent of owner-occupied DUs is between 18.8 percent and 22 percent.
[3] Based on the MOE for renter-occupied DUs within the study area (according to the 2012–2016 ACS, MOE of 1.7 percent points), there is 90 percent probability that the percent of renter-occupied DUs is between 77.9 percent and 81.3 percent.
[4] The MOE of the difference between 2000 Census and 2012–2016 ACS data for the study area is greater than the estimated difference. Therefore, a change cannot be reported with confidence.
Sources:
U.S. Census Bureau, 2000 Decennial Census, and 2012–2016 ACS 5-Year Estimates. DCP Population FactFinder

FUTURE WITHOUT THE PROPOSED PROJECT

Project Sites

Under the No Action condition, seven residential buildings would be developed on the Project Sites, adding 438 new DUs and a new population of 1,205 residents to the study area by the 2024 analysis year (based on an average household size of 2.75, the 2010 Census average for Brooklyn Community District 16). Of these DUs developed, it is assumed that 20 percent (88 DUs) would be designated affordable and set aside for residents making at or below 50 percent Area Median Income (AMI) under the Affordable New York Housing Program.

Study Area

Within the study area, a number of additional small development projects are expected to be built by the 2024 analysis year. Planned projects include the construction of 38 new DUs within ¼-mile of the Project Sites. This will bring approximately 104 additional residents into the study area.

In total, in the No Action condition approximately 1,309 additional residents are expected to reside within the study area.

FUTURE WITH THE PROPOSED PROJECT

The Proposed Project would introduce 843 DUs to the study area, a 405-DU increment above the No Action condition. Assuming 2.75 persons per household, the Proposed Project would result in a 1,113-resident increment. While all of the DUs are likely to be affordable, the levels of affordability—or "income bands"—for the Proposed Project have not yet been determined. However, given the relatively low average household income of the existing study area population at $43,468, it is reasonable and conservative to assume that the Proposed Projects' population, in the aggregate, would have a higher average household income than the existing study area population. Based on *CEQR Technical Manual* guidelines, if the expected average incomes of the

new population would exceed the average incomes of the study area populations, Step 2 of the preliminary assessment should be conducted.

Step 2: Determine if the project's increase in population is large enough relative to the size of the population expected to reside in the study area without the project to affect real estate market conditions in the study area.

As shown in **Table C-5**, based on 2012–2016 ACS data the study area has an estimated population of 32,704 while the 2000 Census reported a study area population of 33,533. Since 2000, the populations of Brooklyn and New York City grew by approximately 5.7 percent.

Table C-5
Change to Study Area Population (2000, 2012–2016 ACS)

	2000 Census[1]	2012–2016 ACS	Percent Change 2000 to 2012–2016
Socioeconomic Study Area	33,533	32,704[2]	N/A[3]
Brooklyn	2,465,326	2,606,852	5.7%
New York City	8,008,278	8,461,961	5.7%

Notes:
[1] The socioeconomic study area geography included Census Tracts 904 and 914 as presented in the 2000 Decennial Census; these census tracts were merged after 2000 and approximate Census Tract 924 in the 2012-2016 ACS.
[2] Based on the MOE for total population with the study area (according to the 2012–2016 ACS, MOE of 1,473), there is 90 percent probability that the total population of the study area is between 31,231 residents to 34,177 residents.
[3] The MOE of the difference between 2000 Census and 2012–2016 ACS data for the study area is greater than the estimated difference. Therefore, a change cannot be reported with confidence.
Source: U.S. Census Bureau 2000 US Decennial Census and 2012–2016 ACS 5-Year Estimates DCP Population FactFinder

As detailed in Attachment B, "Land Use, Zoning, and Public Policy," multiple development projects are expected in the No Action condition. Based on information about these planned projects, absent the Proposed Project, 38 DUs are projected to be built within the study area by the 2024 build year. Assuming an average household size of 2.75 persons and 100 percent occupancy rates, these planned development projects would add an estimated 104 people to the socioeconomic study area in the No Action condition. In addition, under the No Action condition 438 DUs would be built on the Project Sites. Assuming the average household size of 2.75 persons per DU, this would add 1,205 people to the socioeconomic study area. The estimated study area population in the No Action condition was calculated by adding the population from the planned projects and the Project Sites' No Action condition to the 2012–2016 study area population estimates. In total, in the No Action condition, the study area population is expected to grow by 1,309 people and will have a total population of 34,013.

As a result of the Proposed Project, by 2024 there would be an incremental increase of 405 DUs within the study area. With an average household size of 2.75 persons per DU, the Proposed Project would add approximately 1,113 residents to the study area. **Table C-6** shows the breakdown of this new population and its size relative to the population in the No Action condition.

Table C-6
Projected Incremental Population by 2024 under the RWCDS

	2024 Population Projection in the No Action condition	Number of Incremental DUs	Projected Population Increase from With Action condition DU	2024 Population Projection in the With Action condition	Percent Change from 2024 No Action condition
Socioeconomic Study Area	34,013	405	1,113	35,126	3.27%

Note: RWCDS = Reasonable Worst Case Development Scenario
Source: AKRF, Inc.

By adding a 1,113-person increment to the study area, the Proposed Project would increase the study area population by approximately 3.27 percent, from 34,013 in the No Action condition to 35,126 in the With Action condition. Based on *CEQR Technical Manual* analysis guidelines, a population increase less than 5 percent in a study area typically is not large enough to affect real estate market conditions, and Step 3 of the preliminary assessment is unwarranted. The new population introduced by the Proposed Project would neither significantly alter the study area's demographics, nor alter market conditions in a manner that could lead to indirect residential displacement. Therefore, based on *CEQR Technical Manual* guidelines, the Proposed Project would not have the potential to result in significant adverse impacts due to indirect displacement, and further assessment is not warranted. ✷

Attachment D: Community Facilities and Services

A. INTRODUCTION

This attachment assesses the potential impacts of the Proposed Actions on community facilities and services. The 2014 *City Environmental Quality Review (CEQR) Technical Manual* defines community facilities as public or publicly funded schools, child care centers, libraries, health care facilities, and fire and police protection services. CEQR methodology focuses on direct effects on community facilities, such as when a facility is physically displaced or altered, and on indirect effects, which could result from increased demand for community facilities and services generated by new users such as the new population that would result from the Proposed Project.

The Proposed Actions would facilitate the creation of up to 843 affordable dwelling units (DUs), as well as retail and community facility space on seven sites located in the Brownsville neighborhood of Brooklyn, Community District 16. The Proposed Project would introduce a new residential population to the study area, which could result in increased demand for community facilities and services. Therefore, an assessment was conducted to determine whether the Proposed Actions would result in any indirect significant adverse impacts to community facilities. As described in this attachment, the Proposed Actions would not result in any significant adverse impacts on community facilities.

B. PRELIMINARY SCREENING

This analysis of community facilities has been conducted in accordance with *CEQR Technical Manual* methodologies and the latest data and guidance from agencies such as the New York City Department of Education (DOE) and the New York City Department of City Planning (DCP).

The purpose of the preliminary screening is to determine whether a community facilities assessment is warranted. As recommended by the *CEQR Technical Manual*, a community facilities assessment is warranted if a project has the potential to result in either direct or indirect effects on community facilities. If a project would physically alter a community facility, whether by displacement of the facility or other physical change, this "direct" effect triggers the need to assess the service delivery of the facility and the potential effect that the physical change may have on that service delivery. New population added to an area as a result of a project would use existing services, which may result in potential "indirect" effects on service delivery. Depending on the size, income characteristics, and age distribution of the new population, there may be effects on public schools, libraries, or child care centers.

DIRECT EFFECTS

The Proposed Project would not displace or otherwise directly affect any public schools, child care centers, libraries, health care facilities, or police and fire protection services facilities. Therefore, an analysis of direct effects is not warranted.

INDIRECT EFFECTS

The *CEQR Technical Manual* provides thresholds for guidance in making an initial determination of whether a detailed analysis is necessary to determine potential impacts due to indirect effects on community facilities. **Table D-1** lists those *CEQR Technical Manual* analysis thresholds for each community facility type. If a project exceeds the threshold for a specific facility type, a more detailed analysis is warranted. A preliminary screening analysis was conducted to determine if the Proposed Project would exceed any of the *CEQR Technical Manual* thresholds.

Table D-1
Preliminary Screening Analysis Criteria

Community Facility	Threshold for Detailed Analysis
Public schools	More than 50 elementary/intermediate school or 150 high school students
Libraries	Greater than 5 percent increase in ratio of DUs to libraries in borough
Health care facilities (outpatient)	Introduction of sizeable new neighborhood where none existed before[1]
Child care centers (publicly funded)	More than 20 eligible children based on number of low- and low/moderate-income units by borough
Fire protection	Introduction of sizeable new neighborhood where none existed before[1]
Police protection	Introduction of sizeable new neighborhood where none existed before[1]

Note:
[1] The *CEQR Technical Manual* cites the Hunter's Point South project as an example of a project that would introduce a sizeable new neighborhood where none existed before. The Hunter's Point South project would introduce approximately 5,000 new DUs to the Hunter's Point South waterfront in Long Island City, Queens.
Source: *CEQR Technical Manual.*

The Proposed Project would result in a new mixed-use development containing residential, retail, and community facility uses. The Proposed Project would result in the development of up to 843 DUs, an increment of 405 DUs above the Future without the Proposed Project (the "No Action" condition).

As described below, based on the screening criteria in **Table D-1**, detailed assessments of public schools (elementary and intermediate) and child care facilities are warranted. The Proposed Project would not have the potential to have a significant adverse impact on high schools, libraries, health care facilities, or police and fire services; therefore, detailed analyses of indirect effects on high schools, libraries, health care facilities, and police and fire services are not warranted.

PUBLIC SCHOOLS

The *CEQR Technical Manual* recommends conducting a detailed analysis of public schools if a proposed action would generate more than 50 elementary/intermediate school students and/or more than 150 high school students. The Proposed Project would introduce an increment of 405 new affordable DUs. Based on the student generation rates provided in the *CEQR Technical Manual* (0.29 elementary, 0.12 intermediate, and 0.14 high school students per housing DU in Brooklyn), the Proposed Project would generate approximately 117 elementary school students, 49 intermediate school students, and 57 high school students. This number of students warrants a detailed analysis of the Proposed Project's potential effects on elementary and intermediate schools. The number of high school students added by the Proposed Project does not exceed the *CEQR Technical Manual* threshold warranting an analysis of potential effects on high schools.

LIBRARIES

Potential impacts on libraries can result from an increased user population. According to the *CEQR Technical Manual*, a proposed action that results in a 5 percent increase in the average number of DUs served per branch—which is 734 DUs in Brooklyn—may cause a significant impact on library services and require further analysis. The Proposed Project would introduce an increment of 405 DUs. Therefore, the Proposed Project does not approach this threshold, and a detailed analysis of libraries is not warranted.

CHILD CARE CENTERS

According to the *CEQR Technical Manual*, if a proposed action would add more than 20 children eligible for child care to the study area's child care facilities, a detailed analysis of its impact on publicly funded child care facilities is warranted. This threshold is based on the number of low-income and low/moderate-income DUs introduced by a proposed action. Low-income and low/moderate-income affordability levels are intended to approximate the financial eligibility criteria for publicly funded child care facilities established by the New York City Administration for Children's Services (ACS), which generally corresponds to 200 percent of the Federal Poverty Level (FPL) or 80 percent of Area Median Income (AMI). In Brooklyn, projects introducing 110 or more low- to moderate-income DUs would meet the threshold for analysis of introducing 20 or more children eligible for child care services. The Proposed Project would introduce an increment of 405 new affordable DUs; therefore, a detailed assessment of child care centers is warranted.

HEALTH CARE FACILITIES

Health care facilities include public, proprietary, and nonprofit facilities that accept government funds (usually in the form of Medicare and Medicaid reimbursements) and that are available to any member of the community. Examples of these types of facilities include hospitals, nursing homes, clinics, and other facilities providing outpatient health services.

According to the *CEQR Technical Manual*, if a proposed action would create a sizeable new neighborhood where none existed before, there may be increased demand on local public health care facilities, which may warrant further analysis of the potential for indirect impacts on outpatient health care facilities. The Proposed Project is located within Brownsville, which is a well-established residential neighborhood in central Brooklyn, and therefore would not result in the creation of a sizeable new neighborhood where none existed before. In addition, the Proposed Project would only introduce an increment of 405 new DUs. Therefore, a detailed analysis of indirect effects on health care facilities is not warranted.

POLICE AND FIRE SERVICES

The *CEQR Technical Manual* recommends detailed analyses of impacts on police and fire service in cases where a proposed action would affect the physical operations of, or direct access to and from, a precinct house or fire station, or where a proposed action would create a sizeable new neighborhood where none existed before. The Proposed Project would not result in these direct effects on either police or fire services, nor would it create a sizeable new neighborhood where none existed before; therefore, no further analysis is warranted.

C. POTENTIAL INDIRECT EFFECTS ON PUBLIC ELEMENTARY AND INTERMEDIATE SCHOOLS

METHODOLOGY

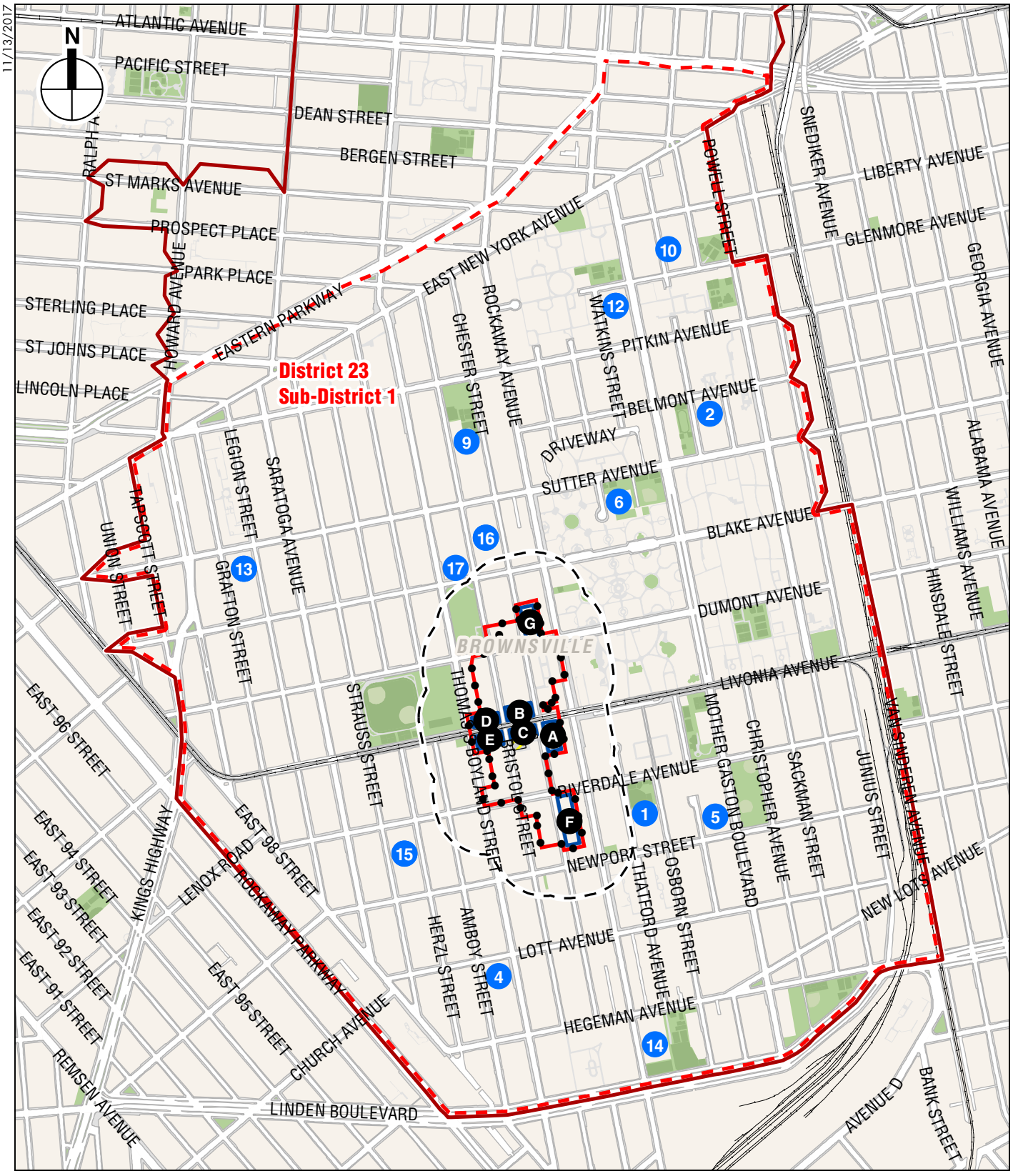
This section presents an assessment of the potential effects of the Proposed Project on public elementary and intermediate schools serving the development site. Following the methodologies in the *CEQR Technical Manual*, the study area for the analysis of elementary and intermediate schools is the school district's "subdistrict" (also known as the "region" or "school planning zone") in which the project is located. The development site is located in Subdistrict 1 of Community School District (CSD) 23 (see **Figure D-1**). It should be noted that CSD 23 has elementary and intermediate school choice programs, which means there are no zoned elementary or intermediate schools in the district and students are allowed to apply to any intermediate school within CSD 13. If a project is located within a school district that has an elementary and/or middle school choice program and the potential for a significant adverse impact is identified at the subdistrict level, an analysis of the whole district is appropriate.

In accordance with the *CEQR Technical Manual*, this schools analysis uses the most recent DOE data on school capacity, enrollment, and utilization rates for elementary and intermediate schools in the subdistrict study area and New York City School Construction Authority (SCA) projections of future enrollment. Specifically, the existing conditions analysis uses data provided in the DOE's *Utilization Profiles: Enrollment/Capacity/Utilization, 2016–2017* edition. Future conditions are then predicted based on SCA enrollment projections and data obtained from SCA's Capital Planning Division on the number of new housing DUs and students expected at the subdistrict level.

The future utilization rate for school facilities is calculated by adding the estimated enrollment from the proposed residential project in the schools' study area to DOE's projected enrollment, and then comparing that number with projected capacity. DOE does not include charter school enrollment in its enrollment projections. DOE's enrollment projections for years 2016 through 2025, the most recent data currently available, were obtained from DCP. These enrollment projections are based on broad demographic trends and do not explicitly account for discrete new residential projects planned for the study area. Therefore, estimates for the student population that would be introduced by other new projects expected to be completed within the study area have been obtained from SCA's Capital Planning Division and are added to the projected enrollment to ensure a more conservative prediction of future enrollment and utilization. In addition, new capacity from any new school project identified in the DOE Five-Year Capital Plan are included if construction has begun or if deemed appropriate to include in the analysis by the lead agency and SCA.

The effect of the new students introduced by the Proposed Project on the capacity of schools within the study areas is then evaluated. According to the *CEQR Technical Manual*, a significant adverse impact may occur if a project would result in both of the following conditions:

1. A utilization rate of the elementary and/or intermediate schools in the subdistrict study area that is equal to or greater than 100 percent in the With Action condition; and
2. An increase of 5 percentage points or more in the collective utilization rate between the No Action and With Action conditions.



Project Area

Project Site

400-foot buffer surrounding Project Area

Proposed Large-Scale General Development (LSGD) Boundary

Lots not part of Project Area or LSGD

Community School District (CSD) Boundary

CSD Sub-district Boundary

School

Marcus Garvey Extension

Elementary and Intermediate Schools

Figure D-1

EXISTING CONDITIONS

ELEMENTARY SCHOOLS—SUBDISTRICT 1 OF CSD 13

Eleven elementary schools serve Subdistrict 1/CSD 23 (see **Figure D-1**). As shown in **Table D-2**, elementary schools in the subdistrict have a total enrollment of 3,713 and are currently operating at 80.4 percent utilization, with a surplus of 908 seats. There is no zoned elementary school for the Project Sites; the school district has an elementary school choice program, which allows students to apply to any elementary school within CSD 23.

Table D-2
Public Elementary and Intermediate Schools Serving the Study Area, Enrollment and Capacity Data, 2016–2017 School Year

Map No.	Name	Address	Enrollment	Capacity	Available Seats	Utilization
Elementary Schools						
Subdistrict 1 of CSD 23						
1	P.S. 41 (Francis White) (PS Component)	411 Thatford Avenue	301	404	103	74.5%
2	P.S. 150 (Christopher)	364 Sackman Street	182	339	157	53.7%
3	P.S. 156 (Waverly)	104 Sutter Avenue	762	739	-23	103.1%
4	P.S. 165 (Ida Posner) (PS Component)	76 Lott Avenue	262	380	118	68.9%
5	P.S. 184 (Newport) (PS Component)	273 Newport Street	382	562	180	68.0%
6	P.S. 284 (The Gregory Jocko Jackson School of Sports, Art, and Technology) (PS Component)	213 Osborn Street	301	300	-1	100.3%
7	P.S. 298 (Dr. Betty Shabazz)	85 Watkins Street	218	344	126	63.4%
8	P.S./I.S. 323 (PS Component)	210 Chester Street	303	387	84	78.3%
9	P.S. 327 (Dr. Rose B. English) (P.S. Component)	111 Bristol Street	329	496	167	66.3%
10	Christopher Avenue Community School	51 Christopher Avenue	299	336	37	89.0%
11	Riverdale Avenue Community School	76 Riverdale Avenue	374	334	-40	112.0%
	CSD 23, Subdistrict 1 Total		3,713	4,621	908	80.4%
Intermediate/Middle Schools						
Subdistrict 1 of CSD 23						
1	P.S. 41 (Francis White) (IS Component)	411 Thatford Avenue	175	235	60	74.5%
4	P.S. 165 (Ida Posner) (IS Component)	76 Lott Avenue	109	158	49	69.0%
5	P.S. 184 (Newport) (IS Component)	273 Newport Street	127	187	60	67.9%
6	P.S. 284 (The Gregory Jocko Jackson School of Sports, Art, and Technology) (IS Component)	213 Osborn Street	175	175	0	100.0%
8	P.S./I.S. 323 (IS Component)	210 Chester Street	192	246	54	78.0%
9	P.S. 327 (Dr. Rose B. English) (IS Component)	111 Bristol Street	72	108	36	66.7%
12	I.S. 363 Brownsville Collaborative Middle School	85 Watkins Street	88	263	175	33.5%
13	I.S. 392	104 Sutter Avenue	294	340	46	86.5%
14	Kappa V (Knowledge and Power Preparatory Academy)	985 Rockaway Avenue	200	438	238	45.7%
15	Riverdale Avenue Middle School	76 Riverdale Avenue	115	309	194	37.2%
16	Mott Hall Bridges Academy	210 Chester Street	198	442	244	44.8%
17	Teachers Preparatory High School	226 Bristol Street	72	148	76	48.6%
	CSD 23, Subdistrict 1 Total		1,817	3,049	1,232	59.6%

Note: [1] See **Figure D-1**.
Source: DOE *Utilization Profiles: Enrollment/Capacity/Utilization, 2016–2017*.

INTERMEDIATE SCHOOLS—SUBDISTRICT 1 OF CSD 13

According to DOE's 2016–2017 school year enrollment figures, 12 intermediate schools serve Subdistrict 1/CSD 23 (see **Figure D-1** and **Table D-2**). Intermediate schools in the subdistrict have a total enrollment of 1,817 students and are currently operating at 59.6 percent utilization, with a surplus of 1,232 seats. There is no zoned intermediate school for the Project Sites; the school district has an intermediate school choice program, which allows students to apply to any intermediate school within CSD 23.

FUTURE WITHOUT THE PROPOSED PROJECT

The latest available SCA enrollment projections for Subdistrict 1/CSD 23 projected for 2024 were used to form the baseline projected enrollment in the No Action condition, shown in **Table D-3** in the column titled "Projected Enrollment in 2024." The students introduced by other No Action projects are added to this baseline projected enrollment using the SCA No Action student numbers for Subdistrict 1/CSD 23 (derived from the SCA's "Projected New Housing Starts"). These students are represented in the column titled "Students Introduced by Residential Project in the Future without the Proposed Project" in **Table D-3**.

Table D-3
Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: No Action Condition

Study Area	Projected Enrollment in 2024[1]	Students Introduced by Residential Project in the No Action condition[2]	Total No Action Condition Enrollment	Capacity	Available Seats	Utilization
Elementary Schools						
Subdistrict 1 of CSD 23	3,760	191	3,951	4,621	670	85.5%
Intermediate Schools						
Subdistrict 1 of CSD 23	1,567	78	1,645	2,635[3,4,5]	990	62.4%

Notes:
[1] Elementary and intermediate school enrollment in the subdistrict study area in 2024 was calculated by applying SCA supplied percentages for the subdistrict to the relevant district enrollment projections. For Subdistrict 1/CSD 23, the district's 2024 elementary enrollment projection of 4,715 was multiplied by 79.75 percent. The subdistrict's intermediate enrollment projection of 2,252 was multiplied by 69.59 percent.
[2] SCA "Projected New Housing Starts" student numbers for Subdistrict 1/CSD 23.
[3] In the future with the proposed grade truncation plan at Teachers Preparatory High School, it is assumed that approximately 123 seats of the existing intermediate capacity at Teachers Preparatory High School will be converted to high school seats.
[4] In the future with the proposed grade truncation plan at P.S. 327 Dr. Rose B. English, it assumed that approximately 232 seats of existing intermediate capacity at Dr. Rose B. English will be removed.
[5] In the future with the proposed grade truncation plan at P.S. 165 Ida Posner, it assumed that approximately 158 seats of existing intermediate capacity at Ida Posner will be removed.
Sources:
DOE Enrollment Projections (Actual 2016, Projected 2016–2025)*; DOE, Utilization Profiles: Enrollment/Capacity/Utilization, 2016–2017*, DOE *2015–2019 Proposed Five-Year Capital Plan, Amendment February 2018;* SCA.

Analysis of the No Action condition also takes into account a series of proposals recently approved by the Panel of Educational Policy.

These include a proposal to truncate the grades served at Teachers Preparatory High school, from a secondary and high school to just a high school beginning in the 2017–2018 school year and finishing in 2018–2019.[1] The grade truncation would be fully implemented by the analysis year; the analysis conservatively assumes that 123 seats will be removed from intermediate school capacity. As described above, CSD 23 has an intermediate school choice program and students have the opportunity to enroll at all other intermediate schools that serve CSD 23.

The Panel for Educational Policy has also approved a proposal grade truncation at P.S. 327 Dr. Rose B. English School.[2] Currently a K–8 school, Dr. Rose B. English School would truncate to

[1] http://schools.nyc.gov/NR/rdonlyres/AF4EDFE0-3732-44BD-8E59-76E7105C47E8/204255/23K697_Grade_Truncation_EIS_vfinal.pdf

[2] http://schools.nyc.gov/NR/rdonlyres/EEBE7C2C-ACC7-458A-B3DB-1094D109D2F8/193733/23K327_Grade_Truncation_EIS_vfinal.pdf

grades K–5 beginning in the 2016–2017 school year and finishing in 2018–2019. The grade truncation would be fully implemented by the analysis year; the analysis conservatively assumes that 232 seats will be removed from intermediate school capacity. As described above, CSD 23 has an intermediate school choice program and students have the opportunity to enroll at all other intermediate schools that serve CSD 23.

In addition, the Panel for Educational Policy has approved a proposed grade truncation at P.S. 165 Ida Posner.[3] Currently a K–8 school, Ida Posner would truncate to grades K–5 beginning and ending in the 2017–2018 school year. The grade truncation would be fully implemented by the analysis year; the analysis conservatively assumes that 158 seats will be removed from intermediate school capacity. As described above, CSD 23 has an intermediate choice program and students have the opportunity to enroll at all other intermediate schools that serve CSD 23.

ELEMENTARY SCHOOLS—SUBDISTRICT 1 OF CSD 23

As shown in **Table D-3**, the total No Action condition enrollment in the subdistrict is projected to be 3,951 elementary students. Elementary schools in the subdistrict study area would operate under capacity (85.5 percent utilization) with a surplus of 670 seats in the No Action condition.

INTERMEDIATE SCHOOLS—SUBDISTRICT 1 OF CSD 23

As shown in **Table D-3**, the total No Action condition enrollment measured at the subdistrict level is projected to be 1,645 intermediate students. Intermediate schools measured at the subdistrict level would operate under capacity with a surplus of 990 seats (62.4 percent utilization).

FUTURE WITH THE PROPOSED PROJECT

The Proposed Project would introduce an increment of 405 DUs to the Project Sites. Based on the public school student generation rates in the *CEQR Technical Manual*, these DUs would introduce approximately 117 elementary students to Subdistrict 1/CSD 23. The Proposed Project would also introduce 49 intermediate school students (see **Table D-4**).

Table D-4
Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: With Action Condition

Study Area	No Action Enrollment	Students Introduced by the Proposed Project	Total With Action Enrollment	Capacity	Available Seats	Utilization	Change in Utilization Compared with No Action
Elementary Schools							
Subdistrict 1 of CSD 23	3,951	117	4,068	4,621	553	88.0%	2.5%
Intermediate Schools							
Subdistrict 1 of CSD 23	1,645	49	1,694	2,635	941	64.3%	1.9%

Sources: DOE Enrollment Projections (Actual 2016, Projected 2016–2025); *DOE, Utilization Profiles: Enrollment/Capacity/Utilization, 2016–2017*, DOE *2015–2019 Proposed Five-Year Capital Plan, Amendment February 2018;* SCA.

[3] http://schools.nyc.gov/NR/rdonlyres/4D25FD09-A519-4066-B359-6D0934CBAD67/207665/23K165_Grade_Truncation_EIS_vFINAL.pdf

ELEMENTARY SCHOOLS—SUBDISTRICT 1 OF CSD 23

In the Future with the Proposed Project (the "With Action" condition), total elementary school enrollment of Subdistrict 1/CSD 23 would increase by 117 students to 4,068 (88.0 percent utilization) with a surplus of 553 seats.

Generally, a significant adverse impact may occur if the Proposed Project would result in both of the following conditions: (1) a utilization rate in the subdistrict study area that is equal to or greater than 100 percent in the With Action condition; and (2) an increase of 5 percentage points or more in the collective utilization rate between the No Action and With Action conditions.

The Proposed Project would not result in an increase in the utilization rate to over 100 percent, nor would the Proposed Project result in a collective utilization rate of more than 5 percentage points over the No Action condition. As the Proposed Project would not have the potential for a significant adverse impact at the subdistrict level, an elementary schools analysis of the whole district is not warranted. Therefore, the Proposed Project would not result in a significant adverse impact to elementary schools.

INTERMEDIATE SCHOOLS—SUBDISTRICT 1 OF CSD 23

In the With Action condition, assuming measurement of capacity and utilization at the subdistrict level, total intermediate school enrollment of Subdistrict 1/CSD 23 would increase by 49 students to 1,694 (64.3 percent utilization) with a surplus of 941 seats. Under this measurement, the collective utilization rate would be less than 100 percent, and intermediate school utilization in Subdistrict 1/CSD 23 would increase by 1.9 percentage points over the No Action condition. The Proposed Project would not result in an increase in the utilization rate to over 100 percent, nor would the Proposed Project result in the collective utilization rate of more than 5 percentage points over the No Action condition. As the Proposed Project would not have the potential for a significant adverse impact at the subdistrict level, an intermediate schools analysis of the whole district is not warranted. As a result the Proposed Project would not result in a significant adverse impact to intermediate schools.

D. PUBLICLY FUNDED CHILD CARE CENTERS

METHODOLOGY

The ACS provides subsidized child care in center-based group child care, family-based child care, informal child care, and Head Start programs. Publicly financed child care services are available for income-eligible children up to the age of 13. In order for a family to receive subsidized child care services, the family must meet specific financial and social eligibility criteria that are determined by federal, state, and local regulations. In general, children in families that have incomes at or below 200 percent of FPL, depending on family size, are financially eligible, although in some cases eligibility can go up to 275 percent FPL. ACS has also noted that 60 percent of the population utilizing subsidized child care services are in receipt of Cash Assistance and have incomes below 100 percent FPL. The family must also have an approved "reason for care," such as involvement in a child welfare case or participation in a "welfare-to-work" program. Head Start is a federally funded child care program that provides children with half-day or full-day early childhood education; program eligibility is limited to families with incomes 130 percent or less of FPL.

Most children are served through enrollment in contracted Early Learn programs or by vouchers for private and nonprofit organizations that operate child care programs throughout the City. Registered or licensed providers can offer family-based child care in their homes. Informal child care can be provided by a relative or neighbor for no more than two children. Children between the ages of 6 weeks and 13 years can be cared for either in group child care centers licensed by the New York City Department of Health and Mental Hygiene (DOHMH) or in homes of registered child care providers. ACS also issues vouchers to eligible families, which may be used by parents to pay for child care from any legal child care provider in the City.

Consistent with the methodologies of the *CEQR Technical Manual*, this analysis of child care centers focuses on services for children under age 6, as older eligible children are expected to be in school for most of the day. Publicly financed child care centers, under the auspices of the Early Care and Education (ECE) Division within ACS, provide care for the children of income-eligible households. Space for one child in such child care centers is termed a "slot." These slots may be in group child care or Head Start centers, or they may be in the form of family-based child care in which up to 16 children are placed under the care of a licensed provider and an assistant in a home setting.

Since there are no locational requirements for enrollment in child care centers, and some parents or guardians choose a child care center close to their employment rather than their residence, the service areas of these facilities can be quite large and are not subject to strict delineation in order to identify a study area. According to the current methodology for child care analyses in the *CEQR Technical Manual*, in general, the locations of publicly funded group child care centers within 1½-miles of a development site should be shown, reflecting the fact that the centers closest to a given site are more likely to be subject to increased demand. Current enrollment data for the child care centers closest to the project area were gathered from ACS.

The child care enrollment in the No Action condition was estimated by multiplying the number of new low-income and low/moderate-income housing DUs expected in the 1½-mile study area by the *CEQR Technical Manual* multipliers for estimating the number of children under age 6 eligible for publicly funded child care services (*CEQR Technical Manual* Table 6-1b). For Brooklyn, the multiplier estimates 0.178 public child care-eligible children under age 6 per affordable housing DU.[4] The estimate of new public child care-eligible children was added to the existing child care enrollment to estimate enrollment in the No Action condition.

The child care-eligible population introduced by the Proposed Project was also estimated using the *CEQR Technical Manual* child care multipliers. The population of public child care-eligible children under age 6 was then added to the child care enrollment calculated in the No Action condition. According to the *CEQR Technical Manual*, if an action would result in a demand for slots greater than the remaining capacity of child care facilities, and if that demand constitutes an increase of 5 percentage points or more of the collective capacity of the child care facilities serving the respective study area, a significant adverse impact may result.

[4] Low-income and low/moderate-income are the affordability levels used in the *CEQR Technical Manual*; and are intended to approximate the financial eligibility criteria established by ACS, which generally corresponds to 200 percent FPL or 80 percent of AMI.

EXISTING CONDITIONS

There are 35 publicly funded child care facilities within the 1½-mile study area (see **Figure D-2**). The child care and Head Start facilities have a total capacity of 2,958 slots and have a surplus of 454 slots (84.7 percent utilization). **Table D-5** shows the current capacity and enrollment for these facilities. Family-based child care facilities and informal care arrangements provide additional slots in the study area, but these slots are not included in the quantitative analysis.

Table D-5
Publicly Funded Child Care Facilities Serving the Study Area

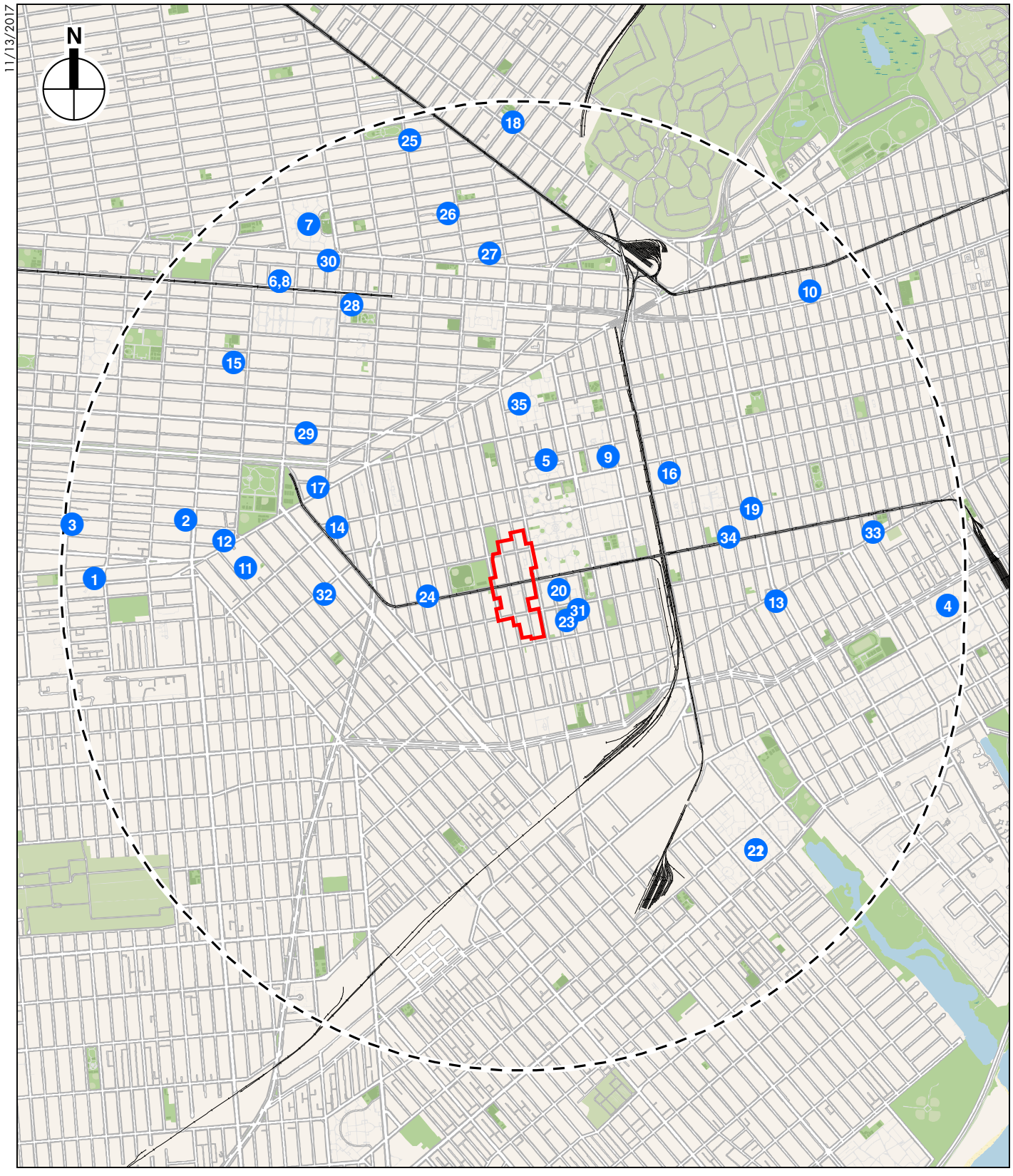
Map ID[1]	Name	Address	Enrollment	Capacity	Available Slots	Utilization
1	All My Children Daycare	739 East New York Avenue	14	17	3	82%
2	All My Children Daycare	771 Crown Street	40	43	3	93%
3	B'Above Worldwide Institute, Inc.	570 Crown Street	111	119	8	93%
4	Boulevard Nursery School Inc.	2150 Linden Boulevard	31	40	9	78%
5	Brightside Academy, Inc.	50 Belmont Avenue	36	39	3	92%
6	Brooklyn Bureau of Community Service	1825 Atlantic Avenue	10	12	2	83%
7	Brooklyn Kindergarten Society, Inc.	250 Ralph Avenue	31	47	16	66%
8	Brooklyn Bureau of Community Service	1825 Atlantic Avenue	18	20	2	90%
9	Brooklyn Kindergarten Society, Inc.	232 Powell Street	77	88	11	88%
10	Catholic Charities Neighborhood Services, Inc.	220 Hendrix Street	23	28	5	82%
11	Community Parents, Inc.	60 East 93rd Street	102	105	3	97%
12	Friends of Crown Heights Educational Ctrs, Inc.	36 Ford Street	109	126	17	87%
13	Friends of Crown Heights Educational Ctrs, Inc.	370 New Lots Avenue	91	100	9	91%
14	Friends of Crown Heights Educational Ctrs, Inc.	20 Sutter Avenue	66	74	8	89%
15	Friends of Crown Heights Educational Ctrs, Inc.	1435 Prospect Place	75	90	15	83%
16	HELP Day Care Corporation	515 Blake Avenue	81	84	3	96%
17	Inner Force Tots Inc	1181 East New York Avenue	171	339	168	50%
18	Labor and Industry for Education, Inc.	1375 Bushwick Avenue	70	74	4	95%
19	Police Athletic League, Inc.	452 Pennsylvania Avenue	94	103	9	91%
20	Police Athletic League, Inc.	280 Livonia Avenue	179	185	6	97%
21	Recreation Rooms and Settlement, Inc	715 East 105th Street	34	34	0	100%
22	Recreation Rooms and Settlement, Inc	717 East 105th Street	65	70	5	93%
23	SCO Family of Services	225 Newport Street	63	65	2	97%
24	SCO Family of Services	774 Saratoga Avenue	94	106	12	89%
25	SCO Family of Services	69-71 Saratoga Avenue	65	85	20	76%
26	Shirley Chisholm Day Care Center, Inc	265 Sumpter Street	48	55	7	87%
27	Shirley Chisholm Day Care Center, Inc	33 Somers Street	114	118	4	97%
28	Shirley Chisholm Day Care Center, Inc	2023 Pacific Street	111	116	5	96%
29	St. John's Place Family Center Day Care Corporation	1620 Saint John's Place	25	37	12	68%
30	St. Marks U.M.C. Family Services Council	933 Herkimer Street	100	119	19	84%
31	The Salvation Army	280 Riverdale Avenue	49	63	14	78%
32	Traditional Day Care Center, Inc.	1112 Winthrop Street	55	59	4	93%
33	United Community Day Care Center	613 New Lots Avenue	76	94	18	81%
34	University Settlement Society of NY, Inc.	565 Livonia Avenue	150	174	24	86%
35	YWCA of the City of New York	1592 East New York Ave	26	30	4	87%
		Total	**2,504**	**2,958**	**454**	**85%**

Note: [1] See **Figure D-2**.
Source: ACS, 2017.

FUTURE WITHOUT THE PROPOSED PROJECT

By 2024, within the 1½-mile study area, planned or proposed development projects will introduce approximately 1,145 new housing DUs (excludes planned supportive housing units), of which 347 are anticipated to be affordable housing DUs.[5] Based on the CEQR generation rates for the

[5] This estimate assumes that 20 percent of DUs in developments of 20 or more DUs would be occupied by low- or low/moderate-income households meeting the financial and social criteria for publicly funded child care. This total includes 147 affordable DUs analyzed in the *803 Rockaway Avenue Rezoning EAS*.



Marcus Garvey Extension

Child Care Facilities

Figure D-2

projection of children eligible for publicly funded day care multipliers, this amount of development would introduce approximately 62 new children under the age of 6 who would be eligible for publicly funded child care programs.

Based on these assumptions, the number of available slots will decrease, and utilization would increase to 86.8 percent. When the estimated 62 children under age 6 introduced by planned development projects are added to total enrollment, there will be a surplus of 392 slots in publicly funded child care programs in the study area.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

The Proposed Project would introduce approximately 843 affordable DUs by 2024, an increment of 755 more affordable DUs that in the No Action condition. As described above, eligibility for subsidized childcare is established by ACS, and generally corresponds to 200 percent of FPL or 80 percent of AMI. Of the 755 additional housing DUs introduced by the Proposed Project, all would be affordable for families earning 80 percent of AMI. Based on *CEQR Technical Manual* child care multipliers, the Proposed Project would generate approximately 134 additional children under the age of 6 who would be eligible for publicly funded child care programs.

With the addition of these children, child care facilities in the study area would operate at 91.3 percent utilization, with a surplus of 258 slots (see **Table D-6**). Total enrollment in the study area would increase to 2,700 children, compared with a capacity of 2,958 slots, which represents an increase in the utilization rate of 4.5 percentage points over the No Action condition.

Table D-6
Estimated Public Child Care Facility Enrollment, Capacity, and Utilization: With Action Condition

Analysis Period	Enrollment	Capacity	Available Slots	Utilization	Change in Utilization
Existing conditions	2,504	2,958	454	84.7%	
No Action condition	2,540	2,958	418	86.8%	N/A
With Action condition	2,674	2,958	284	91.3%	4.5%

Sources: ACS, 2017; AKRF, Inc.

As noted above, the *CEQR Technical Manual* guidelines indicate that a demand for slots greater than the remaining capacity of child care facilities and an increase in demand of 5 percentage points of the study area capacity could result in a significant adverse impact. In the With Action condition the increase in the utilization rate would be less than 5 percentage points and the overall utilization rate would not exceed the 100 percent threshold; therefore, the Proposed Project would not result in a significant adverse impact on child care facilities. ✶

Attachment E: Open Space

A. INTRODUCTION

This attachment assesses the potential impacts of the Proposed Actions on open space resources. Open space is defined in the 2014 *City Environmental Quality Review (CEQR) Technical Manual* as publicly accessible, publicly or privately owned land that is available for leisure, play, or sport or serves to protect or enhance the natural environment. An open space assessment should be conducted if a project would have a direct effect on open space, such as eliminating or altering a public open space, or an indirect effect, such as when a substantial new population could place added demand on an area's open spaces.

As discussed in Attachment A, "Project Description & Screenings," under the Reasonable Worst Case Development Scenario (RWCDS), the Proposed Actions are expected to result in a net increment of approximately 405 dwelling units (DUs), approximately 35,049 square feet (sf) of commercial space, and approximately 34,108 sf of community facility space (the "Proposed Project"). As discussed in more detail below, the Proposed Actions would result in the introduction of residential uses that would increase the residential population in the Project Area. Therefore, in accordance with *CEQR Technical Manual* guidelines, an open space assessment was conducted to determine whether the Proposed Actions would result in significant adverse open space impacts. This assessment finds that the Proposed Actions would not result in significant adverse open space impacts.

B. METHODOLOGY

As defined by the *CEQR Technical Manual*, public open space is accessible to the public on a constant and regular basis, including for designated daily periods. Public open space may be under government or private jurisdiction and typically includes City, state, and federal parkland, esplanades, and plazas designated through regulatory approvals such as zoning. Private open space is not publicly accessible or is available only to limited users. It is not available to the public on a regular or constant basis. Examples of private open space are natural areas with no public access, community gardens, front and rear yards, rooftop recreational facilities, and stoops or landscaped grounds used by community facilities, such as public and private educational institutions, where the open space is accessible only to the institution-related population.

Open spaces can be characterized as either active or passive depending on the activities the space allows. In many cases, open space may be used for both active and passive recreation. Open space that is used for sports, exercise, or active play is classified as "active open space," and consists primarily of recreational facilities. Passive open spaces are used for relaxation, such as sitting or strolling. Active and passive open spaces are further defined in Section C, "Existing Conditions."

DIRECT EFFECTS

According to the *CEQR Technical Manual*, a proposed project would directly affect open space conditions if it causes the loss of public open space, changes the use of an open space so that it no longer serves the same user population, limits public access to an open space, or results in

increased noise or air pollutant emissions, odor, or shadows that would temporarily or permanently affect the usefulness of a public open space. This attachment will determine whether the Proposed Actions would directly impact any open spaces within, or in close proximity to, the Project Area.

INDIRECT EFFECTS

As described in the *CEQR Technical Manual*, open space can be indirectly affected by a proposed action if a project would add enough population, either residential or non-residential, to noticeably diminish the capacity of open space in the area to serve the future population. Typically, an assessment of indirect effects is conducted when a project would introduce more than 200 residents or 500 workers to an area; however, the thresholds for assessment are slightly different for areas of the City that have been identified as either underserved or well-served by open space. For areas underserved by open space, the threshold for assessment is more than 50 residents or 125 workers, and for areas well-served by open space, the threshold for assessment is more than 350 residents or 750 workers. If a project is not located within an underserved or well-served area, an open space assessment should be conducted if that project would generate more than 200 residents or 500 employees. The Project Area is not located within an area that has been identified as either underserved or well-served.

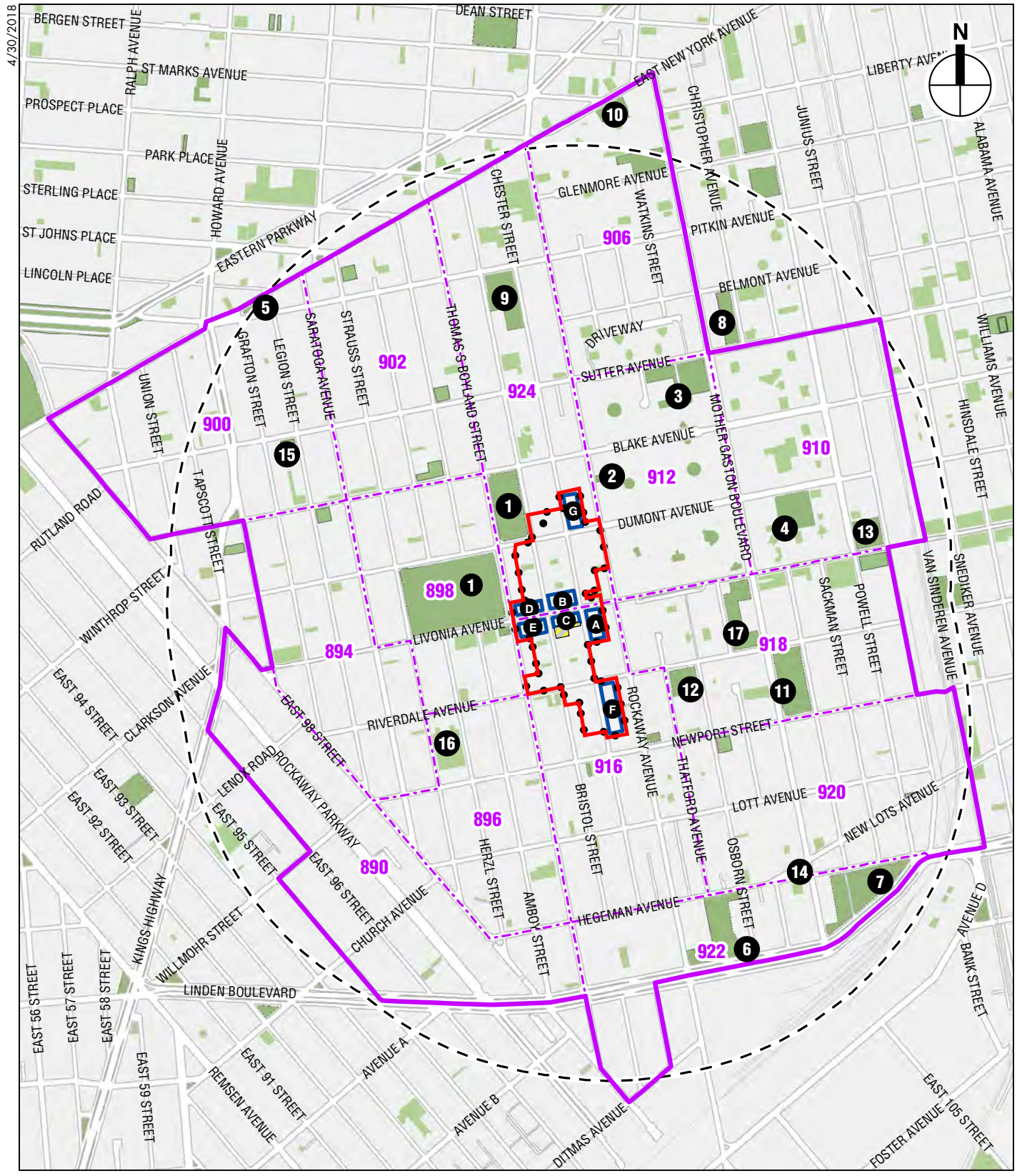
In accordance with *CEQR Technical Manual* guidelines, the open space analysis and impact assessment is based on the anticipated development from the projected development sites. As discussed in Attachment A, "Project Description & Screenings," the Proposed Project would introduce up to 405 incremental DUs, which would introduce an estimated 1,113 residents to the Project Area as compared with the Future without the Proposed Project (the "No Action" condition). In addition, the Proposed Actions would introduce approximately 186 new workers. As such, an open space assessment for only the residential population generated by the Proposed Actions is warranted.

STUDY AREAS

The *CEQR Technical Manual* recommends establishing a study area or areas as the first step in an open space assessment. The study areas are based on the distances that the respective users—workers and residents—are likely to walk to an open space. According to the *CEQR Technical Manual*, workers are assumed to walk approximately 10 minutes, or ¼-mile from their place of work to an open space, while residents are assumed to walk approximately 20 minutes, or ½-mile to an open space.

Because the Proposed Actions would only introduce new residential population above the 200-resident population threshold and not a substantial enough population to exceed the 500-worker threshold, the adequacy of open space resources was assessed for the ½-mile (residential) study area. This study area was adjusted to include all census tracts with at least 50 percent of their area within the ½-mile boundary. In this way, the study area allows for analysis of both the open spaces in the area as well as population data. As shown on **Figure E-1**, the ½-mile residential study area includes the area within Census Tracts 890, 894, 896, 898, 900, 902, 906, 910, 912, 916, 918, 920, 922, and 924.

As shown on **Figure E-1**, the residential study area is generally bounded by East New York Avenue to the north, Van Sinderen Avenue to the east, Linden Boulevard and Ditmas Avenue to the south, and East 95th, East 96th, and East 98th Streets to the west.



Open Space Study Area and Resources

Marcus Garvey Extension

Figure E-1

ANALYSIS FRAMEWORK

The *CEQR Technical Manual* methodology suggests conducting an initial quantitative assessment to determine whether more detailed analyses are appropriate, but also recognizes that for projects that introduce a large population in an area that is neither well served nor underserved by open space, it may be clear that a full, detailed analysis should be conducted. Because the Proposed Actions would introduce a sizeable new residential population to the study area, a preliminary analysis was not performed and a detailed analysis was conducted.

With an inventory of available open space resources and potential users, the adequacy of open space in the study areas can be assessed both quantitatively and qualitatively. The quantitative approach computes the ratio of open space acreage to the population in the study area and compares this ratio with certain guidelines. The qualitative assessment examines other factors that may affect conclusions about adequacy, including proximity to additional resources beyond the study area, the availability of private recreational facilities, and the demographic characteristics of the area's population. Specifically, the analysis in this attachment includes:

- Characteristics of the open space residents. To determine the number of residents in the study areas, 2015 American Community Survey (ACS) data have been compiled for census tracts comprising the residential open space study areas.
- An inventory of all publicly accessible passive and active recreational facilities in the residential open space study area.
- An assessment of the quantitative ratio of open space in the study area is conducted by computing the ratio of open space acreage to the residential population in the study area and comparing this open space ratio with certain guidelines. In New York City, local open space ratios (OSR) vary widely, and the median ratio at the Citywide Community District (CD) level is 1.5 acres of open space per 1,000 residents. Typically, for the assessment of both direct and indirect effects, citywide local norms have been calculated for comparison and analysis. As a planning goal, a ratio of 2.5 acres per 1,000 residents represents an area well-served by open spaces, and is consequently used as an optimal benchmark for residential populations in large-scale proposals. Ideally, this would comprise 0.50 acres of passive space and 2.0 acres of active open space per 1,000 residents. For such large-scale projects (and for planning purposes), the City also seeks to attain its planning goal of a balance of 80 percent active open space and 20 percent passive open space. The City's planning goal is based, in part, on National Recreation and Park Association guidelines of 1.25 to 2.5 acres per 1,000 residents of neighborhood parks within ½-mile, 5 to 8 acres per 1,000 residents of community parks within 1 to 2 miles, and 5 to 10 acres per 1,000 residents of regional parks within a 1-hour drive of urban areas.
- An evaluation of qualitative factors affecting open space use.
- A determination of the adequacy of open space in the residential open space study area in the existing conditions and No Action and With Action conditions.
- An assessment of expected changes in future levels of open space supply and demand in the 2024 analysis year, based on other planned development projects within the open space study area. To estimate the population expected in the study areas in the No Action condition, an average household size of 2.75 persons is applied to the number of new housing DUs expected in the study area located within Brooklyn CD 16.[1] Any new open

[1] Assumes 2.75 Persons per Household in Brooklyn CD 16 (2010 Decennial Census).

space or recreational facilities that are anticipated to be operational by the analysis year are also accounted for. OSR are calculated for No Action and With Action conditions and compared them to determine changes in future levels of adequacy.

IMPACT ASSESSMENT

Impacts are based in part on how a project would change the OSR in the study areas. According to the *CEQR Technical Manual*, an open space ratio decrease is generally considered to be a significant adverse impact, warranting a detailed analysis, if it would approach or exceed 5 percent. If a study area exhibits a low open space ratio, indicating a shortfall of open space, smaller decreases in that ratio as a result of the action may constitute significant adverse impacts. In addition to the quantitative factors cited above, the *CEQR Technical Manual* also recommends consideration of qualitative factors in assessing the potential for open space impacts. These include the availability of nearby destination resources, the beneficial effects of new open space resources provided by a project, and the comparison of projected OSRs with established City guidelines. It is recognized that the OSRs of the City guidelines presented are not feasible for many areas of the City, and they are not considered impact thresholds on their own. Rather, these are benchmarks that indicate how well an area is served by open space. When assessing the effects of a change in the open space ratio, the assessment should consider the balance of passive and active open space resources appropriate to support the affected population and the condition of existing open spaces within the study area. Determinations as to what constitutes a significant adverse open space impact are not based solely on the results of the quantitative assessment. Qualitative considerations such as the distribution of open space, whether an area is considered "well-served" or "underserved" by open space, the distance to regional parks, the connectivity of open space, and any additional open space provided by a project, should be considered in a determination of significance.

C. EXISTING CONDITIONS

STUDY AREA POPULATION

RESIDENTIAL (½-MILE) STUDY AREA

As shown in **Table E-1**, 2015 ACS data indicates that the residential study area has a residential population of approximately 59,526.

Table E-1
Study Area Residential Population

Census Tract[1]	Residential Population
890	6,750
894	3,751
896	3,411
898	1,777
900	5,358
902	3,886
906	4,318
910	6,094
912	6,627
916	4,790
918	3,058
920	3,406
922	2,880
924	3,420
Residential Study Area Total	**59,526**

Note: [1] See **Figure E-1** for a map of census tracks included in the study area.
Sources: U.S. Census Bureau, ACS 2011–2015 5-Year Estimates

INVENTORY OF PUBLICLY ACCESSIBLE OPEN SPACE

According to the *CEQR Technical Manual*, open space may be public or private and may be used for active or passive recreational purposes. In accordance with the *CEQR Technical Manual*, publicly accessible open space is defined as facilities open to the public at designated hours on a regular basis and is assessed for impacts using both a quantitative and a qualitative analysis, whereas private open space is not accessible to the general public on a regular basis and is considered qualitatively. In addition to residential buildings, most New York City Housing Authority (NYCHA) developments contain ancillary facilities for its residents such as community centers, child care facilities, and recreational amenities, such as basketball courts and the landscaped grounds between buildings. Some NYCHA developments contain passive seating areas that are available for NYCHA residents and the public. Over time, playgrounds and small parks have been carved out of larger NYCHA superblocks. Today, these open spaces are maintained for public use by the New York City Department of Parks and Recreation (NYC Parks). In order to ensure a conservative analysis, open spaces on NYCHA developments that appear publicly accessible are considered in the qualitative assessment. Those resources intended for use by NYCHA residents are discussed qualitatively. Similarly, community gardens located on NYC Parks-controlled property, gardens operating under the City's GreenThumb program, or gardens on private property operated by a non-governmental organization such as a foundation or local community development organization are considered in the qualitative assessment. Field surveys and secondary sources were used to determine the number, availability, and condition of publicly accessible open space resources in the residential study area.

An open space is determined to be active or passive by the uses that the design of the space allows. 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, and typically contains benches, walkways, and picnicking areas. However, some passive spaces can be used for both passive and active recreation; a green lawn or riverfront walkway, for example, can also be used for ball playing, jogging, or rollerblading.

RESIDENTIAL (½-MILE) STUDY AREA

As shown in **Table E-2 and Figure E-1**, the residential study area contains a total of approximately 29.49 acres of publicly accessible open space. Of this total, approximately 4.00 acres (13.6 percent) is passive space and 25.49 acres (86.4 percent) is active space.

The largest open space resource in the residential study area is Betsy Head Memorial Park and Imagination Playground ("Betsy Head Park"). This 10.55-acre open space encompasses two park locations: Betsy Head Park is bounded by Dumont Avenue to the north, Thomas S Boyland Street to the east, Livonia Avenue to the south, and Strauss Street to the west; and the nearby Imagination Playground at Betsy Head Park, bounded by Blake Avenue to the north, Bristol Street to the east, Dumont Avenue to the south, and Thomas S Boyland Street to the west. Within the confines of these two locations are two baseball fields, bathroom facilities, handball courts, playgrounds, a running track, basketball courts, a recreation center, and an outdoor pool.

Besides Betsy Head Park, only the Brownsville Playground and Floyd Patterson Ballfields offer recreational spaces in excess of 2 acres. Brownsville Playground, approximately 3.02 acres, is primarily an active resource with features such as basketball courts, spray showers, a turf field, handball courts, playgrounds, a recreation center, and a blacktop. Brownsville Playground also features passive amenities like seating, picnic tables, and Wi-Fi hot spots. The Floyd Patterson

Ballfields are 2.30 acres of active recreational space featuring two baseball fields and benches for spectating.

The remaining resources range from 0.03 acres to 1.90 acres. These resources include Osborn Playground (1.90 acres), Dr. Green Playground (1.79 acres), Nehemiah Park (1.65 acres), Van Dyke Playground (1.40 acres), Chester Playground (1.00 acres), Howard Playground and Pool (1.00 acres), Carter G. Woodson Children's Park (1.00 acres), Newport Playground (0.92 acres), Livonia Playground (0.92 acres), P.S. 631 (0.91 acres), P.S. 156/I.S. 392 (0.33 acres), P.S. 125 Playground (0.21), Zion Triangle (0.21 acres), and Veterans Triangle (0.03 acres). Amenities at these locations are mostly (though not entirely) passive in nature, and include features such as green spaces, court yards, seating areas, memorial statues, one outdoor pool, bathrooms, handball courts, playground equipment, picnic tables, and spray showers. Individual amenities at each open space resource are listed **Table E-2**.

In addition, there are several open space resources that may be available for use by study area residents, including NYCHA open spaces and community gardens that have not been incorporated into the quantitative assessment of open space adequacy. These open spaces are discussed qualitatively below.

ASSESSMENT OF OPEN SPACE ADEQUACY

RESIDENTIAL (½-MILE) STUDY AREA

The following analysis of the adequacy of open space resources within the residential study area takes into consideration the ratios of active, passive, and total open space resources per 1,000 residents, as well as the ratio of passive open space per 1,000 combined residents and workers.

Quantitative Assessment

With a total of 29.49 acres of open space, of which approximately 4.00 acres are for passive use (approximately 14 percent) and approximately 25.49 acres are for active use (approximately 86 percent), and a total residential population of 59,526, the residential study area has an overall open space ratio of 0.495 acres per 1,000 residents **(see Table E-3)**. This is lower than the City's planning guideline of 2.5 acres of combined active and passive open space per 1,000 residents. The study area's residential passive and active OSRs are 0.067 acres and 0.428 acres per 1,000 residents, respectively, which is below the *CEQR Technical Manual* guideline of 0.5 acres of passive open space and well below the *CEQR Technical Manual* guideline of 2.0 acres of active open space per 1,000 residents.

Table E-2
Inventory of Publicly Accessible Open Space in the Residential Study Area

Map No.	Name	Location	Owner/ Agency	Amenities	Total Acres	Passive		Active		Condition	Utilization
						Acres	%	Acres	%		
1	Betsy Head Park	Blake Ave., Dumont Ave., Livonia Ave. bet. Strauss St., Hopkinson Ave. and Bristol St.	NYC Parks	Baseball fields, bathrooms, handball courts, playgrounds, running tracks, recreational centers, basketball courts, football fields, outdoor pool	10.55	0.53	5%	10.02	95%	Fair	Moderate
2	P.S. 125 Playground	Rockaway Ave. Bet. Blake Ave. And Dumont Ave.	NYC Parks	Basketball court, playground, benches	0.21	0.00	0%	0.21	100%	Fair	Moderate
3	Dr. Green Playground	Mother Gaston Blvd. and Sutter Ave.	NYC Parks	Basketball courts, blacktop, bathrooms, handball courts, playgrounds, spray showers	1.79	0.27	15%	1.52	85%	Fair	Moderate
4	Van Dyke Playground	Dumont Ave. between Powell St. and Mother Gaston Blvd.	NYC Parks	Basketball, handball courts, seating, playgrounds, spray showers*	1.40	0.14	10%	1.26	90%	Good	Moderate
5	Zion Triangle	Pitkin Ave., E. New York Ave. bet. Crafton St. and Legion St.	NYC Parks	Memorial statue, seating, green area	0.21	0.21	100%	0.00	0%	Fair	Moderate
6	Osborn Playground	Linden Blvd., Osborn St., Rockaway Ave., Hegeman Ave.	NYC Parks	Basketball and handball courts, playgrounds, spray showers, bathrooms, seating	1.90	0.38	20%	1.52	80%	Good	Low
7	Brownsville Playground	Hegeman Ave., Linden Blvd. bet. Powell St. and Mother Gaston Blvd.	NYC Parks	Basketball courts, turf field, handball courts, seating area, playgrounds, picnic tables, recreation center, blacktop, Wi-Fi hot spots, fitness equipment, indoor pool	3.02	0.30	10%	2.72	90%	Good	Moderate
8	Carter G. Woodson Children's Park	Christopher Ave. between Sutter Ave. and Belmont Ave.	NYC Parks	Playgrounds, spray showers	1.00	0.25	25%	0.75	75%	Good	Low
9	Chester Playground	Chester St. to Bristol St. between Sutter Ave. and Pitkin Ave.	NYC Parks	Basketball courts, benches, handball courts, blacktop, spray showers, playgrounds, bathrooms, picnic tables	1.00	0.10	10%	0.90	90%	Fair	Low
10	Howard Playground and Pool	Mother Gaston Blvd. and Glenmore Ave.	NYC Parks	Basketball courts, spray showers, playgrounds, outdoor pool, handball courts	1.00	0.10	10%	0.90	90%	Fair	Moderate
11	Floyd Patterson Ballfields	Christopher Ave., Riverdale Ave., Newport St., Mother Gaston Blvd.	NYC Parks	Two baseball fields, benches	2.30	0.00	0%	2.30	100%	Fair	Low
12	Newport Playground	Riverdale Ave. bet. Thatford Ave. and Osborn St.	NYC Parks	Basketball courts, handball courts, spray showers, playgrounds, bathrooms	0.92	0.09	10%	0.83	90%	Fair	Moderate*
13	Livonia Playground	Livonia Ave. between Powell St. and Junius St.	NYC Parks	Courtyard, seating area	0.92	0.92	100%	0.00	0%	Fair	Low
14	Veterans Triangle	Hegeman Ave., New Lots Ave. bet. Watkins St. and Mother Gaston Blvd.	NYC Parks	Greenspace, seating	0.03	0.03	100%	0.00	0%	Fair	Moderate
15	P.S. 156/I.S. 392	104 Sutter Ave.	DOE/NYC Parks	Basketball court	0.26	0.00	0%	0.26	100%	Good	Low
16	P.S. 631	76 Riverdale Ave.	DOE/NYC Parks	Basketball court, blacktop, track, benches, cabana	1.33	0.27	20%	1.06	80%	Good	Low
17	Nehemiah Park	405 Watkins St.	NYC Parks	Handball courts, playground, spray showers	1.65	0.41	25%	1.24	75%	**Fair**	**Moderate**
Totals	**N/A**	**N/A**	**N/A**	**N/A**	**29.49**	**4.00**	**N/A**	**25.49**	**N/A**	**N/A**	**N/A**

Note: See **Figure E-1** for a map of open space resources.
Sources: NYC Parks; Field Surveys, August 2017; MapPLUTO

Table E-3
Adequacy of Open Space Resources: Existing Conditions

	Population	Open Space Acreage			Open Space Ratios per 1,000 Persons			*CEQR Technical Manual* Open Space Guidelines		
		Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
Residential (½-Mile) Study Area										
Residents	59,526	29.49	4.00	25.49	0.495	0.067	0.428	2.50	0.50	2.00
Note: There may be a small discrepancy within the number values above due to rounding.										

Qualitative Assessment

As shown in **Table E-2**, the residential study area open spaces include a wide variety of actively programmed open spaces appropriate for the residential user groups, including children, teenagers, and adults. The quantified deficiency of open space resources within the residential study area is partially ameliorated by several factors. A large amount of additional open space within the study area is contained within the boundaries of several NYCHA housing complexes, particularly in the eastern portion.

The open spaces within these NYCHA housing complexes generally offer access to playgrounds and basketball courts, with some benches for seating. These facilities are excluded from the quantitative analysis because they are for the sole use of NYCHA residents; however, NYCHA developments are a significant presence in the residential study area and house thousands of the residents.

As noted above, there are several additional open space resources within the study area that have not been incorporated into the quantitative assessment in order to provide a conservative analysis. These community gardens may be used by residents within the study area (see **Table E-4**). These community gardens are generally programed with passive recreational use, and may contain amenities such as seating, planted areas, small fountains, and tables.

Table E-4
Community Gardens in the Study Area

Name	Location	Owner/Agency	Total Acres
Thomas S Boyland Community Garden (formerly the Hopkinson R&L Garden)	754 Thomas S Boyland Street	NYC Parks	0.15
Isabahlia Farmers Market	514 Rockaway Avenue	NYC Parks	0.17
Abib Newborn	495 Osborn Street	NYC Parks	0.28
Marcus Garvey Tenants Association Garden	1833 Strauss Street	NYC Parks	0.24
Newport Garden	200 Newport Street	NYC Parks	0.14
Fantasy Garden	181 Legion Street	NYC Parks	0.25
Jes Good Rewards Children's Garden	155 Amboy Street	NYC Parks	0.24
MHBA Living Laboratory Community Garden	385 Chester Street	NYC Parks	0.07[1]
Amboy Street Garden	199 Amboy Street	NYC Parks	0.36
Ten Neighbors Community Garden	658 Saratoga Avenue	NYC Parks	0.10
Powell Street Garden	434 Livonia Avenue	NYC Parks	0.46
Green Valley Garden	93 New Lots Avenue	NYC Parks	0.19
Gethsemane Garden	148 Newport Street	NYC Parks	0.05
		Total	**2.70**

Notes:
[1] As described Attachment A, "Project Description and Screenings," a portion of Block 3559, Lot 1 (the "Acquisition Site") would be acquired for use as a replacement community garden. The replacement garden would be a total of 0.14 acres, an increase of 0.7 acres over the existing size of the MHBA Living Laboratory Community Garden.

D. FUTURE WITHOUT THE PROPOSED PROJECT

As detailed in Attachment A, "Project Description & Screenings," it is anticipated that in the absence of the Proposed Actions, the applicant would develop the Project Sites with seven mixed-use buildings containing 394,242 gsf of residential space (438 DUs), 63,924 gsf of community facility space. All existing parking would be maintained under the No Action condition within below-grade parking facilities.

DIRECT EFFECTS

In the No Action condition, the existing vacant Site G—which presently contains an temporary urban farm for use by Marcus Garvey Apartments tenants—would be redeveloped with a mixed-use building.

INDIRECT EFFECTS

STUDY AREA POPULATION

The 438 DUs that would be developed under the No Action condition would add 1,205 additional residents to the study area. Additionally there are 25 known development projects within the study area that are anticipated to add 2,824 residents to the study area. In total, the development that would occur on the Project Sites in the No Action condition and other known developments expected in the study area independent of the Proposed Project would add an additional 4,029 residents to the study area by 2024, raising the total population to 63,555.

ASSESSMENT OF OPEN SPACE ADEQUACY

RESIDENTIAL (½-MILE) STUDY AREA

The following analysis of the adequacy of open space resources within the residential study area takes into consideration the ratios of active, passive, and total open space resources per 1,000 residents, as well as the ratio of passive open space per 1,000 combined residents and workers.

Quantitative Assessment

As shown below in **Table E-5**, in the No Action condition, the total open space ratio is projected to fall from 0.495 acres per 1,000 residents to 0.464 acres per 1,000 residents. The passive open space ratio would fall from 0.067 to 0.063 acres per 1,000 residents, and the active open space ratio would fall from 0.428 to 0.401 acres per 1,000 residents. Similar to existing conditions, all of these OSRs fall well below the City guidelines of 2.5 acres of total open space per 1,000 residents, 0.5 acres of passive open space per 1,000 residents, and 2.0 acres of active open space per 1,000 residents. As noted above this shortfall is one that currently exists within the open space study area.

Table E-5
Adequacy of Open Space Resources: No Action Condition

		Open Space Acreage			Open Space Ratios per 1,000 Persons			*CEQR Technical Manual* Open Space Guidelines		
	Population	Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
Residents	63,555	29.49	4.00	25.49	0.464	0.063	0.401	2.50	0.50	2.00
Note: There may be a small discrepancy within the number values above due to rounding.										

Qualitative Assessment

In the No Action condition, no major changes to the open spaces within the area are anticipated, and qualitative conditions would be similar to those described under existing conditions. Several

additional open space resources such as community gardens and NYCHA open spaces that were not analyzed in the quantitative assessment would continue to be available to residents for use within the open space study area.

E. FUTURE WITH THE PROPOSED PROJECT

DIRECT EFFECTS

According to the *CEQR Technical Manual*, a proposed action may result in a significant direct impact on open space resources if there would be direct displacement/alteration of existing open space within the study area that would have a significant adverse effect on existing users, or an imposition of noise, air pollutant emissions, odors, or shadows on public open space that may alter its usability. Though the Proposed Actions would cast additional shadow on Betsy Head Park, it has been determined that this additional shadow would not significantly affect the park. See Attachment F, "Shadows," for more information.

The Proposed Actions would include the disposition of several City-owned lots (Block 3588, Lots 32-36) that currently contain a GreenThumb garden on Site C (the Mott Hall Bridges Academy [MHBA] Living Laboratory Community Garden) in order to facilitate the construction of Building C. The MHBA garden is registered with NYC Parks' GreenThumb Program. The gardeners have been offered a replacement garden on a portion of p/o Block 3559, Lot 1. The replacement garden would be on property currently owned by a related entity to the applicant. The replacement site would be acquired by the City and administered under the GreenThumb Program. The new garden space on Bristol Street (north of Dumont Avenue) would measure approximately 5,230 sf, with approximately half of the space reserved as replacement space for MHBA Living Laboratory Community Garden on Site C.

INDIRECT EFFECTS

According to the *CEQR Technical Manual*, a proposed action may result in a significant indirect impact on open space resources if it would reduce the open space ratio and consequently result in the overburdening of existing facilities or further exacerbating a deficiency in open space.

STUDY AREA POPULATION

As detailed in Attachment A, "Project Description & Screenings," the Proposed Actions would facilitate redevelopment on the Project Sites with seven new mixed-use buildings containing a total of 775,379 gsf of residential space (843 affordable DUs), 35,049 gsf of neighborhood retail space, 98,032 gsf of community facility space, and 24 accessory parking spaces. This represents an increment of 381,137 gsf of residential space (405 DUs), 35,049 gsf of neighborhood retail space, 34,108 gsf of community facility space, and -489 accessory parking spaces over the No Action condition. The additional 405 DUs will add another 1,113 residents to the population of the study area, bringing the total population to 64,669 with the Proposed Project. The resulting OSRs are shown in **Table E-6**.

Table E-6
Adequacy of Open Space Resources: With Action Condition

		Open Space Acreage			Open Space Ratios per 1,000 Persons			*CEQR Technical Manual* Open Space Guidelines		
	Population	Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
Residents	64,669	29.49	4.00	25.49	0.456	0.062	0.394	2.50	0.50	2.00
Note: There may be a small discrepancy within the number values above due to rounding.										

ASSESSMENT OF OPEN SPACE ADEQUACY

RESIDENTIAL (½-MILE) STUDY AREA

Quantitative Assessment

As shown in above in **Table E-6**, in the Future with the Proposed Project (the "With Action" condition) the total open space ratio is projected to fall from 0.464 acres per 1,000 residents to 0.456 acres per 1,000 residents. The passive open space ratio would decrease from 0.063 acres to 0.062 acres per 1,000 residents, and the active open space ratio would decrease from 0.401 to 0.394 acres per 1,000 residents. Similar to existing conditions, all of these OSRs fall well below the City guidelines of 2.5 acres of total open space per 1,000 residents, 0.5 acres of passive open space per 1,000 residents, and 2.0 acres of active open space per 1,000 residents. These changes represent a decrease of 1.72 percent in the total open space ratio, a decrease of 1.59 percent in the passive open space ratio, and a decrease of 1.75 percent in the active open space ratio (see **Table E-7**).

Table E-7
Open Space Ratio Summary

Ratio	*CEQR Technical Manual* Open Space Guideline	Open Space Ratios per 1,000			Percent Change (With Action)
		Existing	No Action	With Action	
Residential (½-Mile) Study Area					
Total—Residents	2.5	0.495	0.464	0.456	-1.72%
Passive—Residents	0.5	0.067	0.063	0.062	-1.59%
Active—Residents	2.0	0.428	0.401	0.394	-1.75%

As noted above this shortfall is one that currently exists within the open space study area and would continue to exist absent the Proposed Actions.

Qualitative Assessment

In the With Action condition no major changes to the open spaces within the area are anticipated and qualitative conditions would be similar to those described under the existing conditions and No Action condition. Several additional open space resources such as community gardens and NYCHA open spaces that were not analyzed in the quantitative assessment would continue to be available to residents for use within the open space study area.

The existing, approximately 3,000 sf MHBA Living Laboratory Community Garden located on Site C would be replaced with a new, larger, approximately 6,128 sf site which would be operated by NYC Parks one block to the north (p/o Block 3559, Lot 1). The proposed garden Site is owned by Marcus Garvey Preservation LLC, which will convey the property to NYC Parks as part of the Proposed Actions. The new garden site would be approximately 3,128 sf larger than the current garden on Site C.

