20.7 A-Application Alternative

20.7.1 INTRODUCTION

In addition to the Proposed Actions analyzed in the EIS, an A-Application Alternative has been considered in response to views expressed during the public review process since the issuance of the DEIS. Since the issuance of the DEIS, DCP filed an amended zoning text application that addresses issues raised after the issuance of the DEIS. The amended application, filed as ULURP application 180051(A) ZMX and N 180050(A) ZRX, consists of modifications to the Proposed Actions (see Appendix J, "A-Application Alternative"). The changes proposed as part of the A-Application Alternative are located in appropriate areas of the proposed rezoning area to allow continued consideration of appropriate building form and scale. The A-Application Alternative would extend the boundaries of the proposed rezoning area and proposed Special Jerome Avenue District to include additional blocks and lots, located west and south of Jerome Avenue, and rezone them from R7-1 and M1-2 to R8A with a C2-4 commercial overlay and R7D with a C2-4 commercial overlay. The modified application would also include zoning text amendment provisions to allow second story retail along Jerome Avenue as-of-right, allow the second story as an obstruction in a rear yard within 100 feet of Jerome Avenue, allow Physical Culture Establishments as of right within the Special Jerome Avenue District, and clarify street wall and ground floor regulations.

The A-Application Alternative would result in the same land uses and consists of generally the same zoning actions sought under the Proposed Actions. The A-Application Alternative would include more projected development sites as compared with the Proposed Actions. As discussed below however, the A-Application Alternative, which is similar to, but less expansive than the Expanded Rezoning Area Alternative analyzed above, would result in the same, or very similar, significant adverse impacts related to community facilities, shadows, transportation (traffic, pedestrians, and transit), and construction (transportation, and noise). These significant adverse impacts would require the same or similar mitigation measures as the Proposed Actions.

The A-Application Alternative would include nearly the same zoning text, map amendments, and city map changes as under the Proposed Actions, but map amendments would be made to a larger area to include two additional blocks and expanded portions of three blocks in the proposed rezoning area in three discrete areas, as compared to the Proposed Actions. A total of three additional projected development sites and six additional potential sites are located within these areas. Each of the three discrete areas would be mapped adjacent to the proposed rezoning area with new R7D and R8A zoning districts with C2-4 commercial overlays. In addition to mapping the proposed districts, the proposed Special Jerome Avenue District would also include rules to allow second story retail in mixed use buildings along the elevated rail line.

In addition, under the A-Application Alternative, zoning text provisions would allow the following:

- 2nd story retail along Jerome Avenue, as-of-right
- 2nd story as an obstruction in a rear yard within 100 feet of Jerome (with 2nd story retail allowance)
- Physical Cultural Establishments, as-of-right
- Street wall flexibility (R9A sites in the Proposed Actions) to site at Block 2865, Lot 134

With the A-Application Alternative, the Proposed Actions in the RWCDS With-Action scenario, as compared to the No Action scenario, are expected to result in a net increase of approximately 3,539,271 sf of residential space (3,780 dwelling units), 221,841 sf of community facility space, 46,403 sf of commercial space; and a net decrease of 36,925 sf of industrial space and 126,802 sf of auto-related uses.

Table 20.7.1-1: 2026 RWCDS No-Action and With-Action Land Uses

Land Use	No-Action Conditions	With-Action Condition	No-Action to With-Action Increment
Residential			
Total Residential	**982,386 sf** (867 DUs)	**4,521,657 sf** (4,647 DUs)	**+ 3,539,271 sf** (+ 3,780 DUs)
Commercial			
Local Retail	215,670 sf	556,204 sf	+ 340,534 sf
FRESH Supermarket	28,405 sf	64,062 sf	+ 35,657 sf
Restaurant	2,260 sf	21,391 sf	+ 19,130 sf
Auto-Related	126,802 sf	0 sf	- 126,802 sf
Office	4,818 sf	44,105 sf	+ 39,287 sf
Warehouse	188,650 sf	0	- 188,650 sf
Garage	72,154 sf	0	- 72,154 sf
Other Commercial	600	0	- 600 sf
Total Commercial	**639,359 sf**	**685,762 sf**	**+ 46,403 sf**
Other Uses			
Industrial	36,925 sf	0	-36,925 sf
Community Facility	256,448 sf[1]	478,289 sf[2]	+ 221,841 sf
Total Floor Area	**1,925,320 sf**	**5,685,674 sf**	**+ 3,760,103 sf**
Parking			
Parking Spaces	1,216	1,701	485
Population[3]			
Residents	2,536	13,718	11,182
Workers[4]	1,726	3,352	1,806

Notes:

[1] Includes 36,120 sf of house of worship uses, 12,805 sf of medical office uses, 2,016 sf of day care center uses, 15,800 sf of Pre-K School uses, and 110,608 sf of other community facility uses.

[2] Includes 53,896 sf of house of worship uses, 15,305 sf of medical office uses, 15,800 sf of Pre-K school uses, 23,099 sf of day care center uses, 132,996 sf of community center uses, and 237,193 sf of other community facility uses.

[3] Assumes 2.87 persons per DU for residential units in Bronx Community District 7, 3.06 persons per DU for residential units in Bronx Community District 5 and 2.92 persons per DU for residential units in Bronx Community District 4.

[4] Employee rates used are as follows: one employee per 250 sf of office, three employees per 1,000 sf of retail/supermarket/restaurant uses, one employee per 25 DU, one employee per 2.67 hotel rooms (and 400 sf per hotel room), one employee per 1,000 sf of auto-related and industrial uses, one employee per 15,000 sf of warehouse uses, three employees per 1,000 sf of all other community facility uses, and one employee per 50 parking spaces.

20.7.2 LAND USE, ZONING, AND PUBLIC POLICY

Introduction

As described in the 2014 *City Environmental Quality Review* (CEQR) *Technical Manual*, alternatives selected for consideration in an environmental impact statement are generally those that are feasible and have the potential to reduce, eliminate, or avoid adverse impacts of a proposed action while meeting some or all of the goals and objectives of this action. As described in Chapter 1, "Project Description," the Jerome Avenue Rezoning consists of a series of land use actions (collectively, the "Proposed Actions") intended to facilitate the implementation of the objectives of the Jerome Avenue Neighborhood Plan. This section considers the A-Application Alternative as another alternative to the Proposed Actions and the Expanded Rezoning Area Alternative.

The A-Application Alternative would include nearly the same zoning text and map amendments and city map changes as the Proposed Actions (as described in Chapter 2, "Land Use, Zoning, and Public Policy"). However, in the A-Application Alternative, the rezoning area would be expanded to include two additional blocks and expanded portions of three blocks in three discrete areas, as compared to the Proposed Actions, and a total of three additional projected development sites within these areas. The three discrete area would be mapped with new R7D and R8A zoning districts with C2-4 commercial overlays. The modified application would also include zoning text amendment provisions to allow second story retail along Jerome Avenue as-of-right, allow the second story as an obstruction in a rear yard within 100 feet of Jerome Avenue, allow Physical Culture Establishments as of right within the Special Jerome Avenue District, and clarify street wall and ground floor regulations.

Principal Conclusions

As with the Proposed Actions (see Chapter 2, "Land Use, Zoning, and Public Policy"), the A-Application Alternative would not result in any significant adverse impacts to land use, zoning, or public policy. With the A-Application Alternative, contextual zoning districts would be mapped that would protect the existing character of the surrounding residential areas and promote opportunities for permanently affordable housing. In addition, the A-Application Alternative would replace a portion of the existing M1-2 manufacturing district (mapped west of Jerome Avenue, between West 170th Street and West 169th Street) within the rezoning area and map new residential districts with commercial overlays to allow for a mix of commercial and residential uses in this area, thus permitting some residential development in an area where none is currently permitted or would otherwise be permitted in the future without the A-Application Alternative. By comparison, the A-Application Alternative would provide more opportunities for permanently affordable housing than with the Proposed Actions; however, neither the A-Application Alternative nor the Proposed Actions would result in significant adverse impacts to land use, zoning, or public policy.

Detailed Assessment

Study Areas

The rezoning area for the A-Application Alternative includes the 92-block rezoning area for the Proposed Actions, which is generally bounded by 184th Street to the north and East 165th Street to the south (see Chapter 1, "Project Description"), plus three discrete areas west and south of Jerome Avenue. The secondary study area for the A-Application Alternative is the same as that for the Proposed Actions, and is generally bounded by 190th Street to the north, East 162nd Street to the south, Webster Avenue to the east, and the Harlem River to the west. The study areas are shown on Figure 20.7.2-1, "Land Use, Zoning, and Public Policy Study Areas."

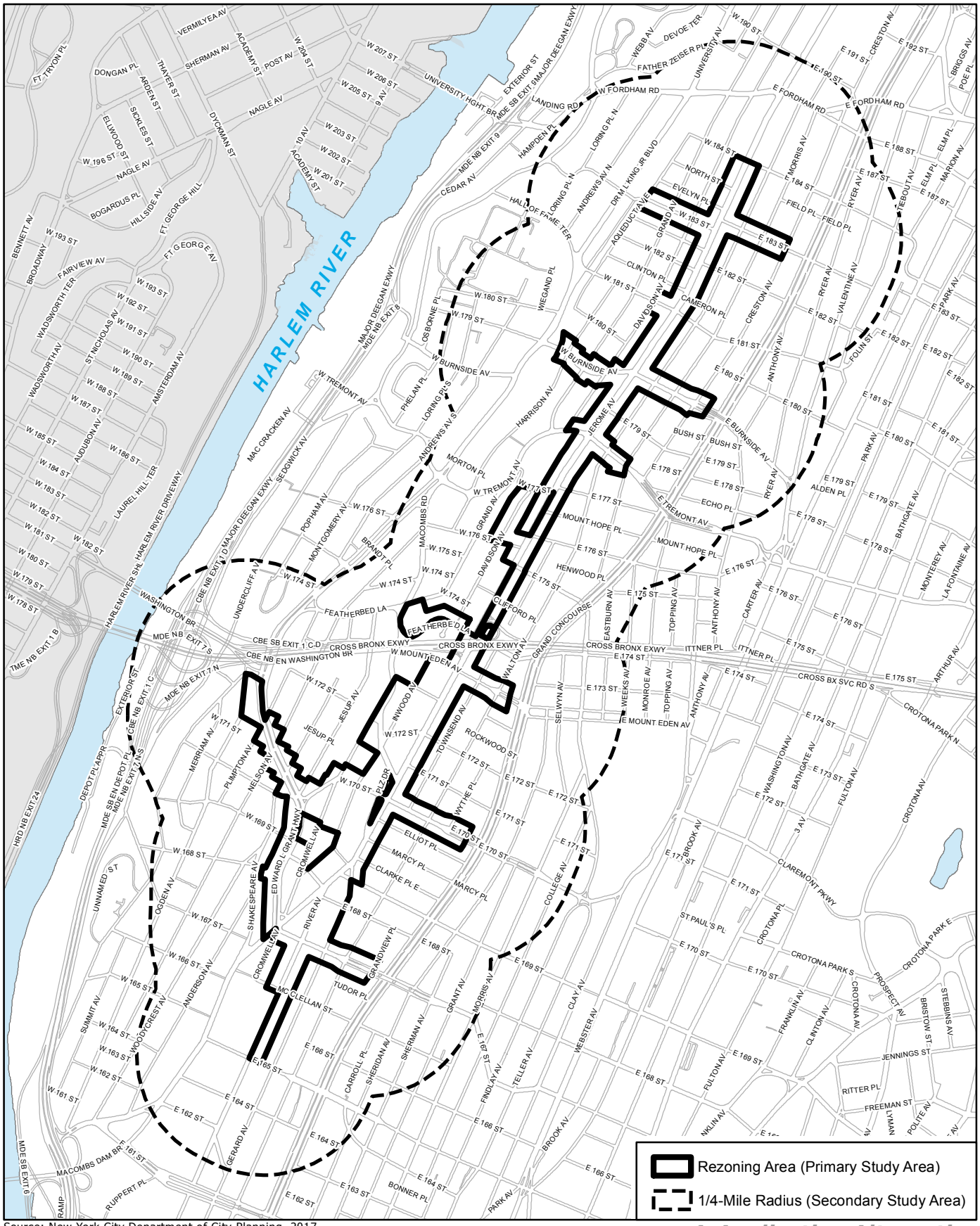
Existing Conditions

Land Use

The existing conditions with the A-Application Alternative are consistent with the existing conditions described in Chapter 2, "Land Use, Zoning, and Public Policy." For the A-Application Alternative, land use composition within the primary study area, primary study area subareas, and the secondary study area is approximately the same as for the Proposed Actions, though composition percentages differ slightly between the A-Application Alternative and the Proposed Actions.

<u>Primary Study Area</u>

As presented on Figure 20.7.2-2, "Primary Study Area Land Uses," and in Table 20.7.2-1a, "Existing Land Uses within the Primary Study Area," the primary study area comprises a mix of land uses, with commercial/office buildings the most predominant, accounting for 27.9 percent of total lots, 23.9 percent of the total lot area, and 18.3 percent of the total built floor area. Mixed use buildings account for the second highest percentage of primary study area lots and total lot area, at 19.6 and 18.4 percent, respectively; however, mixed use buildings account for the highest percentage of total built floor area at 33.1 percent within the primary study area. Auto-related uses account for the third highest percentage of primary study area lots and total lot area (14.7 and 11.4 percent, respectively), while representing a smaller percentage (7.4 percent) of the total built floor area. Residential uses occupy 14.1 percent of the primary study area lots, 11.2 percent of total lot area, and 19.8 percent of total built floor area. Public facilities and institutions occupy 8.5 percent of the primary study area lots, 7.4 percent of the total lot area, and 15.7 percent of the total built floor area. The remaining land uses in the primary study area include parking facilities (6.6 percent of the total lot area), vacant land (3.8 percent of the total lot area), industrial/manufacturing uses (2.1 percent of the total lot area), open space (1.9 percent of the total lot area), and transportation/utility uses (0.6 percent of the total lot area).



Source: New York City Department of City Planning, 2017.

A-Application Alternative

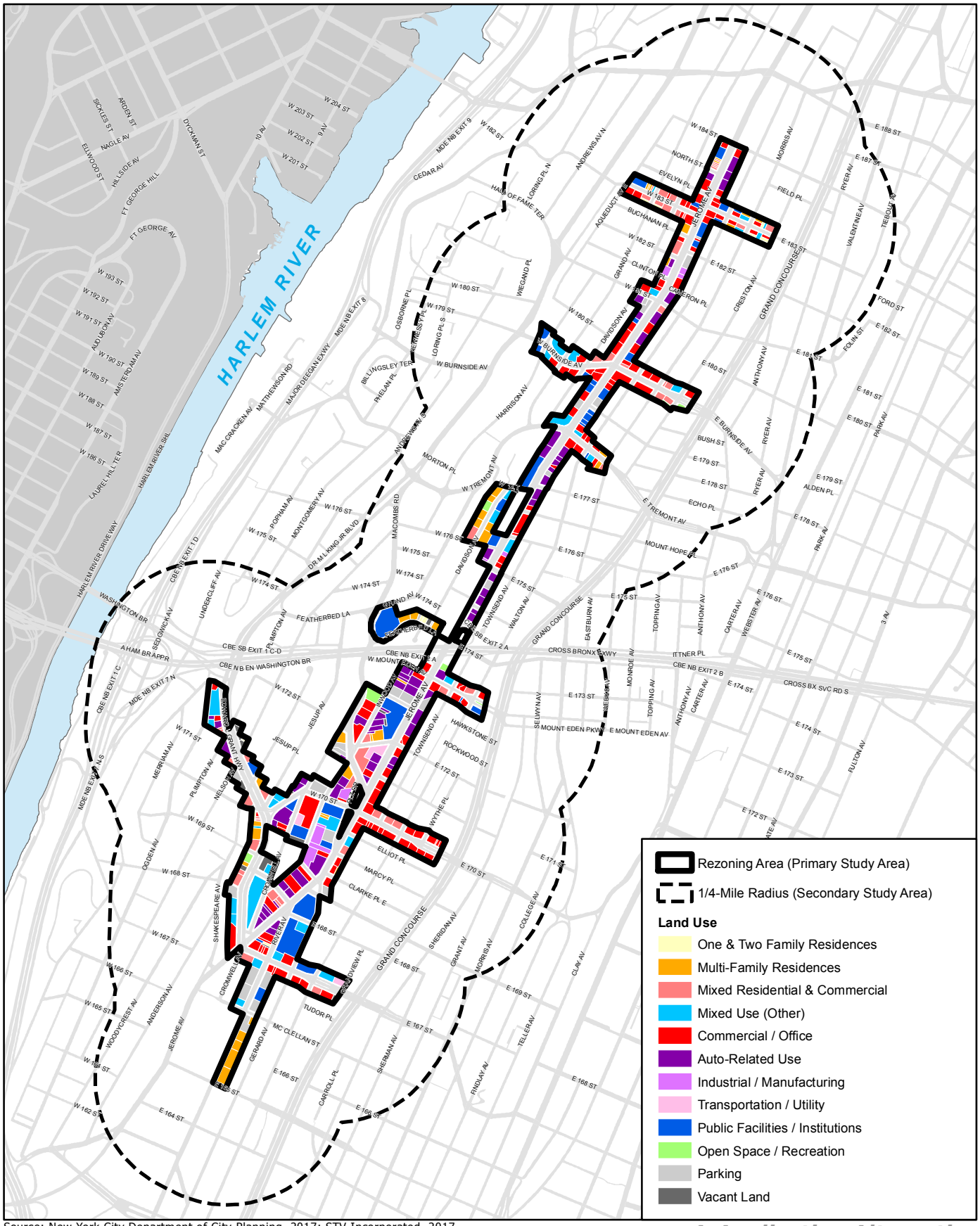
N

0 0.25 0.5 Mile

Figure 20.7.2-1

LAND USE, ZONING, AND PUBLIC POLICY STUDY AREAS

Jerome Avenue Rezoning EIS



Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.2-2

Jerome Avenue Rezoning EIS

PRIMARY STUDY AREA LAND USES

Table 20.7.2-1a: Existing Land Uses within the Primary Study Area

Land Use	Number of Lots	Percentage of Total Lots	Lot Area (sf)	Percentage of Total Lot Area	Building Area (sf)	Percentage of Total Building Area
Residential	66	14.1	520,794	11.2	1,594,365	19.8
One and Two-Family Buildings	*20*	*4.3*	*46,101*	*1.0*	*36,620*	*0.5*
Multi-Family Walkup Buildings	*27*	*5.8*	*174,529*	*3.7*	*441,654*	*5.5*
Multi-Family Elevator Buildings	*19*	*4.1*	*300,164*	*6.4*	*1,116,091*	*13.9*
Mixed Use	92	19.6	860,514	18.4	2,660,623	33.1
Residential and Commercial	*55*	*11.7*	*429,825*	*9.2*	*1,556,411*	*19.3*
*Other**	*37*	*7.9*	*430,689*	*9.2*	*1,104,212*	*13.7*
Commercial/Office Buildings	131	27.9	1,113,330	23.9	1,468,225	18.3
Auto-Related Uses	69	14.7	534,200	11.4	599,264	7.4
Industrial/Manufacturing	10	2.1	103,407	2.2	247,530	3.1
Transportation/Utility	3	0.6	375,227	8.0	41,330	0.5
Public Facilities and Institutions	40	8.5	345,092	7.4	1,260,157	15.7
Open Space	9	1.9	266,269	5.7	4,609	0.1
Parking Facilities	31	6.6	162,298	3.5	109,568	1.4
Vacant Land	18	3.8	385,117	8.3	59,075	0.7
Total	**469**	**100.0**	**4,666,248**	**100.0**	**8,044,746**	**100.0**
Notes: *Mixed Use (Other) includes a community facility in combination with residential and/or commercial uses.						

Source: New York City MapPLUTO, 2016; STV Incorporated, 2017.

The primary study area includes two subareas: a "northern" subarea, which is the portion of the rezoning area north of the Cross-Bronx Expressway (bounded by 184th Street), and a "southern" subarea, which is the portion of the rezoning area south of the Cross Bronx Expressway (bounded by East 165th Street). In the A-Application Alternative, the boundaries of the proposed rezoning area include two areas within the northern subarea and one area within the southern subarea that are not part of the Proposed Actions. Table 20.7.2-1b, "Existing Land Uses within the Primary Study Area Subareas," provides land uses in each of these two subareas.

North of the Cross-Bronx Expressway (Northern Subarea)

The portion of the rezoning area north of the Cross-Bronx Expressway has a higher percentage of commercial/office buildings than the area to the south. Commercial uses comprise the majority of the northern subarea's lots (29.2 percent), 30 percent of the subarea's total lot area, and 18.5 percent of the subarea's building area. The northern subarea includes a higher percentage of residential uses than is found in the southern subarea, with residential uses making up 18.1 percent of the northern subarea's lots.

There is a higher percentage of public facilities and institutional uses in the northern subarea than in the southern subarea. While only comprising 11.5 percent of the subarea's lots, public facilities and institutional uses represent 16.6 percent of the total lot area and 17.5 percent of the total building area in this subarea.

While the northern subarea comprises fewer lots (11.1 percent) than the southern subarea, there is a higher percentage of total lot area (15 percent) and total built area (8.1 percent) for auto-related uses north of the Cross-Bronx Expressway compared to the southern subarea.

Open space resources are limited within the rezoning area, overall, with three located north of the Cross-Bronx Expressway. Parking facilities account for 5.3 percent of the total lots in the northern subarea.

South of the Cross-Bronx Expressway (Southern Subarea)

Commercial uses comprise the majority of the southern subarea's lots (26.7 percent), 21.6 percent of the subarea's lot area, and 18 percent of the subarea's building area. Compared to the northern subarea, the southern subarea has a higher percentage of auto-related uses with this type of land use making up 18.1 percent of the southern subarea's lots; however, the southern subarea has a slightly lower percentage of total lot area (14.1 percent) and total built area (6.9 percent) compared to the northern subarea.

The southern subarea has fewer residential buildings than the northern subarea as well as a lower percentage of total lot area (11.1 percent) and total built area (18.5 percent) for residential buildings as compared to the northern subarea.

Open space resources are limited in this subarea with just six located south of the Cross-Bronx Expressway. Parking facilities account for 7.8 percent of the total lots in this subarea.

There is also a substantial amount of vacant land in the southern subarea, as compared to the northern subarea; 6.6 percent of the southern subarea's lots are vacant, comprising 3.3 percent of the subarea's total lot area. The southern subarea has a higher percentage of industrial/manufacturing built area (4.6 percent) than the northern subarea.

Table 20.7.2-1b: Existing Land Uses within the Primary Study Area Subareas

Land Use	Number of Lots	Percentage of Total Lots	Lot Area (sf)	Percentage of Total Lot Area	Building Area (sf)	Percentage of Total Building Area
North of the Cross Bronx Expressway (Northern Subarea)						
Residential	41	18.1	224,314	12.6	754,325	21.5
One and Two-Family Buildings	14	6.2	37,520	2.1	27,172	0.8
Multi-Family Walkup Buildings	17	7.5	83,654	4.7	275,395	7.9
Multi-Family Elevator Buildings	10	4.4	103,140	5.8	451,758	12.9
Mixed Use	46	20.4	329,535	18.5	1,122,050	32.0
Residential and Commercial	27	11.9	166,425	9.4	621,670	17.7
*Other**	19	8.4	163,110	9.2	500,380	14.3
Commercial/Office Buildings	66	29.2	533,958	30.0	649,952	18.5
Auto-Related Uses	25	11.1	266,621	15.0	285,446	8.1
Industrial/Manufacturing	5	2.2	30,000	1.7	38,750	1.1
Transportation/Utility	0	0.0	0	0.0	0	0.0
Public Facilities and Institutions	26	11.5	294,598	16.6	612,448	17.5
Open Space	3	1.3	17,242	1.0	0	0.0
Parking Facilities	12	5.3	74,718	4.2	44,418	1.3
Vacant Land	2	0.9	7,510	0.4	0	0.0
Subarea Total	***226***	***100.0%***	***1,778,496***	***100.0%***	***3,507,389***	***100.0%***
South of the Cross Bronx Expressway (Southern Subarea)						
Residential	25	10.3	296,480	11.1	840,040	18.5
One and Two-Family Buildings	6	2.5	8,581	0.3	9,448	0.2
Multi-Family Walkup Buildings	10	4.1	90,875	3.4	166,259	3.7
Multi-Family Elevator Buildings	9	3.7	197,024	7.4	664,333	14.6
Mixed Use	46	18.9	530,979	19.8	1,538,573	33.9
Residential and Commercial	28	11.5	263,400	9.8	934,741	20.6
*Other**	18	7.4	267,579	10.0	603,832	13.3
Commercial/Office Buildings	65	26.7	579,372	21.6	818,273	18.0
Auto-Related Uses	44	18.1	377,607	14.1	313,818	6.9
Industrial/Manufacturing	5	2.1	73,407	2.7	208,780	4.6
Transportation/Utility	3	1.2	56,678	2.1	41,330	0.9
Public Facilities and Institutions	14	5.8	375,227	14.0	647,709	14.3
Open Space	6	2.5	50,494	1.9	4,609	0.1
Parking Facilities	19	7.8	249,027	9.3	65,150	1.4
Vacant Land	16	6.6	87,580	3.3	59,075	1.3
Subarea Total	***243***	***100.0%***	***2,676,851***	***100.0%***	***4,537,357***	***100.0%***
Notes: *Mixed Use (Other) includes a community facility in combination with residential and/or commercial uses.						

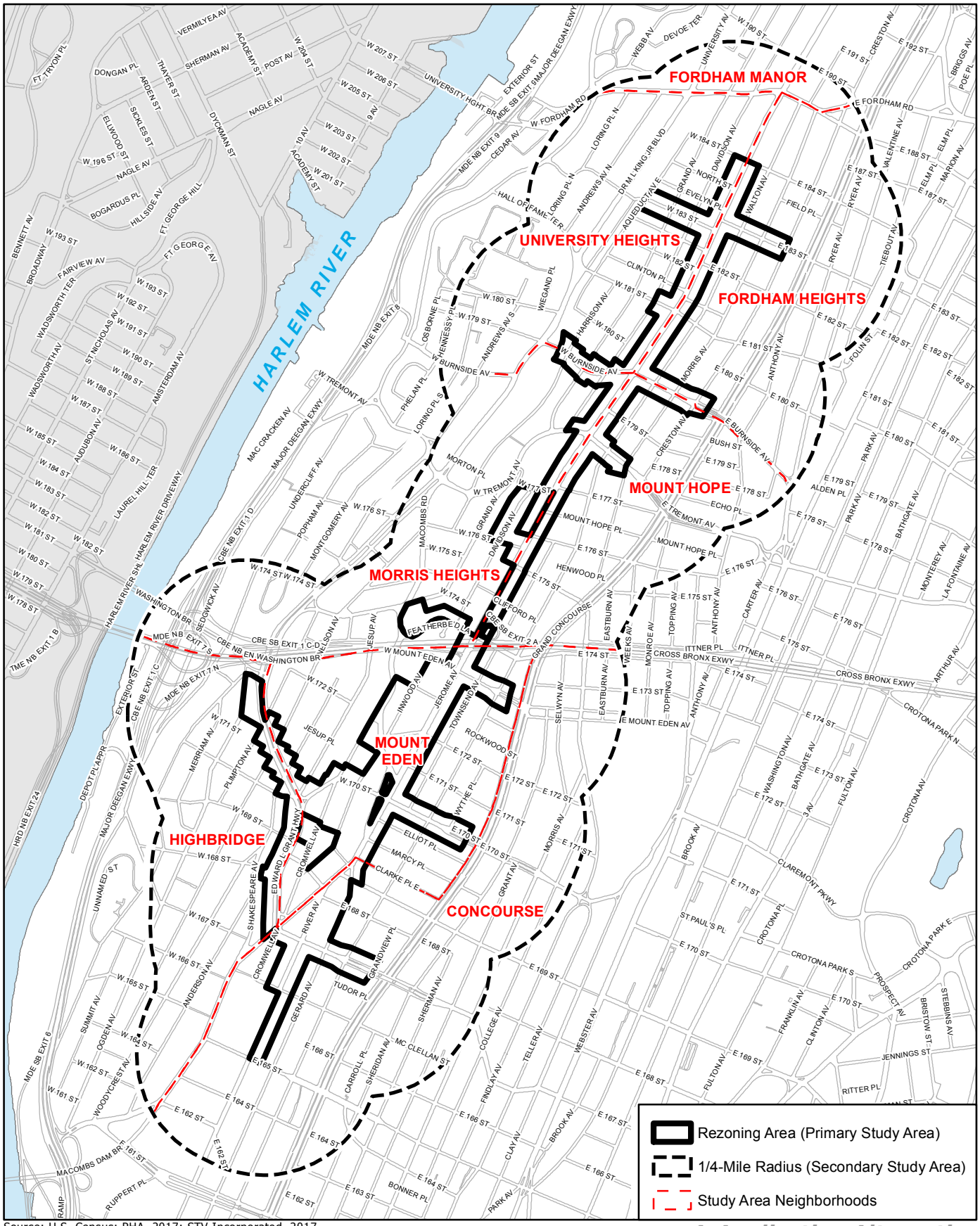
Source: New York City MapPLUTO, 2016; STV Incorporated, 2017.

Secondary Study Area

The secondary study area for the A-Application Alternative (which is delineated the same as for the Proposed Actions) includes portions of eight generally defined neighborhoods including: Fordham Manor, University Heights, Fordham Heights, Morris Heights, Mount Hope, Mount Eden, Highbridge, and Concourse (see Figure 20.7.2-3, "Land Use, Zoning, and Public Policy Study Area Neighborhoods"). For a detailed discussion of Secondary Study Area neighborhoods, please refer to Chapter 2, "Land Use, Zoning, and Public Policy."

As presented on Figure 20.7.2-4, "Secondary Study Area Land Uses," and in Table 20.7.2-2, "Existing Land Uses within the Secondary Study Area," similar to the primary study area, the secondary study area

comprises a mix of uses, with residential uses the most prevalent, representing a higher percentage of the secondary study area's lots (71.5 percent) as compared to the primary study area's lots (14.1 percent). Commercial/office buildings represent a smaller percentage of total lots in the secondary study area (4.4 percent) as compared to the primary study area (27.9 percent). Similar to the primary study area, mixed use buildings represent the second highest percentage of secondary study area lots and built area (9.3 and 20.2 percent, respectively). While public facilities and institutions occupy only 4.5 percent of total lots in the secondary study area, they account for the second highest percentage of total lot area (15.5 percent). All other uses are represented in the secondary study area, with none comprising a significant portion of the lots.

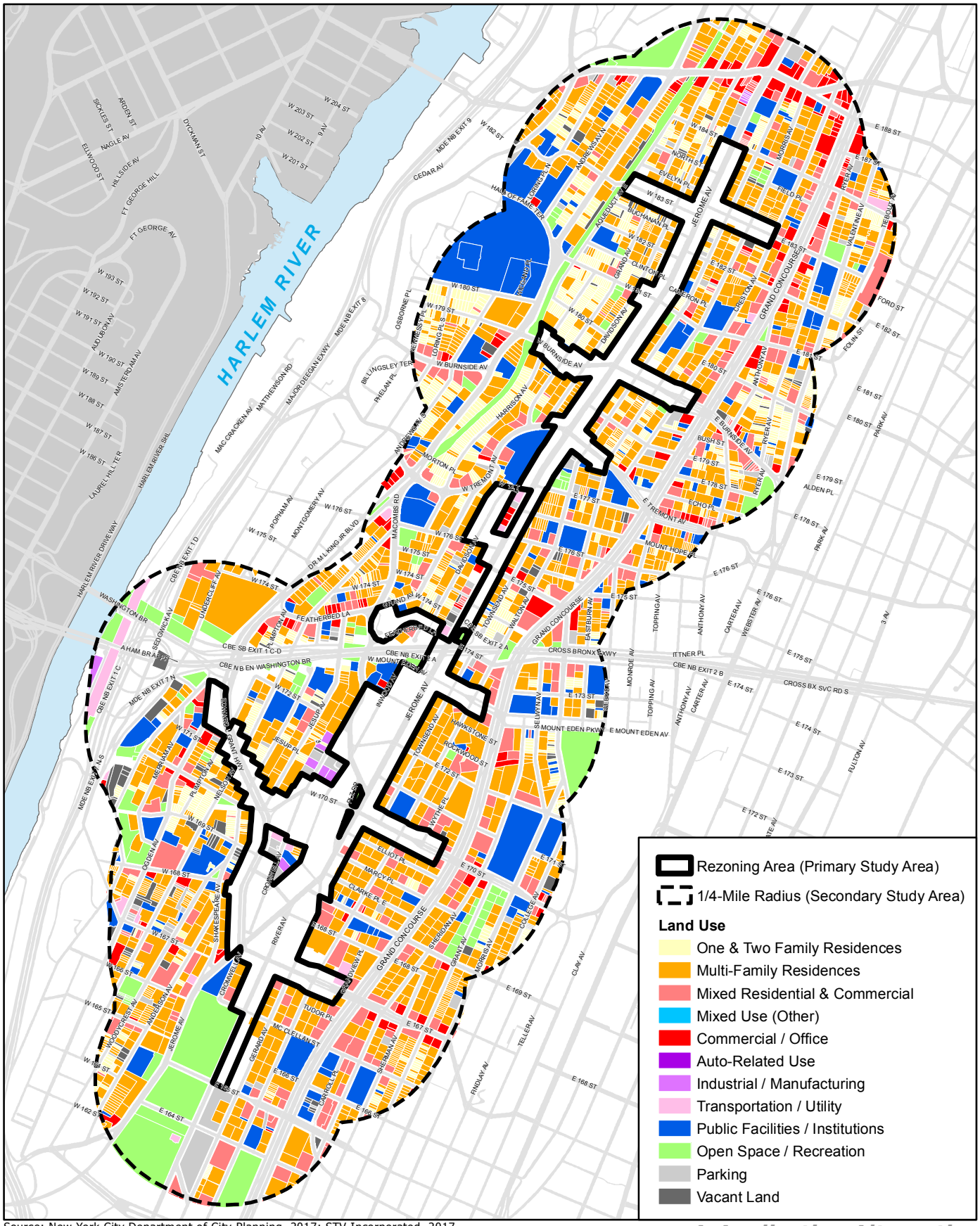


Source: U.S. Census; PHA, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.2-3

LAND USE, ZONING, AND PUBLIC POLICY STUDY AREA NEIGHBORHOODS



Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

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Figure 20.7.2-4

SECONDARY STUDY AREA LAND USES

Table 20.7.2-2: Existing Land Uses within the Secondary Study Area

Land Use	Number of Lots	Percentage of Total Lots	Lot Area (sf)	Percentage of Total Lot Area	Building Area (sf)	Percentage of Total Building Area
Residential	2,880	71.5	16,325,170	50.2	51,428,599	64.6
One and Two-Family Buildings	1,172	29.1	2,935,731	9.0	2,892,804	3.6
Multi-Family Walkup Buildings	1,311	32.6	7,523,599	23.1	23,813,317	29.9
Multi-Family Elevator Buildings	397	9.9	5,865,840	18.0	24,722,478	31.0
Mixed Use	375	9.3	4,045,783	12.4	16,105,173	20.2
Residential and Commercial	337	8.4	3,737,563	11.5	14,946,593	18.8
Other	38	0.9	308,220	0.9	1,158,580	1.5
Commercial/Office Buildings	176	4.4	1,425,997	4.4	2,304,682	2.9
Auto-Related Uses	1	0.0	13,907	0.0	0	0.0
Industrial/Manufacturing	13	0.3	275,293	0.8	118,938	0.1
Transportation/Utility	22	0.5	286,291	0.9	71,255	0.1
Public Facilities and Institutions	180	4.5	5,032,367	15.5	7,256,301	9.1
Open Space	125	3.1	3,608,374	11.1	1,665,630	2.1
Parking Facilities	110	2.7	933,887	2.9	707,927	0.9
Vacant Land	145	3.6	600,405	1.8	0	0.0
Total	***4,027***	***100.0%***	***32,547,474***	***100.0%***	***79,667,505***	***100.0%***
Notes: *Mixed Use (Other) includes a community facility in combination with residential and/or commercial uses.						