DETERMINING IMPACT SIGNIFICANCE

A significant adverse open space impact may occur if a proposed action would reduce the open space ratio by more than 5 percent in areas that are currently below the City's median CD open space ratio of 1.5 acres per 1,000 residents. These reductions may result in overburdening existing facilities or further exacerbating a deficiency in open space. **Table E-7** shows the percentage change from the No Action condition to the With Action condition for the residential study area.

Though all of the OSRs in the study area would be below the City's guidelines, the Proposed Project would reduce OSRs by a maximum of 1.72 percent, well below the *CEQR Technical*

Manual threshold of a 5 percent reduction in the open space ratio to constitute a significant adverse impact. The open space study area is already experiencing a shortfall in all categories of open space, but the shortfall would not be substantially increased by the Proposed Actions. In addition, the Proposed Actions would increase the amount of publicly accessible open space in the study area by approximately 3,500 sf as it would result in a new publicly accessible open space that would serve as a replacement for the existing community garden on Site C. Furthermore, in addition to Betsy Head Park, which is within a few blocks of every Project Site, residents of the study area and of the Proposed Project would have access to several additional open space resources such as community gardens and NYCHA open spaces within the study area that have not been included in the quantitative assessment but would be available for use. Therefore, the Proposed Project would not have any significant adverse impacts on open space resources. ✷

Attachment F: Shadows

A. INTRODUCTION

As described in Attachment A, "Project Description & Screenings," the applicant, Brownsville Livonia Associates LLC, is seeking several discretionary land use approvals (the "Proposed Actions") in order to facilitate the development of seven new buildings (the "Proposed Project") in the Brownsville neighborhood of Brooklyn. This attachment examines whether the developments facilitated by the Proposed Actions in the Future with the Proposed Project (the "With Action" condition) would result in a significant adverse shadow impact on any sunlight-sensitive resources as compared with conditions in the Future without the Proposed Project (the "No Action" condition). According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, sunlight-sensitive resources of concern include public open space, sunlight-dependent features of historic architectural resources, and natural resources that depend on sunlight.

The seven new buildings facilitated by the Proposed Actions in the With Action condition would rise to a maximum height of approximately 115 feet above street level (including rooftop mechanical equipment) and would be constructed on seven sites (the "Project Sites"). Absent the Proposed Actions, it is anticipated that in the No Action condition the seven Project Sites would all be redeveloped with structures reaching a height of approximately 53 feet above street level (including rooftop mechanical equipment).

A shadow assessment is required for new structures or additions to existing structures at least 50 feet in height or generally when the structure or addition is located adjacent to a sunlight-sensitive resource. All of the seven Proposed Project structures would be built to a maximum height at least 50 feet taller than the structures developed in the No Action condition and will require a shadow assessment.

A detailed shadow analysis determined that the Proposed Project would cast limited durations of new shadows on five sunlight-sensitive open space resources and one sunlight-sensitive feature of a historic resource. In each case, the incremental shadows would not threaten the usability of the affected open space resources or the vitality of the plant life they support. Similarly, the short duration of new shadows on the historic bathhouse would not substantially reduce the appreciation of its sunlight-sensitive architectural features. Therefore, none of the sunlight-sensitive resources would experience a significant adverse shadow impact and the Proposed Actions would not result in significant shadow impact on any sunlight-sensitive resources.

B. DEFINITIONS AND METHODOLOGY

This analysis has been prepared in accordance with CEQR procedures and follows the guidelines of the *CEQR Technical Manual*.

DEFINITIONS

Incremental shadow is the additional, or new, shadow that a structure resulting from a proposed project would cast on a sunlight-sensitive resource.

Sunlight-sensitive resources are those resources that depend on sunlight or for which direct sunlight is necessary to maintain the resource's usability or architectural integrity. Such resources generally include:

- *Public open space* such as parks, beaches, playgrounds, plazas, schoolyards (if open to the public during non-school hours), greenways, and landscaped medians with seating. Planted areas within unused portions of roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources.
- *Features of architectural resources that depend on sunlight for their enjoyment by the public*. Only the sunlight-sensitive features need to be considered, as opposed to the entire resource. Such sunlight-sensitive features might include design elements that depend on the contrast between light and dark (e.g., recessed balconies, arcades, deep window reveals); elaborate, highly carved ornamentation; stained glass windows; historic landscapes and scenic landmarks; and features for which the effect of direct sunlight is described as playing a significant role in the structure's importance as a historic landmark.
- *Natural resources* where the introduction of shadows could alter the resource's condition or microclimate. Such resources could include surface waterbodies, wetlands, or designated resources such as coastal fish and wildlife habitats.

Non-sunlight-sensitive resources include, for the purposes of CEQR:

- *City streets and sidewalks* (except Greenstreets);
- *Private open space* (e.g., front and back yards, stoops, vacant lots, and any private, non-publicly accessible open space);
- *Project-generated open space* cannot experience a significant adverse shadow impact from the project, according to CEQR, because without the project the open space would not exist.

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, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources. Each case must be considered on its own merits based on the extent and duration of new shadow and an analysis of the resource's sensitivity to reduced sunlight.

METHODOLOGY

Following the guidelines of the *CEQR Technical Manual*, a preliminary screening assessment is first conducted to ascertain whether a project's shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the Project Sites related to the Proposed Project structures requiring shadow assessment, representing the longest shadow that could be cast. If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which reduces the area that could be affected by shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the Project Sites due to the path of the sun through the sky at the latitude of New York City.

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 in each season and determining the maximum extent of shadow over the course of each representative day.

If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the Proposed Project structures requiring shadow assessment. The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text.

C. PRELIMINARY SCREENING ASSESSMENT

A base map was developed using Geographic Information Systems (GIS)[1] showing the location of the Proposed Project structures and the surrounding street layout (see **Figure F-1**). In coordination with the open space and historic resources assessments presented in other attachments of this Environmental Assessment Statement (EAS), potential sunlight-sensitive resources were identified and shown on the map.

TIER 1 SCREENING ASSESSMENT

For the Tier 1 assessment, the longest shadow that the Proposed Project and adjacent potential development could cast is calculated, and, using this length as the radius, a perimeter is drawn around the Project Sites. Anything outside this perimeter representing the longest possible shadow could never be affected by Project-generated shadow, while anything inside the perimeter needs additional assessment.

According to the *CEQR Technical Manual*, the longest shadow that a structure can cast at the latitude of New York City occurs on December 21, the winter solstice, at the start of the analysis day at 8:51 AM, and is equal to 4.3 times the height of the structure.

Including rooftop mechanical equipment, the Proposed Project structures would reach a maximum height of approximately 115 feet above street level and could cast shadows up to 4.3 times as long, or approximately 495 feet. Using these lengths as the radii, a perimeter was drawn around the respective Project Sites (see **Figure F-1**). Several publicly accessible open space resources and historic resources with potentially sunlight-sensitive features are located within the longest shadow study area. Therefore, a Tier 2 assessment is required.

TIER 2 SCREENING ASSESSMENT

Because of the path that the sun travels across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given project site. In New York City, this area lies between -108 and +108 degrees from true north. **Figure F-1** illustrates this triangular area south of the Project Sites. The complementing area to the north within the longest shadow study area represents the remaining area that could potentially experience new Project-generated shadow.

[1] Software: Esri ArcGIS 10.3; Data: New York City Department of Information Technology and Telecommunications (DoITT) and other City agencies, and AKRF site visits.

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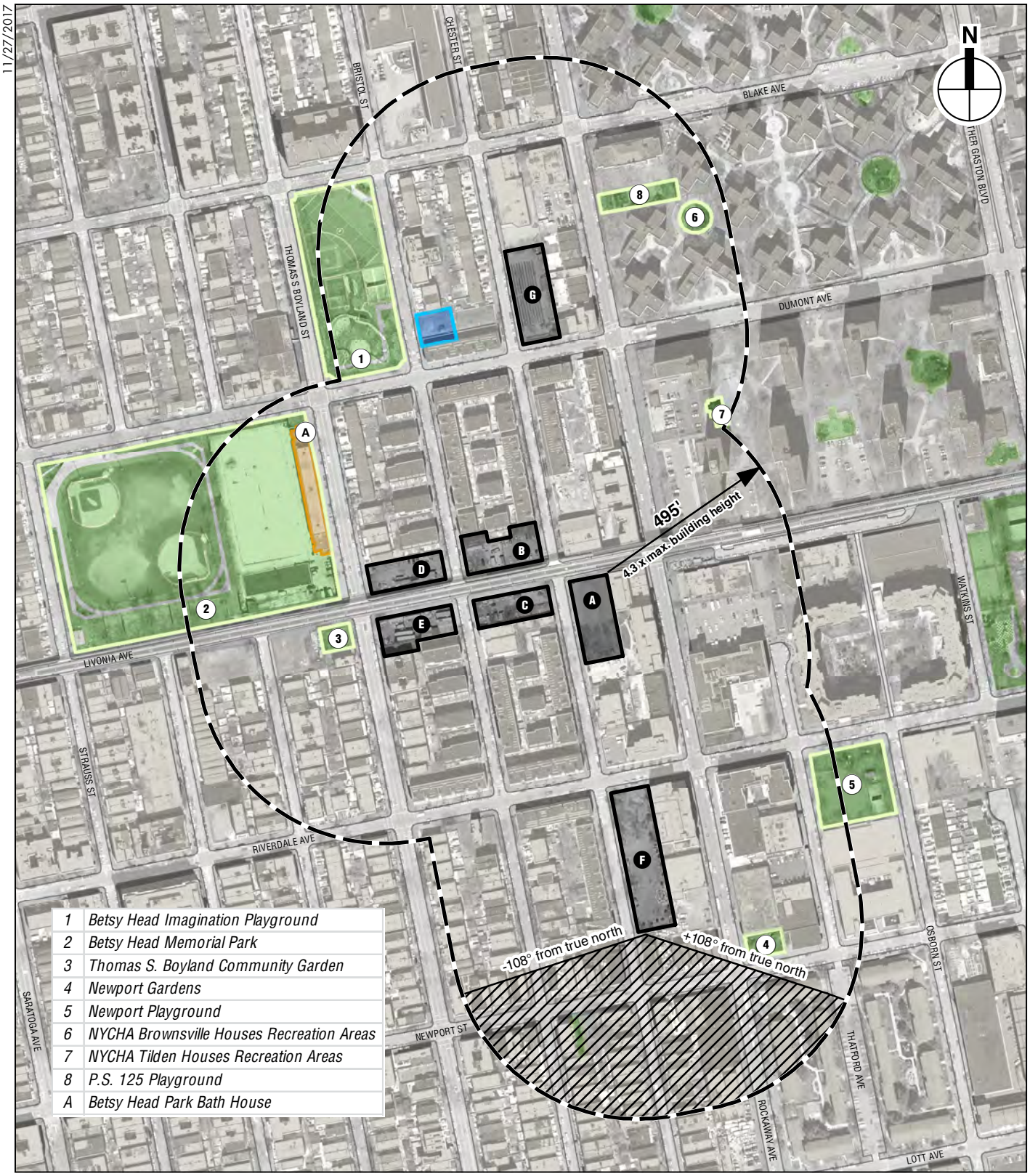


Project Sites
Open Space Resource
Acquisition Site Open Space
Historic Resource with Sunlight-Sensitive Features
Tier 1: Longest shadow study area polygon
Tier 2: Area south of site that could never be shaded by proposed building

0 400 FEET

Marcus Garvey Extension

Tier 1 and Tier 2 Assessments
Figure F-1

As illustrated in **Figure F-1,** eight sunlight-sensitive open space resources and one historic resource with potentially sunlight-sensitive features are located within the remaining longest shadow study area. Therefore, a Tier 3 assessment is required to model Project-generated shadows on specific representative days of the year.

TIER 3 SCREENING ASSESSMENT

The direction and length of shadows vary throughout the course of the day and also differ depending on the season. Shadows move constantly but more quickly at the start and the end of the day than they do in the middle of the day. In order to determine whether Project-generated shadow could fall on a sunlight-sensitive resource, three-dimensional computer mapping software is used in the Tier 3 assessment to calculate and display the incremental shadows from the Proposed Project on individual representative days of the year. A computer model was developed containing three-dimensional representations of the elements in the base map used in the preceding assessments, the topographic information of the study area, and the massings of the Proposed Project.

REPRESENTATIVE DAYS FOR ANALYSIS

Following the guidance of the *CEQR Technical Manual*, shadows on the summer solstice (June 21), winter solstice (December 21), and spring and fall equinoxes (March 21 and September 21, which are approximately the same in terms of shadow patterns) are modeled, to represent the range of shadows over the course of the year. An additional representative day during the growing season is also modeled, the day halfway between the summer solstice and the equinoxes, i.e., May 6 or August 6, which have approximately the same shadow patterns.

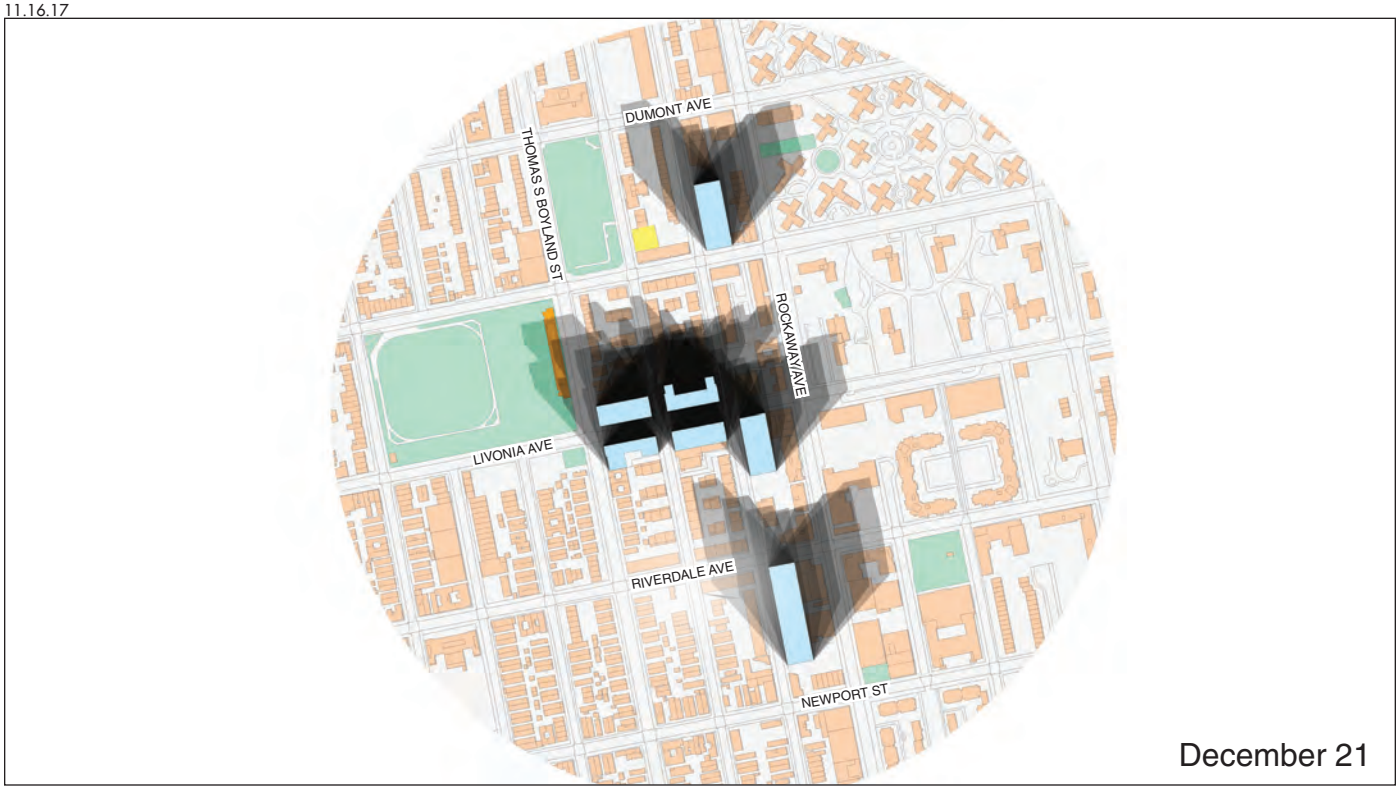
TIMEFRAME WINDOW OF ANALYSIS

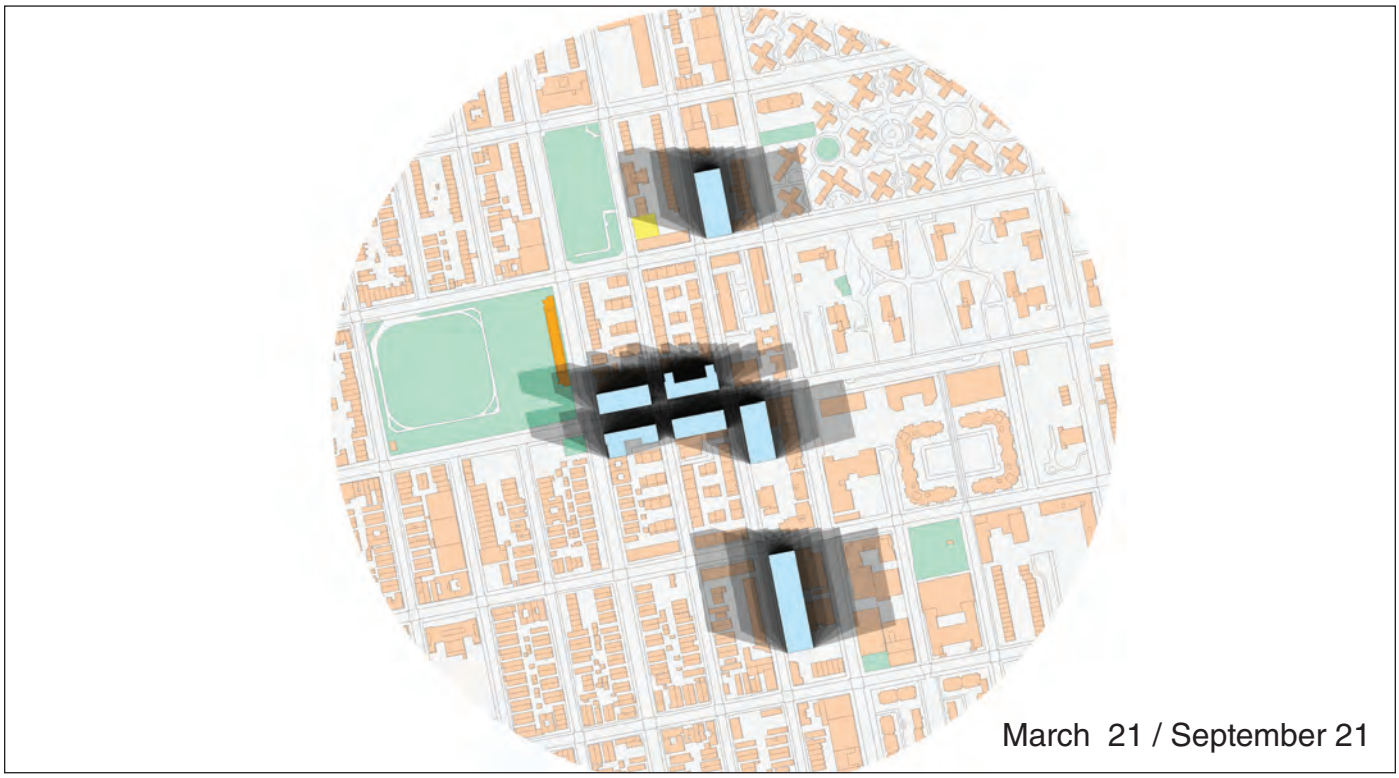
The shadow assessment considers shadows occurring between 1 hour and 30 minutes after sunrise and 1 hour and 30 minutes before sunset. Within the 90 minutes after sunrise and the 90 minutes before sunset, the sun is low on the horizon, and its rays reach the vicinity of the Project Sites at low angles, producing shadows that are very long, move fast, and generally blend with shadows from existing structures until the sun reaches the horizon and sets. Consequently, shadows occurring in these two 90-minute periods are not considered significant under CEQR, and their assessment is not required.

TIER 3 SCREENING ASSESSMENT RESULTS

Figures F-2 and F-3 illustrate the range of shadows that would occur, in the absence of intervening buildings, from the Proposed Project structures on the 4 representative analysis days. The extent of shadow is shown between the start of the analysis day (1 hour and 30 minutes after sunrise) to the end of the analysis day (1 hour and 30 minutes before sunset).

The Tier 3 assessment finds that five of the eight open space resources that were identified in the Tier 2 assessment could potentially be reached, in the absence of surrounding buildings, by Project-generated shadow on 1 or more analysis days. The five remaining resources of concern are the Betsy Head Memorial Park and Imagination Playground ("Betsy Head Park"), Newport Gardens, Thomas S Boyland Community Garden, and the P.S. 125 Playground. These resources require additional assessment. The other three resources would not be reached on any of the 4 representative analysis days and do not require further analysis. In addition, the one historic resource identified in the Tier 2 Assessment, the Betsy Head Play Center, could potentially be





This figure illustrates the range of shadows that would occur, absent intervening structures, from the proposed buildings on the winter solstice and spring/fall equinox analysis days. The shadows are shown occurring approximately every 60 minutes from the start of the analysis day (one and a half hours after sunrise) to the end of the analysis day (one and a half hours before sunset). The Tier 3 assessment serves to illustrate the daily path or "sweep" of the proposed building's shadows across the landscape, indicating which resources could potentially be affected on that analysis day, absent intervening buildings, by project-generated shadow. Daylight Saving Time was not used, per CEQR Technical Manual guidelines.

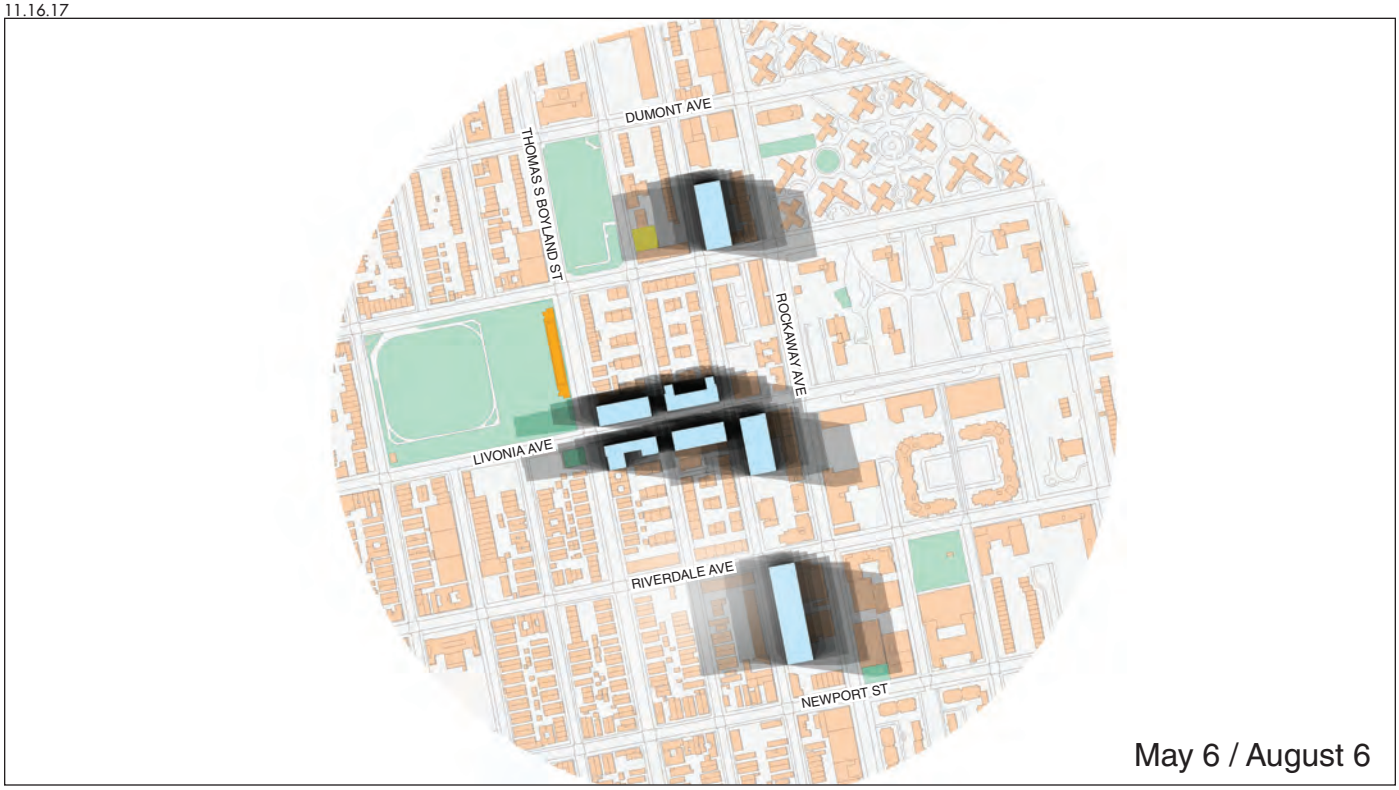
Publicly Accessible Open Space (see Figure F-1 for open space names)

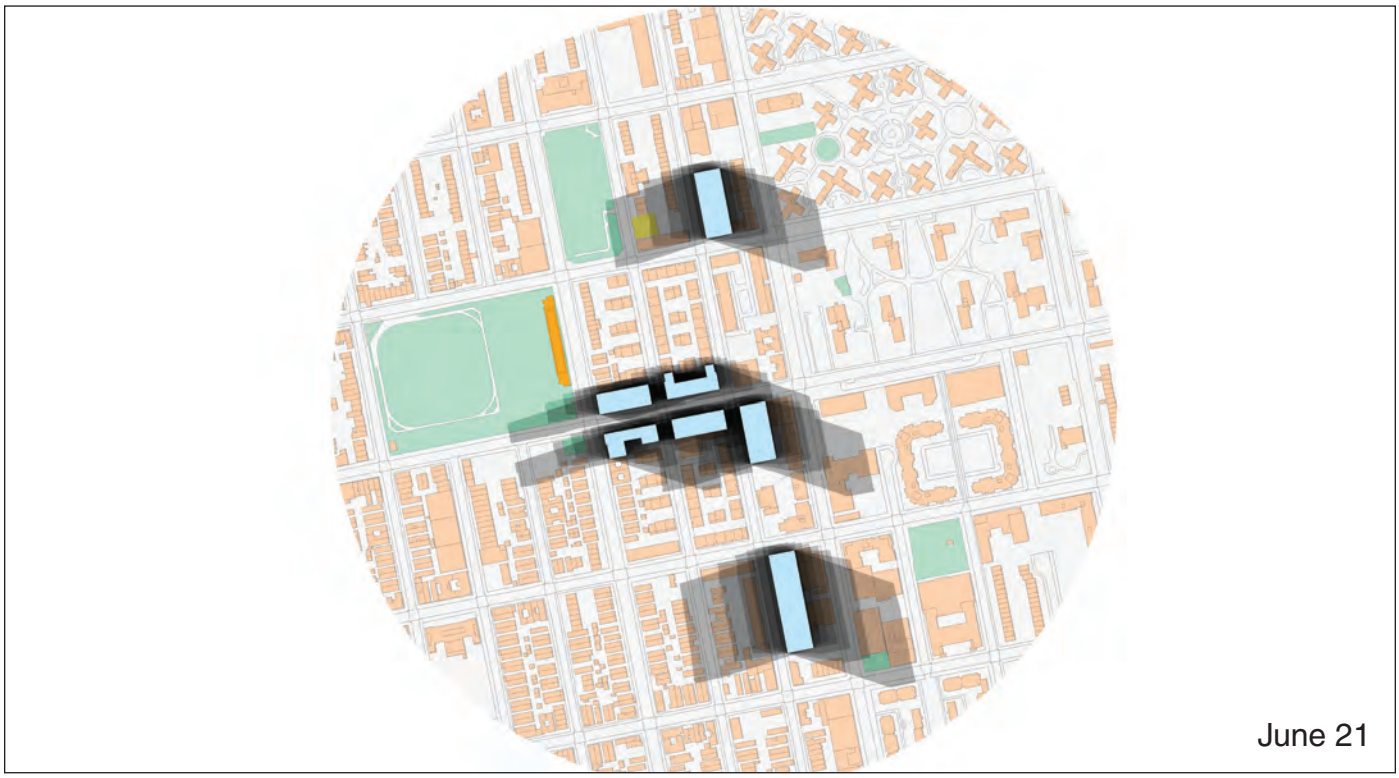
Historic Resource with Sunlight-Sensitive Features (see Figure F-1 for resource names)

Project Generated Open Space

Marcus Garvey Extension

Tier 3 Assessment
Figure F-2





This figure illustrates the range of shadows that would occur, absent intervening structures, from the proposed buildings on the summer solstice and May 6 / August 6 analysis days. The shadows are shown occurring approximately every 60 minutes from the start of the analysis day (one and a half hours after sunrise) to the end of the analysis day (one and a half hours before sunset). The Tier 3 assessment serves to illustrate the daily path or "sweep" of the proposed building's shadows across the landscape, indicating which resources could potentially be affected on that analysis day, absent intervening buildings, by project-generated shadow. Daylight Saving Time was not used, per CEQR Technical Manual guidelines.

Publicly Accessible Open Space (see Figure F-1 for open space names)

Historic Resource with Sunlight-Sensitive Features (see Figure F-1 for resource names)

Project Generated Open Space

Marcus Garvey Extension

Tier 3 Assessment
Figure F-3

reached by Project-generated shadow on 2 of the 4 representative analysis days, and therefore requires additional assessment.

D. DETAILED ANALYSIS

The purpose of the detailed shadow analysis is to determine the extent and duration of *incremental* shadows that would fall on the sunlight-sensitive resources identified in the Tier 3 assessment as a result of the Proposed Project, and to assess their potential effects. To complete the analysis, three-dimensional representations of the existing buildings and relevant planned future developments are appended to the Tier 3 assessment model. The shadows cast in the No Action condition can then be compared to those cast in the With Action condition to determine the incremental shadow resulting from the Proposed Project.

ANALYSIS RESULTS

The detailed shadow analysis found that incremental shadow would fall on five sunlight-sensitive open space resources and one sunlight-sensitive feature of a historic resource. **Table F-1** shows the entry and exit times and total duration of incremental shadow originating from the Proposed Project and adjacent potential development on the affected resources.

Table F-1
Incremental Shadow Durations

Analysis day and timeframe window	March 21 / Sept. 21 7:36 AM–4:29 PM	May 6 / August 6 6:27 AM–5:18 PM	June 21 5:57 AM–6:01 PM	December 21 8:51 AM–2:53 PM
Betsy Head Park	—	—	5:57 AM–6:08 AM Total: 11 min	—
Betsy Head Park (section west of Thomas S Boyland Street with pool and bathhouse)	7:36 AM–8:45 AM Total: 1 hr 9 min	6:27 AM–7:25 AM Total: 58 min	5:59 AM–7:10 AM Total: 1 hr 13 min	8:59 AM–9:30 AM Total: 31 min
Betsy Head Play Center	7:36 AM–9:20 AM Total: 1 hr 44 min	—	—	8:59 AM–9:50 AM Total: 51 min
Thomas S Boyland Community Garden	7:36 AM–9:05 AM Total: 1 hr 29 min	6:27 AM–9:05 AM Total: 2 hr 38 min	5:57 AM–9:05 AM Total: 3 hr 8 min	—
Newport Gardens	—	4:55 PM–5:18 PM Total: 23 min	4:50 PM–6:01 PM Total: 23 min	—
P.S. 125 Playground	—	—	—	1:55 PM–2:53 PM Total: 58 min

Notes:
Table indicates entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource.
Daylight saving time is not used—times are Eastern Standard Time (EST), per *CEQR Technical Manual* guidelines. However, as Eastern Daylight Time is in effect for the March/September, May/August, and June analysis periods, add 1 hour to the given times to determine the actual clock time.

Figures F-4 through F-12 illustrate the duration of shadows and direct sunlight on the affected resources in the No Action and With Action conditions. The area of the resource affected by incremental shadow is shaded in red. Below is a description of the resources, the duration, and extent of incremental shadow, and a determination of significance for each resource.

AFFECTED RESOURCES

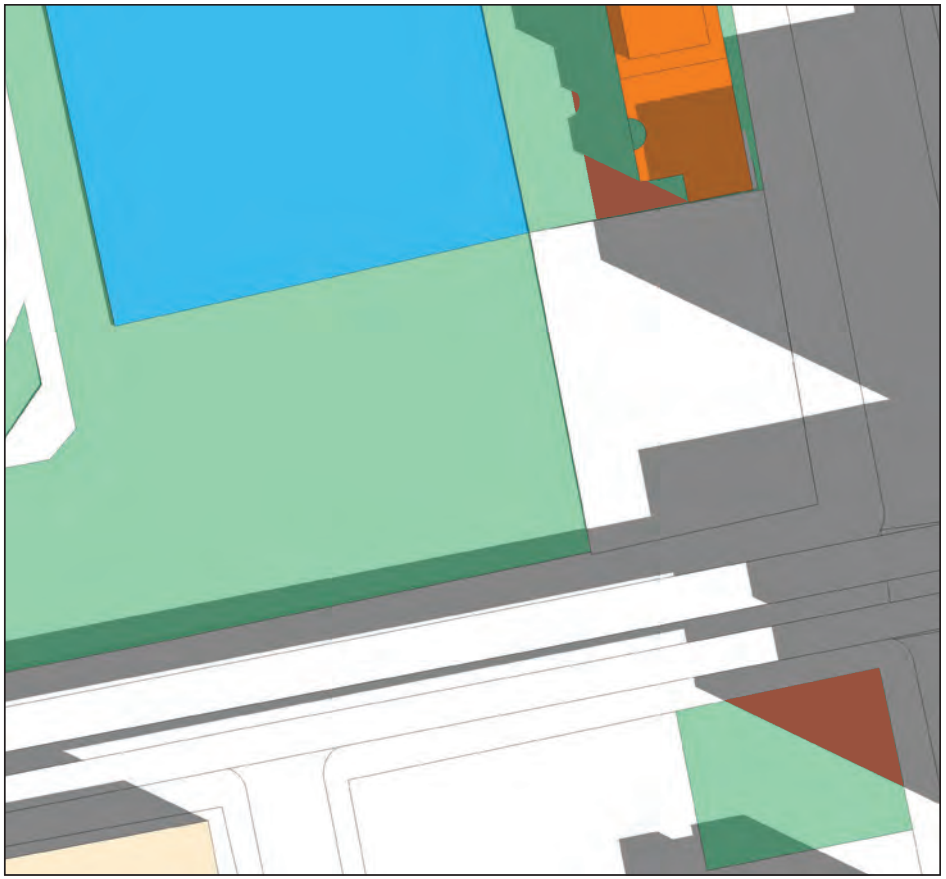
BETSY HEAD PARK

Betsy Head Park is a 10.55-acre open space encompassing two locations. One section, Betsy Head Park, is bounded by Dumont Avenue to the north, Thomas S Boyland Street to the east,

11.27.17



7:36 AM



8:30 AM

Publicly Accessible Open Space

Incremental Shadow

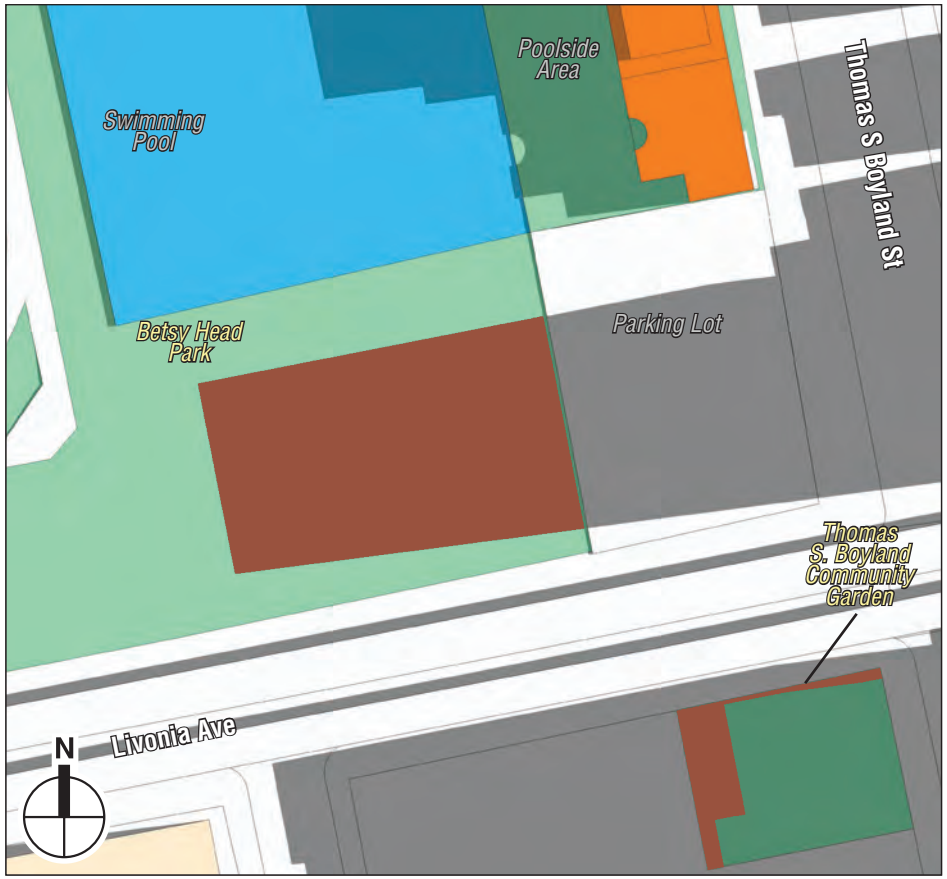
Historic Resource with Sunlight Sensitive Features

Detailed Shadow Analysis
March / September 21

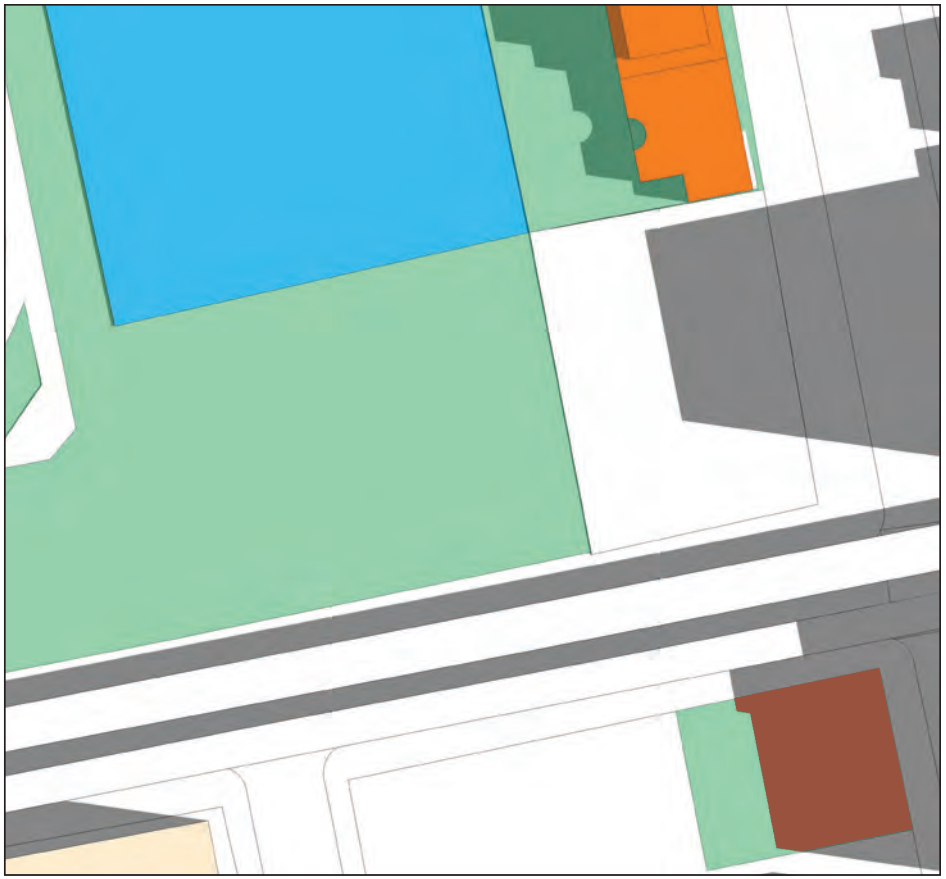
Marcus Garvey Extension

Figure F-4

11.27.17



6:27 AM



8:00 AM

Publicly Accessible Open Space

Incremental Shadow

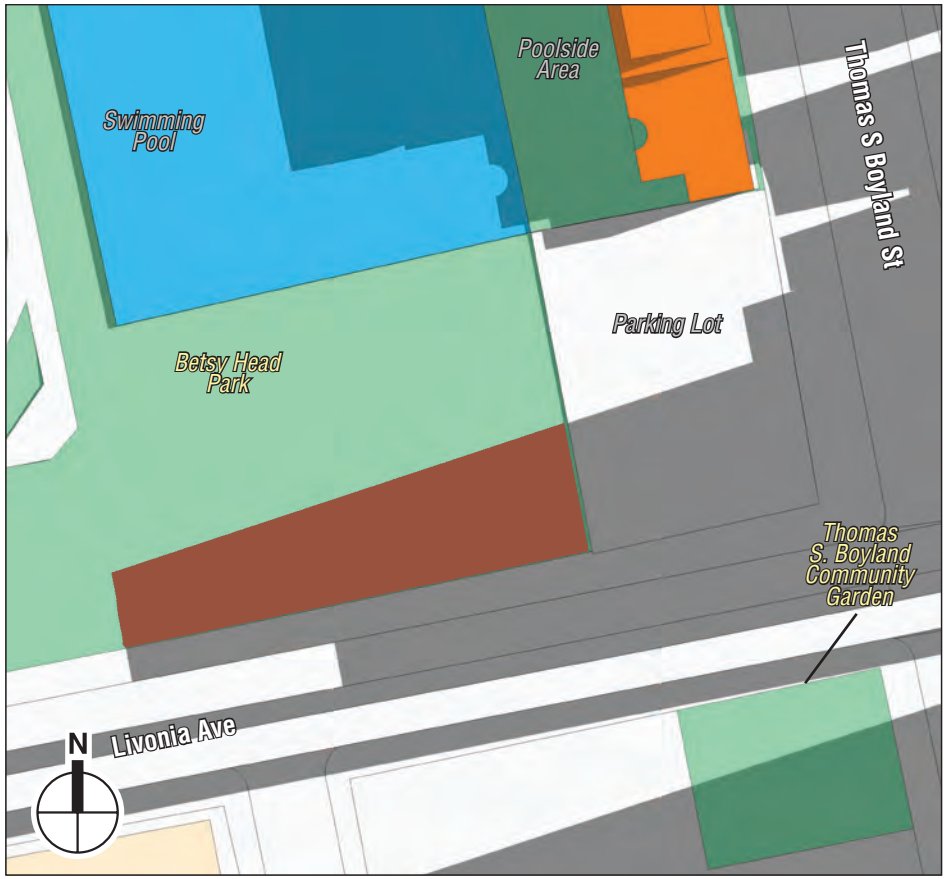
Historic Resource with Sunlight Sensitive Features

Detailed Shadow Analysis
May / August 6

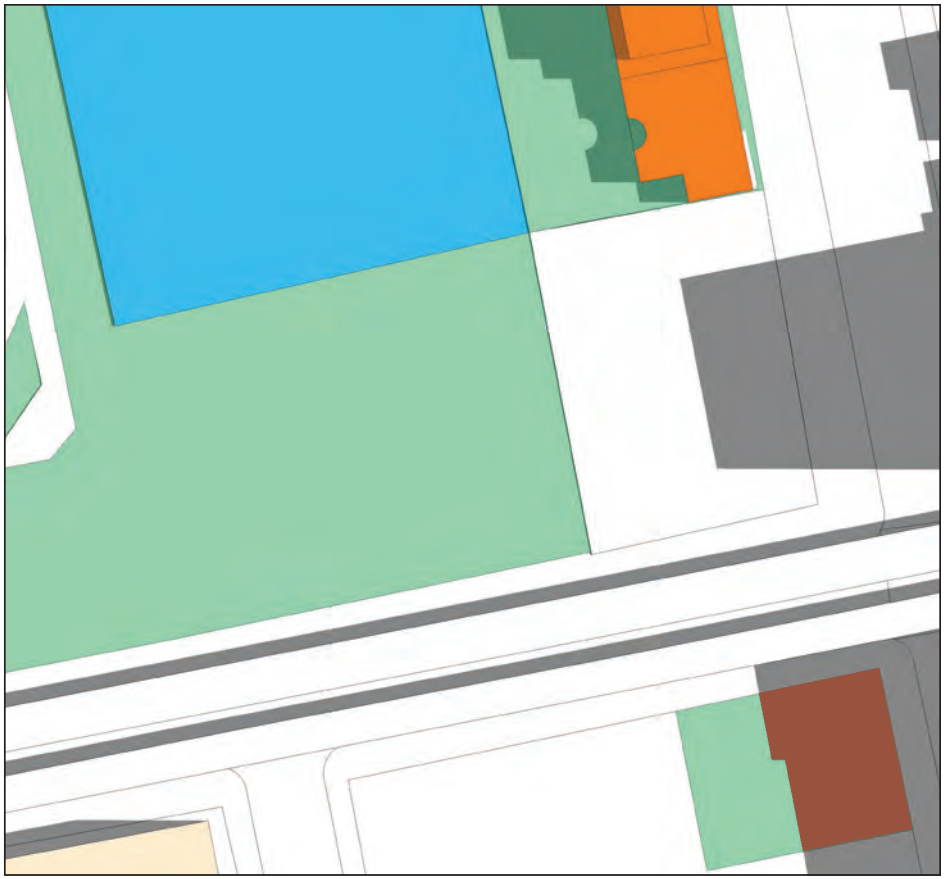
Marcus Garvey Extension

Figure F-5

11.27.17



5:57 AM



8:00 AM

Publicly Accessible Open Space

Incremental Shadow

Historic Resource with Sunlight Sensitive Features

Detailed Shadow Analysis
June 21

Marcus Garvey Extension

Figure F-6



9:00 AM

Publicly Accessible Open Space

Incremental Shadow

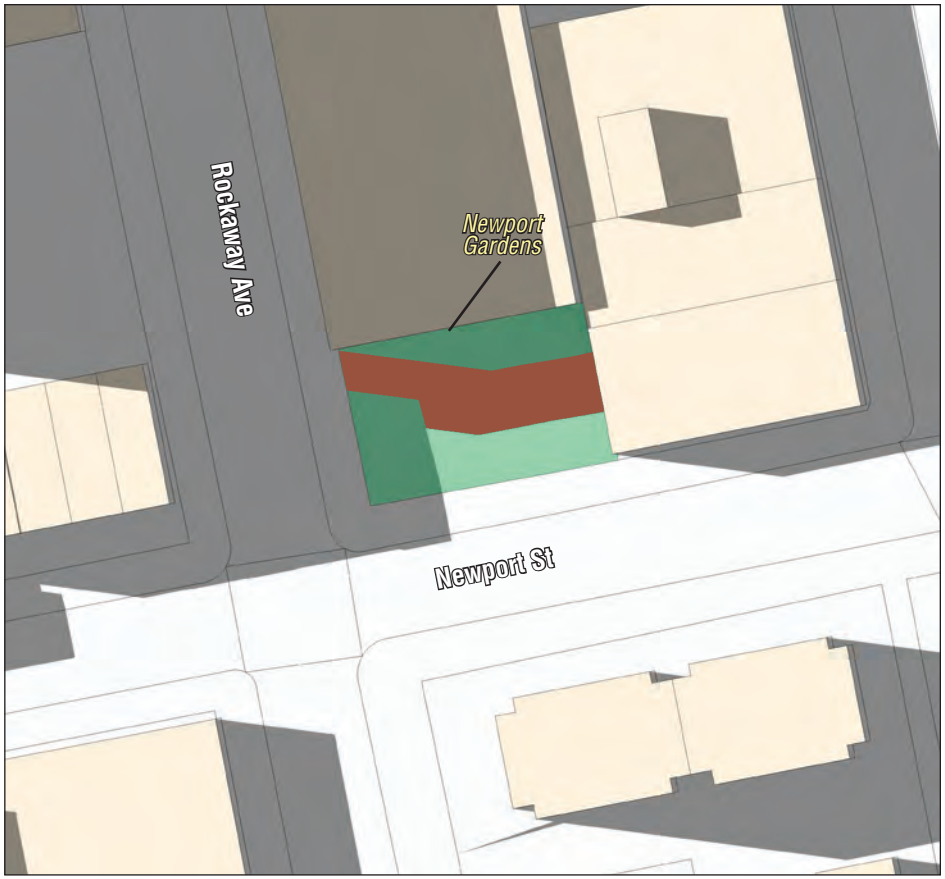
Historic Resource with Sunlight Sensitive Features

Detailed Shadow Analysis
December 21

Marcus Garvey Extension

Figure F-7

11.27.17



5:18 PM

N

Publicly Accessible Open Space

Incremental Shadow

Detailed Shadow Analysis
May / August 6
Figure F-8

Marcus Garvey Extension



6:01 PM

Publicly Accessible Open Space

Incremental Shadow

Detailed Shadow Analysis
June 21

Marcus Garvey Extension

Figure F-9



2:53 PM

Publicly Accessible Open Space

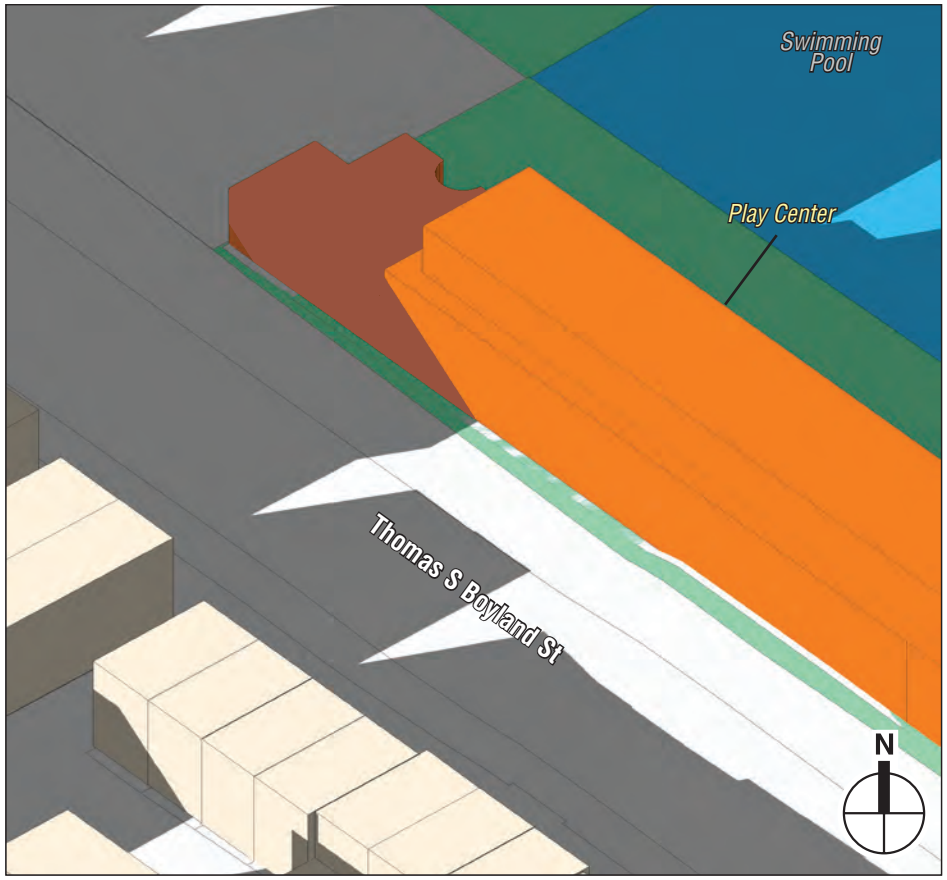
Incremental Shadow

Detailed Shadow Analysis
December 21

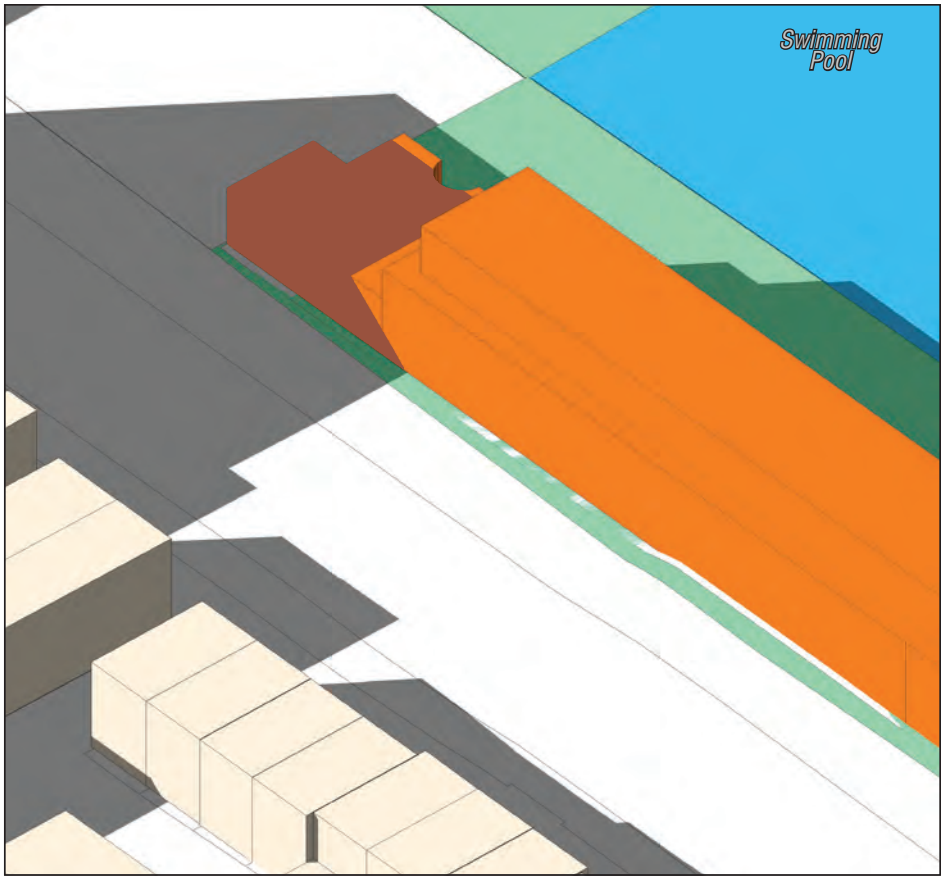
Marcus Garvey Extension

Figure F-10

11.27.17



7:36 AM



8:30 AM

Publicly Accessible Open Space

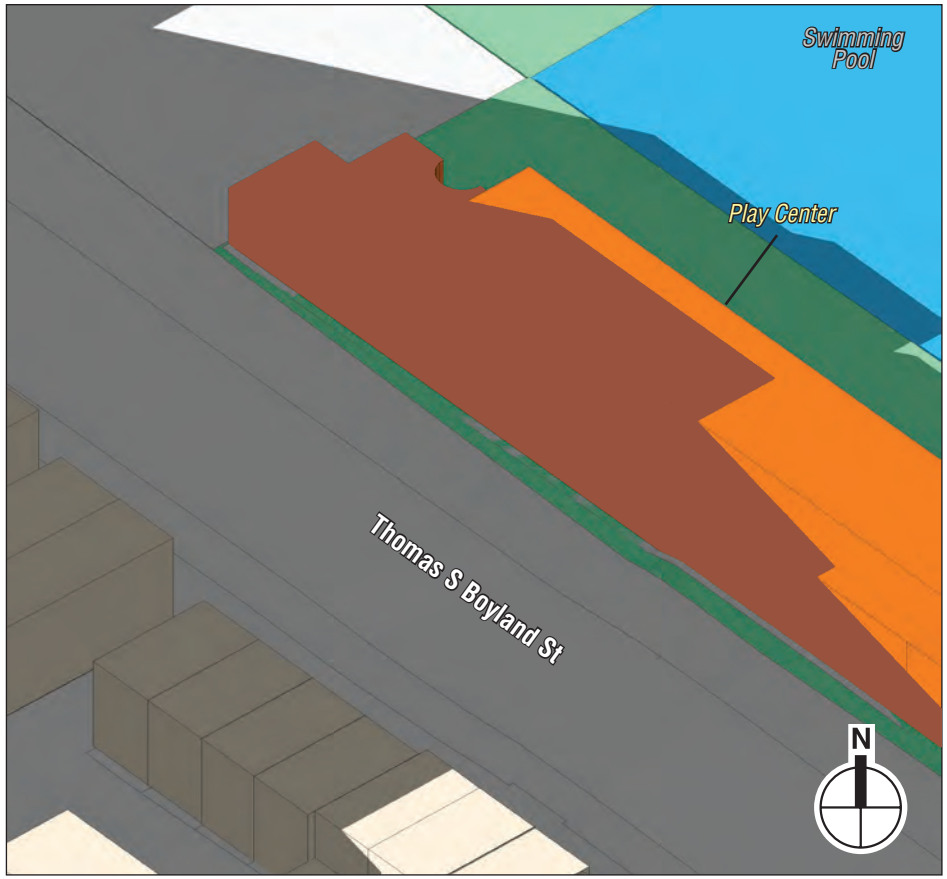
Incremental Shadow

Historic Resource with Sunlight-Sensitive Features

Detailed Shadow Analysis
March / September 21

Marcus Garvey Extension

Figure F-11



9:00 AM

Publicly Accessible Open Space

Incremental Shadow

Historic Resource with Sunlight-Sensitive Features

Detailed Shadow Analysis
December 21

Marcus Garvey Extension

Figure F-12

Livonia Avenue to the south, and Strauss Street to the west, and contains a historic bathhouse and outdoor pool area referred to now as the Betsy Head Play Center (see below), and further west, handball courts and ballfields. Nearby to the northeast, the Imagination Playground at Betsy Head Park is bounded by Blake Avenue to the north, Bristol Street to the east, Dumont Avenue to the south, and Thomas S Boyland Street to the west, and contains play equipment, handball and basketball courts, and a paved ball field.

Betsy Head Play Center is also eligible for listing on the State and National Registers of Historic Places and is a New York City Landmark. The outdoor pool is sunlight-sensitive as an active recreational use, and the eastern façade of the bathhouse facing the Proposed Project contains extensive glass brick, making it semi-translucent, and is therefore considered a sunlight-sensitive historic architectural feature (see separate entry below).

Betsy Head Park: Imagination Playground

This resource would receive 11 minutes of new shadow on June 21 from Site G early in the morning of the June 21 analysis day (5:57 AM to 6:08 AM). This brief duration and the limited extent would not significantly impact the playground. No incremental shadow would fall on the playground on any other analysis day.

Betsy Head Park

On the March 21 / September 21 analysis day, incremental shadow from Sites D and E would cast incremental shadow on portions of the pool and the adjacent paved poolside area and an adjacent grass field south of the pool from 7:36 AM to 8:10 AM (see **Figure F-4**). After exiting the pool and grass field area, the incremental shadow would fall on a small portion of the paved poolside area from approximately 8:15 AM to 8:45 AM (see **Figure F-4**). Plenty of sun would remain on and around the pool and grass field during this affected period, and the new shadow would not cause a significant adverse impact.

On the May 6 / August 6 analysis day, incremental shadow from Site E would fall on a portion of a grass field south of the pool from 6:27 AM to 7:25 AM, for a total duration of 58 minutes (see **Figure F-5**). The majority of the field would be in sun after 6:45 AM and completely in sun for most of the remaining day. The limited extent and duration of incremental shadow would not significantly affect the use of the space or its vegetation.

On the May 6 / August 6 analysis day, incremental shadow from Site E would fall on a portion of a grass field south of the pool from 5:57 AM to 7:10 AM, for a total duration of 1 hour 13 minutes (see **Figure F-6**). The majority of the field would be in sun throughout this affected period and completely in sun for most of the remaining day. The limited extent and duration of incremental shadow would not significantly affect the use of the space or its vegetation.

On December 21 incremental shadow from Sites D and E (primarily E) would cast incremental shadow on the pool and the paved area between the pool and Betsy Head Play Center from 8:51 AM to 9:00 AM (see **Figure F-7**). After exiting the pool, the incremental shadow would fall on a small portion of the poolside area from approximately 9:05 AM to 9:30 AM. Sunlight would remain on and around the pool during this period and for the rest of the day. Use of the pool is likely low or nonexistent on winter mornings. Therefore, the incremental shadow would not significantly affect the park.

Betsy Head Play Center

The Betsy Head Play Center is eligible for listing on the State and National Registers of Historic Places and is a New York City Landmark. The bathhouse, located along Thomas S Boyland Street, was designed in the Art Moderne style by architect John Matthews Hatton after a fire destroyed the original bathhouse in 1937. The bathhouse consists of a large central section with lower wings that extend to the north and south that contain shower rooms. The bathhouse is distinguished by the substantial "use of recessed glass-block walls for the locker room portions of the bathhouse, making the structure translucent in these sections to a surprising degree." The locker room portions of the building consist of the areas in the main block of the building north and south of the main entrance where "eight recessed glass block windows between brick piers on either side of the bath house allow ample natural light into the interior spaces."[2] The bathhouse, consisting of the main block of the building containing the eight glass block windows, is therefore considered a sunlight-sensitive historic architectural resource. On March 21 / September 21 incremental shadow would fall on the eastern façade of the Betsy Head Play Center from7:36 AM to 9:20 AM. The new shadow would only fall on the small southern wing of the bath house structure that contains shower rooms, and which has a ribbon window with smaller glass block windows on the east façade, and with no glass block on the west façade (glass block formerly at the entrances to the shower rooms on the pool side of the building was replaced with cinderblock). Throughout this period, the main part of the structure with the eight larger glass block windows would remain in sun. Therefore the new shadow would not significantly impact the entrance of light into the interior spaces or public's experience and use of the indoor space.

On the December 21 analysis day incremental shadow would fall on the eastern façade from 8:59 AM to 9:50 AM. The new shadow would cover a relatively large area at first but would recede gradually off the façade over the course of the duration. At no time would the new shadow eliminate all the sun reaching the windows. Use of the Betsy Head Play Center is likely low or nonexistent on winter mornings. Given all these factors the new shadow would not cause a significant adverse impact to this resource.

THOMAS S BOYLAND COMMUNITY GARDEN

Thomas S Boyland Community Garden is an approximately 0.15-acre garden located on Livonia Avenue between Thomas S Boyland and Amboy Streets. Sunlight-sensitive features in the community garden include garden plots and benches. The garden is open Sundays from 7 AM to 6 PM and Monday through Saturday from 7 AM to 7 PM.

Incremental shadow from Site E would fall on a portion of the garden on the March 21 / September 21 analysis day from 7:36 AM to 9:05 AM for a total duration of 1 hour 29 minutes (see **Figure F-4**). The new shadow would be limited to a portion of the garden and would never eliminate the remaining sunlight. Virtually the entire garden would be in sun for the remaining day and the new shadow would not cause a significant impact to the garden.

Incremental shadow from Site E would fall on the garden on the May 6 / August 6 analysis day from 6:27 AM to 9:05 AM for a total duration of 2 hours 38 minutes (see **Figure F-5**). From 6:27 AM to 7:40 AM the new shadow would eliminate the remaining sunlight from the garden; from 7:40 AM to 9:05 AM the incremental shadow would decrease in size gradually, leaving an

[2] Landmarks Preservation Commission. *Betsy Head Play Center, LP-2240*. Prepared for the Landmarks Preservation Commission, Designation List 405. September 16, 2008, pp. 2,11.

increasingly large portion of the garden in sun. For the next approximately 8 hours the entire garden would be in sun. For users of the garden present before 9:00 AM, large sunlit areas would continue to be available in Betsy Head Park across Livonia Avenue. Regarding the garden's vegetation, the garden would continue to get more than 8 hours of sun over the course of the day. Therefore the new shadow would not cause a significant impact.

Incremental shadow from Site E would fall on the garden on the June 21 analysis day from 5:59 AM to 9:05 AM for a total duration of 3 hours 8 minutes (see **Figure F-6**). Portions of the garden would remain in sun through this affected period with the exception of a 10 minute period from 7:10 AM to 7:20 AM when all the sunlight would be eliminated by the incremental shadow. For the next approximately 8 hours the entire garden would be in sun. For users of the garden present before 9:00 AM, large sunlit areas would continue to be available in Betsy Head Park across Livonia Avenue in addition to the areas of sun in the garden itself. Regarding the garden's vegetation, the garden would continue to get more than 8 hours of sun over the course of the day. Therefore the new shadow would not cause a significant impact.

NEWPORT GARDENS

Newport Gardens is an approximately 0.14-acre community garden on Newport Street between Alabama and Georgia Avenues. The gardens contain plantings, which are a sunlight-sensitive feature. The gardens are open to public on Mondays from 9 AM to 12 PM, Wednesdays from 10 AM to 12 PM, and Fridays from 9 AM to 12 PM.

On the May 6 / August 6 analysis day, incremental shadow from Site F would fall on the garden for 23 minutes, from 4:55 PM to 5:18 PM (see **Figure F-8**). The shadow would be limited to a portion of the garden throughout this period and would never eliminate the remaining sunlight. All areas of the garden would continue to get a minimum of approximately 6 hours of sunlight. The incremental shadow would therefore not significantly impact users or vegetation in this space.

On the June 21 analysis day incremental shadow from Site F would fall on the garden for 1 hour 11 minutes, from 4:50 PM to 6:01 PM (see **Figure F-9**). The shadow would be limited to less than half the space until approximately 5:30 PM, and would eliminate the remaining sunlight from 5:35 PM to 6:01 PM. For users of the garden during this period, sunlit areas would be available in Newport Playground, a block to the east. All areas of the garden would continue to get a minimum of approximately 6 hours of sunlight. The incremental shadow would therefore not significantly impact users or vegetation in this space.

P.S. 125 PLAYGROUND

P.S. 125 Playground is a 0.21-acre public open space located on Rockaway Avenue between Blake and Dumont Avenues. This small playground is surrounded by trees on all sides. Sunlight-sensitive features within the resource include a basketball court, a playground, and benches. The resource is moderately utilized and is in fair condition.

On December 21, incremental shadow would fall on the playground from 1:55 PM to 2:53 PM for a total duration of 58 minutes. The incremental shadow would be limited in size through much of this duration; it would cover less than half the space until after 2:40 PM and would never eliminate the remaining sunlight from the playground. Portions of the playground would remain in sun throughout the day. Therefore, the limited extent and duration of new shadow would not significantly impact the use of the playground on this analysis day. Shadow does not impact vegetation during the winter months outside the growing season.

OPEN SPACE ACQUISITION SITE

Project-generated open space cannot experience a significant adverse shadow impact from the Proposed Project, according to *CEQR Technical Manual*, because without the project the open space would not exist. However, a qualitative assessment of shadows is provided for informational purposes.

The acquisition site open space located on Bristol Street west of Site G would receive shadow from Site G during the early spring summer and fall mornings, but Project-generated shadow would exit by 7:30 AM on May 6 / August 6 and June 21, and by 8:15 AM on March 21 / September 21, and would never eliminate sunlit area at any time during these analysis periods. The acquisition site open space would be mostly in sun throughout the spring, summer, and fall analysis days and mostly but not completely in shadow on the winter analysis day. ✷

A. INTRODUCTION

This attachment assesses the potential of the Proposed Project to affect cultural resources, which include both archaeological and architectural resources. The Proposed Actions would result in the development of seven new mixed-use buildings (the "Proposed Project") in the Brownsville neighborhood of Brooklyn on seven sites (the "Project Sites"). The Project Sites contain underutilized parking lots, an interim GreenThumb garden (the Mott Hall Bridges Academy [MHBA] Living Laboratory Community Garden), and two vacant lots,[1] all located within the proposed Large-Scale General Development (LSGD) boundary. This assessment finds that the Proposed Actions would not result in significant adverse impacts to historic and cultural resources.

B. METHODOLOGY

The study area for archaeological resources consists of the development sites where disturbance from excavation and construction is anticipated. Officially recognized historic resources ("known resources") include resources listed on the State and National Registers of Historic Places (S/NR) or determined eligible for such listing (S/NR-eligible) or contained within a historic district listed on or determined eligible for listing on the Registers; New York City Landmarks (NYCLs), New York City Historic Districts (NYCHDs) and properties pending such designation. Additionally, a survey was conducted to identify any previously undesignated properties that appear to meet S/NR or NYCL eligibility criteria ("potential architectural resources") in the study area; no such resources were identified.

Study areas for architectural resources are determined based on the area of potential effect for construction period impacts, as well as the larger area in which there may be visual or contextual impacts. The 2014 *City Environmental Quality Review (CEQR) Technical Manual* sets the guidelines for the study area as being typically within an approximately 400-foot radius of a project site (see **Figure G-1**).

Impacts on architectural resources can include both direct physical impacts and indirect impacts. Direct impacts include damage from vibration (i.e., from construction blasting or pile driving) and additional damage from adjacent construction that could occur from falling objects, subsidence, collapse, or damage from construction machinery. Adjacent construction is defined as any construction activity that would occur within 90 feet of an architectural resource, as defined in the New York City Department of Buildings (DOB) *Technical Policy and Procedure Notice* (TPPN) #10/88.[2]

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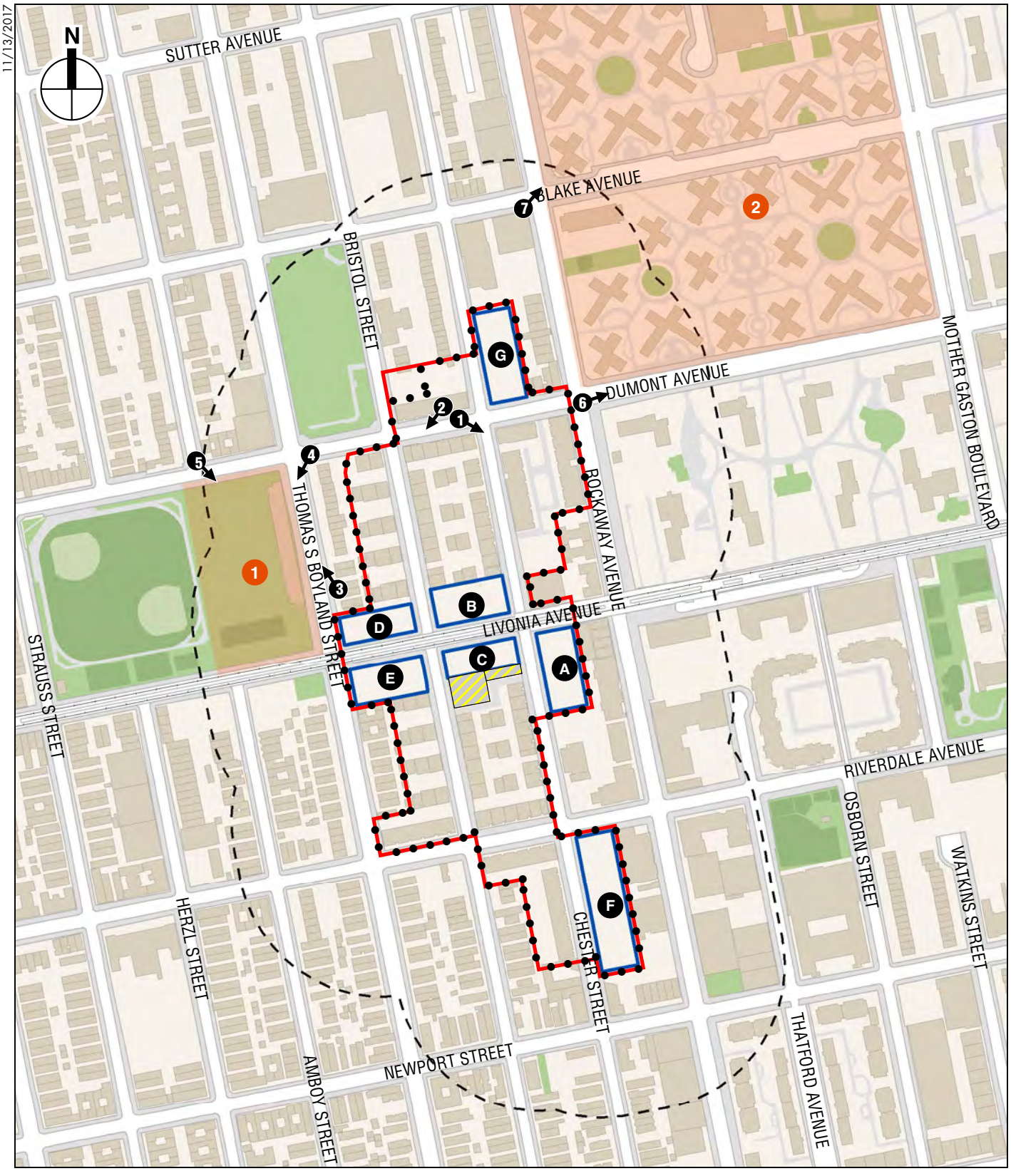
[1] One of the two vacant lots—Block 3560, Lot 1—has been operating as a temporary urban farm since 2015.

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



Marcus Garvey Extension

Architectural Resources

Figure G-1

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

C. EXISTING CONDITIONS

ARCHAEOLOGICAL RESOURCES

In comments dated October 11, 2017, the New York City Landmarks Preservation Commission (LPC) determined that the Project Sites (Sites A–G) to be developed by the do not possess archaeological sensitivity (see **Appendix 2**). In a letter dated January 2, 2018, the New York State Historic Preservation Office (SHPO) indicated that the Proposed Project would have no adverse impact on historic resources in the area (see **Appendix 2**).

PROJECT SITES

The Project Sites do not contain any structures and there are no known or potential architectural resources on the seven Project Sites. As described above, the Project Sites currently contain underutilized parking lots, one small garden, the MHBA Living Laboratory Community Garden, and two vacant lots.

PROJECT AREA

The Marcus Garvey Apartments were built between 1973 and 1976, and as such, are not eligible for listing on the S/NR as they do not meet the minimum S/NR 50-year age criterion. In addition, alterations to the façades—the addition of metal paneling to frame the bays and recessed sections and replacement windows have negatively affected the architectural integrity of the Marcus Garvey Apartment complex. Therefore, there are no architectural resources in the Project Area (see **Figure G-2**).

STUDY AREA

There are two known architectural resources located within the 400-foot study area. These resources are mapped on **Figure G-1** and described below.

BETSY HEAD PLAY CENTER

Betsy Head Play Center (S/NR-eligible, NYCL) is located along Thomas S Boyland Street. The NYCL- and S/NR-eligible boundaries include the bath house, swimming pool, diving pool, bleachers, and filter house, and the perimeter cast-iron fencing, which are bounded by Dumont Avenue to the north, Thomas S Boyland Street to the east, Livonia Avenue to the south, and west to the edge of the pool complex (see **Figure G-3** and Photo 5 of **Figure G-4**). The center is located across Thomas S Boyland Street, approximately 90 feet from Project Site D; however, the closest structure to Project Site D is the bath house, which is located approximately 100 feet away.

Established in 1914, Betsy Head Play Center was the City's first recreation facility designed to include a public outdoor swimming pool and bath house. By the 1930s, the park complex was updated to match the group of 11 outdoor swimming pools that were being built and located throughout New York City at the time. The team of designers, landscape architects, and engineers assembled to execute the new pool complexes included NYC Parks Department staff, architect Aymar Embury II, landscape architects Gilmore D. Clarke and Allyn R. Jennings, and civil



View of Marcus Garvey Apartments at the intersection of Dumont Avenue and Chester Street **1**



Marcus Garvey Apartments along Dumont Avenue **2**



View northwest of the exterior of the Betsy Head Park bath house along Thomas S Boyland Street **3**



View southwest of the Betsy Head Park bath house along Thomas S Boyland Street **4**



View of the pool area and bleachers to the west of the Betsy Head Park bath house **5**



Looking east on Dumont Avenue. **6**
The Brownsville Houses are on the north side of the street

engineers W. Earle Andrews and William H. Latham. The NYC Parks Department and Robert Moses modernized and enlarged the Betsy Head Play Center pool as well as added diving and wading pools. Underwater lighting and innovative mechanical systems for heating, filtration, and water circulation were also added. The 1914 bath house received only minor alterations in order to accommodate the growth of the pool.

In August of 1937, a fire destroyed the interior of the original bath house. To replace it, a new one was constructed, designed in the Art Moderne style by architect John Matthews Hatton. The bath house consists of a large central section with lower wings that extend to the north and south that contain shower rooms. The bath house is distinguished by the substantial "use of recessed glass-block walls for the locker room portions of the bathhouse, making the structure translucent in these sections to a surprising degree." The locker room portions of the building consist of the areas in the main block of the building north and south of the main entrance where "eight recessed glass block windows between brick piers on either side of the bath house allow ample natural light into the interior spaces."[3] The roof features an observation deck with a broad, flat roof overhead. The main entrance is designed with polished black marble wall facings, curved corner sections of glass block, and slate paving.

BROWNSVILLE HOUSES

The Brownsville Houses complex (S/NR-eligible) is approximately 170 feet from Project Site G, while the closest Brownsville Houses building is approximately 190 feet from Site G. The complex is bounded by Sutter Avenue to the north, Mother Gaston Boulevard to the east, Dumont Avenue to the south, and Rockaway Avenue to the west. The housing project, built in 1948, was designed by architect Frederick G. Frost and landscape architect, Alfred Geiffert, Jr. The complex features 27 three-story walk-ups and six-story elevator buildings configured at 45 degrees. The buildings are set within a series of open spaces to be used by the tenants. The Brownsville Houses are significant as New York City Housing Authority's (NYCHA) second postwar housing project within the City that used the cross floor plan, as well as being the first NYCHA housing development to combine three-story walk-ups with six-story buildings in a step-down form (see Photo 6 of **Figure G-4** and **Figure G-5**).

D. FUTURE WITHOUT THE PROPOSED PROJECT

PROJECT SITES AND PROJECT AREA

In the Future without the Proposed Project (the "No Action" condition), the Projects Sites would be developed under existing zoning. The development would total 458,166 gross square feet (gsf), including 394,242 gsf of residential space (438 dwelling units [DUs]), and 63,924 gsf of community facility space. The existing parking spaces would be accommodated in cellar-level parking garages located on Sites A through G. The new developments would be four stories, resulting in buildings of approximately 44 feet in height, not including bulkheads. The buildings would be clad in two-toned grey brick.