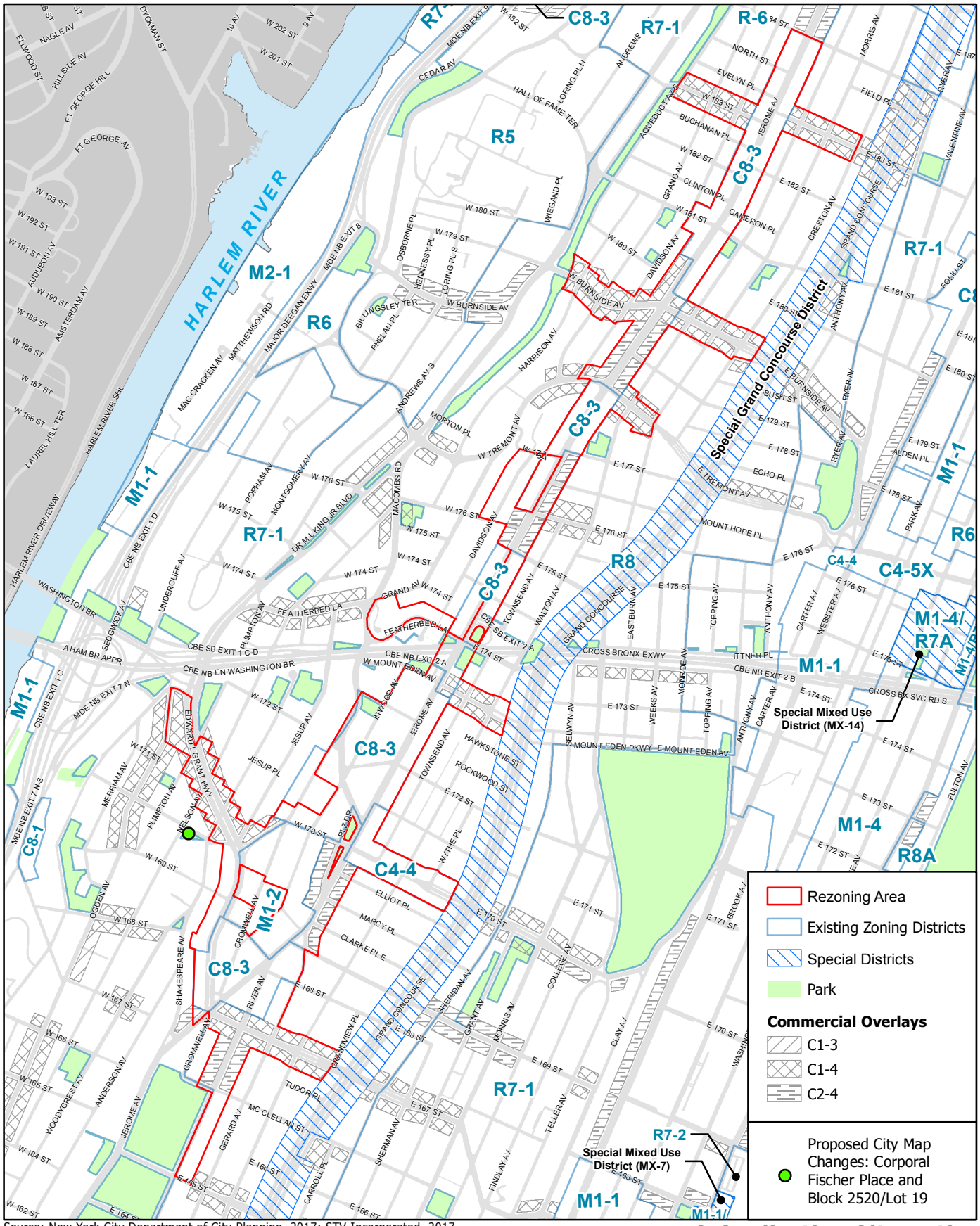
Source: New York City MapPLUTO, 2016; STV Incorporated, 2017.

Zoning

As shown on Figure 20.7.2-5, "Existing Zoning," the primary study area is mapped with a mix of commercial and residential zoning districts, and one manufacturing district. For a detailed discussion of existing zoning districts within the primary study area, please refer to Chapter 2, "Land Use, Zoning, and Public Policy."

Public Policy

As the same public policies applicable to the Proposed Actions apply to the A-Application Alternative, please refer to Chapter 2, "Land Use, Zoning, and Public Policy" for a detailed discussion of the public policies applicable to the primary and secondary study areas for the A-Application Alternative. The New York Empowerment Zone included within the primary and secondary study areas, and the Business Improvements Districts and Special Grand Concourse District included within the secondary study area, are presented on Figure 20.7.2-6, "New York Empowerment Zone, Business Improvement Districts, & Special Grand Concourse District."

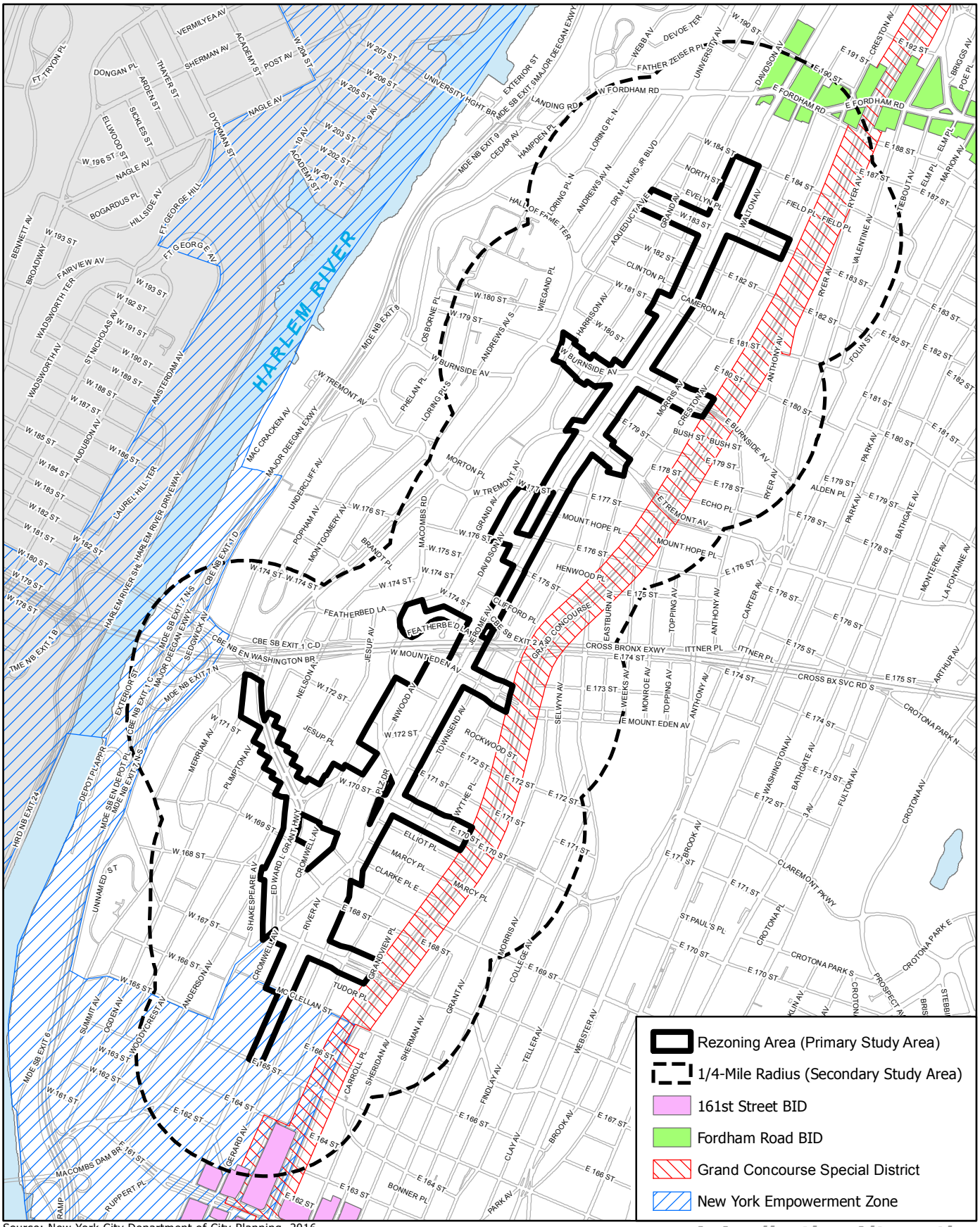


Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.2-5

EXISTING ZONING



Source: New York City Department of City Planning, 2016.

A-Application Alternative

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Jerome Avenue Rezoning EIS

Figure 20.7.2-6

NEW YORK EMPOWERMENT ZONE, BUSINESS IMPROVEMENT DISTRICTS, & GRAND CONCOURSE SPECIAL DISTRICT

The Future Without the A-Application Alternative (No-Action Condition)

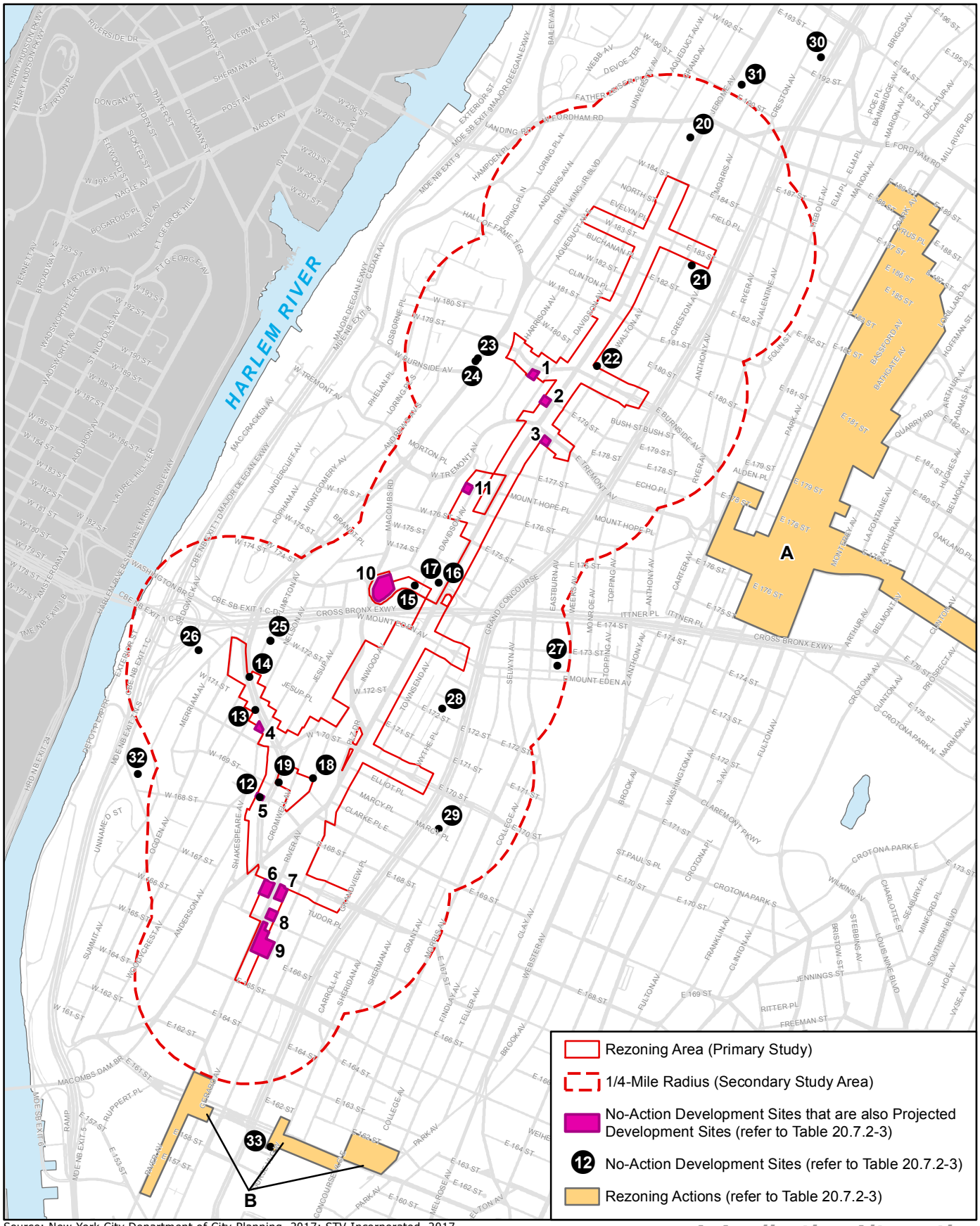
Land Use

Primary Study Area

The No-Action Condition with the A-Application Alternative is consistent with the No-Action condition described in Chapter 2, "Land Use, Zoning, and Public Policy." In addition to the nine (out of 45 projected development sites) that are expected to be redeveloped, or undergo conversion, in the future without the Proposed Actions, two additional projected development sites (Sites 46 and 47) are expected to be redeveloped, or undergo conversion, in the future without the A-Application Alternative. The incremental development anticipated on these eleven projected development sites in the future without the A-Application Alternative is shown in Table 20.7.2-3, "Development Projects in the Future without the A-Application Alternative." No-Action development on these eleven projected development sites will result in a net 860,828 sf of market-rate residential floor area (822 dwelling units [DUs]), 89,327 sf of commercial uses, and 209,650 sf of community facility uses on the projected development sites.

In addition to the as-of-right development anticipated on some of the projected development sites in the RWCDS, a total of four additional sites are expected to be developed the in the future without the A-Application Alternative (see Figure 20.7.2-7, "No-Action Development Sites," and Table 20.7.2-3). These four known and anticipated developments in the rezoning area include two mixed use developments, on residential development, and one commercial development.

In total, the new primary study area No-Action developments with the A-Application Alternative would introduce an estimated 2,840 new residents and 1,114 new workers to the primary study area.



Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.2-7

Jerome Avenue Rezoning EIS

NO-ACTION DEVELOPMENT SITES

Secondary Study Area

Fourteen known and anticipated developments are expected in the ¼-mile secondary study area, including six residential developments, four mixed use developments, three commercial developments, and one community facility (community center). In total, the new secondary study area No-Action developments in the A-Application Alternative would introduce an estimated 1,902 new residents and 757 new workers to the secondary study area. (Please refer to Figure 20.7.2-7, "No-Action Development Sites" and Table 20.7.2-3, "Development Projects in the Future without the A-Application Alternative.)

Other Developments Outside of the Study Areas

Four new residential and mixed-use developments are anticipated to occur within a ¼-mile to a ½-mile of the primary study area. (Please refer to Figure 20.7.2-7 and Table 20.7.2-3.)