Historic resources that are listed on the S/NR or that have been found eligible for listing are given a measure of protection under Section 106 of the National Historic Preservation Act from the effects of projects sponsored, assisted, or approved by federal agencies. Although preservation is not mandated, federal agencies must attempt to avoid adverse effects on such resources through a notice, review, and consultation process. Properties listed on the Registers are similarly protected

[3] Landmarks Preservation Commission. *Betsy Head Play Center, LP-2240*. Prepared for the Landmarks Preservation Commission, Designation List 405. September 16, 2008, pp. 2,11.



Brownsville Houses, view northeast at the intersection of Rockaway and Blake Avenues **7**

against effects resulting from projects sponsored, assisted, or approved by State agencies under the New York State Historic Preservation Act of 1980. However, private owners of properties eligible for, or even listed on, the Registers using private funds can alter or demolish their properties without such a review process. Privately owned properties that are NYCLs, in NYCHDs, or pending designation as NYCLs are protected under the New York City Landmarks Law, which requires LPC review and approval before any alteration or demolition permits can be issued, regardless of whether the project is publicly or privately funded. Publicly owned resources are also subject to review by LPC before the start of a project. However, LPC's role in projects sponsored by other City or state agencies generally is advisory only.

The New York City Building Code provides some measures of protection for all properties against accidental damage from adjacent construction by requiring that all buildings, lots, and service facilities adjacent to foundation and earthwork areas be protected and supported. While these regulations serve to protect all structures adjacent to construction areas, they do not afford special consideration for historic structures.

STUDY AREA

As described above, structures in Betsy Head Park and the Brownsville Houses are located over 90 feet from any Project Sites in the Project Area. Therefore, development on the Project Sites in the No Action condition is not anticipated to have any adverse physical effects on Betsy Head Park and the Brownsville Houses.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

PROJECT SITES AND PROJECT AREA

In the Future with the Proposed Project (the "With Action" condition), the Project Sites would be redeveloped with mixed-use buildings that would include: approximately 759,103 gsf of residential uses (843 affordable DUs); approximately 35,049 gsf of retail space; approximately 98,032 gsf of community facility space; and 24 accessory parking spaces. The new buildings would be predominately eight stories, with two nine-story structures on Sites F and G. Similar to the No Action condition, the buildings would be clad in two-toned gray brick. However, with the Proposed Actions the proposed buildings would also contain commercial uses. As the Project Sites and Project Area do not contain architectural resources, the Proposed Project would not have significant adverse impacts on architectural resources in the Project Area.

STUDY AREA

As described above, structures in Betsy Head Park and the in the Brownsville Houses complex are located over 90 feet from the Project Sites. Therefore, the Proposed Project is not expected to result in any significant adverse physical impacts to these architectural resources.

The Proposed Project would also not result in any significant adverse indirect impacts to the architectural resources in the study area. The Proposed Project would replace the vacant and underutilized parcels with new mixed-use development that would also occur in the No Action condition, although the proposed buildings in the With Action condition would be taller and include commercial space. The Proposed Project would not obstruct views to architectural resources. The architectural resources are located across streets from the Project Sites. Additionally, existing intervening buildings also obstruct views between the architectural resources and the majority of the Project Sites. The Proposed Project would introduce buildings that are taller than other buildings in the study area; however, the NYCHA Tilden Houses on the east side of Rockaway Avenue are 16

stories, and the proposed new buildings at eight and nine stories would be in keeping with the mix of shorter and taller buildings in the study area that make up the architectural resources' setting. Additionally, the Proposed Actions would result in the development of buildings that contain residential and commercial uses, consistent with the uses in the Project Area and study area. Therefore, the Proposed Actions would not introduce incompatible visual, audible, or atmospheric elements to a resource's setting, nor would it isolate a resource from its relationship with the streetscape. However, the bathhouse of the Betsy Head Play Center, due to its eight glass block windows, is considered a sunlight-sensitive historic architectural resource. The Proposed Project would introduce new incremental shadows on March 21 / September 21 on the eastern façade of the Betsy Head Play Center from7:36 AM to 9:20 AM. The new shadow would only fall on the small southern wing of the bath house structure that contains shower rooms, and which has a ribbon window with smaller glass block windows on the east facade, and with no glass block on the west façade (glass block formerly at the entrances to the shower rooms on the pool side of the building was replaced with cinderblock). Throughout this period, the main part of the structure with the eight larger glass block windows would remain in sun. Therefore the new shadow would not significantly impact the entrance of light into the interior spaces or public's experience and use of the indoor space.

On the December 21 analysis day incremental shadow would fall on the eastern façade from 8:59 AM to 9:50 AM. The new shadow would cover a relatively large area at first but would recede gradually off the façade over the course of the duration. At no time would the new shadow eliminate all the sun reaching the windows. Use of the Betsy Head Play Center is likely low or nonexistent on winter mornings. Given all these factors the new shadow would not cause a significant adverse impact to this resource. Therefore, the Proposed Actions would not result in significant adverse impacts on architectural resources. ✷

A. INTRODUCTION

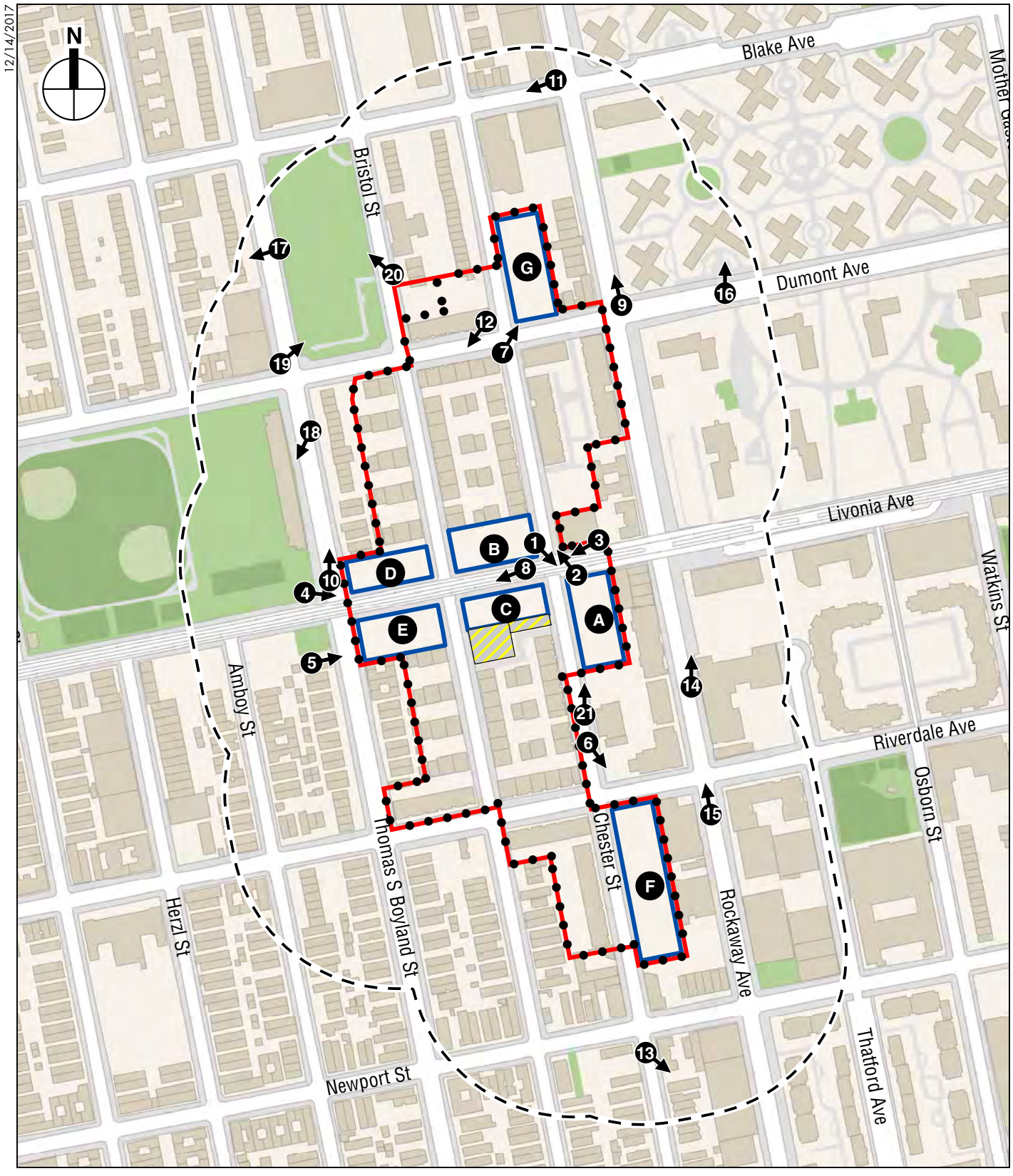
This attachment considers the potential for the Proposed Actions to result in significant adverse impacts to urban design and visual resources. As defined in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, urban design is the totality of components that may affect a pedestrian's experience of public space. A visual resource can include views of the waterfront, public parks, landmark structures or districts, otherwise distinct buildings, and natural resources.

B. METHODOLOGY

In accordance with the *CEQR Technical Manual*, this analysis considers the effects of the Proposed Project on the experience of a pedestrian in the Project Area and study area. The assessment focuses on those project elements that have the potential to alter the built environment, or urban design, of the Project Sites, which is collectively formed by the following components:

- *Streets*. For many neighborhoods, streets are the primary component of public space. The arrangement and orientation of streets define the location and flow of activity in an area, set street views, and create the blocks on which buildings and open spaces are organized. The apportionment of street space between cars, bicycles, transit, and sidewalks and the careful design of street furniture, grade, materials used, and permanent fixtures, including plantings, street lights, fire hydrants, curb cuts, or newsstands are critical to making a successful streetscape.
- *Buildings*. Buildings support streets. A building's street walls form the most common backdrop in the City for public space. A building's size, shape, setbacks, lot coverage, and placement on the zoning lot and block; the orientation of active uses; and pedestrian and vehicular entrances all play major roles in the vitality of the streetscape. The public realm also extends to building façades and rooftops, offering more opportunity to enrich the visual character of an area.
- *Open Space*. Open space includes public and private areas such as parks, yards, cemeteries, parking lots, and privately owned public spaces.
- *Natural Features*. Natural features include vegetation and geologic, topographic, and aquatic features. Rock outcroppings, steep slopes or varied ground elevation, beaches, or wetlands may help define the overall visual character of an area.
- *View Corridors and Visual Resources*. A visual resource is the connection from the public realm to significant natural or built features, including important view corridors, views of the waterfront, public parks, landmark structures or districts, otherwise distinct buildings or groups of buildings, or natural resources.
- *Wind*. Channelized wind pressure from between tall buildings and downwashed wind pressure from parallel tall buildings may cause winds that affect pedestrian comfort and safety.

This analysis considers the urban design characteristics and visual resources of the Project Sites and the study area (see **Figure H-1**). The study area is the area within 400 feet of the Large Scale General Development (LSGD) boundary (the "Project Area") consistent with the analyses of land



Project

Project

400-foot Study

Proposed Large-Scale General Development (LSGD) Boundary

Lots not part of Project Area or

Photograph View Direction and Reference No.

0 400 FEET

Marcus Garvey Extension

Urban Design and Visual Resources Reference Map

Figure H-1

use, zoning, and public policy. The Project Sites and study area are discussed in detail for existing conditions, Future without the Proposed Project (the "No Action" condition), and the Future with the Proposed Project (the "With Action" condition).

The following analysis addresses each of these characteristics for existing conditions and the Future without and with the Proposed Project for the 2024 build year. Based on the *CEQR Technical Manual*, a preliminary assessment of urban design and visual resources 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. Examples include projects that permit the modification of yard, height, and setback requirements, and projects that result in an increase in built floor area beyond what would be allowed "as-of-right" or in the No Action condition. The *CEQR Technical Manual* recommends an analysis of pedestrian wind conditions for projects that result in the construction of large buildings at locations that experience high wind conditions (such as along the waterfront, or other location where winds from the waterfront are not attenuated by buildings or natural features), which may result in an exacerbation of wind conditions due to "channelization" or "downwash" effects that may affect pedestrian safety. The Proposed Project would not result in the construction of large buildings at a location that experiences high wind conditions, and thus a pedestrian wind analysis is not warranted.

As described in detail in Attachment A, "Project Description & Screenings," the Proposed Project would replace existing underutilized parking lots, a GreenThumb garden (Mott Hall Bridges Academy [MHBA] Living Laboratory Community Garden), and two vacant lots[1] with an 908,460-gross-square-foot (gsf) mixed-use affordable housing development. The development would cover seven individual lots located in and around the Marcus Garvey Apartments. The Proposed Actions include a zoning map amendment to replace the existing R6 zoning district with an R7-2 zoning district on Project Sites A–G as well as zoning text amendments and New York City Planning Commission (CPC) special permits requests for establishment of a LSGD. With the Proposed Actions, the Proposed Project would result in physical alterations beyond those allowed by existing zoning, meeting the threshold for a preliminary assessment of urban design and visual resources.

The *CEQR Technical Manual* guidelines state that if the preliminary assessment shows that changes to the pedestrian environment are sufficiently significant to require greater explanation and further study, then a detailed analysis is appropriate. Examples include projects that would potentially obstruct view corridors, compete with icons in the skyline, or make substantial alterations to the streetscape of a neighborhood by noticeably changing the scale of buildings. Detailed analyses also are generally appropriate for area-wide rezonings that include an increase in permitted floor area or changes in height and setback requirements, LSGDs, or projects that would result in substantial changes to the built environment of a historic district or components of a historic building that contribute to the resource's historic significance. Conditions that merit consideration for further analysis of visual resources include when the project partially or totally blocks a view corridor or a natural or built visual resource and that resource is rare in the area or considered a defining feature of the neighborhood; or when the project changes urban design features so that the context of a natural or built visual resource is altered (i.e., if the project alters the street grid so that the approach to the resource changes; if the project changes the scale of surrounding buildings so that the context changes; or if the project removes lawns or other open areas that serve as a setting for the resource).

[1] One of the two vacant lots—Block 3560, Lot 1—has been operating as an urban farm since 2015.

The Proposed Project would be facilitated by zoning changes and the establishment of an LSGD that would allow for a comprehensive planning approach that provides flexibility in design, massing, and placement of the new buildings, and would result in noticeable alterations to the streetscape of the surrounding area as compared to the existing and No Action conditions. The proposed developments along Livonia Avenue would be set back 5 feet, which would allow wider sidewalks and light to reach the street level. The proposed developments at the north and south ends of Chester Street would provide opportunity for greater density and the provision of the Proposed Project's largest affordable housing buildings. The larger buildings along Chester Street would be closer in size and scale to the residential buildings located further east along Rockaway and Thatford Avenues. Therefore, the Proposed Project would meet the threshold for a detailed assessment of urban design and visual resources. This analysis is provided below.

C. EXISTING CONDITIONS

PROJECT SITES

URBAN DESIGN

As described in Attachment A, "Project Description & Screenings," the Proposed Actions involve the development of seven sites located primarily along Livonia Avenue and Chester Street. All seven Project Sites are adjacent to the existing Marcus Garvey Apartments complex. Sites A, B, C, D, and E are located along Livonia Avenue between Rockaway Avenue and Thomas S Boyland Street. Sites F and G, the largest of the Project Sites, are located along Chester Street at the north and south ends of the Marcus Garvey Apartments complex. Site F is located at Chester Street and Riverdale Avenue and Site G is located at Chester Street and Dumont Avenue (see **Figure H-2**).

Site A includes Lot 21 of Block 3589 and is approximately 22,000 sf. It is located towards the center of the LSGD along the eastern edge with frontages on Chester Street and Livonia Avenue (see Photo 1 of **Figure H-3**). Site A contains an underutilized parking lot and vacant land, with an existing curb cut along Livonia Avenue. The parking lot contains approximately 37 unused parking spaces, with the southern end an open green space. An existing, temporary guardhouse sits in the northwest corner of the site, clad in white aluminum siding. The site is separated from the sidewalk by black iron fencing along Livonia Avenue, with chain-link fencing along Chester Street and the southern portion of the lot. Mature trees border the southern and eastern edge of the lot.

Site B is located on Block 3574, Lot 1 and is approximately 20,700 sf. With frontages along Bristol Street, Livonia Avenue, and Chester Street, the site is centered within the LSGD (see Photo 2 of **Figure H-3**). Chain-link fencing lines the three streets, enclosing the underutilized parking lot. Sliding gates guard the entrances located along Bristol Street and Chester Street, where there are existing curb cuts. Short shrubbery lines the inside of the fencing, with the rest of the space utilized for parking as well as storage for a shipping container, located in the northwest corner of the property. The shipping container is cut off from the parking lot by another chain-link fence.

Site C includes Lots 27, 35, and 36 of Block 3588. Approximately 15,000 sf, it is located in the middle of the LSGD with frontages along Chester Street, Livonia Avenue, and Bristol Street (see Photo 3 of **Figure H-4**). With existing curb cuts along Bristol Street and Chester Street, the site contains an underutilized parking lot and a GreenThumb garden. The GreenThumb garden is approximately 2,500 sf, located in the southeast corner of Site C. The site is enclosed with chain-link fencing along its three frontages.

Site D is located north across Livonia Avenue from Site E. Set on the central eastern edge of the LSGD, the site is approximately 15,000 sf and located on Block 3573, Lot 1 (see Photo 4 of **Figure H-4**). The

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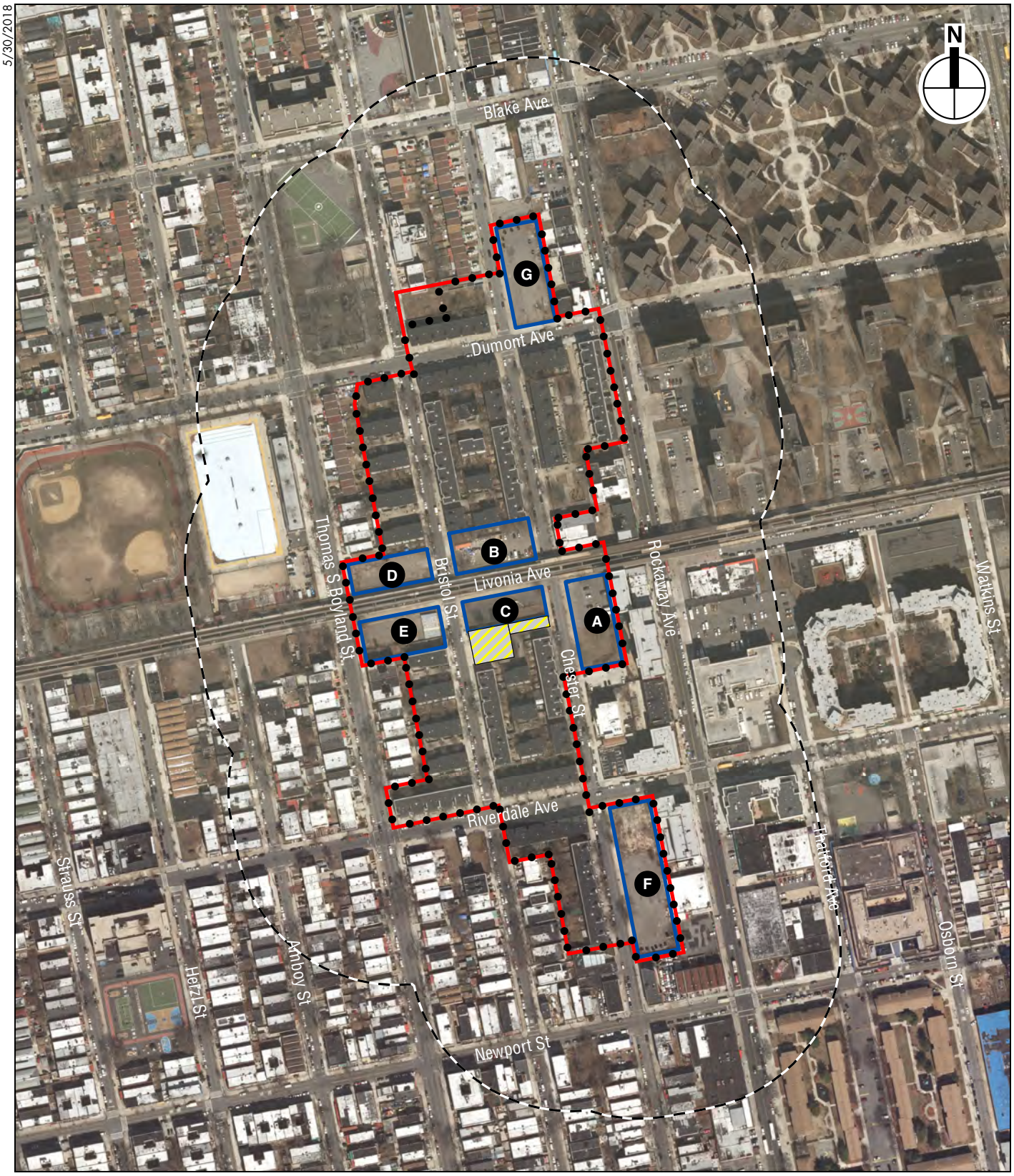


Project Area

Project Sites (Rezoned to R7-2)

400-foot Study Area

Proposed Large-Scale General Development (LSGD) Boundary

Lots not part of Project Area or LSGD

0 200 FEET

Marcus Garvey Extension

Aerial Map
Figure H-2



View southeast from Livonia Avenue and Chester Street to Site A **1**



View northwest from Livonia Avenue and Chester Street to Site B **2**

Existing Conditions Photographs—Project Sites



View southwest on the Rockaway Avenue subway platform to Site C **3**



View northeast from Thomas S. Boyland Street and Livonia Avenue to Site D **4**

Existing Conditions Photographs—Project Sites

underutilized parking lot is separated from the sidewalk by chain-link fencing on its three frontages. The lot has two existing curb cuts along Thomas S Boyland Street and Bristol Street.

Site E is located on the western edge of the LSGD, with frontages along Bristol Street, Livonia Avenue, and Thomas S Boyland Street. Located on Block 3587, Lots 1 and 27 the site is approximately 20,000 sf (see Photo 5 of **Figure H-5**). The underutilized parking lot has two existing curb cuts, one located on Bristol Street and the other on Thomas S Boyland Street. Chain-link fencing surrounds the property along its three frontages.

Site F, the largest of the seven Project Sites, is located on the south end of the Marcus Garvey Apartments within the eastern portion of the LSGD (see Photo 6 of **Figure H-5**). The site includes Block 3602, Lot 12 and contains a total lot area of approximately 37,500 sf. Site F is an underutilized parking lot with frontage along Riverdale Avenue and Chester Street. The parking lot occupies more than half of the Chester Street frontage between Riverdale Avenue and Newport Street. The site has two existing curb cuts along Chester Street. The northern portion of Site F is separated from the sidewalk by construction fencing.

Site G is approximately 25,115 sf. Located on the northeast corner of Dumont Avenue and Chester Street, Site G is located at the northern edge of the LSGD on Block 3560, Lot 1 (see Photo 7 of **Figure H-6**). Prior to 2015, the site was vacant, but now the site is currently used as an urban farm operated by Project EATS. The site has a number of long, rectangular planter boxes and a greenhouse located in the northeast corner. Separated from the sidewalk by chain-link fencing, the site has two existing curb cuts located along Chester Street.

VIEW CORRIDORS AND VISUAL RESOURCES

Views of the Project Sites from Adjacent Sidewalks

As defined in the *CEQR Technical Manual*, "a visual resource is the connection from the public realm to significant natural or built features, including views of the waterfront, public parks landmark structures or districts, otherwise distinct buildings or groups of buildings, or natural resources." As detailed below, there are no view corridors on the Project Sites or from the sidewalks immediately adjacent to the Project Sites. Sites A, B, C, D, and E are located along Livonia Avenue between Rockaway Avenue and Thomas S Boyland Street, and Sites F and G are located along Chester Street. Due to the presence of New York City Transit's (NYCT) viaduct for the No. 3 line, which runs along Livonia Avenue, views of Sites A through E are generally limited from north-south streets.

Site A has street frontages on Chester Street and Livonia Avenue. Pedestrian views of Site A include the guardhouse, the open space in the southern portion of the lot with picnic tables, a parking lot, and trees shielding the buildings rears that are located along Rockaway and Livonia Avenues that abut the property, such as two-story structure at 230 Livonia Avenue and the seven-story residential building at 730 Rockaway Avenue. 421 Chester Street, a five-story brick building located south of the property is also visible.

Pedestrian views of Site B include a parking lot, low shrubbery along the chain-link fencing, and a shipping container on the northwest corner of the lot. With frontages along Bristol and Chester Streets, and Livonia Avenue the pedestrian can view the rear of a portion of the three-story Marcus Garvey Apartment complex that lines Chester and Bristol Streets. Additionally, views of Sites A, C, D, and E can be viewed from the adjacent sidewalk along Livonia Avenue.

Pedestrian views of Site C, which has frontages along Chester Street, Livonia Avenue, and Bristol Street, include chain-link fencing surrounding a lot filled with vegetation. The GreenThumb garden



View east on Thomas S. Boyland Street to Site E **5**



View southeast from Riverdale Avenue and Chester Street to Site F **6**

Existing Conditions Photographs



View northeast from Dumont Avenue and Chester Street to Site G and the urban garden **7**



Views west along Livonia Avenue with the elevated subway line above. Sites B and C are in the forefront of the photo, with Sites D and E barely visible in the background **8**

Existing Conditions Photographs—Project Sites

located along Chester Street can be seen along the eastern edge of the property. The side exteriors of the Little Rock Baptist Church, located at 375 Bristol Street, and the Cornerstone Pentecostal Tabernacle at 388 Chester Street can be viewed from the adjacent sidewalks. Pedestrian views from the sidewalk adjacent to Site C along Livonia Avenue include Sites A, B, D, and E as well.

Pedestrian views of Site D include a vacant parking lot enclosed by chain-link fencing. The fence is covered with vines, shielding the interior space from the outside. Pedestrian views from the sidewalk adjacent to Site D along Livonia Avenue include Sites A, B, C, and E as well. Additionally, a side exterior of a neighboring residence and the rear of a portion of the Marcus Garvey Apartment complex located along Bristol Street can be seen from the sidewalks adjacent to the site, as well as the one- and two-story brick Betsy Head Memorial Park and Imagination Playground ("Betsy Head Park") bath house located along Thomas S Boyland Street.

Pedestrian views of Site E include chain-link fencing lined with vegetation hiding the interior of the property from view. Site E has street frontages along Bristol Street, Livonia Avenue, and Thomas S Boyland Street. A portion of the side exterior of the Marcus Garvey Apartment complex, located along Bristol Street, and a neighboring residential building can be seen from the adjacent sidewalks of the site. Pedestrian views also include Sites B, C, and D as well.

Pedestrian views of Site F, which has street frontages on Chester Street and Riverdale Avenue, include a grassy area with foliage and shrubbery, an enclosed parking area, trees along the sidewalk, and dumpsters lining the backside of the Key Food located on Rockaway Avenue. From Riverdale Avenue, pedestrian views include the construction fencing lining the sidewalk and the vegetation growing over the fence and along the chain-link fencing.

Pedestrian views to Site G, with street frontages along Chester Street and Dumont Avenue, include the urban garden's plant beds and the greenhouse, views of the Marcus Garvey Apartments and residences along Dumont Avenue and Chester Street, buildings along Rockaway Avenue, and the Risen Christ Lutheran School steeple.

View Corridors

Views from the sidewalks adjacent to the Project Sites include north-south views on Bristol, Chester, and Thomas S Boyland Streets, and east-west views along Dumont and Riverdale Avenues. Views to Betsy Head Park and its historic bathhouse are available from Thomas S Boyland Street, with limited views available from Livonia Avenue. Views along east-west Livonia Avenue are long, but are also partially obstructed by the elevated NYCT viaduct (see Photo 8 of **Figure H-6**). Views north-south on the sidewalks near the Projects Sites are often obscured by mature trees, foliage, and the elevated NYCT viaduct on Livonia Avenue. The visual resources along these corridors are limited to large, mature trees that provide dense tree coverage (see Photo 19 of **Figure H-12** and Photo 21 of **Figure H-13**).

Visual Resources

As described above, the Project Sites contain paved parking areas, vacant lots, an urban farm, a GreenThumb community garden, mature trees, other vegetation, and open spaces. Therefore, there are no visual resources on the Project Sites.

PROJECT AREA AND STUDY AREA

The Project Area has a typical urban grid pattern, as does the surrounding 400-foot study area. However, the study area includes larger "superblocks" including Betsy Head Park bounded generally by Blake and Dumont Avenues to the north, Bristol and Thomas S Boyland Streets to

the east, Livonia and Dumont Avenues to the south, and Strauss and Thomas S Boyland Streets to the west; and blocks to the east of Rockaway Avenue that are developed with residential complexes. The topography of the Project Area and study area is flat.

URBAN DESIGN

Streets

As described above, the Project Area and study area streets generally follow a grid pattern with rectangular 200 foot by 500 foot blocks and larger superblocks as discussed above. Due to the presence of residential superblocks, as described below in "Buildings," the streets along Rockaway Avenue between Livonia and Blake Avenues, are not through streets. The primary east-west thoroughfares in the Project Area and study area are Blake, Dumont, Livonia and Riverdale Avenues, and Newport Street, with Rockaway Avenue and Thomas S Boyland Street as the primary north-south thoroughfares; these streets carry two-way traffic. The approximately 25-foot high NYCT viaduct runs above Livonia Avenue through the Project Area and study area. Chester, Bristol, and Amboy Streets are narrower north-south streets that carry one-way traffic. Street furniture within the area includes cobra-head street lamps, traffic lights, bus stop signs and shelters, fire hydrants, mailboxes, and trashcans.

Rockaway Avenue, bordering the Project Area to the east, is a 70-foot-wide thoroughfare that runs north-south through the study area with one northbound lane and one southbound lane. Rockaway Avenue has parking on both sides of the street with bus shelters (see Photo 9 of **Figure H-7**). Bordering the Project Area to the west, Thomas S Boyland Street is a two-way, 80-foot-wide northbound and southbound street with parking ribbons on either side (see Photo 10 of **Figure H-7**). The street has pavement markings indicating that the street can be used by bicyclists, but there is no designated bike lane. Narrower streets in the area are Amboy, Bristol, and Chester Streets, which are 60-feet wide with one-way traffic and parking on both sides. Additionally, Bristol and Chester Streets run through the Project Area; Bristol Street carries southbound traffic and Chester Street carries northbound traffic.

Wider streets in the study area, such as Newport Street, and Riverdale and Dumont Avenues are two-way, 70-foot-wide streets with parking on both sides. Riverdale and Dumont Avenues run through the north and south edges of the Project Area. Livonia Avenue, as noted above, runs beneath the elevated subway lines with parking on both sides. This two-way, 70-foot-wide street runs through the center of the Project Area and study area. At the northern edge of the study area Blake Avenue is a two-way, 70-foot-wide street that has parking on both sides of the street. Blake Avenue has a shared lane for bicyclists as indicated by bicycle route markings (see Photo 11 of **Figure H-8**).

Sidewalks are characterized by relatively low pedestrian volumes traffic, except for Rockaway Avenue, where ground-floor retail is located. Vehicular activity is largely located along Rockaway and Livonia Avenues, and Thomas S Boyland Street. Because the Project Area and study area are primarily residential, vehicular traffic is also limited. The No. 3 subway runs above Livonia Avenue, and the closest subway station to the Project Area is Rockaway Avenue. There are no bus routes through the western portion of the study area; the B60 runs along Rockaway Avenue.

Buildings

The Project Area includes the Marcus Garvey Apartments, a low-rise, three-story housing complex located predominately along Chester and Bristol Streets between Dumont and Riverdale Avenues. The residential buildings, completed in 1976, contain a total of 625 dwelling units (DUs), and have recently undergone alterations to the façades with the addition of metal paneling to frame the buildings and their recessed sections, as well as the painting of the accent pieces, such



View of on-street parking and a bus stop looking north on Rockaway Avenue **9**



View looking north on Thomas S. Boyland Street. Bicycle markings and parking ribbons are on both sides of the street **10**

Existing Conditions Photographs—Study Area



Looking west along Blake Avenue, including views of on-street parking and bicycle markings **11**



Section of the Marcus Garvey Apartments along Dumont Avenue **12**

Existing Conditions Photographs—
Project Area and Study Area

Figure H-8

as the green window framing. The buildings have high lot coverage and large building footprints, occupying much of the blocks on which they are located. Each building's first floor is set above the street with a visible basement level below. An exposed stairway leads to the first floor apartments, and another entrance leads to an interior stairwell that then provides access to the second and third stories (see Photo 12 of **Figure H-8**). Some of the buildings have additional second floor balconies at the rear. Each structure has individual rear yards with a central walkway in between. The apartment complex's main courtyards are located between Bristol and Chester Streets, between Riverdale and Livonia Avenues, as well as Livonia and Dumont Avenues. Some of the apartments are only accessible from these courtyards, and not from the street. These courtyards include benches as well as trees and small plantings; the complexes playground is located along Chester Street and has new plantings and playground equipment.

The study area's built environment is varied, with buildings ranging from tall tower-in-the-park residential building complexes to two-story row houses, attached homes, and semi-attached two-family residences. The area bounded roughly by Livonia and Riverdale Avenues to the north, Chester and Thomas S Boyland Streets to the east, Newport Street to the south, and Amboy Street to the west is developed with early 20th century residential buildings (see Photo 13 of **Figure H-9**). This portion of the study area is generally characterized by semi-attached two-family residences and two-story rowhouses with basements. The residential buildings tend to have small footprints (generally less than 3,000 sf), high lot coverage, and are built with small, fenced-in front yards that separate the buildings from the sidewalk.

To the east, along Rockaway Avenue, the urban design character of the study area changes. Located between Livonia and Riverdale Avenues along Rockaway Avenue is the early 20th century Verizon Telephone Building. The three-story, L-shaped building occupies the majority of its lot, with a street frontage of 225 feet and a depth of 200 feet (see Photo 14 of **Figure H-9**). The southeastern portion of the lot is occupied by parking. Similar in size and scale are a number of recent residential developments located along Rockaway Avenue, south of Livonia Avenue (see Photo 15 of **Figure H-10**). The buildings range between five and six stories without setbacks, and are generally clad in red brick. These buildings tend to have high lot coverage and large footprints (generally more than 16,000 sf). Mid-block, between Riverdale Avenue and Newport Street, the buildings transition from five to six stories to predominately one-story structures with high lot coverage.

The New York City Housing Authority (NYCHA) Tilden Houses are located along Rockaway Avenue between Livonia and Dumont Avenues. The building complex comprises eight 16-story residential buildings and a community facility set within landscaped grounds. Brick-faced, four of the buildings have L-shaped footprints, while the other four have somewhat rectangular footprints. These buildings have low lot coverage and are set back from the street within large (approximately 11 acres) landscaped grounds containing parking lots, lawns, landscaped areas, grass, and play areas. The parking lots front Rockaway Avenue.

North of the Tilden Houses are the NYCHA Brownsville Houses, which are located between Rockaway Avenue, Mother Gaston Boulevard, and Dumont and Sutter Avenues. The building complex comprises 27 three-story walk-ups and six-story elevator, brick buildings with X-shaped footprints. Set within landscaped grounds, a series of walkways and circular courtyards connect the buildings (see Photo 16 of **Figure H-10**). The 27 buildings have low lot coverage and are set back from the street within approximately 22 acres of landscaped grounds.

Along Thomas S Boyland and Bristol Streets, north of Livonia Avenue in the study area, the urban design character transitions back to low-scale development. Typically, brick-faced, two-story attached



Residences in the southern portion of the study area on Chester Street **13**



The Verizon Telephone Building located along Rockaway Avenue **14**

Existing Conditions Photographs—Study Area

Marcus Garvey Extension

Figure H-9



View north along Rockaway Avenue with new residential developments along the west side **15**



View north of the Brownsville Houses from Dumont Avenue **16**

residences built in the late 20th century line these two streets (see Photo 17 of **Figure H-11**). The buildings have low lot coverage and have footprints of generally less than 1,200 sf.

Natural Features and Open Space

Natural features and open space in the study area includes the MHBA Living Laboratory Community Garden on Site C and Betsy Head Park, the primary open space in the study area. The portion of Betsy Head Park within the study area includes a bath house, swimming pool, and bleachers along Thomas S Boyland Street between Dumont and Livonia Avenues (see Photo 18 of **Figure H-11**). The Imagination Playground at Betsy Head Park, bounded by Blake Avenue to the north, Bristol Street to the east, Dumont Avenue to the south, and Thomas S Boyland Street to the west, is a paved area with handball courts, a playground with extensive tree coverage, and basketball courts (see **Figure H-12**). The park occupies most of the northwest portion of the study area, extending to the north and west outside of the study area boundaries.

There are a handful of other playgrounds and community gardens located in the study area. The P.S. 125 Playground is located in the northeast portion of the study area along Rockaway Avenue between Dumont and Blake Avenues. It contains a basketball court, playground, and benches. The Thomas S Boyland Community Garden, formerly known as the Hopkinson R&L Garden, is located the southwest corner of Livonia Avenue and Thomas S Boyland Street. The garden provides planting beds and open space for gathering. The Newport Garden is located in the southeast portion of the study area at the northeast corner of Rockaway Avenue and Newport Street. This space includes mature trees, benches, and planting beds.

As described above, the study area also includes two NYCHA developments—the Tilden Houses and Brownsville Houses, each of which comprises multiple freestanding apartment buildings set within landscaped grounds. These properties have grassy lawn areas with trees enclosed by fences, landscaped pedestrian walkways that extend through the complexes, seating near building entrances, and playgrounds.

There are few streets trees along Rockaway, Riverdale, Livonia, Dumont, and Blake Avenues as well as Newport Street. Those that are present are generally smaller street trees. Large, mature trees are located on the grounds of the NYCHA developments, Imagination Playground at Betsy Head Park, and along Thomas S Boyland, Bristol, and Chester Streets. The trees along Thomas S Boyland, Bristol, and Chester Streets are located in the sidewalk near the curb, while the trees in the playground and within the NYCHA complexes tend to be clustered and are set back from the street.

VISUAL CORRIDORS AND VISUAL RESOURCES

Views of the Project Sites from Immediately Adjacent Streets in the Study Area

Pedestrian views of the Project Sites from the streets immediately adjacent in the study area include north-south views on Bristol, Thomas S Boyland, and Chester Streets, and east-west views along Dumont and Riverdale Avenues. Views along east-west Livonia Avenue are long, but are also partially obstructed by the elevated railway overhead. Since the sites are vacant, the Project Sites are typically not visible from far distances. Project Sites B, C, D, and E are not visible south or north along Bristol Street, unless immediately adjacent to the Project Sites. The Project Sites are often obscured by mature trees, foliage, fencing, and the elevated subway line on Livonia Avenue. Along Livonia Avenue, Project Sites A, B, and C are visible to the west with Sites D and E visible upon closer proximity. Along Chester Street, Project Sites A, C, F, and G are obscured by mature trees, foliage, and the NYCT viaduct (see **Figure H-13**); however, during the winter the Project Sites are



View west of the two-story attached residences along Thomas S. Boyland Street **17**



View southwest to the Betsy Head Park bath house located on Thomas S. Boyland Street **18**



The Imagination Playground at Betsy Head Park **19**



View of the northern portion of the Imagination Playground section of Betsy Head Park **20**

Existing Conditions Photographs—Study Area



View north along Chester Street. Mature trees and the elevated subway obscure Sites A and C, located on the east side of the street. **21**

Existing Conditions Photographs—
Project Area

more visible due to the loss of foliage. Regardless of season, views are visible of the Project Sites when pedestrians are in close proximity.

Views from within the Study Area

Views from within the study area are longest along east-west Newport Street, Riverdale, Livonia, Dumont, and Blake Avenues. Views along Rockaway Avenue, Chester, Bristol, and Thomas S Boyland Streets offer shorter view corridors due to the intrusion of the elevated subway located along Livonia Avenue. Additionally, mature trees line much of Thomas S Boyland, Bristol, and Chester Streets obscuring views. Views north along Rockaway Avenue, north of Livonia Avenue include views of the Tilden Houses and the Brownsville Houses (eligible on the State and National Historic Register).

Visual Resources

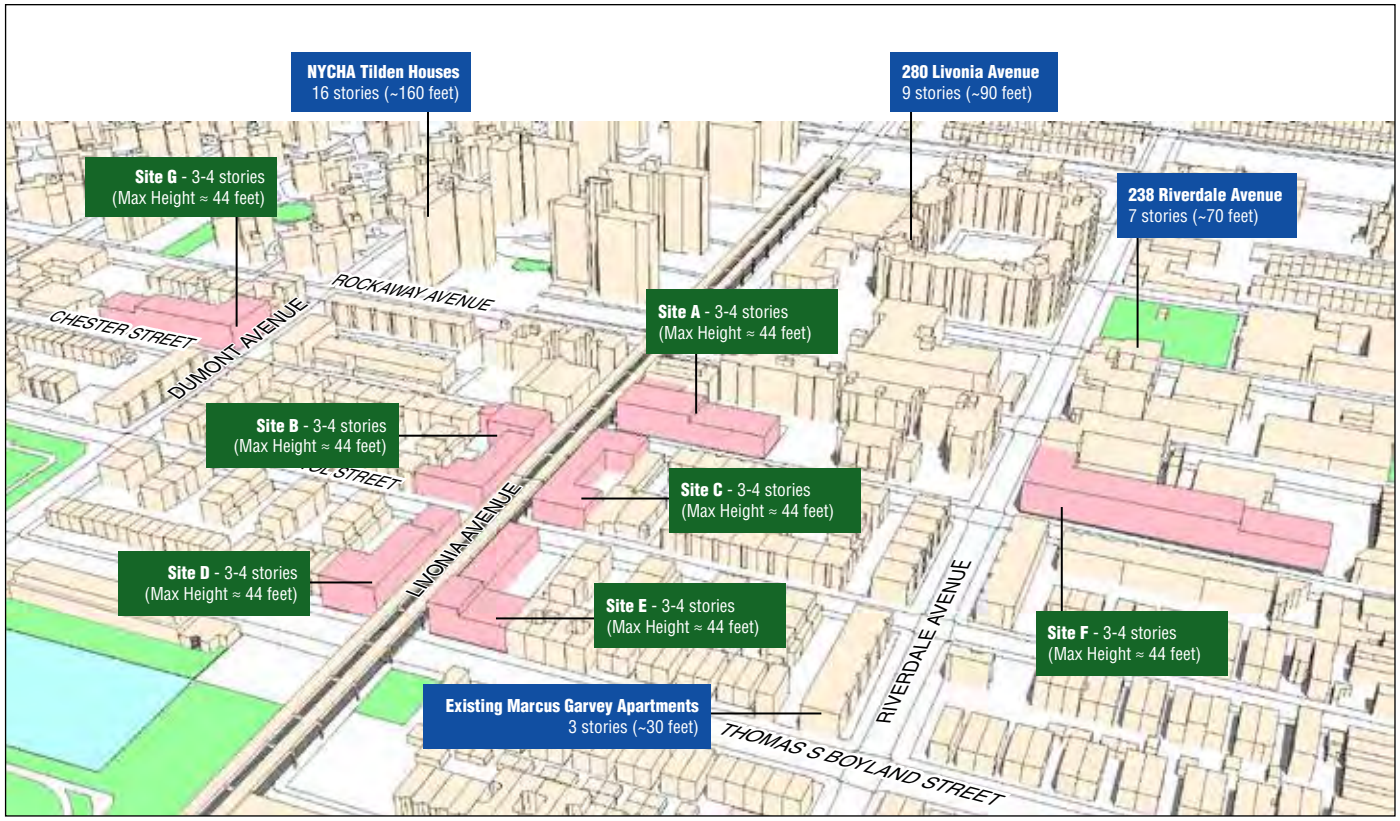
As previously stated, the visual resources of the Project Area and study area are limited to the mature trees that line many of the streets and are also located on the grounds of the NYCHA complexes and at the Imagination Playground at Betsy Head Park.

D. FUTURE WITHOUT THE PROPOSED PROJECT

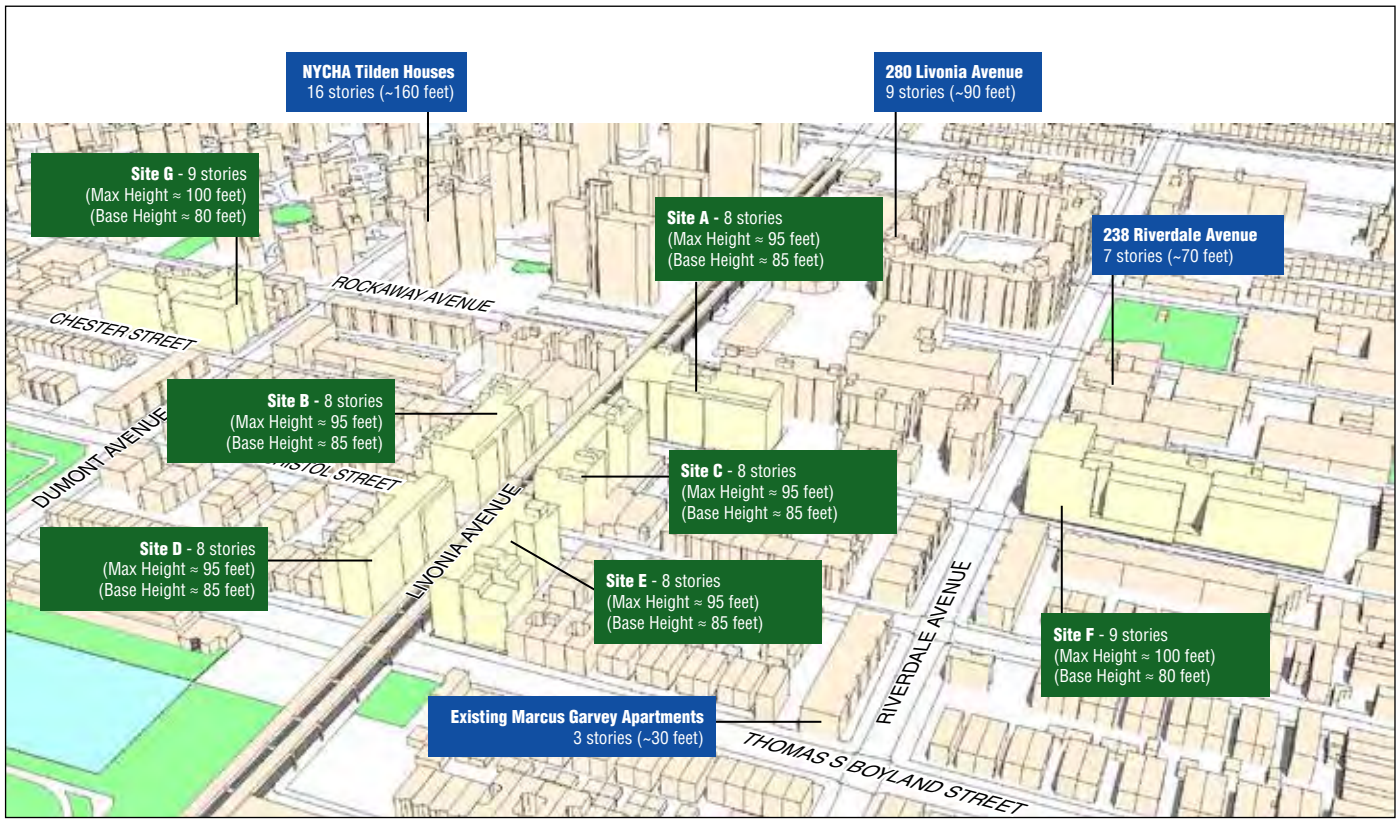
This section considers urban design and visual resources in the No Action condition in 2024. This condition is projected by considering changes that are likely or expected to occur on the Project Sites and within the study area.

PROJECT SITES

In the No Action condition, it is assumed that the Project Sites will be redeveloped under the existing R6 zoning with seven three- to four-story mixed-use buildings (approximately 44-feet tall). The No Action developments on the Project Sites would be developed in accordance with *Quality Housing* regulations, which are optional in R6 districts. Buildings developed under *Quality Housing* have high lot coverage and include landscaping and recreational amenities fir residents. The seven buildings are anticipated to include 438 DUs, approximately 63,924 sf of community facility space, 513 below-grade accessory parking spaces, and private open space at the rear of each building. Axonometric views of the buildings in the No Action condition are shown in Photo 1 of **Figure H-14**. In the No Action condition, the New York City Department of Housing Preservation and Development (HPD) lot on Site E would remain undeveloped and the existing GreenThumb garden on Site C would remain. Parking spaces would located below-grade and would be accessed via curb cuts located along Thomas S Boyland, Bristol, and Chester Streets. It is expected that all seven sites would contain planted, landscaped open space for residents at the rear of the buildings. A summary of the development anticipated on the Project Sites in the No Action condition is presented in **Table H-1**.



No Action Condition **1**



With Action Condition **2**

Axonometric Views - No Action and With Action

Marcus Garvey Extension

Figure H-14

Table H-1
No Action Condition

Site	Total gsf	Community Facility use (gsf)	Residential Use (gsf)	Residential Use (DUs)	Accessory Parking (spaces)
A	68,792	12,265	56,527	63	31
B	59,256	10,472	48,784	54	69
C	44,218	7,372	36,846	41	41
D	47,740	6,925	40,815	45	65
E	47,840	6,890	40,950	46	64
F	114,240	12,000	102,240	114	131
G	76,080	8,000	68,080	76	112
Total	**458,166**	**63,924**	**394,242**	**438**	**513**

Notes: Numbers may not add to totals due to rounding, assumption of 900 gsf per DU; replacement parking for existing spaces provided + 50 percent per unit requirement for units in an R6 zoning district.
Sources: L+M Development Partners, Inc., Curtis + Ginsberg Architects, LLP, and AKRF, Inc.

Site A would be developed with a new L-shaped, mixed-use building that would contain approximately 12,265 gsf of community facility space and 63 DUs. The building would extend 100 feet along Livonia Avenue and approximately 220 feet south along Chester Street. The building would have a three-story section towards the southern end of the building. Additionally, 31 accessory parking spaces would be built below grade. In the southeast section of the lot would be a private courtyard with plantings.

Site B would be developed with a new, three-story building with two rear extensions on the east and west ends that extend to the northern edge of the site. The building would extend 200 feet along Livonia Avenue from Bristol Street to Chester Street with no setback. The new development on Site B would have a fourth story located on the western portion of the building. The building would contain 69 underground accessory parking spaces, with approximately 10,472 gsf of community facility space and 54 DUs.

Site C would be developed with a building that would extend 200 feet along the south side of Livonia Avenue between Bristol and Chester Streets. The new, three-story development would have two rear extensions, like the building at Site B; which extend towards the southern edge of the site. The mixed-use building would contain 41 accessory parking spaces below grade, 41 DUs, and approximately 7,372 gsf of community facility space. The building would have fourth story atop the western extension of the development.

The building at Site D would be a three-story, mixed-use building that contains approximately 6,925 gsf of community facility space, 45 DUs, and 65 accessory parking spaces below grade. The building would have a central section with two wings that extend approximately 75 feet north to the rear of the lot. The new development would extend 200 feet along the north side of Livonia Avenue between Thomas S Boyland and Bristol Streets with no setback. The western wing of the building would have a fourth story, while the rest of the building would be three stories.

Site E would be developed with a three-story, mixed-use building that extends 200 feet along the southern edge of Livonia Avenue between Thomas S Boyland Street and Bristol Street. The western section of the building would extend approximately 100 feet south to the edge of the site. The building would not be set back from the sidewalk along Livonia Avenue nor Thomas S Boyland Street. At the western section of the building, there would be a fourth story. The new development would contain 46 DUs, 6,890 gsf of community facility space, and 64 accessory parking spaces below grade.

The building at Site F would be a four-story, mixed-use building that would contain approximately 12,000 gsf of community facility space, 113 DUs, and 131 accessory parking spaces below grade. The L-shaped building would extend 100 feet along Riverdale Avenue and 375 feet along Chester Street. The new development would not be set back from the sidewalk.

The development at Site G would contain a roughly L-shaped, mixed-use building. The development would contain approximately 8,000 gsf of community facility space and 76 DUs. Below grade there would be 112 accessory parking spaces. The north section of the building would only have three stories, while the front section of the building would be four stories. The development would extend 100 feet along Dumont Avenue and extend north approximately 251 feet along Chester Street, with no setbacks along the sidewalk.

VIEW CORRIDORS AND VISUAL RESOURCES

Views of the Project Sites from Adjacent Sidewalks

In the No Action condition, pedestrian views to the Project Sites from the immediately adjacent sidewalks would be substantially altered with a new street wall and tree plantings along Chester, Bristol, and Thomas S Boyland Streets, and Dumont, Livonia, and Riverdale Avenues. On Site A, views from adjacent sidewalks would include the No Action buildings on Site A and the adjacent Project Sites. The building, including community facility space, would provide new visual interest and increase pedestrian activity in the area. On Site B, the new three- to four-story development would replace an underutilized parking lot. Because the new building, like Site A, would replace an underutilized parking lot, it would substantially alter pedestrian views from the sidewalks immediately adjacent to Site B and other sidewalk vantage points adjacent to Sites A, C, D, and E. Views from adjacent sidewalks would include the new buildings at Sites A, C, D, E, F, and G, in part or in total. The building on Site B would create a street wall along Livonia Avenue, and Chester and Bristol Streets, with a portion of the ground floor accessible as community facility space. On Site C, the underutilized parking lot would be replaced with a new three- to four-story development, and the existing GreenThumb garden would remain. Similar to Sites A and B, this new development would significantly alter the pedestrian views from the sidewalk immediately adjacent to Site C and in part or in total, from vantage points near the other Project Sites. The building, including community space, would provide visual interest and increase pedestrian activity in the area. Under the No Action condition, the disposition of City-owned property encompassing the MHBA Living Laboratory Garden would not occur, and the GreenThumb garden would remain on Site C; therefore, community members would still have access to the open space resource.

On Site D, views from adjacent sidewalks would include the structure, in part or in total, from vantage points adjacent to Project Sites A, B, C, and E. The vacant parking lot would be developed into a three- to four-story building, providing visual interest along Livonia Avenue. Community space would create an active ground floor for communal use.

The underutilized parking lot on Site E would be developed into a three- to four-story building. The southwest portion of the lot would remain unchanged. With the development of the parking lot, the pedestrian view would be significantly altered. Views from immediately adjacent sidewalks around Site E would include the building on Site E, and views to No Action buildings on Project Sites A, B, C, and D.

On Site F, the underutilized parking lot would be developed into new four-story building. The new building, like the other sites, would significantly alter the pedestrian experience along Riverdale Avenue and Chester Street. This building would provide visual interest and the community facility

would generate relatively more pedestrian activity than under current conditions. The new building would be visible from in part or in total from vantage points near Project Sites A, B, C, and G.

Site G would be developed with a new three- to four-story building, displacing the Project EATS urban farm, which currently operates on the site under a year-to-year lease with an entity affiliated with the applicant. In the future, Project EATS may be afforded an opportunity to operate on a smaller applicant-controlled site on the west side of Chester Street (adjacent to the Acquisition Site and across from Site G). If so, Project EATS and the applicant would negotiate the terms of use through a lease, license agreement or comparable mechanism. On Site G, views from adjacent sidewalks would include the structure, in part or in total, from vantage points adjacent to Project Sites A, B, C, and F. The building on Site G would create a new street wall along Chester Street and Dumont Avenue. A portion of the ground floor would be accessible for community facility space.

Visual Resources

There are no visual resources on the Project Sites; therefore, the No Action condition would not remove or alter any visual resources on the Project Sites.

PROJECT AREA AND STUDY AREA

URBAN DESIGN

Apart from the Project Sites, the remainder of the Project Area would be expected to remain in its existing condition. As discussed in Attachment B, "Land Use, Zoning, and Public Policy," five development projects are currently anticipated to be completed by 2024 within the study area. Three of these are proposed at 342 Amboy Street, 136 Livonia Avenue, and 138 Livonia Avenue, and are located adjacent to each other at Block 3585, Lots 32, 31, and 131 respectively. All three buildings will be four stories and contain seven DUs each and will be similar in height to the No Action condition developments on the Project Sites. A fourth project would be located at 589 Rockaway Avenue, which repurpose a former and long abandoned P.S. 125 school building with 58,286 sf of community facility space, intended for use as a health care and school facility. The exterior of the building is expected to remain unchanged. Approximately one block east of Site F, the planned development as a result of the 803 Rockaway Avenue Rezoning on Block 3603 would result in eight-story mixed-use buildings along Rockaway Avenue between Riverdale Avenue and Newport Street, and seven-story buildings along Thatford Avenue between Riverdale Avenue and Newport Street. The buildings would include affordable and supportive housing, retail space, community facility space, and light manufacturing space.

The planned No Build developments will not substantially alter the urban design character and visual character of the study area. The residential developments along Livonia Avenue and Amboy Street will introduce developments with similar lot coverage and building sizes as those located in the area south of Livonia Avenue within the study area. The developments will also introduce more DUs to the area. The new development at the old P.S. 125 would reactivate a vacant space with new community facility space, and the development planned for Block 3603 (803 Rockaway Avenue) would enhance the Rockaway Avenue corridor with new mixed-use development.

VIEW CORRIDORS AND VISUAL RESOURCES

Views of the Project Sites from Immediately Adjacent Streets in the Study Area

Pedestrian views of the Project Sites from immediately adjacent streets would include north-south views on Bristol and Chester Streets, and east-west views along Dumont and Riverdale Avenues. Views along east-west Livonia Avenue would remain long, with partial obstruction by the NYCT

viaduct overhead. The No Action developments on the Project Sites would be partially visible from far distances. Buildings on Sites B, C, D, and E would become visible for pedestrians looking south or north along Bristol Street. The buildings would continue to be partially obscured by mature trees along the road and the NYCT viaduct on Livonia Avenue. Along Livonia Avenue, the buildings on Sites A, B, C, D, and E would be prominently visible. Along Chester Street, the buildings on Sites A, F, and G would be visible, but would remain partially obscured by mature trees and the viaduct.

Views from within the Study Area

Views from within the study area would remain longest along east-west Newport Street, Riverdale, Livonia, Dumont, and Blake Avenues. Views along Rockaway Avenue, Chester, Bristol, and Thomas S Boyland Streets would continue to offer shorter view corridors due to the intrusion of the NYCT viaduct located along Livonia Avenue and the No Action developments. Views north along Rockaway Avenue, north of Livonia Avenue would continue to include views of the Tilden Houses and the Brownsville Houses.

Visual Resources

As discussed above, the visual resources in the Project Area and study area are limited to mature trees, and the No Action condition would result in any modifications to these resources.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

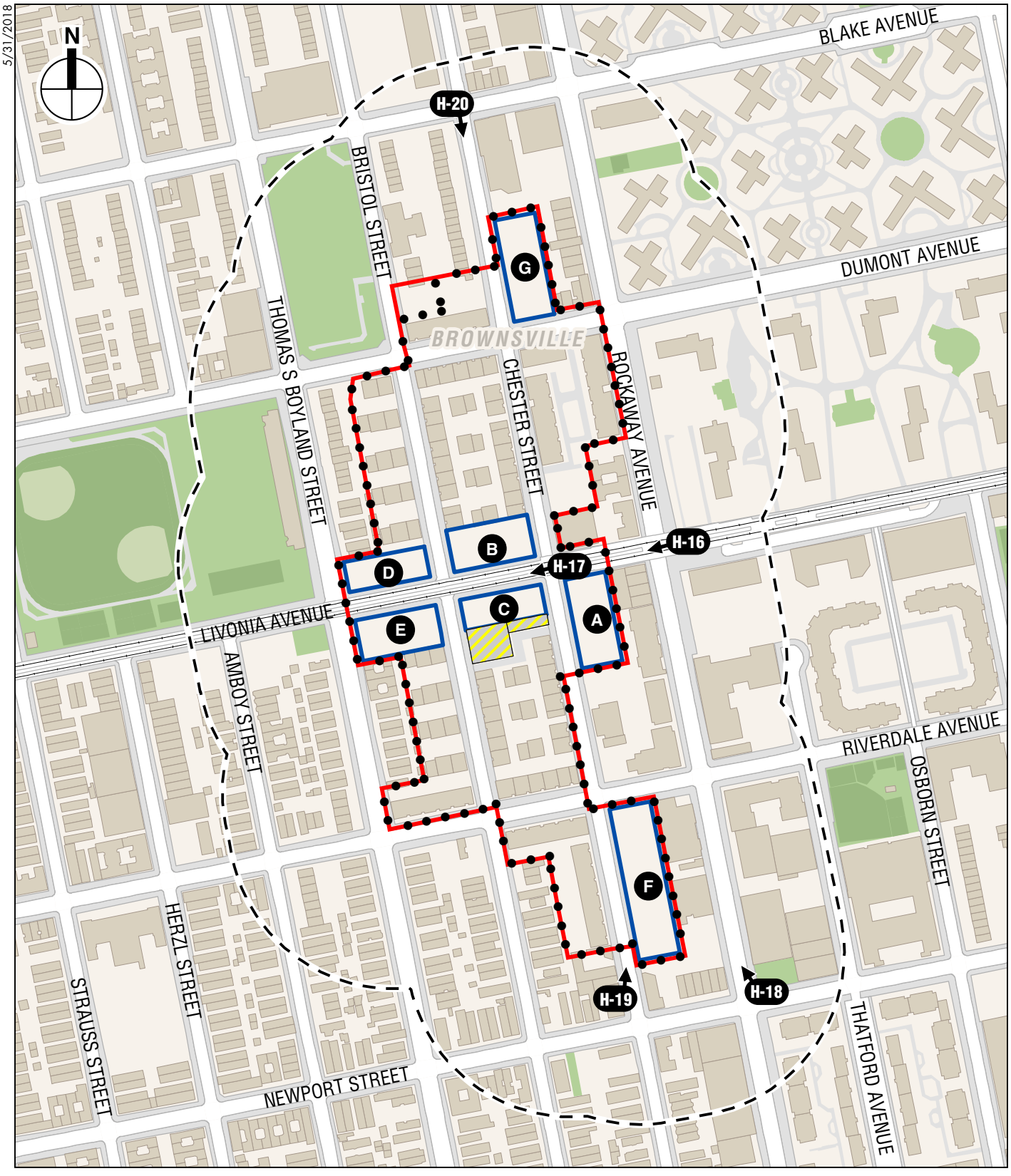
This section considers urban design and visual resources of the With Action condition in 2024 in comparison to the No Action condition. **Figures H-14 through H-20** provides axonometric site plans and pedestrian view massing's depicting the With Action development.

PROJECT SITES

As discussed below, the Proposed Project would be consistent with the scale of existing and planned developments in the study area, and its mix of residential, local retail, and community facility uses would be supportive of existing land use trends. The new retail, community facility space, and relocated site for the urban farm and the replaced community garden, which would be have more space in the With Action condition, would provide amenities for existing residents, and the Proposed Actions would result in benefits to the neighborhood associated with an enlivened streetscape and enhanced pedestrian safety along Livonia Avenue.

In the With Action condition, similar to the No Action condition, the Project Sites would be developed in accordance with the optional *Quality Housing* regulations, which requires landscaping and on-site recreational space for building tenants. The private open space would generally not be visible from sidewalks and other publicly accessible locations, as it would be provided at the rear of the buildings. The Project Sites would be developed under the proposed R7-2 zoning and in accordance with the provisions of the new LSGD. The Project Sites would be developed with seven-, eight-, and nine-story multifamily residential buildings with local retail space and/or community facility space. The eight-story buildings would be 95-feet-tall and the nine-story buildings would be 100 feet in height (not including rooftop mechanical equipment) (see Photo 2 of **Figure H-14**). The seven buildings would contain 843 affordable DUs, 98,032 gsf of community facility space, 35,049 gsf of local retail space on the ground floors, and 24 accessory parking spaces.

Buildings A, B, C, D, and E would be eight-story, approximately 95-foot-tall mixed-use residential buildings. Under the With Action condition, the applicant is seeking a waiver as part of the LSGD to exceed the maximum base height of 75 feet. Buildings A through E would have base heights of 85 feet. With the Proposed Actions, local retail uses would be allowed along Livonia Avenue



Project Sites:
No Action and With Action Conditions
Photograph Views

Marcus Garvey Extension

Figure H-15



No Action Condition **1a**



With Action Condition **1b**

View west along Livonia Avenue of Sites A through E near the intersection of Livonia Avenue and Rockaway Avenue

Figure H-16



No Action Condition **2a**



With Action Condition **2b**

View west along Livonia Avenue of Sites B through E
from the Rockaway Avenue subway platform

Max Height: 44 feet



No Action Condition **3a**

Max Height: 100 feet

Base Height: 80 feet



With Action Condition **3b**

View northwest of Site F from the east side of Rockaway Avenue near Newport Street

Figure H-18

Max Height: 44 feet



No Action Condition **4a**

Base Height: 80 feet

Max Height: 100 feet

Base Height: 80 feet



With Action Condition **4b**

View of Site F looking northeast from the intersection of Chester Street and Newport Street



No Action Condition **5a**



With Action Condition **5b**

View of Site G looking south along Chester Street south of Blake Avenue, with Sites A and B in the distance

Figure H-20

generally between Thomas S Boyland Street and Rockaway Avenue. Buildings A, B, C, and E would contain ground-floor retail space along Livonia Avenue, contributing to a more vibrant retail corridor at ground level along Livonia Avenue.

As discussed above, the NYCT viaduct carrying the No. 3 train traverses Livonia Avenue. The viaduct has a height of approximately 25 feet (at the bottom of the elevated structure), with infrastructure supporting the viaduct placed within the sidewalks on the north and south sides of Livonia Avenue, reducing the effective width of the sidewalks at these locations. With the Proposed Actions, Buildings A through E would set back 5 feet from Livonia Avenue, resulting in a widening of the sidewalks which would allow for more light and air to reach street level. The widening would also increase the capacity of the sidewalks to handle the additional pedestrians expected as a result of the Proposed Actions.

Like the No Action condition, Site A would be developed with an L-shaped structure; however, the building would be set back 5 feet from Livonia Avenue to allow for more light and air and an improved sidewalk with the Proposed Actions. The building would contain approximately 114 DUs, approximately 8,700 gsf of retail space, and approximately 21,039 gsf of community facility space, but would not contain any parking spaces. The new retail space would enliven Livonia Avenue. The building would have multiple setbacks ranging from 5 feet to 15 feet along the façade, with two bulkheads located on the roof; one located along the eastern edge of the building along Livonia Avenue and the other setback from the façade along Chester Street. As the building extends into the lot, it would reduce to two stories (see **Figures H-16 and H-20**).

The building at Site B would have the same footprint as compared with the No Action condition. The building would extend along Livonia Avenue from Bristol Street to Chester Street, with an approximately 5-foot setback. Along Chester and Bristol Streets, the rear extensions would be set back approximately 5 feet from the sidewalk, while the remainder of the building would be at the lot line. Along the façade, there would be multiple setbacks. Along Livonia Avenue the base height would be a maximum of 85 feet, and would set back at the eighth story. Three bulkheads would be present on the roof, setback from the Livonia Avenue as well as Chester and Bristol Streets. Moving north into the site, the two rear extensions would tier down from eight, to seven to five stories to relate to the existing context within the LGSD (see **Figures H-16 through H-17** and **Figure H-20**). Additionally, the building at Site B in the With Action condition compared to the No Action condition would see an increase in both residential and community facility square footage, with the addition of new retail space. The new development would include approximately 10,458 gsf of retail space, approximately 13,591 gsf of community facility space, and 96 DUs.

The new building at Site C would extend 200 feet along the south side of Livonia Avenue between Bristol and Chester Streets. Like the No Action condition, the building would have two rear extensions; however, the GreenThumb garden would be removed and the rear extension would extend to the southern edge of the site. Building C would be built to the lot line along Chester and Bristol Streets, with a 5-foot setback along Livonia Avenue. Along Livonia Avenue, the building would have a base height of 85 feet before setback. The roof would have three bulkhead areas, setback from the Bristol and Chester Streets and Livonia Avenue (see **Figures H-16 through H-17**). The mixed-use building would contain more residential, community facility, and new retail space than the No Action condition. The building would include 85 DUs, approximately 11,252 gsf of community facility space, and 7,853 gsf of retail space.

The With Action condition building at Site D, in comparison to the No Action condition, would be an eight-story building with approximately 19,507 gsf of community facility space, and 81 DUs. The building would maintain the same footprint as the No Action condition, and have bulkhead areas

set towards the rear of the property. Along Livonia Avenue and Thomas S Boyland and Bristol Streets the façades would have multiple setbacks (see **Figures H-16 through H-17**).

Building E would be located along the south side of Livonia Avenue between Thomas S Boyland Street and Bristol Street with an approximately 5-foot setback. The new development, as compared to the No Action condition, would include new retail space and see an increase in community facility and residential space. The building on Site E would include 92 DUs, approximately 8,038 gsf of retail space, and approximately 10,125 gsf of community facility space. The eastern portion of the building would run along the lot line. The building would contain multiple setbacks like the other buildings along Livonia Avenue, with two bulkhead areas set towards the center rear of the property. At the northeast corner of the property the building would be seven-stories with a 5-foot setback at the eighth story. As the building extends to the south, the building height would step down on both extensions (see **Figures H-16 through H-17**).

Buildings F and G would be nine-story (100-ft tall) mixed-use buildings. Under the With Action condition, the applicant is seeking a waiver as part of the LSGD to exceed the maximum base height of 75 feet. Buildings F and G would have base heights of 80 feet. The new building on Site F, in comparison to the No Action condition, would contain 12 accessory parking spaces at-grade with approximately 13,776 gsf of community facility space, and 230 DUs. These parking spaces would be accessed via a curb cut located along Chester Street. The building at Site F would maintain an L-shaped footprint that would extend 100 feet along Riverdale Avenue and 375 feet along Chester Street. Along Riverdale Avenue and Chester Street, there would be multiple setbacks in the façade. The building would have multiple setbacks, as seen on the other Project Sites. The roof would have bulkhead areas, similar to the other proposed buildings (see **Figures H-18 through H-19**). Along the eastern edge of the lot there would continue to be a private courtyard with plantings.

Similar to the No Action condition, the With Action condition on Site G, would contain a roughly L-shaped, mixed-use building, but the building would be taller and contain more floor area. The new development would contain approximately 8,742 gsf of community facility space, 145 DUs, and 12 at-grade accessory parking spaces that would be accessible via a curb cut along Chester Street. The building's façade would have multiple setbacks along Dumont Avenue and Chester Street; the rest of the building would be built on the lot line. At the corner of Chester Street and Dumont Avenue, the building would be seven stories, but would increase to nine stories as it extends north into the lot. The roof would have bulkhead areas for mechanical equipment (see **Figure H-20**).

VIEW CORRIDORS AND VISUAL RESOURCES

Views of the Project Sites from Adjacent Sidewalks

Like the No Action condition, the seven developments would be constructed under *Quality Housing* regulations, which require on-site open space and recreational amenities for residents. Similar to the No Action condition, exterior landscaping and plantings would continue to enliven the pedestrian experience. Street trees would be provided as required by zoning. However, under the With Action condition, pedestrian views to the Project Sites from the immediately adjacent sidewalks would change compared to those in the No Action condition. The proposed ground-floor retail space and community facility space located above would activate the streetscape along Livonia Avenue, and introduce more pedestrian activity. The additional 5 feet of height proposed for the ground-floor spaces would encourage better ground-floor retail spaces and the allowable increase in building height would provide for more adequate floor-to-ceiling heights for the DUs above. The north and south sides of Livonia Avenue would have a new, continuous street wall with an enlivened pedestrian realm. The proposed developments at Sites F and G located one block south and north of Livonia Avenue,

respectively, would introduce a new continuous street wall and setbacks along Chester Street, reflective of the larger apartment buildings along Rockaway Avenue.

Buildings A, B, C, D, and E would have base heights of 85 feet (7 stories) and reach a maximum height of 95 feet (8 stories). Pedestrian views of the new development on Site A from adjacent sidewalks would continue to include the NYCT viaduct. New development would provide visual interest to the ground floor along Livonia Avenue and Chester Street. The building would feature new retail frontage along Livonia Avenue. Residential and community facility space would be located on the upper floors, with a residential entrance located along Chester Street. The exterior façades would be accented with new plantings and new street trees.

Pedestrian views to Site B would be significantly altered from the sidewalks immediately adjacent to Site B and other sidewalk vantage points along Livonia Avenue. Views from adjacent sidewalks would include in part or in total the new buildings at Sites A, C, D, E, F, and G. Like the No Action condition, the building on Site B would create a continuous street wall along the north side of Livonia Avenue, and along Chester and Bristol Streets; however, the ground floor along Livonia Avenue would have new retail with the residential entrance along Chester Street and the community facility entrance along Bristol Street. These new actives uses would create a more enlivened pedestrian experience as compared to the No Action condition.

On Site C, the GreenThumb garden would be removed in the With Action condition. Similar to Buildings A and B, new development would significantly alter the pedestrian views from the sidewalk immediately adjacent to Site C from vantage points near the other Project Sites. The ground floor along Livonia Avenue would be activated with new retail uses, which would enliven the pedestrian experience along Livonia Avenue, and Bristol and Chester Streets. Additionally, new landscaping along the exterior of the building would beautify and create new visual interests along the streets.

Pedestrian views from adjacent sidewalks along Site D would continue to include the new building from vantage points adjacent to Project Sites A, B, C, and E. The new building would activate the ground floor by incorporating retail space along Livonia Avenue. Entrance to the residences would be located along Thomas S Boyland Street, and away from the proposed Livonia Avenue commercial corridor.

In the With Action condition, compared to the No Action condition, the new development at Site E would incorporate the lot at the southwest corner of the site. With the additional extension along Thomas S Boyland Street, the pedestrian view would be significantly altered. New active retail uses on the ground floor along Livonia Avenue would activate the pedestrian experience and new plantings and trees would enhance visual interest. The residential entrance would be located along Thomas S Boyland Street. Views from immediately adjacent sidewalks around Site E would include the new building from vantage points near Project Sites A, B, C, and D.

Building F would enhance the pedestrian experience along Riverdale Avenue and Chester Street. The building would be larger and five stories taller as compared to the No Action condition. Parking would be located at-grade and accessed via a curb cut along Chester Street. The building would continue to provide visual interest and activate the ground floor with community facility space, increasing pedestrian activity. The new building would continue to be visible from vantage points near Project Sites A, B, C, and G in the With Action condition compared to the No Action condition. The building would have a maximum height of 100 feet, and a maximum base height of 80 feet generally consistent with the prevailing six- and seven-story street walls of the residential buildings located along Rockaway Avenue, south of Livonia Avenue.

On Site G, pedestrian views from adjacent sidewalks would continue to include the new building from vantage points adjacent to Project Sites A, B, C, and F. The new building would have a street wall height of 80 feet and would be taller than the building expected under the No Action condition, adding an additional six to seven stories, consistent with the scale of existing buildings located along Rockaway Avenue directly to the east. Similar to the new development on the other Project Sites, the building would create a new street wall along portions of Chester Street and Dumont Avenue. The ground floor would contain community facility space, increasing pedestrian activity and visual interest along the two streets. Parking would be at-grade and accessed via a curb cut along Chester Street.

Visual Resources

As there are no visual resources on the Project Sites, the With Action condition would not remove or alter any visual resources on the Project Sites.

PROJECT AREA AND STUDY AREA

URBAN DESIGN

The Proposed Actions would result in new developments on the Project Sites that would be taller than existing and planned buildings in the Project Area and much of the study area west of Rockaway Avenue. Although the new buildings would be taller than most, the buildings would have a base heights of 80 and 85 feet and would be generally consistent with the prevailing heights of existing and planned six- and seven-story mixed-use buildings found along Rockaway, Riverdale, and Thatford Avenues. The increased height along Livonia Avenue would accommodate ground-floor retail space and community facility space, which would activate the Livonia Avenue corridor with residential amenities and new pedestrian activity. Even with the increased building heights allowed with the Proposed Actions, there would continue to be taller existing buildings within the study area such as the 16-story towers composing part of NYCHA's Tilden Houses north of Livonia Avenue and east of Rockaway Avenue (see **Figure H-14**). Additionally, recent residential development along Rockaway Avenue between Newport Street and Livonia Avenue ranges from five to seven stories. Approximately one block east of Site F, the planned development as a result of the 803 Rockaway Avenue Rezoning would result in eight-story buildings along Rockaway Avenue between Riverdale Avenue and Newport Street, and seven-story buildings along Thatford Avenue between Riverdale Avenue and Newport Street. The bulk of the new buildings would be oriented along Livonia Avenue and the elevated NYCT viaduct, limiting the effect of the height of the proposed buildings. Furthermore, the heights of the new buildings would step down and decrease to better relate to existing smaller scale buildings north and south of Livonia Avenue.

Buildings F and G along Chester Street would be similar in scale and massing to the buildings located along Rockaway Avenue. The Proposed Project would also establish a more consistent street wall along Livonia Avenue and Chester Street, with buildings built on or near the lot line.

The new private open spaces created on the Project Sites would be consistent with the variety of smaller open spaces found throughout the Marcus Garvey Apartment complex. A new GreenThumb community garden would be created west across Chester Street from Site G within the Project Area, replacing the existing garden on Site A with a larger one and adding more open space to the neighborhood. The new retail uses along Livonia Avenue would be an amenity for neighborhood residents, as there are limited retail options within the study area. The Proposed Project also involves a sidewalk widening along Livonia Avenue, which would provide more light and air, and the addition of street furniture and lighting would improve the pedestrian experience and enhance pedestrian safety.

The new residential, community facility space and ground-floor retail would enliven the streets and enhance the pedestrian experience in the vicinity of the Project Sites.

As described above, the Project Area includes the Marcus Garvey Apartments. The proposed buildings would be five to six stories taller than the buildings that compose the existing Marcus Garvey Apartments complex. The proposed eight-story buildings would be concentrated along Livonia Avenue, which contains the NYCT viaduct running east-west. Although the proposed buildings along Livonia Avenue would be four stories taller than the buildings occupying the Project Sites in the No Action condition, the heights of the proposed buildings would step down from Livonia Avenue as to match the existing built context of the shorter buildings found along Thomas S Boyland, Bristol, and Chester Streets. The two proposed developments on Sites F and G on Chester Street furthest away from Livonia Avenue would be five stories taller than the No Action condition, but the bulk and scale of these buildings would be comparable to existing and planned mixed-use buildings in the study area. The buildings would use similar material to the buildings in the study area and include new ground-floor uses that are lacking in the Project Area and that would enhance the pedestrian experience. The Proposed Project would be compatible with the planned residential development at 342 Amboy Street, 136 Livonia Avenue, and 138 Livonia Avenue that would occur in the No Action condition, as both the Proposed Project and this planned No Action building would result in infill development along Livonia Avenue.

The south and southwest portions of the study area, which are primarily developed with early 20th century residential buildings, are separated from the Project Sites by the existing Marcus Garvey Apartment complex. Of the seven proposed developments, the five sites along Livonia (Sites A–E) would be occupied with shorter eight-story buildings, whose heights gradually decrease further from Livonia Avenue, ensuring consistency with the shorter buildings found in this area. Buildings F and G would be larger than Buildings A through E and similar in scale to the more recent developments found along Rockaway Avenue, in the eastern portion of the study area, as well as along the outer edges of the study area, such as 280 Livonia Avenue (see **Figure H-14**). Along Thomas S Boyland and Bristol Streets, north of Livonia Avenue in the study area, the urban design character transitions back to low-scale development and the new building along Chester Street would be taller than these buildings. Overall, they would not adversely impact the urban design character of the study area.

VIEW CORRIDORS AND VISUAL RESOURCES

Views of the Project Sites from Immediately Adjacent Streets in the Study Area

Pedestrian views of the Project Sites from the streets immediately adjacent to the Project Sites would still include north-south views on Bristol and Chester Streets, and east-west views along Dumont and Riverdale Avenues. The buildings in the With Action compared to the No Action condition would be visibly taller, altering views along streets, but not obstructing view corridors (see **Figures H-16 through H-20**). As compared to the No Action condition, the Project Sites would become more visible from far distances within the study area. The buildings on Project Sites B, C, D, and E would be more visible to pedestrians looking south or north along Bristol Street. The Project Sites would continue to be partially obscured by mature trees along the road and the NYCT viaduct on Livonia Avenue; however, the increase in height would make them more visible along the street. Along Livonia Avenue, Buildings A, B, C, D, and E would remain prominently visible. Along Chester Street, Buildings A, F, and G would become more visible, but would remain in some instances partially obscured by mature trees and the elevated subway line.

Views from within the Study Area

Views from within the study area would continue to remain longest along east-west Newport Street, Riverdale, Livonia, Dumont, and Blake Avenues, as was discussed in the No Action condition. Views along Rockaway Avenue, Chester, Bristol, and Thomas S Boyland Streets would continue to offer shorter view corridors, while views north along Rockaway Avenue would remain uninterrupted once north of Livonia Avenue.

Visual Resources

As discussed in the No Action condition, the visual resources would remain limited to the mature trees in the area. New trees and plantings would be added to the sidewalk landscape with the addition of the proposed developments, positively affecting the pedestrian experience.

In conclusion, the Proposed Project would not obstruct views along any view corridor or eliminate views to any visual resources in the study area. The seven new buildings would change the urban design character of the study area by replacing vacant lots, underutilized parking lots, and greenspace with structures that are taller than most of the buildings in the study area; however, the proposed buildings would be consistent with the height of the Brownsville and Tilden Houses. The Proposed Project would introduce land uses that are consistent with the residential, community facility, and local retail uses found in the surrounding area, as well as the planned community facility space that will be available at the old P.S. 125 building through the adaptive reuse of that building. With the Proposed Actions, local retail uses would be allowed along Livonia Avenue, which would create a vibrant retail corridor at ground level and result in an enhanced pedestrian experience along Livonia Avenue below the NYCT viaduct.

As discussed above, the NYCT viaduct carrying the No. 3 train traverses Livonia Avenue. The viaduct has a height of approximately 25 feet at the bottom of the elevated structure (approximately 35 feet at the top), with infrastructure supporting the viaduct placed within the sidewalks on the north and south sides of Livonia Avenue, reducing the effective width of the sidewalks along Livonia Avenue at these locations. The proposed buildings on Sites A–E would set back 5 feet from Livonia Avenue, resulting in a widening of the sidewalks which would allow for more light and air to reach street level. The widening would also increase the capacity of the sidewalks to handle the additional pedestrians expected as a result of the Proposed Actions.

Most of the surrounding buildings, including the Marcus Garvey Apartments complex, are constructed of brick, and the proposed material for the new buildings would be consistent with this urban design feature. The rear of the buildings along Livonia Avenue with their step down designs would allow the new developments to fit contextually into the surrounding neighborhood and Marcus Garvey Apartment complex. In addition, four of the seven buildings would include ground-floor retail and community facility space, while the remaining three would have residential and community facility space. These ground floor uses would activate the sidewalks and provide visual interest to pedestrians, especially underneath the viaduct along Livonia Avenue. The Proposed Project would provide more residential, community facility, and needed retail space consistent with other uses in the study area. Lastly, the proposed buildings would also provide more consistent street walls along Dumont, Livonia, and Riverdale Avenues; in addition, to Chester, Bristol, and Thomas S Boyland Streets. Further, these proposed buildings would contribute to an active urban design character similar to Rockaway Avenue in the study area.

Overall, the Proposed Project would not result in significant adverse impacts on urban design and visual resources and would not adversely impact the vitality, the walkability, or the visual character of the area. ✷

Attachment I: Hazardous Materials

A. INTRODUCTION

This attachment addresses the potential for the presence of hazardous materials resulting from previous and existing uses both at the Project Sites and in the surrounding area, and potential risks related to the Proposed Project with respect to any such hazardous materials. The Proposed Project would result in the construction (requiring soil disturbance and excavation) of seven new buildings (some of which may have cellars or partial cellars) and associated landscaping on currently vacant or underutilized lots. As described in more detail below, significant adverse impacts would not result with the Proposed Project. In order to preclude significant adverse impacts associated with exposure to potential contamination, the Project Sites would be mapped with an (E) designation requiring appropriate testing, and if necessary, remedial measures.

This assessment is based on a December 2014 *Phase I Environmental Site Assessment* (ESA) prepared by Ecosystem Strategies, Inc. The ESA included the findings of a reconnaissance of the Project Sites (and several surrounding sites), an evaluation of readily available historical information, and selected environmental databases and electronic records in accordance with American Society for Testing and Materials (ASTM) E1527-13.

B. EXISTING CONDITIONS

SUBSURFACE CONDITIONS

The Project Sites range in elevation from approximately 20 to 40 feet above mean sea level, in an area which slopes slightly downward to the south, toward Jamaica Bay. Based on data from the nearby 650 Rockaway Avenue, groundwater is expected to be first encountered at approximately 20 to 22 feet below grade and would be expected to flow in an approximately southeasterly direction towards Fresh Creek Basin, approximately 1.5 miles away, and/or Jamaica Bay, approximately 2.5 miles away. However, actual groundwater flow may be affected by many factors. There are no surface waterbodies or streams located on or near the Project Sites. Groundwater in the vicinity is not used as a source of potable water. Wells installed to 60 feet below grade at a nearby property did not encounter bedrock (bedrock would be expected to be several hundred feet below grade).

PHASE I ESA

The Project Sites are located in a primarily residential area, with some commercial uses. The Project Area was historically developed for residential and small commercial purposes sometime between approximately 1887 and 1901. The Project Area was developed with its current uses between 1974 and 1978, with no structures on the Project Sites.

The ESA identified Recognized Environmental Conditions (RECs) (related to documented contamination from a nearby dry cleaner and past petroleum storage), i.e., “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property” based on previous uses and information reported to regulatory agencies for the Project Sites or nearby.

Additionally, based on prior buildings at the Project Sites, demolition debris may be present in the subsurface, and could contain lead-based paint, asbestos, or other regulated materials. New York State Department of Environmental Conservation (NYSDEC) Spill No. 9805405 was identified south of Project Site G across Dumont Avenue, associated with a former dry cleaner. An October 2014 subsurface investigation related to the spill identified elevated concentrations of chlorinated solvents in soil, soil vapor, and groundwater, including tetrachloroethylene (PCE), trichloroethylene (TCE), and 1,2-Dichloroethane (1,2-DCE) at that site. No testing was required on the Project Sites. Former dry cleaners were also identified north-adjacent to Site G and north-adjacent to Site A; a former Electrical Utility Substation was identified east-adjacent to Site A; and an auto repair shop was identified west-adjacent to Site F. Documented and undocumented releases from these sites may have affected subsurface conditions at the Project Sites.

NYSDEC BROWNFIELD CLEANUP PROGRAM (BCP)

The site of Spill No. 9805405 (see previous paragraph) is also enrolled in the NYSDEC Brownfield Cleanup Program (BCP) and is known as the Marcus Garvey Apartments Site, located at 650 Rockaway Avenue (a.k.a. 654, 658, 666, 670, 674 Rockaway Avenue and 327, 329, 331, 333, 335, 337, 339 Chester Street). The BCP Site was remediated through removal of source material soil and implementation of in-situ potassium permanganate injections, completed in July and August 2016, respectively. However, following this work, groundwater remained contaminated, but with lower levels of PCE and its breakdown products TCE and 1,2-DCE. The November 2016 Site Management Plan (SMP) requires eight rounds of groundwater sampling from wells at and near the BCP Site. The fourth round was completed in August 2017 and found no exceedances of NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs) for TCE or 1,2 DCE, and PCE levels had decreased by more than 99 percent in the wells at the BCP Site and by more than 85 percent in a nearby well. Following submission of the August 2017 report, NYSDEC agreed to remove one of the monitoring wells from future sampling.

C. FUTURE WITHOUT THE PROPOSED PROJECT

In the Future without the Proposed Project (the "No Action" condition), the Project Area would not be rezoned, and it is assumed that buildings smaller than those associated with the Proposed Project would be built. They would need to meet applicable regulatory requirements, e.g., properly disposing of any excess soil and reporting (and addressing) any encountered petroleum tanks or spills to the NYSDEC. Unlike with the Proposed Project, the existing zoning would require the new developments maintain the required accessory parking, which would result in the construction of below-grade parking structures, potentially necessitating increased soil disturbance and excavation. At the nearby BCP Site, quarterly groundwater sampling will continue to be performed per NYSDEC requirements.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The Proposed Project would entail construction of new buildings requiring excavation and soil disturbance for foundations, utilities, etc. Although this could increase pathways for human exposure to any contaminated materials present in the subsurface, impacts would be avoided by incorporating the following into the Proposed Project:

- Phase I ESAs would be prepared for all of the Project Sites. At all of the Project Sites where the ESAs identify RECs, Phase II Subsurface Investigation would be performed to determine whether and to what extent historical uses have affected subsurface conditions. The scope of work for the Phase II investigations would be subject to pre-approval by the New York City

Department of Environmental Protection (DEP). Phase II Reports would be prepared to present the results of each investigation.

- For those Project Sites where a Phase II Report has been prepared, a Remedial Action Work Plan (RAWP) and a Construction Health and Safety Plan (CHASP) would be prepared, for DEP review and approval, and would be implemented during the subsurface disturbance associated with implementing the Proposed Project at that Project Site. The purpose of a RAWP and CHASP is to address any subsurface contamination identified by the Phase II or related to the nearby BCP Site (where, as with the No Action condition, quarterly groundwater sampling will continue to be performed per NYSDEC requirements) and provide for measures to address any contingencies that may arise during construction, such as specifying appropriate measures to be implemented if underground storage tanks, soil or groundwater contamination, or other unforeseen environmental conditions are encountered. Each RAWP would also include any necessary measures that need to be incorporated into the new construction, e.g., vapor controls for a new building or the import of clean soil to cap new landscaped areas.
- Applicable regulatory requirements would also be followed at all Project Sites, e.g., disposing of any excess soil off-site at appropriately licensed facilities; reporting to NYSDEC any signs of a petroleum spill (and removing and registering encountered tanks); and following DEP requirements should dewatering be required.

To ensure the measures above are implemented, as warranted, an (E) Designation for hazardous materials would be placed on the privately owned sites identified as part of the proposed rezoning. The (E) Designation would require that, prior to redevelopment, the property owner conduct: a Phase I ESA in accordance with ASTM E1527-13; and, if RECs are identified or if required by the New York City Mayor's Office of Environmental Remediation (OER), implement a soil, soil vapor, and groundwater testing protocol, and remediation where appropriate, to the satisfaction of the OER before issuance of construction-related New York City Department of Buildings (DOB) permits (pursuant to Section 11-15 of the *Zoning Resolution*—Environmental Requirements). The (E) Designation also mandates construction-related health and safety plans, which must be approved by OER.

The text of the (E) Designation would be the following:

> **Task 1**—The applicant submits to OER, for review and approval, a Phase I ESA of the site along with a soil and groundwater 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 sample sites should be selected to adequately characterize the site, the specific source 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**—A written report with findings and a summary of the data must be 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 the 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.

The Project Sites would be mapped with E-485 for hazardous materials, as shown in **Table I-1** below.

Table I-1
(E) Designation Mapping

Site	Block	Lot	(E)-Designation
A	3589	21	E-485
B	3574	1	E-485
C	3588	27, 32, 33, 34, 35, 36	E-485
D	3573	1	E-485
E	3587	1, 27	E-485
F	3602	12	E-485
G	3560	1	E-485

For the City-owned sites, similar requirements to those associated with the (E) Designation, i.e., a Phase I ESA and potentially subsurface testing (in accordance with an agency-approved protocol) and an agency-approved remediation plan), would be required through a Land Disposition Agreement (LDA) or similar binding documents between the City of New York and prospective developers.

With these measures included as part of the Proposed Project, no significant adverse impacts related to hazardous materials would occur. ✷

Attachment J: Water and Sewer Infrastructure

A. INTRODUCTION

This attachment evaluates the potential for the Proposed Actions to result in significant adverse impacts on the City's water supply and wastewater and stormwater conveyance and treatment infrastructure.

The Proposed Actions would facilitate the development of seven Project Sites with mixed-use buildings that would include a total of approximately 775,379 gross square feet (gsf) of residential space (843 dwelling units [DUs], all of which would be affordable), approximately 35,049 gsf of retail space, and approximately 98,032 gsf of community facility space.

According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, projects that increase density or change drainage conditions on a large site require a water and sewer infrastructure analysis. The Project Sites are located in a combined sewer area located within the Jamaica Bay watershed as well as the Fresh Creek drainage area. The Proposed Project would add approximately 908,460 sf of new mixed-use space to sites that previously contained underutilized parking lots, a GreenThumb garden that would be replaced by another garden site as part of the Proposed Actions, and two vacant parcels. Therefore, following the guidelines of the *CEQR Technical Manual*, an analysis of the Proposed Project's potential impacts on the wastewater and stormwater conveyance and treatment system was performed. As discussed below, the Proposed Actions would not result in significant adverse impacts related to the City's water supply and wastewater and stormwater conveyance and treatment infrastructure.

B. METHODOLOGY

This analysis follows the *CEQR Technical Manual* guidelines that recommend a preliminary water analysis if a project would result in an exceptionally large demand of water (over 1 million gallons per day [gpd]), or if it is located in an area that experiences low water pressure (i.e., an area at the end of the water supply distribution system such as the Rockaway Peninsula or Coney Island). The Proposed Project would not generate an incremental water demand of 1 million gpd and is not located in an area that experiences low water pressure; therefore, an analysis of water supply is not warranted since it is expected that there would be adequate water service to meet the incremental water demand and that there would be no significant adverse impacts on the City's water supply. Additionally, the New York City Department of Environmental Protection (DEP) has confirmed that the existing water mains serving the Project Sites are expected to be sufficient to supply the increased water demand.

The *CEQR Technical Manual* indicates that a sewer analysis is warranted if a project site would involve the development on a site of 1 acre or larger where the amount of impervious surface increases and is located within a certain drainage area, such as the Bronx River or Newtown Creek. The Proposed Project, located within the Jamaica Bay watershed, would develop more than 1 acre of land and create more impervious surface than existed. Therefore, following the guidelines of the *CEQR Technical Manual*, an analysis of the Proposed Project's potential impacts on the wastewater and stormwater conveyance and treatments system was performed.

Existing and future water demand and sanitary sewage generation are calculated based on use rates set by the *CEQR Technical Manual*.[1] The DEP Flow Volume Calculation Matrix is then used to calculate the overall combined sanitary sewage and stormwater runoff volume discharged to the combined sewer system for four rainfall volume scenarios with varying durations. The ability of the City's sewer infrastructure to handle the anticipated demand from the Proposed Project is assessed by estimating existing sewage generation rates, and then comparing these existing rates with the Future without the Proposed Project (the "No Action" condition) and the Future with the Proposed Project (the "With Action" condition), per *CEQR Technical Manual* methodology.

C. EXISTING CONDITIONS

CONVEYANCE SYSTEM

The Project Sites are located within a part of Brooklyn served by a combined sewer system that collects both sanitary sewage and stormwater. In periods of dry weather, the combined sewers located in the adjacent streets convey only sanitary sewage. The Project Sites currently contain underutilized surface parking lots, one small garden (the Mott Hall Bridges Academy [MHBA] Living Laboratory Community Garden), and two vacant lots. The Project Sites are served by combined sewers running north to south along Chester, Bristol, and Thomas S Boyland Streets and Rockaway Avenue, and that run through the center of or along the Project Area (bounded roughly by Blake Avenue to the north, Rockaway Avenue to the east, Newport Street to the south, and Thomas S Boyland Street to the west).

Approximately 97 percent (3.43 acres) of the Project Sites' sanitary and stormwater flow is conveyed to a combined sewer system serving the Project Sites A–F running south along Thomas S Boyland, Bristol, and Chester Streets, and then east to Regulator 2 at the northern end of Fresh Creek along Flatlands Avenue.[2] The remaining 3 percent, which is approximately 0.11 acres of the combined Project Sites area, is conveyed to Dumont Avenue and flows towards Rockaway Avenue, which then travels south and east to Regulator 2A at the intersection of Linden Boulevard and Williams Avenue. From Regulators 2 and 2A, flow is conveyed to an interceptor running along Flatlands Avenue and then south to the 26th Ward Waste Water Treatment Plant (WWTP).

At the 26th Ward WWTP, wastewater is fully treated by physical and biological process before it is discharged into Fresh Creek and Hendrix Creek before entering into Jamaica Bay. The quality of the treated wastewater (effluent) is regulated by a State Pollutant Discharge Elimination System (SPDES) permit issued by the New York State Department of Environmental Conservation (NYSDEC), which establishes limits for effluent parameters (i.e., suspended solids, fecal coliform bacteria, and other pollutants). Since the volume of flow to a WWTP affects the level of treatment a plant can provide, the maximum permitted capacity for the 26th Ward WWTP is 85 million gallons per day (mgd). The average monthly flow over the past 12 months is 45 mgd,[3] which is well below the maximum permitted capacity.

During and immediately after wet weather, combined sewers can experience a much larger flow due to stormwater runoff collection. To control flooding at the 26th Ward WWTP, the regulators built into the system allow only approximately two times the amount of design dry weather flow

[1] *CEQR Technical Manual*, March 2014, Table 13-2.

[2] Regulators are structures that control the flow of sewage to interceptors, i.e., larger sewers that connect the combined the sewer system to the City's sewage treatment system.

[3] Twelve-month period through March 2017.

into the interceptors. The interceptor then takes the allowable flow to the WWTP, while the excess flow is discharged to the nearest waterbody as combined sewer overflow (CSO). The Project Sites are located within two CSO drainage areas: in wet weather, sanitary flow, and stormwater runoff is conveyed to CSO outfall 26W-003, located at the northern tip of Fresh Creek, and 26W-004, which is located at the northern end of Hendrix Creek, just east of Fresh Creek.

SANITARY FLOWS

For purposes of analysis, the amount of sanitary sewage is estimated as all water demand generated by the existing Project Sites except water used by air conditioning, which is typically not discharged to the sewer system. Presently, the Project Sites are vacant; therefore, there is no daily sanitary sewage and total water demand for the Project Sites.

STORMWATER FLOWS

The Project Sites have a combined lot area of approximately 150,600 sf (3.46 acres). The majority of the Project Sites are paved, with a small garden located on Site C. **Table J-1** summarizes the surfaces and surface areas, as well as the weighted runoff coefficient (the fraction of precipitation that becomes surface runoff for each surface type). A portion of Site G is located in CSO 26W-004, which accounts for the 0.11 acres of stormwater flow in that area.

Table J-1
Existing Surface Coverage

Affected CSO Outfall	Surface Type	Roof	Pavement and Walkways	Other	Grass and Soft Scape	Total
26W-003	Area (percent)	0%	90%	0%	10%	**100%**
	Surface Area (sf)	–	135,216	–	14,965	**150,181**
	Runoff Coefficient*	–	0.85	–	0.20	**0.79**
26W-004	Area (percent)	0%	100%	0%	0%	**100%**
	Surface Area (sf)	–	5,000	–	–	**5,000**
	Runoff Coefficient*	–	0.85	–	–	**0.85**

Notes:
* Weighted Runoff Coefficient calculations based on the DEP Flow Volume Calculation Matrix provided in the *CEQR Technical Manual*, retrieved October 2017.
Totals may not sum due to rounding.

D. FUTURE WITHOUT THE PROPOSED PROJECT

As described in Attachment A, "Project Description & Screenings," in the No Action condition, the Project Sites would be developed under the existing zoning resulting in 394,242 gsf of residential space (438 DUs) and approximately 63,924 gsf of community facility space. The existing parking requirements would be maintained.

CONVEYANCE SYSTEM

It is expected that the sewers in Thomas S Boyland Street, Bristol Street, Chester Street, and Dumont Avenue would be available for connection in the No Action condition, which would convey the sanitary and stormwater flow from the Project Sites to the 26th Ward WWTP.

SANITARY FLOWS

Table J-2 summarizes the water demand and sewage generation of the No Action condition of the Proposed Project. The Project Sites would be developed under the existing zoning with approximately 63,924 gsf of community facility space, and 394,242 gsf of residential space. For the purposes of this analysis, the water demand and sewer generation estimate for community

facility space are based on retail generation rates as found in the *CEQR Technical Manual*. The sanitary sewage generated by the No Action condition would generate 135,842 gpd, while the water demand would be 213,730 gpd.

Table J-2
Project Sites Water Consumption and Sewage Generation
No Action Condition

Use	Size/Population	Rate*	Consumption (gpd)
Residential			
Domestic	1,205 residents[1]	100 gpd/person	120,450
Air Conditioning	394,242 sf	0.17 gpd/sf	67,021
Community Facility[2]			
Domestic	63,924 sf	0.24 gpd/sf	15,342
Air Conditioning	63,924 sf	0.17 gpd/sf	10,867
Total Water Supply Demand			**213,730**
Total Sewage Generation			**135,842**

Notes:
* Rates are from the *CEQR Technical Manual* Table 13-2.
[1] Estimate based on applying the average household size for Brooklyn Community Board 16 (2.75).
[2] Utilizes Retail rates for calculation

STORMWATER FLOWS

In the No Action condition, the Project Sites would be redeveloped with new mixed-use buildings comprised of community facility and residential space. Therefore, existing surface types and areas would change, affecting the stormwater flows that would be anticipated for the Project Sites. The No Action condition would replace approximately 0.35 acres of pervious area with impervious surface, creating a total of approximately 3.46 acres of impervious area (see **Table J-3**).

Table J-3
Marcus Garvey Apartments Development Surface Coverage
No Action Condition

Affected CSO Outfall	Surface Type	Roof	Pavement and Walkways	Other	Grass and Soft Scape	Total
26W-003	Area (percent)	69%	31%	0%	0%	**100%**
	Surface Area (sf.)	104,044	46,131	–	–	**150,174**
	Runoff Coefficient*	1.00	0.85	–	–	**0.95**
26W-004	Area (percent)	88%	12%	0%	0%	**100%**
	Surface Area (sf.)	4,391	616	–	–	**5,007**
	Runoff Coefficient*	1.00	0.85	–	–	**0.98**

Notes:
* Weighted Runoff Coefficient calculations based on the DEP Flow Volume Calculation Matrix provided in the *CEQR Technical Manual*, retrieved October 2017.
Totals may not sum due to rounding.

E. FUTURE WITH THE PROPOSED PROJECT

The Proposed Project includes approximately 775,379 sf of residential space (843 affordable DUs), approximately 35,049 gsf of retail space, and approximately 98,032 gsf of community facility space. The With Action condition would produce more water consumption and generate more sewage than the No Action condition. The results of the analysis on water and sewer infrastructure are described in the sections below.

CONVEYANCE SYSTEM

As described in the No Action condition, for the With Action condition it is anticipated that the sewers in Thomas S Boyland Street, Bristol Street, Chester Street, and Dumont Avenue would be available for connection, and would convey the sanitary and stormwater flow from the Project Sites to the 26th Ward WWTP.

SANITARY FLOWS

As shown in **Table J-4**, the Proposed Project is expected to generate 263,765 gpd of daily sanitary sewage with a total water demand of 418,203 gpd. The Proposed Project would generate an incremental water demand of 204,523 gpd as compared to the No Action condition. This represents a 0.45 percent increase in demand on the New York City water supply system; however, it is expected that there would be adequate water service to meet the Proposed Actions' incremental water demand, and there would be no significant adverse impacts on the City's water supply. Additionally, the incremental sanitary sewage generated by the Proposed Project over the No Action condition would be 127,923 gpd. The incremental increase in sewage generation is approximately 0.28 percent of the average daily flow at the 26th Ward WWTP and would not result in an exceedance of the WWTP's permitted capacity of 45 mgd. In addition, in accordance with the New York City Plumbing Code (Local Law 33 of 2007), the Proposed Project would be required and plans to utilize low-flow plumbing fixtures, which would reduce sanitary flows to the plant. Therefore, the Proposed Project would not result in a significant adverse impact to the City's sanitary sewage conveyance and treatment system.

Table J-4
Marcus Garvey Apartments
Water Consumption and Sewage Generation

Use	Size/Population	Rate*	Consumption (gpd)
Residential			
Domestic	2,318 residents[1]	100 gpd/person	231,825
Air Conditioning	775,379sf	0.17 gpd/sf	131,814
Community Facility[2]			
Domestic	98,032sf	0.24 gpd/sf	23,528
Air Conditioning	98,032 sf	0.17 gpd/sf	16,665
Retail			
Domestic	35,049sf	0.24 gpd/sf	8,412
Air Conditioning	35,049 sf	0.17 gpd/sf	5,958
Total Water Supply Demand			**418,203**
Total Sewage Generation			**263,765**

Notes:
* Rates are from the *CEQR Technical Manual* Table 13-2.
[1] Estimate based on applying the average household size for Brooklyn Community Board 16 (2.75).
[2] Utilizes Retail rates for calculation.

The Proposed Actions would result in an increase of sanitary flow in the adjacent sewers based on 2 persons/DU. However, if the number of persons per DU was raised to 6 persons/DU as per the City's drainage design criteria, the increase in sanitary flow in adjacent sewers would be more significant. A hydraulic analysis of the existing sewer system may be needed at the time of the submittal of the site connection proposal application to determine whether the existing sewer system is capable of supporting higher density development and related increase in wastewater flow. If it is determined at that time that the existing sewer system is incapable of supporting the increase in wastewater flow the existing sewer system will need to be upgraded. In addition, the existing drainage plan will need to be amended.

STORMWATER FLOWS

The amount of impervious surfaces created in the No Action condition would remain the same in the With Action condition. Additionally, the division of impervious surfaces—roof and pavement/walkways—would remain the same from the No Action condition to the With Action condition; therefore, the stormwater flow would remain the same (see **Table J-3)**.

Using these sanitary and stormwater flow calculations, the DEP Flow Volume Calculation Matrix was completed for the existing conditions and the Proposed Project. The calculations from the Flow Volume Calculation Matrix help to determine the change in wastewater flow volumes to the combined sewer system from existing condition to With Action condition, and include four rainfall volume scenarios with varying durations. The summary tables of the Flow Volume Calculation Matrix are included in **Table J-5**.

Table J-5
DEP Flow Volume Matrix: Existing and Build Volume Comparison

Rainfall Volume (in)	Rainfall Duration (hr)	Runoff Volume to Direct Drainage (MG)	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)	Increased Total Volume to CSS (MG)*
26W-003		Existing 3.34 acres				With Action 3.34 acres				**26W-003 Increment**
0.00	3.80	0.00	0.00	0.00	**0.00**	0.00	0.00	0.04	**0.04**	0.04
0.40	3.80	0.00	0.03	0.00	**0.03**	0.00	0.04	0.04	**0.08**	0.05
1.20	11.30	0.00	0.09	0.00	**0.09**	0.00	0.11	0.12	**0.23**	0.14
2.50	19.50	0.00	0.18	0.00	**0.18**	0.00	0.22	0.21	**0.43**	0.25
26W-004		Existing 0.11 acres				With Action 0.11 acres				**26W-004 Increment**
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	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00
1.20	11.30	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.01**	0.00
2.50	19.50	0.00	0.01	0.00	**0.01**	0.00	0.01	0.01	**0.01**	0.01

Notes:
*Assumes no on-site detention or Best Management Practices (BMPs) for purposes of calculations
CSS = Combined Sewer System; MG = Million Gallons

As shown in **Table J-5**, the total rainfall volume flow to CSO outfall 26W-003 would increase, with the total rainfall volume to CSO outfall 26W-004 marginally increasing. The increase in flow is attributable to the sanitary flows as well as the removal of impervious that previously existed.

The Flow Volume Matrix calculations do not, however, reflect the use of any sanitary and stormwater source control BMPs to reduce sanitary flow and stormwater runoff volumes to the combined sewer system. As noted above, the Proposed Project would incorporate low-flow plumbing fixtures to reduce sanitary flow in accordance with the New York City Plumbing Code. In addition, stormwater BMPs would be required as part of the DEP site connection approval process in order to bring the building into compliance with the required stormwater release rate. Specific BMP methods would be determined with further refinement of the building design and in consultation with DEP, but may include planted rooftop spaces ("green roofs") and additional plantings in the courtyards of the development.

The incorporation of the appropriate sanitary flow and stormwater source control BMPs that would be required as part of the site connection approval process would help reduce the overall additional volume of sanitary sewer discharge as well as the peak stormwater runoff rate from the

Project Area. Sewer conveyance infrastructure adjacent to the Project Sites and the treatment capacity at the 26th Ward WWTP is sufficient to handle wastewater flow resulting from the proposed development; therefore, there it is anticipated there would be no significant adverse impacts on wastewater treatment or stormwater conveyance infrastructure. ✷

A. INTRODUCTION

This attachment examines the potential effects of the Proposed Project on the study area transportation systems. The Project Area is located in the Brownsville neighborhood of Brooklyn and is generally bounded by Rockaway Avenue to the east, Blake Avenue to the north, Thomas S Boyland Street to the west, and Newport Street to the south. Within the Project Area, the Proposed Project would result in new development on seven Project Sites including Sites A to G (see **Figure K-1**).

Under the Future without the Proposed Project (the "No Action" condition), the seven Project Sites would be developed as-of-right (AOR) with approximately 440 dwelling units (DUs), 64,000 gross square feet (gsf) of community facility, and approximately 500 accessory parking spaces. Under the Future with the Proposed Project (the "With Action" condition), the seven Project Sites would be developed with approximately 850 DUs, 98,000 gsf of community facility, 35,000 gsf of local retail, and 24 accessory parking spaces. Under both the No Action and With Action conditions, approximately one-third of the total community facility space is assumed to be medical office use with the balance of the community facility space assumed to be general community center use.

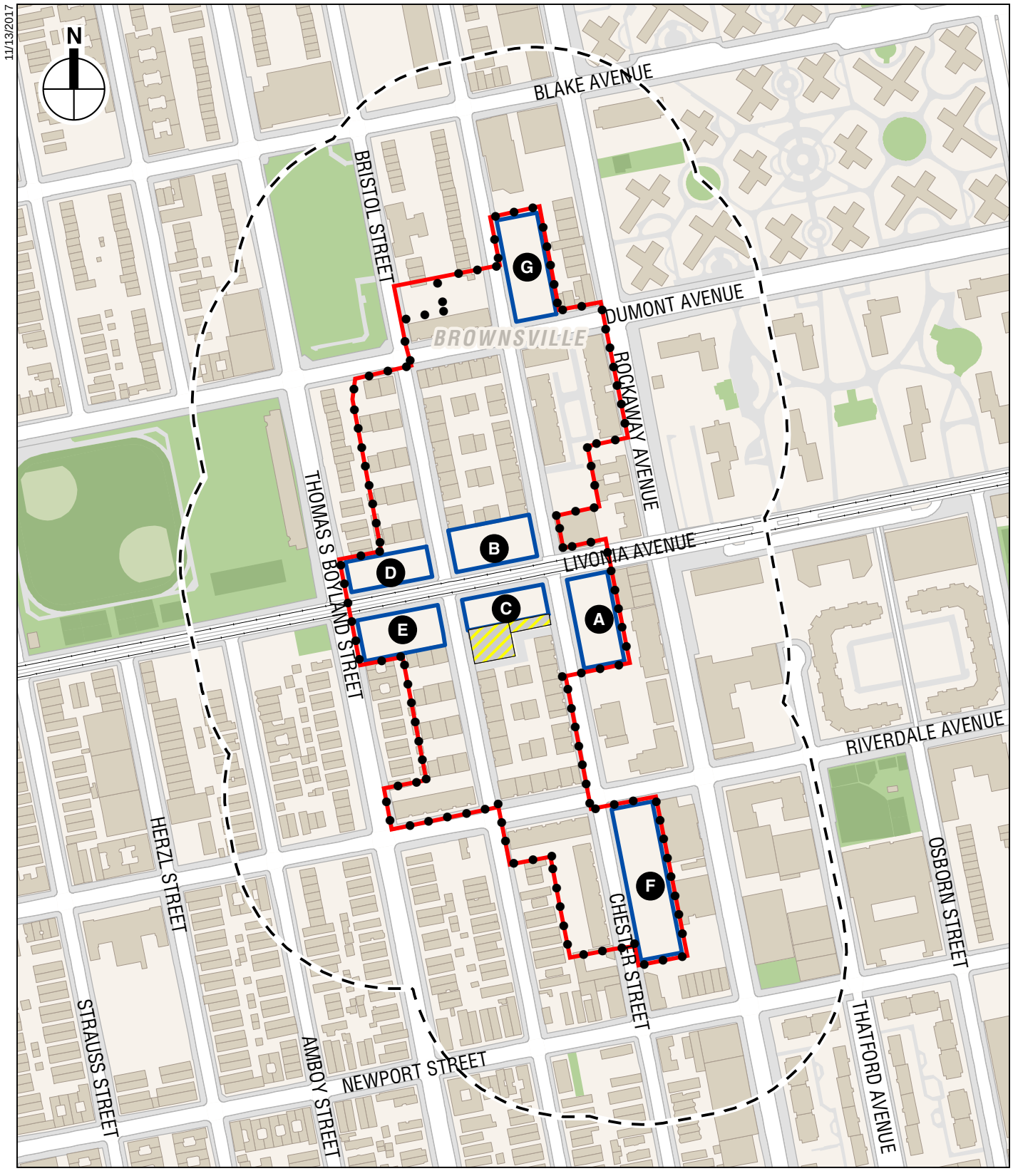
Table K-1 provides a comparison of the development programs between the No Action and With Action conditions.

Table K-1
Comparison of No Action and With Action Conditions

Components	No Action	With Action	Increments
Residential (DUs)	438	843	405
Local Retail (gsf)	0	35,049	35,049
Community Facility (gsf)[1]			
Medical Office (gsf)	21,308	32,677	11,369
Community Center (gsf)	42,616	65,355	22,739
Total (gsf)	63,924	98,032	34,108
Accessory Parking (Spaces)	513	24	-489

Note: [1] Assumes one-third of the community facility space would be medical office and the remaining would be general community center.
Sources: L+M Development Partners, Inc., Curtis + Ginsberg Architects, LLP, and AKRF, Inc.

The analyses consider the 2024 analysis year to identify potential impacts, and if warranted, determine project improvement measures that would be appropriate to address those impacts. The travel demand projections, trip assignments, and capacity analysis presented in this attachment were conducted pursuant to the methodologies outlined in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*. Based on the detailed analyses presented below, the Proposed Project is not expected to result in any significant adverse transportation-related impacts.



Marcus Garvey Extension

Project Location
Figure K-1

B. PRELIMINARY ANALYSIS METHODOLOGY AND SCREENING ASSESSMENT

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 (Level 1) to estimate the volume of person and vehicle trips attributable to the Proposed Project. If the Proposed Project is expected to result in fewer than 50 peak-hour vehicle trips and fewer than 200 peak-hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (Level 2) are performed to estimate the incremental trips at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the Proposed Project would result in 50 or more peak-hour vehicle trips at an intersection, 200 or more peak-hour subway trips at a station, 50 or more peak-hour bus trips in one direction along a bus route, or 200 or more peak-hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety.

LEVEL 1 SCREENING ASSESSMENT

A Level 1 trip generation screening assessment was conducted to estimate the numbers of person and vehicle trips by mode expected to be generated by the Proposed Project during the weekday AM, midday, and PM peak hours. These 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.

TRANSPORTATION PLANNING ASSUMPTIONS

Trip generation factors for the No Action project and the Proposed Project were developed based on information from the *CEQR Technical Manual*, the 2016 *East New York Rezoning Proposal FEIS*, and U.S. Census Data, and summarized in **Table K-2**.

Residential

The daily person trip rate and temporal distribution for the residential component are from the *CEQR Technical Manual*. The directional distribution is from the *East New York Rezoning Proposal FEIS*. JTW data for the U.S. Census Bureau 2011–2015 ACS for Brooklyn Census Tracts 898, 902, 906, 912, 916, 918, and 924 were used to estimate the modal splits. The vehicle occupancies are from the U.S. Census 2011–2015 ACS for autos and from the *East New York Rezoning and Proposal FEIS* for taxis. The daily delivery trip rate and temporal and directional distributions are from the *CEQR Technical Manual*.

Local Retail

The daily person trip rate and temporal distribution for the local neighborhood retail component are from the *CEQR Technical Manual*. In line with accepted City practice, a 25-percent linked trip credit was applied to the local retail trip generation estimates. The directional distribution and vehicle occupancies are from the *East New York Rezoning Proposal FEIS*. The modal splits are based on trip generation survey results conducted by the New York City Department of Transportation (DOT) in Brooklyn for local retail use. The daily delivery trip rate and temporal and directional distributions are from the *CEQR Technical Manual*.

Table K-2
Travel Demand Assumptions

Use	Residential			Local Retail			Community Facility – Medical Office			Community Facility – Community Center		
Total Daily Person Trip	(1) Weekday 8.075 Trips / DU			(1) Weekday 205.00 Trips / KSF			(2) Weekday 127.00 Trips / KSF			(2) Weekday 44.70 Trips / KSF		
Trip Linkage	0%			25%			0%			0%		
Net Daily Person trip	Weekday 8.075 Trips / DU			Weekday 153.75 Trips / KSF			Weekday 127.00 Trips / KSF			Weekday 44.70 Trips / KSF		
	AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
Temporal	(1)			(1)			(2)			(2)		
	10.0%	5.0%	11.0%	3.0%	19.0%	10.0%	4.0%	11.0%	12.0%	4.0%	9.0%	5.0%
Direction	(2)			(2)			(2)			(2)		
In	15%	50%	70%	50%	50%	50%	89%	51%	48%	61%	55%	29%
Out	85%	50%	30%	50%	50%	50%	11%	49%	52%	39%	45%	71%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Modal Split	(3)			(4)			(2)			(2)		
	AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
Auto	22.0%	22.0%	22.0%	11.0%	11.0%	11.0%	30.0%	30.0%	30.0%	5.0%	5.0%	5.0%
Taxi	1.0%	1.0%	1.0%	0.0%	0.0%	0.0%	2.0%	2.0%	2.0%	1.0%	1.0%	1.0%
Subway	54.0%	54.0%	54.0%	3.0%	3.0%	3.0%	33.0%	33.0%	33.0%	3.0%	3.0%	3.0%
Bus	16.0%	16.0%	16.0%	2.0%	2.0%	2.0%	18.0%	18.0%	18.0%	6.0%	6.0%	6.0%
Walk	7.0%	7.0%	7.0%	84.0%	84.0%	84.0%	17.0%	17.0%	17.0%	85.0%	85.0%	85.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Vehicle Occupancy	(2)(3) Weekday			(2) Weekday			(2) Weekday			(2) Weekday		
Auto	1.11			2.00			1.50			1.65		
Taxi	1.30			2.00			1.50			1.30		
Daily Delivery Trip Generation Rate	(1) Weekday 0.06 Delivery Trips / DU			(1) Weekday 0.35 Delivery Trips / KSF			(2) Weekday 0.29 Delivery Trips / KSF			(2) Weekday 0.29 Delivery Trips / KSF		
	AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
Delivery Temporal	(1)			(1)			(2)			(2)		
	12.0%	9.0%	2.0%	8.0%	11.0%	2.0%	3.0%	11.0%	1.0%	9.6%	11.0%	1.0%
Delivery Direction	(1)			(1)			(2)			(2)		
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Sources:
(1) 2014 *CEQR Technical Manual*
(2) 2016 *East New York Rezoning Proposal FEIS*
(3) U.S. Census 2011–2015 American Community Survey (ACS) Journey-to-Work (JTW) Data for Census Tracts 898, 902, 906, 912, 916, 918, and 924
(4) Based on trip generation survey results conducted by DOT in Brooklyn for local retail use

Community Facility—Medical Office

The travel demand assumptions for the medical office use are all based on the *East New York Rezoning Proposal FEIS.*

Community Facility—Community Center

The travel demand assumptions for the community center use are all based on the *East New York Rezoning Proposal FEIS.*

TRIP GENERATION SUMMARY

As summarized in **Table K-3**, under the No Action condition, the Project Sites would generate a total of 537, 647, and 808 person trips during the weekday AM, midday, and PM peak hours,

respectively. Approximately 108, 119, and 161 vehicle trips would be generated during the same respective peak hours.

Table K-3
Trip Generation Summary: No Action Condition

Program	Peak Hour	In/Out	Person Trip						Vehicle Trip			
			Auto	Taxi	Subway	Bus	Walk	Total	Auto	Taxi	Delivery	Total
Residential 438 DUs	AM	In	12	1	29	8	4	54	11	3	2	16
		Out	66	3	162	48	21	300	59	3	2	64
		Total	78	4	191	56	25	354	70	6	4	80
	Midday	In	19	1	48	14	6	88	17	2	1	20
		Out	19	1	48	14	6	88	17	2	1	20
		Total	38	2	96	28	12	176	34	4	2	40
	PM	In	60	3	147	44	19	273	54	3	0	57
		Out	26	1	63	19	8	117	23	3	0	26
		Total	86	4	210	63	27	390	77	6	0	83
Local Retail 0 gsf	AM	In	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0
	Midday	In	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0
	PM	In	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0
Medical Office 21,308 gsf	AM	In	29	2	32	17	16	96	19	1	0	20
		Out	4	0	4	2	2	12	3	1	0	4
		Total	33	2	36	19	18	108	22	2	0	24
	Midday	In	46	3	50	27	26	152	31	4	0	35
		Out	44	3	48	26	25	146	29	4	0	33
		Total	90	6	98	53	51	298	60	8	0	68
	PM	In	47	3	51	28	26	155	31	4	0	35
		Out	51	3	56	30	29	169	34	4	0	38
		Total	98	6	107	58	55	324	65	8	0	73
Community Center 42,616 gsf	AM	In	2	0	1	3	40	46	1	0	1	2
		Out	1	0	1	2	25	29	1	0	1	2
		Total	3	0	2	5	65	75	2	0	2	4
	Midday	In	5	1	3	6	80	95	3	2	1	6
		Out	4	1	2	5	66	78	2	2	1	5
		Total	9	2	5	11	146	173	5	4	2	11
	PM	In	1	0	1	2	23	27	1	1	0	2
		Out	3	1	2	4	57	67	2	1	0	3
		Total	4	1	3	6	80	94	3	2	0	5
No Action Total	AM	In	43	3	62	28	60	196	31	4	3	38
		Out	71	3	167	52	48	341	63	4	3	70
		Total	114	6	229	80	108	537	94	8	6	108
	Midday	In	70	5	101	47	112	335	51	8	2	61
		Out	67	5	98	45	97	312	48	8	2	58
		Total	137	10	199	92	209	647	99	16	4	119
	PM	In	108	6	199	74	68	455	86	8	0	94
		Out	80	5	121	53	94	353	59	8	0	67
		Total	188	11	320	127	162	808	145	16	0	161

As summarized in **Table K-4**, under the With Action condition, the Project Sites would generate a total of 1,124, 2,082, and 1,930 person trips during the weekday AM, midday, and PM peak hours, respectively. Approximately 205, 256, and 310 vehicle trips would be generated during the same respective peak hours.

The net incremental trips generated by the No Action and With Action conditions are shown in **Table K-5**.

Table K-4
Trip Generation Summary: With Action Condition

Program	Peak Hour	In/Out	Person Trip						Vehicle Trip			
			Auto	Taxi	Subway	Bus	Walk	Total	Auto	Taxi	Delivery	Total
Residential 843 DUs	AM	In	22	1	55	16	7	101	20	6	3	29
		Out	127	6	312	93	41	579	114	6	3	123
		Total	149	7	367	109	48	680	134	12	6	152
	Midday	In	37	2	92	27	12	170	33	4	2	39
		Out	37	2	92	27	12	170	33	4	2	39
		Total	74	4	184	54	24	340	66	8	4	78
	PM	In	115	5	283	84	37	524	104	6	1	111
		Out	49	2	121	36	16	224	44	6	1	51
		Total	164	7	404	120	53	748	148	12	2	162
Local Retail 35,049 gsf	AM	In	9	0	2	2	68	81	5	0	0	5
		Out	9	0	2	2	68	81	5	0	0	5
		Total	18	0	4	4	136	162	10	0	0	10
	Midday	In	56	0	15	10	430	511	28	0	1	29
		Out	56	0	15	10	430	511	28	0	1	29
		Total	112	0	30	20	860	1,022	56	0	2	58
	PM	In	30	0	8	5	226	269	15	0	0	15
		Out	30	0	8	5	226	269	15	0	0	15
		Total	60	0	16	10	452	538	30	0	0	30
Medical Office 32,677 gsf	AM	In	44	3	49	27	25	148	29	2	0	31
		Out	5	0	6	3	3	17	3	2	0	5
		Total	49	3	55	30	28	165	32	4	0	36
	Midday	In	70	5	77	42	40	234	47	6	1	54
		Out	67	4	74	40	38	223	45	6	1	52
		Total	137	9	151	82	78	457	92	12	2	106
	PM	In	72	5	79	43	41	240	48	6	0	54
		Out	78	5	85	47	44	259	52	6	0	58
		Total	150	10	164	90	85	499	100	12	0	112
Community Center 65,355 gsf	AM	In	4	1	2	4	61	72	2	1	1	4
		Out	2	0	1	3	39	45	1	1	1	3
		Total	6	1	3	7	100	117	3	2	2	7
	Midday	In	7	1	4	9	123	144	4	2	1	7
		Out	6	1	4	7	101	119	4	2	1	7
		Total	13	2	8	16	224	263	8	4	2	14
	PM	In	2	0	1	3	36	42	1	1	0	2
		Out	5	1	3	6	88	103	3	1	0	4
		Total	7	1	4	9	124	145	4	2	0	6
With Action Total	AM	In	79	5	108	49	161	402	56	9	4	69
		Out	143	6	321	101	151	722	123	9	4	136
		Total	222	11	429	150	312	1,124	179	18	8	205
	Midday	In	170	8	188	88	605	1,059	112	12	5	129
		Out	166	7	185	84	581	1,023	110	12	5	127
		Total	336	15	373	172	1,186	2,082	222	24	10	256
	PM	In	219	10	371	135	340	1,075	168	13	1	182
		Out	162	8	217	94	374	855	114	13	1	128
		Total	381	18	588	229	714	1,930	282	26	2	310

Table K-5
Trip Generation Summary: Net Incremental Trips

Peak Hour	In/Out	Person Trip						Vehicle Trip			
		Auto	Taxi	Subway	Bus	Walk	Total	Auto	Taxi	Delivery	Total
AM	In	36	2	46	21	101	206	25	5	1	31
	Out	72	3	154	49	103	381	60	5	1	66
	Total	108	5	200	70	204	587	85	10	2	97
Midday	In	100	3	87	41	493	724	61	4	3	68
	Out	99	2	87	39	484	711	62	4	3	69
	Total	199	5	174	80	977	1,435	123	8	6	137
PM	In	111	4	172	61	272	620	82	5	1	88
	Out	82	3	96	41	280	502	55	5	1	61
	Total	193	7	268	102	552	1,122	137	10	2	149

LEVEL 1 SCREENING

TRAFFIC

As shown in **Table K-5**, the incremental trips generated by the Proposed Project would be 97, 137, and 149 vehicle trips during the weekday AM, midday, and PM peak hours, respectively. Since the incremental vehicle trips would be greater than 50 vehicles during the weekday AM, midday, and PM peak hours, a Level 2 screening assessment (presented in the section below) was conducted to determine if a quantified traffic analysis is warranted.

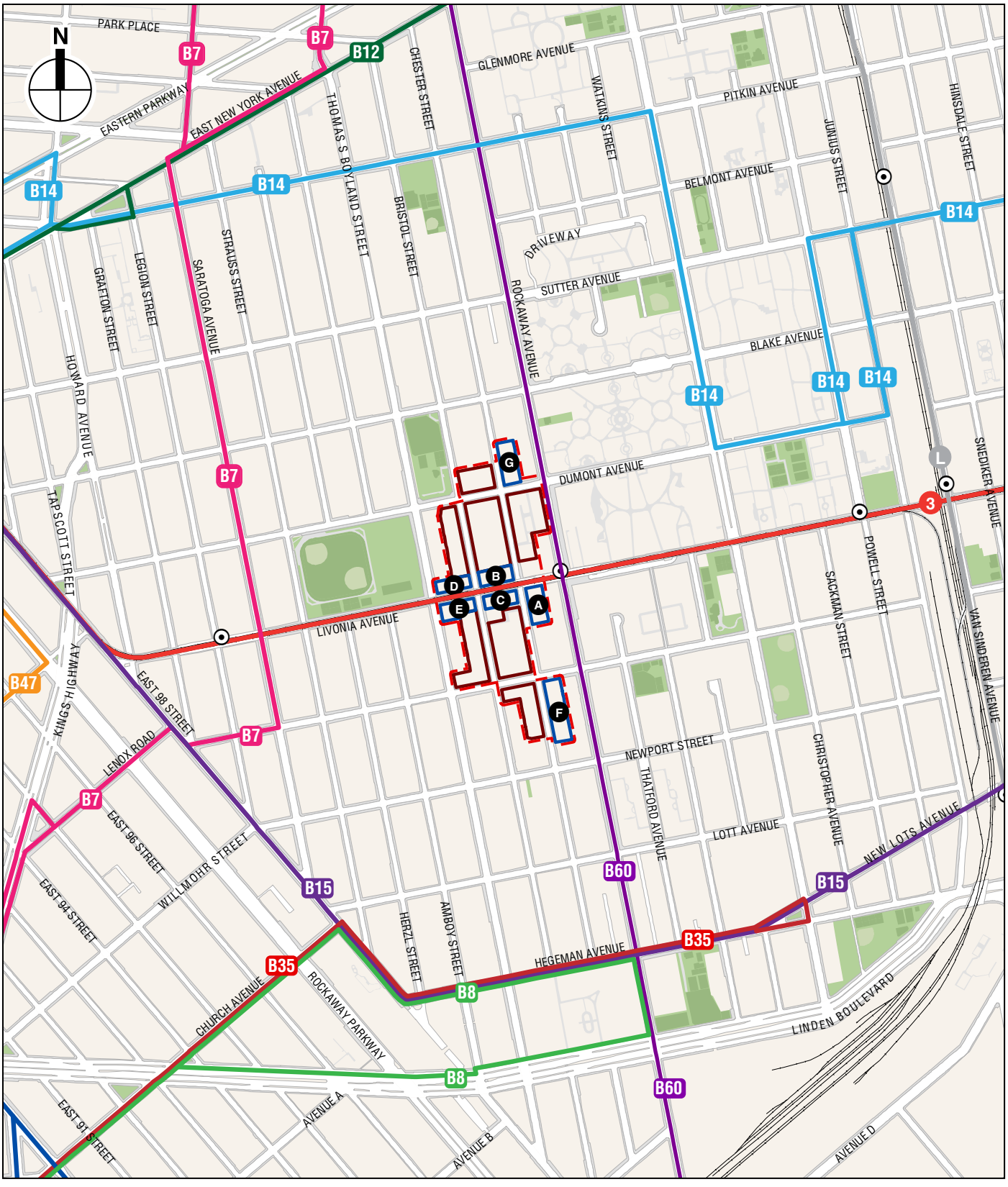
TRANSIT

Public transit options to and from the study area are shown in **Figure K-2**. The Project Area is served by the New York City Transit (NYCT) Rockaway Avenue (No. 3 train), and Livonia Avenue (L train) subway stations; and the B7, B14, B15, B60, and other local bus routes in the study area.

As detailed in **Table K-5**, the incremental transit trips generated by the Proposed Project would be 200, 174, and 268 person trips by subway, and 70, 80, and 102 person trips by bus during the weekday AM, midday, and PM peak hours, respectively. The subway trips would be dispersed onto the area's multiple subway stations/lines such that trip-making for any single subway station/line would not exceed the *CEQR Technical Manual* analysis threshold of 200 or more peak hour subway trips. Therefore, a detailed analysis of subway facilities is not warranted and the Proposed Project is not expected to result in any significant adverse subway impacts. In addition, considering that the bus trips would be further dispersed among the multiple local bus routes serving the study area, no single bus route would exceed the *CEQR Technical Manual* analysis threshold of 50 or more peak hour bus riders in a single direction. Therefore, a detailed bus line-haul analysis is also not warranted and the Proposed Project is not expected to result in any significant adverse bus line-haul impacts.

PEDESTRIANS

All incremental person trips generated by the Proposed Project would traverse the pedestrian elements (i.e., sidewalks, corners, and crosswalks) surrounding the Project Sites. As shown in **Table K-5**, the net incremental pedestrian trips would be greater than 200 during the weekday AM, midday, and PM peak hours. A Level 2 screening assessment (presented in the section below) was conducted to determine if there is a need for additional quantified pedestrian analyses.



Marcus Garvey Extension

Study Area Transit

Figure K-2

LEVEL 2 SCREENING ASSESSMENT

As part of the Level 2 screening assessment, Project-generated trips were assigned to specific intersections and pedestrian elements near the Project Sites. As previously stated, further quantified analyses to assess the potential impacts of the Proposed Project on the transportation system would be warranted if the trip assignments were to identify key intersections incurring 50 or more peak-hour vehicle trips or key pedestrian elements incurring 200 or more peak-hour pedestrian trips.

SITE ACCESS AND EGRESS

For both the No Action and With Action conditions, residential entrances to the seven Project Sites would be distributed along the east and west sides of Chester Street and the east side of Thomas S Boyland Street. The medical office and community facility entrances to the seven Project Sites would be distributed along Chester Street, Bristol Street, Dumont Avenue, and Riverdale Avenue. The With Action condition local retail entrances would all be along the north and south sides of Livonia Avenue.

Under the No Action condition, on-site accessory parking would be provided for the residential use on each of the seven Project Sites. Under the With Action condition, two small on-site parking facilities would be provided at Site F and Site G, however, they would not be made available for the residential use. For a conservative traffic analysis, all No Action and With Action Project-generated auto trips were assigned to the Project Sites.

TRAFFIC

Vehicle trips were assigned to area intersections based on the most likely travel routes to and from the Project Sites, prevailing travel patterns, commuter origin-destination (O-D) summaries from the census data, the configuration of the roadway network, the anticipated locations of site access and egress, and nearby land use and population characteristics. Auto trips were assigned to the Project Sites. Taxi trips were distributed to the various curbsides facing the Project Sites. Delivery trips were assigned to the Project Sites via DOT-designated truck routes. Traffic assignments for autos, taxis, and deliveries for the various development uses are discussed below.

Residential

Auto trips generated by the residential uses were assigned to the surrounding roadway network based on the 2006–2010 U.S. Census ACS JTW O-D estimates for the motorized vehicle modes (i.e., auto and motorcycle). No Action and With Action residential trips would originate from the Project Sites and use the most direct routes for travel to their destinations. Many of the residential trips would be traveling to work destinations within the local region of Brooklyn (66 percent), with the remaining trips traveling to Manhattan (6 percent), New Jersey (2 percent), Queens (19 percent), Staten Island (1 percent), the Bronx (1 percent), and Long Island (5 percent). Overall, vehicle trips generated by the residential uses were distributed to the study area roadway network in the following manner: approximately 40 percent of outbound trips were assigned to Rockaway Avenue and Pitkin Avenue going north and northwest bound, 33 percent to Kings Highway via Dumont Avenue southwest bound, 19 percent to Pitkin Avenue eastbound, and about 8 percent to major southbound avenues.

Local Retail

The With Action condition local retail auto trips were generally assigned from local origins within the neighborhood and adjacent residential areas. Approximately 35 percent of vehicle trips would

originate from the north of the Project Area, 35 percent from the south/southwest of the Project Area, and 30 percent from east of the Project Area. The auto trips were assigned to the Project Sites.

Community Facility

The community facility uses (i.e., medical office and community center) are expected to have travel patterns similar to the local retail component, with trips originating mostly from within Brooklyn residential areas. Approximately 35 percent are from the north/northwest of the Project Area approximately 35 percent are from the south/southwest of the Project Area, and approximately 30 percent trips are from east of the Project Area.

Deliveries

Truck delivery trips for the No Action and With Action land uses were assigned to DOT-designated truck routes as long as possible until reaching the area surrounding the Project Sites. These were then generally distributed to Howard Avenue (25 percent), Pitkin Avenue (25 percent), Rockaway Avenue (25 percent), and Linden Blvd (25 percent) until they reached the various curbsides facing the seven Project Sites.

Summary

Figures K-3 through K-5 show the No Action Project-generated vehicle trips for the weekday AM, midday, and PM peak hours. **Figures K-6 through K-8** show the With Action Project-generated vehicle trips for the weekday AM, midday, and PM peak hours. And **Figures K-9 through K-11** show the With Action incremental vehicle trips for the weekday AM, midday, and PM peak hours.

According to the *CEQR Technical Manual*, intersections expected to incur 50 or more incremental peak-hour vehicle trips as a result of a Proposed Project would have the potential for significant adverse traffic impacts and should be assessed in a quantified traffic impact analysis. As shown in **Figures K-9 through K-11** and presented in **Table K-6**, the intersection of Thomas S Boyland Street and Livonia Avenue would incur incremental vehicle trips exceeding the CEQR threshold. The selected traffic analysis location is shown in **Figure K-12**.

No Action Project Generated Vehicle Trips
Weekday AM Peak Hour

Figure K-3

0 1,000FEET

Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Marcus Garvey Extension

5/10/2018

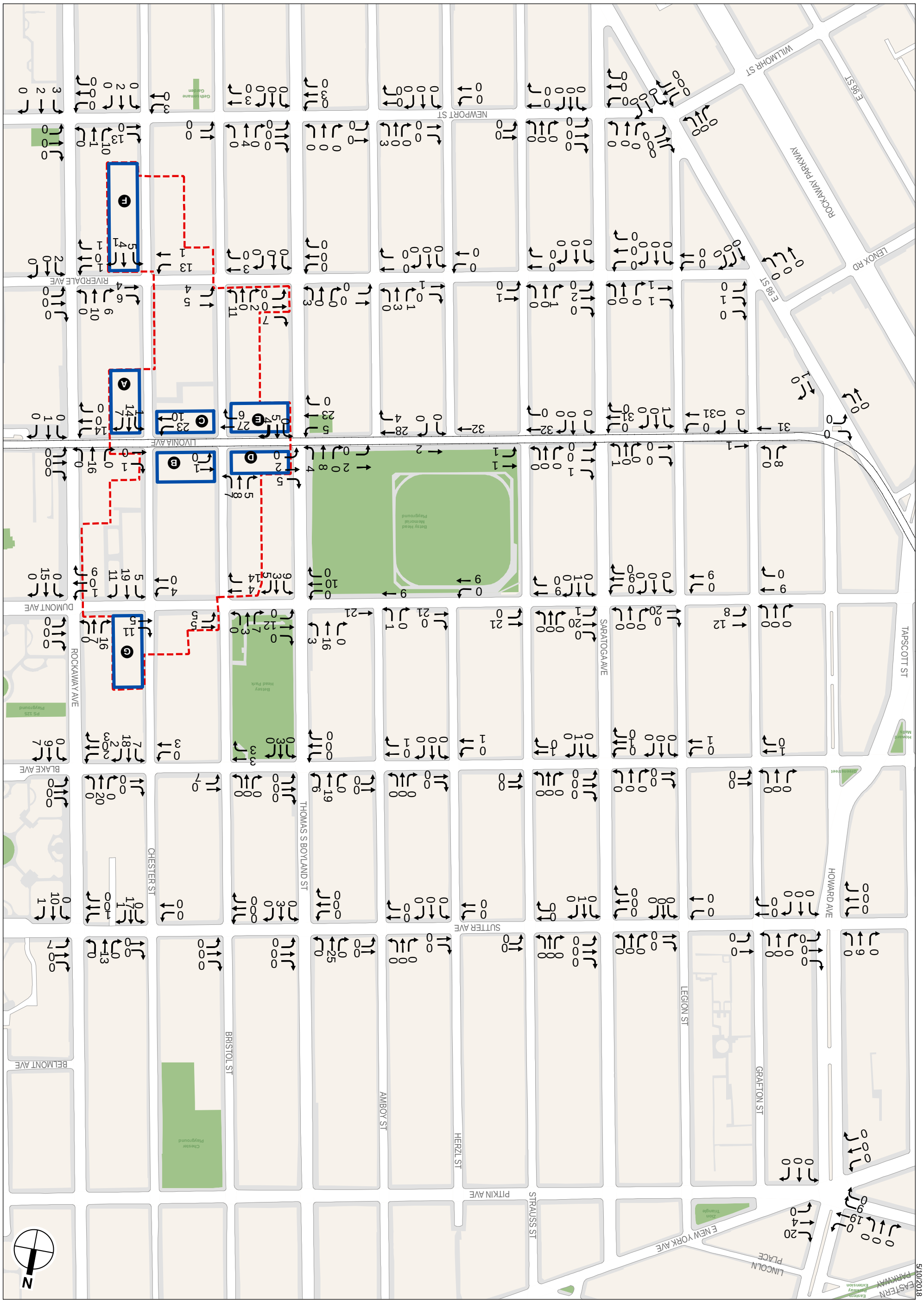


No Action Project Generated Vehicle Trips
Weekday Midday Peak Hour

Marcus Garvey Extension

Figure K-4

5/10/2018



No Action Project Generated Vehicle Trips
Weekday PM Peak Hour

Figure K-5

Marcus Garvey Extension

5/10/2018

With Action Project Generated Vehicle Trips
Weekday AM Peak Hour

Figure K-6

0 1,000 FEET

Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Marcus Garvey Extension

5/10/2018

With Action Project Generated Vehicle Trips
Weekday Midday Peak Hour

Figure K-7

0 1,000 FEET

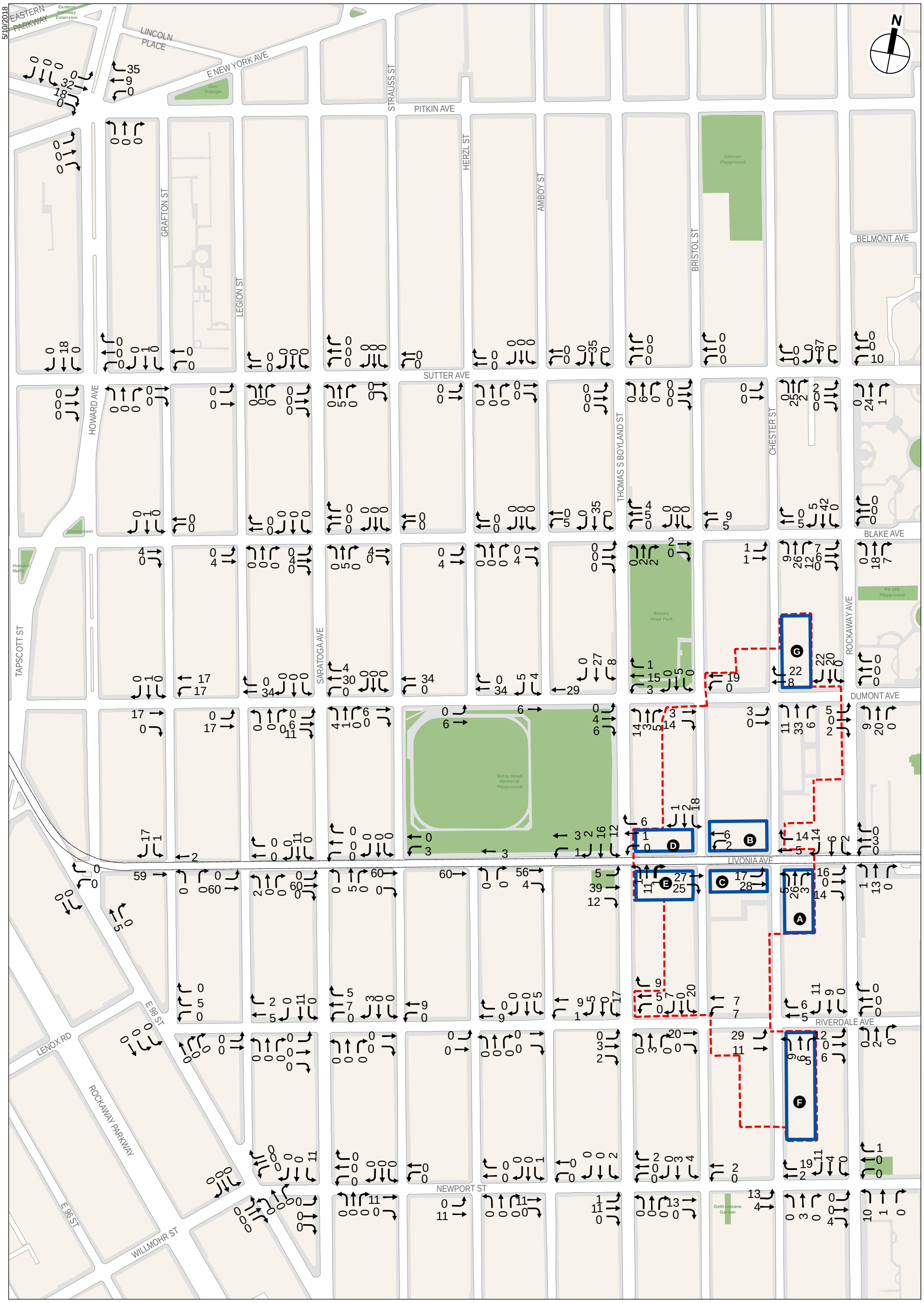
Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Marcus Garvey Extension

5/10/2018

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

0 1,000 FEET

With Action Project Generated Vehicle Trips
Weekday PM Peak Hour

Marcus Garvey Extension

Figure K-8

With Action Incremental Vehicle Trips
Weekday AM Peak Hour

Figure K-9

0 1,000 FEET

Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Marcus Garvey Extension

5/10/2018

With Action Incremental Vehicle Trips
Weekday Midday Peak Hour

Figure K-10

0 1,000 FEET

Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Marcus Garvey Extension

5/10/2018

With Action Incremental Vehicle Trips
Weekday PM Peak Hour

Figure K-11

0 1,000FEET

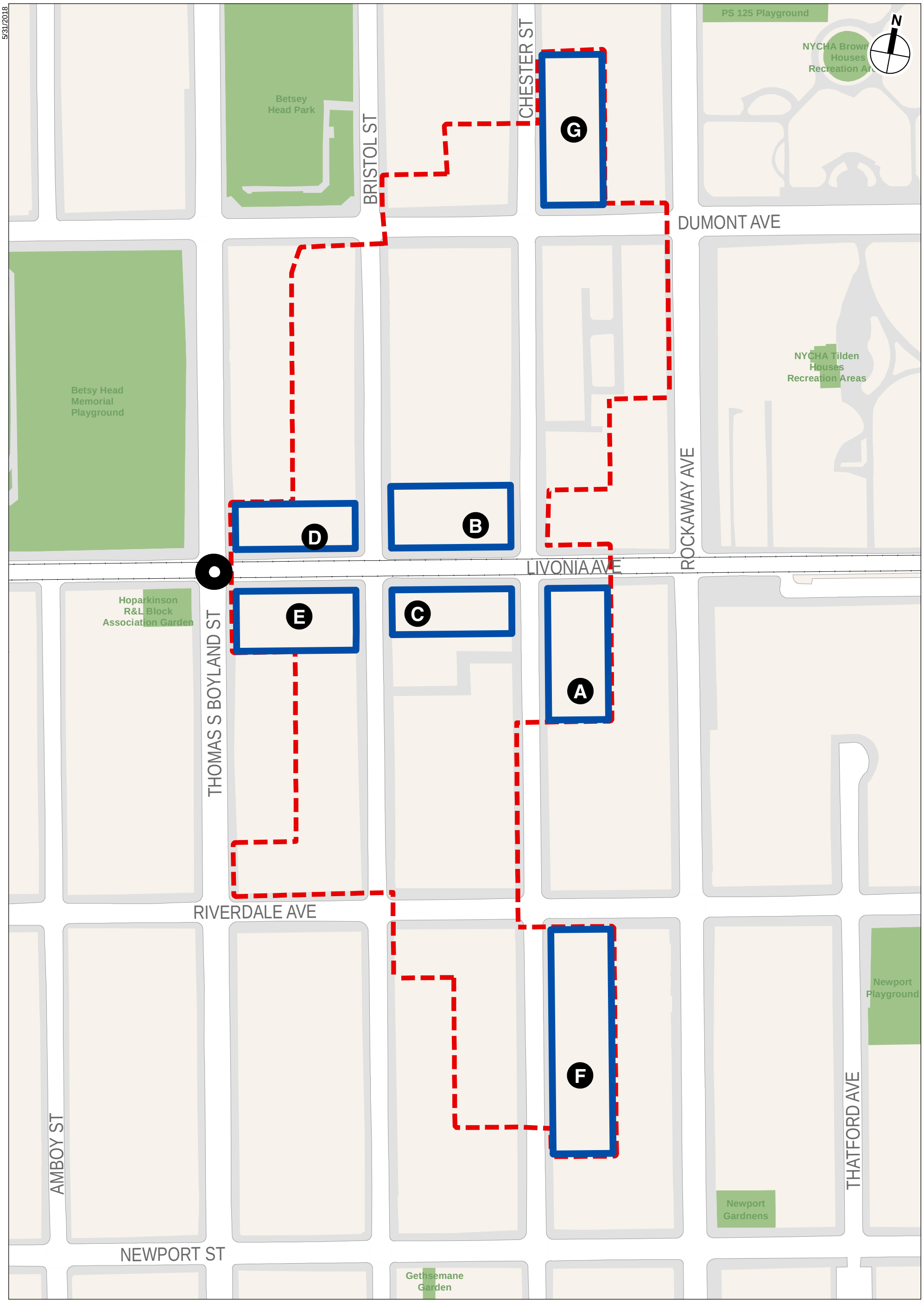
Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Marcus Garvey Extension

5/10/2018

5/31/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Traffic Analysis Locations

0 400 FEET

Traffic Analysis Locations

Figure K-12

Marcus Garvey Extension

Table K-6
Traffic Level 2 Screening Analysis Results—Selected Analysis Locations

Intersection	Incremental Vehicle Trips (Weekday)			Selected Analysis Locations
	AM	Midday	PM	
E 98th Street and Howard Avenue	2	8	4	
E 98th Street and Riverdale Avenue/Grafton Street	2	8	4	
E 98th Street and Newport Street/Willmohr Street	0	0	0	
E New York Avenue and Howard Avenue	24	34	42	
Howard Avenue and Sutter Avenue	2	3	9	
Howard Avenue and Blake Avenue	2	8	3	
Howard Avenue and Dumont Avenue	2	8	13	
Howard Avenue and Livonia Avenue	28	26	38	
Grafton Street and Sutter Avenue	1	3	1	
Grafton Street and Blake Avenue	3	11	4	
Grafton Street and Dumont Avenue	21	17	23	
Grafton Street and Livonia Avenue	29	29	39	
Legion Street and Sutter Avenue	0	0	0	
Legion Street and Blake Avenue	2	8	3	
Legion Street and Dumont Avenue	20	14	22	
Legion Street and Livonia Avenue	11	23	30	
Legion Street and Riverdale Avenue	3	9	5	
Saratoga avenue and Sutter Avenue	2	8	4	
Saratoga Avenue and Blake Avenue	4	16	7	
Saratoga Avenue and Dumont Avenue	22	21	25	
Saratoga Avenue and Livonia Avenue	23	28	43	
Saratoga Avenue and Riverdale Avenue	16	16	21	
Saratoga Avenue and Newport Street	2	4	11	
Strauss Street and Sutter Avenue	0	0	0	
Strauss Street and Blake Avenue	2	8	3	
Strauss Street and Dumont Avenue	9	14	10	
Strauss Street and Livonia Avenue	11	26	29	
Strauss Street and Riverdale Avenue	14	13	10	
Strauss Street and Newport Street	2	4	11	
Herzl Street and Sutter Avenue	0	0	0	
Herzl Street and Blake Avenue	2	8	3	
Herzl Street and Dumont Avenue	9	14	10	
Herzl Street and Livonia Avenue	11	26	29	
Herzl Street and Riverdale Avenue	13	9	8	
Herzl Street and Newport Street	2	4	11	
Amboy Street and Sutter Avenue	0	0	0	
Amboy Street and Blake Avenue	2	12	8	
Amboy Street and Dumont Avenue	11	22	13	
Amboy Street and Livonia Avenue	11	28	30	
Amboy Street and Riverdale Avenue	14	14	11	
Amboy Street and Newport Street	0	3	9	
Thomas S Boyland Street and Sutter Avenue	8	10	13	
Thomas S Boyland Street and Blake Avenue	9	19	20	
Thomas S Boyland Street and Dumont Avenue	14	42	28	
Thomas S Boyland Street and Livonia Avenue	9	53	50	✓
Thomas S Boyland Street and Riverdale Avenue	19	37	34	
Thomas S Boyland Street and Newport Avenue	1	7	13	
Bristol Street and Sutter Avenue	0	0	0	
Bristol Street and Blake Avenue	-1	6	3	
Bristol Street and Dumont Avenue	12	18	3	
Bristol Street and Livonia Avenue	7	47	27	
Bristol Street and Riverdale Avenue	20	37	36	
Bristol Street and Newport Street	4	7	15	
Chester Street and Sutter Avenue	7	9	9	
Chester Street and Blake Avenue	19	25	24	
Chester Street and Dumont Avenue	34	34	28	
Chester Street and Livonia Avenue	22	48	42	
Chester Street and Riverdale Avenue	34	34	37	
Chester Street and Newport Street	5	14	23	
Rockaway Avenue and Sutter Avenue	32	28	42	
Rockaway Avenue and Blake Avenue	31	31	44	
Rockaway Avenue and Dumont Avenue	31	24	30	
Rockaway Avenue and Livonia Avenue	27	40	38	
Rockaway Avenue and Riverdale Avenue	20	20	20	
Rockaway Avenue and Newport Street	4	15	15	

Note: ✓ denotes intersections selected for the detailed traffic analysis.

PEDESTRIANS

Level 2 pedestrian trip assignments were individually developed for the No Action Project-generated, With Action Project-generated, and With Action incremental pedestrian trips. These trip assignments are shown in **Figures K-13 through K-21** and discussed below.

- Auto Trips: Motorists to the No Action project and Proposed Project were assigned the Project Sites.
- Taxi Trips: Taxi patrons would get dropped off and picked up along the Project Area block faces.
- City Bus Trips: City bus riders would use buses stopping on Rockaway Avenue, Saratoga Avenue, and Pitkin Avenue and would get off at bus stops nearest to the Project Sites.
- Subway Trips: Subway riders were assigned to the Rockaway Avenue (No. 3 train) and Livonia Avenue (L train) subway stations.
- Walk-Only Trips: Pedestrian walk-only trips were developed by distributing Project-generated person trips to surrounding pedestrian facilities (i.e., sidewalks, corner reservoirs, and crosswalks) based on population density data as well as the land use characteristics of the surrounding neighborhood.

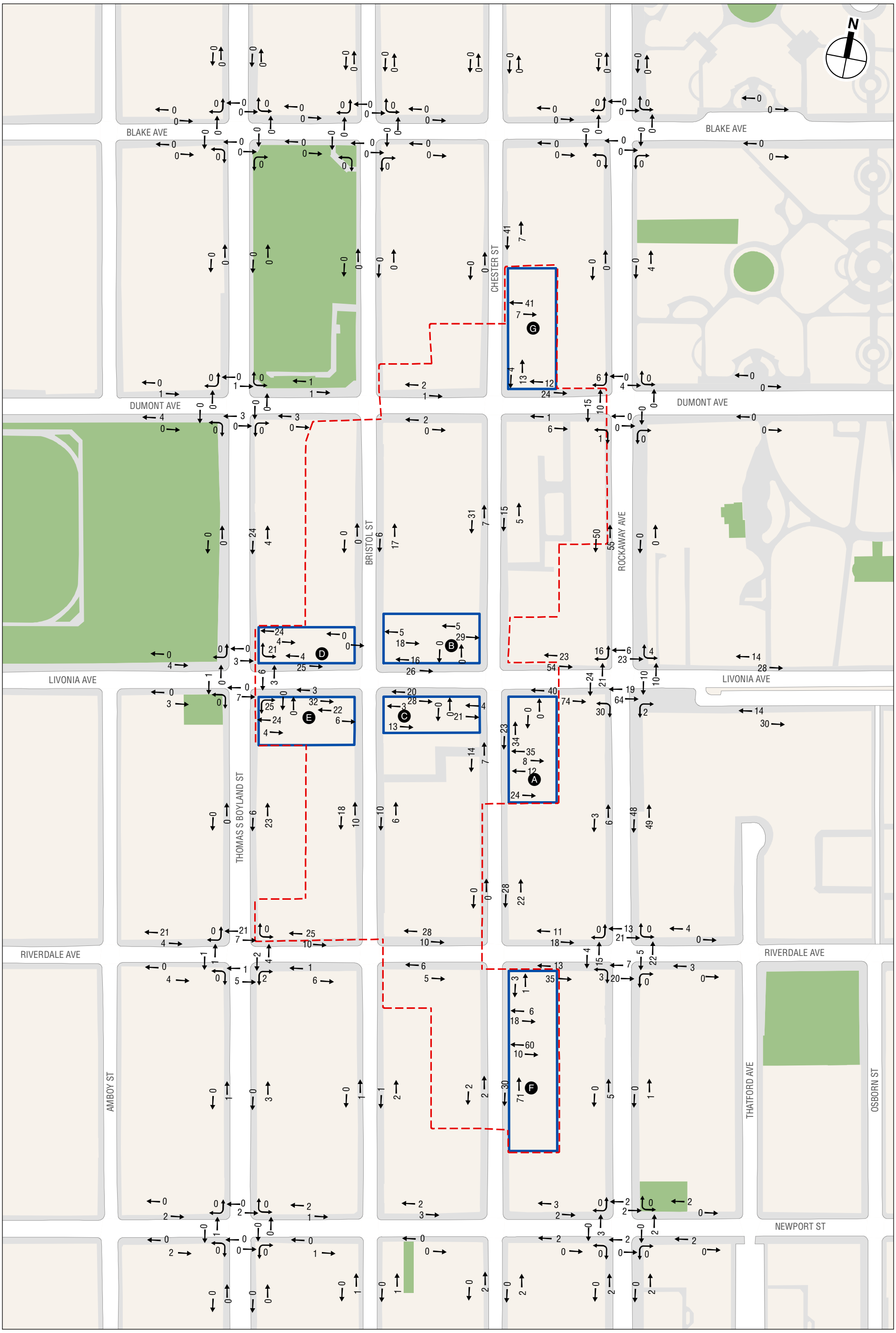
Based on the detailed assignment of incremental pedestrian trips illustrated in **Figures K-13 through K-21**, seven sidewalks and three corners were selected for detailed analysis for the weekday peak hours, as summarized in **Table K-7** and shown in **Figure K-22**.