Table 20.7.2-3: Development Projects in the Future without the A-Application Alternative

Map No.[1]	Project Name/Address	Development Proposal Program	Build Year	Estimated Net Residents[2, 3]	Estimated Net Workers[4, 5]
Primary Study Area (Rezoning Area)					
1	Projected Development Site 10 - 40 West Burnside Avenue	A new mixed-use development with 22,575 sf of residential (23 DUs), a 19,425 sf FRESH supermarket, and 53 parking spaces	2026	70	60
2	Projected Development Site 13 - 1985 Jerome Avenue	A new mixed-use development with 36,836 sf of residential (37 DUs), 6,500 sf of retail, and 29 parking spaces	2026	113	22
3	Projected Development Site 17 - 10 East Tremont Avenue	A new mixed-use development with 59,712 sf of residential (60 DUs) and 9,631 sf of retail	2026	184	31
4	Projected Development Site 31 - 1355 Grant Avenue	A new community facility development (house of worship) with a total floor area of 36,120 sf and 36 parking spaces	2026	0	109
5	Projected Development Site 38 - Edward L. Grant Highway	A new residential development with a total floor area of 12,953 sf (13 DUs)	2026	37	1
6	Projected Development Site 41 - River Avenue	A new mixed-use development with 139,590 sf of residential (140 DUs), 22,950 sf of retail, and 79 parking spaces	2026	402	77
7	Projected Development Site 42 - 1184 River Avenue	A new mixed-use development with 110,767 sf of residential (111 DUs), 18,211 sf of retail, and 63 parking spaces	2026	319	60
8	Projected Development Site 44 - 1150 River Avenue	A new mixed-use development with 76,967 sf of residential (77 DUs), 12,610 sf of retail, and 28 parking spaces	2026	221	42
9	Projected Development Site 45 - River Avenue; 1083 Gerard Avenue; 1079 Gerard Avenue	A new residential development with a total floor area of 412,803 sf (273 DUs) and 185 parking spaces	2026	783	15
10	Projected Development Site 46 - 1600 Macombs Road	A new community facility with an 87,625 sf residential treatment facility (88 DUs), 87,625 sf of supportive housing, a 58,302 sf community center, and a 6,805 sf medical office	2026	268	442
11	Projected Development Site 47 - 1801 Davidson Avenue	A new community facility (community center) with a total floor area of 20,798 sf	2026	0	62
12	1285 Edward L. Grant Highway	A new mixed-use development with 29 DUs, 25,324 sf of community facility (transitional housing), and a 5,000 sf medical office	unknown	85	96

Table 20.7.2-3 (continued): Development Projects in the Future without the A-Application Alternative

13	1384 Nelson Avenue	A new commercial (local retail) development with a total floor area of 9,695 sf	2017	0	29
14	1448 Plimpton Avenue	A new mixed-use development with 61 DUs and 22,557 sf of community facility (community center)	2017	178	68
15	29 Featherbed Lane	A new residential development with 59 DUs	2018	181	0
Net Incremental Development for Primary Study Area		*Residential = 1,009,828 sf (971 DUs)* *Commercial = 99,022 sf* *Community Facility = 262,531*		2,840	1,114
Secondary Study Area (1/4-Mile Radius)					
16	1665 Jerome Avenue	A new community facility with 70,953 sf of supportive housing, 14,984 sf of office space, and 4,623 sf of retail	2026	0	74
17	1665 Jerome Avenue	A new residential development with 71 DUs	2026	217	0
18	1337 Inwood Avenue	A new community facility (community center) with a total floor area of 12,696 sf	2019	0	38
19	1302 Edward L. Grant Highway	A new commercial development with a total floor area of 89,078 sf, including one floor of office space and five floors of warehouse space	2019	0	267
20	2429 Jerome Avenue	A new mixed-use development with 7,640 sf of commercial (local retail) and 24,956 sf of community facility (Pre-K school)	2019	0	98
21	2264 Morris Avenue	A new mixed-use development with 94 DUs and 14,751 sf of community facility (transitional housing)	2018	288	44
22	2065 Walton Avenue	A new residential development with 90 DUs	2017	275	0
23	1953 University Avenue	A new commercial (local retail) development with a total floor area of 19,490 sf	2017	0	58
24	1959 University Avenue	A new commercial (local retail) development with a total floor area of 10,000 sf	2018	0	30
25	1450 Plimpton Avenue	A new residential development with 62 DUs	2017	181	0
26	1434 Undercliff Avenue	A new mixed-use development with 30 DUs and 49,111 sf of community facility (transitional housing)	2017	88	147
27	235 Mt. Eden Parkway	A new residential development with 92 DUs	2018	269	0
28	111 East 172nd Street	A new residential development with 126 DUs	2018	368	0
29	201 Marcy Place	A new residential development with 74 DUs	2017	216	0

Table 20.7.2-3 (continued): Development Projects in the Future without the A-Application Alternative

Net Incremental Development for Secondary Study Area		*Residential = 639,000 sf (639 DUs)* *Commercial = 145,815 sf* *Community Facility = 172,467 sf*		1,902	757
Beyond the Secondary Study Area but within a 1/2-Mile Radius of the Primary Study Area					
30	2605 Grand Concourse	A new residential development with 94 DUs	2018	270	0
31	2500 Jerome Avenue	A new mixed-use development with 104 DUs and 4,632 sf of community facility (day care)	unknown	298	14
32	237 West 167th Street	A new residential development with 35 DUs	2019	102	0
33	859 Concourse Village West	A new mixed-use development with 85 hotel rooms, 31,499 sf of commercial (local retail), and 2,586 sf of community facility (community center)	2018	0	8

Rezoning Actions in the Project Vicinity	
A	Third Avenue/Tremont Avenue Rezoning
B	161st Street/River Avenue Rezoning

Notes:

[1] Refer to Figure 20.7.2-7.

[2] Net Residents for developments 1-11 were sourced from the RWCDS.

[3] Net residents for developments 12-33 were calculated by multiplying the number of dwelling units by the average household size of the development's Community District (2.87 persons per DU for residential units in Bronx Community District 7, 3.06 persons per DU for residential units in Bronx Community District 5, and 2.92 person per DU for residential units in Bronx Community District 4).

[4] Net workers for development 1-11 were sourced from the RWCDS.

[5] Net workers for developments 12-33 were based on standard industry rates of one employee per 250 sf of office, three employees per 1,000 sf of retail/supermarket/restaurant uses, one employee per 25 DUs, one employee per 2.67 hotel rooms (and 400 sf per hotel room), one employee per 1,000 sf of auto-related and industrial uses, one employee per 15,000 sf of warehouse uses, three employees per 1,000 sf of all other community facility uses, and one employee per 50 parking spaces (except where otherwise noted).

Source: DCP; STV Incorporated, 2017.

Zoning

As described for these study areas in Chapter 2, "Land Use, Zoning, and Public Policy," no known changes to existing zoning designations are planned within the primary and secondary study areas.

Public Policy

As described for these study areas in Chapter 2, "Land Use, Zoning, and Public Policy," there are no planned changes in public policy applicable to the primary or secondary study areas.

The Future With the A-Application Alternative (With-Action Condition)

The With-Action condition for the A-Application Alternative is generally similar to the With-Action condition for the Proposed Actions within that portion of the rezoning area in common. The With-Action condition for the A-Application Alternative includes the additional effects associated with the A-Application Alternative on approximately two additional blocks and expanded portions of three blocks

located west and south of Jerome Avenue. The A-Application Area Alternative, as compared to the No-Action condition, is described following.

Land Use

Primary Study Area

With the A-Application Alternative, the RWCDS for the With-Action condition would include three projected development sites (Sites 46, 47, and 52), in addition to those projected development sites in common with the Proposed Actions, for a total of 48 projected development sites. In addition, five projected development sites (Sites 3, 6, 19, 22, and 44) in common with the Proposed Actions would have two story retail in mixed use buildings (instead of only ground floor retail).

Table 20.7.2-4, "2026 RWCDS No-Action and With-Action Land Uses," provides a summary of the RWCDS for the 48 projected development sites compared to the No-Action condition for the A-Application Alternative. As indicated in the table, the total development expected to occur on the projected development sites in the With-Action condition would consist of approximately 5,685,674 sf of floor area, including 4,521,657 sf of residential floor area (4,647 DUs), 685,762 sf of commercial uses, 478,289 sf of community facility uses, as well as 1,701 accessory parking spaces. The projected incremental (net) change between the No-Action and With-Action conditions that would result from the Proposed Actions would be 3,539,271 sf of residential floor area (3,780 DUs), 221,841 sf of community facility uses, 46,403 sf of commercial uses, and 485 accessory parking spaces, as well as a net reduction of 36,925 sf of industrial uses. The difference between the total built square footage in the No-Action and With-Action conditions would be approximately 3,760,103 sf.

Secondary Study Area

Similar to the With-Action condition of the secondary study area with the Proposed Actions (see Chapter 2, "Land Use, Zoning, and Public Policy"), the A-Application Alternative would not directly or indirectly affect the land use patterns that would otherwise be present in the secondary study area in the future without the A-Application Alternative.

Table 20.7.2-4: 2026 RWCDS No-Action and With-Action Land Uses

Land Use	No-Action Conditions	With-Action Condition	No-Action to With-Action Increment
Residential			
Total Residential	**982,386 sf**	**4,521,657 sf**	**+3,539,271 sf**
	(867 DUs)	(4,647 DUs)	(+ 3,780 DUs)
Commercial			
Local Retail	215,670 sf	556,204 sf	+ 340,534 sf
FRESH Supermarket	28,405 sf	64,062 sf	+ 35,657 sf
Restaurant	2,260 sf	21,391 sf	+ 19,130 sf
Auto-Related	126,802 sf	0 sf	- 126,802 sf
Office	4,818 sf	44,105 sf	+ 39,287 sf
Warehouse	188,650 sf	0 sf	- 188,650 sf
Garage	72,154 sf	0 sf	- 72,154 sf
Other Commercial	600 sf	0 sf	- 600 sf
Total Commercial	**639,359 sf**	**685,762 sf**	**+ 46,403 sf**
Other Uses			
Industrial	36,925 sf	0 sf	- 36,925 sf
Community Facility	256,448 sf[1]	478,289 sf[2]	+ 221,841 sf
Total Floor Area	**1,925,320 sf**	**5,685,674 sf**	**+ 3,760,103 sf**
Parking			
Parking Spaces	1,216	1,701	+ 485

Notes:

[1] Includes 36,120 sf of house of worship uses, 12,805 sf of medical office uses, 2,016 sf of day care center uses, 15,800 sf of Pre-K School uses, and 110,608 sf of other community facility uses.

[2] Includes 53,896 sf of house of worship uses, 15,305 sf of medical office uses, 15,800 sf of Pre-K school uses, 23,099 sf of day care center uses, 132,996 sf of community center uses, and 237,193 sf of other community facility uses.

Source: DCP; STV Incorporated, 2017.

Zoning

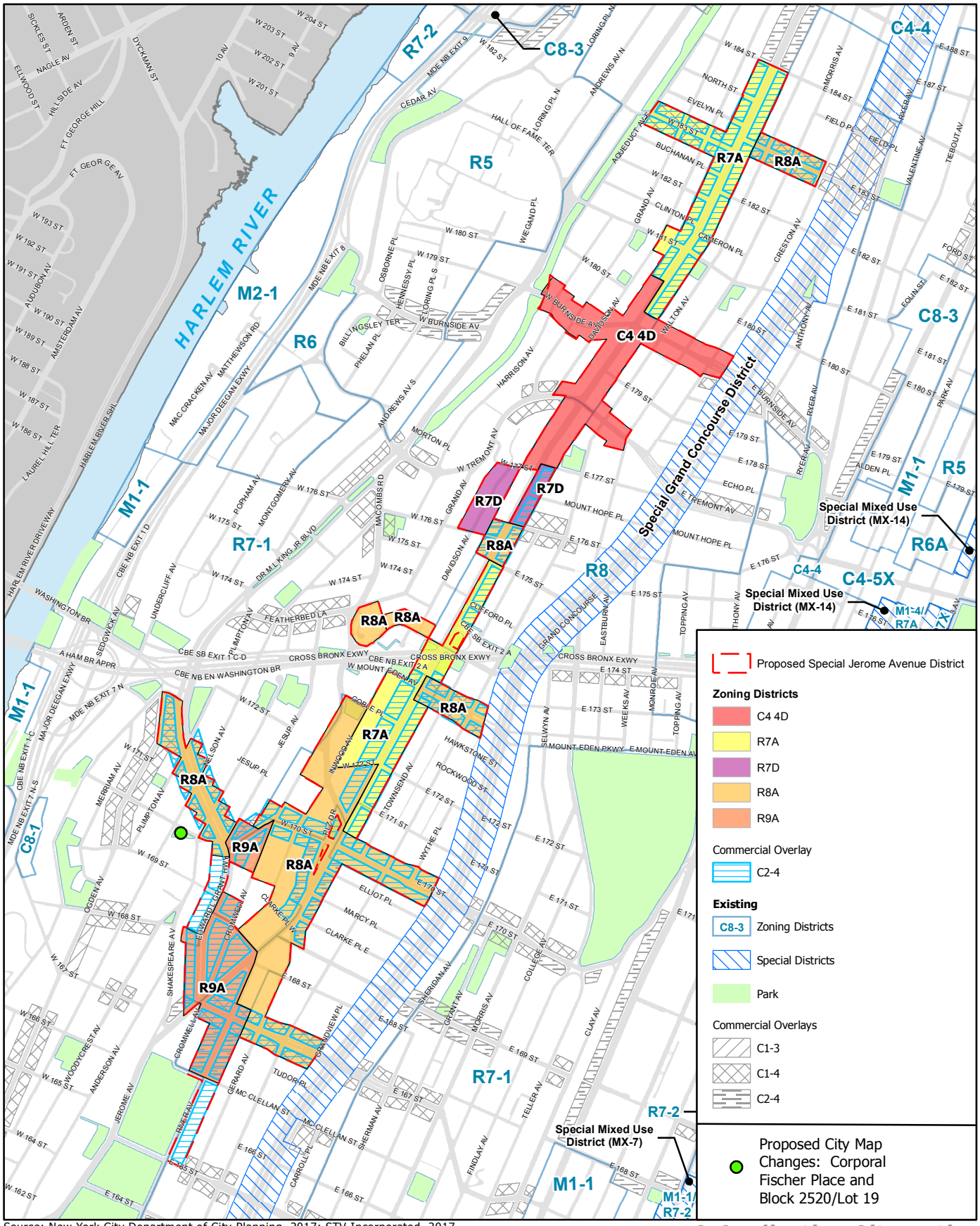
Primary Study Area

The A-Application Alternative would include nearly the same zoning text and map amendments and city map changes as the Proposed Actions (as described in Chapter 2, "Land Use, Zoning, and Public Policy"), but map amendments would be made to a larger area. Each of the three discrete locations comprising the portions of the rezoning area unique to the A-Application Alternative would be mapped adjacent to the portion of the rezoning area shared with the Proposed Actions with new R7D and R8A zoning districts with C2-4 commercial overlays, as shown on Figure 20.7.2-8, "Proposed Zoning." Specifically, one area, currently zoned R7-1, would be mapped with R7D (with a C2-4 commercial overlay); one area, currently zoned R7-1, would be mapped with R8A (with a C2-4 commercial overlay); and one area, currently zoned M1-2, would be mapped with R8A (with a C2-4 commercial overlay). As described for the Proposed Actions in Chapter 2, the proposed R7A, R7D, R8A, R9A, and C4-4D zoning districts would be mapped as Mandatory Inclusionary Housing areas (see Figure 20.7.2-9, "Proposed Mandatory Inclusionary Housing Areas").

In addition to mapping the proposed districts, the proposed Special Jerome Avenue District would also include rules to allow second story retail in mixed use buildings along the elevated rail line, thereby changing the programs of six projected development sites in common with the Proposed Actions. Overall, the effect would be the potential to change land uses in the primary study area, and as with the Proposed Actions, the A-Application Alternative would not result in significant adverse impacts to zoning in the primary study area.

Secondary Study Area

Similar to the Proposed Actions, as described in Chapter 2, "Land Use, Zoning, and Public Policy," zoning designations within the secondary study area would not be altered with the A-Application Alternative.



Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

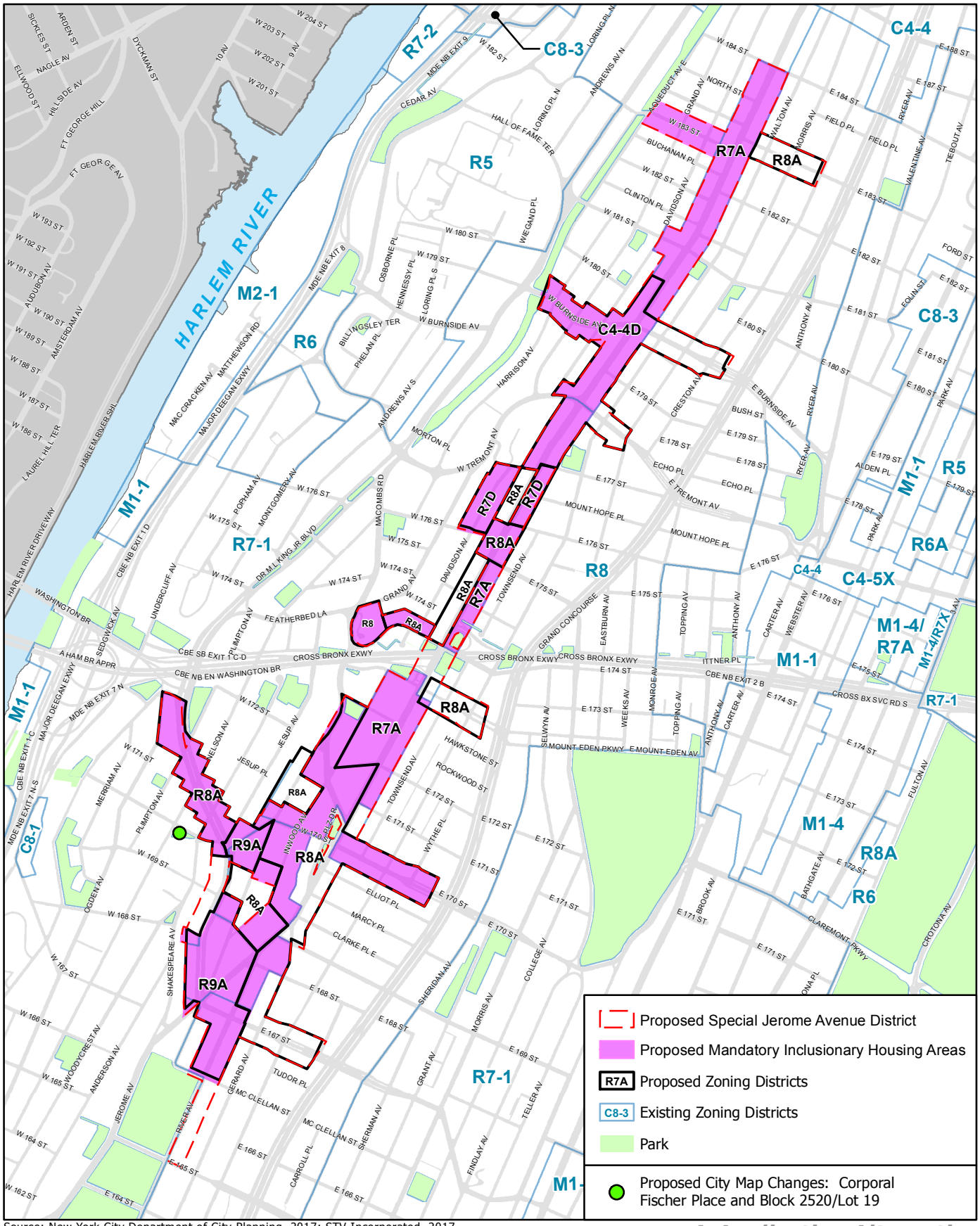
A-Application Alternative

N

0 0.25 0.5 Mile

Figure 20.7.2-8

A-APPLICATION ALTERNATIVE ZONING



Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

N

0 0.25 0.5 Mile

Figure 20.7.2-9

EXPANDED MANDATORY INCLUSIONARY HOUSING AREAS

Public Policy

Similar to the Proposed Actions, no changes to the applicable primary or secondary study area public policies are proposed with the A-Application Alternative; further, the A-Application Alternative would be consistent with the public policy currently in place and expected to remain applicable in the future without the A-Application Alternative.