Table K-7
Pedestrian Level 2 Screening Analysis Results—Selected Analysis Locations

Pedestrian Elements	Incremental Pedestrian Trips			Selected Analysis Locations
	AM	Midday	PM	
Livonia Avenue and Bristol Street				
South Sidewalk along Livonia Avenue between Bristol Street and Thomas S Boyland Street	74	269	177	✓
West Sidewalk along Bristol Street between Livonia Avenue and Riverdale Avenue	54	188	130	
Livonia Avenue and Chester Street				
North Sidewalk along Livonia Avenue between Chester Street and Bristol Street	75	309	189	✓
South Sidewalk along Livonia Avenue between Chester Street and Bristol Street	84	303	214	✓
East Sidewalk along Chester Street between Livonia Avenue and Riverdale Avenue–North Segment	66	214	145	✓
East Sidewalk along Chester Street between Livonia Avenue and Riverdale Avenue–South Segment	70	282	165	✓
West Sidewalk along Chester Street between Livonia Avenue and Riverdale Avenue–North Segment	41	205	115	✓
Livonia Avenue and Rockaway Avenue				
South Sidewalk along Livonia Avenue between Rockaway Avenue and Chester Street	109	154	167	
Northeast Corner	56	67	78	
Northwest Corner	76	124	147	
Southeast Corner	116	141	156	
Southwest Corner	150	185	202	✓
North Crosswalk	29	40	48	
South Crosswalk	93	114	124	
East Crosswalk	23	26	28	
West Crosswalk	32	56	61	
Riverdale Avenue and Rockaway Avenue				
North Sidewalk along Riverdale Avenue between Rockaway Avenue and Chester Street	51	205	122	✓
Northeast Corner	97	231	173	✓
Northwest Corner	88	208	152	✓
Southeast Corner	74	135	120	
Southwest Corner	67	115	105	
North Crosswalk	60	154	108	
South Crosswalk	37	58	55	
East Crosswalk	37	77	65	
West Crosswalk	28	54	44	

Note: ✓ denotes pedestrian elements selected for detailed analysis.

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

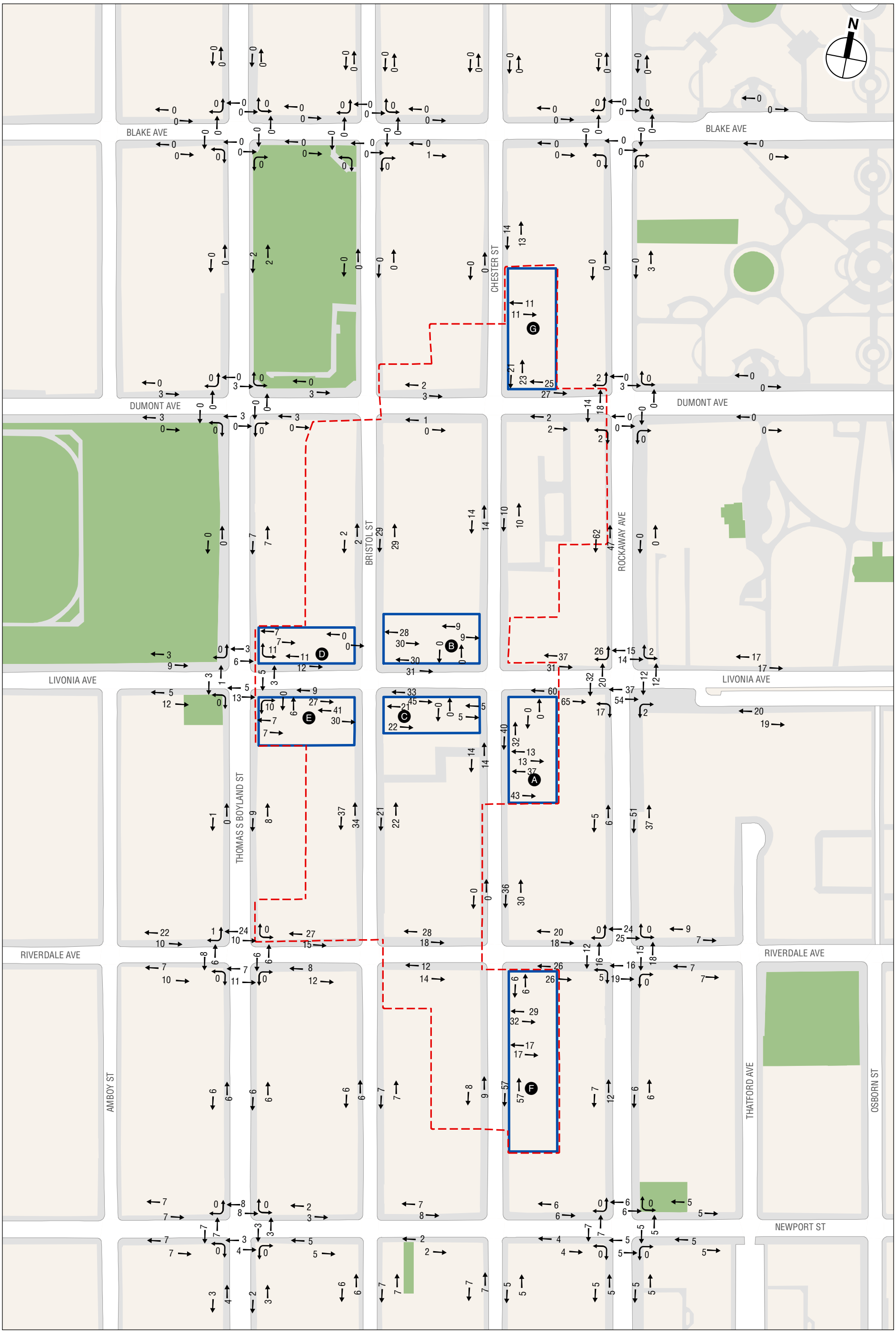
0 400 FEET

No Action Project Generated Pedestrian Trips
Weekday AM Peak Hour

Marcus Garvey Extension

Figure K-13

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

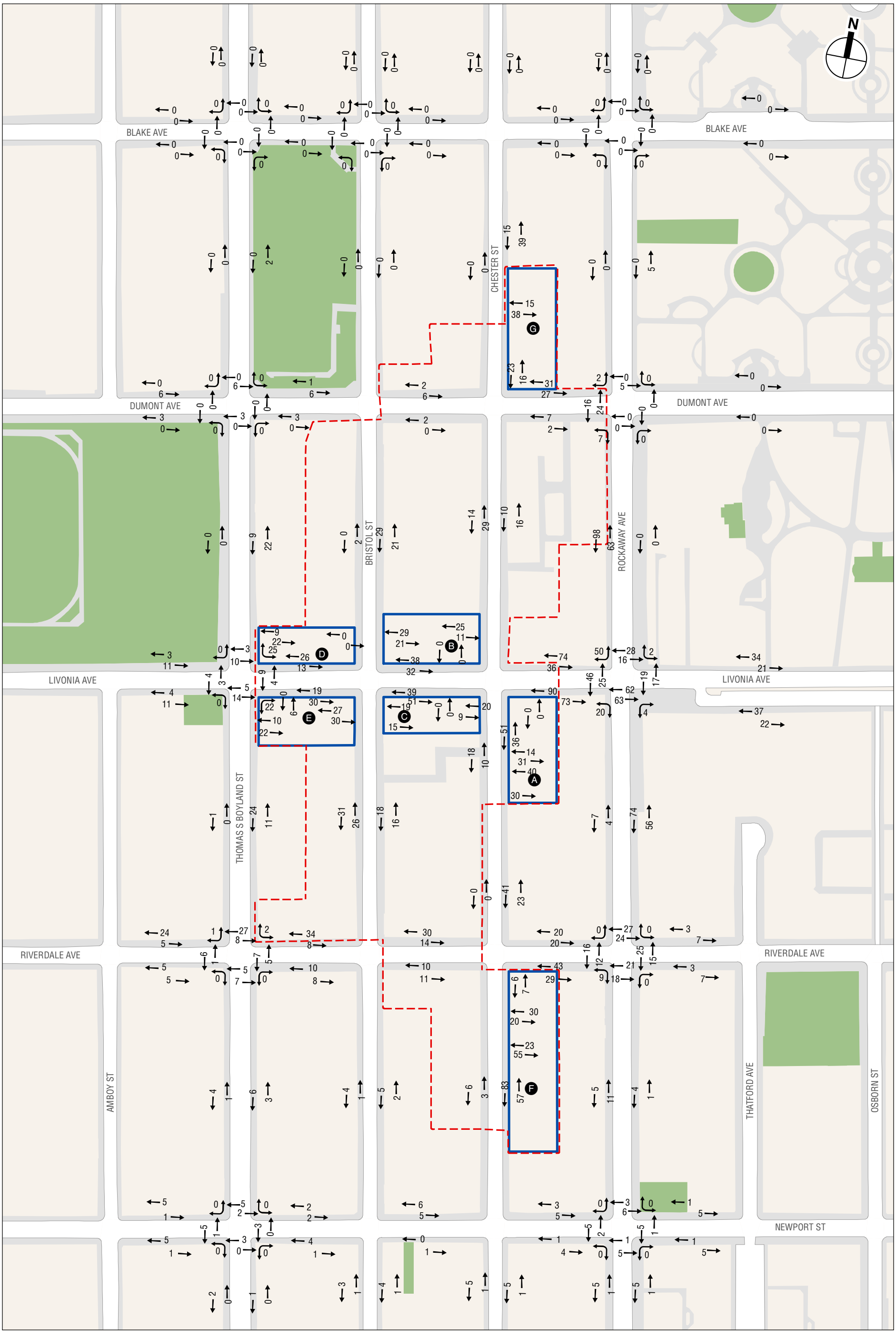
0 400 FEET

No Action Project Generated Pedestrian Trips
Weekday Midday Peak Hour

Marcus Garvey Extension

Figure K-14

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

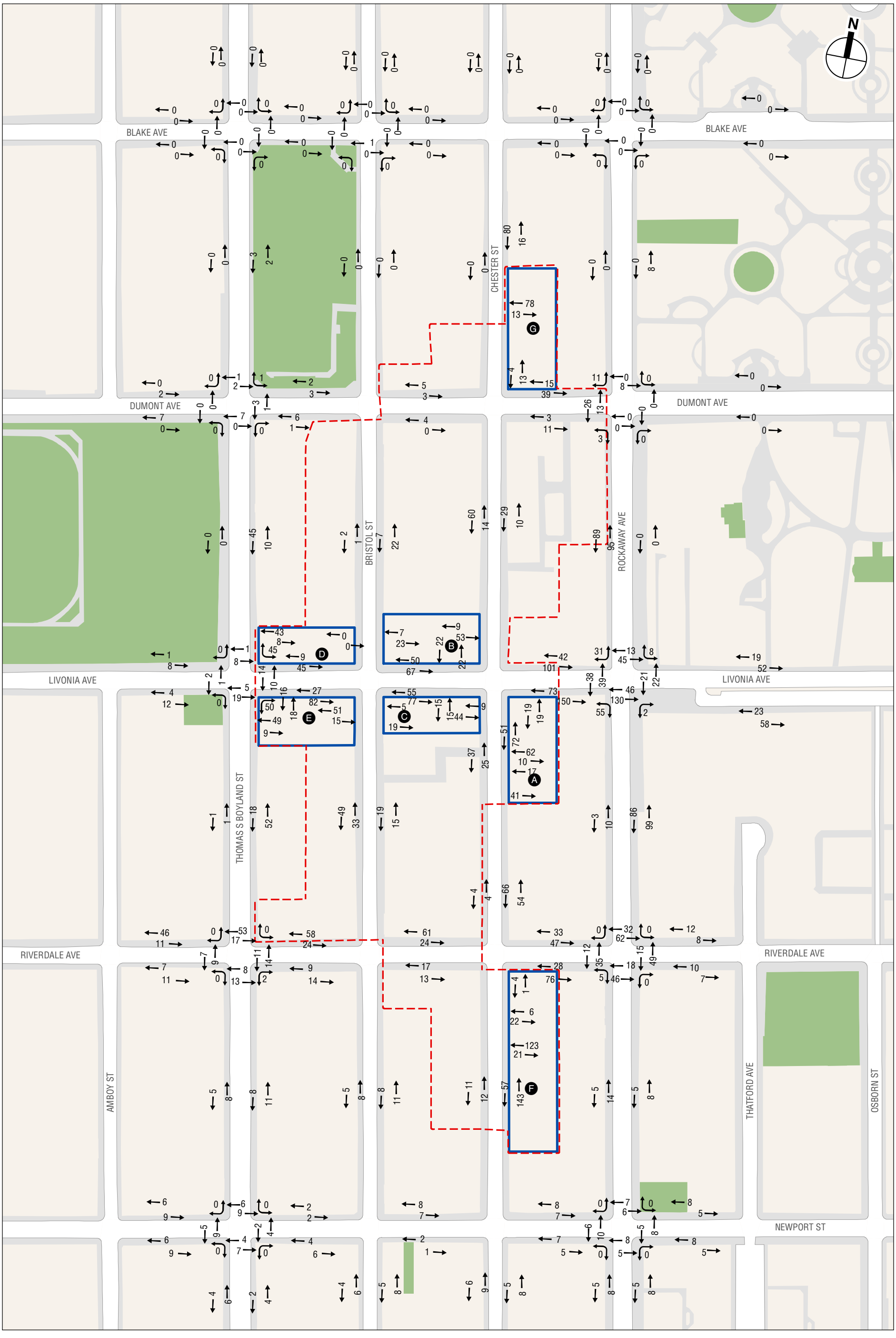
0 400 FEET

No Action Project Generated Pedestrian Trips
Weekday PM Peak Hour

Figure K-15

Marcus Garvey Extension

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

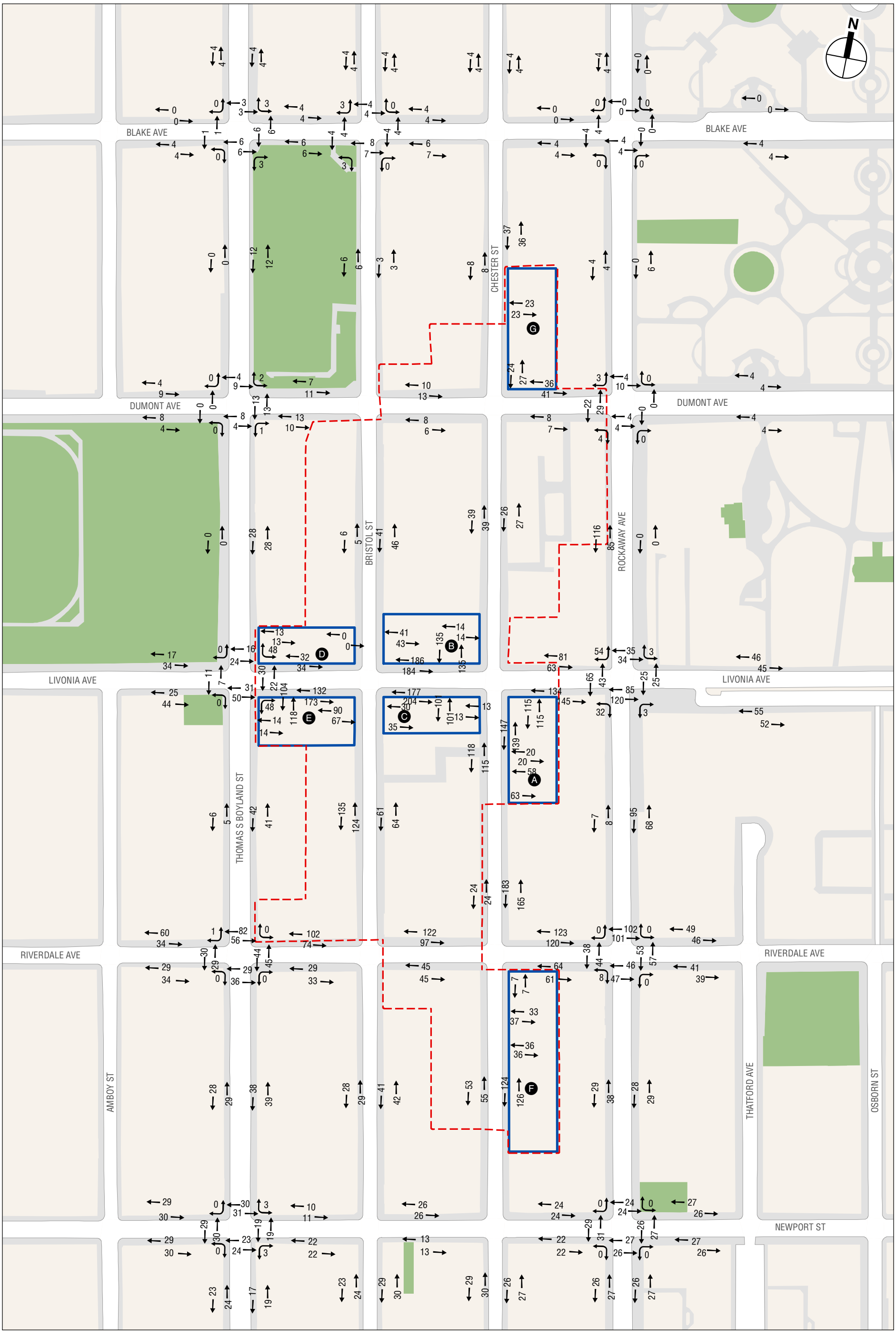
0 400 FEET

With Action Project Generated Pedestrian Trips
Weekday AM Peak Hour

Figure K-16

Marcus Garvey Extension

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

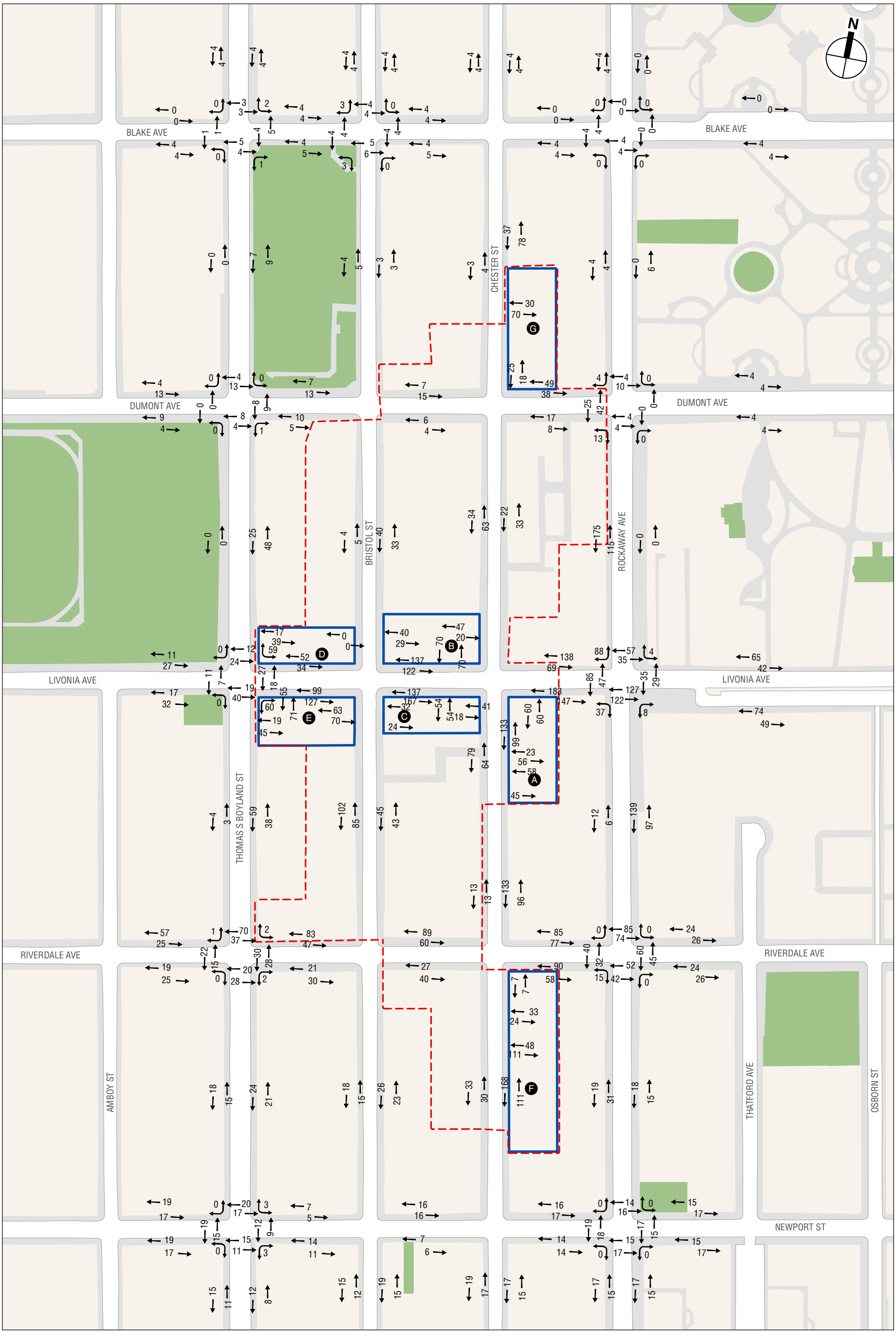
0 400 FEET

With Action Project Generated Pedestrian Trips
Weekday Midday Peak Hour

Figure K-17

Marcus Garvey Extension

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

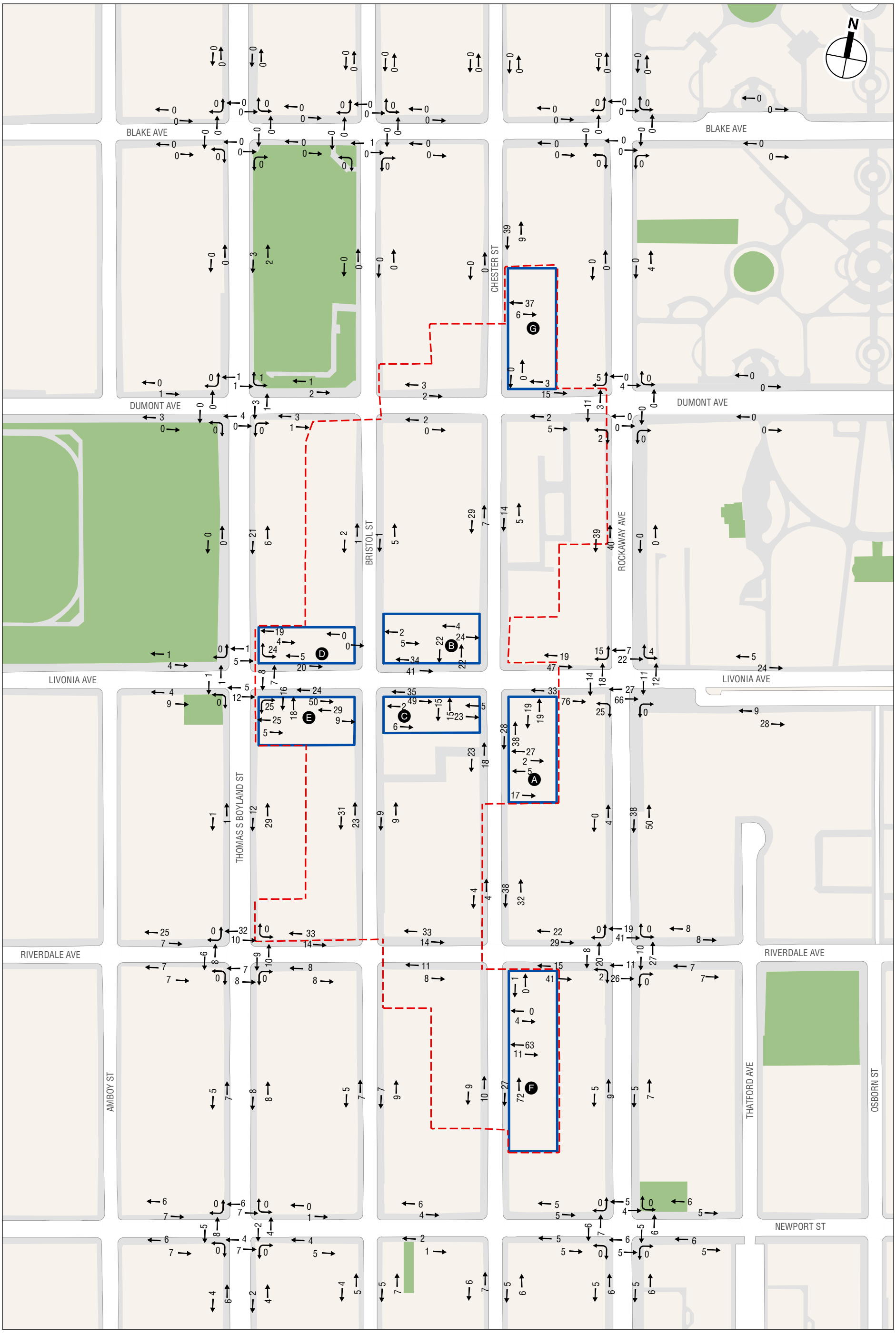
0 400 FEET

With Action Project Generated Pedestrian Trips
Weekday PM Peak Hour

Marcus Garvey Extension

Figure K-18

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

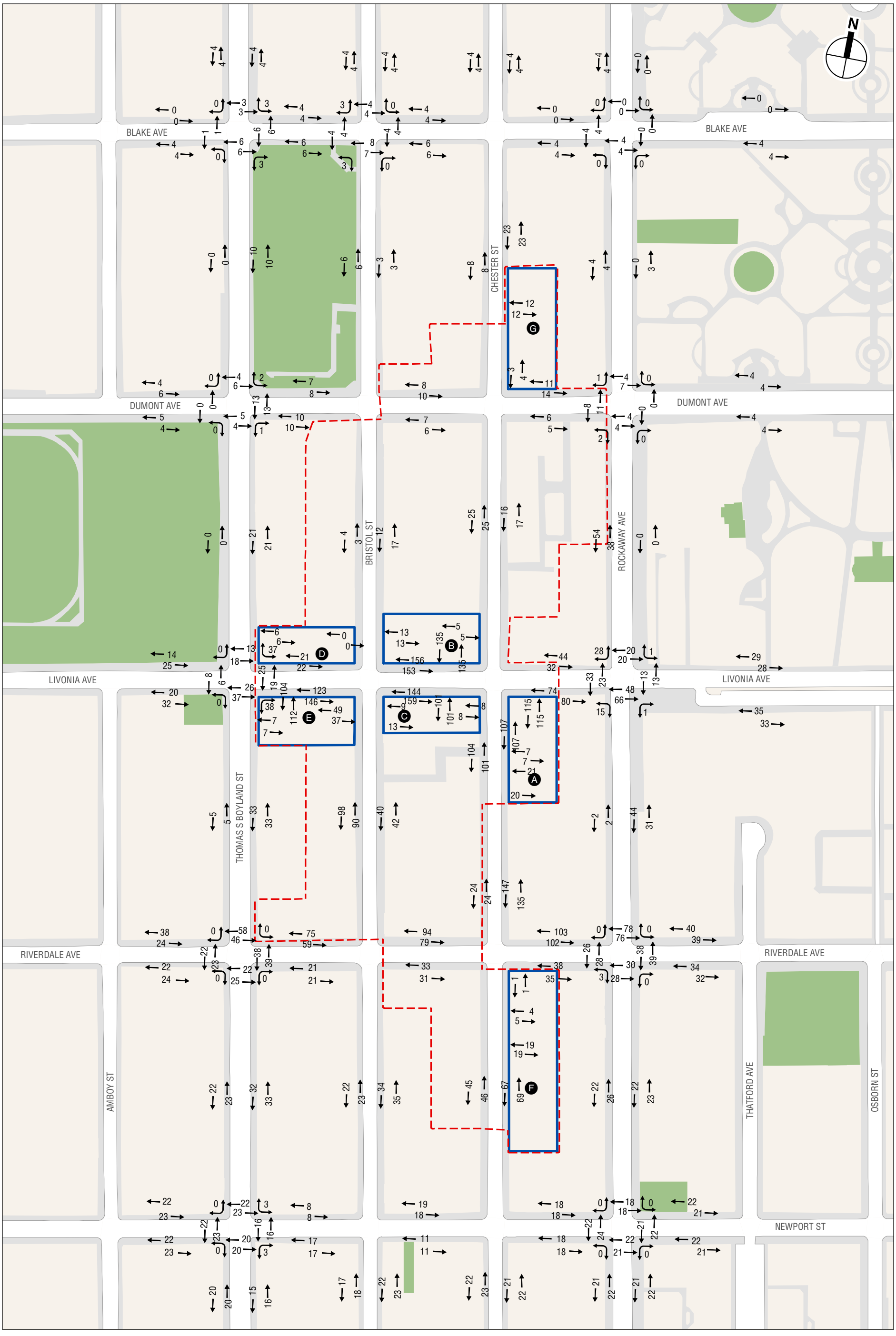
0 400 FEET

With Action Incremental Pedestrian Trips
Weekday AM Peak Hour

Marcus Garvey Extension

Figure K-19

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

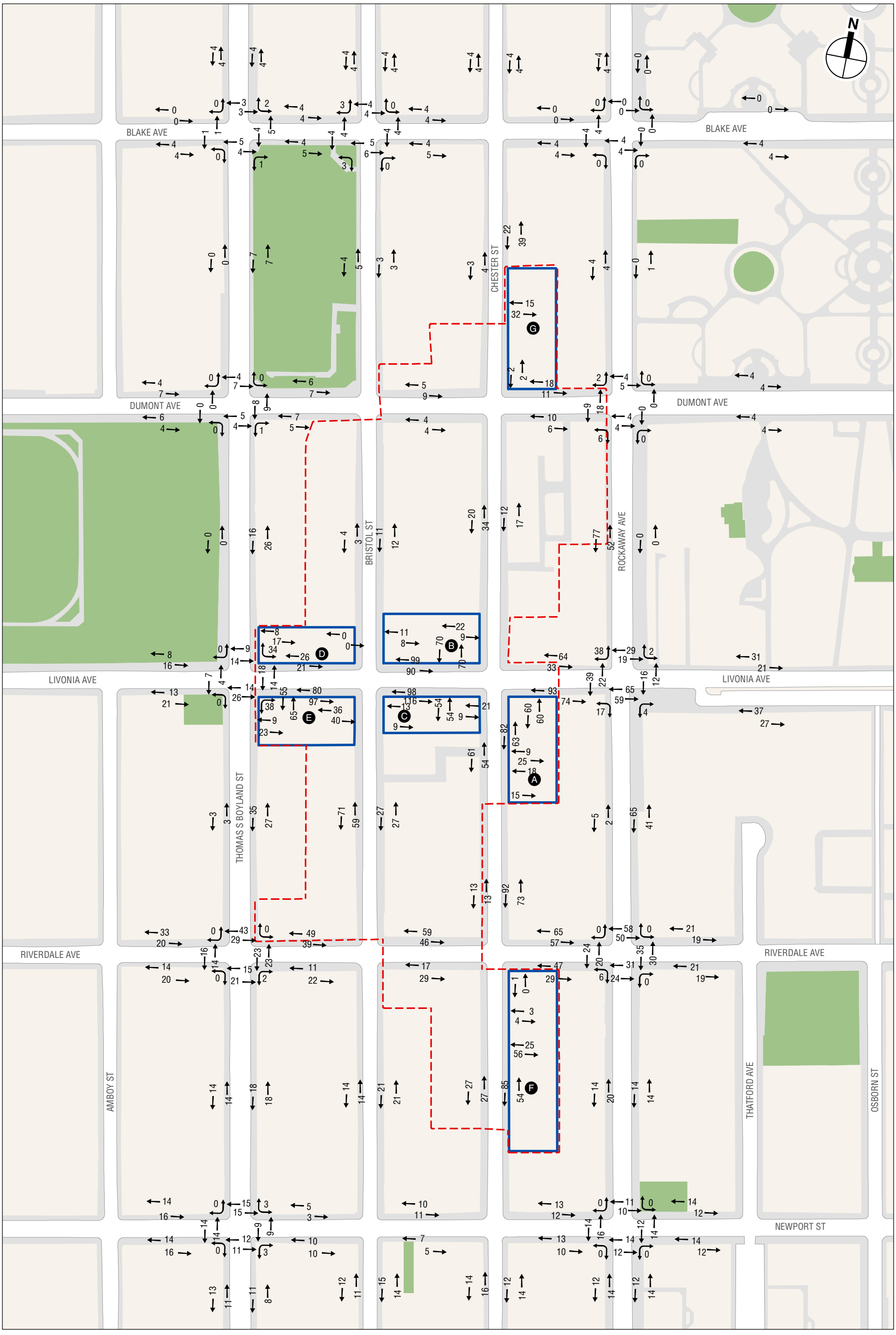
0 400 FEET

With Action Incremental Pedestrian Trips
Weekday Midday Peak Hour

Figure K-20

Marcus Garvey Extension

5/10/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

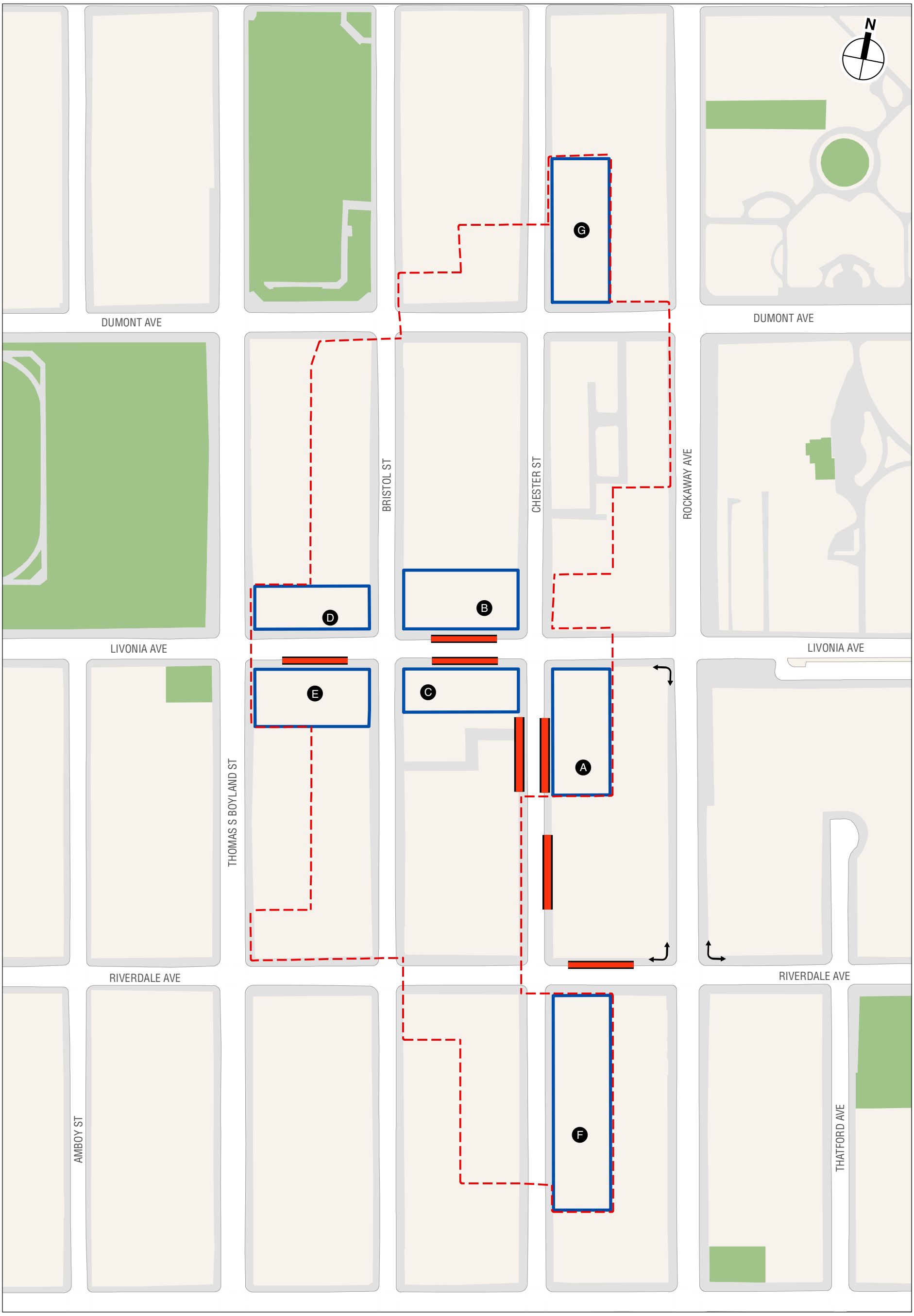
0 400 FEET

With Action Incremental Pedestrian Trips
Weekday PM Peak Hour

Marcus Garvey Extension

Figure K-21

5/8/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

Pedestrian Analysis Locations

Corner *Sidewalk*

0 400 FEET

Marcus Garvey Extension

Pedestrian Analysis Locations
Figure K-22

C. TRANSPORTATION ANALYSIS METHODOLOGIES

TRAFFIC OPERATIONS

The operations of all of the signalized intersections in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5)*. The *HCM* procedure evaluates the levels of service (LOS) for signalized intersections using average stop control delay, in seconds per vehicle (spv), as described below.

SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. LOS is defined in **Table K-8**.

Table K-8
LOS Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds

Source: Transportation Research Board. *HCM*.

Although the *HCM* methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the *HCM*. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum capacity with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. LOS C indicates congestion is still fairly light, but the number of vehicles stopping is higher. LOS D indicates congestion levels are more noticeable and individual cycle failures (i.e., a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. LOS E and F reflect poor service levels and frequent cycle breakdowns. The *HCM* methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (i.e., the worst case from each roadway) and calculates a summary critical v/c ratio. The overall intersection delay, which determines the intersection's LOS, is based on a weighted average of control delays of the individual lane groups. Within New York City, the midpoint of LOS D (45 seconds of delay) is generally considered as the threshold between acceptable and unacceptable operations.

Significant Impact Criteria

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the With Action condition of 5 or more seconds of delay in a lane group over No Action levels beyond mid-LOS D. For No Action LOS E, a 4-second increase in delay is considered significant. For No Action

LOS F, a 3-second increase in delay is considered significant. In addition, impacts are considered significant if LOS deteriorates from acceptable A, B, or C in the No Action condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the With Action condition.

PEDESTRIAN OPERATIONS

The adequacy of the study area's sidewalk, crosswalk, and corner reservoir capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the 2010 *HCM*, pursuant to procedures detailed in the *CEQR Technical Manual*.

The primary performance measure for sidewalks and walkways is pedestrian space, expressed as sf per pedestrian (SFP), which is an indicator of the quality of pedestrian movement and comfort. The calculation of the sidewalk SFP is based on the pedestrian volumes by direction, the effective sidewalk or walkway width, and average walking speed. The SFP forms the basis for a sidewalk LOS analysis. The determination of sidewalk LOS is also dependent on whether the pedestrian flow being analyzed is best described as "non-platoon" or "platoon." Non-platoon flow occurs when pedestrian volume within the peak 15-minute period is relatively uniform, whereas, platoon flow occurs when pedestrian volumes vary significantly with the peak 15-minute period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway's pedestrian volume.

Street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The *HCM* methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians.

The total "time-space" available for these activities, expressed in sf-second, is calculated by multiplying the net area of the corner (in sf) by the signal's cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the total pedestrian circulation volume per signal cycle provides the LOS measurement of SFP.

The LOS standards for sidewalks and corner reservoirs are summarized in **Table K-9**. The *CEQR Technical Manual* specifies acceptable LOS in Central Business District (CBD) areas is mid-LOS D or better, while acceptable LOS in non-CBD areas is LOS C or better.

Table K-9
LOS Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	> 60 SFP	> 530 SFP	> 60 SFP
B	> 40 and ≤ 60 SFP	> 90 and ≤ 530 SFP	> 40 and ≤ 60 SFP
C	> 24 and ≤ 40 SFP	> 40 and ≤ 90 SFP	> 24 and ≤ 40 SFP
D	> 15 and ≤ 24 SFP	> 23 and ≤ 40 SFP	> 15 and ≤ 24 SFP
E	> 8 and ≤ 15 SFP	> 11 and ≤ 23 SFP	> 8 and ≤ 15 SFP
F	≤ 8 SFP	≤ 11 SFP	≤ 8 SFP

Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

SIGNIFICANT IMPACT CRITERIA

The determination of significant pedestrian impacts considers the level of predicted decrease in pedestrian space between the No Action and With Action conditions. For different pedestrian elements, flow conditions, and area types, the *CEQR* procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Sidewalks

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the determination of significant sidewalk impacts is based on the sliding scale using the following formula: $Y \geq X/9.0 - 0.31$, where Y is the decrease in pedestrian space in SFP and X is the No Action pedestrian space in SFP. For platoon flow, the sliding-scale formula is $Y \geq X/(9.5 - 0.321)$. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, these formulas would apply only if the With Action pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table K-10** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Table K-10
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: *Y ≥ X/9.0 – 0.31*				Sliding Scale Formula: *Y ≥ X/(9.5 – 0.321)*			
Non-CBD Areas		CBD Areas		Non-CBD Areas		CBD Areas	
No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)	No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)	No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)	No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)
–	–	–	–	43.5 to 44.3	≥ 4.3	–	–
–	–	–	–	42.5 to 43.4	≥ 4.2	–	–
–	–	–	–	41.6 to 42.4	≥ 4.1	–	–
–	–	–	–	40.6 to 41.5	≥ 4.0	–	–
–	–	–	–	39.7 to 40.5	≥ 3.9	–	–
–	–	–	–	38.7 to 39.6	≥ 3.8	38.7 to 39.2	≥ 3.8
–	–	–	–	37.8 to 38.6	≥ 3.7	37.8 to 38.6	≥ 3.7
–	–	–	–	36.8 to 37.7	≥ 3.6	36.8 to 37.7	≥ 3.6
–	–	–	–	35.9 to 36.7	≥ 3.5	35.9 to 36.7	≥ 3.5
–	–	–	–	34.9 to 35.8	≥ 3.4	34.9 to 35.8	≥ 3.4
–	–	–	–	34.0 to 34.8	≥ 3.3	34.0 to 34.8	≥ 3.3
–	–	–	–	33.0 to 33.9	≥ 3.2	33.0 to 33.9	≥ 3.2
–	–	–	–	32.1 to 32.9	≥ 3.1	32.1 to 32.9	≥ 3.1
–	–	–	–	31.1 to 32.0	≥ 3.0	31.1 to 32.0	≥ 3.0
–	–	–	–	30.2 to 31.0	≥ 2.9	30.2 to 31.0	≥ 2.9
–	–	–	–	29.2 to 30.1	≥ 2.8	29.2 to 30.1	≥ 2.8
25.8 to 26.6	≥ 2.6	–	–	28.3 to 29.1	≥ 2.7	28.3 to 29.1	≥ 2.7
24.9 to 25.7	≥ 2.5	–	–	27.3 to 28.2	≥ 2.6	27.3 to 28.2	≥ 2.6
24.0 to 24.8	≥ 2.4	–	–	26.4 to 27.2	≥ 2.5	26.4 to 27.2	≥ 2.5
23.1 to 23.9	≥ 2.3	–	–	25.4 to 26.3	≥ 2.4	25.4 to 26.3	≥ 2.4
22.2 to 23.0	≥ 2.2	–	–	24.5 to 25.3	≥ 2.3	24.5 to 25.3	≥ 2.3
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1	23.5 to 24.4	≥ 2.2	23.5 to 24.4	≥ 2.2
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0	22.6 to 23.4	≥ 2.1	22.6 to 23.4	≥ 2.1
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9	21.6 to 22.5	≥ 2.0	21.6 to 22.5	≥ 2.0
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8	20.7 to 21.5	≥ 1.9	20.7 to 21.5	≥ 1.9
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7	19.7 to 20.6	≥ 1.8	19.7 to 20.6	≥ 1.8
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6	18.8 to 19.6	≥ 1.7	18.8 to 19.6	≥ 1.7
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5	17.8 to 18.7	≥ 1.6	17.8 to 18.7	≥ 1.6
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4	16.9 to 17.7	≥ 1.5	16.9 to 17.7	≥ 1.5
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3	15.9 to 16.8	≥ 1.4	15.9 to 16.8	≥ 1.4
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2	15.0 to 15.8	≥ 1.3	15.0 to 15.8	≥ 1.3
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1	14.0 to 14.9	≥ 1.2	14.0 to 14.9	≥ 1.2
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0	13.1 to 13.9	≥ 1.1	13.1 to 13.9	≥ 1.1
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9	12.1 to 13.0	≥ 1.0	12.1 to 13.0	≥ 1.0
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8	11.2 to 12.0	≥ 0.9	11.2 to 12.0	≥ 0.9
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7	10.2 to 11.1	≥ 0.8	10.2 to 11.1	≥ 0.8
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6	9.3 to 10.1	≥ 0.7	9.3 to 10.1	≥ 0.7
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5	8.3 to 9.2	≥ 0.6	8.3 to 9.2	≥ 0.6
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4	7.4 to 8.2	≥ 0.5	7.4 to 8.2	≥ 0.5
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3	6.4 to 7.3	≥ 0.4	6.4 to 7.3	≥ 0.4
< 5.1	≥ 0.2	< 5.1	≥ 0.2	< 6.4	≥ 0.3	< 6.4	≥ 0.3

Notes: Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

Corner Reservoirs

The determination of significant corner impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.31$, where Y is the decrease in pedestrian space in SFP and X is the No Action pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the With Action pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table K-11** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir impacts.

Table K-11
Significant Impact Guidance for Corners

Sliding Scale Formula: $Y \geq X/9.0 - 0.31$			
Non-CBD Areas		**CBD Areas**	
No Action Pedestrian Space (X, SFP)	**With Action Pedestrian Space Reduction (Y, SFP)**	**No Action Pedestrian Space (X, SFP)**	**With Action Pedestrian Space Reduction (Y, SFP)**
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2

Notes: Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high crash locations, where 48 or more total reportable and non-reportable crashes or 5 or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent 3-year period for which data are available. For these locations, crash trends are identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations. The determination of potential significant safety impacts depends on the type of area where a project site is located, traffic volumes, accident types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety are identified and coordinated with DOT for their approval.

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking

shortfall is likely to result from parking displacement attributable to or additional demand generated by a proposed project. Typically, this analysis encompasses a study area within a ¼-mile of a project site. If the analysis concludes a shortfall in parking within the ¼-mile study area, the study area could sometimes be extended to a ½-mile to identify additional parking supply. For proposed projects located in Manhattan or other CBD areas, the inability of a proposed project or the surrounding area to accommodate a project's future parking demand is considered a parking shortfall, but is generally not considered significant due to the magnitude of available alternative modes of transportation. For other areas in New York City, a parking shortfall that exceeds more than half the available on-street and off-street parking spaces within a ¼-mile of a project site may be considered significant. Additional factors, such as the availability and extent of transit in the area, proximity of a project to such transit, and patterns of automobile usage by area residents, could be considered to determine the significance of the identified parking shortfall. In some cases, if there is adequate parking supply within ½-mile of a project site, a projected parking shortfall may also not necessarily be considered significant.

D. DETAILED TRAFFIC ANALYSIS

As described above in Section B, "Preliminary Analysis Methodology and Screening Assessment," the intersection of Thomas S Boyland Street and Livonia Avenue has been selected for analysis in the weekday AM, midday, and PM peak hours.

2017 EXISTING CONDITIONS

ROADWAY NETWORK AND TRAFFIC STUDY AREA

The key roadways in the study area include Rockaway Avenue, Thomas S Boyland Street, Blake Avenue, Dumont Avenue, and Livonia Avenue. The physical and operational characteristics of the study area roadways are described below.

- Rockaway Avenue is a two-way northbound-southbound roadway that operates with one moving lane in each direction. Curbside parking is provided along both sides of the roadway.
- Thomas S Boyland Street is a local roadway that operates two-way northbound-southbound in the study area. It operates with one moving lane in each direction and with curbside parking provided along both sides of the roadway. In addition, Class-III shared bike lanes are also provided along the roadway in the study area.
- Blake Avenue is a local two-way eastbound-westbound roadway that operates with one moving lane in each direction and with curbside parking provided along both sides of the roadway. In addition, Class-III shared bike lanes are also provided along the roadway in the study area.
- Dumont Avenue is a local two-way eastbound-westbound roadway that operates with one moving in each direction and with curbside parking provided along both sides of the roadway.
- Livonia Avenue is a local two-way eastbound-westbound roadway that generally operates with one moving lane in each direction. Curbside parking is generally permitted along both sides of the roadway in the study area.

TRAFFIC CONDITIONS

Traffic data were collected in June 2017 for the weekday AM, midday, and PM peak periods via a combination of video and manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) counts. The 2017 existing peak period traffic volumes were developed based on these counts, which identified the weekday analysis peak hours to be 7:30 AM to 8:30 AM, 1:00 PM to

2:00 PM, and 4:15 PM to 5:15 PM. Inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were recorded to provide appropriate inputs for the operational analyses. Official signal timings were also obtained from DOT for use in the analysis of the study area signalized intersection. **Figures K-23 through K-25** show the 2017 existing traffic volumes for the weekday AM, midday, and PM peak hours, respectively.

LEVEL OF SERVICE

A summary of the 2017 existing conditions traffic analysis results are presented in **Table K-12**. Details on LOS, v/c ratios, and average delays are presented in **Table K-13**. Overall, the capacity analysis indicates that all the intersection approaches/lane groups would operate at acceptable LOS B for all peak hours.

Table K-12
Summary of 2017 Existing Traffic Analysis Results

LOS	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Lane Groups at LOS A/B/C	4	4	4
Lane Groups at LOS D	0	0	0
Lane Groups at LOS E	0	0	0
Lane Groups at LOS F	0	0	0
Total	4	4	4
Lane Groups with v/c ≥ 0.90	0	0	0

Table K-13
2017 Existing LOS Analysis Signalized Intersections

Intersection	Weekday AM				Weekday Midday				Weekday PM			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Livonia Avenue and Thomas S Boyland Street												
Eastbound	LTR	0.30	13.1	B	LTR	0.21	12.0	B	LTR	0.31	13.2	B
Westbound	LTR	0.25	12.5	B	LTR	0.25	12.5	B	LTR	0.28	12.9	B
Northbound	LTR	0.63	18.7	B	LTR	0.35	13.4	B	LTR	0.49	15.5	B
Southbound	LTR	0.46	15.1	B	LTR	0.31	12.9	B	LTR	0.51	15.9	B

Notes: L = Left Turn, T = Through, R = Right Turn

FUTURE WITHOUT THE PROPOSED PROJECT

The No Action condition was developed by increasing existing (2017) traffic levels by the expected growth in overall travel through and within the study area. As per *CEQR Technical Manual* guidelines, an annual background growth rate of 0.50 percent was assumed for the first 5 years (year 2017 to year 2022) and then 0.25 percent for the remaining years (year 2022 to year 2024). A total of 27 development projects expected to occur in the No Action condition (No Build projects) were identified as being planned for the ½-mile study area (see **Figure K-26**). However, some of these planned projects are modest in size and would be very modest traffic generators. After reviewing the development programs for each of the planned projects, it was determined that background growth will address the increase in traffic and pedestrian levels for 22 of the small- to moderate-sized projects in the study area. In addition, one of the projects would have no trip overlay with the selected analysis locations. For the other No Build projects, person and vehicle trips were estimated and incorporated into the No Action analyses. **Table K-14** and **Figure K-26** summarize the projects that were accounted for in this future 2024 No Action condition, including those that were considered as part of the study area background growth. And as discussed above in the "Level 1 Screening Assessment" section of Section B, "Preliminary Analysis Methodology

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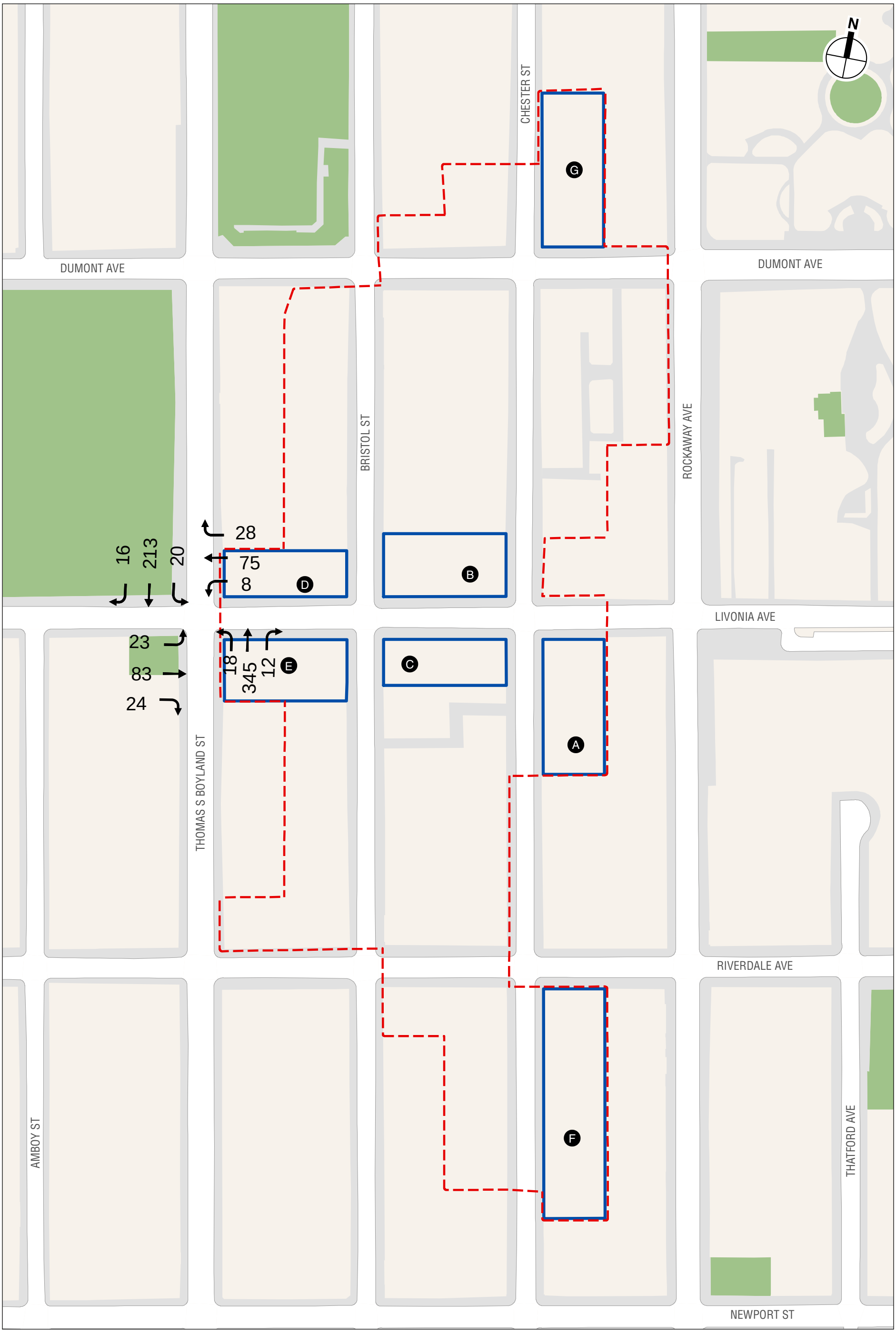

2017 Existing Traffic Volumes
Weekday AM Peak Hour

Figure K-23

Marcus Garvey Extension

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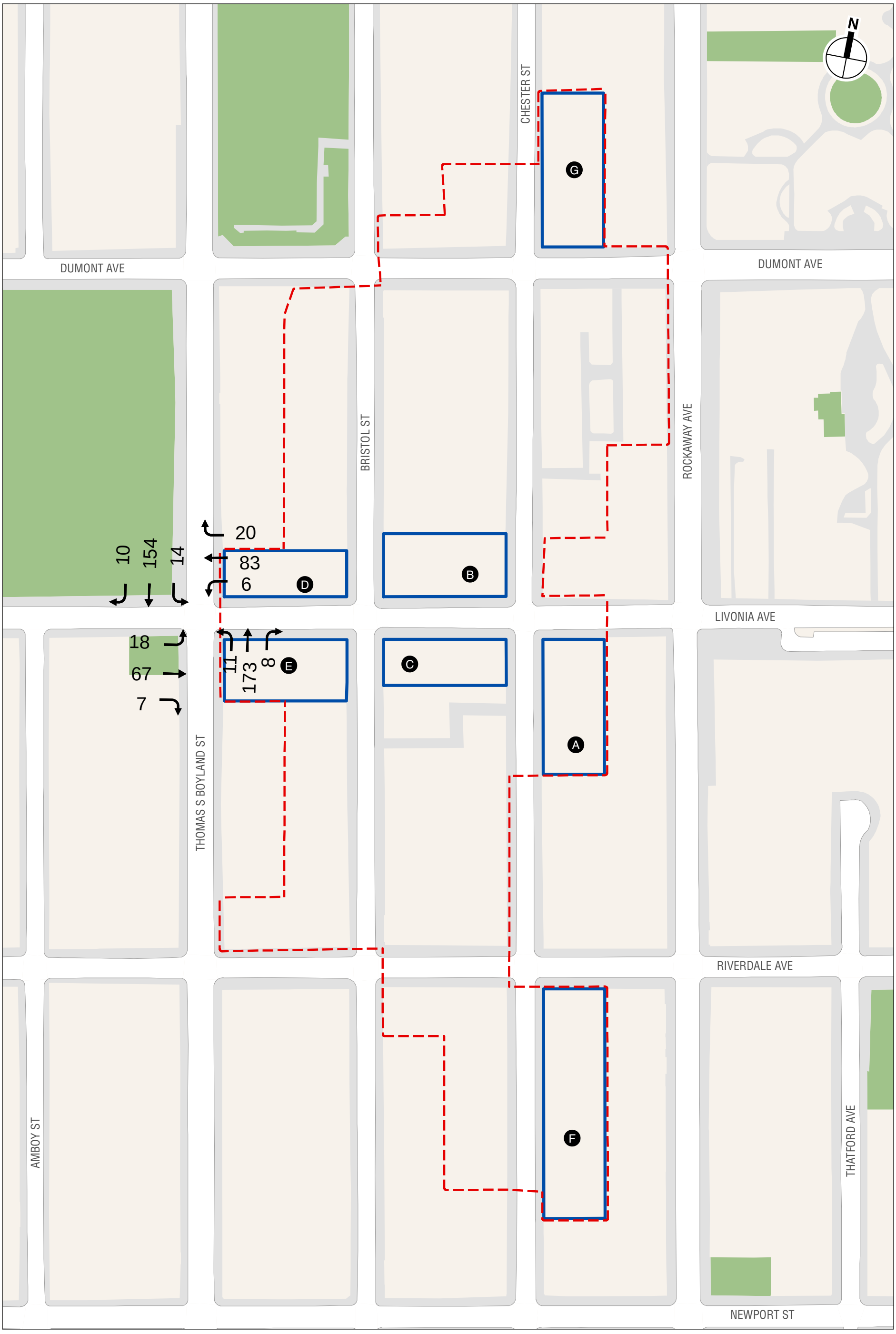

2017 Existing Traffic Volumes
Weekday Midday Peak Hour

Figure K-24

Marcus Garvey Extension

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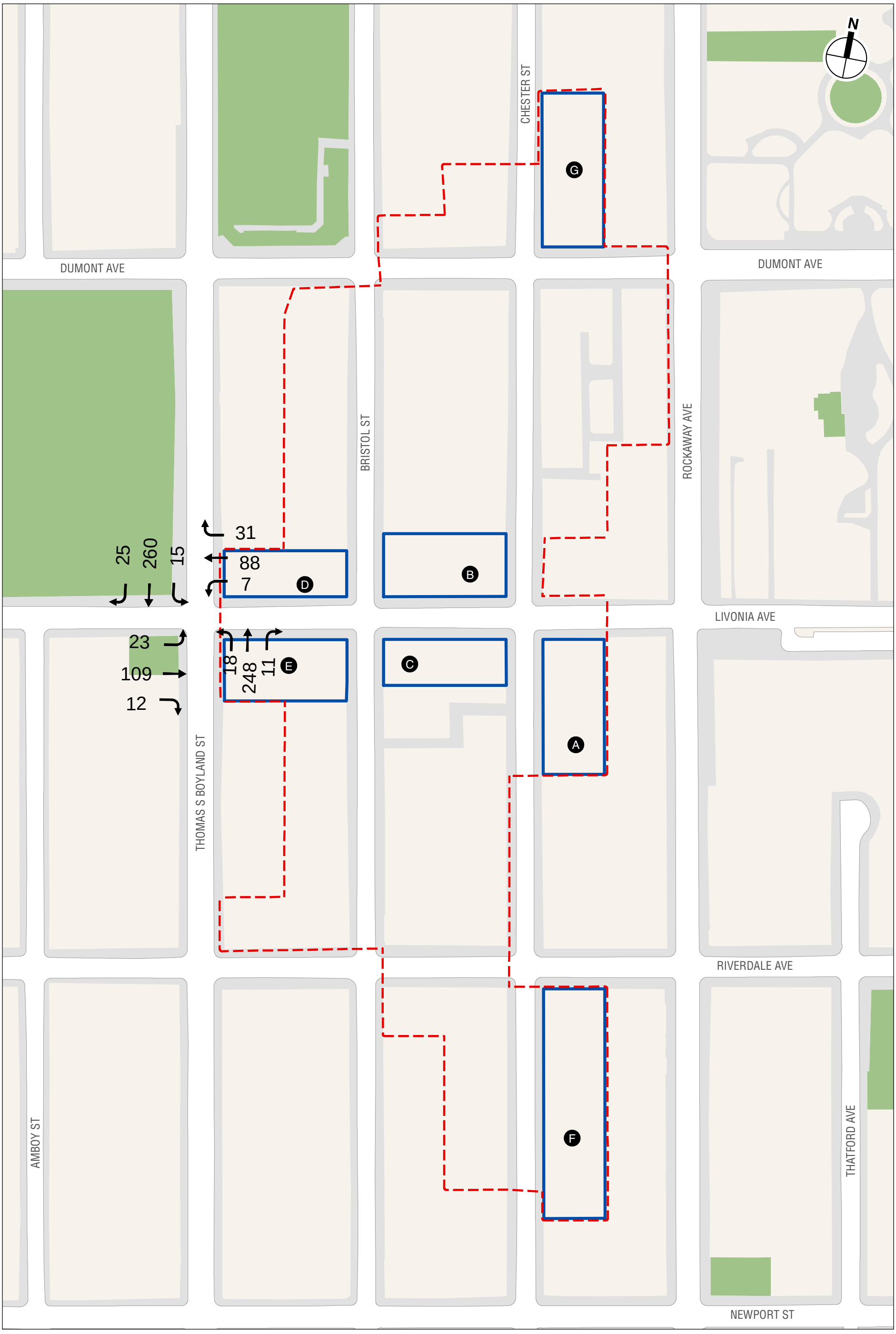
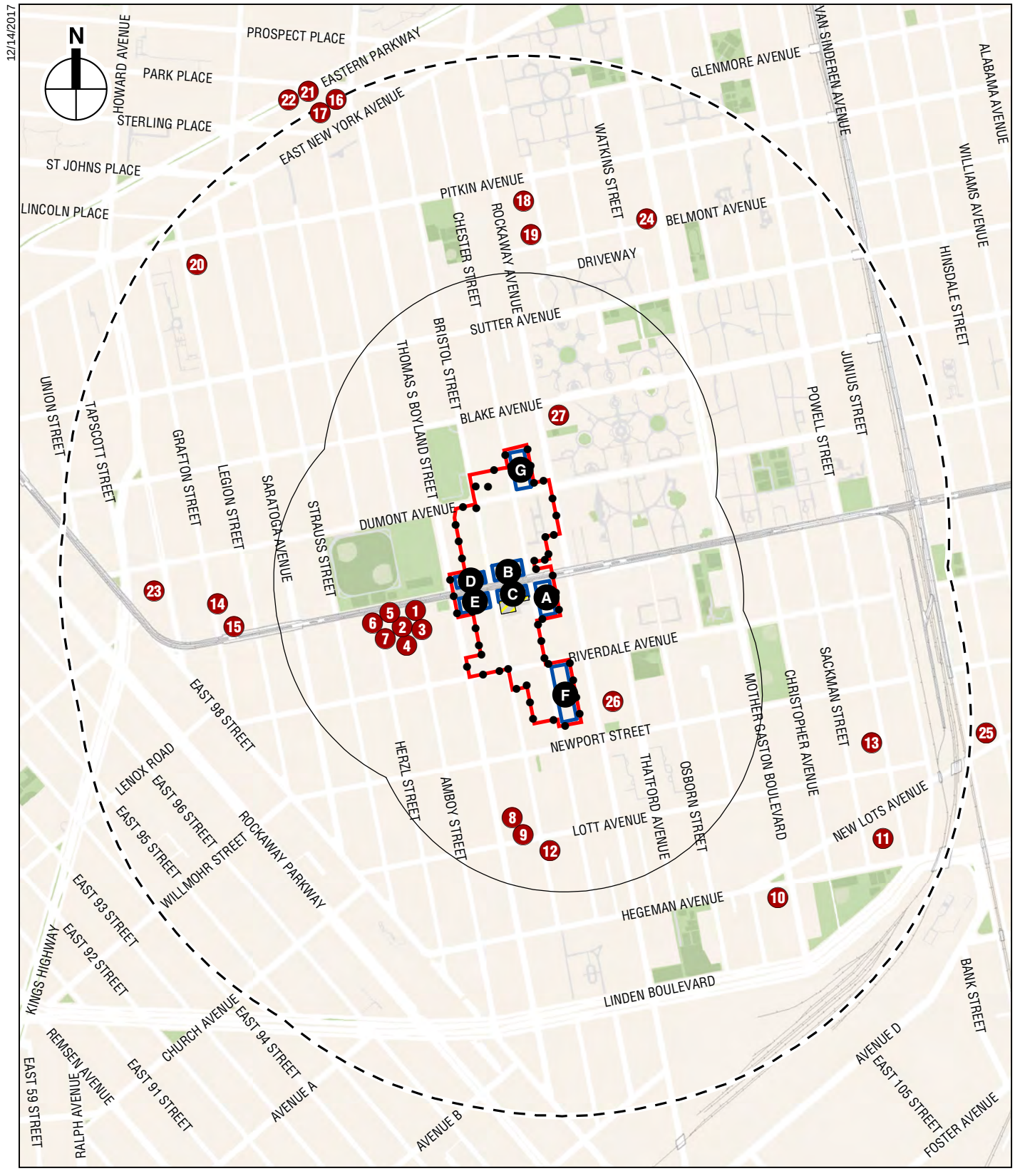


2017 Existing Traffic Volumes
Weekday PM Peak Hour

Figure K-25

Marcus Garvey Extension



Project Area

Project Sites

Study Area (Quarter-mile boundary)

Study Area (Half-mile boundary)

1 No Build Project

Proposed Large-Scale General Development (LSGD) Boundary

Lots not part of Project Area or LSGD

0 1,000 FEET

Marcus Garvey Extension

No Build Projects

Figure K-26

and Screening Assessment," absent the Proposed Project, the No Action development would be redeveloped with a mix of residential and community facility uses. The No Action development Project-generated vehicle trips are shown in **Figures K-3 through K-5**.

Table K-14
No Build Projects Expected to be Complete by 2024

Map Ref. No.[1]	Project Name / Address	Development Program	Transportation Assumptions	Status/ Build Year
Development Projects within ½-Mile				
1	342 Amboy Street	Residential: 7 DUs	Included in background growth	2024
2	138 Livonia Avenue	Residential: 7 DUs	Included in background growth	2024
3	136 Livonia Avenue	Residential: 7 DUs	Included in background growth	2024
4	134 Livonia Avenue	Residential: 7 DUs	Included in background growth	2024
5	132 Livonia Avenue	Residential: 6 DUs	Included in background growth	2024
6	130 Livonia Avenue	Residential: 6 DUs	Included in background growth	2024
7	128 Livonia Avenue	Residential: 6 DUs	Included in background growth	2024
8	101 Lott Avenue	Residential: 6 DUs	Included in background growth	2024
9	99 Lott Avenue	Residential: 9 DUs	Included in background growth	2024
10	214 Hegeman Avenue	Community facility building with 71 supportive DUs	Included in background growth	2024
11	96 New Lots Avenue	Mixed-use building including approximately 500 DUs, 7,703 sf of retail, and 34,315 sf of community facility (church) space	Transportation assumptions from *CEQR Technical Manual*, *East New York Rezoning Proposal FEIS*, DOT Trip Generation and Mode Choice Survey and U.S. Census 2011–2015 ACS JTW estimates.	2024
12	545 Bristol Street	Residential: 4 DUs	Included in background growth	2024
13	596 Powell Street	Residential: 8 DUs	Included in background growth	2024
14	255 Grafton Street	Residential: 8 DUs	Included in background growth	2024
15	275 Grafton Street	Residential: 6 DUs	Included in background growth	2024
16	1900 Park Place	Residential: 17 DUs	Included in background growth	2024
17	416 Thomas S Boyland Street	Residential: 8 DUs	Included in background growth	2024
18	98 Thatford Avenue	Mixed-use building including 6 DUs and 2,000 sf of retail	Included in background growth	2024
19	120 Thatford Avenue	Hotel: 53 rooms	Transportation assumptions from *CEQR Technical Manual* and *East New York Rezoning Proposal FEIS*	2024
20	25 Legion Street	Mixed-use building with 10 DUs and 2,731 sf of retail	Included in background growth	2024
21	1598 Eastern Parkway	Residential: 8 DUs	Included in background growth	2024
22	1600 Eastern Parkway	Residential: 8 DUs	Included in background growth	2024
23	802 Howard Avenue	Mixed-use building including 10 DUs and 1,518 sf of community facility space	Included in background growth	2024
24	410 Mother Gaston Boulevard	Community facility: 9,760 sf	Included in background growth	2024
25	677 Van Sinderen	Mixed-use building with approximately 102 DUs and 16,020 sf of ground-floor retail	Not expected to travel through study area analysis locations	2024
26	803 Rockaway Avenue Rezoning	Mixed-use development including approximately 200 DUs, 62 supportive housing units, 11,471 sf of retail, 29,351 sf of community facility space, and 39,000 sf of light manufacturing	Transportation assumptions from *CEQR Technical Manual*, *East New York Rezoning Proposal FEIS*, DOT Trip Generation and Mode Choice Survey, U.S. Census 2012–2016 ACS JTW estimates and U.S. Census ACS 2006–2010 Reverse JTW estimates.	2024
27	589 Rockaway Avenue	Alteration for conversion of existing three-story building to a five-story health care and school facility. Assumed 29,143 sf of medical office and a 200-seat elementary school	Transportation assumptions from *CEQR Technical Manual*, *East New York Rezoning Proposal FEIS*, U.S. Census 2006–2010 ACS Reverse JTW estimates.	2024

Note: [1] See **Figure K-26.**

TRAFFIC OPERATIONS

The No Action condition traffic volumes are shown in **Figures K-27 through K-29** for the weekday AM, midday, and PM peak hours. The No Action condition traffic volumes were projected by layering the background growth, trips generated by discrete No Build projects in the

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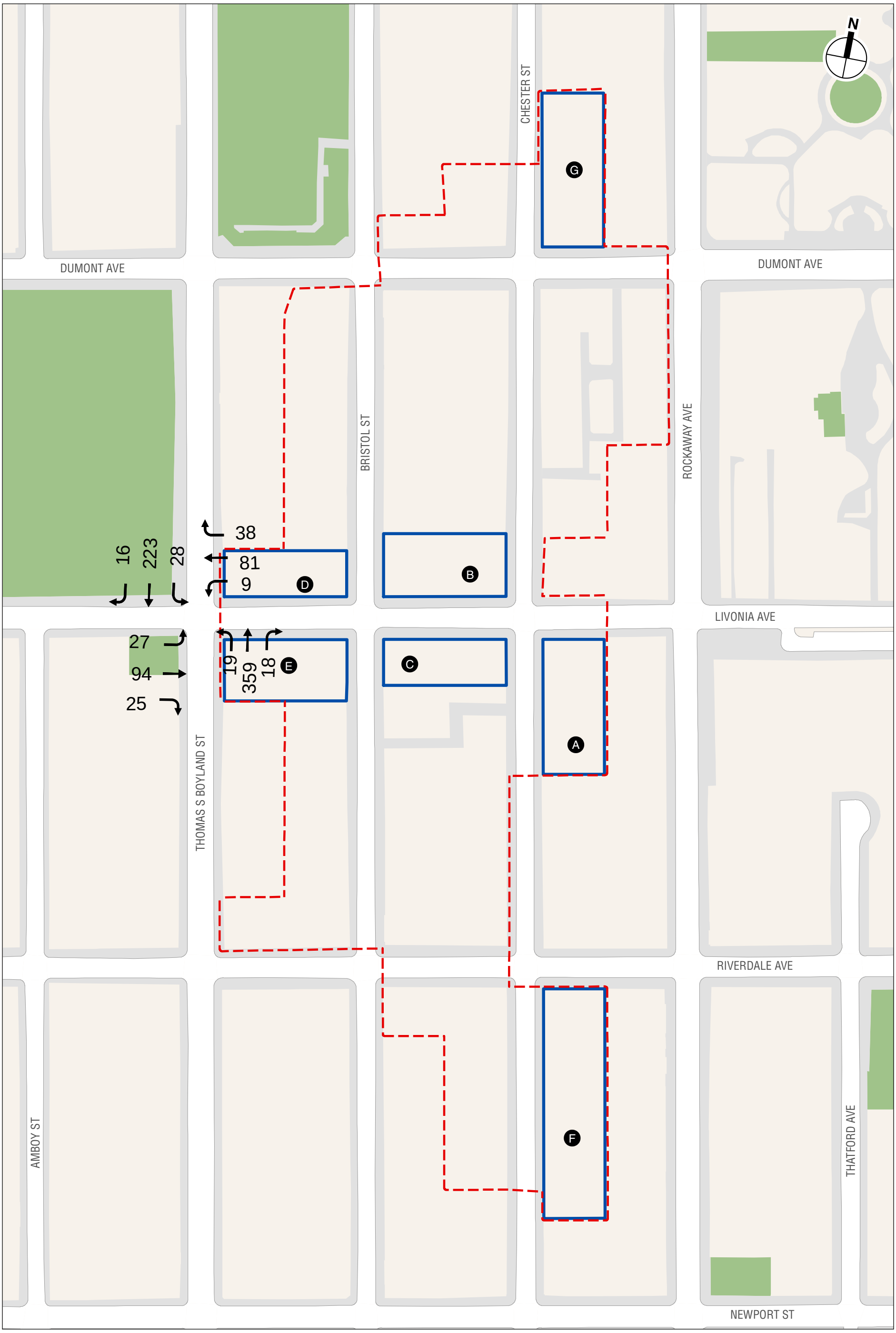
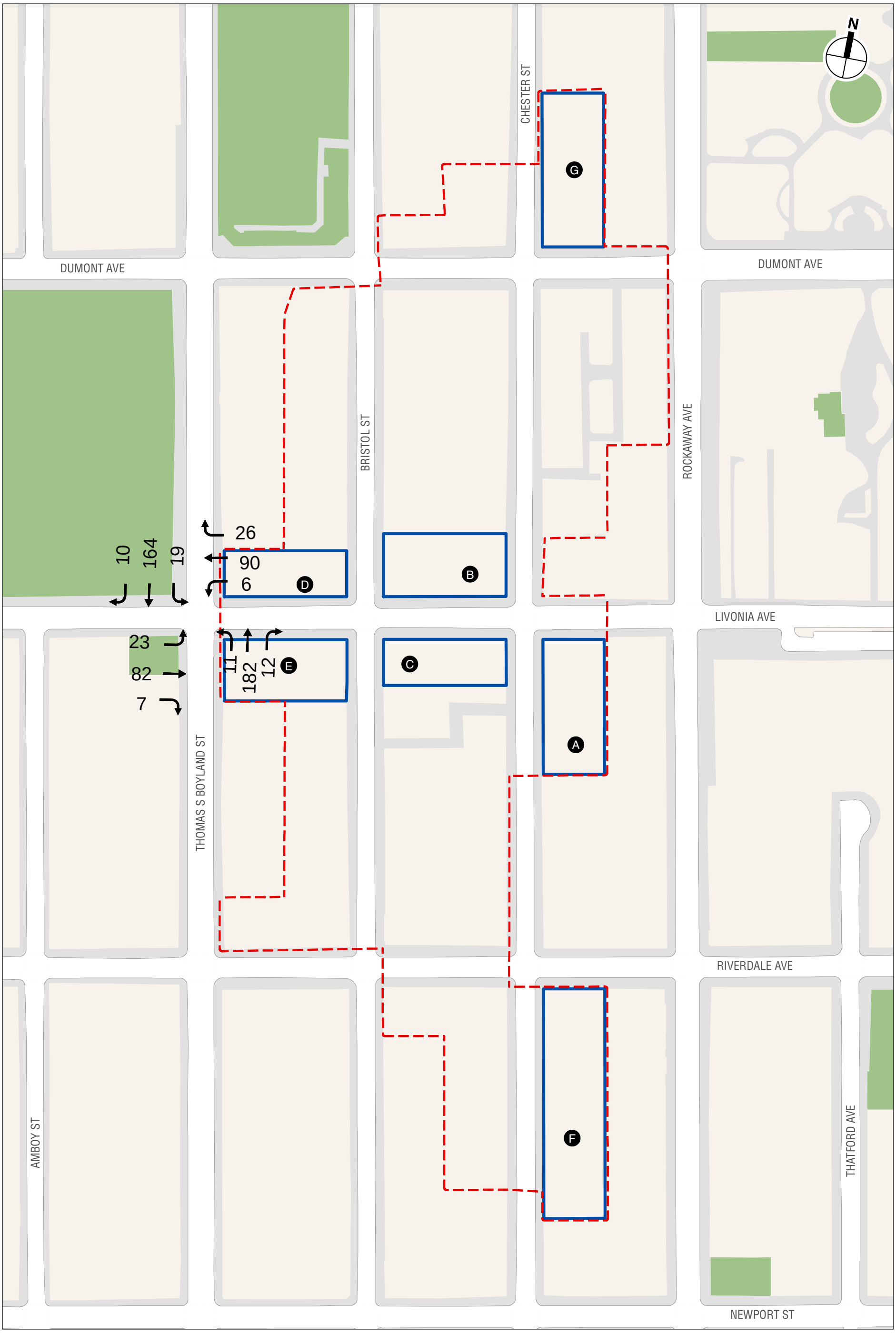


2024 No Action Traffic Volumes
Weekday AM Peak Hour

Figure K-27

Marcus Garvey Extension

5/30/2018



Project Sites

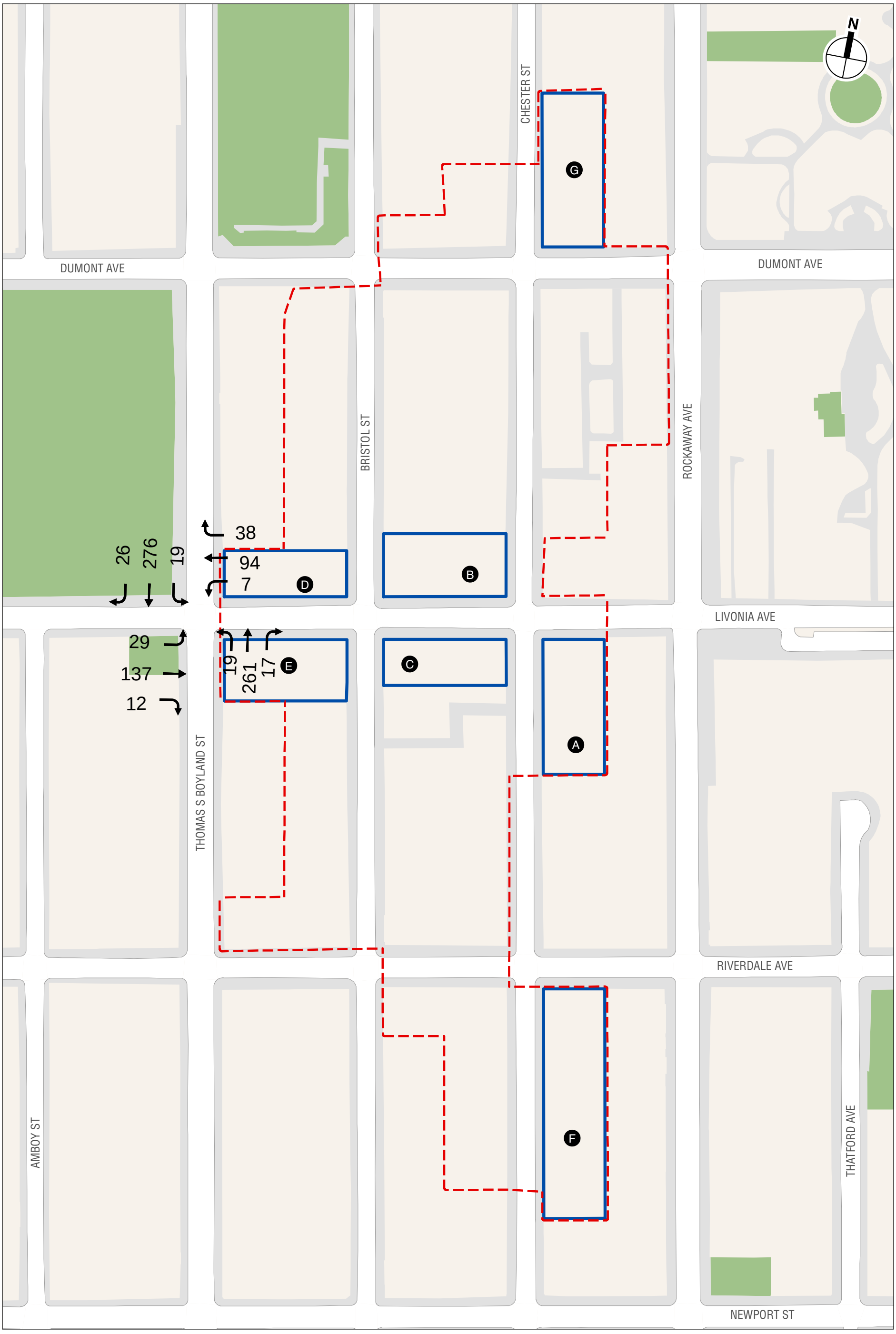
Project Area / Proposed Large-Scale General Development Boundary

2024 No Action Traffic Volumes
Weekday Midday Peak Hour

Figure K-28

Marcus Garvey Extension

5/30/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

2024 No Action Traffic Volumes
Weekday PM Peak Hour

Figure K-29

Marcus Garvey Extension

area, and incremental trips from the No Action development on top of the existing traffic volumes. A summary of the 2024 No Action condition traffic analysis results is presented in **Table K-15**. Details on LOS, v/c ratios, and average delays are presented in **Table K-16**.

Table K-15
Summary of 2024 No Action Traffic Analysis Results

LOS	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Lane Groups at LOS A/B/C	4	4	4
Lane Groups at LOS D	0	0	0
Lane Groups at LOS E	0	0	0
Lane Groups at LOS F	0	0	0
Total	4	4	4
Lane Groups with v/c ≥ 0.90	0	0	0

Table K-16
2017 Existing and 2024 No Action LOS Analysis Signalized Intersections

	Weekday AM								Weekday Midday								Weekday PM							
	Existing				No Action				Existing				No Action				Existing				No Action			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Livonia Avenue and Thomas S Boyland Street																								
Eastbound	LTR	0.30	13.1	B	LTR	0.34	13.7	B	LTR	0.21	12.0	B	LTR	0.26	12.5	B	LTR	0.31	13.2	B	LTR	0.39	14.2	B
Westbound	LTR	0.25	12.5	B	LTR	0.29	13.0	B	LTR	0.25	12.5	B	LTR	0.28	12.8	B	LTR	0.28	12.9	B	LTR	0.32	13.3	B
Northbound	LTR	0.63	18.7	B	LTR	0.68	20.0	B	LTR	0.35	13.4	B	LTR	0.37	13.7	B	LTR	0.49	15.5	B	LTR	0.53	16.2	B
Southbound	LTR	0.46	15.1	B	LTR	0.51	16.1	B	LTR	0.31	12.9	B	LTR	0.34	13.3	B	LTR	0.51	15.9	B	LTR	0.55	16.7	B

Notes: L = Left Turn, T = Through, R = Right Turn

Based on the analysis results presented in **Table K-16**, all approaches/lane-groups in the No Action condition will operate at the same acceptable LOS as in the existing conditions.

FUTURE WITH THE PROPOSED PROJECT

In the With Action condition, the seven Project Sites would be developed with approximately 850 DUs, 98,000 gsf of community facility, 35,000 gsf of local retail, and 24 accessory parking spaces. This would result in increments of approximately 400 DUs, 35,000 gsf of local retail, 34,000 gsf of community facility (medical office and general community center), and approximately -500 accessory parking spaces over the No Action condition. The Proposed Project would result in approximately 97, 137, and 149 incremental vehicle trips during the weekday AM, midday, and PM peak hours, respectively. The incremental auto trips were assigned to the Project Sites. Taxi trips were distributed to various curbsides facing the Project Sites. Delivery trips were assigned to the Project Sites via DOT-designated truck routes.

TRAFFIC OPERATIONS

The 2024 With Action condition traffic volumes are shown in **Figures K-30 through K-32** for the weekday AM, midday, and PM peak hours. The 2024 With Action traffic volumes were constructed by layering on top of the No Action condition traffic volumes the incremental vehicle trips shown in **Figures K-9 through K-11**.

A summary of the 2024 With Action condition traffic analysis results is presented in **Table K-17**. Detailed on LOS, v/c ratios, and average delays are presented in **Table K-18**. As shown in **Table K-18**, the Proposed Project would not result in any significant adverse traffic impacts.

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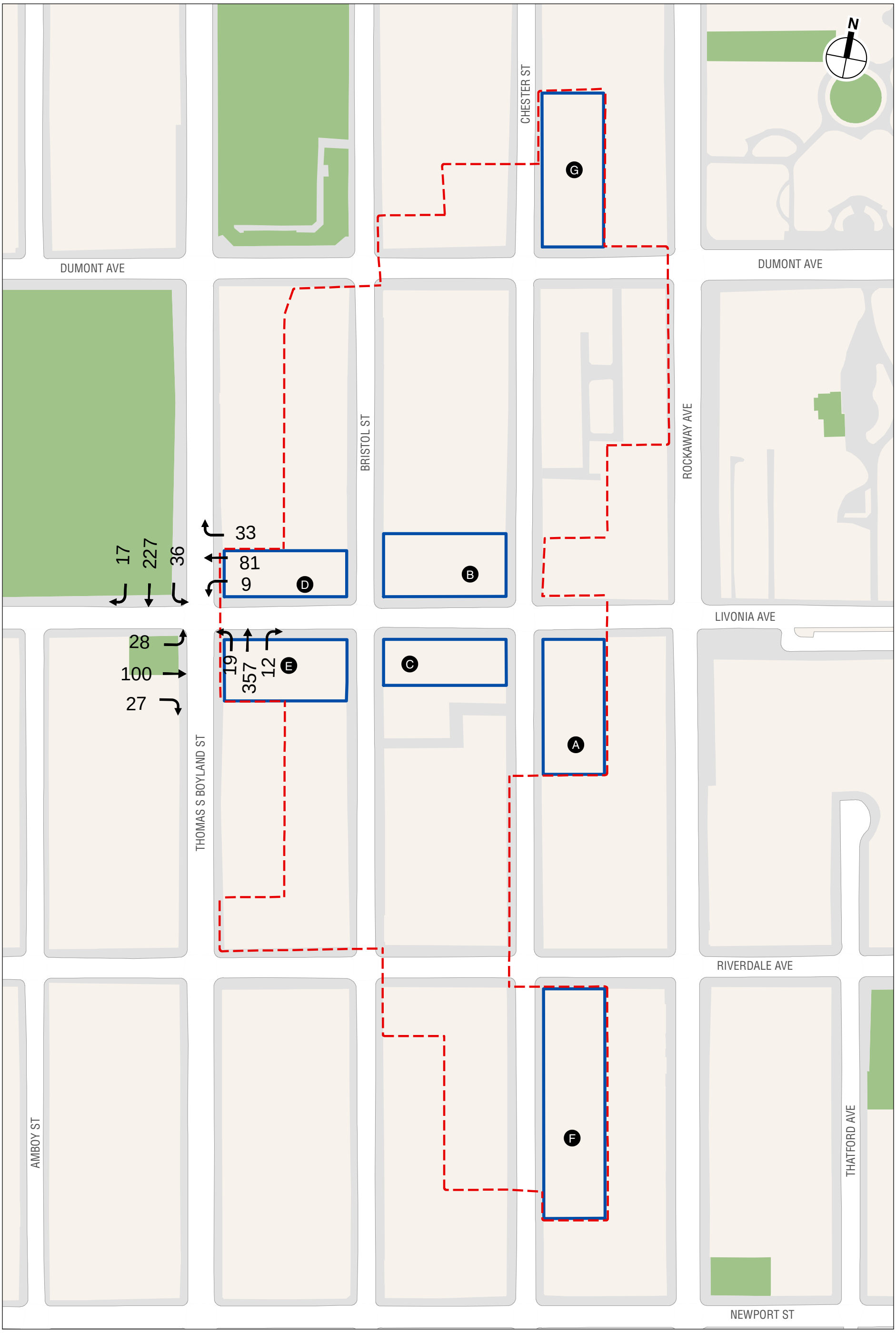

Project Sites

Project Area / Proposed Large-Scale General Development Boundary

2024 With Action Traffic Volumes
Weekday AM Peak Hour

Figure K-30

Marcus Garvey Extension

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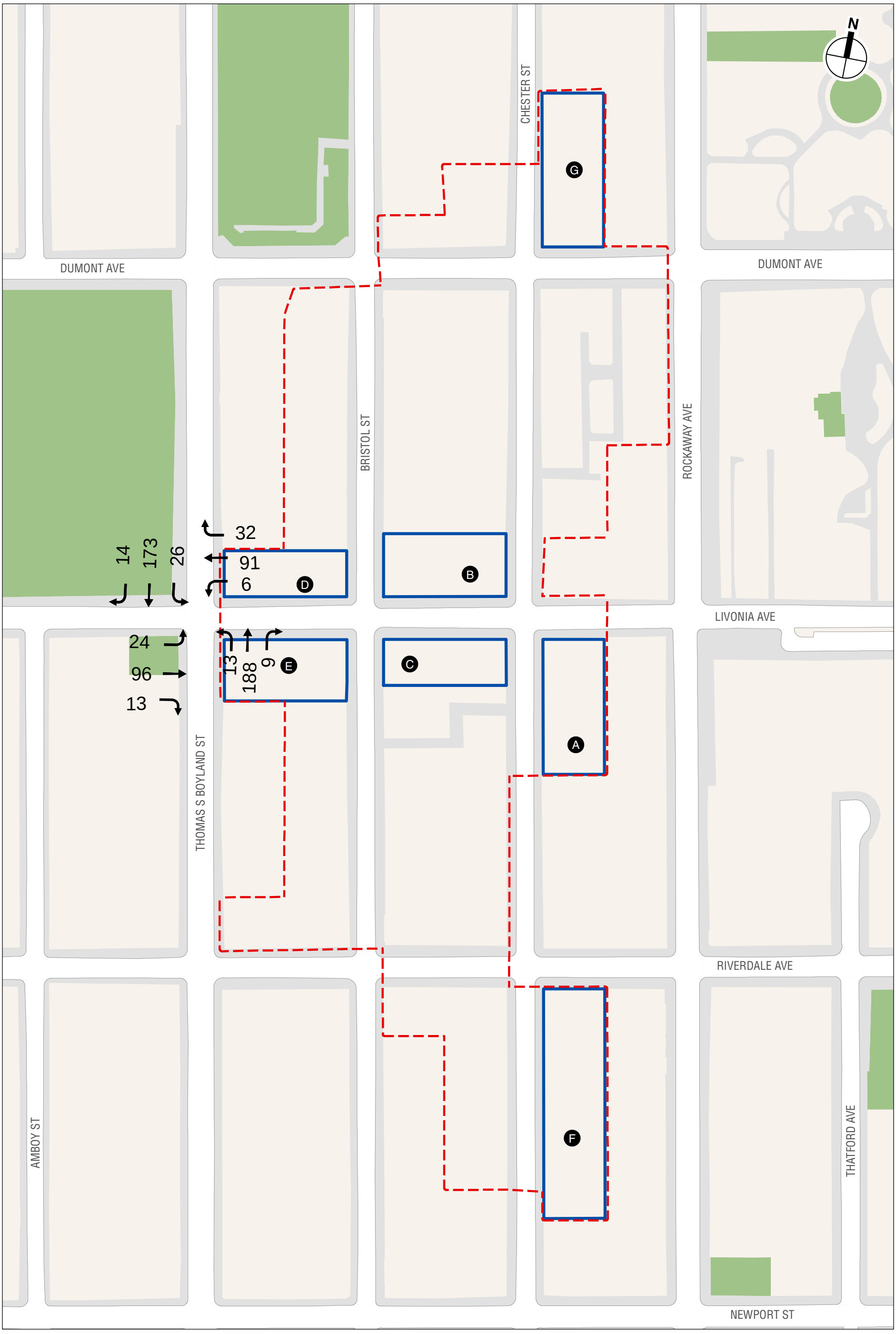

Project Sites

Project Area / Proposed Large-Scale General Development Boundary

2024 With Action Traffic Volumes
Weekday Midday Peak Hour

Figure K-31

Marcus Garvey Extension

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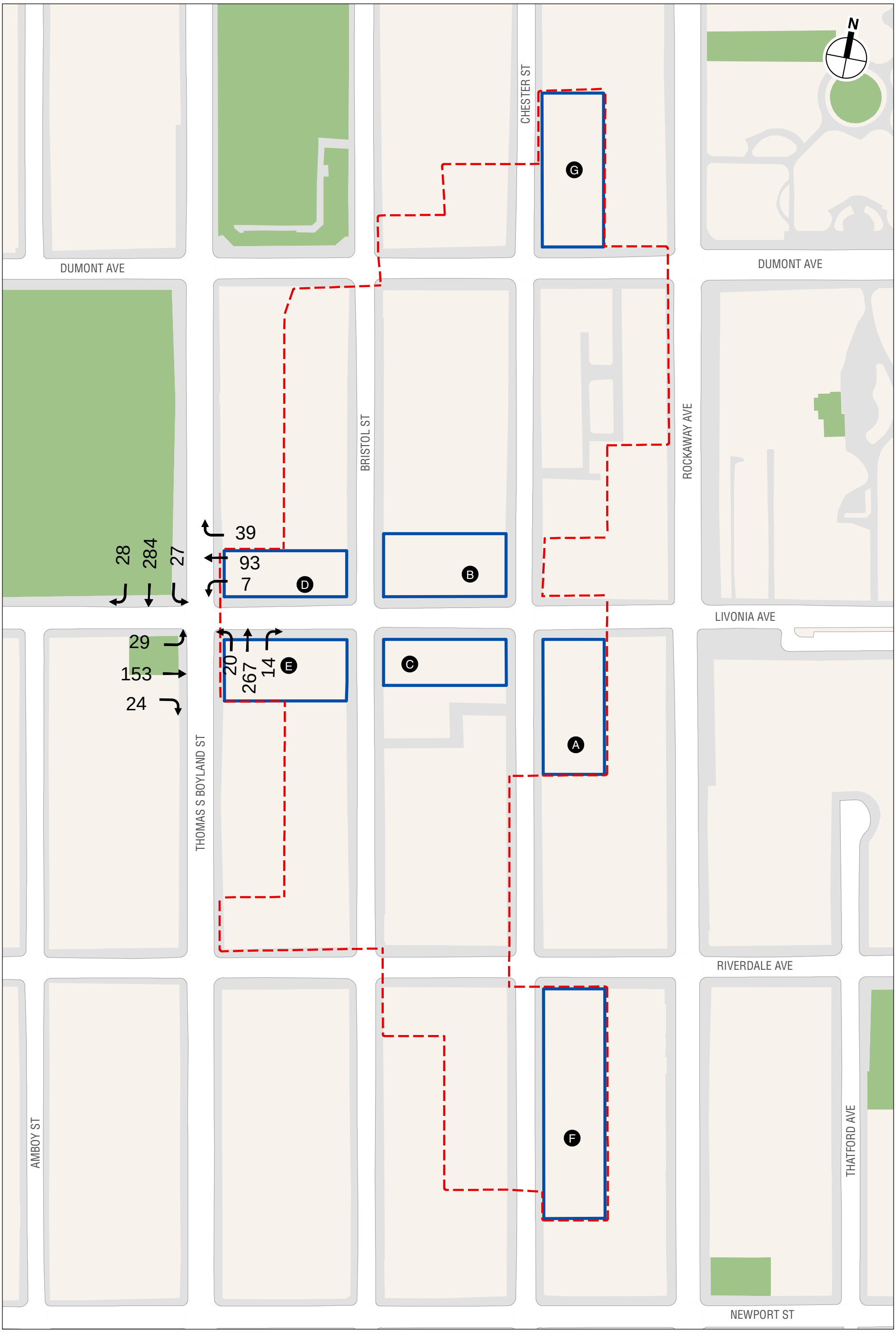

Project Sites

Project Area / Proposed Large-Scale General Development Boundary

2024 With Action Traffic Volumes
Weekday PM Peak Hour

Figure K-32

Marcus Garvey Extension

Table K-17
Summary of 2024 With Action Traffic Analysis Results

LOS	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Lane Groups at LOS A/B/C	4	4	4
Lane Groups at LOS D	0	0	0
Lane Groups at LOS E	0	0	0
Lane Groups at LOS F	0	0	0
Total	4	4	4
Lane Groups with v/c ≥ 0.90	0	0	0
Number of impacted intersections	0	0	0

Table K-18
2024 No Action and With Action LOS Analysis Signalized Intersections

Intersection	Weekday AM								Weekday Midday								Weekday PM							
	No Action				With Action				No Action				With Action				No Action				With Action			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Livonia Avenue and Thomas S Boyland Street																								
Eastbound	LTR	0.34	13.7	B	LTR	0.37	14.0	B	LTR	0.26	12.5	B	LTR	0.31	13.2	B	LTR	0.39	14.2	B	LTR	0.46	15.3	B
Westbound	LTR	0.29	13.0	B	LTR	0.28	12.9	B	LTR	0.28	12.8	B	LTR	0.30	13.2	B	LTR	0.32	13.3	B	LTR	0.32	13.3	B
Northbound	LTR	0.68	20.0	B	LTR	0.66	19.5	B	LTR	0.37	13.7	B	LTR	0.38	13.9	B	LTR	0.53	16.2	B	LTR	0.54	16.4	B
Southbound	LTR	0.51	16.1	B	LTR	0.55	16.9	B	LTR	0.34	13.3	B	LTR	0.39	14.0	B	LTR	0.55	16.7	B	LTR	0.60	17.8	B

Notes: L = Left Turn, T = Through, R = Right Turn

E. DETAILED PEDESTRIAN ANALYSIS

As described above in Section B, "Preliminary Analysis Methodology and Screening Assessment," Level 1 and Level 2 screening analyses were prepared to identify the pedestrian elements warranted a detailed analysis. Based on the assignment of pedestrian trips, seven sidewalks and three corners were selected for analysis for the weekday AM, midday, and PM peak hours.

2017 EXISTING CONDITIONS

Pedestrian data were collected in June 2017 in accordance with procedures outlined in the *CEQR Technical Manual* during the weekday hours of 7:00 AM to 10:00 AM, 11:00 AM to 2:00 PM, and 4:00 PM to 7:00 PM.

STREET-LEVEL PEDESTRIAN OPERATIONS

Based on the collected data, the analysis peak hours were determined to be during the weekday hours of 8:30 AM to 9:30 AM, 1:00 PM to 2:00 PM, and 5:30 PM to 6:30 PM.

The existing peak-hour pedestrian volumes are shown in **Figures K-33 through K-35**. A summary of the 2017 existing conditions pedestrian analysis results is presented in **Table K-19**. As shown in **Tables K-20 and K-21**, the sidewalk and corner analysis locations currently operate at favorable LOS A.

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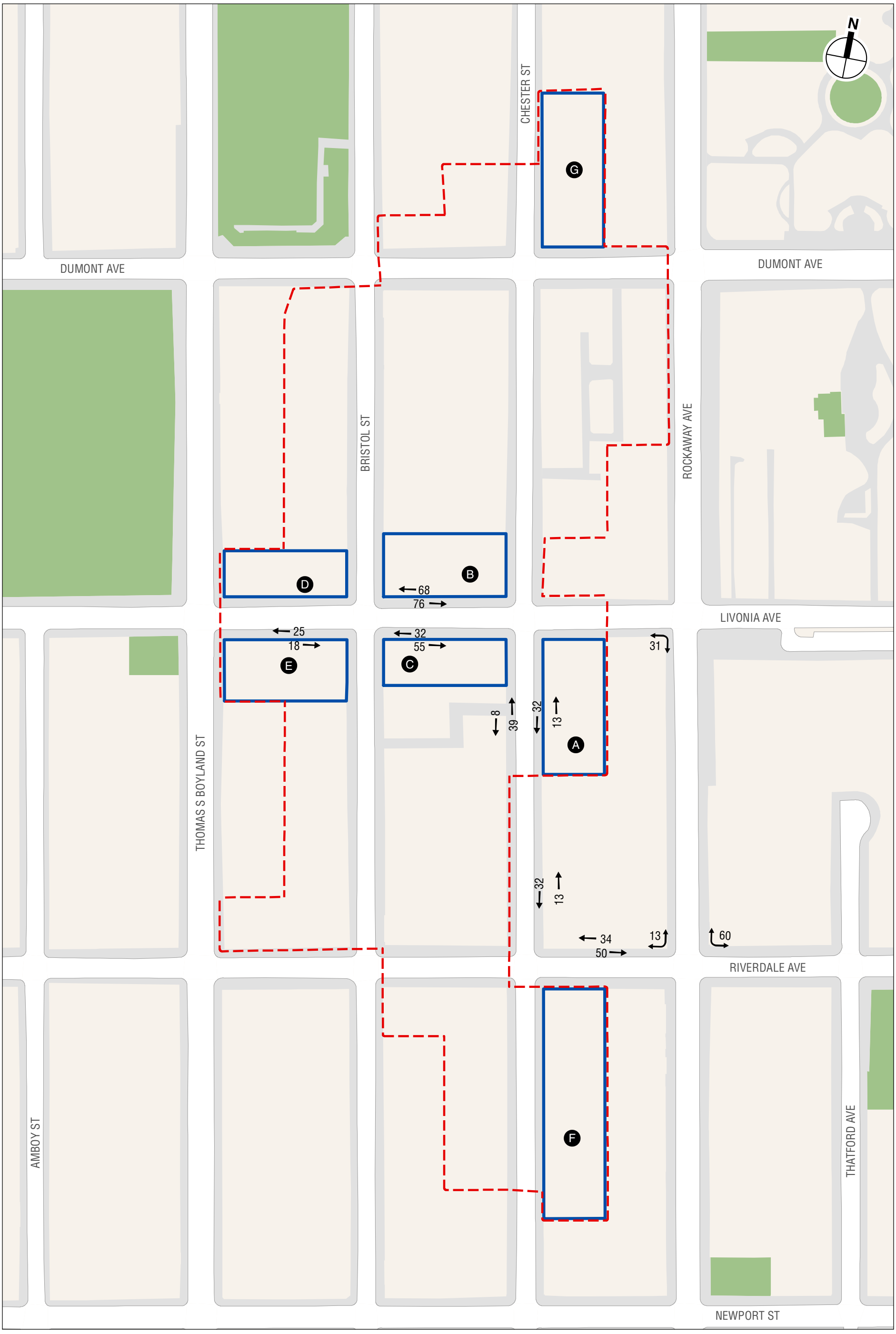
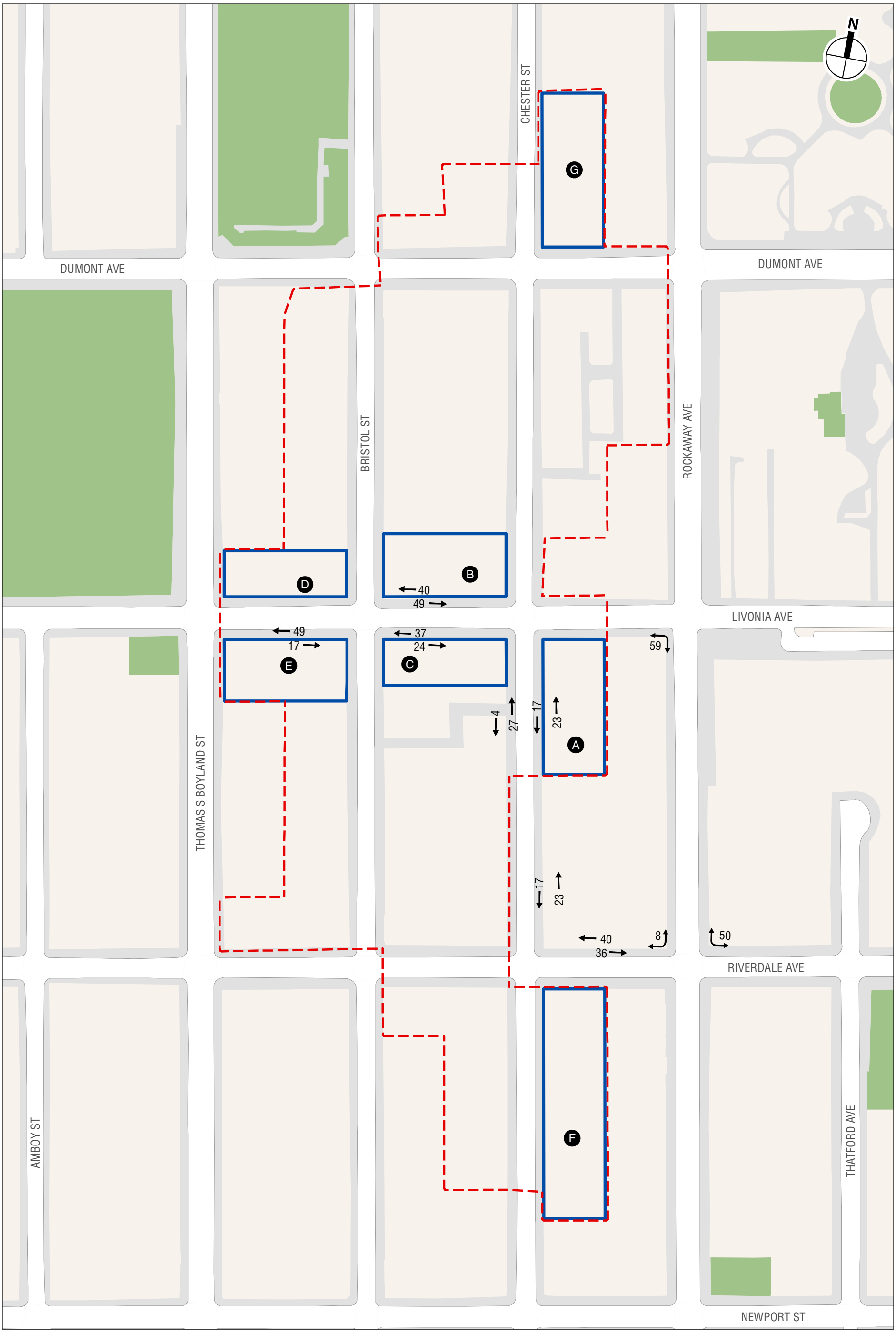


2017 Existing Pedestrian Volumes
Weekday AM Peak Hour

Figure K-33

Marcus Garvey Extension

5/30/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

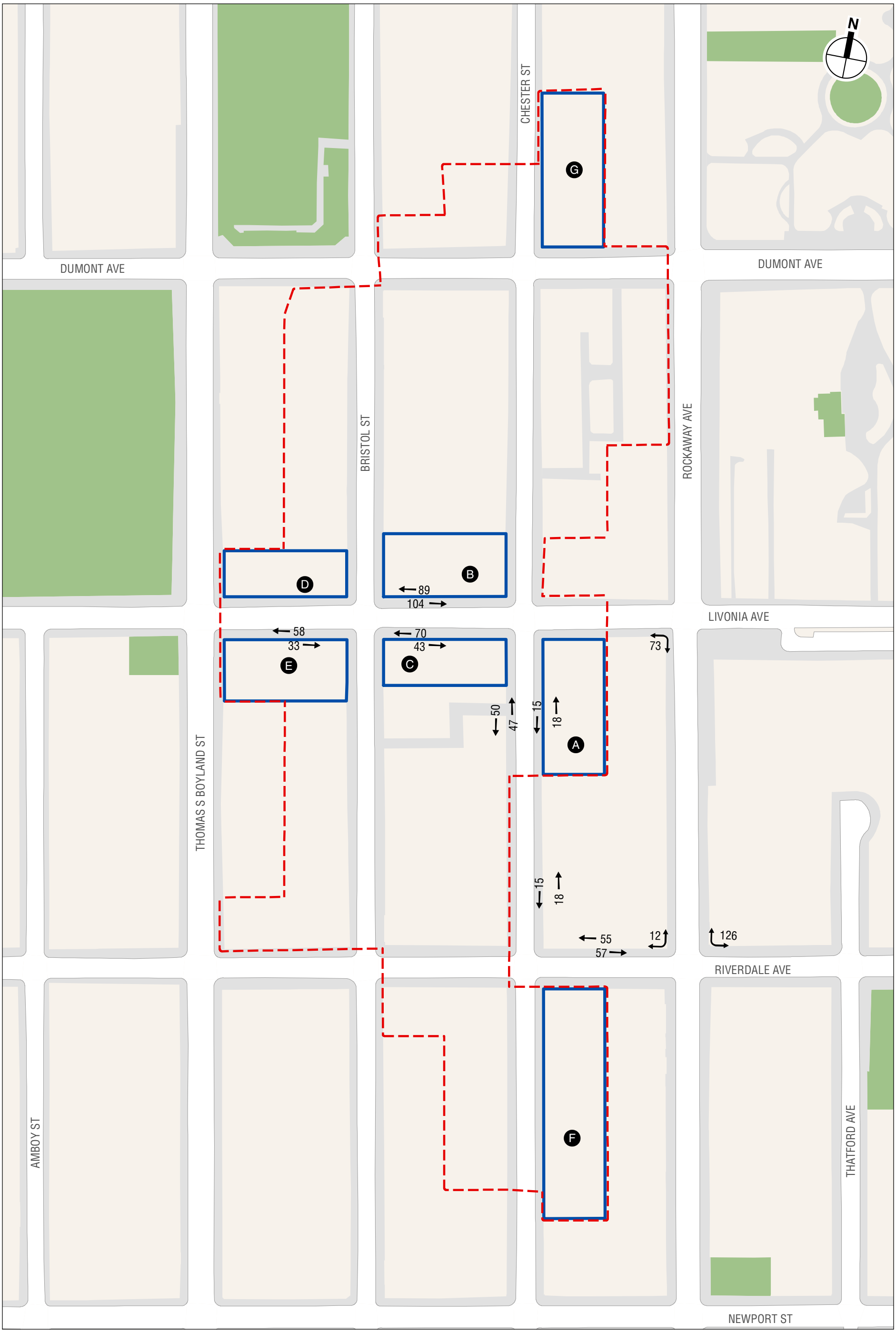
0 400 FEET

2017 Existing Pedestrian Volumes
Weekday Midday Peak Hour

Figure K-34

Marcus Garvey Extension

5/30/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

0 400 FEET

2017 Existing Pedestrian Volumes
Weekday PM Peak Hour
Figure K-35

Marcus Garvey Extension

Table K-19
Summary of 2017 Existing Pedestrian Analysis Results

LOS	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Sidewalks			
Sidewalks at LOS A/B/C	7	7	7
Sidewalks at LOS D	0	0	0
Sidewalks at LOS E	0	0	0
Sidewalks at LOS F	0	0	0
Total	7	7	7
Corner Reservoirs			
Corners at LOS A/B/C	3	3	3
Corners at LOS D	0	0	0
Corners at LOS E	0	0	0
Corners at LOS F	0	0	0
Total	3	3	3

Table K-20
2017 Existing Conditions: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	84	0.68	1,277.38	A
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	144	0.88	1,062.39	A
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	87	0.75	1,638.59	A
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	47	0.84	1,979.97	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	45	0.63	1,429.96	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	45	0.63	1,429.96	A
South Side of Livonia Avenue between Bristol Street and Thomas S Boyland Street	South	12.0	43	0.90	3,959.99	A
Weekday Midday Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	76	0.95	1,979.97	A
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	89	0.97	1,893.88	A
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	61	0.85	2,639.98	A
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	31	0.65	2,309.98	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	40	0.71	1,838.54	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	40	0.71	1,838.54	A
South Side of Livonia Avenue between Bristol Street and Thomas S Boyland Street	South	12.0	66	0.92	2,639.98	A
Weekday PM Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	112	0.97	1,365.48	A
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	193	0.89	806.60	A
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	113	0.69	1,158.98	A
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	97	0.71	815.23	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	33	0.69	2,144.97	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	33	0.69	2,144.97	A
South Side of Livonia Avenue between Bristol Street and Thomas S Boyland Street	South	12.0	91	0.91	1,900.77	A

Table K-21
2017 Existing Conditions: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS
Rockaway Avenue and Livonia Avenue	Southwest	603.70	A	373.83	A	251.58	A
Rockaway Avenue and Riverdale Avenue	Northwest	1,128.05	A	922.58	A	589.78	A
	Northeast	462.27	A	594.22	A	334.37	A

FUTURE WITHOUT THE PROPOSED PROJECT

The 2024 No Action pedestrian volumes were estimated by increasing existing pedestrian levels to reflect expected growth in overall travel through and within the study area. As per CEQR guidelines, an annual background growth rate of 0.50 percent was assumed for 2017 to 2022, and an annual background growth rate of 0.25 percent was assumed for 2022 to 2024. Pedestrian volumes from projects that are anticipated to be completed in the study area (including the No Action development) were added to determine the No Action condition pedestrian volumes. The 2024 No Action pedestrian volumes for the weekday AM, midday, and PM peak hours are shown in **Figures K-36 through K-38**.

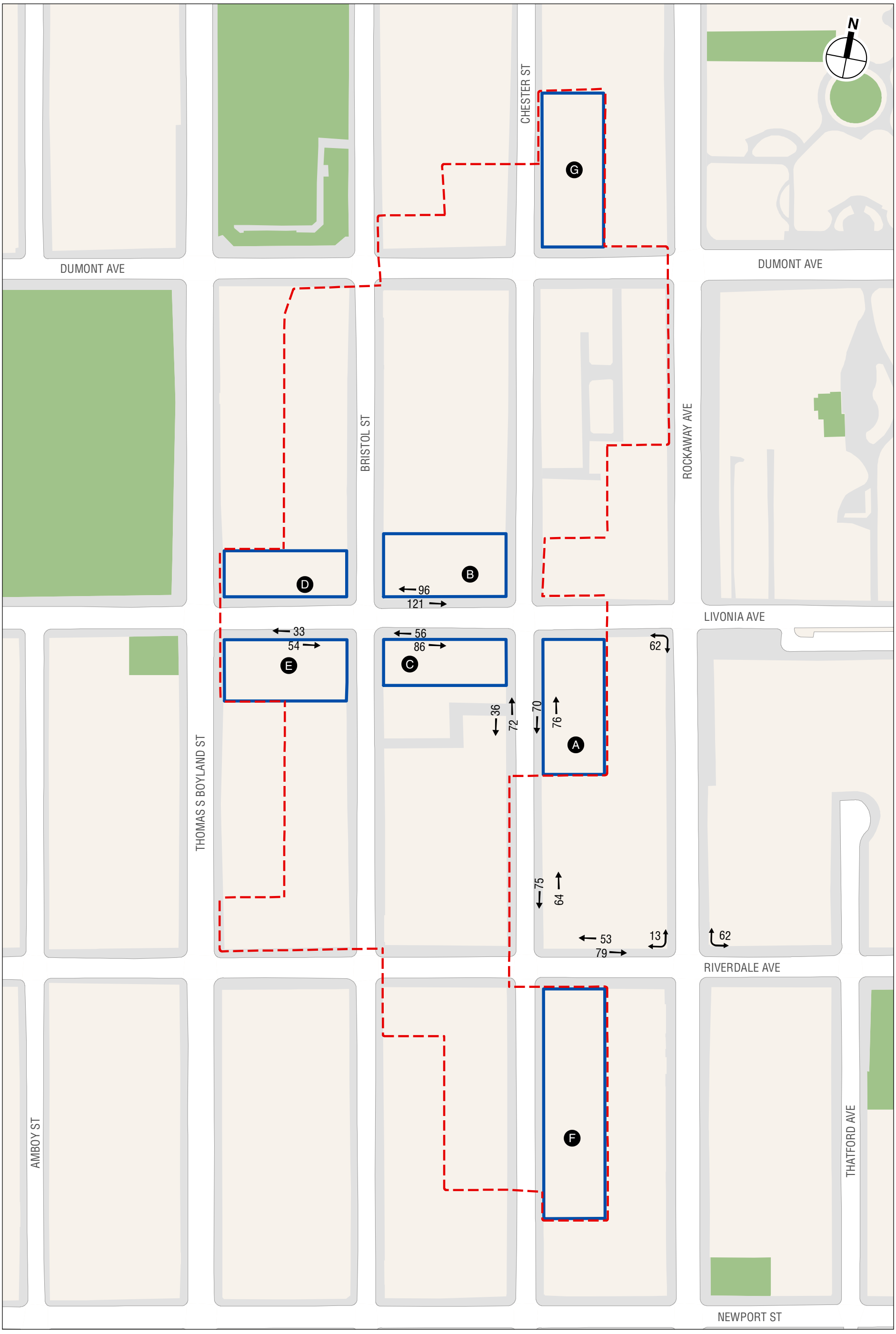
STREET-LEVEL PEDESTRIAN OPERATIONS

A summary of the 2024 No Action condition pedestrian analysis results is presented in **Table K-22**. As shown in **Tables K-23 and K-24**, all sidewalk and corner analysis locations will operate at favorable LOS A or B service levels in the 2024 No Action condition during all three analysis peak hours.

Table K-22
Summary of 2024 No Action Pedestrian Analysis Results

LOS	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Sidewalks			
Sidewalks at LOS A/B/C	7	7	7
Sidewalks at LOS D	0	0	0
Sidewalks at LOS E	0	0	0
Sidewalks at LOS F	0	0	0
Total	7	7	7
Corner Reservoirs			
Corners at LOS A/B/C	3	3	3
Corners at LOS D	0	0	0
Corners at LOS E	0	0	0
Corners at LOS F	0	0	0
Total	3	3	3

5/30/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

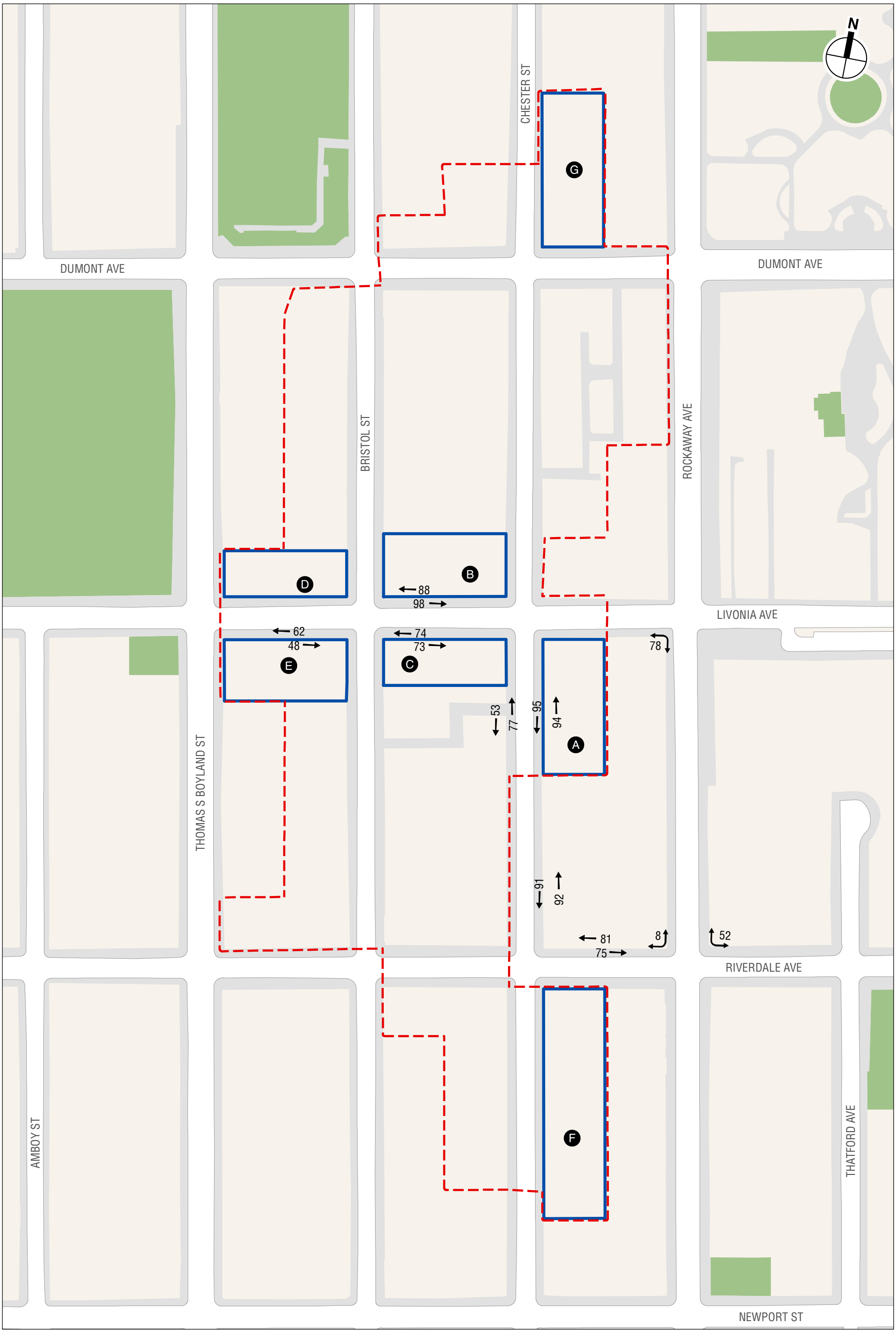
0 400 FEET

2024 No Action Pedestrian Volumes
Weekday AM Peak Hour

Marcus Garvey Extension

Figure K-36

5/30/2018



Project Sites

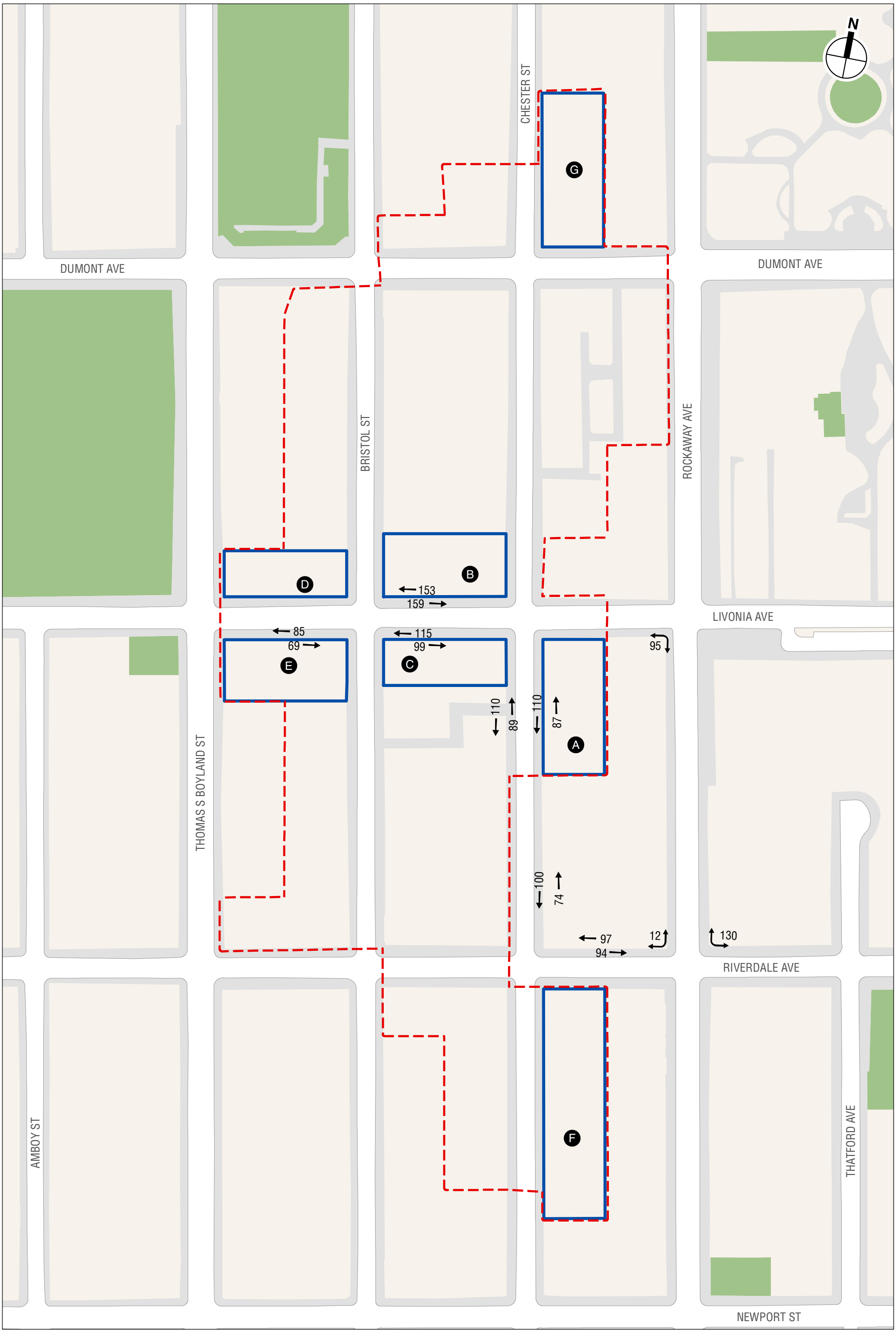
Project Area / Proposed Large-Scale General Development Boundary

2024 No Action Pedestrian Volumes
Weekday Midday Peak Hour

Figure K-37

Marcus Garvey Extension

5/30/2018



2024 No Action Pedestrian Volumes
Weekday PM Peak Hour

Figure K-38

Marcus Garvey Extension

Table K-23
2024 No Action Condition: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	132	0.68	812.84	A
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	217	0.88	704.95	A
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	142	0.75	1,003.89	A
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	108	0.84	861.60	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	139	0.63	462.83	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	146	0.63	440.63	B
South Side of Livonia Avenue between Bristol Street and Thomas S Boyland Street	South	12.0	87	0.90	1,957.21	A
Weekday Midday Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	156	0.95	964.56	A
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	186	0.97	906.17	A
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	147	0.85	1,095.46	A
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	130	0.65	550.75	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	183	0.71	401.74	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	189	0.71	388.98	B
South Side of Livonia Avenue between Bristol Street and Thomas S Boyland Street	South	12.0	110	0.92	1,583.97	A
Weekday PM Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	191	0.97	800.65	A
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	312	0.89	498.89	B
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	214	0.69	611.92	A
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	199	0.71	397.27	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	174	0.69	406.68	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	197	0.69	359.16	B
South Side of Livonia Avenue between Bristol Street and Thomas S Boyland Street	South	12.0	154	0.91	1,123.15	A

Table K-24
2024 No Action Condition: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS
Rockaway Avenue and Livonia Avenue	Southwest	326.72	A	206.38	A	164.66	A
Rockaway Avenue and Riverdale Avenue	Northwest	643.80	A	445.88	A	352.04	A
	Northeast	277.28	A	265.97	A	190.39	A

FUTURE WITH THE PROPOSED PROJECT

Project-generated pedestrian volumes were assigned to the pedestrian network considering current land uses in the area, population distribution, available transit services, and surrounding pedestrian facilities. The hourly incremental pedestrian volumes presented above in Section B, "Level 2

Screening Assessment," were added to the projected 2024 No Action volumes to generate the 2024 With Action pedestrian volumes for analysis (see **Figures K-39 through K-41**).

STREET-LEVEL PEDESTRIAN OPERATIONS

A summary of the 2024 With Action condition pedestrian analysis results is presented in **Table K-25**. As shown in **Tables K-26 and K-27**, the sidewalk and corner analysis locations will continue to operate at favorable LOS A or B service levels in the 2024 With Action condition during all three peak hours. Therefore, the Proposed Project would not result in any significant adverse pedestrian impacts.

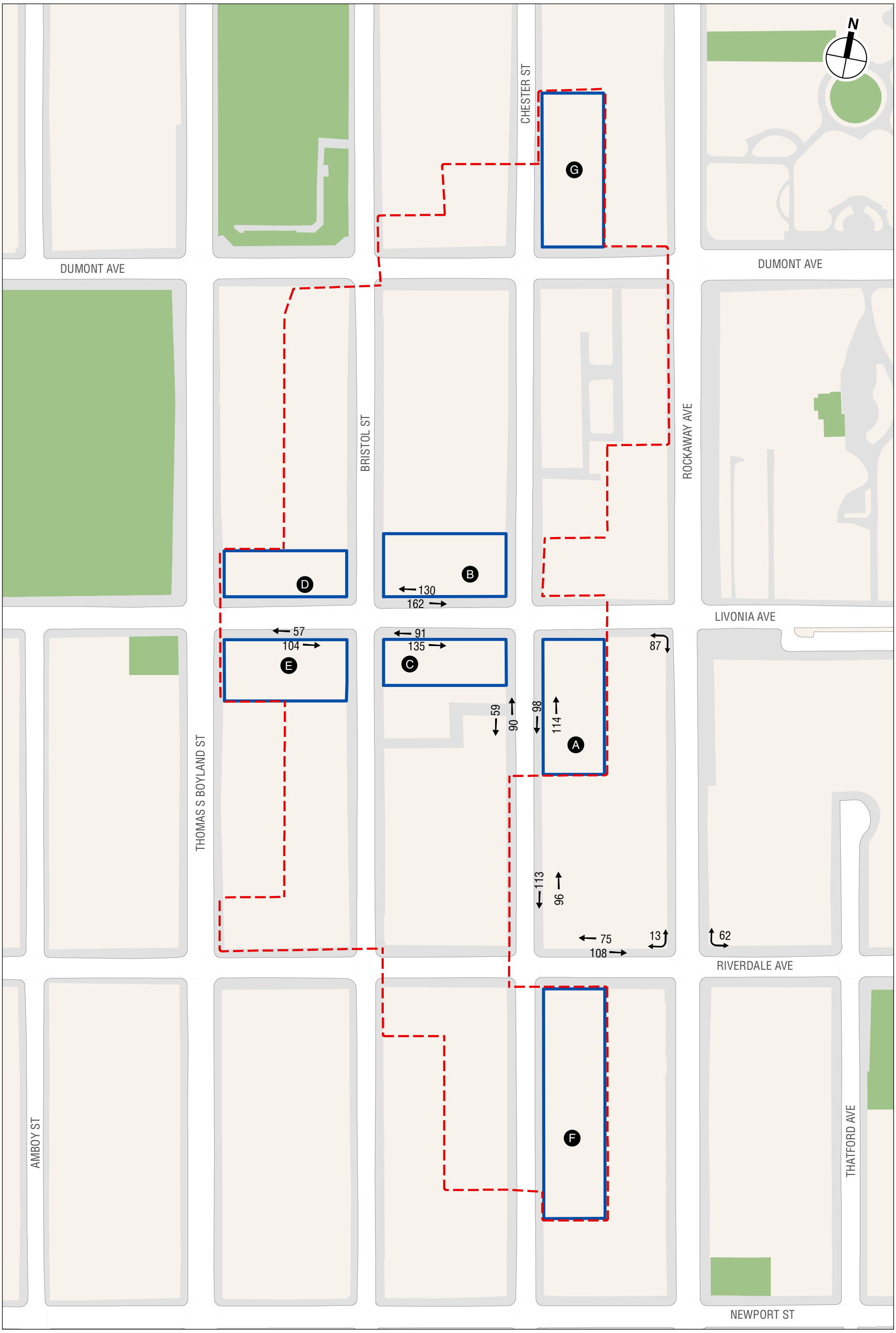
Table K-25
Summary of 2024 With Action Pedestrian Analysis Results

LOS	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Sidewalks			
Sidewalks at LOS A/B/C	7	7	7
Sidewalks at LOS D	0	0	0
Sidewalks at LOS E	0	0	0
Sidewalks at LOS F	0	0	0
Total	7	7	7
Number of impacted sidewalks	0	0	0
Corner Reservoirs			
Corners at LOS A/B/C	3	3	3
Corners at LOS D	0	0	0
Corners at LOS E	0	0	0
Corners at LOS F	0	0	0
Total	3	3	3
Number of impacted corners	0	0	0

Table K-26
2024 With Action Condition: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	183	0.68	586.26	A
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	292	0.88	523.84	A
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	226	0.75	630.71	A
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	149	0.84	624.48	A
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	209	0.63	307.72	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	212	0.63	303.36	B
South Side of Livonia Avenue between Bristol Street and Thomas S. Boyland Street	South	12.0	161	0.90	1,057.59	A
Weekday Midday Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	361	0.95	416.71	B
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	495	0.97	340.36	B
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	450	0.85	357.71	B
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	335	0.65	213.51	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	465	0.71	157.81	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	397	0.71	184.95	B
South Side of Livonia Avenue between Bristol Street and Thomas S. Boyland Street	South	12.0	379	0.92	459.62	B

5/30/2018

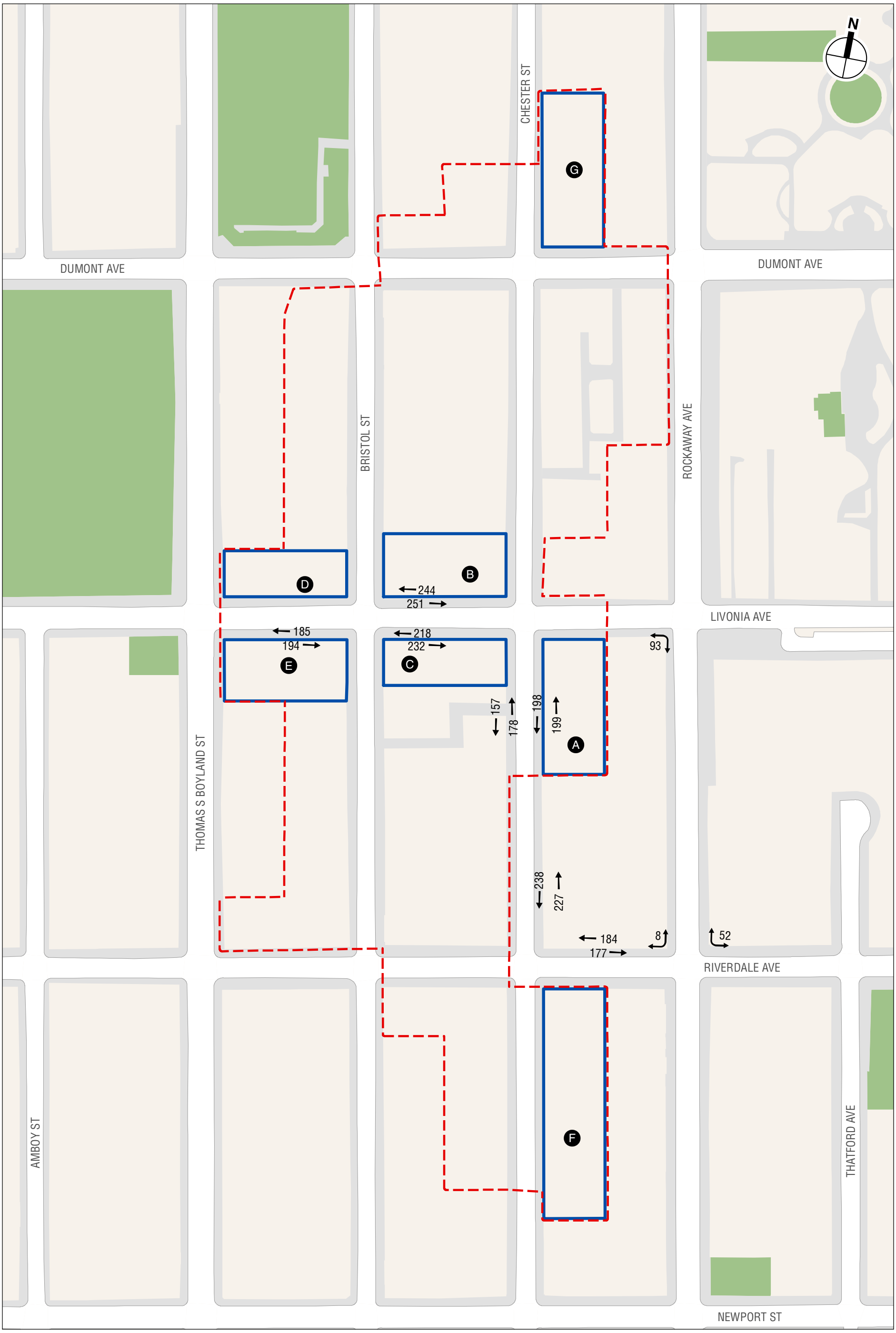


2024 With Action Pedestrian Volumes
Weekday AM Peak Hour

Figure K-39

Marcus Garvey Extension

5/30/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

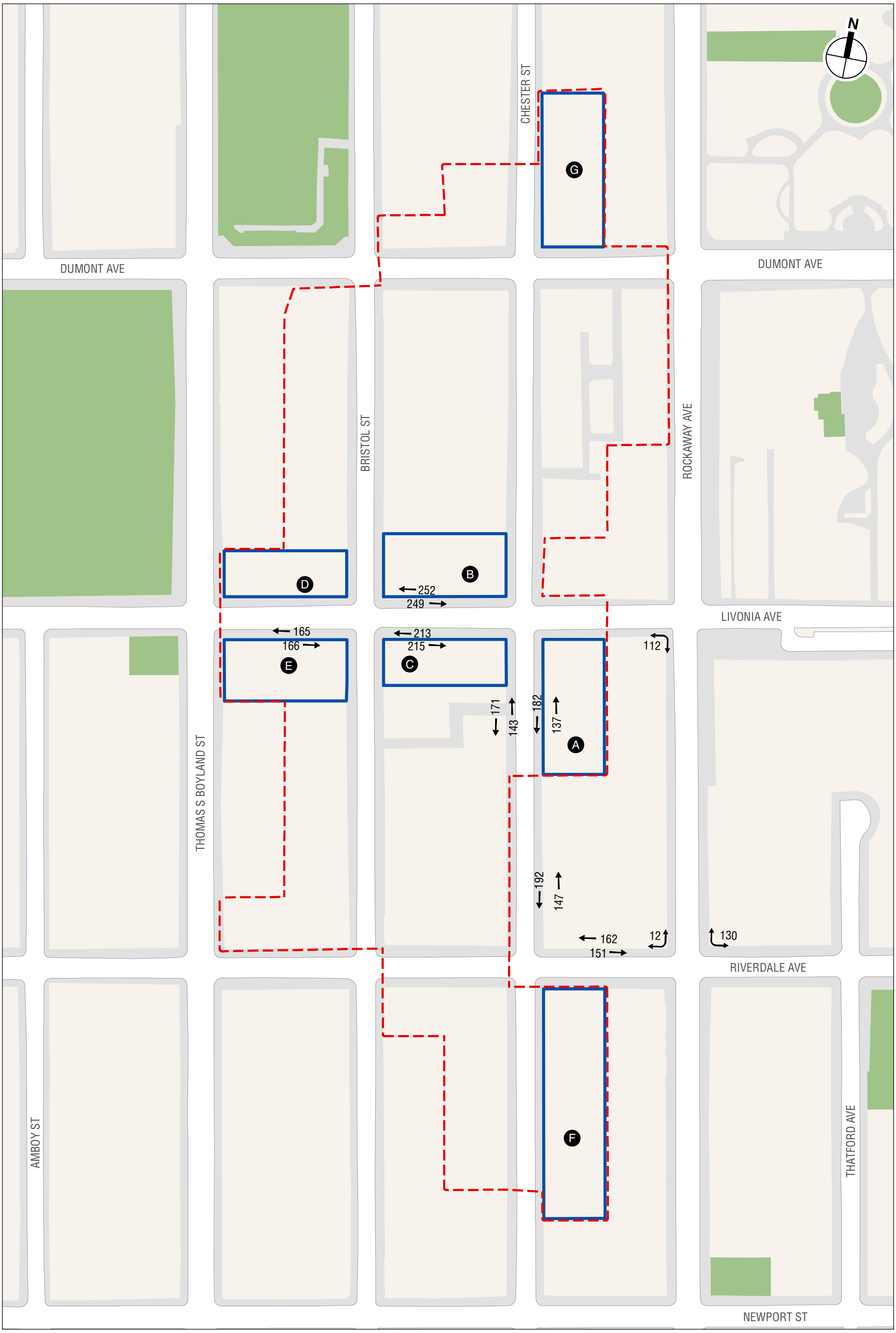
0 400 FEET

2024 With Action Pedestrian Volumes
Weekday Midday Peak Hour

Figure K-40

Marcus Garvey Extension

5/30/2018



Project Sites

Project Area / Proposed Large-Scale General Development Boundary

0 400 FEET

2024 With Action Pedestrian Volumes
Weekday PM Peak Hour

Marcus Garvey Extension

Figure K-41

Table K-26 (cont'd)
2024 With Action Condition: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday PM Peak Hour						
North Side of Riverdale Avenue between Rockaway Avenue and Chester Street	North	10.0	313	0.97	488.51	B
North Side of Livonia Avenue between Chester Street and Bristol Street	North	11.0	501	0.89	310.58	B
South Side of Livonia Avenue between Chester Street and Bristol Street	South	12.0	428	0.69	305.83	B
West Side of Chester Street between Livonia Avenue and Riverdale Avenue	West	7.0	314	0.71	251.64	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (South Segment)	East	6.5	339	0.69	208.54	B
East Side of Chester Street between Livonia Avenue and Riverdale Avenue (North Segment)	East	6.5	319	0.69	221.65	B
South Side of Livonia Avenue between Bristol Street and Thomas S. Boyland Street	South	12.0	331	0.91	522.47	B

Table K-27
2024 With Action Condition: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS
Rockaway Avenue and Livonia Avenue	Southwest	255.58	A	167.73	A	137.90	A
Rockaway Avenue and Riverdale Avenue	Northwest	504.09	A	307.61	A	282.42	A
	Northeast	235.87	A	191.92	A	159.05	A

F. VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

Crash data for the study area intersections were obtained from NYSDOT for the time period between July 1, 2014 and June 30, 2017. The data obtained quantify the total number of reportable crashes (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of vehicular crashes with pedestrians and bicycles at each location.

During the July 1, 2014 and June 30, 2017 3-year period, a total of 81 reportable and non-reportable crashes, 0 fatalities, 93 injuries, and 18 pedestrian/bicyclist-related crashes occurred at the study area intersections. A rolling total of crash data did not identify any high crash locations in the 2014 to 2017 period in the study area. **Table K-28** depicts total crash characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle crashes by year and location.

Table K-28
Crash Data Summary

Intersection		Study Period						Crashes by Year							
		All Crashes by Year						Pedestrian				Bicycle			
North-South Roadway	East-West Roadway	2014	2015	2016	2017	Total Fatalities	Total Injuries	2014	2015	2016	2017	2014	2015	2016	2017
Thomas S Boyland	Blake Ave	2	1	1	1	0	12	0	0	0	1	0	0	0	0
Thomas S Boyland	Dumont Ave	0	0	0	2	0	1	0	0	0	0	0	0	0	0
Thomas S Boyland	Livonia Ave	1	0	3	1	0	6	0	0	0	0	0	0	1	0
Thomas S Boyland	Riverdale Ave	1	1	0	0	0	3	0	0	0	0	0	0	0	0
Thomas S Boyland	Newport Ave	2	0	3	4	0	7	0	0	1	1	0	0	0	0
Bristol Street	Blake Ave	0	1	0	0	0	1	0	0	0	0	0	0	0	0
Bristol Street	Dumont Ave	2	0	1	0	0	1	0	0	0	0	0	0	0	0
Bristol Street	Livonia Ave	0	1	2	0	0	3	0	0	1	0	0	0	0	0
Bristol Street	Riverdale Ave	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Bristol Street	Newport Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chester Street	Blake Ave	0	0	3	2	0	5	0	0	1	0	0	0	0	0
Chester Street	Dumont Ave	1	0	2	1	0	4	0	0	0	0	0	0	0	0
Chester Street	Livonia Ave	0	1	3	0	0	4	0	0	0	0	0	0	0	0
Chester Street	Riverdale Ave	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Chester Street	Newport Ave	0	1	2	0	0	3	0	0	1	0	0	0	0	0
Rockaway Avenue	Blake Ave	1	2	1	2	0	6	0	0	0	2	0	0	0	0
Rockaway Avenue	Dumont Ave	1	1	3	3	0	10	1	0	1	1	0	0	0	1
Rockaway Avenue	Livonia Ave	0	3	1	3	0	12	0	0	0	1	0	0	0	0
Rockaway Avenue	Riverdale Ave	0	1	3	2	0	5	0	0	2	2	0	0	0	0
Rockaway Avenue	Newport Ave	1	2	3	0	0	9	0	0	0	0	0	0	0	0

Source: NYSDOT July 1, 2014 and June 30, 2017 crash data.

G. PARKING ASSESSMENT

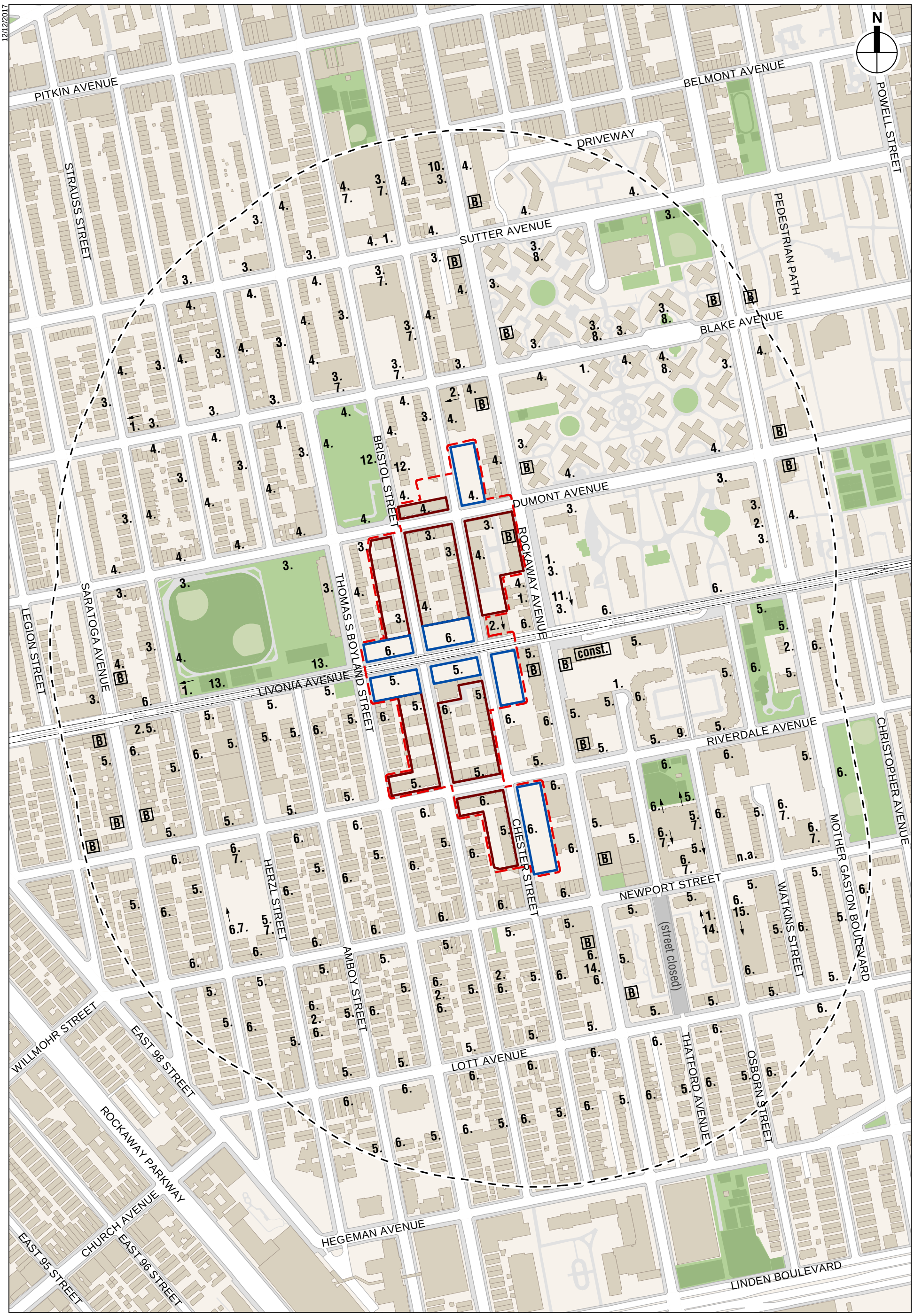
2017 EXISTING CONDITIONS

An inventory of on- and off-street parking within a ¼-mile of the Project Area was conducted in April 2017. The on-street survey involved performing an inventory of the study area's on-street parking supply and utilization during the weekday midday and overnight periods. The on-street curbside regulations were also surveyed in December 2017. An off-street survey was also conducted in April 2017 but did not identify any public parking facilities within a ¼-mile of the Project Area.

Curbside parking regulations within a ¼-mile of the Project Area are illustrated in **Figure K-42** and summarized in **Table K-30**. The curbside regulations in the area generally include alternate-side parking to accommodate street-cleaning. With the ¼-mile parking study area, there are approximately 3,505 on-street parking spaces during the weekday midday and overnight, periods, respectively. Out of these, 601 and 522 spaces were available during the weekday midday and overnight periods resulting in on-street parking utilization rates of approximately 83 and 85 percent, respectively.

Since the Proposed Project is primarily a residential development project, the detailed parking analysis presented in this section was conducted only for the weekday midday and overnight time periods.

12/12/2017



Project Site

Existing MGV to be Part of LSGD (R6)

Large Scale General Development Boundary

Parking Study (1/4 mile boundary)

1. Parking Regulation

Marcus Garvey Extension

On-Street Parking Regulations

Figure K-42

Table K-30
On-Street Parking Regulations

No.	Regulation	No.	Regulation
1	NS Anytime	9	NS Fire Zone
2	NP Anytime	10	Truck Loading Only 6 AM–4 PM Mon-Fri
3	NP 9–10:30 AM Mon & Thu	11	Farmers Market Only July1–Nov 30, Fri 10 AM–5 PM
4	NP 9–10:30 AM Tue & Fri	12	NS Ex Authorized Vehicles 8 AM–6 PM Mon–Fri (DoH)
5	NP 11:30 AM–1pm Mon & Thu	13	NP 8 AM–6 PM Ex Sun
6	NP 11:30 AM–1 PM Tue & Fri	14	NP 8 AM–6 PM Mon–Fri
7	Authorized Vehicles Only, 7 AM–4 PM School Days	15	NP 8 AM–6 PM Mon, Wed, Fri
8	Back In 90 degree parking only	B	Bus Stop

Notes:
NP = No Parking; NS = No Standing; Sun = Sunday; Mon = Monday; Tue = Tuesday; Wed = Wednesday; Thu = Thursday; Fri = Friday; Sat = Saturday; MP=Metered Parking; DoH = New York City Department of Health and Mental Hygiene
Source: Surveys conducted by AKRF, Inc.; December 2017.

FUTURE WITHOUT THE PROPOSED PROJECT

Overall public parking utilization is expected to experience the same growth as projected for traffic. As presented in **Table K-31**, accounting for the parking demand generated from background growth, parking demand from discrete No Build projects anticipated to utilize public parking spaces, and parking demand generated by the No Action development, the No Action condition public parking utilization is expected to increase to 91 and 90 percent during the weekday midday and overnight peak periods, respectively, in the ¼-mile off-street parking study area.

Table K-31
2017 Existing and 2024 No Action Parking Supply and Utilization

	Weekday Midday	Weekday Overnight
2017 Existing Public Parking Supply	3,505	3,505
2017 Existing Public Parking Demand	2,904	2,983
2017 Existing Public Parking Utilization	83%	85%
2024 No Action Public Parking Supply Total	3,505	3,505
2024 No Action Background Incremental Demand	89	91
Discrete No Build Projects Total Parking Demand	143	66
Discrete No Build Projects Accessory Parking Spaces	0	0
Discrete No Build Projects Demand Accommodated by Public Parking	143	66
No Action Development Parking Demand	90	110
No Action Development Accessory Parking Spaces	513	513
No Action Development Parking Demand Accommodated by Accessory Parking	51	110
No Action Development Parking Demand Accommodated by Public Parking	39	0
2024 No Action Public Parking Demand Total	3,175	3,140
2024 No Action Public Parking Utilization	91%	90%
2024 No Action Available Spaces (Shortfall)	330	365

Sample Calculation:
2024 No Action Parking Demand Total = 2017 Existing Public Parking Demand + 2024 No Action Background Incremental Demand + Discrete No Build Projects Demand Accommodated by Public Parking + No Action Development Parking Demand Accommodated by Public Parking
2024 No Action Weekday AM Public Parking Demand Total = 2,904 + 89 + 143 + 39 = 3,175

FUTURE WITH THE PROPOSED PROJECT

The Proposed Project would include 24 accessory parking spaces on the Project Sites; however, these spaces would not be made available for the Proposed Project's uses. The weekday parking demand generated by the Proposed Project is presented in **Table K-32**.

As presented in **Table K-33**, accounting for the No Action parking supply and demand utilization, and the parking demand generated by the Proposed Project, the With Action public parking utilization is expected to increase to 94 and 96 percent during the weekday midday and overnight peak periods, respectively, in the ¼-mile on-street parking study area. Since the parking utilization levels for the Proposed Project are within the study area's parking capacity, the Proposed Project is not expected to result in the potential for parking shortfalls or significant adverse parking impacts.