Assessment

Land Use and Zoning

Primary Study Area

With the A-Application Alternative, additional contextual zoning districts would be mapped that would protect the existing character of the surrounding residential areas and promote additional opportunities for permanently affordable housing. In addition, the A-Application Alternative would replace a portion of the existing M1-2 manufacturing district (mapped west of Jerome Avenue, between West 170th Street and West 169th Street) within the rezoning area and map a new residential district to allow for a mix of commercial and residential uses in this area, thus permitting some residential development in an area where none is currently permitted. While this alternative, similar to the Proposed Actions, would represent a change in zoning that would facilitate change in land uses throughout the primary study area, these changes would not result in significant adverse impacts to land use or zoning in the primary study area, and no further analysis is warranted.

Secondary Study Area

As described for the Proposed Actions in Chapter 2, "Land Use, Zoning, and Public Policy," the proposed zoning districts would be compatible with the zoning districts that would remain unaffected in the surrounding secondary study area. Therefore, the A-Application Alternative would have no significant adverse impact to zoning in the secondary study area, and no further analysis is warranted.

Public Policy

Similar to the Proposed Actions no changes to the applicable primary or secondary study area public policies are proposed with the A-Application Alternative; further, the A-Application Alternative would be consistent with the public policy currently in place and expected to remain applicable in the future without the A-Application Alternative. Therefore, the A-Application Alternative would result in no significant adverse impact to public policy, and no further analysis is warranted.

20.7.3 SOCIOECONOMIC CONDITIONS

The A-Application Alternative would result in more residential, community facility, and commercial development than with the Proposed Actions, and is expected to result in similar general socioeconomic effects as the Proposed Actions. Similar to the Proposed Actions, in the A-Application Alternative, development would occur on 44 of the 45 projected development sites[1], as well as on four additional projected development sites. One of the additional development sites (new Projected Development Site 35) is located within the rezoning area for the Proposed Actions and is considered more likely to be developed under the A-Application Alternative. Three of these additional development sites are within an approximately five block area to the west of Jerome Avenue that would be rezoned in this alternative to permit residential development in areas where residential uses are not currently permitted, and increase the allowable residential density in areas that can support additional development (refer to section 20.7.1 above for description of the proposed zoning under the A-Application Alternative). In the Proposed Actions, these five blocks would retain existing M1-2 and C8-3 zoning. In addition to enlarging the proposed rezoning area to include these five blocks, the Special Jerome Avenue District in the A-Application Alternative would allow second story commercial uses in mixed-used buildings fronting the elevated rail, which would permit additional commercial development on Projected Development Sites 3, 6, 19, 22, and 44, and result in a modest decrease in residential units on those five sites, as compared to the Proposed Actions.

Overall, for the A-Application Alternative, 552 (17 percent) additional housing units would be added as compared to the Proposed Actions. Thus, the A-Application Alternative would introduce approximately 3,780 housing units compared to No- Action conditions. The A-Application Alternative would also result in 25,537 sf more of incremental commercial and 149,568 sf more of community facility space as compared to the Proposed Actions. In addition, the A-Application Alternative would result in an approximately 23 percent reduction in the net loss of industrial space as compared to the Proposed Actions. Thus, the A-Application would result in a net loss of 36,925 sf of industrial.

Direct Residential Displacement

Both the Proposed Actions and the A-Application Alternative would not result in significant adverse impacts due to direct residential displacement. Projected development with the Proposed Actions could potentially directly displace an estimated 18 residents residing in six dwelling units on two of the 45 projected development sites. The A-Application Alternative would not directly displace any additional residents other than those already disclosed as subject to potential direct displacement with the Proposed Actions, and would still fall well below the 500-resident threshold warranted an assessment under the *CEQR Technical Manual*.

[1] Projected development site 35 (Block 2856, Lot 1) is considered less likely to be developed under the A-Application Alternative, and therefore considered as potential development site 89 under this alternative.

It is expected that the existing 88 units of supportive housing located on projected site 46 would remain with the A-Application Alternative, and would not be directly displaced. The Starhill Clinic at 1600 Macombs Road provides temporary transitional housing, Halfway House services, a sober living environment, and other recovery related social services for persons with chemical dependency and other co-occurring disorders. The Starhill Clinic is managed by a nonprofit community service organization that is supported by various local, state, and federal government entities, as well as foundations, corporations and individual donors that provides residential treatment services. In the A-Application Alternative, it is expected that projected development site 46 would be redeveloped with a larger mixed-use residential and community facility development. The development plan for the A-Application Alternative for projected development site 46 would include the existing 88 units of supportive housing, as well as an additional 309 housing units, for a total of 397 housing units. While this property is undergoing construction, all of the existing tenants would be relocated nearby in the neighborhood. Therefore, the existing 88 units of supportive housing and estimated 268 residents on projected development site 46 would not be directly displaced with the A-Application Alternative.

Indirect Residential Displacement

Like the Proposed Actions, the Application Alternative is not expected to result in significant adverse impacts due to indirect residential displacement. The A-Application Alternative would expand the opportunity for additional housing and promote the development of affordable housing within an enlarged rezoning area as compared to the Proposed Actions. The alternative would introduce 552 more DUs and an estimated 1,649 additional residents compared to the RWCDS associated with the Proposed Actions, which would result in a 5.4 percent increase in the ¼-mile secondary study area population. Like the Proposed Actions, the A-Application Alternative would include mapping a Mandatory Inclusionary Housing (MIH) area, which would result in more affordable housing for a wider range of income levels than would be expected in the future without the Proposed Actions. As discussed below, these affordable housing units are expected to help further stabilize the neighborhood for years to come and help to alleviate the upward pressure on housing prices. According to the *CEQR Technical Manual*, if an action "…could be expected to have a stabilizing effect on the housing market within the study area by allowing for limited new housing opportunities and investment…" then further analysis is not necessary.

Similar to the Proposed Actions, the A-Application Alternative would serve to support housing growth and affordable housing in the neighborhood subareas of University Heights, Fordham Heights, Morris Heights, Mount Hope, Highbridge, Mount Eden, and Concourse in Bronx CDs 4, 5, and 7. The additional housing units would help to meet increasing demands for housing in the vicinity of the rezoning area, and across New York City.

Table 20.6.3-1, "Comparison of Residential Development for the Proposed Actions and A-Application Alternative," provides a comparison of the anticipated incremental residential development for the Proposed Actions and the A-Application Alternative for each of the neighborhood subareas in the ¼-mile secondary study area. Similar to the Proposed Actions, most of the new incremental population growth with the A-Application Alternative would be concentrated in the Mount Eden neighborhood subarea. Mount Eden would experience disproportionately higher increase in population as compared to the other neighborhood subareas with the introduction of 2,038 housing units and an estimated 5,951 residents with the A-Application Alternative, which would represent an approximately 21 percent increase of the

Mount Eden subarea population. As with the Proposed Actions, the neighborhood subareas of University Heights, Fordham Heights, Mount Hope, Highbridge, and Concourse would each experience less than a three percent increase in residential population with the A-Application Alternative. However, in the A-Application Alternative, the Morris Heights neighborhood subarea would experience a larger incremental increase in residential units as compared to the Proposed Actions with the introduction of 623 housing units and an estimated 1,908 residents, which would represent slightly more than a six percent increase of the Morris Heights subarea population, as compared to an approximately three percent increase in the Proposed Actions.

Table 20.6.3-1: Comparison of Residential Development for the Proposed Actions and A-Application Alternative

	Proposed Actions		A-Application Alternative	
	Number of Incremental DUs	Projected Residential Population Increase	Number of Incremental DUs	Projected Residential Population Increase
University Heights Subarea	210	633	190	571
Fordham Heights Subarea	337	1,032	313	958
Mount Hope Subarea	252	771	233	713
Morris Heights Subarea	272	834	623	1,908
Highbridge Subarea	135	394	135	394
Mount Eden Subarea	1,761	5,141	2,038	5,951
Concourse Subarea	263	768	249	727
Total	***3,230***	***9,573***	***3,781***	***11,222***

Similar to the Proposed Actions, the A-Application Alternative would introduce a substantial amount of affordable housing and a mixed-income population to the area, which would be expected to ameliorate the need for affordable housing in the area. Both the Proposed Actions and A-Application Alternative would create the capacity for the construction of new residential development that would provide new housing options offered at a variety of prices, considerably expanding the supply of housing for low income residents, while also helping to meet the housing needs of the growing middle class. The number of affordable housing units built under the A-Application Alternative is expected to be higher than that under the Proposed Actions, helping to ensure that a considerable portion of the households accommodated by the new housing would have incomes that more closely reflect existing incomes in the study area. By both increasing the supply of total housing in the area, and requiring that a substantial portion of new units be set aside for low income households, the projected increase in housing units overall is expected to reduce rent pressures.

Direct Business Displacement

Neither the Proposed Actions nor the A-Application Alternative are expected to result in significant adverse impacts due to direct business displacement. Projected development for the Proposed Actions would potentially directly displace 77 businesses and an estimated 584 jobs associated with those businesses on 31 of the projected development sites. In addition to the businesses that would be potentially directly displaced by the Proposed Actions, the A-Application Alternative could potentially directly displace 11 businesses and an estimated 51 jobs associated with these businesses from Projected Development Sites 52 and the new Projected Development Site 35 (Block 2856, Lot 1). These 11 businesses conduct a variety of activities, including two automotive service and repair shops, one public parking facility, one fast food establishment, tire center, car wash, automotive dealer, a graphic designer, and three wholesale trade establishment. Thus, the A-Application Alternative would potentially directly displace 88 businesses and an estimated 635 jobs associated with those businesses (see Table 20.6.3-2), which represents an approximately 14 percent increase in the amount of directly displaced firms and nearly nine percent increase in directly displaced jobs as compared to the Proposed Actions.

Table 20.6.3-2: Private Businesses and Employment Potentially Displaced in the A-Application Alternative

	Number of Firms	Percent of Displaced Employment	Estimated Employment Displaced[1]	Percent of Displaced Employment
Construction	1	1.1	4	0.6
Food Service	7	8.0	45	7.1
Health Care and Social Assistance	2	2.3	45	7.1
Other Services	37	42.0	185	29.1
Professional and Technical Services	2	2.3	1[2]	0.2
Real Estate and Rental and Leasing	3	3.4	44	6.9
Retail Trade	29	33.0	262	41.3
Wholesale Trade	8	9.1	49	7.7
Total	88	100.0	635	100.0

Notes:
[1] Employment estimates are based on PHA field observations, standard employment density ratios commonly used for CEQR analysis, and manta.com
[2] The Liberty Tax Service office at 10 E. 183rd Street appears to be a seasonal operation that does not have permanent employment at this location.

Source: PHA Field Surveys in November 2016, April 2017 and November 2017.

Similar to the Proposed Actions, the industry sector with the greatest number of potentially directly displaced employees is Retail Trade, with 262 displaced workers, and the industry sector with the greatest number of firms is Other Services, with 37 displaced establishments, followed by Retail Trade, with 29 displaced firms (refer to Table 20.6.3-2). As for the Proposed Actions, none of the 88 businesses that could be potentially directly displaced in the A-Application Alternative are subject to existing public policy initiatives to preserve or protect them.

As detailed in Table 20.6.3-3, "Automotive-Related Uses that could be Potentially Directly Displaced with the A-Application Alternative," automotive-related uses, which include used car sales, auto parts and accessory stores, car leasing agencies, gas stations, car washes, auto glass shops, tire stores, and repair and service shops, represent a significant number of businesses that could be potentially directly displaced in the A-Application Alternative. These businesses are categorized within several NAICS industry sectors, including: Retail Trade, Wholesale Trade, Other Services, and Real Estate and Rental and Leasing. The largest portion of auto-related businesses (21 of the 43 auto-related establishments) are categorized as Other Services and offer repair and maintenance services, including general engine repair and maintenance, auto-body and paint work, brake services, and glass or tire replacement, as well as public parking. Other auto-related businesses include livery rental agencies, retail establishments selling used vehicles, parts, and/or tires, car washes, gas stations.

Nearly 49 percent of the firms (43 businesses) that could be potentially directly displaced by the A-Application Alternative are in auto-related industries, and these firms account for approximately 38 percent of the directly displaced employment (244 jobs), which represents an approximately 0.8 percent increase in the number of automotive firms and approximately four percent increase in automotive-related employment that could be potentially directly displaced with the Proposed Actions.

Table 20.6.3-3: Automotive-Related Uses that could be Potentially Directly Displaced with the A-Application Alternative

NAICS Business/ Economic Sector	Number of Firms	Percentage of Businesses	Estimated Number of Workers[1]	Jobs as a Percentage of Total
Total Auto-Related Retail	10	11.4	35	5.5
Used Car Sales	4	4.5	16	2.5
Auto Parts (incl. tires) and Accessory Sales	6	6.8	19	3.0
Total Auto-Related Wholesale- Used Vehicle Sales	1	1.1	2	0.3
Total Automotive-Related Other Services	21	23.9	136	21.4
Automotive Service Repair	11	12.5	65	10.2
Gas/Car Wash	3	3.4	39	6.1
Automotive Glass/Paint	7	8.0	32	5.0
Total Rental and Leasing- Livery Vehicles	3	3.4	47	7.4
Public Parking Facilities	8	9.1	24	3.8
Directly Displaced Automotive-Related	***43***	***48.9%***	***244***	***38.4%***
Total Directly Displaced (from Table 20.6.3-3)	**88**	**100%**	**635**	**100%**

Notes:
[1] Employment estimates are based on PHA field observations, standard employment density ratios commonly used for CEQR analysis, and manta.com

Source: PHA Field Surveys in November 2016 and April 2017

As described in Chapter 3, "Socioeconomic Conditions," automotive services, including automotive repair and maintenance, glass replacement, tire shops and auto body paint/detailing shops, typically draw from a market area that is larger than the ¼-mile secondary study area. The products and services provided by these types of establishments are not unique to the study area and are anticipated to still be available to consumers nearby as other existing businesses that provide similar types of products or services would remain in the surrounding area. Automotive service and repair shops are common in manufacturing and C8 zoning districts, and can be found throughout the Bronx and New York City as a whole. When compared to the total number of automotive repair and maintenance employees in the borough (1,959 workers[2]), the 65 potentially directly displaced automotive service repair workers in the A-Application Alternative represent less than four percent of employment within the industry in the borough. The 11 automotive service repair establishments potentially directly displaced in the A-Application Alternative represent less than three percent of the establishments within the overall automotive industry in the borough. Similar to the Proposed Actions, the displacement of automotive service and repair establishments is not expected to adversely affect local residents or businesses.

As with the Proposed Actions, the 88 potentially directly displaced businesses in the A-Application Alternative do not represent a majority of study area businesses or employment for any given sector. While all businesses contribute to neighborhood character and provide value to the City's economy, as there are alternative sources of goods, services, and employment provided within the ¼-mile secondary study area and none of the displaced businesses are uniquely dependent on their current location, potentially directly displaced business are not of critical value to the socioeconomic conditions of the area as defined by CEQR.

[2] 2015 Quarter Census of Employment and Wages (QCEW).

Like the Proposed Actions, it is the intent of the A-Application Alternative to expand development opportunities, and permit a wider range of land uses, including mixed-use development, which would further the community's vision for the Jerome Avenue corridor as a mixed-use residential and commercial activity center that supports the needs of the surrounding neighborhoods. The A-Application Alternative would result in the incremental development of 340,534 sf of retail, 35,657 sf of FRESH supermarket, 19,130 sf of restaurant, 39,287 sf of office, and 221,841 sf of community facility space, and a net decrease of approximately 36,925 sf of industrial, 126,802 sf of automotive, 188,650 sf of storage, 72,154 sf of garage, and 600 sf of other commercial uses.

Like the Proposed Actions, the A-Application Alternative would facilitate the development of mixed-use buildings with active ground floors along the Jerome Avenue corridor that promote retail continuity and a consistent streetscape, with a wide array of local retail and commercial services to support surrounding dense residential neighborhoods. The A-Application Alternative would result in 25,537 sf more of incremental commercial space than the Proposed Actions as compared No-Action condition.