Table K-32
Proposed Project Parking Demand—Weekday

Hour	Residential	Local Retail	Medical Office	Community Center	Total
12 AM–1 AM	211	0	0	0	211
1 AM–2 AM	211	0	0	0	211
2 AM–3 AM	211	0	0	0	211
3 AM–4 AM	211	0	0	0	211
4 AM–5 AM	211	0	0	0	211
5 AM–6 AM	211	0	0	0	211
6 AM–7 AM	211	0	0	0	211
7 AM–8 AM	190	1	0	3	194
8 AM–9 AM	96	1	26	4	127
9 AM–10 AM	96	2	55	6	159
10 AM–11 AM	96	4	66	7	173
11 AM–12 PM	96	3	52	9	160
12 PM–1 PM	96	3	54	9	162
1 PM–2 PM	96	1	50	9	156
2 PM–3 PM	96	1	43	9	149
3 PM–4 PM	96	1	48	9	154
4 PM–5 PM	96	1	34	11	142
5 PM–6 PM	156	1	30	9	196
6 PM–7 PM	181	0	0	13	194
7 PM–8 PM	199	0	0	11	210
8 PM–9 PM	204	0	0	7	211
9 PM–10 PM	208	0	0	4	212
10 PM–11 PM	211	0	0	1	212
11 PM–12 AM	211	0	0	0	211

Table K-33
2017 Existing and 2024 With Action Parking Supply and Utilization

	Weekday Midday	Weekday Overnight
2017 Existing Public Parking Supply	3,505	3,505
2017 Existing Public Parking Demand	2,904	2,983
2017 Existing Public Parking Utilization	83%	85%
2024 No Action Public Parking Supply Total	3,505	3,505
2024 No Action Background Incremental Demand	89	91
Discrete No Build Projects Total Parking Demand	143	66
Discrete No Build Projects Accessory Parking Spaces	0	0
Discrete No Build Projects Demand Accommodated by Public Parking	143	66
Proposed Project Parking Demand	162	211
Proposed Project Accessory Parking Spaces[1]	24	24
Proposed Project Parking Demand Accommodated by Accessory Parking	0	0
Proposed Project Parking Demand Accommodated by Public Parking	162	211
2024 With Action Public Parking Demand Total	3,298	3,351
2024 With Action Public Parking Utilization	94%	96%
2024 With Action Available Spaces (Shortfall)	207	154

Note:
[1] The Proposed Project's 24 accessory parking spaces would not be made available for its uses.
Sample Calculation:
2024 With Action Parking Demand Total = 2017 Existing Public Parking Demand + 2024 No Action Background Incremental Demand + Discrete No Build Projects Demand Accommodated by Public Parking + Proposed Project Parking Demand Accommodated by Public Parking
2024 No Action Weekday AM Public Parking Demand Total = 2,904 + 89 + 143 + 162 = 3,298

✷

A. INTRODUCTION

The potential for air quality impacts associated with the Proposed Actions is assessed in this attachment. The Proposed Project would result in small increases in on-road traffic volumes which would not exceed the carbon monoxide (CO) screening thresholds defined in the 2014 *City Environmental Quality Review (CEQR) Technical Manual* (170 auto trips for peak-hour trips at nearby intersections in the study area), nor would it exceed the particulate matter (PM) emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. (The worst-case intersection evaluated for screening was Thomas S Boyland and Livonia Avenue.) Therefore, the changes in traffic introduced by the Proposed Actions would not have the potential to significantly change air quality conditions, and a quantified assessment of emissions from Project-generated traffic is not warranted.

The Proposed Project includes the development of seven new mixed-use buildings in the Brownsville neighborhood of Brooklyn, Community District 16. The seven sites (Sites A–G) to be developed by the applicant include Block 3589, Lot 21 (Site A); Block 3574, p/o Lot 1 (Site B); Block 3588, Lots 27 and 32–36 (Site C); Block 3573, p/o Lot 1 (Site D); Block 3587, p/o Lot 1 and Lot 27 (Site E); Block 3602, Lot 12 (Site F); and Block 2560, Lot 1 (Site G) (the "Project Sites"). Since the Proposed Project would include natural gas-fired heat and hot water systems, a stationary source analysis was conducted to evaluate the potential impact from these sources on air quality in the surrounding area.

In addition to emissions from Proposed Project components, potential effects of emissions from existing nearby industrial facilities on air quality at the Project Sites were assessed. No significant adverse impact on air quality at the Project Sites was projected from the nearby industrial facilities. A review of major- and large-source permits[1] found no such facilities within 1,000 feet of the Project Sites, and therefore no additional analysis is required for major or large sources.

As discussed in detail below, the Proposed Project would not result in any significant adverse impacts on air quality. In order to preclude significant adverse impacts associated with emissions from the Proposed Project's heating and hot water systems, the Project Sites would be mapped with an (E) Designation requiring fuel and stack placement restrictions.

B. METHODOLOGY

OVERVIEW AND APPROACH

Stationary source analyses were conducted using the methodology described in the *CEQR Technical Manual* to assess air quality impacts associated with emissions from the Proposed

[1] New York State Department of Environmental Conservation (NYSDEC). *Access to DEC Air Permits*. http://www.dec.ny.gov/chemical/32249.html. Accessed 10/24/2017.

Project's heat and hot water systems. The primary pollutant of concern when burning natural gas is nitrogen dioxide (NO_2), and PM less than 2.5 micrometers in diameter ($PM_{2.5}$) was evaluated as well. Since the combined emissions from all Proposed Project buildings would not pass simplified screening, a refined analysis was prepared using a detailed dispersion model.

Potential NO_2 concentrations, added to representative background concentrations in the area, were compared with the National Ambient Air Quality Standards (NAAQS). Potential incremental concentrations of $PM_{2.5}$ were compared with the $PM_{2.5}$ *de minimis* criteria defined in the *CEQR Technical Manual:*

- Predicted increase of more than half the difference between the background concentration and the 24-hour standard;
- Annual average $PM_{2.5}$ concentration increments which are predicted to be 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
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.3 $\mu g/m^3$ at a discrete location (elevated or ground level).

The detailed mobile source $PM_{2.5}$ analysis, undertaken following the methodology described in the *CEQR Technical Manual,* applied the same criteria for evaluation.

The potential impacts from nearby industrial sources on other hazardous air pollutant concentrations at the Project Sites were also evaluated. The NYSDEC Division of Air Resources (DAR) guidance document DAR-1[2] contains a compilation of annual and short term (1-hour) guideline concentrations for these compounds. For non-criteria hazardous air pollutants, predicted exceedance of the DAR-1 guideline concentrations would be considered a potential significant adverse impact.

HEAT AND HOT WATER SYSTEMS

MODEL SELECTION AND APPROACH

The analysis was prepared using the detailed American Meteorological Society (AMS)/Environmental Protection Agency (EPA) Regulatory Model (AERMOD) dispersion model.[3] AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources and source types. AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatment of the boundary layer theory and understanding of turbulence and dispersion, and includes handling of the plume interaction with terrain. AERMOD is EPA's preferred regulatory stationary source model.

AERMOD calculates pollutant concentrations from simulated sources (e.g., exhaust stacks) based on hourly meteorological data and surface characteristics, and has the capability to calculate pollutant concentrations at locations where the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. The analysis of potential

[2] NYSDEC. DAR-1 (Air Guide-1) AGC/SGC Tables. August 2016.

[3] EPA. *AERMOD Implementation Guide*. 454/B-16-013. December 2016; EPA. AERMOD Model Formulation and Evaluation. 454/R-17-001. May 2017; and EPA. User's Guide for the AMS/EPA Regulatory Model (AERMOD). 454/B-16-011. December 2016.

impacts from exhaust stacks assumed stack tip downwash, urban dispersion and surface roughness length, and elimination of calms.

AERMOD incorporates the algorithms from the Plume Rise Model Enhancements (PRIME) downwash algorithm, which is designed to predict concentrations in the "cavity region" (i.e., the area around a structure which under certain conditions may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). The Building Profile Input Program for PRIME (BPIPPRM) was used to determine the projected building dimensions for modeling with the building downwash algorithm enabled. The modeling of plume downwash accounts for all obstructions within a radius equal to five obstruction heights of the stack.

The analysis was prepared both with and without downwash in order to assess the worst-case impacts at elevated locations close to the height of the source, which would occur without downwash, as well as the worst-case impacts at lower elevations and ground level, which would occur with downwash, consistent with the *CEQR Technical Manual* guidance.

For the analysis of the 1-hour average NO_2 concentration from the building's heating and hot water systems, AERMOD's Plume Volume Molar Ratio Method (PVMRM) module was used to analyze chemical transformation within the model. PVMRM incorporates hourly background ozone concentrations to estimate nitrogen oxides (NO_x, including both NO_2 and nitric oxide) transformation within the source plume. The model applied ozone concentrations measured in 2012–2016 at the nearest available NYSDEC ozone monitoring station—the Queens College monitoring station in Queens. An initial NO_2 to NO_x ratio of 10 percent at the source exhaust stack was assumed for boilers, which is considered representative.

Annual average NO_2 concentrations were estimated using an NO_2 to NO_x ratio of 0.8—the recommended default ambient ratio per EPA guidance.[4]

Five years of surface meteorological data collected at John F. Kennedy Airport (2012–2016) and concurrent upper air data collected at Brookhaven, New York were used in the analysis.

EMISSION RATES AND STACK PARAMETERS

Annual emission rates for heating and hot water systems for each building were calculated based on fuel consumption estimates, using energy intensity estimates based on type of development and size of the building as recommended in the *CEQR Technical Manual*, and applying emission factors for natural gas-fired boilers.[5] $PM_{2.5}$ emissions include both the filterable and condensable components. The short-term emission rates (24-hour and shorter) were calculated by scaling the annual emissions to account for a 100-day heating season. The exhaust from the heat and hot water systems was assumed to be vented through a single stack located 3.0 feet above the roof of each building. Stack height was conservatively based on minimum building height per the illustrative development plan, which may be lower than the maximum allowable zoning height.

To calculate exhaust velocity, the fuel consumption of the Proposed Project was multiplied by EPA's fuel factor for natural gas,[6] providing the exhaust flow rate at standard temperature; the

[4] EPA. Memorandum: Clarification on the use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard. September 30, 2014.

[5] EPA. Compilation of Air Pollutant Emission Factors AP-42. 5th Ed., V. I, Ch. 1.4. September, 1998.

[6] EPA. *Standards of Performance for New Stationary Sources.* 40 CFR Chapter I Subchapter C Part 60. Appendix A-7, Table 19-2. 2013.

flow rate was then corrected for the exhaust temperature, and exhaust velocity was calculated based on the stack diameter. Assumptions for stack diameter and exhaust temperature for the proposed systems were obtained from a survey of boiler exhaust data prepared and provided by New York City Department of Environmental Protection (DEP),[7] and were used to calculate the exhaust velocity.

The building area and exhaust stack parameters and the resulting emission rates used in the modeling analyses are presented in **Table L-1** and **Table L-2**, respectively.

Table L-1
Building and Exhaust Stack Parameters

Building	Building Area (gsf)	Stack Height[(1)] (feet)	Stack Diameter [(2)] (feet)	Exhaust Velocity [(3)] (meters/second)	Exhaust Temperature [(2)] (ºF)
A	134,498	98	2.0	1.35	307.8
B	111,932	98	2.0	1.12	307.8
C	96,975	98	2.0	0.97	307.8
D	95,303	98	2.0	0.95	307.8
E	105,753	98	2.0	1.06	307.8
F	221,294	103	3.2	0.87	307.8
G	142,705	103	2.0	1.43	307.8

Notes:
[1] Stack heights are assumed to be 3 feet above the roof height.
[2] Stack parameter assumptions are based on boiler specifications for similar sized systems from *DEP Boiler Permit Database*
[3] Stack exhaust velocity is calculated from EPA's fuel factor based on the diameter, type of fuel, and heat input rates, and adjusted for exhaust temperature.

Table L-2
Emission Rates (grams/second)

Building	NO_2 (1-hour average)	NO_2 (Annual average)	$PM_{2.5}$ (24-hour average)	$PM_{2.5}$ (Annual average)
A	1.55E-02	4.24E-03	3.17E-03	8.69E-04
B	1.29E-02	3.53E-03	2.64E-03	7.23E-04
C	1.12E-02	3.06E-03	2.29E-03	6.27E-04
D	1.10E-02	3.00E-03	2.25E-03	6.16E-04
E	1.22E-02	3.33E-03	2.49E-03	6.83E-04
F	6.87E-02	1.88E-02	5.22E-03	1.43E-03
G	4.43E-02	1.21E-02	3.37E-03	9.22E-04

BACKGROUND CONCENTRATIONS

To estimate total pollutant concentrations, the predicted impacts must be added to background values that account for existing pollutant concentrations from sources that are not directly accounted for in the model to estimate the maximum expected pollutant concentration at a given location (receptor). This background value for annual NO_2 is based on the maximum annual average value measured over the 5 years (2012–2016), which is 32.9 µg/m^3.

Total 1-hour NO_2 concentrations were refined following a more detailed approach (EPA "second tier"). The methodology used to determine the total 1-hour NO_2 concentrations from the facility

[7] DEP. *Boiler Database*. Personal communication from Mitchell Wimbish on August 11, 2017.

was based on adding the monitored background to modeled concentrations, as follows: hourly modeled concentrations from the boilers were first added to the seasonal hourly background monitored concentrations; then the highest combined daily 1-hour NO_2 concentration was determined at each location and the 98th percentile daily 1-hour maximum concentration for each modeled year was calculated within the AERMOD model; finally the 98th percentile concentrations were averaged over the latest 5 years. $PM_{2.5}$ impacts are assessed on an incremental basis and compared with the $PM_{2.5}$ *de minimis* criteria. The $PM_{2.5}$ 24-hour average background concentration of 20.5 $\mu g/m^3$ from the JHS 126 ambient monitoring station was used to establish the *de minimis* value of 7.2 $\mu g/m^3$ (based on the 98th percentile concentration, averaged over the years 2014–2016).

RECEPTOR PLACEMENT

Receptors (locations at which concentrations are projected) generally include operable windows in residential or other buildings, air intakes, and publicly accessible open space locations, as applicable. Discrete receptors were modeled along existing and proposed-building façades to represent potentially sensitive locations such as operable windows and intake vents. Receptor height for the proposed buildings was conservatively based on maximum building height per the zoning, which may be higher than the actual heights in the final design. Rows of receptors at spaced intervals on the modeled buildings were analyzed at multiple elevations. A broad ground-level grid was also included to identify potential concentrations at publicly accessible locations in the surrounding area.

EXISTING INDUSTRIAL FACILITIES

Potential sources of toxic pollutants emitted from the exhaust vents of existing permitted industrial facilities are examined to identify any potential adverse impacts on future residents of the Proposed Project. All industrial and manufacturing uses within 400 feet of the Project Sites ("industrial source study area") were considered for inclusion in the air quality impact analyses.

Land use maps and aerial photographs were reviewed to identify potential sources of emissions from manufacturing/industrial operations. A search of federal, state, and city compliance and permit data within the study area was conducted using DEP's Clean Air Tracking System (CATS) database[8] and EPA's Envirofacts database.[9] Next, a field survey of uses within 400 feet of the Project Sites was conducted on November 20, 2017, to determine the operating status of permitted industries, and identify any potential industrial sites not included in the permit databases. A request was then made to DEP's Bureau of Environmental Compliance (BEC) to obtain the certificates of operation for the identified industrial sources in order to determine whether manufacturing or industrial emissions occur.

The air permit information provided was compiled into a database of source locations, air emission rates if available, and other data pertinent to determining potential source impacts, described below. No industrial sources requiring analysis were identified. Therefore, no further analysis is warranted.

[8] DEP. *Clean Air Tracking System database*. https://a826-web01.nyc.gov/DEP.BoilerInformationExt ·Accessed November 17, 2017·

[9] EPA. *Envirofacts Data Warehouse*. https://www3.epa.gov/enviro/. Accessed November 17, 2017.

C. POTENTIAL IMPACTS OF THE PROPOSED PROJECT

HEAT AND HOT WATER SYSTEMS

The results of the dispersion analysis are presented **Table L-3**. Concentrations were all projected to be lower than the applicable criteria. Therefore, the Proposed Project's heating and hot water system would not result in any significant adverse air quality impacts.

Table L-3
Maximum Modeled Pollutant Concentrations (µg/m3)

Pollutant	Averaging Period	Maximum Modeled Impact	Background	Total Concentration	Criterion
NO_2	1-hour	127.8	Variable (1)	127.8	188 (2)
	Annual	1.2	32.9	34.1	100 (2)
$PM_{2.5}$	24-hour	5.5	N/A	N/A	7.25 (3)
	Annual	0.295	N/A	N/A	0.3 (4)

Notes:
N/A—Not Applicable
[1] The 1-hour NO_2 background concentration applied is variable, representing the maximum of the total 98th percentile 1-hour NO_2 seasonal-hourly background concentration.
[2] NAAQS
[3] $PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3
[4] $PM_{2.5}$ *de minimis* criteria—annual (discrete receptor)

E-DESIGNATIONS

To ensure that there are no significant adverse impacts on $PM_{2.5}$ or NO_2 concentrations from the Proposed Project's heating and hot water systems' emissions, the following restrictions would be required as part of the Proposed Project through the placement of an (E) Designation. E-485 would be applied to the Project Sites. The specific requirements of E-485 for each of the Project Sites (and corresponding blocks and lots) are presented below.

Building A (Block 3589, Lot 21)

Any fossil fuel-fired heating and hot water equipment in any new development on the above-referenced property must use only natural gas and be fitted with low NO_x burners with NO_x emissions not to exceed 30 parts per million (ppm). Fossil fuel-fired heating and hot water exhaust stacks must be located at a height of 98 feet above local grade and a distance of at least 30 feet from the western lot line facing Chester Street.

Building B (Block 3574, Lot 1)

Any fossil fuel-fired heating and hot water equipment in any new development on the above-referenced property must use only natural gas and be fitted with low NO_x burners with NO_x emissions not to exceed 30 ppm. Fossil fuel-fired heating and hot water exhaust stack(s) must be located at a height of 98 feet above local grade and at a distance of at least 24 feet from the eastern lot line facing Chester Street, 40 feet from the western lot line facing Bristol Street, and 50 feet from the southern lot line facing Livonia Avenue.

Building C (Block 3588, Lots 27, 32, 33, 34, 35, and 36)

Any fossil fuel-fired heating and hot water equipment in any new development on the above-referenced property must use only natural gas and be fitted with low NO_x burners with NO_x emissions

not to exceed 30 ppm. Fossil fuel-fired heating and hot water exhaust stacks must be located at a height of 98 feet above local grade and a distance of at least 30 feet away from the eastern lot line facing Chester Street, 41 feet from the western lot line facing Bristol Street, and 37 feet from the northern lot line facing Livonia Avenue.

Building D (Block 3573, Lot 1)

Any fossil fuel-fired heating and hot water equipment in any new development on the above-referenced property must use only natural gas and be fitted with low NO_x burners with NO_x emissions not to exceed 30 ppm. Fossil fuel-fired heating and hot water exhaust stacks must be located at a height of 98 feet above local grade and a distance of at least 33 feet away from the eastern lot line facing Bristol Street and 25 feet away from the southern lot line facing Livonia Avenue.

Building E (Block 3587, Lots 1 and 27)

Any fossil fuel-fired heating and hot water equipment in any new development on the above-referenced property must use only natural gas and be fitted with low NO_x burners with NO_x emissions not to exceed 30 ppm. Fossil fuel-fired heating and hot water exhaust stacks must be located at a height of 98 feet above local grade and at a distance of at least 37 feet away from the eastern lot line facing Bristol Street and 33 feet away from the northern lot line facing Livonia Avenue.

Building F (Block 3602, Lot 12)

Any fossil fuel-fired heating and hot water equipment in any new development on the above-referenced property must use only natural gas and be fitted with low NO_x burners with NO_x emissions not to exceed 30 ppm, with exhaust stacks located at a height of 103 feet above local grade.

Building G (Block 3560, Lot 1)

Any fossil fuel-fired heating and hot water equipment in any new development on the above-referenced property must use only natural gas and be fitted with low NO_x burners with NO_x emissions not to exceed 30 ppm, with exhaust stacks located at a height of 103 feet above local grade.

EXISTING INDUSTRIAL FACILITIES

No industrial sources requiring analysis were identified. Therefore, existing industrial facilities would not have a significant adverse impact on air quality at the Project Sites. ✷

A. INTRODUCTION

This attachment considers the potential for the Proposed Actions to result in significant adverse noise impacts. According to the guidelines established in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, an initial noise impact screening considers whether a proposed action would generate any mobile or stationary source noise, or be located in an area with high ambient noise levels. A noise analysis examines an action for its potential effects on sensitive noise receptors, and the effects on the interior noise levels of residential, commercial, and community facility uses.

In terms of mobile sources, based on Attachment K, "Transportation," the Proposed Actions would not generate sufficient traffic to have the potential to cause a significant noise impact (i.e., it would not result in a doubling of noise passenger car equivalents [Noise PCEs] which would be necessary to cause a 3 dBA increase in noise levels). However, the effect of ambient noise (i.e., noise from vehicular and rail traffic) is addressed in the following section and an analysis is presented which determines the level of building attenuation necessary to ensure that the Proposed Project buildings' interior noise levels satisfy applicable interior noise criteria. As discussed in detail below, the Proposed Project would not result in any significant adverse impacts related to noise. In order to preclude significant adverse impacts, the Project Sites would be mapped with an (E) designation requiring appropriate window-wall attenuation in order to achieve a maximum interior noise environment of 45 dBA.

B. ACOUSTICS FUNDAMENTALS

Sound is a fluctuation in air pressure. Sound pressure levels are measured in units called decibels (dB). The particular character of the sound that we hear (e.g., a whistle compared with a French horn) is determined by the speed, or frequency, at which the air pressure fluctuates, or oscillates. Frequency defines the oscillation of sound pressure in terms of cycles per second. One cycle per second is known as 1 Hertz (Hz). People can hear over a relatively limited range of sound frequencies, generally between 20 Hz and 20,000 Hz, and the human ear does not perceive all frequencies equally well. High frequencies (e.g., a whistle) are more easily discernable and therefore more intrusive than many of the lower frequencies (e.g., the lower notes on the French horn).

A-WEIGHTED SOUND LEVEL (DBA)

In order to establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level, or dBA, and it is the descriptor of noise levels most often used for community noise. As shown in **Table M-1**, the threshold of human hearing is defined as 0 dBA; quiet conditions (e.g., a library) are approximately 40 dBA; normal daily activity levels are between 50 dBA and 70 dBA; noisy levels are above 70 dBA; and loud, intrusive, and deafening levels approach 130 dBA.

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. Thus, the background noise in an office, at 50 dBA, is perceived as twice as loud as a library at 40 dBA. For most people to perceive an increase in noise, it must be at least 3 dBA. At 5 dBA, the change will be readily noticeable.

Table M-1
Common Noise Levels

Sound Source	(dBA)
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	80–90
Busy city street, loud shout	80
Busy traffic intersection	70–80
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas, or residential areas close to industry	50–60
Background noise in an office	50
Suburban areas with medium-density transportation	40–50
Public library	40
Soft whisper at 5 meters	30
Threshold of hearing	0

Note:
A 10 dBA increase in level appears to double the loudness, and a 10 dBA decrease halves the apparent loudness.

Sources:
Cowan, James P. *Handbook of Environmental Acoustics,* Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

SOUND LEVEL DESCRIPTORS

Because the sound pressure level unit of dBA describes a noise level at just one moment and few noises are constant, other ways of describing noise that fluctuates over extended periods have been developed. One way is to describe the fluctuating sound heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the equivalent sound level, L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted by $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively.

The relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by 10 or more decibels. Thus the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}.

For purposes of the Proposed Actions, the L_{10} descriptor has been selected as the noise descriptor to be used in this noise impact evaluation. The 1-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines for City environmental impact review classification.

C. NOISE STANDARDS AND CRITERIA

NEW YORK CEQR NOISE CRITERIA

The *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table M-2**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

Table M-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
Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- Ldn ≤ 60 dBA ----------	N/A	---------- 60 < Ldn ≤ 65 dBA ----------	N/A	(i) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn	N/A	---------- Ldn ≤ 75 dBA ----------
Hospital, nursing home		$L_{10} \leq 55$ dBA		55 < $L_{10} \leq$ 65 dBA		65 < $L_{10} \leq$ 80 dBA		L_{10} > 80 dBA	
Residence, residential hotel, or motel	7 AM–10 PM	$L_{10} \leq 65$ dBA		65 < $L_{10} \leq$ 70 dBA		70 < $L_{10} \leq$ 80 dBA		L_{10} > 80 dBA	
	10 PM–7 AM	$L_{10} \leq 55$ dBA		55 < $L_{10} \leq$ 70 dBA		70 < $L_{10} \leq$ 80 dBA		L_{10} > 80 dBA	
School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, outpatient 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)	
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)	
Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:
(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more; (ii) *CEQR Technical Manual* noise criteria for train noise are similar to the above aircraft noise standards: the noise category for train noise is found by taking the L_{dn} value for such train noise to be an L_{dn} (L_{dn} contour) value.

Table Notes:
[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.
[3] One may use 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).
Source: New York City Department of Environmental Protection (adopted policy 1983).

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see **Table M-3**). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential and community facility uses and interior noise levels of 50 dBA or lower for commercial uses and are determined based on exterior $L_{10(1)}$ noise levels.

Table M-3
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level with Proposed Actions	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation[A]	(I) 28 dBA	(II) 31 dBA	(III) 33 dBA	(IV) 35 dBA	$36 + (L_{10} - 80)$[B] dBA

Notes:
[A] The above composite window-wall attenuation values are for residential and community facility development. Retail uses would be 5 dBA less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.
[B] Required attenuation values increase by 1 dBA increments for L_{10} values greater than 80 dBA.
Source: New York City Department of Environmental Protection.

D. EXISTING NOISE LEVELS

Existing noise levels were measured at nine receptor sites and are described in **Table M-4** and shown in **Figure M-1**.

Table M-4
Noise Receptor Locations

Receptor Site	Location
1	Chester Street between Blake Avenue and Dumont Avenue
2	Dumont Avenue between Chester Street and Rockaway Avenue
3	Livonia Avenue between Bristol Street and Chester Street
4	Thomas S Boyland Street between Dumont Avenue and Livonia Avenue
5	Chester Street between Livonia Avenue and Riverdale Avenue
6	Riverdale Avenue between Chester Street and Rockaway Avenue
7	Chester Street between Riverdale Avenue and Newport Street
8	Bristol Street between Livonia Avenue and Riverdale Avenue (elevated)
9	Chester Street platform of elevated rail (elevated)

The nine noise receptor sites were selected based on the following three criteria: (1) locations of the Project Sites under the Reasonable Worst Case Development Scenario (RWCDS); (2) providing comprehensive geographic coverage across the study area in order to get a comprehensive characterization of the ambient noise environment; and (3) existing land use patterns (e.g., along major commercial road corridors, along bus routes, near rail lines, and near existing stationary noise sources).

These receptors, due to their proximity to the development sites, provide an effective and conservative representation of existing ambient noise levels at the locations that would be developed under the RWCDS.

The existing noise levels were measured for 20-minute time periods at receptor sites 1, 2, 6, and 7 and existing noise levels were measured for 1-hour time periods at receptor sites 3, 4, 5, 8, and 9. Measurements were performed during the three weekday peak periods—AM (7:00 AM to 9:00 AM), midday (MD) (12:00 PM to 2:00 PM), and PM (4:30 PM to 6:30 PM). Measurements were performed between June 20, 2017, and June 27, 2017.



Marcus Garvey Extension

Noise Receptor Locations

Figure M-1

EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using Brüel & Kjær Sound Level Meters (SLMs) Types 2270, 2250, and 2260, Brüel & Kjær ½-inch microphones Type 4189, and Brüel & Kjær Sound Level Calibrators Type 4231. The SLMs had valid laboratory calibrations within 1 year, as is standard practice. The Brüel & Kjær SLMs are Type 1 instruments according to ANSI Standard S1.4-1983 (R2006). The microphones at receptor sites 1 through 7 were mounted at a height of approximately 5 feet above the ground on a tripod. The microphone at receptor site 8 was mounted at a height of approximately 16 feet above the ground on a pole. The microphone at receptor site 9 was mounted at a height of approximately 5 feet above the subway platform. All microphones were mounted at least approximately 5 feet away from any large reflecting surfaces. The SLMs were calibrated before and after readings with Brüel & Kjær Type 4231 Sound Level Calibrators using the appropriate adaptors. Measurements were made on the A-scale (dBA). The data were digitally recorded by the SLMs and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, L_{90}, and $^1/_3$ octave band levels. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

MEASURED EXISTING NOISE LEVELS

The results of the existing noise level measurements are summarized in **Table M-5**.

Table M-5
Existing Noise Levels in dBA

Receptor Site	Location	Time Period	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Chester Street between Blake Avenue and Dumont Avenue	AM	61.9	72.7	64.1	56.8	53.3
		MD	61.3	69.9	63.6	59.6	54.7
		PM(1)	73.3	79.7	64.6	58.6	55.2
2	Dumont Avenue between Chester Street and Rockaway Avenue	AM	64.8	69.9	68.3	60.7	55.1
		MD	60.1	68.4	62.1	58.6	55.4
		PM	61.3	70.3	63.2	58.9	56.2
3	Livonia Avenue between Bristol Street and Chester Street	AM(1)	78.0	92.3	71.1	58.1	52.8
		MD(1)	78.8	92.2	76.8	60.8	56.3
		PM(1)	79.0	92.1	77.4	63.0	56.6
4	Thomas S Boyland Street between Dumont Avenue and Livonia Avenue	AM(1)	73.3	86.7	72.6	62.9	55.7
		MD(1)	73.7	87.3	71.1	63.6	60.5
		PM(1)	73.0	86.3	72.0	62.0	54.7
5	Chester Street between Livonia Avenue and Riverdale Avenue	AM	69.1	82.0	69.2	61.0	55.8
		MD	69.8	82.9	71.5	59.1	54.7
		PM	71.4	84.1	74.1	61.1	56.2
6	Riverdale Avenue between Chester Street and Rockaway Avenue	AM	60.6	69.6	63.0	57.8	54.4
		MD	62.9	72.9	65.9	59.6	57.0
		PM	65.1	74.9	66.3	62.2	57.9
7	Chester Street between Riverdale Avenue and Newport Street	AM	56.2	63.5	58.4	54.8	53.4
		MD	58.8	66.8	60.9	57.2	54.5
		PM	63.2	72.0	64.9	61.4	58.9
8	Bristol Street between Livonia Avenue and Riverdale Avenue (elevated)	AM	70.1	84.2	69.5	57.5	53.0
		MD	70.6	82.0	73.0	60.5	56.3
		PM	69.0	80.7	68.7	61.4	57.1
9	Chester Street platform of elevated rail (elevated)	AM	74.7	88.6	71.2	59.2	55.4
		MD	74.2	88.4	72.4	59.4	55.8
		PM	75.8	88.7	76.6	61.0	57.1

Notes:
Noise measurements were performed between June 20, 2017, and June 27, 2017.
(1) Noise measurements at these locations and times resulted from site-specific circumstances and the results are atypical.

At receptor sites 1, 2, 6, and 7, vehicular traffic was the dominant noise source. At receptor sites 3, 4, 5, 8, and 9, rail traffic was the dominant noise source. The maximum measured noise levels at these locations represent the worst-case level of rail noise and would not change in the future because there are no plans for changes in the level of rail service on this line. Consequently, these levels are used to establish the necessary level of window-wall attenuation at the Project Sites to achieve acceptable interior noise levels according to *CEQR Technical Manual* noise exposure guidance. Measured levels are moderate to relatively high and reflect the level of vehicular activity on the adjacent roadways. In terms of the CEQR criteria, the existing noise levels at receptor sites 1, 2, 6, and 7 are in the "marginally acceptable" category and existing noise levels at receptors sites 3, 4, 5, 8, and 9 are in the "marginally unacceptable" category.

E. NOISE PREDICTION METHODOLOGY

GENERAL METHODOLOGY

Future noise levels (including in the No Action and With Action conditions) were calculated using a proportional modeling technique, which was used as a screening tool to estimate changes in noise levels. The proportional modeling technique is an analysis methodology recommended for analysis purposes in the *CEQR Technical Manual*. The noise analysis examined the weekday AM, MD, and PM peak hours at all receptor locations. The selected time periods are when the Proposed Project would be expected to produce the maximum traffic generation (based on the traffic studies presented in Attachment K, "Transportation") and therefore result in the maximum potential for significant adverse noise impacts. The proportional modeling used for the noise analysis is described below.

PROPORTIONAL MODELING

Proportional modeling was used to determine locations with the potential for having significant noise impacts. Proportional modeling is one of the techniques recommended in the *CEQR Technical Manual* for mobile source analysis.

Using this technique, the prediction of future noise levels where traffic is the dominant noise source is based on a calculation using measured existing noise levels and predicted changes in traffic volumes to determine No Action condition and With Action condition noise levels. Vehicular traffic volumes are converted into Noise Passenger Car Equivalent (Noise PCE) values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 13 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) is assumed to generate the noise equivalent of 47 cars, and one bus (vehicles designed to carry more than nine passengers) is assumed to generate the noise equivalent of 18 cars. Future noise levels are calculated using the following equation:

$F\ NL - E\ NL = 10 * \log_{10} (F\ PCE / E\ PCE)$

where:

F NL = Future Noise Level

E NL = Existing Noise Level

F PCE = Future Noise PCEs

E PCE = Existing Noise PCEs

Sound levels are measured in decibels and therefore increase logarithmically with sound source strength. In this case, the sound source is traffic volumes measured in Noise PCEs. For example, assume that traffic is the dominant noise source at a particular location. If the existing traffic volume on a street is 100 PCE and if the future traffic volume were increased by 50 PCE to a total of 150 PCE, the noise level would increase by 1.8 dBA. Similarly, if the future traffic were increased by 100 PCE, or doubled to a total of 200 PCE, the noise level would increase by 3.0 dBA.

F. FUTURE WITHOUT THE PROPOSED PROJECT

Using the methodology described above, No Action condition noise levels were calculated at the nine mobile source noise analysis receptors for the 2024 analysis year. These No Action values are shown in **Table M-6**.

Table M-6
2024 No Action Condition Noise Levels (in dBA)

Receptor Site	Location	Time Period	Existing $L_{eq(1)}$	No Action $L_{eq(1)}$	$L_{eq(1)}$ Change	No Action $L_{10(1)}$
1	Chester Street between Blake Avenue and Dumont Avenue	AM	61.9	62.0	0.1	64.2
		MD	61.3	61.4	0.1	63.7
		PM[2]	73.3	73.4	0.1	64.7
2	Dumont Avenue between Chester Street and Rockaway Avenue	AM	64.8	64.9	0.1	68.4
		MD	60.1	60.2	0.1	62.2
		PM	61.3	61.4	0.1	63.4
3[1]	Livonia Avenue between Bristol Street and Chester Street	AM[2]	78.0	78.0	0.0	71.1
		MD[2]	78.8	78.8	0.0	76.8
		PM[2]	79.0	79.0	0.0	77.4
4[1]	Thomas S Boyland Street between Dumont Avenue and Livonia Avenue	AM[2]	73.3	73.3	0.0	72.6
		MD[2]	73.7	73.7	0.0	71.1
		PM[2]	73.0	73.0	0.0	72.0
5[1]	Chester Street between Livonia Avenue and Riverdale Avenue	AM	69.1	69.1	0.0	69.2
		MD	69.8	69.8	0.0	71.5
		PM	71.4	71.4	0.0	74.1
6	Riverdale Avenue between Chester Street and Rockaway Avenue	AM	60.6	60.7	0.1	63.1
		MD	62.9	63.0	0.1	66.0
		PM	65.1	65.2	0.1	66.4
7	Chester Street between Riverdale Avenue and Newport Street	AM	56.2	56.3	0.1	58.5
		MD	58.8	58.9	0.1	61.0
		PM	63.2	63.3	0.1	65.0
8[1]	Bristol Street between Livonia Avenue and Riverdale Avenue (elevated)	AM	70.1	70.1	0.0	69.5
		MD	70.6	70.6	0.0	73.0
		PM	69.0	69.0	0.0	68.7
9[1]	Chester Street platform of elevated rail (elevated)	AM	74.7	74.7	0.0	71.2
		MD	74.2	74.2	0.0	72.4
		PM	75.8	75.8	0.0	76.6

Notes:
[1] The maximum measured noise levels at receptor sites 3, 4, 5, 8, and 9 represent the worst-case level of rail noise and would not change in the future because there are no plans for changes in the level of rail service on this line.
[2] Noise measurements at these locations and times resulted from site-specific circumstances and the results are atypical.

By 2024, the maximum increase in $L_{eq(1)}$ noise levels for the No Action condition would be 0.1 dBA or less at all nine mobile source noise analysis receptors. Changes of this magnitude would be considered barely perceptible and not significant according to *CEQR Technical Manual* noise impact criteria. The maximum measured noise levels at receptor sites 3, 4, 5, 8, and 9 represent the worst-case level of rail noise and would not change in the future because there are no plans for changes

in the level of rail service on this line. Consequently, the existing noise levels are used to establish the necessary level of window-wall attenuation at the Project Sites to achieve acceptable interior noise levels according to *CEQR Technical Manual* noise exposure guidance. In terms of CEQR noise exposure guidelines, No Action condition noise levels at receptor sites 1, 2, 6, and 7 would be in the "marginally acceptable" category, and No Action condition noise levels at receptors sites 3, 4, 5, 8, and 9 would be in the "marginally unacceptable" category.

G. FUTURE WITH THE PROPOSED PROJECT

Using the methodology previously described, With Action condition noise levels were calculated at the nine mobile source noise analysis receptors for the 2024 analysis year. These With Action values are shown in **Table M-7**.

Table M-7
2024 With Action Condition Noise Levels (in dBA)

Receptor Site	Location	Time Period	No Action $L_{eq(1)}$	With Action $L_{eq(1)}$	$L_{eq(1)}$ Change	With Action $L_{10(1)}$
1	Chester Street between Blake Avenue and Dumont Avenue	AM	62.0	64.6	2.6	66.8
		MD	61.4	63.2	1.8	65.5
		PM[2]	73.4	74.8	1.4	66.1
2	Dumont Avenue between Chester Street and Rockaway Avenue	AM	64.9	65.5	0.6	69.0
		MD	60.2	61.1	0.9	63.1
		PM	61.4	62.0	0.6	64.0
3[1]	Livonia Avenue between Bristol Street and Chester Street	AM[2]	78.0	78.0	0.0	71.1
		MD[2]	78.8	78.8	0.0	76.8
		PM[2]	79.0	79.0	0.0	77.4
4[1]	Thomas S Boyland Street between Dumont Avenue and Livonia Avenue	AM[2]	73.3	73.3	0.0	72.6
		MD[2]	73.7	73.7	0.0	71.1
		PM[2]	73.0	73.0	0.0	72.0
5[1]	Chester Street between Livonia Avenue and Riverdale Avenue	AM	69.1	69.1	0.0	69.2
		MD	69.8	69.8	0.0	71.5
		PM	71.4	71.4	0.0	74.1
6	Riverdale Avenue between Chester Street and Rockaway Avenue	AM	60.7	61.2	0.5	63.6
		MD	63.0	63.7	0.7	66.7
		PM	65.2	65.5	0.3	66.7
7	Chester Street between Riverdale Avenue and Newport Street	AM	56.3	58.8	2.5	61.0
		MD	58.9	59.7	0.8	61.8
		PM	63.3	64.9	1.6	66.6
8[1]	Bristol Street between Livonia Avenue and Riverdale Avenue (elevated)	AM	70.1	70.1	0.0	69.5
		MD	70.6	70.6	0.0	73.0
		PM	69.0	69.0	0.0	68.7
9[1]	Chester Street platform of elevated rail (elevated)	AM	74.7	74.7	0.0	71.2
		MD	74.2	74.2	0.0	72.4
		PM	75.8	75.8	0.0	76.6

Notes:
[1] The maximum measured noise levels at receptor sites 3, 4, 5, 8, and 9 represent the worst-case level of rail noise and would not change in the future because there are no plans for changes in the level of rail service on this line.
[2] Noise measurements at these locations and times resulted from site-specific circumstances and the results are atypical.

By 2024, the maximum increase in $L_{eq(1)}$ noise levels for the With Action condition would be 2.6 dBA or less at all nine mobile source noise analysis receptors. Changes of this magnitude would be considered barely perceptible according to *CEQR Technical Manual* guidance and would fall below the CEQR threshold for a significant adverse noise impact. The maximum measured noise levels at

receptor sites 3, 4, 5, 8, and 9 represent the worst-case level of rail noise and would not change in the future because there are no plans for changes in the level of rail service on this line. Consequently, the existing noise levels are used to establish the necessary level of window-wall attenuation at the Project Sites to achieve acceptable interior noise levels according to *CEQR Technical Manual* noise exposure guidance. In terms of CEQR noise exposure guidelines, With Action condition noise levels at receptor sites 1, 2, 6, and 7 would be in the "marginally acceptable" category, and With Action condition noise levels at receptors sites 3, 4, 5, 8, and 9 would be in the "marginally unacceptable" category.

H. NOISE ATTENUATION MEASURES

The *CEQR Technical Manual* has set noise attenuation requirements for buildings based on exterior noise levels. Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential and community facility uses and 50 dBA or lower for commercial uses, and are determined based on exterior $L_{10(1)}$ noise levels.

Table M-8 shows the minimum window/wall attenuation necessary to meet *CEQR Technical Manual* requirements for interior noise levels at each of the Project Sites.

Table M-8
Required Attenuation at Project Sites (in dBA)

Project Site	Façade(s)	Elevation	Representative Receptor Site	Maximum Predicted L_{eq} Value	Maximum Predicted L_{10} Value	Minimum Required Attenuation[1, 2]
A (Block 3589, Lot 21)	North[3, 4]	Below Elevated Subway	3	79.0	77.4	35
	East/South/West		5	71.4	74.1	31
	All	Above Elevated Subway	9	75.8	76.6	33
B (Block 3574, Lot 1)	North	All	5	71.4	74.1	31
	East	Below Elevated Subway	5	71.4	74.1	31
	South[3, 4]		3	79.0	77.4	35
	East/South[3]	Above Elevated Subway	9	75.8	76.6	33
	West	All	8	70.6	73.0	28
C (Block 3588, Lots 27, 32, 33, 34, 35, and 36)	North[3, 4]	Below Elevated Subway	3	79.0	77.4	35
	East		5	71.4	74.1	31
	North/East[3]	Above Elevated Subway	9	75.8	76.6	33
	South	All	5	71.4	74.1	31
	West	All	8	70.6	73.0	28
D (Block 3573, Lot 1)	North/West[4]	All	4	73.7	72.6	31
	East	All	8	70.6	73.0	28
	South[3, 4]	Below Elevated Subway	3	79.0	77.4	35
		Above Elevated Subway	9	75.8	76.6	33
E (Block 3587, Lots 1 and 27)	North[3, 4]	Below Elevated Subway	3	79.0	77.4	35
		Above Elevated Subway	9	75.8	76.6	33
	East	All	8	70.6	73.0	28
	South/West[4]	All	4	73.7	72.6	31
F (Block 2602, Lot 12)	North	All	6	65.5	66.7	N/A
	East/South/West	All	7	64.9	66.6	N/A
G (Block 3560, Lot 1)	North/West[4]	All	1	74.8	66.8	31
	East/South	All	2	65.5	69.0	N/A

Notes:
[1] Attenuation values are shown for residential and community facility uses; commercial uses would require 5 dBA less attenuation.
[2] "N/A" indicates that the L_{10} value is less than 70 dBA. The CEQR Technical Manual does not address noise levels this low, therefore there is no minimum attenuation guidance.
[3] Attenuation requirements on these façades would wrap around on the east and west façades for the first 50 feet.
[4] Due to site-specific circumstances at certain locations, the required attenuation values are conservatively based on the values shown.

To implement the attenuation requirements shown in **Table M-8**, it is anticipated that an (E) Designation for noise would be applied to the Project Sites specifying the appropriate amount of

window-wall attenuation and an alternate means of ventilation. This (E) Designation would be applied to the Project Sites as E-485; the specific attenuation requirements for each of the Project Sites are shown above in **Table M-8**. The text for the (E) Designation would be as follows:

> To ensure an acceptable interior noise environment, the Project Sites building façade(s) must provide minimum composite building façade attenuation as shown in Table M-6 of the *Marcus Garvey Extension EAS* in order to ensure an interior L_{10} noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition in these areas, an alternate means of ventilation that brings outside air into the buildings without degrading the acoustical performance of the building façade(s) must also be provided.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade is composed of the wall, glazing, and any vents or louvers for HVAC systems in various ratios of surface area. The proposed buildings would be designed to provide a composite façade attenuation rating greater than or equal to the attenuation requirements listed in **Table M-8**.

By adhering to these design guidelines, the Proposed Project would provide sufficient attenuation to achieve the *CEQR Technical Manual* interior noise level guidelines of 45 dBA L_{10} for residential and community facility uses and 50 dBA L_{10} for commercial uses.

I. MECHANICAL EQUIPMENT

It is assumed that the Proposed Project's mechanical systems (i.e., HVAC systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code) and to avoid producing levels that would result in any significant increase in ambient noise levels. Therefore, the Proposed Project would not result in any significant adverse noise impacts related to building mechanical equipment. ✷

A. INTRODUCTION

This attachment summarizes the construction plan under the Proposed Actions and assesses the potential for construction-period impacts.

The Proposed Actions would facilitate the development of seven mixed-use building (the "Proposed Project") in the Brownsville neighborhood of Brooklyn. The incremental development associated with the Proposed Project would be approximately 405 dwelling units (DUs), 35,049 square feet (sf) of commercial space, and 34,108 sf of community facility space distributed over seven sites, Sites A–G, (the "Project Sites"). Buildings A, B, C, D, and E would be eight-story and approximately 95-foot-tall mixed-use residential buildings and Buildings F and G would be nine-story and approximately 100-foot-tall mixed-use residential buildings.

According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, where the duration of construction is expected to be short term (less than 2 years), any impacts resulting from such short-term construction generally do not require detailed assessment. As described below, it is anticipated that each of the Project Sites would take less than 24 months to complete construction, and would therefore be considered short term. However, as construction activity associated with the Proposed Project would occur on multiple Project Sites within the same geographic area, such that there is the potential for several construction timelines to overlap, a preliminary assessment of potential construction impacts was prepared in accordance with the guidelines of the *CEQR Technical Manual* As described below, the analysis concludes that the Proposed Project would not result in extensive construction-related effects with respect to any of the analysis areas of concern. Therefore, no significant adverse impacts are expected to occur as a result of construction.

B. PRELIMINARY CONSTRUCTION SCHEDULE

It is anticipated that construction under the Proposed Actions would be less than 24 months per site, spanning over 5 years from 2019 to 2024. As presented in **Table N-1**, construction of Buildings A, B, and C would start on the first construction year, while Buildings D, E, F, and G would commence during the third construction year.

Table N-1
Preliminary Construction Schedule

Project Site	Approximate Start Month	Approximate Finish Month	Approximate Duration
A	Month 1	Month 24	<24
B	Month 1	Month 24	<24
C	Month 1	Month 24	<24
D	Month 25	Month 48	<24
E	Month 28	Month 51	<24
F	Month 35	Month 58	<24
G	Month 31	Month 54	<24

Based on current plans, construction would begin in 2019 and all seven buildings would be completed by 2024.

The approach and procedures for constructing the proposed buildings would be typical of the methods utilized in other building construction projects throughout New York City. Construction for each of the proposed buildings would consist of the following primary construction stages:

- Excavation and Foundation: 4 to 5 months
- Superstructure: 5 to 6 months
- Building Envelope: 5 to 6 months
- Interiors and Finishing: 7 to 10 months

These construction stages are described in greater details under "Description of Construction Activities."

C. GENERAL CONSTRUCTION PRACTICES

HOURS OF WORK

Building construction in New York City would generally be carried out in accordance with City laws and regulations, which allow construction activities between 7:00 AM and 6:00 PM on weekdays. Weekday construction work and typically begin at 7:00 AM, with most workers arriving between 6:00 AM and 7:00 AM. Normally work would end at 3:30 PM, but it can be expected that, in order to complete certain time-sensitive tasks (e.g., finishing a concrete pour for a floor deck), the workday may occasionally be extended beyond normal work hours. Any extended workdays would generally last until approximately 6:00 PM and would not include all construction workers on-site, but only those involved in the specific task requiring additional work time.

Weekend or night work may also be required for certain construction activities such as to make up for weather delays. Appropriate work permits from the New York City Department of Buildings (DOB) must be obtained for any necessary work outside of the allowable construction hours as detailed above and no work outside of these hours could be performed until such permits are obtained. The level of activity for any weekend work would typically be less than a normal workday and limited to those needed to complete the particular authorized task.

ACCESS, DELIVERIES, AND STAGING AREAS

Access to the Project Sites during construction would be fully controlled. The work areas would be fenced off, and limited access points for workers and construction-related trucks would be provided. After work hours, the gates would be closed and locked. Construction truck staging and laydown of construction materials would take place within the Project Sites and/or curb lanes immediately adjacent to the Project Sites. Maintenance and Protection of Traffic (MPT) plans would be developed for any temporary curb-lane closures as required by the New York City Department of Transportation (DOT). Approval of these plans and implementation of the closures would be coordinated with DOT's Office of Construction Mitigation and Coordination (OCMC). Since Project Sites A through E are immediately adjacent to the elevated No. 3 train, in addition to DOB, the New York City Transit (NYCT) would provide oversight on construction activities at these locations.

DESCRIPTION OF CONSTRUCTION ACTIVITIES

EXCAVATION AND FOUNDATION

Initially, where necessary, sheeting would be installed to hold back soil around the excavation area and excavators would then be used to excavate soil. The soil would be loaded onto dump trucks for transport to a licensed disposal facility. This stage of construction would also include the construction of the new building's foundation and below-grade elements that would typically include the installation of piles and the built-out of foundation walls to the grade level. Equipment used during excavation and foundation would generally also include back hoes, bobcats, and generators.

Dewatering

Water from rain and snow collected in the excavation area during construction would be removed as necessary using a dewatering pump. If dewatering is required, it would be performed in accordance with the New York City Department of Environmental Protection (DEP)'s sewer use requirements.

SUPERSTRUCTURE

The superstructure of a building would include the building's framework such as beams, slabs, and columns. Construction of the interior structure, or core, of the building would include elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; core stairs; and restroom areas. A mobile crane would typically be brought onto the Project Sites during the superstructure stage to lift structural components, façade elements, and other large materials. Superstructure activities would typically also require the use of rebar bending machines, welding equipment and a variety of hand tools. In addition, a temporary construction elevator (hoist) would be used for the vertical movement of workers and materials during superstructure activities.

BUILDING ENVELOPE

The building envelope would include the installation of the façade around the superstructure before the interiors and finishing. The façade elements would arrive on trucks and be lifted into place for attachment by the mobile crane.

INTERIORS AND FINISHING

Interiors and finishing activities would typically include the construction of interior partitions, installation of lighting fixtures, and interior finishes (e.g., flooring and painting), and mechanical and electrical work, such as the installation of elevators and lobby finishes. Final cleanup and building system (e.g., electrical system, fire alarm, and plumbing) testing and inspections would also be part of this stage of construction. Equipment used during interiors and finishing would generally include hoists, man lifts, concrete finishers, and a variety of small hand-held tools.

D. PROBABLE IMPACTS DURING CONSTRUCTION

As with most developments in New York City, construction of the Proposed Project may be disruptive to the surrounding area for limited periods of time throughout the construction period. The following analyses describe the Proposed Project's temporary effects on transportation systems, air quality, noise, historic resources, hazardous materials, land use and neighborhood character, socioeconomic conditions, community facilities, and open space.

TRANSPORTATION

As described in the *CEQR Technical Manual*, construction activities may affect several elements of the transportation system, including traffic, transit, pedestrians, and parking. A transportation analysis of construction activities is predicated upon the duration, intensity, complexity and/or location of construction activity.

Although the Proposed Project would involve construction on multiple Project Sites with some overlap in construction activities, construction at each of the Project Sites is anticipated to be less than 24 months and is considered short term in accordance with the *CEQR Technical Manual*. The approach and procedures for constructing the proposed buildings would be typical of the methods utilized in other building construction projects throughout New York City. The Proposed Project's construction staging is expected to occur within the Project Sites and/or at curb lanes immediately adjacent to the Project Sites. As is typical with construction projects in New York City, the construction of the Proposed Project may require the narrowing of sidewalks immediately adjacent to the Project Sites. However, it is not anticipated that construction of the Proposed Project would require closing, narrowing, or otherwise impeding traffic moving lanes, roadways, key pedestrian facilities, bicycle routes and facilities, bus lanes or routes, or access points to transit. Any construction-related narrowing and/or closures required for the Proposed Project are anticipated to be routine and could typically be addressed by a permit and pedestrian access plan required by DOT's OCMC at the time of closure(s).

The applicant, Brownsville Livonia Associates LLC, would develop a MPT Plan and consult with DOT's OCMC to ensure safety of the construction workers and the public passing through the area and that access is maintained to nearby residences and businesses at all times. In addition, flaggers would be employed as necessary to manage the access and egress of construction deliveries to and from the Project Sites and to provide guidance for pedestrian safety. The Proposed Project's construction would not be located in a Central Business District (CBD) or along an arterial or major thoroughfare. Throughout the construction period, construction workers would travel to and from the Project Sites by personal vehicle or transit and there would be construction trucks entering and leaving the Project Sites. Given that construction worker commuting trips and truck deliveries generally concentrate in the early morning and mid-afternoon periods on weekdays and outside of the commuting peak hours, and that there would not be a substantial number of construction-related vehicles trips at the Project Sites on any given day, construction of the Proposed Project is not expected to result in significant adverse impacts to the area's traffic operations, parking supply and utilization, bus loading, or subway station conditions. Therefore, the Proposed Project's construction activities are not expected to result in significant adverse transportation impacts.

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 (1) are considered short-term (less than 2 years); (2) are not located near sensitive receptors; and (3) do not involve the construction of multiple buildings where there is a potential for cumulative impacts from different buildings under simultaneous construction before the final build-out. Since the Project Sites are predominantly residential and are considered sensitive receptor locations and given that the Proposed Actions would facilitate the development of seven mixed-use buildings, a preliminary assessment of air quality and noise during construction under the Proposed Actions is presented below.

AIR QUALITY

Emissions from on-site construction equipment and on-road construction-related vehicles, as well as dust-generating construction activities, have the potential to affect air quality. The *CEQR Technical Manual* states that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large, or important) should be assessed in connection with its setting (e.g., urban or rural), probability of occurrence, duration, irreversibility, geographic scope, magnitude, and number of people affected. This guidance was followed to assess the potential for construction air quality impacts from the Proposed Project.

Emission Control Measures

Measures would be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes. These include dust suppression measures and idling restrictions:

- *Clean Fuel*. Ultra-low-sulfur diesel[1] (ULSD) fuel will be used exclusively for all diesel engines throughout the Project Sites.
- *Dust Control.* To minimize dust emissions from construction activities, a dust control plan, including a robust watering program, would be required as part of contract specifications. For example, all trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the Project Sites; and water sprays would be used for all demolition, excavation, and transfer of soils to ensure that materials would be dampened as necessary to avoid the suspension of dust into the air. Loose materials would be watered, stabilized with a chemical suppressing agent, or covered. All measures required by the portion of the *DEP Construction Dust Rules* regulating construction-related dust emissions would be implemented.
- *Idling Restriction.* In accordance with Title 24, Chapter 1, Subchapter 7, Section 24-163 of the *NYC Administrative Code*, the local law restricting unnecessary idling on roadways, truck idle time will be restricted to 3 minutes except for vehicles that are using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or are otherwise required for the proper operation of the engine.
- *Diesel Equipment Reduction.* Electrically powered equipment would be utilized over diesel-powered and gasoline-powered versions of that equipment to the extent practicable. Equipment that would use the grid power in lieu of diesel engines includes, but may not be limited to, hoists, the tower crane that would be employed during construction, and small equipment such as welders.

In addition, the following measures would be implemented to the extent practicable to further reduce air pollutant emissions during construction:

- *Best Available Tailpipe Reduction Technologies.* Non-road diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the Proposed Project), including but not limited to concrete mixing and pumping trucks would utilize the best available technology (BAT) for reducing diesel particulate

[1] The U.S. Environmental Protection Agency (EPA) required a major reduction in the sulfur content of diesel fuel intended for use in locomotive, marine, and non-road engines and equipment, including construction equipment. As of 2015, the diesel fuel produced by all large refiners, small refiners, and importers must be ULSD fuel. Sulfur levels in non-road diesel fuel are limited to a maximum of 15 parts per million (ppm).

emissions to extent practicable. Diesel particulate filters have been identified as being the tailpipe technology currently proven to have the highest reduction capability.

- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards[2] for non-road engines regulate the emission of criteria pollutants from new engines, including particulate matter (PM), carbon monoxide (CO), nitrogen oxide (NO_x), and hydrocarbons (HC). Efforts would be made to ensure that diesel-powered non-road construction equipment with a power rating of 50 hp or greater used in construction of the Proposed Project would meet at least the Tier 3 emissions standard to the extent practicable.

Overall, the emissions control measures identified above are expected to significantly reduce air pollutant emissions during construction of the Proposed Project.

Potential Air Quality Effects During Construction

Although the area surrounding the Project Sites is predominantly residential and is considered sensitive receptor locations and Buildings A, B, and C are anticipated to be completed and likely occupied during the construction of the Buildings D, E, F, and G, the construction of each of the Project Sites is temporary and considered short-term. As discussed above, the overall construction duration under the Proposed Actions is anticipated to span approximately 5 years but the construction period for each individual Project Site is anticipated to be less than 24 months and would be considered short term in accordance with the *CEQR Technical Manual*. Most of the activities would take place within the Project Sites and curb lanes immediately adjacent to the Project Sites. Furthermore, the most intense construction activities in terms of air pollutant emissions (excavation and foundation activities where the largest number of large non-road diesel engines such as excavators and backhoes would be employed) would generally occur over a period of approximately 4 to 5 months per Project Site. Moreover, construction sources would move around the Project Sites over the construction period such that the air pollutant concentration increments due to construction of the Proposed Project would not persist in any single location. The other stages of construction, including superstructure, building envelope, and interiors and finishing work, would result in substantially lower air emissions since they would require fewer pieces of heavy-duty diesel equipment and would not involve soil disturbance activities that generate dust emissions.

As described above in "Transportation." the construction worker commuting trips and truck deliveries generally concentrate in the early morning and mid-afternoon periods on weekdays and outside of the commuting peak hours and that there would not be a substantial number of construction-related vehicles trips at the Project Sites on any given day. Therefore, further mobile source analysis is not required. The approach and procedures for constructing the proposed buildings would be typical of the methods utilized in other building construction projects throughout New York City and therefore would not be considered out of the ordinary in terms of intensity. As discussed above under "Emissions Control Measures," measures would be taken to reduce pollutant emissions during construction. For example, a watering program would be implemented to minimize dust emissions from construction activities and all measures required

[2] The first federal regulations for new non-road diesel engines were adopted in 1994, and signed by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment 50 hp and greater and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. In 2004, the EPA introduced Tier 4 emissions standards with a phased-in period of 2008 to 2015. The Tier 1 through 4 standards regulate the EPA criteria pollutants, including PM, HC, NOx and CO. Prior to 1998, emissions from non-road diesel engines were unregulated. These engines are typically referred to as Tier 0.

by the portion of DEP's *Construction Dust Rules* regulating construction-related dust emissions would be followed. In addition, to further minimize air pollutant emissions during construction, emissions reduction measures including the use of BAT and the use of newer and cleaner equipment would be implemented during construction.

Based on the analyses provided and implementation of the emissions reduction program described above, construction of the Proposed Project would not result in any significant adverse construction air quality impacts, and no further analysis is required.

NOISE AND VIBRATION

Noise

Potential impacts on community noise levels during construction could result from the operation of construction equipment and from construction and delivery vehicles traveling to and from the Project Sites. Noise levels at a given location are dependent on the type and quantity of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time the equipment is operating), the distance from the construction site, and any shielding effects (e.g., from structures such as walls or barriers). Noise levels caused by construction activities would vary widely and the location of the construction activities relative to noise-sensitive receptor locations would also vary.

Noise Control Measures

Noise from construction activities and some construction equipment is regulated by the New York City Noise Control Code (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113) and by EPA's noise emission standards. These local and federal requirements mandate that specific construction equipment and motor vehicles meet specified noise emission standards; construction activities be limited to weekdays between the hours of 7:00 AM and 6:00 PM (i.e., for weekend and after hour work, permits would be required to be obtained before these activities could occur); and that construction materials be handled and transported in such a manner as not to create unnecessary noise. During construction of the Proposed Project, all necessary measures would be implemented to ensure adherence to the New York City Noise Control Code regulating construction noise. The New York City Noise Control Code regulations would minimize noise disruption to the nearby community during the construction of the Proposed Project. In accordance with City regulations, a noise control plan would be developed and implemented to minimize intrusive noise impacts on sensitive receptors near the Project Sites. This noise control plan is expected to include such measures as avoiding unnecessary evening construction and truck idling. A copy of the noise mitigation plan would also be kept at the construction site for compliance review by DEP and DOB.

Noise control measures would typically include a variety of source and path controls. In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the New York City Noise Code:

- Equipment that meets the sound level standards specified in Subchapter 5 of the New York City Noise Control Code would be used from the start of construction.
- As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as pumps, compressors, and hoists (i.e., early electrification) to the extent feasible and practicable.

- Where feasible and practical, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than 3 minutes at the construction site based upon New York City Local Law.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented to the extent feasible and practical:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations.
- Noise barriers would be utilized to provide shielding (i.e., the construction sites would have an 8-foot site perimeter barrier).

Potential Noise Effects During Construction

As discussed above in "Air Quality," although the area surrounding the Project Sites is predominantly residential and Buildings A, B, and C are anticipated to be completed and occupied during the construction of the Buildings D, E, F, and G, the construction of each of the Project Sites is temporary and considered short term. The overall construction duration under the Proposed Actions is anticipated to span approximately 5 years but with the construction of each individual Project Site anticipated to be less than 24 months and is considered short-term in accordance with the *CEQR Technical Manual*. Most of the activities would take place within the Project Sites and curb lanes immediately adjacent to the Project Sites and perimeter fencing would be erected to buffer noise emitted from construction activities. Furthermore, the most intense construction activities in terms of noise emissions (i.e., excavation and foundation activities where the noisiest equipment is typically employed) would generally occur over a period of approximately 4 to 5 months per Project Site. Moreover, as discussed in Attachment M, "Noise," sensitive receptors within the Project Area are already subjected to ongoing dominant ambient noise sources from the elevated No. 3 train.

As described above in "Transportation," the construction worker commuting trips and truck deliveries generally concentrate in the early morning and mid-afternoon periods on weekdays and outside of the commuting peak hours and that there would not be a substantial number of construction-related vehicles trips at the Project Sites on any given day. The approach and procedures for constructing the proposed buildings would be typical of the methods utilized in other building construction projects throughout New York City and therefore would not be considered out of the ordinary in terms of intensity. Therefore, noise levels expected to result from the construction of the Proposed Project would be comparable to those from any typical construction site in New York City involving construction of a new building. Noise levels would be minimized by adherence to the New York City Noise Control Code and implementation of a noise mitigation plan as discussed above. Overall, the noise effects would be temporary and limited and would only occur during the construction period.

Based on the information presented above and considering the limited duration and intensity of construction activities associated with the Proposed Project and the adherence to the New York City Noise Control Code to minimize noise disruption, construction of the Proposed Project would not result in any significant adverse noise impacts.

Vibration

Construction activities have the potential to result in vibration levels that may in turn result in structural or architectural damage, and/or annoyance or interference with vibration-sensitive activities. In general, vibratory levels at a receiver are a function of the source strength (which in turn is dependent upon the construction equipment and methods utilized), distance between the equipment and the receiver, characteristics of the transmitting medium, and receiver building construction. Construction equipment operation causes ground vibrations, which spread through the ground and decrease in strength with distance. Vehicular traffic, even in locations close to major roadways, typically does not result in perceptible vibration levels unless there are discontinuities in the roadway surface. With the exception of the case of fragile and possibly historically significant structures or buildings, generally construction activities do not reach the levels that can cause architectural or structural damage, but can rise to levels that may be perceptible and annoying in buildings or structures (i.e., elevated subway structures) very close to a construction site. Localized increases in vibration associated with construction of the Proposed Project would be temporary. In addition, as discussed below in "Historic and Cultural Resources," no architectural resources have been identified within a 90-foot radius of the Project Sites. For these reasons, the Proposed Project would not result in any potential significant adverse vibration impacts during construction.

HISTORIC AND CULTURAL RESOURCES

As described in Attachment G, "Historic and Cultural Resources," the New York City Landmarks Preservation Commission (LPC) determined that the seven sites (Sites A–G) to be developed by the applicant do not possess archaeological sensitivity. Therefore, no adverse construction-related impacts on archaeological resources are expected as a result of the Proposed Project.

There are no known architectural resources—properties listed on, or determined eligible for listing on, the State and National Registers of Historic Places (S/NR), National Historic Landmarks, New York City Landmarks and Historic Districts (NYCL), or properties pending such designation—on or within 90 feet of the Project Sites. Therefore, no adverse construction-related impacts on architectural resources are expected as a result of the Proposed Project.

HAZARDOUS MATERIALS

The Proposed Project would entail construction of new buildings requiring excavation and soil disturbance for foundations, utilities, etc. As discussed in details in Attachment I, "Hazardous Materials," although this could increase pathways for human exposure to any contaminated materials present in the subsurface, impacts would be avoided by incorporating the following into the Proposed Project:

- Phase I Environmental Site Assessments (ESA) would be prepared for all of the Project Sites. At all of the Project Sites where the ESAs identify Recognized Environmental Conditions (RECs), Phase II Subsurface Investigation would be performed to determine whether and to what extent historical uses have affected subsurface conditions. The scope of work for the Phase II investigations would be subject to pre-approval by DEP. Phase II Reports would be prepared to present the results of each investigation.
- For those Project Sites where a Phase II Report has been prepared, a Remedial Action Work Plan (RAWP) and a Construction Health and Safety Plan (CHASP) would be prepared, for DEP review and approval, and would be implemented during the subsurface disturbance associated with implementing the Proposed Project at that Project Site. The purpose of a

RAWP and CHASP is to address any subsurface contamination identified by the Phase II or related to the nearby Brownfield Cleanup Program (BCP) Site (where, as with the future without the Proposed Project, quarterly groundwater sampling will continue to be performed per NYSDEC requirements) and provide for measures to address any contingencies that may arise during construction, such as specifying appropriate measures to be implemented if underground storage tanks, soil or groundwater contamination, or other unforeseen environmental conditions are encountered. Each RAWP would also include any necessary measures that need to be incorporated into the new construction (e.g., vapor controls for a new building or the import of clean soil to cap new landscaped areas).

- Applicable regulatory requirements would also be followed at all Project Sites (e.g., disposing of any excess soil off-site at appropriately licensed facilities; reporting to NYSDEC any signs of a petroleum spill, and removing and registering encountered tanks) and following DEP requirements should dewatering be required.

To ensure the measures above are implemented, as warranted, an (E) Designation for hazardous materials would be placed on the privately owned sites identified as part of the proposed rezoning. The (E) Designation would require that, prior to redevelopment, the property owner conduct: a Phase I ESA in accordance with ASTM E1527-13; and, if RECs are identified or if required by the New York City Mayor's Office of Environmental Remediation (OER), implement a soil, soil vapor, and groundwater testing protocol, and remediation where appropriate, to the satisfaction of the OER before issuance of construction-related DOB permits (pursuant to Section 11-15 of the *Zoning Resolution*—Environmental Requirements). The (E) Designation also mandates construction-related health and safety plans, which must be approved by OER.

The text of the (E) Designation would be the following:

Task 1—The applicant submits to OER, for review and approval, a Phase I ESA of the site along with a soil and groundwater 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 sample sites should be selected to adequately characterize the site, the specific source 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—A written report with findings and a summary of the data must be 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 the 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.

For the City-owned sites, similar requirements to those associated with the (E) Designation, i.e., a Phase I ESA and potentially subsurface testing (in accordance with an agency-approved protocol and

an agency-approved remediation plan), would be required through a Land Disposition Agreement (LDA) or similar binding documents between the City of New York and prospective developers.

With these measures included as part of the Proposed Project, no significant adverse impacts related to hazardous materials would occur.

LAND USE AND NEIGHBORHOOD CHARACTER

According to the *CEQR Technical Manual*, a construction impact analysis for land use and neighborhood character is typically needed if construction would require continuous use of property for an extended duration, thereby having the potential to affect the nature of the land use and character of the neighborhood.

Construction activities would affect land use on the Project Sites, but would not affect land use conditions and patterns outside of them. The area surrounding the Project Sites is predominantly residential. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be activities on-site as well as construction trucks and construction workers coming to the site. However, these periods of disruption would be temporary, and would not result in significant or long-term adverse impacts on the local land use patterns or character of the nearby area.

SOCIOECONOMIC CONDITIONS

The *CEQR Technical Manual* suggests that if a project entails construction of a long duration that could affect the access to and therefore viability of a number of businesses and the failure of those businesses has the potential to affect neighborhood character, then a preliminary assessment for construction impacts on socioeconomic conditions should be conducted. The Proposed Project would not have such effects. There are no commercial businesses at locations where construction activities could result in the temporary closing, narrowing, or otherwise impeding of roadways and sidewalks. The Proposed Project's construction activities would not impede access to any businesses, and therefore would not have any significant adverse impacts on socioeconomic conditions.

The Proposed Project's construction would create direct benefits resulting from expenditures on labor, materials, and services, as well as indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction would also contribute to increased tax revenues for the City and state, including those from personal income taxes.

COMMUNITY FACILITIES AND SERVICES

According to the *CEQR Technical Manual*, a construction impact assessment should be conducted for any community facility that would be directly affected by construction (e.g., if construction would disrupt services provided at the facility or close the facility temporarily). Construction associated with the Proposed Project would not have the potential to disrupt services or temporarily close any community facility. Therefore, the Proposed Project's construction activities would not have direct effects on community facilities, and no further analysis is warranted.

OPEN SPACE

According to the *CEQR Technical Manual*, a construction impacts analysis for open space should be conducted if an open space resource would be used for an extended period of time for construction-related activities, such as construction staging, or if access to the open space would be impeded for an extended period during construction activities. The Proposed Project would not

have such effects. The Proposed Project's construction activities would not require the use of public open space, nor would construction affect access to or from a public open space. Therefore, there would be no significant adverse impacts to open space resources from construction, and no further assessment is warranted. ✷

Appendix 1

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: P2015K039 1a. Modification ☐
2. Project Name: Marcus Garvey Extension
3. Project Description:

   Development of seven new mixed-use buildings including residential, retail, community, and parking space. The project sites currently comprise 3.38 acres of paved areas used for surface parking and 3,223 sf of grass/garden space. See Attachment 1 for details.

4. Project Sponsor: Brownsville Livonia Associates LLC
5. Required approvals: See Attachment 1
6. Project schedule (build year and construction schedule): Build Year 2020-2024

B. PROJECT LOCATION:

1. Street address: Blake Ave (N), Rockaway Ave (E), Hopkins Street (W), Newport Street (S) (see Figure 1)
2. Tax block(s): See Attachment 1 and Fig 2 Tax Lot(s): See Attachment 1 and Figure 2
3. Identify existing land use and zoning on the project site: See Attachment 1 and Figure 3a
4. Identify proposed land use and zoning on the project site: See Attachment 1 and Figure 3b
5. Identify land use of adjacent sites (include any open space): See Attachment 1 and Figure 4
6. Describe existing density on the project site and the proposed density:

Existing Condition	Proposed Condition
Vacant, 0 gsf	775,379 gsf residential; 35,049 gsf retail; 98,032 gsf community space

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): 127,631 sf (2.93 acres)
2. Will soil be removed (if so, what is the volume in cubic yards)? 70,906 CY
3. Subsurface soil classification:
   (per the New York City Soil and Water Conservation Board): UFA, UFAI, UoA
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: See Attachment 1 Rates: See Attachment 1
7. Describe site elevation above seasonal high groundwater:

   Groundwater is anticipated to be approximately 10 to 20 feet below grade.

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.

   Not known, would only be used as necessary and only those approved for use within New York.
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?

   Not known. Project sites are inland and would not greatly contribute artificial light to Jamaica Bay

E. SURFACE COVERAGE AND CHARACTERISTICS

(describe the following for both the existing and proposed condition):

	Existing Condition	Proposed Condition
1. ***Surface area:***		
Roof:		Approximately 2.49 acres
Pavement/walkway:	Approximately 3.22 acres	Approximately 1.07 acres
Grass/softscape:	Approximately 0.34 acres	
Other (describe):		Proposed action may include green roofs and courtyard landscaping - TBD

2. ***Wetland*** (regulated or non-regulated) area and classification:

Existing Condition	Proposed Condition
No wetlands in project area	No wetlands in project area

3. ***Water surface area:***

Existing Condition	Proposed Condition
No surface water in project area	No surface water in project area

4. ***Stormwater management*** (describe):

Existing – how is the site drained?

The projects sites are located in a combined sewer area with two CSO areas: the Fresh Creek and Hendrix Creek drainage areas. Stormwater and sanitary wastewater flow is conveyed to the 26th Ward WWTP.

Proposed – describe, including any infrastructure improvements necessary off-site:

To accomodate increased sanitary and stormwater flows, a new connection would be made to the East 229th Street and Grace Avenue sewer, which ultimately drains to the 26th Ward WWTP. The project may also include green roofs and courtyard landscaping.

Appendix 2

Table X
Determination of Significance Appendix: (E) Designation

Site	Block	Lot	(E)-Designation
A	3589	21	E-485
B	3574	1	E-485
C	3588	27, 32, 33, 34, 35, 36	E-485
D	3573	1	E-485
E	3587	1, 27	E-485
F	3602	12	E-485
G	3560	1	E-485

Appendix 3

PHASE I

ENVIRONMENTAL

SITE ASSESSMENT

December 5, 2014

Site Identification:	**Marcus Garvey Project** **227-247 Dumont Avenue** **251, 318-376, 355 and 401 Chester Street** **304-362 Bristol Street** **147-167 and 170-190 Riverdale Avenue** **436 Livonia Avenue** **and parcels located along** **Livonia Avenue and Chester Street** **Brownsville, Borough of Brooklyn** **New York City, New York**
Tax Lot Identification:	**Section 3: Block 3559, Lot 1; Block 3560, Lot 1;** **Block 3574, Lot 1; Block 3575, Lot 11;** **Block 3589, Lot 21; Block 3573, Lot 1;** **Block 3587, Lot 1; Block 3601, Lot 26;** **Block 3588, Lots 1 & 27; Block 3602, Lot 12**
Property Description:	**13.1-acre property containing multifamily residential and mixed-use buildings**

ESI File: LB13203.10UR

Prepared By:

Ecosystems Strategies, Inc.
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Ecosystems Strategies, Inc.

PHASE I

ENVIRONMENTAL

SITE ASSESSMENT

December 5, 2014

ESI File: LB13203.10UR

Prepared By:

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24 Davis Avenue
Poughkeepsie, New York 12603

Prepared For:

L&M Palmer Holdings LLC
1865 Palmer Avenue
Larchmont, New York 10538

Phase I Environmental Site Assessment services performed by Ecosystems Strategies, Inc. have been conducted in accordance with ASTM Method E 1527-13.

The undersigned has reviewed this Phase I Environmental Site Assessment and certifies to L&M Palmer Holdings LLC that the information provided in this document is accurate as of the date of issuance by this office.

_____

Paul H. Ciminello
President

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EXECUTIVE SUMMARY

Ecosystems Strategies, Inc. (ESI) has performed an update to a previous Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Practice E 1527-13 of the property known as the Marcus Garvey Project located at 227-247 Dumont Avenue, 251, 318-376, 355 and 401 Chester Street, 304-362 Bristol Street, 147-167 and 170-190 Riverdale Avenue, 436 Livonia Avenue, and parcels located along Livonia Avenue and Chester Street, Brownsville, Borough of Brooklyn, New York City, New York.

The goal of a Phase I ESA is to identify Recognized Environmental Conditions (RECs) in connection with a property. In addition to RECs, ESI has attempted to identify:

1. Conditions that do not meet the threshold to be considered a REC but nonetheless represent a significant existing and/or likely environmental liability; and,
2. De minimis conditions that generally do not present a significant threat and would not be the subject of an enforcement action if brought to the attention of regulatory authorities.

ESI's findings, conclusions and recommendations are presented in Section 4.0 of this Phase I ESA and are summarized below.

Subject Property Description and History

The subject property consists of the 13.1-acre mixed-use (commercial and residential) property known as the Marcus Garvey Project. The first developed use of the subject property is likely to have been for residential and small commercial purposes sometime between 1887 and 1901. The property was developed for its current usage in 1974 and 1978.

A former dry cleaner (operational from 1995 to 2011) was identified at 650 Rockaway Avenue (southwest corner of Rockaway Avenue and Dumont Avenue). A closed NYSDEC spill event (spill number: 9805405) was reported for the former on-site dry cleaner in 1998 based on the release of twenty gallons of dry cleaning solvent. Subsurface investigations performed at and in the vicinity of this former dry cleaner indicate the presence of elevated concentrations of dry cleaning solvents (PCE, TCE, and DCE) in on-site soil, soil vapor, and groundwater. The site is under consideration for acceptance into the NYSDEC Brownfields Cleanup Program.

Releases at the on-site former dry cleaner and at an adjoining automobile repair facility (adjoining the property to the south since circa 1983) have the potential to impact the indoor air quality of surrounding commercial and residential spaces. Indoor air quality at residential and commercial spaces has not been documented.

Open spill events have been reported for adjoining (Tilden Houses; spill number: 9413342) and nearby (former dry cleaner; spill number: 0712821) properties located to the east of the subject property (no subject property structures are located in the immediate vicinity of the nearby former dry cleaner). Elevated concentrations of PCE and other chlorinated solvents were detected in soil and groundwater at these sites. A review of available information indicates groundwater flow in the vicinity of the subject property is to the southeast; therefore, it is not likely that releases at these sites have significantly impacted the subject property.

An out of use 275 aboveground storage tank (AST) is located in the basement of 650 Rockaway Avenue. According to available information, this tank formerly serviced a boiler. The fill port for this tank is located at the exterior portion of the structure in the adjoining sidewalk. No indications of release were noted at or around the tank. This tank is unregistered and therefore no state oversight for closure is required.

The potential exists that debris from the demolition of former on-site structures may be present in the subsurface (such debris could contain lead based paint, asbestos, or other regulated materials).