Indirect Business Displacement

Similar to the Proposed Actions, the A-Application Alternative would not result in significant adverse impacts due to indirect business displacement. The study area has well-established residential, community facility, commercial, and manufacturing uses and markets such that the this alternative would not add a new economic activity or add to a concentration of a particular sector of the local economy enough to significantly alter or accelerate existing economic patters. In the A-Application Alternative, an increment of 3,780 DUs, including a substantial amount of affordable housing units, which would help to ensure a range of household incomes within the study area. With this alternative, economic opportunities along commercial corridors would increase, creating space for new businesses to enter the market and existing businesses to expand or relocate to space better suited to their needs, if desired. Therefore, the A-Application Alternative would not result in a significant adverse indirect business displacement.

Adverse Effects on Specific Industries

Similar to the Proposed Actions, the A-Application Alternative would not result in significant adverse impacts on specific industries. Business conditions in any particular industry or any particular category of businesses within or outside the study area would not be significantly affected. The potentially displaced automotive repair and service shops in the A-Application represent less than six percent of employment within the industry in the Bronx, and these businesses could relocate elsewhere within the borough and City. Like the Proposed Actions, it is expected that there would remain numerous automotive repair and service businesses nearby, in the greater borough, and in the City as a whole.

20.7.4 COMMUNITY FACILITIES

Introduction

This chapter examines the potential effects of the A-Application Alternative on community facilities in the study area. The *CEQR Technical Manual* defines community facilities as public or publicly funded facilities, including schools, health care, child care, libraries, and fire and police protection services. The CEQR analysis focuses on direct impacts on community facilities and services and on increased demand for community facilities and services generated by increases in population. The analysis of community facilities and services has been conducted in accordance with *CEQR Technical Manual* guidelines and the latest data and guidance from agencies such as the New York City Department of Education (DOE), the New York City Administration for Children's Services (ACS), the New York Public Library (NYPL), the New York City School Construction Authority (SCA), and the New York City Department of City Planning (DCP).

Principal Conclusions

Per the guidance of the *CEQR Technical Manual*, detailed analyses of potential indirect impacts on public elementary, intermediate, and high schools, public libraries, and publicly funded child care centers are conducted for the A-Application Alternative. Based on the *CEQR Technical Manual* screening methodology, detailed analyses of outpatient health care facilities and police and fire protection services are not warranted, although they are discussed qualitatively. Similar to the Proposed Actions, the A-Application Alternative would result in a significant adverse impact on elementary and intermediate schools. No significant adverse impacts to high schools, libraries, or child care services are expected in the A-Application Alternative.

Public Schools

The rezoning area falls within the boundaries of four Community School District (CSD) sub-districts: Sub-districts 1, 2, and 3 of CSD 9 and Sub-district 4 of CSD 10. The RWCDS associated with the A-Application Alternative would introduce a net increment of 2,797 total students, with approximately 1,474 elementary school students, 605 intermediate school students and 718 high school students. According to the *CEQR Technical Manual*, a significant adverse impact may occur if a proposed action would result in: (1) a utilization rate of the elementary and/or intermediate schools that is equal to or greater than 100 percent in the future With-Action condition; and (2) an increase of five percent or more in the collective utilization rate between the No-Action and With-Action conditions.

With the A-Application, CSD 9, Sub-district 1 elementary schools would operate above capacity with 115.7 percent utilization rate (a 2.4 percent increase above the No-Action Alternative and a 0.1 percent decrease below the Proposed Actions). CSD 9, Sub-district 2 elementary schools would operate above capacity with 139.4 percent utilization rate (a 10.7 percent increase above the No-Action Alternative and a 12.1 percent decrease below the Proposed Actions). This is above the 5 percent threshold above the No-Action Alternative and 100 percent utilization, resulting in a significant adverse impact. The impact to CSD 9, Sub-district 2 elementary schools in the A-Application Alternative would be less than that from the

Proposed Actions. CSD 9, Sub-district 3 elementary schools would operate with a 126.2 percent utilization rate (a 0.7 percent increase above the No-Action Alternative and no change from the Proposed Actions). CSD 10, Sub-district 4 elementary schools would operate above capacity at 113.3 percent utilization rate (a 5.9 percent increase above the No-Action Alternative and no change from the Proposed Actions). This is above the 5 percent threshold and greater than 100 percent utilization, thereby resulting in a significant adverse impact. The impact would be the same with the Proposed Actions as the A-Application Alternative.

With the A-Application Alternative, CSD 9, Sub-district 1 intermediate schools would operate above capacity with 103.0 percent utilization rate (a 1.6 percent increase above the No-Action Alternative and no change from the Proposed Actions). CSD 9, Sub-district 2 intermediate schools would operate above capacity with 185.1 percent utilization (a 59.2 percent increase above the No-Action Alternative and an 13.9 percent increase above the Proposed Actions). As it exceeds the 100 percent utilization threshold and more than a five percent increase from the No-Action Alternative, CSD 9, Sub-district 2 would experience significant adverse impacts. These impacts would be larger than those associated with the Proposed Actions. CSD 9, Sub-district 3 intermediate schools would operate below capacity with a 93.8 percent utilization rate. CSD 10, Sub-district 4 would operate at 127.8 percent capacity (a 4.2 percent increase above the No-Action Alternative and no change from the Proposed Actions).

In the No-Action Alternative, Bronx high schools are expected to remain underutilized through 2026, operating at 76.1 percent utilization. The A-Application Alternative would add 3,780 dwelling units, resulting in 725 new high school students and a utilization rate of 77.2 percent; therefore, no significant adverse impact is anticipated.

Libraries

Similar to the Proposed Actions, the A-Application Alternative would not result in significant adverse impacts to libraries. Ten New York Public Library branches are located within a ¾-mile radius of the rezoning area, all of which were analyzed in Chapter 4, "Community Facilities and Services": the Fort Washington Branch, the Grand Concourse Branch, the High Bridge Branch, the Melrose Branch, the Belmont Library and Enrico Fermi Cultural Center, the Tremont Branch, the Jerome Park Branch, the Francis Martin Branch, the Sedgwick Branch, and the Bronx Library Center. The A-Application Alternative would introduce an estimated 11,413 additional residents to the libraries' combined catchment area (compared to the No-Action Alternative). The A-Application Alternative would increase the catchment area populations only for the Grand Concourse, High Bridge, Francis Martin, and Sedgwick Branches. These population increases resulting from the A-Application Alternative would be less than 5 percent, which would not result in a noticeable change in the delivery of library services. Many of the residents in the catchment areas for the affected Bronx New York Public Library Branches also reside in the catchment areas for other nearby libraries and would also be served by these libraries.

As discussed in Chapter 4, "Community Facilities and Services," residents in the study area have access to the entire NYPL system, which also has branches in Manhattan and Staten Island. Through the interlibrary loan system, residents can have volumes delivered directly to their nearest library branch. In addition,

residents would also continue to have access to libraries near their place of employment. Therefore, the population introduced by the A-Application Alternative is not expected to result in a significant adverse impact on public libraries.

Child Care Services

The A-Application Alternative would not result in a significant adverse impact on publicly funded child care facilities. It is expected to introduce approximately 2,645 low- to moderate-income units by 2026. Based on the most recent child care multipliers in the *CEQR Technical Manual*, this development would generate approximately 368 children under the age of six who could be eligible for publicly funded child care programs. With the addition of these children, there would be a deficit of 148 slots in the study area by 2026 (101.9 percent utilization). The A-Application Alternative would result in a utilization rate increase of 4.7 percent compared to the No-Action Alternative. In accordance with the *CEQR Technical Manual,* this would not result in a significant adverse impact.

Police, Fire, and Health Care Services

The *CEQR Technical Manual* recommends a detailed analysis of indirect impacts on police, fire, and health care services in cases where a proposed action would create a sizeable new neighborhood where none existed before. The rezoning area is a developed area with an existing and well-established community that is served by existing police, fire, and health care services. Therefore, the A-Application Alternative would not create a neighborhood where none existed before, and a detailed analysis of indirect effects on these community facilities is not warranted.

Preliminary screening

The purpose of the preliminary screening is to determine whether a community facilities assessment is required. Per the guidance of 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 an action 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 A-Application Alternative would not result in any direct effects to existing community facilities. As discussed above, the A-Application Alternative would include construction of a new 456-seat elementary school in CSD 9, Sub-district 2 at site 35.

Indirect Effects

Public Schools

The A-Application Alternative would add 3,780 dwelling units (DUs), which corresponds to an additional 1,474 elementary school students, 605 intermediate school students, and 718 high school students. The A-Application Alternative would affect the same CSD and Sub-districts as the Proposed Actions. The three additional projected development sites from the A-Application Alternative (Sites 46, 47, and 52) would be located within CSD 9, Sub-district 2, and CSD 10, Sub-district 4.

In CSD 9, Sub-district 2, Projected Development Site 46 would be zoned to P.S. 199 The Shakespeare School, and Projected Development Site 52 would be zoned to the shared elementary school zone of P.S. 294 The Walton Avenue School and P.S. 311 Lucero Elementary. In CSD 10, Sub-district 4, Projected Development Site 47 would be zoned to P.S. 306 for elementary school.

According to current zoning practices, Projected Development Site 46 (located in CSD 9, Sub-district 2) would be zoned to the shared intermediate school district of I.S. 232 (The Alexander Macombs Middle School) and I.S. 303 (Leadership and Community Service) in CSD 9, Sub-district 3. Similarly, Projected Development Site 52 (in CSD 9, Sub-district 2) would be zoned to CSD 9, Sub-district 3 school I.S. 117 (Joseph H. Wade). However, in accordance with the *CEQR Technical Manual*, for purposes of this analysis, students residing in these projected development sites are presumed to attend intermediate schools located within CSD 9, Sub-district 2.

Projected Development Site 47 (located in CSD 10, Sub-district 4) would be zoned to CSD 10, Sub-district 4 School I.S. 331 (The Bronx School of Young Leaders). For more information regarding the zoning practices of CSD 9 and 10, refer to Chapter 4 "Community Facilities and Services."

With the A-Application Alternative, CSD 9, Sub-district 1 elementary schools would operate above capacity with 115.7 percent utilization rate (a 2.4 percent increase above the No-Action Alternative and a 0.1 percent decrease below the Proposed Actions). CSD 9, Sub-district 2 elementary schools would operate above capacity with 139.4 percent utilization rate (a 10.7 percent increase above the No-Action Alternative and a 12.1 percent decrease below the Proposed Actions). This is above the 5 percent threshold and 100 percent utilization, resulting in a significant adverse impact. The impact to CSD 9, Sub-district 2 elementary schools in the A-Application Alternative would be less than that from the Proposed Actions. CSD 9, Sub-district 3 elementary schools would operate with a 126.2 percent utilization rate (a 0.7 percent increase above the No-Action Alternative and no change from the Proposed Actions). CSD 10, Sub-district 4 elementary schools would operate above capacity at 113.3 percent utilization rate (a 5.9 percent increase above the No-Action Alternative and no change from the Proposed Actions). This is above the 5 percent threshold and greater than 100 percent utilization, thereby resulting in a significant adverse impact.

With the A-Application Alternative, CSD 9, Sub-district 1 intermediate schools would operate above capacity with 103.0 percent utilization rate (a 1.6 percent increase above the No-Action Alternative and no change from the Proposed Actions). CSD 9, Sub-district 2 intermediate schools would operate above

capacity with 185.1 percent utilization (a 59.2 percent increase above the No-Action Alternative and an 13.9 percent increase above the Proposed Actions). As it exceeds the 100 percent utilization threshold and more than a five percent increase from the No-Action Alternative, CSD 9, Sub-district 2 would experience significant adverse impacts. These impacts would be larger than those with the Proposed Actions. CSD 9, Sub-district 3 intermediate schools would operate below capacity with a 93.8 percent utilization rate. CSD 10, Sub-district 4 would operate at 127.8 percent capacity (a 4.2 percent increase above the No-Action Alternative and no change from the Proposed Actions).

In the No-Action Alternative, Bronx high schools are expected to remain underutilized through 2026, operating at 76.1 percent utilization. The A-Application Alternative would add 3,780 dwelling units, resulting in 718 new high school students and a utilization rate of 77.2 percent; therefore, no significant adverse impact is anticipated.

Table 20.7.4-1: 2026 Estimated A-Application Alternative (With-Action) Public School Enrollment, Capacity, and Utilization

Study Area	Projected 2026 Enrollment[1]	Students Introduced With-Action	Total With-Action Enrollment	Capacity[2]	Available Seats	Utilization (%)	Utilization Change compared to No-Action	Utilization Change compared to Proposed Action
Elementary Schools								
CSD 9, Sub-district 1	7,200	150	7,350	6,352	-998	115.7	2.4	-0.1
CSD 9, Sub-district 2	4,287	992	5,279	3,786	-1,493	139.4	10.7	-12.1
CSD 9, Sub-district 3	4,482	26	4,508	3,571	-937	126.2	0.7	0.0
CSD 10, Sub-district 4	5,849	319	6,168	5,445	-723	113.3	5.9	0.0
Intermediate Schools								
CSD 9, Sub-district 1	3,950	61	4,011	3,896	-115	103.0	1.6	0.0
CSD 9, Sub-district 2	868	407	1,275	689	-586	185.1	59.2	13.9
CSD 9, Sub-district 3	2,495	11	2,506	2,669	163	93.8	0.3	-0.1
CSD 10, Sub-district 4	3,862	131	3,993	3,124	-869	127.8	4.2	0.0
High Schools								
Bronx	53,902	725	54,627	70,817	16,190	77.2	1.1	0.3

Notes:
[1] DOE Enrollment Projects (Actual 2014, Projected 2015-2024). Per CEQR, 2024 projections were assumed for the 2026 analysis year. and SCA, Projected New Housing Starts for the 2015-2019 Capital Plan.
[2] No anticipated capacity changes based on 2015-2019 Capital Plan. Existing mini-schools and TCUs are excluded.

Libraries

With the Proposed Actions, the four libraries that most directly serve the residents within the rezoning area (based on proximity) would not be subject to a five percent increase in catchment area population and would not experience a significant adverse impact. For the A-Application Alternative, residents at Projected Development Sites 46 and 47 would likely be patrons of the Sedgwick Library and Site 52 would patronize the High Bridge Library (based on proximity). Neither library, even with the addition of these new residents, would be subject to a five percent increase in catchment area population. Therefore, the A-Application Alternative would not result in significant adverse impacts to public libraries. All 10 of the

libraries would continue to serve all the residents of the area, without a five percent increase in population levels above the No-Action Alternative, therefore, no significant adverse impacts are expected for the A-Application Alternative.

Table 20.7.4-2: Anticipated Library Catchment Area Population Increases with A-Application Alternative

Library Catchment Area	No-Action Population	Projected Development Sites within Catchment Area	Population Introduced in A-Application Alternative	Total Catchment Area Population	Increases in Catchment Area Population over No-Action Condition (%)	Increase in Catchment Area Population over Proposed Actions
High Bridge Branch	133,126	30-45, 52	4,832	137,958	3.6	0.6
Sedgwick Branch	140,122	10, 11, 13-17, 46, 47	2,424	142,546	1.7	1.1
Notes: Residential units located within more than one library catchment area are assigned to the closest library for analysis purposes.						

Table 20.7.4-3: With-Action Holdings-per-Resident Ratios

Library Name	With-Action Holdings	With-Action Catchment Area Population	With-Action Holdings per Resident	Change in Holdings per Resident from Proposed Actions
High Bridge Branch	45,133	137,958	0.33	0.0
Sedgwick Branch	37,380	142,546	0.26	-0.1
Notes: Residential units located within more than one library catchment area are assigned to the closest library for analysis purposes.				

Child Care Services

The A-Application Alternative would build 2,645 affordable units, which would result in 368 children under the age of 6 eligible for publicly funded childcare. With the addition of these children, there would be a deficit of 148 slots in the study area by 2026 (101.9 percent utilization). The A-Application Alternative would result in a utilization rate increase of 4.7 percent compared to the No-Action Alternative. In accordance with the *CEQR Technical Manual,* this would not result in a significant adverse impact because it is below the five-percentage utilization change threshold.

Table 20.7.4-4: Comparison of Budget Capacity, Enrollment, Available Slots, and Percent Utilized for the Proposed Actions and A-Application Alternative

	Budget Capacity	Enrollment	Available Slots	Utilization (%)
Existing Conditions	7,775	6,747	1,028	86.8
No-Action Increment	0	+808	-808	+10.4
2026 No-Action Condition	7,775	7,555	220	97.2
Proposed Actions Increment	0	+312	-312	+4.0
2026 Proposed Actions Condition	7,775	7,867	-92	101.2
A-Application Alternative Increment	0	+368	-368	+4.7
2026 A-Application Alternative	7,775	7,923	-148	101.9
Notes: *CEQR Technical Manual,* Table 6-1b.				

20.7.5 OPEN SPACE

The A-Application Alternative would not result in significant adverse open space impacts. As described in the *CEQR Technical Manual,* open space can be indirectly affected by a proposed action if the 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. A detailed analysis was provided that considered the indirect effects of the population generated by the A-Application Alternative on open space resources. The analysis finds that the A-Application Alternative would not result in significant adverse impacts on open space due to reduced total, active, and passive open space ratios.

An analysis on potential direct effects on open space was also prepared. While the A-Application Alternative would result in significant adverse shadow impacts on open spaces, these direct effects would not result in significant adverse open space impacts. No other direct open space effects would result from the A-Application Alternative.

A detailed open space analysis performed per the guidance of the *CEQR Technical Manual* supports the conclusion that the A-Application Alternative would not result in any significant adverse impacts to open space. Similar to the Proposed Actions, the A-Application Alternative would not have any direct impacts on any open space resources. Also similar to the Proposed Actions, the A-Application Alternative, would not result in a significant adverse indirect impact to passive open space or to active open space in the residential study area, nor would it result in a significant adverse indirect impact to passive open space in the worker study area.