Recognized Environmental Conditions

RECs Identified in Connection with the Subject Property	Recommendations
Documented dry cleaning solvent contamination in on-site soil, soil vapor, and groundwater	Conduct all future investigative and remedial work in accordance with NYSDEC Brownfields Cleanup Program
Potential for vapor intrusion from former dry cleaner and/or adjoining automobile repair facility	Address issues/concerns relating to indoor air quality in investigative and remedial work, as specified above.
Presence of out of use AST and fill port	Removal of tank and associated piping.
Potential subsurface debris former on-site structures	Conduct future site development activities with awareness of the potential presence of subsurface debris, and make provisions for the proper management of any materials that warrant special handling.

Historical RECs (HRECs) and/or Other Relevant Environmental Liabilities

ESI has identified no HRECs or conditions indicating significant existing or potential environmental liabilities.

De Minimis Conditions

Identified or Suspect Condition	Recommendations
Storage of small quantities of paints and chemicals	Properly store containers; maintain appropriate absorbent materials in all areas where releases could potentially occur
Asbestos-containing materials (ACM) and lead-based paint (LBP)	Test suspect material encountered during maintenance, renovation, or demolition for ACM and/or LBP; handle all known or suspect materials in accordance with applicable regulations
On-site transformers	Maintain equipment and appropriate absorbent materials

1.0 INTRODUCTION

1.1 Purpose of the Investigation

This Phase I Environmental Site Assessment (Phase I ESA) identifies recognized environmental conditions (RECs) and/or other significant environmental liabilities resulting from or associated with the storage, use, transport, or disposal of hazardous or regulated materials on the property known as the Marcus Garvey Project located at 227-247 Dumont Avenue, 251, 318-376, 355 and 401 Chester Street, 304-362 Bristol Street, 147-167 and 170-190 Riverdale Avenue, 436 Livonia Avenue and parcels located along Livonia Avenue and Chester Street, Brownsville, Borough of Brooklyn, New York City, New York (property descriptions are presented in Sections 2.1 and 3.3.2). This Phase I ESA is an update to a previous Phase I ESA issued by this office in December 2013.

1.2 Methodology

This Phase I ESA has been prepared in conformance with guidelines set forth by the American Society for Testing and Materials (ASTM) Method E1527-13 (no exceptions to or deletions from this practice have occurred.). The detailed Scope of Services adhered to in this investigation is provided as Appendix H. This environmental site assessment was performed under the direct supervision and responsible charge of a qualified environmental professional (see Appendix G), following the requirements for "all appropriate inquiry" as defined in 40 CFR Part 312.

Ecosystems Strategies, Inc. (ESI) performed the following work:

1. Investigation of the subject property's history and characteristics through the analysis of available historical maps and city directory abstracts, local and regional maps, local governmental and/or Tribal records, and information provided by subject property representatives and other knowledgeable individuals (see Section 5.0 for references).
2. Review of Federal, State, and/or Tribal regulatory-agency computer databases and printed records for documentation of potential environmental liabilities relevant to the property, consistent with (or exceeding) applicable ASTM requirements.
3. Inspection of the property by Paul Ciminello of ESI on November 25, 2014. Bill Burton, representing the Marcus Garvey property management group, was present during the site inspection. (Note: the property was also inspected by ESI personnel during a previous Phase I ESA assessment conducted in December 2013).

1.3 Limitations

This Phase I ESA is an evaluation of the property described in Section 2.1 below and is not valid for any other property or location. It is a representation of the property analyzed as of the dates that services were provided. This Phase I ESA cannot be held accountable for activities or events resulting in environmental liability after the respective dates of the site inspection or historical and regulatory research.

This Phase I ESA is based in part on certain information provided in writing or verbally by federal, state, and local officials (including public records) and other parties referenced herein. The accuracy or completeness of this information was not independently verified. Unless specifically noted, the findings and conclusions contained herein must be considered not as scientific certainties, but as probabilities based on professional judgment.

1.4 Definitions

Definitions of some common terms found in ASTM Standard 1527-13, as used in this Phase I ESA, are provided below.

Key Site Manager

The person identified by the owner or operator of a property as having good knowledge of the uses and physical characteristics of the property.

Practically Reviewable / Reasonably Ascertainable

Information that is provided by a source in a manner and in a form that yields information relevant to the property without the need for extraordinary analysis of irrelevant data is Practically Reviewable. Records must be for a limited geographic area. Records arranged chronologically, lacking adequate address information to be located geographically, in large databases that are not sorted by zip code, or are so numerous to be unmanageable are not generally practically reviewable (i.e. data cannot be feasibly reviewed for its impact on the property). Information that is (1) publicly available, (2) obtainable from its source within reasonable time and cost constraints, and (3) practically reviewable is Reasonably Ascertainable.

Recognized Environmental Condition (REC)

The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to 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.

A material threat is a physically observable or obvious threat which is reasonably likely to lead to a release that is threatening and might result in impact to public health or the environment.

The term includes hazardous substances or petroleum products even under conditions in compliance with laws.

De minimis conditions (i.e. conditions that generally do not present a threat to human health or the environment and would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies) are not RECs.

Controlled Recognized Environmental Condition (CREC)

A REC resulting from a past release that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (legal or physical restrictions or limitations on the use of, or access to, a site or facility to reduce or eliminate potential exposure to remaining contaminants, or to prevent activities that could interfere with the effectiveness of a response action).

Historical Recognized Environmental Condition (HREC)

A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed 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).

2.0 SITE LOCATION AND DESCRIPTION

2.1 Description of the Subject Property

The subject property as defined in this Phase I ESA consists of the 13.1-acre property known as the Marcus Garvey Project consisting of portions of ten city blocks in the neighborhood of Brownsville, Borough of Brooklyn, New York City, New York. A Site Location Map is provided on Page 8.

For clarity of presentation, the subject property has been portioned into eleven parcels (Parcels A-K) as specified in Table 1, below. A map illustrating the layout of the property is provided on Page 9, and photographs of the property are provided in Appendix A.

Table 1: Parcel Identification

Parcel ID	Address(s)	Block	Lot
A	227-247 Dumont Avenue	3559	1
B	251 Chester Street	3560	1
C	304-362 Bristol Street	3573	1
D	318-376 Chester Street	3574	1
E	355 Chester Street (650 Rockaway Avenue)	3575	11
F	147-167 Riverdale Avenue	3587	1
G	436 Livonia Avenue	3588	1
H	Livonia Avenue (no specific address)	3588	27
I	401 Chester Street	3589	21
J	170-190 Riverdale Avenue	3601	26
K	Chester Street (no specific address)	3602	12
Note: parcel addresses are as listed in New York City online resources (alternate addresses may exist.)			

The property consists of rectangular-shaped lots (Parcels A, B, D, I, and K) and irregularly-shaped lots (Parcels C, E, F, H, G, and J) located adjacent to Thomas S. Boyland Street, Bristol Street, Chester Street, Rockaway Avenue, Dumont Avenue, Livonia Avenue, and Riverdale Avenue. Eighty-seven, three to four-story residential and mixed use (residential and commercial) buildings are located on Parcels A, C, D, E, F, G, and J. Remaining portions of the property consist of paved parking areas and outdoor recreational areas. A map illustrating the layout of the property is provided on Page 9 and photographs of the property are provided in Appendix A.

2.1.1 Site Topography

Information on the subject property's topography was obtained from the review of the United States Geological Survey Topographic Map of the Brooklyn, New York Quadrangle (a copy of the relevant portion of this map, with the subject property indicated, is provided in Appendix B). The map indicates that the property has surface elevations that range from approximately 20 to 40 feet above mean sea level. The property is located within an area with gentle downward slopes to the south, towards Jamaica Bay. The property was observed to be relatively level.

The topographic map did not indicate the presence of any soil/gravel mining operations or unusual topographic patterns indicative of landfilling activities on the subject property. No on-site structures are depicted on the topographic map (the property is located in an urban area where only selected landmark buildings are depicted).

2.1.2 Site Geology

A review of the Geologic Map of New York and the Surficial Geologic Map of New York (lower Hudson sheets) indicates that soils on the subject property are likely to be derived from sand and gravel glacial outwash deposits, which overlie clays, sands, and gravel. Soil maps presented in the New York City Reconnaissance Soil Survey (Soil Survey), issued by the New York City Soil and Water Conservation District, indicate that the Pavement & Buildings-Flatbush-Riverhead Complex (0-8% slopes) soil series is likely to be located on the property. The Pavement & Buildings-Flatbush-Riverhead Complex designation is provided for areas where at least 80% of the surface is covered by buildings, parking areas or other impervious structures, and consists of a mixture of anthropogenic and gneissic outwash soils. [Note: the Soil Survey provides only a general guide to soil patterns across the city.]

Previous subsurface investigations (see Section 3.1.6) performed at the northeastern portion of the property (Parcel E) document subsurface soils consisting of light brown, loose, coarse-grained sandy-loam with brick fragments (to 15 feet below surface grade [bsg]) overlying loose, coarse-grained native sands (15 to 30 feet bsg). Laboratory data generated during these sampling events indicate that poor quality urban fill soils were likely used on the subject property.

The presence of on-site structures suggests that soils located on the property may have been altered by cutting, regrading and/or filling activities. No bedrock was observed on the property.

2.1.3 Subsurface Hydrogeology

The Soil Survey does not specifically indicate groundwater depth information. Previous subsurface investigations (see Section 3.1.6) indicate groundwater is present at approximately 21-22 feet bsg and flows to the southeast. Groundwater flow in the vicinity of the property is likely to follow overall surficial topography and be to the south, toward Jamaica Bay (approximately 2-miles from the property).

2.1.4 Surface Hydrology and Wetlands

Information regarding on-site surface hydrology was obtained from the review of applicable maps, including the New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetlands Map and the United States Department of the Interior National Wetlands Inventory Map, and from observations made during the site inspection. According to these sources, there are no surface waterbodies, wet areas, or regulated wetlands on or near the property.

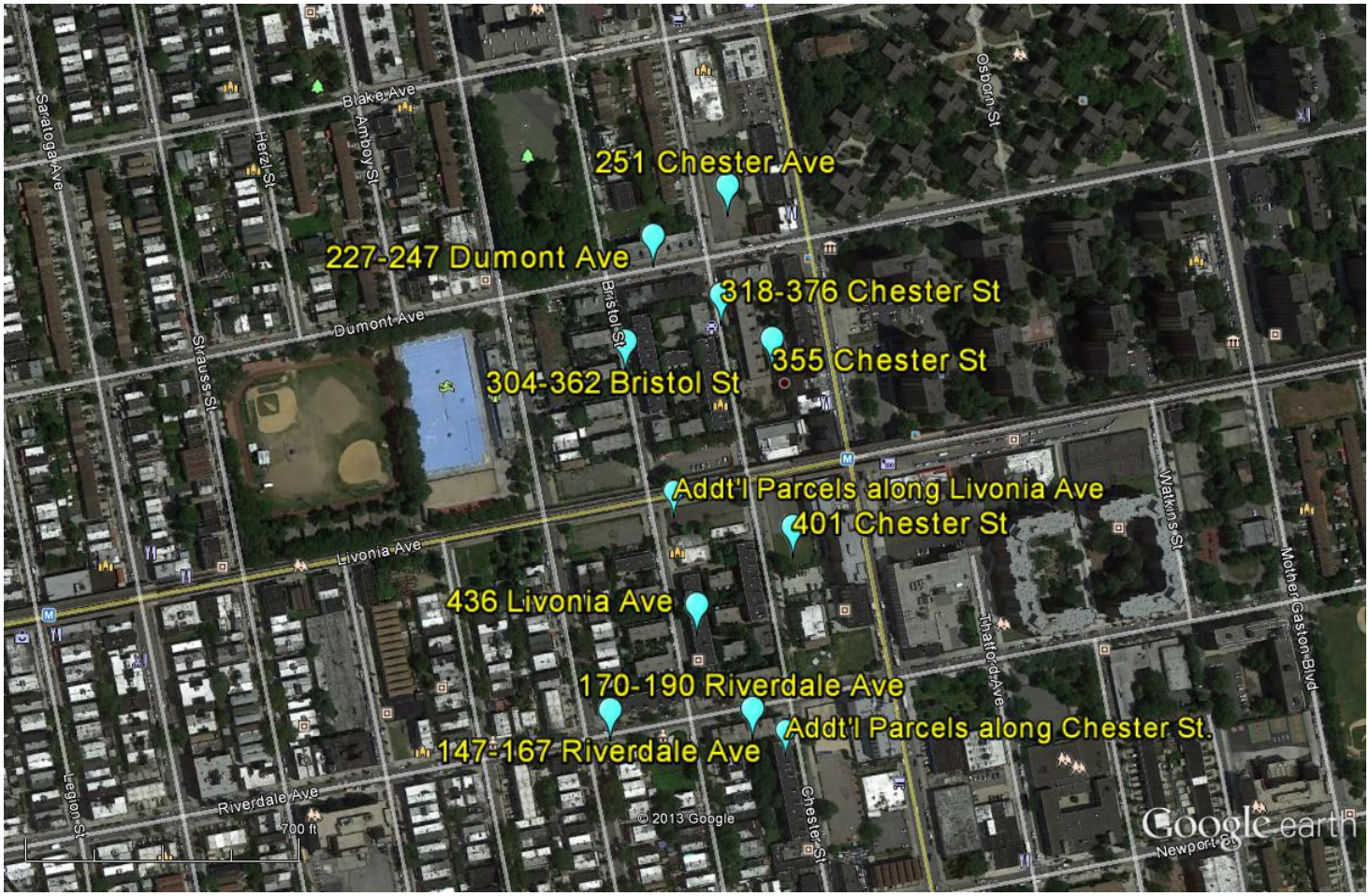
2.1.5 Sensitive Environmental Receptors

Sensitive Environmental Receptors (SERs) are valued physical, biological and/or man-made features that may be adversely impacted by environmental contamination, and where a discharge or release could pose a greater threat than a discharge or release to other less valued areas. SERs include (but are not limited to) potable supply wells, wetlands, and protected wildlife habitat.

The review of maps and observations made during the site inspection indicate that no SERs are located on or in the immediate vicinity of the subject property.

2.2 Description of Adjoining and Surrounding Area Properties

The subject property is located in an urban area comprised primarily of multi-family residential and commercial properties. The Tilden Houses adjoin Parcel E to the east; Betsy Head Park adjoins Parcels A and C to the west; an electric utility substation (likely to contain transformers) adjoins Parcel E to the east, and “Bam-Bam Auto Repairs” partially adjoins Parcel J to the south. The remaining adjoining and nearby properties consist of residential and/or retail commercial uses.

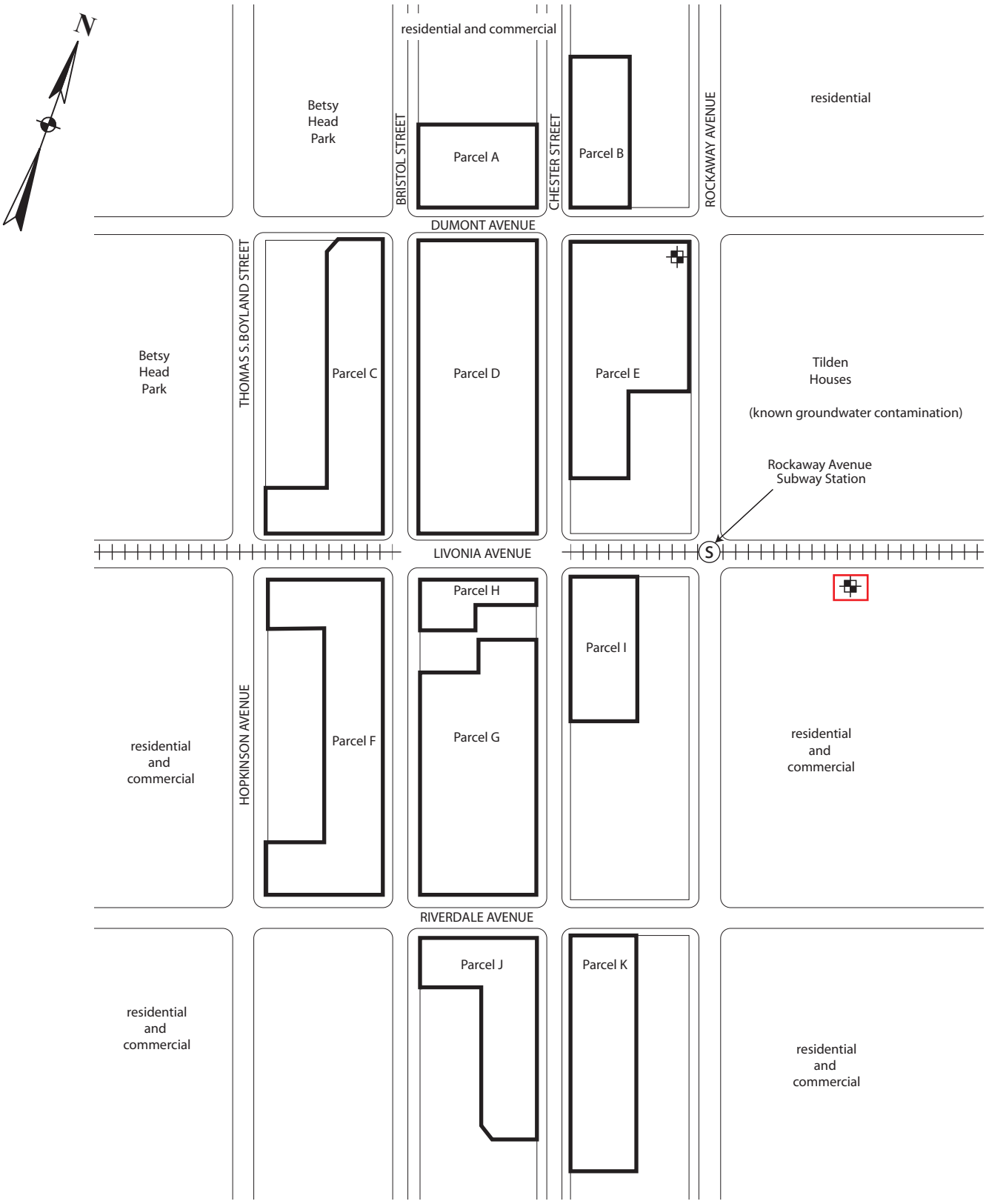


Site Location Map
Marcus Garvey Project
Borough of Brooklyn, New York

N

ESI File: LB13203.10U

December 2014



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Overview Selected Site Features Map

Marcus Garvey Project
Borough of Brooklyn
Kings County, New York

Legend:

- subject property border
- elevated subway tracks
- location of former dry cleaner
- location of former dry cleaner with known groundwater contamination

ESI File: LB13203.10U

December 2014

Not to scale

3.0 INVESTIGATION

3.1 Site History

The history of the subject property was researched using interviews with knowledgeable individuals, and reviews of ownership records, historical maps and city directory abstracts, and local records. This review included both standard ASTM environmental record sources and additional sources (if such sources were judged to be reasonably ascertainable and sufficiently useful, accurate, and complete in light of the objective of the records review). Refer to Sections 3.1.3, 3.1.4 and 3.3.2.1 for Site Ownership and Site Use information.

ASTM Practice E 1527-13 requires that all obvious uses of the property must be identified from the present back to the property's first developed use (inclusive of agricultural activities), or back to 1940, whichever is earlier. This requires reviewing only as many historical sources as are necessary and both reasonably ascertainable and likely to be useful. As an example, if the property was not developed until 1960, it would still be necessary to attempt to confirm that it was undeveloped back to 1940.

Available historical data document that the property was undeveloped in 1887, and was first developed for residential use sometime prior to 1901 (see Sections 3.1.1 through 3.1.5, below, for details regarding site history).

3.1.1 User-Reported Information

ASTM Practice E 1527-13, Section 6, requires that the User (the party seeking to complete the environmental site assessment of the property) provide specific information to the Environmental Professional in order to meet the requirements for "all appropriate inquiry". Representatives of the User (L&M Palmer Holdings LLC) have not responded to a questionnaire provided by ESI, which requested information regarding the subject property as specified in Section 6.

Rick Gropper, representing the User, indicated that this Phase I Environmental Site Assessment was requested in order to qualify for one or more Landowner Liability Protections (LLPs) to CERCLA liability.

3.1.2 Interview with Key Site Manager

Bill Burton (representing the property management group) was identified by the User as a Key Site Manager for the subject property. Mr. Burton was interviewed by ESI personnel regarding the topics detailed in the User Questionnaire (see Section 3.1.1, above), and was additionally asked to provide specific information regarding property features, site history and use, and commonly known information related to the property. Mr. Burton provided ESI personnel with information regarding on-site utilities as well as the recent history of the property. Pertinent information from this interview is provided in relevant report sections, where appropriate. Mr. Burton indicated that he had no other specialized knowledge or experience, actual knowledge, or knowledge of commonly known or reasonably ascertainable information regarding potential environmental conditions and/or liabilities in connection with the property.

3.1.3 Ownership Records

Property ownership information, based on a review of New York City computerized City Register records, is presented in Table 2, below. This ownership summary does not constitute a title search.

Table 2: Ownership Information

Parcel ID(s)	Owner	Date of Conveyance
Parcels A, E, and F (Section 3: Block 3559 , Lot 1; Block 3575, Lot 11; Block 3587, Lot 1)	Marcus Garvey Brownstone Houses Incorporated NYS Urban Development Corporation City of New York	8/30/1971 9/25/1973 Unknown
Parcel B (Section 3, Block 3560, Lot 1)	New York City Commissioner of Finance Marcus Garvey Brownstone Houses Incorporated NYS Urban Development Corporation City of New York Perrota, Fioraunte G	5/28/1986 8/30/1974 9/25/1973 3/30/1970 Unknown
Parcel C (Section 3, Block 3573, Lot 1)	Marcus Garvey Brownstone Houses Incorporated NYS Urban Development Corporation City of New York Lesieum Corporation and Kaufman, Herbert E.	8/30/1974 9/25/1973 12/12/1969 Unknown
Parcels D, G, and I (Section 3: Block 3574, Lot 1; Block 3588, Lot 1; Block 3589, Lot 21)	New York City Commissioner of Finance Marcus Garvey Brownstone Houses Incorporated NYS Urban Development Corporation City of New York	5/28/1986 8/30/1974 9/25/1973 Unknown
Parcel H (Section 3, Block 3588, Lot 27)	Marcus Garvey Brownstone Houses Incorporated NYS Urban Development Corporation	8/30/1974 Unknown
Parcel J (Section 3, Block 3601, Lot 26)	Marcus Garvey Brownstone Houses Incorporated NYS Urban Development Corporation City of New York Moorish Science Temple of America, Inc.	8/30/1974 9/25/1973 11/6/1967 Unknown
Parcel K (Section 3, Block 3602, Lot 12)	Marcus Garvey Brownstone Houses Incorporated NYS Urban Development Corporation City of New York Secretary of Housing & Urban Development of Washington D.C. Federation National Mortgage Association Goldberg, George E Referee Miller, Monte Balen Development Corporation Shaver, Benjamin	8/30/1974 9/25/1973 Unknown 6/23/1971 9/17/1970 Unknown 12/3/1968 12/3/1968 Unknown

3.1.4 Sanborn Fire Insurance Maps and City Directories

Sanborn Fire Insurance Maps

A summary of the information obtained from the review of historic Sanborn Fire Insurance Company Maps dated 1887, 1907, 1928, 1950, 1966, 1977, 1979, 1981, 1983, 1986, 1987, 1989, 1991, 1992, 1994-1996, and 2001-2007 is provided below. Copies of relevant Sanborn maps (with the subject property indicated) are provided in Appendix C.

1887: Note: Sanborn map coverage for this map is not provided for portions of the western and southwestern areas of the subject property. No structures or uses are noted on the subject property. “Unter Fly Road” extends east-west across the northern portion of Parcel B. Adjoining

properties, and the surrounding area in general, consist of small residential structures and vacant parcels.

1907: Residential or mixed residential and commercial use structures now occupy portions of all parcels (remaining portions are vacant). Adjoining properties and the surrounding area have been increasingly developed with residential and commercial properties. No other significant changes are noted on the subject property, adjoining properties, or the surrounding area.

1928: The majority of previously vacant areas on the subject property now contain residential structures. A laundry now adjoins Parcel B to the north and a junk yard adjoins the parcel to the east. A lumber yard and a wrecking company adjoin Parcel K to the east. The surrounding area is now densely developed commercial/industrial properties to the east and residential properties to the north, south, and west. No other significant changes are noted on the subject property, adjoining properties, or the surrounding area.

1950: A tire store is now noted on the west-central portion of Parcel D. The property to the north of parcel B (formerly noted as a laundry) is now noted as a plumbing shop. Several large six-story apartment buildings are now present at a nearby property to the northeast. No other significant changes are noted on the subject property, adjoining properties, or the surrounding area.

1966: Several on-site structures are noted as vacant and/or dilapidated. A portion of Parcel D (formerly noted with residential structures) is now vacant. Dry cleaners are now noted in the vicinity of the subject property, to the north of Parcel E (along Rockaway Avenue) and between Parcels E and I (corner of Livonia Avenue and Rockaway Avenue). A structure labeled “Substation #25” (likely to contain electrical transformers) adjoins Parcel I to the east. The property to the east of Parcel E (formerly noted with mixed-used buildings) now contains “Tilden Houses,” a large residential development. No other significant changes are noted on the subject property, adjoining properties, or the surrounding area.

1977: The property is now labeled “Marcus Garvey Village.” Parcels A, C, D, E, F, G, and J now contain structures corresponding to current on-site buildings; remaining parcels are now vacant. An automobile body shop is now noted to the southeast of Parcel K. No other significant changes are noted on the subject property, adjoining properties, or the surrounding area.

1979-1981: No significant changes are noted on the subject property, adjoining properties, or in the surrounding area.

1983: An automobile repair shop now adjoins Parcel J to the south. No other significant changes are noted on the subject property, adjoining properties, or the surrounding area.

1986-1987: No significant changes are noted on the subject property, adjoining properties, or in the surrounding area.

1989: The dry cleaner previously noted to north of Parcel B is no longer shown. No other significant changes are noted on the subject property, adjoining properties, or the surrounding area.

1991-2007: No significant changes are noted on the subject property, adjoining properties, or in the surrounding area.

City Directories

Historical city directories dated 1928, 1934, 1940, 1945, 1949, 1960, 1965, 1970, 1973, 1976, 1980, 1985, 1992, 1997, 2000, 2005, 2008, and 2013 were reviewed for portions of the subject property and for several adjoining properties (note: listings were not available for all portions of the subject property or for every adjoining property).

A dry cleaner ("Lordners Dry Cleaners") and additional retail commercial usages are listed for Parcel E from 1997 to 2013 (no other listings were provided). All remaining listings provided for the subject property suggest residential or retail uses. No uses of adjoining properties were identified that are likely to represent a significant environmental threat to the subject property. Copies of historical city directories are provided as Appendix D.

3.1.5 Municipal and Regulatory Agency Records

City Register Records

New York City Register computerized ownership records for the subject property were reviewed on December 3, 2014. No information pertinent to the environmental integrity of the subject property was contained in these records. A summary of the readily available property ownership information is provided in Table 2.

Assessor's Office Records

New York City Assessor's Office computerized data for the subject property were accessed on December 3, 2014 using the Center for Urban Research's Open Accessible Space Information System (OASIS). A summary of information regarding the subject property, based on a review of these records, is presented in Table 3, below.

Table 3: Assessor's Office Property Information

Parcel ID	Assessor's Office Property Information
Parcel A (Section 3, Block 3559 , Lot 1)	One, three-story building built in 1975 with 32 residential units
Parcel B (Section 3; Block 3560, Lot 1)	Vacant
Parcel C (Section 3, Block 3573, Lot 1)	Fourteen, three-story buildings built in 1974 with 52 residential units
Parcel D (Section 3, Block 3574, Lot 1)	Thirty-two, three-story buildings built in 1976 with 155 residential units
Parcel E (Section 3, Block 3575, Lot 11)	Three, four-story buildings built in 1974 with 107 residential and two commercial units
Parcel F (Section 3, Block 3587, Lot 1)	Eighteen, three-story buildings built in 1978 with 73 residential units
Parcel G (Section 3, Block 3588, Lot 1)	Twenty-seven, three-story buildings built in 1978 with 132 residential units
Parcel H (Section 3, Block 3588, Lot 27)	Vacant
Parcel I (Block 3589, Lot 21)	Vacant
Parcel J (Section 3, Block 3601, Lot 26)	Two, three-story buildings built in 1974 with 74 residential units
Parcel K (Section 3, Block 3602, Lot 12)	Vacant

No other information pertinent to the environmental integrity of the subject property was present in these records.

Building Department Records

Block and Lot Records

New York City computerized Building Department Block and Lot records for the subject property were reviewed on December 3, 2014. A summary of Building Department permits/documents is provided in Table 4, below.

Table 4: Building Department Records

Parcel ID	Building Department Records
Parcel A (Section 3, Block 3559 , Lot 1)	Oil burner application in 1903, 1906, 1907. Certificate(s) of Occupancy (C.O.) for residential and commercial use issued in 1901, 1902, 1907, 1909, 1912, and 1931. Demolition permits issued in 1904, 1910, 1923, and 1941
Parcel B (Section 3, Block 3560, Lot 1)	Demolition permit issued in 1909
Parcel C (Section 3, Block 3573, Lot 1)	Oil burner application in 1960, C.O. in 1915, demolition permit issued in 1971
Parcel D (Section 3, Block 3574, Lot 1)	C.O. for residential and commercial use issued in the 1920's
Parcel E (Section 3, Block 3575, Lot 11)	Oil burner application in 1909, 1910, 1927, 1952, 1962, and 1989. Work permit issued in 1994 to install a boiler and fuel-oil tank. C.O. for residential and/or commercial use issued in 1915 and 1957; demolition permits in 1904, 4912, 1969, and 1970
Parcel F (Section 3, Block 3587, Lot 1)	Oil burner application in 1911 and 1960. C.O. for residential and commercial use issued in 1908 and 1967; demolition permit in 1916 and 1971
Parcel G (Section 3, Block 3588, Lot 1)	Oil burner applications in 1905. C.O. for residential use issued in 1903, 1915, and 1922
Parcel H (Section 3, Block 3588, Lot 27)	Demolition permit issued in 1905
Parcel I (Section 3, Block 3589, Lot 21)	Demolition permit issued in 1940
Parcel J (Section 3, Block 3601, Lot 26)	Oil burner application in 1902, 1905, 1906, 1910, 1911, 1918, and 1959. C.O. issued in 1901, 1907, and 1910
Parcel K (Section 3, Block 3602, Lot 12)	Demolition permit issued in 1901

No parcel within the subject property is indicated as a "Little 'E' Restricted" site.

Environmental Control Board (ECB) Violations

A review of computerized Building Department records indicates there are no open ECB violations relating to the environmental integrity of the subject property.

Local Agency Interviews

NYC Fire Department

A request was made on November 26, 2013 during a previous Phase I ESA (see Section 3.1.6, below) to search the available New York City Bureau of Fire Prevention records for information regarding the subject property. No response was received from this agency.

3.1.6 Previous Environmental Reports

A former dry cleaner (previously identified in the Phase I ESA dated December 2013) was located at 650 Rockaway Avenue (northeastern portion of Parcel E) from 1995 to 2011. Dry cleaning equipment was observed within the vacant structure during the previous site inspection. A closed NYSDEC spill event (spill number: 9805405) was reported for this site in 1998 based on the release of twenty gallons of dry cleaning solvent (see Section 3.2.2).

A Phase II Environmental Site Assessment (Phase II ESA) was performed by ESI in June 2014 to investigate potential impacts to the subject property from the former on-site dry cleaner. ESI extended soil borings within the building formerly housing the dry cleaner and within an adjoining vacant restaurant to the south. Borings were extended to a maximum depth of 30 feet bsg. Three borings were completed as temporary monitoring wells (one in the restaurant and two in the former dry cleaner). Groundwater was documented at 22 feet bsg.

Evidence of soil contamination was observed during the fieldwork. Elevated concentrations of chlorinated volatile organic compounds (cVOCs; predominately PCE, a dry cleaning solvent, and its breakdown products TCE and DCE) were detected in soil samples collected from within the basement of the former dry cleaner at varying depths. PCE and TCE were also detected below guidance levels at a boring extended in the adjoining restaurant. Elevated concentrations of PCE, TCE, and DCE were detected in groundwater samples collected from within the basement of the former dry cleaner and the adjacent restaurant. Groundwater was documented to flow to the southeast, indicating a potential connection to known PCE contamination present at a nearby (down-gradient) site. Subsurface investigation reports reviewed for the adjoining “Tilden Houses” property to the east document elevated concentrations of PCE directly down-gradient of the former dry cleaner, suggesting that on-site contamination has extended onto this site.

A Phase II ESA was prepared for the subject property by Roux Associates in October 2014 (note: relevant portions of a draft version were provided to this office for review). Soil, soil vapor, and groundwater sampling was performed within the former dry cleaner as well as within adjoining and nearby residential and commercial spaces. Elevated concentrations of PCE and/or TCE were detected in all media. Additional compounds, including metals, pesticides, and polyaromatic hydrocarbons (PAHs), were also detected in on-site soils directly below the building slabs, indicating the presence of poor quality urban fill soils. Elevated metals were also detected in on-site groundwater.

The subject property is currently under review for admission into the NYSDEC Brownfields Cleanup Program.

Copies of the ESI Phase II ESA and the excerpts from the Roux Phase II ESA are provided in Appendix E.

3.2 Review of Federal and State Agency Records

Federal and state computer databases and printed records were reviewed for documentation of environmental conditions and/or liabilities relevant to the property.

3.2.1 Methodology

The following ASTM Standard Environmental Record Sources (as available for the subject property’s locality) were reviewed (search distances are consistent with, or exceed, ASTM requirements).

Federal National Priority List (1.0 mile) and delisted National Priority List sites (0.5 mile)
Federal CERCLIS list and CERCLIS NFRAP site list (0.5 mile)

Federal RCRA CORRACTS facilities list (1.0 mile)
Federal RCRA non-CORRACTS TSD facilities list (0.5 mile)
Federal RCRA generators list (subject/adjoining properties)
Federal ERNS list (subject property)
Federal, State, and Tribal Institutional Control / Engineering Control registries (subject property)
State- and Tribal-equivalent NPL (1.0 mile)
State- and Tribal-equivalent CERCLIS (0.5 mile)
State and Tribal Brownfield and voluntary cleanup sites (0.5 mile)
State and Tribal leaking storage tank lists (0.25)*
State (including locally administered) and Tribal registered storage tank lists (subject/adjoining)
State and Tribal landfill and/or solid waste disposal site lists (0.5 mile)

* *The search distance for this ASTM database has been reduced due to the high level of development of the area in which the subject property is located.*

The following Additional Environmental Record Sources (as available for the subject property's locality) were reviewed in order to enhance and supplement the review of standard sources:

State spill file records (0.25 mile)
State MOSF list (0.5 mile)
State radon data (by local municipality as available)
Federal and State wastewater discharge permits (subject/adjoining properties)

A copy of relevant portions of a database search conducted by Environmental Data Resources, Inc. (EDR) for ESI is provided in Appendix F. Not all of the sites contained in the attached database search may be referenced below; some sites may have been excluded based on either ASTM requirements, ESI's scope of services or professional opinion, and/or information obtained during the review of historical records and the site inspection. Some information may have been deemed to not be practically reviewable (e.g., records lack adequate address information). Sites or additional information not included in the database search may also be referenced based on ESI's knowledge of the subject property area.

Where sites have been identified within the specified approximate minimum search distances, ESI's opinion is presented as to any possible impacts that might result in RECs in connection with the subject property, arising from the migration of contaminated soil, soil vapor and/or groundwater. Evaluation of potential impacts to the subject property is based on: distance and direction to the identified site; type of regulated materials and other relevant information found in available records; presence of intervening roadways and/or other physical conduits; local physical setting (topography, soil conditions, geology, hydrology, etc.); and other information known to ESI. Potential vapor encroachment conditions, if any, have been evaluated (as warranted) following the methodology provided in ASTM Standard E2600-10, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions.

3.2.2 Findings of Regulatory Records Review

Federal Hazardous Waste-Contaminated Sites

The subject property is not identified on the United States Environmental Protection Agency's (USEPA): National Priority List (NPL) of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions; CERCLIS list of sites that are proposed to the NPL or that are in the screening and assessment phase for possible proposal to the NPL; or CERCLIS No Further Remedial Action Planned (NFRAP) list, which are former CERCLIS sites that were delisted because no significant hazardous waste contamination was found, or because the site has been remediated.

The subject property is not identified on readily available USEPA Institutional Control/Engineering Control registries.

No NPL sites are located within one mile of the property and no CERCLIS sites or delisted NPL sites are located within a half mile of the property.

State Sites

Inactive Hazardous Waste Disposal Sites

NYSDEC maintains a Registry of Inactive Hazardous Waste Disposal Sites (IHWDS, commonly referred to as the list of State "Superfund" Sites). Sites are placed on the Registry if there is evidence that hazardous waste was disposed and NYSDEC and NYSDOH determine that a significant threat to public health is present. When a Site has been remediated, it is reclassified or removed from the Registry (delisted) to indicate that the significant threat(s) has been addressed. Non-Registry sites may (but usually do not) also present significant threats.

The subject property is not identified on the NYSDEC's Registry of Inactive Hazardous Waste Disposal (IHWD) sites (a state equivalent to the federal NPL), and has not been listed as a site under investigation for inclusion in the IHWDS Registry (a state equivalent to the federal CERCLIS List).

The following Sites have been identified in IHWDS database records:

Site Name	Site ID	Distance/Direction	Classification Code
K-Belmont Station	224060	0.80 mile, NE	A – active
350 Dewitt Ave	224179	0.67-mile, SE	N – no further action

Based on ESI's review of reported information this site is these sites are not likely to significantly impact the subject property.

Voluntary Cleanup, Brownfields Cleanup, and Environmental Restoration Programs

Significantly contaminated properties may be listed in NYSDEC database records based on participation in a State environmental remediation program: Voluntary Cleanup (VCP); Brownfields Cleanup (BCP); or Environmental Restoration (ERP) programs. The subject property has not been identified as a NYSDEC remedial program Site. A BCP application has been submitted to the NYSDEC based on documented contamination found at and near the former on-site drycleaner. No participating properties are located within a half mile of the subject property.

Registry of Institutional and Engineering Controls in New York State

The subject property is not identified on the NYSDEC's Registry of Institutional and Engineering Controls in New York State.

Federal Hazardous Waste Handlers

The USEPA Resource Conservation and Recovery Information System (RCRIS) database details facilities that report treatment, storage or disposal of hazardous waste (TSD facilities) or generation or transportation of hazardous waste. Facilities that have been notified by the USEPA to take corrective action with regard to their handling of hazardous waste are classified as CORRACTS facilities.

CORRACTS and/or TSD Facilities

The subject property is not registered with the USEPA as a CORRACTS and/or TSD facility for hazardous waste or materials. No CORRACTS and/or TSD facilities are located within one mile of the property.

Generators or Transporters (Non-CORRACTS)

The subject property is registered with the USEPA as a generator of hazardous waste. The "Johnnies Dry Cleaners" site (USEPA ID: NYD981186745) formerly located on the northeastern portion of the Parcel E at 650 Rockaway Avenue is registered as a small quantity generator and a conditionally exempt small quantity generator or hazardous ignitable waste and halogenated solvents. According to property managers interviewed during the previous Phase I ESA, the dry cleaner was located on the property from 1995 to July 2011.

The following generators have been identified at adjoining properties:

Site Name	Site ID	Location	Classification (material)
NYCT – Hopkins Avenue Garden	NYR000098400	Livonia Ave/ Thomas S. Boyland St	Conditionally-exempt small quantity generator (lead)
NYCT – Rockaway Avenue Station (#3 Line)	NYR000161133	Rockaway Ave and Livonia Ave	large quantity generator (lead)
Betsy Head Park	NYR000090282	694 Thomas S. Boyland St	small quantity generator (ignitable waste)
Tilden Houses	NYR000116822	Rockaway Ave and Dumont Ave	conditionally exempt small quantity generator (corrosive hazardous waste)
Tilden Houses	NYD986870814	Rockaway Ave and Dumont Ave	Large quantity generator (PCE, salts and ester hazardous waste materials)

The listings of generated materials for the Tilden Houses include PCE, which may be associated with releases originating at the subject property.

Remaining listings at adjoining sites are likely to be associated with maintenance activities (e.g., lead paint abatement) and do not represent an ongoing condition of concern. No other adjoining properties are noted on the RCRIS database.

Landfills and Solid Waste Disposal Facilities

The NYSDEC's Facility Register does not list the subject property as an active or inactive landfill or solid waste disposal facility.

The following landfills and solid waste disposal facilities have been identified:

Site Name	Type of Facility	Distance/Direction	Classification
Brownsville Auto Salvage	Vehicle dismantling	0.40 mile, SE	Inactive
DJR Transfer Station, Inc.	Transfer station	0.47 mile, SE	Inactive

Based on ESI's review of reported information, these sites are not likely to significantly impact the subject property.

Chemical Bulk Storage (CBS)

Adjoining properties

A review of NYSDEC records indicates that the "Betsy Head Park" property (CBS ID: 2-000474) located at 694 Thomas S. Boyland Street (adjoining Parcel C to the west) is registered as an unregulated CBS facility containing four storage tanks:

Tank ID and Status	Capacity (gal)	Contents	Tank Details
1 – closed/removed	300	Not listed	aboveground, in contact with impervious barrier
2 – closed/removed	300	Not listed	aboveground, in contact with impervious barrier
3 – closed/removed	300	Not listed	aboveground, in contact with impervious barrier
4 – closed/removed	300	Not listed	aboveground, in contact with impervious barrier

This facility contains a public swimming pool and is likely to store chlorine. Based on ESI's review of reported information (distance and direction to the site, type of regulated materials, etc.), this site is not likely to significantly impact the subject property.

Petroleum Bulk Storage (PBS)

Subject Property

A review of the NYSDEC PBS database indicates that the subject property is not registered as a PBS facility. There is an out of use 275-gallon fuel-oil AST in the basement of 355 Chester Street (650 Rockaway Avenue), located on Parcel E. Building department records indicate the former presence of fuel-oil tanks on Parcels A, C, E, F, G, and J.

Local, State, and Federal PBS Regulations

NYSDEC Petroleum Bulk Storage regulations (6 NYCRR Parts 612-614) apply to facilities with a combined storage capacity greater than 1,100 gallons, properties with USTs greater than 110 gallons and/or properties with waste-oil USTs and/or ASTs regardless of capacity (storage capacity excludes tanks of 1,100 gallons or less used to store oil or kerosene for on-site heating, and includes out-of-service regulated tanks that have not been permanently closed). Based on the known capacity and use of the on-site tank, the property is not subject to these PBS regulations.

New York City Fire Department Regulations

New York City Fire Department (FDNY) regulations require that all petroleum storage tanks with a capacity of 275-gallons or greater be appropriately permitted by this agency. A FDNY permit for the on-site tank is not known to have been obtained for the subject property.

Federal Regulations

Federal regulation 40 CFR Part 112 applies to facilities storing greater than 1,320 gallons of petroleum product aboveground (inclusive of all containers with a capacity of 55-gallons or more), where there is a reasonable potential for a discharge to reach navigable waters. Based on the known storage capacity of the subject property (275 gallons aboveground), the property is not subject to these regulations.

Adjoining Properties

A review of the NYSDEC PBS database indicates that the following adjoining properties are registered as PBS facilities:

Property (status)	PBS ID	Number of Tanks (status)	Contents	Tank Details
730 Rockaway Avenue (unregulated)	2-610653	8 (all closed/removed)	#2 fuel oil	Aboveground
Betsy Head Park (active)	2-604993	1 (active)	Biodiesel	Aboveground
Tilden Houses (active)	2-474177	4 (2 closed/removed; 2 in service)	#2 fuel oil or waste oil	3 Underground (one active) 1 Aboveground (one active)

There is one open spill reported at the adjoining "Tilden Houses" property. No other open NYSDEC spill events are reported for these adjoining properties. These adjoining sites are not likely to impact the environmental integrity of the subject property.

Major Oil Storage Facilities

The subject property is not listed with the NYSDEC as a major oil storage facility (MOSF). No MOSFs are located within a half mile of the property.

Federal Chemical and Petroleum Spills

The USEPA Emergency Response Notification System (ERNS) database details initial reports of releases of oil and hazardous substances as reported to federal authorities. There are currently no federal chemical or petroleum spills on record for the subject property.

State Chemical and Petroleum Spill and Leaking Underground Storage Tank Events

NYSDEC database records were reviewed to determine possible impacts from leaking tanks and other reported releases within a quarter mile of the subject property.

Subject Property

Spill number 9805405 was reported in July 1998 at the "Lornder's/ Johnny's Cleaners" site located on the northeastern portion of Parcel E at 650 Rockaway Avenue. Twenty gallons of PCE (a dry-cleaning solvent) was spilled. Database records indicate that "all material was recovered," and the spill was closed July 1998.

Adjoining Properties

An open spill event (spill number: 0712821) has been reported for a former dry cleaner located at 242-288 Livonia Avenue, located to the southeast of Parcel E and east of Parcel I. A review of available environmental investigation records document soil, groundwater, and soil vapor contamination with dry-cleaning solvents at this nearby property. The direction of groundwater flow was documented to be in a southeasterly direction.

An open spill event (spill number 9413342) was reported in January 1995 at the "Tilden Houses" site, which adjoins Parcel E to the east. Oil was found at 20 feet bsg in monitoring wells on this property. An environmental investigation performed at this site documents the presence of cVOCs in on-site groundwater. The highest concentration of total cVOCs was detected in a monitoring well approximately 100 feet southeast of the subject property; all other sample point locations (further from the former on-site dry cleaner) documented significantly lower concentrations of total cVOCs. The direction of groundwater

flow was estimated to be to the southeast (consistent with calculation made by Roux Associates on this site). Three additional closed spill events are listed for this site.

These spill events at adjoining properties have not been closed and investigations are on-going.

Multiple other spill events were identified within the vicinity of the subject property that are not likely to impact the subject property.

Air Discharges

No NYSDEC permits for air discharges from the subject property are known to exist. No operations likely to require a NYSDEC air discharge permit were noted on the subject property.

Wastewater Discharges

No USEPA National or NYSDEC State Pollutant Discharge Elimination System (NPDES or SPDES) permit was identified for the subject property. No operations likely to require a NPDES or SPDES permit were noted on the subject property. No adjoining properties are registered as NPDES or SPDES facilities.

Radon

Information on radon levels was obtained from New York State Department of Health (NYSDOH) documents. No regulatory standards for radon levels currently exist in New York State. The USEPA has established a guidance value (the level where mitigation measures may be appropriate) for radon concentrations of 4.0 or greater picoCuries/liter (pCi/l). Other regulatory authorities (e.g., OSHA) have established guidance levels that are directly related to specific site activities (a determination as to applicable radon guidance levels is beyond the scope of this report). A summary of available radon information for the subject property's vicinity is provided below in Table 5.

Table 5: Basement Radon Levels in Vicinity of Subject Property

All radon levels provided in picoCuries/liter (pCi/l)

NYSDOH Radon Information	New York City	Borough of Brooklyn
Number of Homes Tested	1,408	440
Average Radon Level	0.90	1.20
Percent of Homes >4.0 pCi/l	6.9%	9.5%

These average radon levels are below the USEPA's guidance value of 4.0 pCi/l and less than 10% of the homes tested in the subject property's vicinity had levels in excess of this guidance value. These data support the conclusion that elevated radon levels are not likely to be present on the subject property. According to Mr. Burton, radon testing has not been conducted on the subject property.

3.3 Site Inspection

3.3.1 Protocol

The site inspection was conducted on November 25, 2014 in order to address any potential concerns raised during the investigation of the site's history (Section 3.1) and the regulatory agency records review (Section 3.2), and to identify any additional indications of contamination from the use, storage, or disposal of hazardous or regulated materials. To the extent possible, site structures, vegetation, topography, surface waters, and other relevant site features were examined for any obvious evidence of existing or previous contamination or unusual patterns (e.g., vegetative stress, soil staining, surface water sheen, or

the physical presence of contaminants), which would indicate that the environmental integrity had been or could be impacted.

Section 3.3.2 describes the physical characteristics of the subject property. Section 3.3.3 is divided into topics on specific environmental conditions or concerns, actual or potential, noted on the subject property during the site inspection. Section 3.3.4 describes the physical characteristics of adjoining properties as they concern the potential or actual environmental condition of the subject property.

A Selected Site Features Map illustrating the general layout of the subject property and the locations of specific areas of concern (if any) is provided on Page 9. Photographs of the subject property are provided in Appendix A.

3.3.2 Physical Characteristics of the Subject Property

Note: Access to interior portions of the on-site structures was limited due to residential occupancy. Representative apartment units, commercial units, common spaces, and basements were inspected during this and the previous Phase I ESA.

3.3.2.1 Property

The 13.1-acre property consists of eleven parcels across ten city blocks in the Brownsville neighborhood of Brooklyn. Parcels have frontage along the eastern side of Thomas S. Boyland Street (Parcels C and F), the eastern and western sides of Bristol Street and Chester Street (Parcels A, D, H, G, and J), the western side of Rockaway Avenue (Parcel E), the northern and southern sides of Dumont Avenue (Parcels A, B, C, D, and E), the northern and southern sides of Livonia Avenue (Parcels C, D, E, F, H, and I), and the northern and southern sides of Riverdale Avenue (Parcels F, G, J, and k). Eighty-seven, three- or four-story residential buildings are located throughout Parcels A, C, D, E, F, G, and J. Commercial units, a maintenance garage, and offices are present in structures located on Parcel E. Paved parking areas are located on Parcels B, C, D, F, H, I, and K. The remainder of the property consists of outdoor recreational areas and individual yard spaces in the rear of the second floor units. Public sidewalks, adjoining buildings, and chain-link fences define property boundaries.

3.3.2.2 Structures

On-site structures were constructed as part of a single development effort and are similar in building materials and layouts. The on-site buildings are three to four-story masonry structures with full basements and flat roofs. Exterior siding is brick and the roofs are covered by asphaltic materials (installed in the past ten years). Interior floors are covered with ceramic and 12" by 12" composite floor tiles. Walls and ceilings are generally covered with gypsum wallboard. The subject property consists of 87 buildings containing 625 residential units, and several commercial units. A summary of available observed information upon on-site structures and their use is provided in Table 6, below.

Table 6: Description of On-site Structures

Parcel ID	Structure Information
Parcel A (Section 3, Block 3559 , Lot 1)	One, three-story building built in 1975 with 32 residential units
Parcels B, H, I, and K (Section 3; Block 3560, Lot 1; Block 3588, Lot 27; Block 3589, Lot 21; Block 3602, Lot 12)	Parking lots, no current structures
Parcel C (Section 3, Block 3573, Lot 1)	Fourteen, three-story buildings built in 1974 with 52 residential units
Parcel D (Section 3, Block 3574, Lot 1)	Thirty-two, three-story buildings built in 1976 with 155 residential units, and an active laundry room
Parcel E (Section 3, Block 3575, Lot 11)	Three, four-story buildings built in 1974 with 107 residential units, active or vacant commercial units (including a former restaurant and former dry cleaner), control room, offices, and a maintenance garage
Parcel F (Section 3, Block 3587, Lot 1)	Eighteen, three-story buildings built in 1978 with 73 residential units
Parcel G (Section 3, Block 3588, Lot 1)	Twenty-seven, three-story buildings built in 1978 with 132 residential units, and one maintenance room
Parcel J (Section 3, Block 3601, Lot 26)	Two, three-story buildings built in 1974 with 74 residential units

Potable Water Supply

According to available information, the subject property is serviced by the municipal water system. No water supply wells were noted on the subject property during the site inspection and no on-site uses of groundwater are known to exist for the subject property.

Sewage Disposal System

According to available information, the on-site structures are connected to the municipal sewer system.

Heating/Cooling

The on-site structures are heated with hot water generated by gas-fired and/or electric boilers located in seven boiler rooms within structures located on Parcels A, C, D, E, F, G, and J. Natural-gas and/or electric water heaters are located adjacent to these boilers. The offices on Parcel E are heated by heat pumps. Cooling is provided by window-mounted air conditioning units.

3.3.3 Specific On-Site Environmental Conditions

Debris Areas

No significant quantities of debris were noted on the subject property.

Petroleum Storage

Several small containers of petroleum products (lubricants, fuel, etc.) are located in the maintenance garage on Parcel E. An out of use 275-gallon AST was noted in the basement of 650 Rockaway Avenue, on the northeastern portion of Parcel E. The fill port and vent pipe for the AST was noted on the eastern adjoining sidewalk. No staining or other evidence of a release from these containers or the AST was observed. No other small quantities of petroleum products, aboveground storage tanks or indications of underground petroleum storage tanks (e.g., fill ports or vent pipes) were observed on the subject property.

Chemical Storage

Several small containers of common cleaning and maintenance products were observed in the maintenance garage in Parcel E, and in small maintenance rooms throughout the complex. Equipment and chemicals related to the former dry cleaner are present at 650 Rockaway Avenue in Parcel E. All chemicals appeared to be stored properly with no evidence of leakage. No other small quantities of chemical products, aboveground chemical storage tanks or indications of underground chemical storage tanks (e.g., fill ports or vent pipes) were observed on the subject property.

Asbestos-Containing Materials

Asbestos-containing materials (ACM) are those materials containing over 1% of any type of asbestos. The presence or absence of asbestos within a material can only be determined through the physical analysis of material samples. Asbestos has been incorporated into a wide variety of building products based on its thermal and resilient qualities, including insulation, flooring, siding, roofing, plaster/joint compounds, caulking, ceiling tiles, textured paints and pipewrap. Although ACM are no longer used as extensively as they were prior to the 1970s (when the federal government began regulating and/or prohibiting the use of ACM in specific applications), asbestos may still be found in common building products used today, such as cement products, roofing and vinyl floor tile.

Suspect ACM noted during the site inspection included 12" by 12" vinyl floor tiles, dropped acoustic ceiling tiles, stick-on acoustic ceiling tiles, joint compound, and resilient sheet-flooring (vinyl or linoleum). All materials appeared to be in fair condition. Other building construction materials not readily observable during the site inspection (e.g., mastics, pipe insulation present within walls, roofing materials, etc.) could also contain asbestos.

Lead-Based Paint

The presence or absence of lead-based paint (paint containing 0.5% lead by weight) can only be determined through the material analysis of paint samples. However, given that the manufacture of lead-based paint (LBP) has been regulated since 1978, a building's date of construction is often used to help assess the likelihood that LBP was used during initial construction and/or subsequent maintenance work. The presence of deteriorated paint is indicative of a potential health risk in that paint dust and chips containing lead could be inhaled and/or ingested.

The date of construction of the on-site buildings (1974-1978) indicates that LBP may have been used; however, in the absence of a LBP survey, no definitive statement can be made by this office regarding the presence or absence of LBP on the subject property. All of the painted surfaces in the areas inspected by this office were in good condition at the time of the site visit.

Wastewater Discharges

The term "wastewater" indicates water that: (1) is or has been used in an industrial or manufacturing process; (2) or is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant; (3) or conveys or has conveyed sewage (water originating on or passing through or adjacent to a site, such as stormwater flows, is not generally considered to be wastewater). No evidence of wastewater discharges into drains, ditches, or streams on or adjacent to the property was observed during the site inspection.

Interior Floor Drains/Sumps/Conduits

A floor drain is located in each of the boiler rooms, the maintenance garage, and laundry rooms. No staining, odors, or other evidence of contamination was noted in or near any of the drains. It is not known

where these drains lead. No other floor drains, sumps, or conduits to the subsurface were noted inside on-site structures.

Stormwater Management and Exterior Drains/Sumps/Conduits

No exterior stormwater catch basins, drains, sumps, or other potential significant conduits to the subsurface, or indications of liquid discharges into drains, ditches, or streams on or adjacent to the property, were observed on the subject property.

Staining/Corrosion/Leaks

No evidence of corrosion, leaks, or staining (indicative of an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products onto the subject property (including on-site structures and paved areas) was observed during the site inspection.

Topographic Irregularities

No overt topographic irregularities (e.g., sinkholes or berms) indicative of the presence of non-natural materials (including debris) in the subsurface were observed on the subject property.

Vegetative Features

No overt areas of stressed or dying vegetation indicative of the presence of contaminants in surface or subsurface soils were observed on the subject property.

Pits, Ponds, or Lagoons

No pits, ponds, or lagoons exhibiting evidence (e.g., discolored water, distressed vegetation, obvious wastewater discharge) of holding liquids or sludge containing hazardous substances or petroleum products were observed on the subject property.

Surface Waters

No surface water bodies are located on the subject property.

Odors

No unusual odors indicative of the presence of contamination were noted during the site inspection.

PCBs

An inspection for the presence of equipment likely to contain polychlorinated biphenyls (PCBs) was conducted by this office. Privately-owned pad-mounted transformers are present on each parcel that contains residential structures, located in locked vaults beneath building access steps. No staining indicative of a release was observed (transformers are located on concrete pads). A cleanup of a release from these transformers would be the responsibility of the property owner.

3.3.4 Environmental Concerns at Adjoining and Nearby Properties

Adjoining and nearby properties were observed from the subject property and from public thoroughfares for the purpose of identifying any recognized environmental conditions or other potential environmental concerns. The “Bam-Bam” automobile repair shop was observed to the south of Parcel J. Significant releases at the automobile repair shop could potentially impact the subject property. No other significant conditions were observed at adjoining properties or nearby properties.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Ecosystems Strategies, Inc. (ESI) has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 of the property located at the Marcus Garvey Project property located at 227-247 Dumont Avenue; 251, 318-376, 355 and 401 Chester Street; 304-362 Bristol Street; 147-167, and 170-190 Riverdale Avenue; 436 Livonia Avenue; and parcels located along Livonia Avenue and Chester Street; Brownsville, Borough of Brooklyn; New York City, New York. Any exceptions to, or deletions from, this practice are described in Section 1.2 of this report. The Environmental Professionals preparing this report have not identified any significant data gaps that affect their ability to identify recognized environmental conditions (RECs).

This assessment has revealed evidence of the following recognized environmental conditions (RECs) in connection with the property:

- Documented contamination of on-site soil, soil vapor, and groundwater by chlorinated solvents
- Potential releases from an adjoining automobile repair facility

ESI's major findings, conclusions and recommendations (in **bold**) regarding any RECs and any other potential environmental liabilities associated with the property are presented below.

1. The first developed use of the subject property is likely to have been for residential and small commercial purposes sometime between 1887 and 1901. The property was developed as the Marcus Garvey Project between 1974 and 1978 and contains multi-family residential structures and ground floor commercial units. A former dry cleaner (operational from 1995 to 2011) was identified at 650 Rockaway Avenue (Parcel E, southwest corner of Rockaway Avenue and Dumont Avenue). Subsurface investigations performed at and in the vicinity of this portion of the subject property indicate the presence of elevated concentrations of PCE and related breakdown products in on-site soil, soil vapor, and groundwater. The site is under consideration for acceptance into the NYSDEC Brownfields Cleanup Program.

   It is recommended that all future work (investigative and remedial) conducted on this site be done in accordance with the NYSDEC Brownfields Cleanup Program.

   Releases at the on-site former dry cleaner and at an adjoining automobile repair facility (adjoining the property to the south since circa 1983) have the potential to impact the indoor air quality of surrounding commercial and residential spaces. Indoor air quality at residential and commercial spaces has not been documented.

   It is recommended that issues and/or concerns relating to indoor air quality be addressed in the work recommended above.

   The potential exists that debris from the demolition of former on-site structures may be present in the subsurface (such debris could contain lead based paint, asbestos, or other regulated materials).

   No further investigation of historical records is recommended. Any future development activities at the property should be conducted with an awareness of the potential presence of subsurface debris, and of contaminated soils and/or groundwater, and provision should be made for the proper management of any materials that warrant special handling.

2. A NYSDEC spill event (spill number: 9805405) was reported for the former on-site dry cleaner (see Paragraph 1, above) in 1998 based on the release of twenty gallons of dry cleaning solvent.

Although the spill file has been closed, this release may be related to documented contamination present at the subject property. Open spill events have been reported for adjoining (Tilden Houses; spill number: 9413342) and nearby (former dry cleaner; spill number: 0712821) properties located to the east of the subject property (no subject property structures are located in the immediate vicinity of the nearby former dry cleaner). Elevated concentrations of PCE and other chlorinated solvents were detected in soil and groundwater at these sites. A review of available information indicates groundwater flow in the vicinity of the subject property is to the southeast; therefore, it is not likely that releases at these sites have significantly impacted the subject property.

No further investigation of regulatory records is recommended.

3. An out of use 275 aboveground storage tank (AST) is located in the basement of 650 Rockaway Avenue. According to available information, this tank formerly serviced a boiler. The fill port for this tank is located at the exterior portion of the structure in the adjoining sidewalk. No indications of release were noted at or around the tank. This tank is unregistered and therefore no state oversight for closure is required.

   No further investigation is recommended. This tank and associated piping should be closed and removed in accordance with NYSDEC and local regulations.

An environmental condition is considered "de minimis" when that condition generally does not present a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies. Conditions determined to be de minimis are not recognized environmental conditions. This assessment has revealed evidence of the following de minimis conditions in connection with the property:

4. Small quantities of petroleum products and chemicals are stored in the maintenance garage and maintenance rooms on the subject property. Floor drains were noted in these areas; however, no releases to these drains was noted and site conditions indicate the continued careful management of chemicals.

   No further investigation is recommended at this time. It is recommended that all petroleum and chemical products continue to be properly stored and that appropriate absorbent materials be maintained in all areas where releases could potentially occur.

5. Asbestos-containing materials and lead-based paint could potentially be present on the subject property. Suspect, vinyl floor tiles, dropped acoustic ceiling tiles, pipewrap, stick-on acoustic ceiling tiles, and resilient sheet-flooring (vinyl or linoleum) were noted during the site inspection. Other building construction materials not readily observable during the site inspection (e.g., mastics) could also potentially contain asbestos. Suspect materials inspected by ESI were in good condition.

   No further investigation is recommended. Any suspect material encountered during maintenance, renovation, or demolition activities should be tested for asbestos or lead, or, in the absence of analytical data, be treated as though it contained asbestos or lead. All maintenance, renovation, or demolition activities should be conducted in accordance with applicable regulations.

6. Pad-mounted transformers are located in the vicinity of on-site structures. These transformers are secured in locked vaults and are located on concrete pads.

   No further investigation is recommended. All on-site transformers should be properly maintained.

5.0 SOURCES OF INFORMATION

Ecosystems Strategies, Inc., Phase I Environmental Site Assessment, December 2013.

Ecosystems Strategies, Inc., Phase II Environmental Site Assessment, June 2014.

Environmental Data Resources, Inc., City Directory Abstracts dated 1928, 1934, 1940, 1945, 1949, 1960, 1965, 1970, 1973, 1976, 1980, 1985, 1992, 1997, 2000, 2005, 2008, and 2013.

Environmental Data Resources, Inc., Radius Map, November 2014.

Environmental Data Resources, Inc., Sanborn Fire Insurance Company Maps dated 1887, 1907, 1928, 1950, 1966, 1977, 1979, 1981, 1983, 1986, 1987, 1989, 1991, 1992, 1994-1996, and 2001-2007.

New York City Soil and Water Conservation District, New York City Reconnaissance Soil Survey, online at www.nycswcd.net/soil_survey.cfm

New York State Department of Environmental Conservation, Freshwater Wetlands Map of the Brooklyn, New York Quadrangle, accessed online November 15, 2013 via Environmental Resource Mapper at www.dec.ny.gov.

Roux Associates, Phase II Environmental Site Assessment (portions of draft report only), October 2014.

United States Department of the Interior National Wetlands Inventory Map of the Brooklyn, New York, Quadrangle, dated accessed online November 15, 2013 via www.fws.gov/wetlands/Data/Mapper.html.

United States Geological Survey Topographic Map of the Brooklyn, New York Quadrangle, dated 1995 digital image provided by MyTopo.com.

University of the State of New York, Geologic Map of New York, Fisher, *et al*., editors (dated 1970, reprinted 1995) and Surficial Geologic Map of New York, D. Cadwell, editor (dated 1989), Lower Hudson Sheets.

5.2 Local Agency Records

New York City Assessor's Office computerized records, reviewed December 3, 2014.

New York City Building Department computerized records, reviewed December 3, 2014.

New York City Bureau of Fire Prevention records, requested November 26, 2013.

New York City Register computerized records, reviewed December 3, 2014.

5.3 Communications

Bill Burton, representing the Marcus Garvey property management group, November 25, 2014.

Rick Gropper, representing the User, various dates, November-December 2014.

6.0 ENVIRONMENTAL PROFESSIONAL STATEMENT

The following statements are required by 40 CFR 312.21(d) of the environmental professional(s) responsible for conducting and preparing the Phase I Environmental Site Assessment report.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

and

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

_____
Paul H. Ciminello
President, Ecosystems Strategies, Inc.



_____
Scott Spitzer
Director of Environmental Investigations, Ecosystems Strategies, Inc.

Appendix 4

AKRF, Inc.
Environmental, Planning, and Engineering Consultants
440 Park Avenue South
7th Floor
New York, NY 10016
tel: 212 696-0670
fax: 212 213-3191
www.akrf.com

October 4, 2017

Ms. Gina Santucci
New York City Landmarks Preservation Commission
1 Centre Street, 9th Floor
New York, NY 10007

Re: Marcus Garvey Village Large Scale General Development Project; Brooklyn, NY

Dear Ms. Santucci:

Brownsville Livonia Associates LLC proposes the development of seven new mixed-use buildings in the Brownsville neighborhood of Brooklyn, New York (see **Figures 1** and **2**). The mixed-use buildings would include residential units (including affordable housing) and retail, community facility space, and parking space. In addition, the proposed project would result in the construction of a community garden on property currently owned by Brownsville Livonia Associates LLC. The proposed project would require several discretionary land use approvals, including zoning map and related text amendments, special permits to establish a Large-Scale General Development ("LSGD"), and the disposition of land currently owned by the City of New York. In addition to providing much-needed affordable housing, the Proposed Project would revitalize the Livonia Avenue corridor by introducing a mix of active uses. The proposed project is subject to New York City Environmental Quality Review (CEQR) and Uniform Land Use Review Procedure (ULURP). In addition to the Proposed Actions, the applicant may seek construction funding from the Department of Housing Preservation and Development (HPD), New York State Homes and Community Renewal (HCR), and/or the New York City Housing Development Corporation (HDC) at a later date. The New York City Department of City Planning (NYCDCP) is serving as the lead agency for the environmental review.

The proposed LSGD is generally bounded by Blake Avenue to the north, Rockaway Avenue to the east, Thomas S. Boyland (Hopkins) Street to the west, and Newport Street to the south. It consists of Block 3559, Lot 1; Block 3560, Lot 1; Block 3573, Lot 1; Block 3574; Block 3575, Lot 11; Block 3587, Lots 1 and 27; Block 3588, Lots 1, 27, and 32–36; Block 3589, Lot 21; Block 3601, Lot 26; and Block 3602, Lot 12. Within the boundaries of the LSGD, the Project Area consists of seven vacant development sites, as summarized in Table 1. The LSGD area also includes an existing garden owned by New York City Parks that would be acquired as part of the proposed project, Block 3588 Lots 32, 33, 34, 35, and 36 that will form a portion of Site C. Each of the proposed development sites is currently undeveloped.

Table 1
Proposed Project Sites

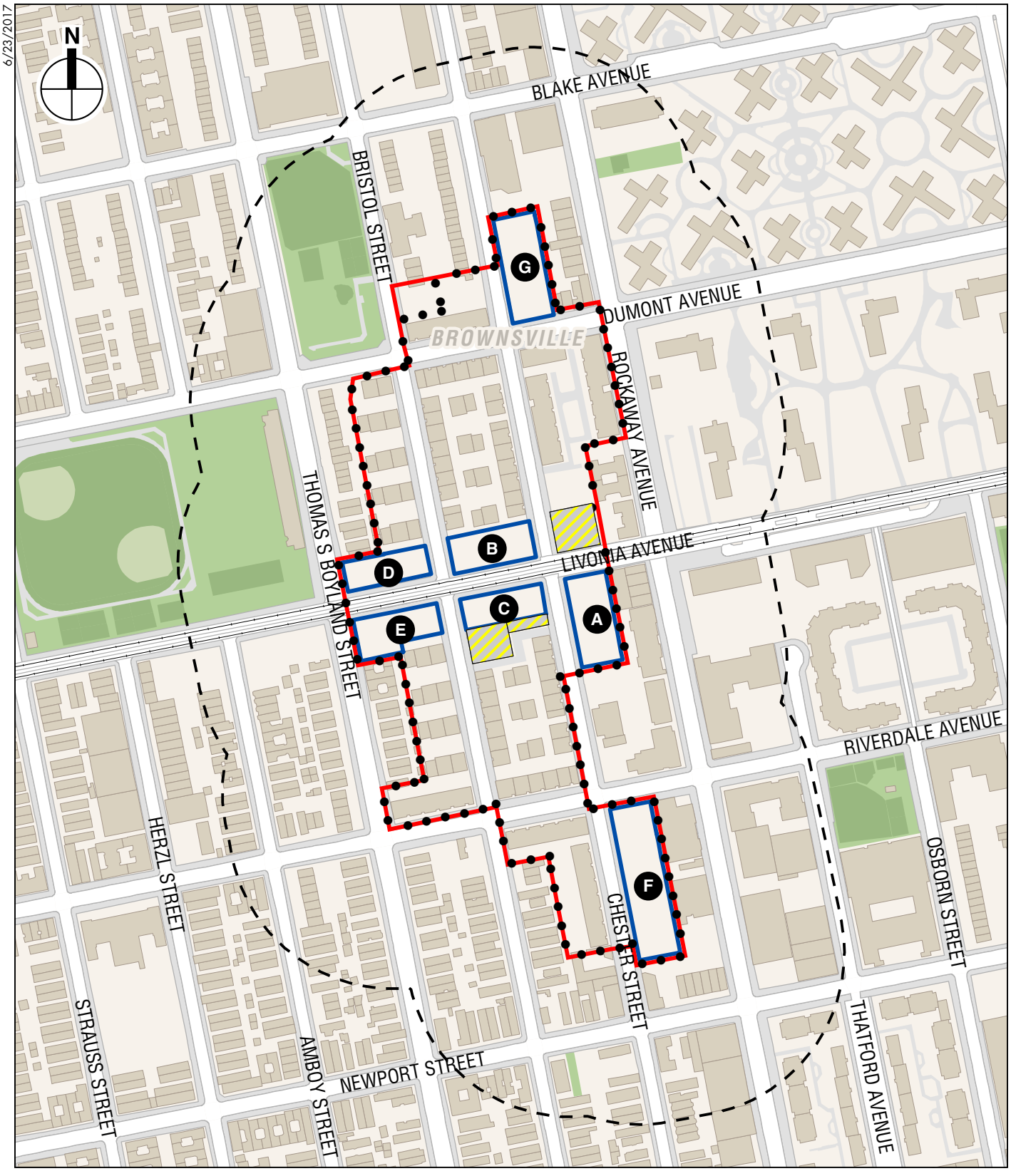
Map Key (see Fig 1)	Block Number	Lot Number	Current Use
A	3589	21	Parking lot
B	3574	1 (part)	Parking lot
C	3588	27 and 32-36	Parking lot; NYC Parks garden site
D	3573	1 (part)	Parking lot
E	3587	1 (part) and 27	Parking lot; vacant City-owned lot
F	3602	12	Parking lot
G	3560	1	Vacant

At this time, we are requesting an initial assessment from your office regarding the potential archaeological sensitivity of the development sites as described above. Thank you for your assistance with this matter. If you have any questions, please do not hesitate to contact me at emeade@akrf.com or by telephone at (646) 388-9811.

Sincerely,

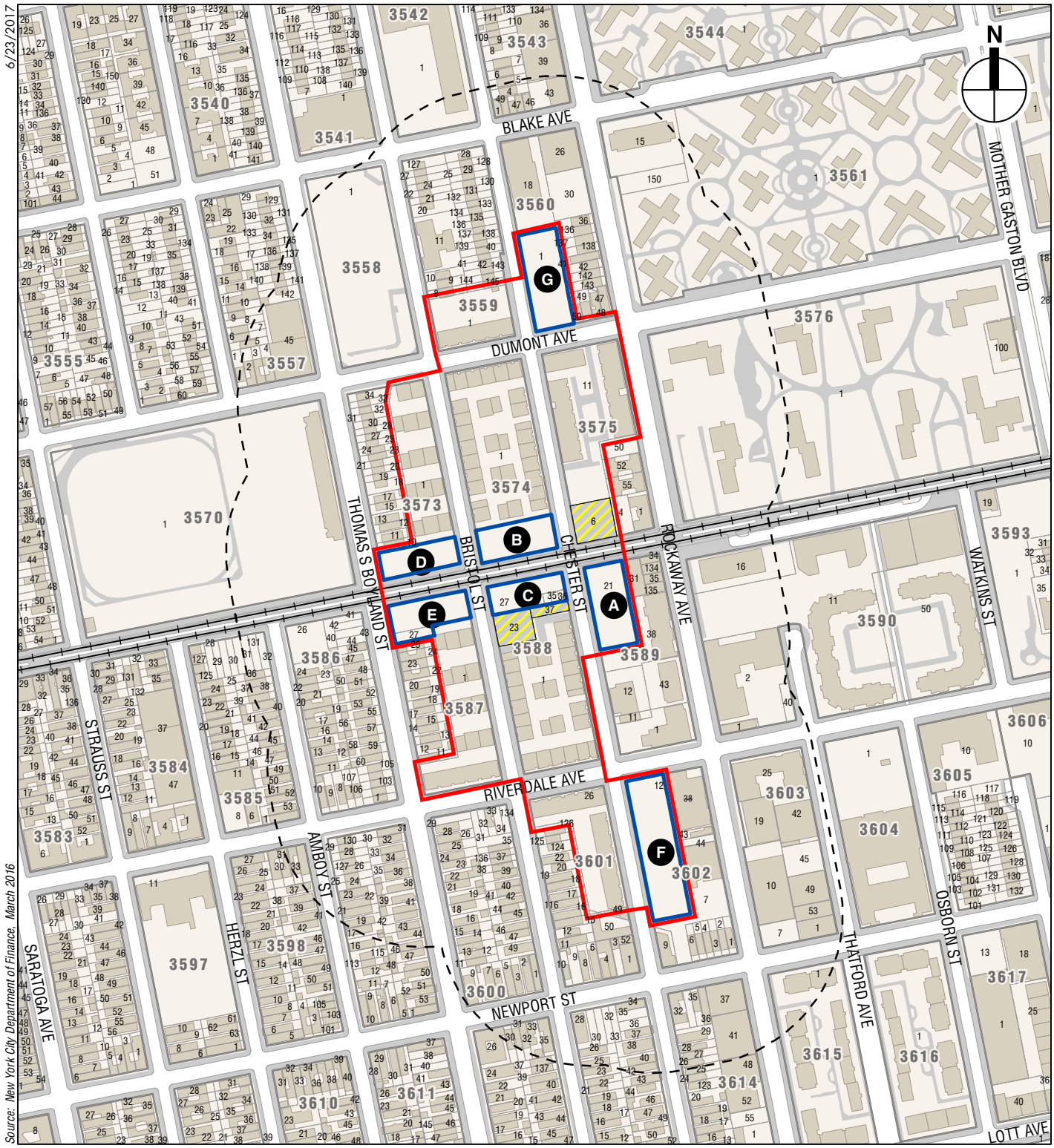
Elizabeth D. Meade, RPA
Technical Director/Archaeologist

cc:
Amanda Sutphin, New York City Landmarks Preservation Commission
Patrick Blanchfield, AKRF



Marcus Garvey Village

Project Location
Figure 1



Project Area
Project Sites
Study Area (400-foot boundary)
Lots not part of Project Area or LSGD
16124 Tax Block Boundary
Tax Lot Boundary
33 Tax Lot Number

0 200 FEET

Marcus Garvey Village

Tax Map
Figure 2

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: DEPARTMENT OF CITY PLANNING / LA-CEQR-K
Project: MARCUS GARVEY VILLAGE
Date received: 10/4/2017

Properties with no Archaeological significance:

1) ADDRESS: 401 CHESTER STREET, BBL: 3035890021
2) ADDRESS: 376 CHESTER STREET, BBL: 3035740001
3) ADDRESS: LIVONIA AVENUE, BBL: 3035880027
4) ADDRESS: LIVONIA AVENUE, BBL: 3035880032
5) ADDRESS: LIVONIA AVENUE, BBL: 3035880033
6) ADDRESS: LIVONIA AVENUE, BBL: 3035880034
7) ADDRESS: LIVONIA AVENUE, BBL: 3035880035
8) ADDRESS: CHESTER STREET, BBL: 3035880036
9) ADDRESS: 350 BRISTOL STREET, BBL: 3035730001
10) ADDRESS: 167 RIVERDALE AVENUE, BBL: 3035870001
11) ADDRESS: 753 THOMAS BOYLAND ST, BBL: 3035870027
12) ADDRESS: CHESTER STREET, BBL: 3036020012
13) ADDRESS: 251 CHESTER STREET, BBL: 3035600001

Gina Santucci 10/11/2017

SIGNATURE DATE
Gina Santucci, Environmental Review Coordinator

File Name: 32846_FSO_DNP_10112017.doc

Environmental Protection

Vincent Sapienza, P.E.
Commissioner

Angela Licata
Deputy Commissioner of Sustainability

59-17 Junction Boulevard
Flushing, NY 11373

T: (718) 595-4398
F: (718) 595-4479
alicata@dep.nyc.gov

MEMORANDUM

To: Annabelle Meunier
Senior Project Manager
DCP EARD

From: Mitchell Wimbish
Project Manager
DEP BEPA

Subject: Marcus Garvey Apartments
CEQR # 18DCP101K

Date: March 15, 2018

New York City Department of Environmental Protection (DEP) has reviewed the Environmental Assessment Statement for the above referenced project and has the following comments:

Sewer System

The proposed rezoning results in an increase of 257% for the sanitary flow in the adjacent sewers based on 2 people/DU (an increase of 419% based on 6 people/DU according to the City's drainage design criteria). A hydraulic analysis of the existing sewer system may be needed at the time of submittal of the site connection proposal application to determine whether the existing sewer system is capable of supporting higher density development and related increase in wastewater flow, or whether there will be a need to upgrade the existing sewer system. In addition, there will be a need to amend the existing drainage plan.

Water System

Existing water mains should be capable to handle increase in water demand. Distribution Engineering has no comments.

cc: Bhaskar Nookala, BWSO.
Lillian Cheng, BWSO
Bushra Asfare, BWSO
Terrell Estesen, BEPA