Compared to the Proposed Actions, the A-Application Alternative would result in increases to incremental shadow coverage at three resources, as well as new shadow coverage on four sunlight-sensitive open spaces. The three resources where incremental shadow coverage would increase compared to the Proposed Actions include: the Bronx School of Young Leaders, PS 306 Schoolyard, and Jerome/Gerard Greenstreet. As the Bronx School of Young Leaders and PS 306 Schoolyard would be significantly impacted with the Proposed Actions, increases in incremental shadow duration in the A-Application Alternative may further worsen conditions at these resources. While the Jerome/Gerard Greenstreet would experience increases in incremental shadow duration, this resources does not feature any public amenities and is predominantly composed of trees and vegetation. As this resources would continue to receive adequate sunlight during the growing season (at least four to six hour minimum specified in the *CEQR Technical Manual*), the incremental shadows that could result from the A-Application Alternative are not anticipated to adversely impact the Jerome Avenue/Gerard Avenue Greenstreet. The A-Application Alternative would result also in new incremental shadow coverage on four open space that would not be affected by the Proposed Actions, including: Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, and Macombs Road Open Space. The incremental shadow coverage on these four open space resources, however, would be of limited duration and would not be a direct significant impact.

The western boundary of the open space study area for the Proposed Actions borders the Harlem River. Given that the A-Application Alternative includes additional properties to the west of the rezoning area,

the A-Application Alternative's ½-mile radius extends into the Harlem River. As a result, the study area for the A-Application Alternative is the same as for the Proposed Actions; please refer to Chapter 5: "Open Space" for a detailed description of open space resources in the study area.

As the A-Application Alternative would introduce more residents and workers than the Proposed Actions, in terms of indirect effects, the open space ratios for both the non-residential and residential study areas with the A-Application Alternative would, therefore, generally be slightly lower than those with the Proposed Actions. As presented in Table 20.7.5-3, "Open Space Ratios Summary," the open space ratios for the worker (1/4-mile) study area for the A-Application Alternative—like the Proposed Actions would exceed the *CEQR Technical Manual* open space ratio guidelines at 0.15 acres per 1,000 non-residents in both scenarios. Therefore, daytime users of passive open space would be well-served by the resources available, and there would be no significant adverse open space impacts in the non-residential study area as a result of either this alternative or the Proposed Actions.

With regard to the open space ratios for the total study area residential (½-mile) study area, as presented in Table 20.7.5-3, "Open Space Ratios Summary," the A-Application Alternative would have slightly lower total (0.522), passive (0.170), and active (0.352) open space ratios than the Proposed Actions total (0.526), passive (0.171), and active (0.355) open space ratios (please refer to Chapter 5: "Open Space"). These ratios would remain below the *CEQR Technical Manual* guideline for total (2.5), passive (0.5), and active (2.0) open space ratios. The North Subarea's total (0.521), passive (0.212), and active (0.310) open space ratios with the A-Application Alternative would decrease from the Proposed Actions' total (0.524), passive (0.213), and active (0.311) open space ratios (please refer to Chapter 5: "Open Space"). The South Subarea's total (0.527), passive (0.121), and active (0.406) open space ratios with the Expanded Rezoning Area Alternative would decrease from the Proposed Actions' total (0.529), passive (0.121), and active (0.408) open space ratios (please refer to Chapter 5: "Open Space"). As with the Proposed Actions, the change in the residential study area open space ratios from No-Action conditions to the future with the A-Application Alternative would not exceed five percent with any condition and, therefore, not constitute a significant adverse indirect impact, however, the residential study area would continue to be underserved by open space.

Table 20.7.5-1: A-Application Alternative Open Space Study Area Population

Total Study Area	**No-Action Population**	**Additional Population on Projected Development Sites**	**2026 With-Action Population**
Worker (1/4-Mile) Study Area			
Workers	44,001	1,626	45,627
Combined Workers and Residents	253,513	12.725	266,238
Residential (1/2-Mile) Study Area			
Residents	330,981	11,099	343,080
Combined Workers and Residents	405,812	12,725	418,537
North Subarea	**No-Action Population**	**Additional Population on Projected Development Sites**	**2026 With-Action Population**
Worker (1/4-Mile) Study Area			
Workers	25,094	997	26,091
Combined Workers and Residents	136,618	5,149	141,767
Residential (1/2-Mile) Study Area			
Residents	182,609	4,152	186,761
Combined Workers and Residents	224,388	5,149	229,537
South Subarea	**No-Action Population**	**Additional Population on Projected Development Sites**	**2026 With-Action Population**
Worker (1/4-Mile) Study Area			
Workers	18,907	629	19,536
Combined Workers and Residents	116,894	7,576	124,470
Residential (1/2-Mile) Study Area			
Residents	148,372	6,947	155,319
Combined Workers and Residents	181,424	7,576	189,000

Source: U.S. Census Bureau, 2010 Census; U.S. Census Bureau, ACS 2006-2010 Five-Year Estimates. Special Tabulation: Census Transportation Planning

Table 20.7.5-2: Adequacy of Open Space Resources: A-Application Alternative

Total Study Area	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
Worker (1/4-Mile) Study Area										
Workers	45,627	72.14	24.93	47.21	1.581	0.546	1.035	N/A	0.15	N/A
Combined Workers and Residents	266,238				0.271	0.094	0.177	N/A	0.440	N/A
Residential 1/2-Mile Study Area										
Residents	343,080	179.18	58.32	120.86	0.522	0.170	0.352	2.5	0.5	2
Combined Workers and Residents	418,537				0.428	0.139	0.289	N/A	0.436	N/A
North Subarea	**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**
Worker (1/4-Mile) Study Area										
Workers	26,091	46.39	13.97	32.42	1.778	0.535	1.243	N/A	0.15	N/A
Combined Workers and Residents	141,767				0.327	0.099	0.229	N/A	0.435	N/A
Residential 1/2-Mile Study Area										
Residents	186,761	97.39	39.56	57.83	0.521	0.212	0.310	2.5	0.5	2
Combined Workers and Residents	229,537				0.424	0.172	0.252	N/A	0.435	N/A
South Subarea	**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**
Worker (1/4-Mile) Study Area										
Workers	19,536	25.75	10.96	14.79	1.318	0.561	0.757	N/A	0.15	N/A
Combined Workers and Residents	124,470				0.207	0.088	0.119	N/A	0.446	N/A
Residential 1/2-Mile Study Area										
Residents	155,319	81.79	18.76	63.03	0.527	0.121	0.406	2.5	0.5	2
Combined Workers and Residents	189,000				0.433	0.099	0.333	N/A	0.438	N/A

Notes:
[1]Based on target open space ratios established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.50 acres of passive open space per 1,000 residents and 0.15 acres of passive open space per 1,000 workers.

Source: U.S. Census Bureau, 2010 Census; U.S. Census Bureau, ACS 2006-2010 Five-Year Estimates, and ACS 2015 Five-Year Estimates. Special Tabulation: Census Transportation Planning

Table 20.7.5-3: Open Space Ratios Summary

Total Study Area	*CEQR Technical Manual* Open Space Guideline	Open Space Ratios per 1,000			Percent Change (Future No-Action to Future A-Application)
		Existing	No-Action	A-A	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.625	0.567	0.546	-3.70
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.562	0.540	0.522	-3.33
Passive - Residents	0.5	0.185	0.176	0.170	-3.41
Active - Residents	2	0.378	0.364	0.352	-3.30

North Subarea	*CEQR Technical Manual* Open Space Guideline	Open Space Ratios per 1,000			Percent Change (Future No-Action to Future A-Application)
		Existing	No-Action	A-A	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.596	0.557	0.535	-3.95%
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.536	0.533	0.521	-2.25%
Passive - Residents	0.5	0.218	0.217	0.212	-2.30%
Active - Residents	2	0.318	0.317	0.310	-2.21%

South Subarea	*CEQR Technical Manual* Open Space Guideline	Open Space Ratios per 1,000			Percent Change (Future No-Action to Future A-Application)
		Existing	No-Action	A-A	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.666	0.580	0.561	-3.28%
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.599	0.548	0.527	-3.83%
Passive - Residents	0.5	0.140	0.126	0.121	-3.97%
Active - Residents	2	0.458	0.421	0.406	-3.56%

Source: U.S. Census Bureau, 2010 Census; U.S. Census Bureau, ACS 2006-2010 Five-Year Estimates. Special Tabulation: Census Transportation Planning

20.7.6 SHADOWS

As shown in Table 20.7.6-1, compared to the Proposed Actions, the A-Application Alternative would result in increases to incremental shadow coverage at three resources, as well as new shadow coverage on four sunlight-sensitive open spaces. The three resources where incremental shadow coverage would increase compared to the Proposed Actions include: the Bronx School of Young Leaders, PS 306 Schoolyard, and Jerome/Gerard Greenstreet. As the Bronx School of Young Leaders and PS 306 Schoolyard would be significantly impacted with the Proposed Actions, increases in incremental shadow duration in the A-Application Alternative may further worsen conditions at these resources. While Jerome/Gerard

Greenstreet would experience increases in incremental shadow duration, this resource does not feature any public amenities and is predominantly comprised of trees and vegetation. As these resources would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*), the incremental shadows that could result from the A-Application Alternative are not anticipated to adversely impact the Jerome Avenue/Gerard Avenue Greenstreet.

The A-Application Alternative would result in new incremental shadow coverage on four open space resources that would not be affected by the Proposed Actions, including: Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, and Macombs Road Open Space, as shown in Table 20.7.6-1 and discussed below.

Featherbenches

Featherbenches is an approximately 0.14-acre open space located on Featherbed Lane between Jerome Avenue and the Cross Bronx Expressway. The open space features a plaza with benches and trees. The open space would receive incremental shadow coverage on May 6 and June 21 (see Figures 20.7.6-2 and 20.7.6-3). On both days the open space would continue to receive direct sunlight throughout the morning and afternoon and bench seating areas would only be temporarily affected. Trees would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and would not be adversely affected. Given the limited extent of incremental shadow coverage and duration, the A-Application Alternative would not result in significant adverse shadow impacts on Featherbenches.

Palladia Inc. Hill House

The Palladia Inc. Hill House is an approximately 0.04-acre open space located on Grand Avenue between Macombs Road and West 174th Street. The open space features a basketball court with bench seating. The open space would receive incremental shadow coverage on March 21, May 6, June 21, and December 21 (see Figures 20.7.6-1 through 20.7.6-4). On all days, the open space would continue to receive direct sunlight throughout the late morning and early afternoon hours and the open space would only be temporarily affected. Additionally, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. During the December 21 analysis day, incremental shadows would temporarily affect the basketball court and benches, which are typically utilized less during the winter months. Given the limited extent of incremental shadow coverage and duration, the A-Application Alternative would not result in significant adverse shadow impacts on the Palladia Inc. Hill House.

Grand/Macombs Greenstreet

The Grand Avenue/Macombs Road Greenstreet is an approximately 0.06-acre open space located at the intersection of Grand Avenue, Macombs Road, and Featherbed Lane. The open space is comprised of trees, shrubs, and plantings. The open space would receive incremental shadow coverage on March 21,

May 6, and June 21 (see Figures 20.7.6-1 through 20.7.6-3). On all days, the open space would continue to receive direct sunlight throughout the late morning and afternoon hours. The greenstreet would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be adversely affected. Given the limited extent of incremental shadow coverage and duration, the A-Application Alternative would not result in significant adverse shadow impacts on the Grand Avenue/Macombs Road Greenstreet.

Macombs Road Open Space

The Macombs Road Open Space is an approximately 0.26-acre open space located on Macombs Road between Featherbed Lane and Grand Avenue. The open space is comprised of benches, grass, and trees. The open space would receive incremental shadow coverage on May 6 and June 21 during the early morning hours (see Figures 20.7.6-2 and 20.7.6-3). On all days, the open space would continue to receive direct sunlight throughout the morning and afternoon hours. The open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be adversely affected. Given the limited extent of incremental shadow coverage and duration, the A-Application Alternative would not result in significant adverse shadow impacts on the Macombs Road Open Space.

Table 20.7.6-1: Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with A-Application Alternative

Resource	Analysis Day	March 21/Sept. 21		May 6/August 6		June 21		December 21	
		Proposed Actions	A-Application Alternative	Proposed Actions	A-Application Alternative	Proposed Actions	A-Application Alternative	Proposed Actions	A-Application Alternative
PS 33 Schoolyard	Shadow enter-exit time	--	No Change	--	No Change	--	No Change	2:25 – 2:36 PM 2:45 – 2:53 PM	No Change
	Incremental shadow duration	--		--		--		11 minutes 8 minutes	
Middle School 399 Playground	Shadow enter-exit time	4:25 – 4:29 PM	No Change	4:52 – 5:18 PM	No Change	5:21 – 6:01 PM	No Change	--	No Change
	Incremental shadow duration	4 minutes		26 minutes		40 minutes		--	
IS 206 Schoolyard	Shadow enter-exit time	11:34 – 4:29 PM	No Change	2:47 – 5:18 PM	No Change	--	No Change	10:15 AM – 2:53 PM	No Change
	Incremental shadow duration	4 hours 55 minutes		2 hours 31 minutes		--		4 hours 38 minutes	
Jardin De Las Rosas	Shadow enter-exit time	7:36 – 8:15 AM 11:06 AM – 12:34 PM	No Change	6:27 – 9:07 AM	No Change	5:57 – 9:42 AM	No Change	8:51 AM – 1:01 PM	No Change
	Incremental shadow duration	39 minutes 1 hour 28 minutes		2 hours 40 minutes		3 hours 45 minutes		4 hours 10 minutes	
Grand Playground	Shadow enter-exit time	--	No Change	--	No Change	--	No Change	8:51 – 9:50 AM	No Change
	Incremental shadow duration	--		--		--		59 minutes	
Davidson Playground	Shadow enter-exit time	7:36 – 9:06 AM	No Change	6:27 – 7:29 AM	No Change	5:57 – 6:50 AM	No Change	8:51 – 11:00 AM	No Change
	Incremental shadow duration	1 hour 30 minutes		1 hour 2 minutes		53 minutes		2 hours 9 minutes	
Walton Park	Shadow enter-exit time	1:48 – 4:29 PM	No Change	1:05 – 5:18 PM	No Change	12:58 – 6:01 PM	No Change	2:30 – 2:53 PM	No Change
	Incremental shadow duration	2 hours 41 minutes		4 hours 13 minutes		5 hours 3 minutes		23 minutes	
PS 279 Schoolyard	Shadow enter-exit time	1:37 – 4:13 PM 4:24 – 4:29 PM	No Change	--	No Change	--	No Change	1:37 – 2:53 PM	No Change
	Incremental shadow duration	2 hours 36 minutes 5 minutes		--		--		1 hour 16 minutes	
Grand Concourse Greenstreet	Shadow enter-exit time	4:01 – 4:29 PM	No Change	4:18 – 5:18 PM	No Change	4:30 – 6:01 PM	No Change	--	No Change
	Incremental shadow duration	28 minutes		1 hour		1 hour 31 minutes		--	
Mount Hope Garden	Shadow enter-exit time	--	No Change	--	No Change	5:57 – 6:03 AM	No Change	--	No Change
	Incremental shadow duration	--		--		6 minutes		--	
Aqueduct Walk	Shadow enter-exit time	7:36 AM – 1:53 PM	No Change	6:27 AM – 1:05 PM	No Change	5:57 AM – 12:54 PM	No Change	8:51 AM – 2:40 PM	No Change
	Incremental shadow duration	6 hours 17 minutes		6 hours 38 minutes		6 hours 57 minutes		5 hours 49 minutes	

Table 20.7.6-1 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with A-Application Alternative

Leave it Better Kids' Garden	Shadow enter-exit time	7:36 – 9:29 AM	No Change	6:59 – 8:46 AM	No Change	7:02 – 7:48 AM	No Change	8:51 – 9:01 AM 9:18 – 10:30 AM	No Change
	Incremental shadow duration	1 hour 53 minutes		1 hour 47 minutes		46 minutes		10 minutes 1 hour 12 minutes	
Bronx School of Young Leaders	Shadow enter-exit time	7:36 AM – 1:20 PM	No Change	6:27 AM – 12:44 PM	No Change	5:57 AM – 12:36 PM	No Change	8:51 AM – 1:53 PM	8:51 AM – 2:53 PM
	Incremental shadow duration	5 hours 44 minutes		6 hours 17 minutes		6 hours 39 minutes		5 hours 2 minutes	6 hours 2 minutes
PS 306 Schoolyard	Shadow enter-exit time	7:36 AM – 1:20 PM	No Change	6:27 AM – 12:44 PM	No Change	5:57 AM – 12:36 PM	No Change	8:51 AM – 1:53 PM	8:51 AM – 2:15 PM 2:27 PM – 2:47 PM
	Incremental shadow duration	5 hours 44 minutes		6 hours 17 minutes		6 hours 39 minutes		5 hours 2 minutes	5 hours 24 minutes 20 minutes
Mount Hope Playground	Shadow enter-exit time	12:42 – 4:29 PM	No Change	12:19 – 5:18 PM	No Change	12:21 – 6:01 PM	No Change	12:56 – 2:53 PM	No Change
	Incremental shadow duration	3 hours 47 minutes		4 hours 59 minutes		5 hours 40 minutes		1 hour 57 minutes	
IS 117 Schoolyard	Shadow enter-exit time	--	No Change	--	No Change	5:41 – 6:01 PM	No Change	--	No Change
	Incremental shadow duration	--		--		20 minutes		--	
PS 236 Schoolyard	Shadow enter-exit time	4:06 – 4:29 PM	No Change	4:07 – 5:18 PM	No Change	4:16 – 6:01 PM	No Change	--	No Change
	Incremental shadow duration	23 minutes		1 hour 11 minutes		1 hour 45 minutes		--	
Graham Windham Early Learning	Shadow enter-exit time	7:36 – 9:17 AM	N/A[1]	6:27 – 7:38 AM	N/A[1]	5:57 – 7:07 AM	N/A[1]	8:51 – 11:07 AM 12:00 – 1:47 PM	N/A[1]
	Incremental shadow duration	1 hour 41 minutes		1 hour 11 minutes		1 hour 10 minutes		2 hours 16 minutes 1 hour 47 minutes	
1789 Davidson Avenue Playground	Shadow enter-exit time	7:36 – 7:47 AM	N/A[1]	--	N/A[1]	--	N/A[1]	9:46 – 11:03 AM	N/A[1]
	Incremental shadow duration	11 minutes		--		--		1 hour 17 minutes	
Townsend Garden	Shadow enter-exit time	--	No Change	--	No Change	5:40 – 6:01 PM	No Change	--	No Change
	Incremental shadow duration	--		--		21 minutes		--	
Townsend Walk	Shadow enter-exit time	7:36 – 8:41 AM	No Change	6:27 – 9:32 AM	No Change	6:15 – 10:06 AM	No Change	--	No Change
	Incremental shadow duration	1 hour 5 minutes		3 hours 5 minutes		3 hours 51 minutes		--	
Inwood Park	Shadow enter-exit time	7:36 AM – 4:29 PM	No Change	6:27 AM – 5:18 PM	No Change	5:57 AM – 6:01 PM	No Change	8:51 AM – 2:53 PM	No Change
	Incremental shadow duration	8 hours 53 minutes		10 hours 51 minutes		12 hours 4 minutes		6 hours 2 minutes	
Jerome Playground South	Shadow enter-exit time	3:24 – 4:29 PM	No Change	3:27 – 5:18 PM	No Change	--	No Change	12:23 – 2:53 PM	No Change
	Incremental shadow duration	1 hour 5 minutes		1 hour 51 minutes		--		2 hours 30 minutes	
PS 170 Schoolyard	Shadow enter-exit time	4:05 – 4:29 PM	No Change	--	No Change	--	No Change	--	No Change
	Incremental shadow duration	24 minutes		--		--		--	

Table 20.7.6-1 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with A-Application Alternative

Mount Eden Malls	Shadow enter-exit time	--	No Change	--	No Change	5:48 – 6:01 PM	No Change	--	No Change
	Incremental shadow duration	--		--		13 minutes		--	
Goble Playground	Shadow enter-exit time	7:36 – 7:46 AM 8:50 AM – 4:29 PM	No Change	6:27 – 7:53 AM 9:41 AM – 5:18 PM	No Change	5:57 – 8:07 AM 10:15 AM – 6:01 PM	No Change	8:51 AM – 2:53 PM	No Change
	Incremental shadow duration	10 minutes 7 hours 39 minutes		1 hour 26 minutes 6 hours 37 minutes		2 hours 10 minutes 7 hours 46 minutes		6 hours 2 minutes	
PS 199 Schoolyard	Shadow enter-exit time	--	No Change	--	No Change	5:56 – 6:01 PM	No Change	2:31 – 2:53 PM	No Change
	Incremental shadow duration	--		--		5 minutes		23 minutes	
Plimpton Playground	Shadow enter-exit time	2:24 – 4:29 PM	No Change	2:54 – 5:18 PM	No Change	3:59 – 6:01 PM	No Change	1:35 – 2:53 PM	No Change
	Incremental shadow duration	2 hours 5 minutes		2 hours 24 minutes		2 hours 2 minutes		1 hour 18 minutes	
Bridge Playground	Shadow enter-exit time	7:36 – 10:43 AM	No Change	6:27 – 9:22 AM	No Change	6:02 – 8:37 AM	No Change	8:51 – 10:52 AM	No Change
	Incremental shadow duration	3 hours 7 minutes		2 hours 55 minutes		2 hours 35 minutes		2 hours 1 minute	
Ogden Plimpton Playground	Shadow enter-exit time	--	No Change	6:27 – 7:59 AM	No Change	5:57 – 8:10 AM	No Change	8:51 – 9:11 AM	No Change
	Incremental shadow duration	--		1 hour 32 minutes		2 hours 13 minutes		20 minutes	
Edward L Grant Greenstreet	Shadow enter-exit time	7:36 AM – 12:13 PM 12:31 – 4:29 PM	No Change	6:27 – 11:27 AM 1:08 – 5:18 PM	No Change	5:57 – 11:19 AM 1:37 – 6:01 PM	No Change	8:51 AM – 2:53 PM	No Change
	Incremental shadow duration	4 hours 37 minutes 3 hours 58 minutes		5 hours 4 hours 10 minutes		5 hours 22 minutes 4 hours 24 minutes		6 hours 2 minutes	
W 170th St Greenstreet	Shadow enter-exit time	7:36 AM – 12:22 PM	No Change	6:27 – 11:50 AM	No Change	5:57 – 11:48 AM	No Change	8:51 AM – 12:30 PM	No Change
	Incremental shadow duration	4 hours 46 minutes		5 hours 23 minutes		5 hours 51 minutes		3 hours 39 minutes	
Keltch Park	Shadow enter-exit time	7:36 – 11:15 AM 2:15 – 4:29 PM	No Change	6:27 – 10:24 AM 2:08 – 5:18 PM	No Change	5:57 – 10:05 AM 2:14 – 6:01 PM	No Change	8:51 AM – 12:31 PM 1:42 – 2:53 PM	No Change
	Incremental shadow duration	3 hours 39 minutes 2 hours 14 minutes		3 hours 57 minutes 3 hours 10 minutes		4 hours 8 minutes 3 hours 47 minutes		3 hours 40 minutes 1 hour 11 minutes	
PS 64 Schoolyard	Shadow enter-exit time	8:37 – 11:47 AM 2:59 – 4:29 PM	No Change	9:28 – 10:43 AM 3:31 – 5:18 PM	No Change	3:42 – 6:01 PM	No Change	8:51 AM – 2:53 PM	No Change
	Incremental shadow duration	3 hours 10 minutes 1 hour 30 minutes		1 hour 15 minutes 1 hour 47 minutes		2 hours 19 minutes		6 hours 2 minutes	
E 170th St Greenstreet	Shadow enter-exit time	1:25 – 4:29 PM	No Change	12:51 – 5:18 PM	No Change	12:47 – 6:01 PM	No Change	2:00 – 2:53 PM	No Change
	Incremental shadow duration	3 hours 4 minutes		4 hours 27 minutes		5 hours 14 minutes		53 minutes	
Jerome/Gerard Greenstreet	Shadow enter-exit time	3:51 – 4:29 PM	No Change	5:00 – 5:18 PM	3:50 – 5:18 PM	5:51 – 6:01 PM	3:55 – 6:01 PM	2:37 – 2:53 PM	No Change
	Incremental shadow duration	38 minutes		18 minutes	1 hour 28 minutes	10 minutes	2 hours 6 minutes	16 minutes	
PS/IS 218 Schoolyard	Shadow enter-exit time	3:40 – 4:29 PM	No Change	4:43 – 5:18 PM	No Change	5:05 – 6:01 PM	No Change	--	No Change
	Incremental shadow duration	49 minutes		35 minutes		56 minutes		--	

Table 20.7.6-1 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with A-Application Alternative

MLK Triangle	Shadow enter-exit time	7:36 – 9:01 AM	No Change	6:27 – 7:09 AM	No Change	5:57 – 6:56 AM	No Change	8:51 – 10:43 AM	No Change
	Incremental shadow duration	1 hour 25 minutes		42 minutes		59 minutes		1 hour 52 minutes	
Jerome/Grant Greenstreet	Shadow enter-exit time	7:36 AM – 12:34 PM 2:09 – 4:29 PM	No Change	6:27 – 11:52 AM 2:07 – 5:18 PM	No Change	5:57 – 11:20 AM 2:23 – 6:01 PM	No Change	8:51 AM – 12:49 PM 2:46 – 2:53 PM	No Change
	Incremental shadow duration	4 hours 58 minutes 2 hours 20 minutes		5 hours 25 minutes 3 hours 11 minutes		5 hours 23 minutes 3 hours 38 minutes		3 hours 57 minutes 7 minutes	
Jerome/Shakespeare Greenstreet	Shadow enter-exit time	8:11 – 8:37 AM	No Change	6:27 – 7:20 AM	No Change	5:57 – 6:55 AM	No Change	--	No Change
	Incremental shadow duration	26 minutes		53 minutes		57 minutes		--	
Mullaly Park	Shadow enter-exit time	7:36 – 11:55 AM	No Change	6:27 – 11:03 AM	No Change	5:57 – 10:48 AM	No Change	8:51 AM – 12:45 PM	No Change
	Incremental shadow duration	4 hours 19 minutes		4 hours 36 minutes		4 hours 51 minutes		3 hours 54 minutes	
Featherbenches	Shadow enter-exit time	--	--	--	4:38 – 5:01 PM	--	4:48 – 5:21 PM	--	--
	Incremental shadow duration	--	--	--	23 minutes	--	33 minutes	--	--
Palladia Inc. Hill House	Shadow enter-exit time	--	11:40 AM – 1:01 PM	--	3:12 – 5:18 PM	--	12:10 – 1:24 PM 2:43 – 6:01 PM	--	11:10 AM – 2:38 PM
	Incremental shadow duration	--	1 hour 21 minutes	--	2 hours 6 minutes	--	1 hour 14 minutes 3 hours 18 minutes	--	3 hours 28 minutes
Grand/Macombs Greenstreet	Shadow enter-exit time	--	10:00 – 11:14 AM	--	8:40 – 10:08 AM	--	6:04 – 6:51 AM 8:11 – 9:46 AM	--	--
	Incremental shadow duration	--	1 hour 14 minutes	--	1 hour 28 minutes	--	47 minutes 1 hour 35 minutes	--	--
Macombs Road Open Space	Shadow enter-exit time	--	--	--	6:27 – 8:12 AM	--	5:57 – 7:59 AM	--	--
	Incremental shadow duration	--	--	--	1 hour 45 minutes	--	2 hours 2 minutes	--	--

Notes:

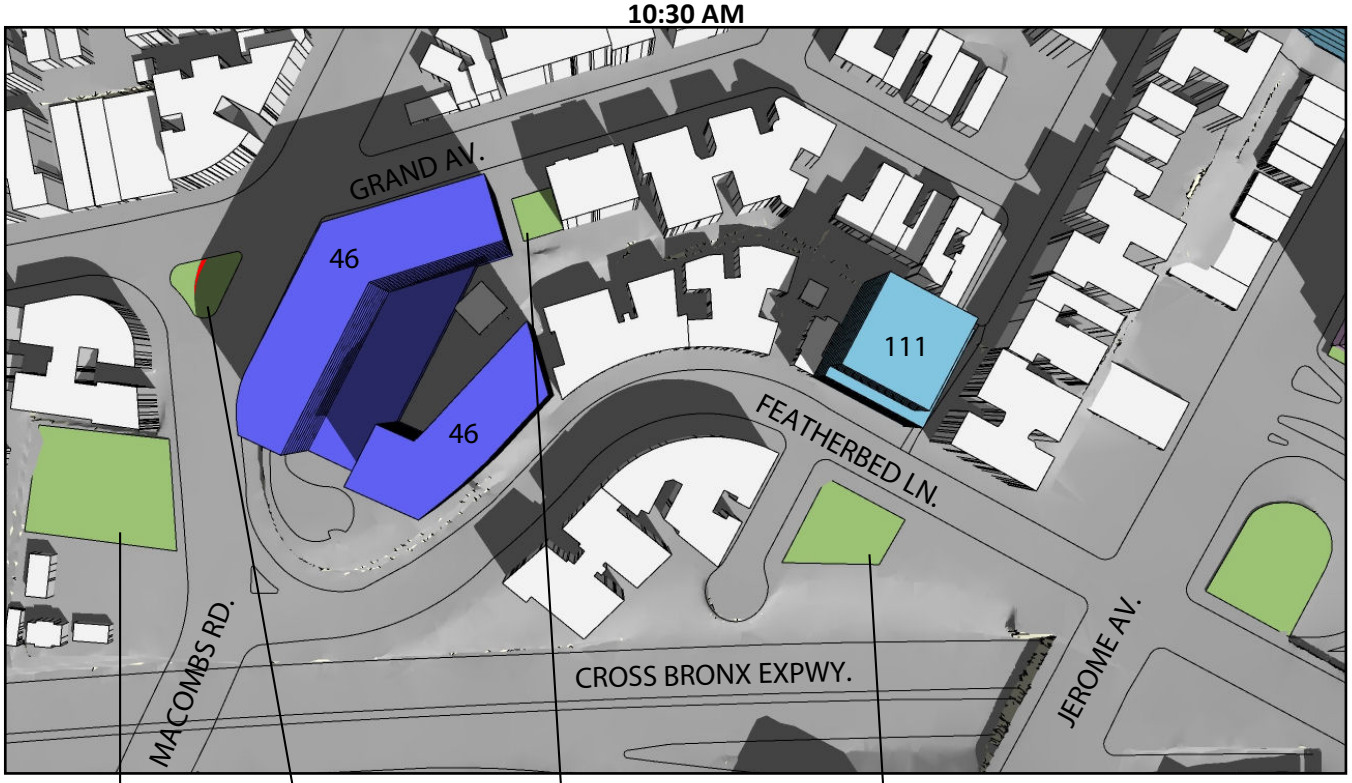
All times are Eastern Standard Time; Daylight Savings Time was not accounted for per *CEQR Technical Manual* guidelines.

Table Indicates the entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource.

[1] These sites are under the control of the NYC Administration for Children's Services (ACS). Under the A-Application Alternative, these sites would be redeveloped and open space is expected to be replaced with either rooftop playground space or space in the rear of building. As the locations of the future open spaces are not yet known these sights have been excluded from the analysis of the A-Application Alternative

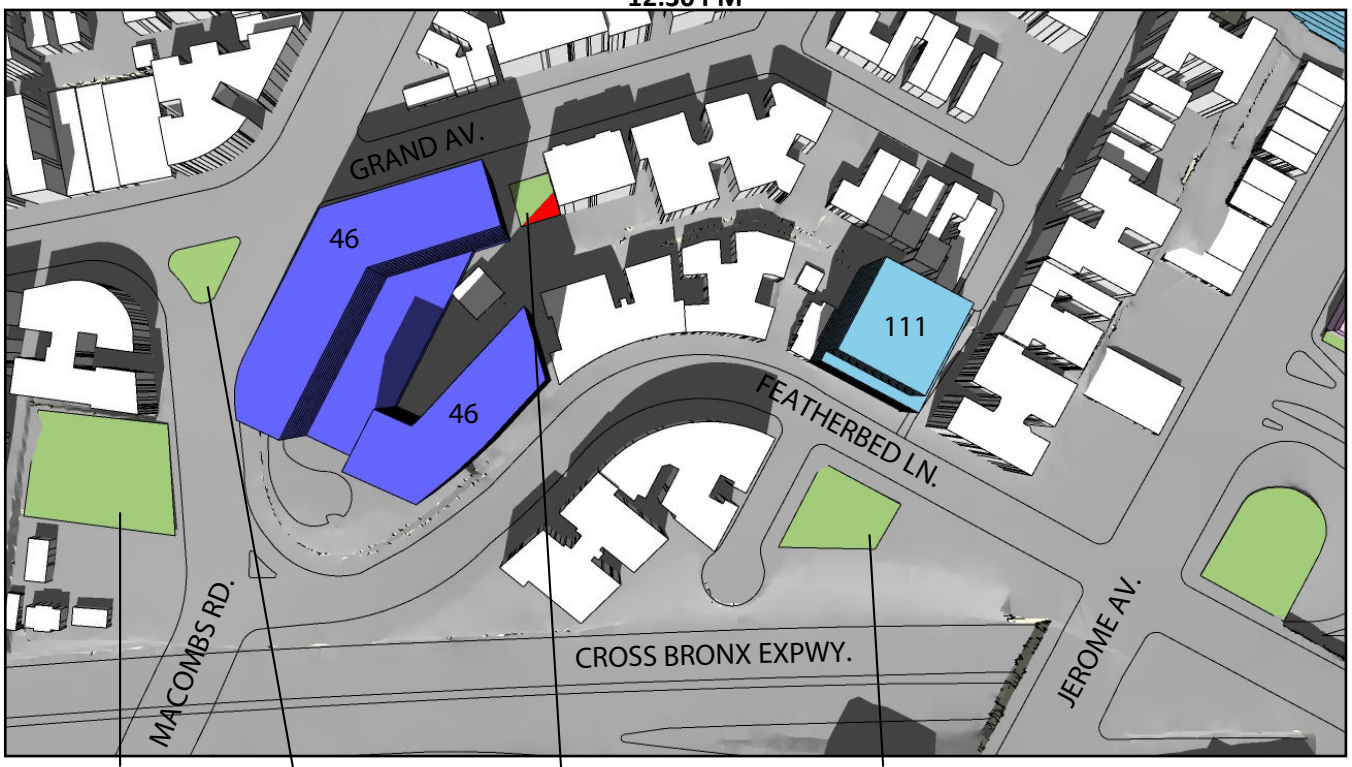
Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, Macombs Road Open Space

10:30 AM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

12:30 PM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

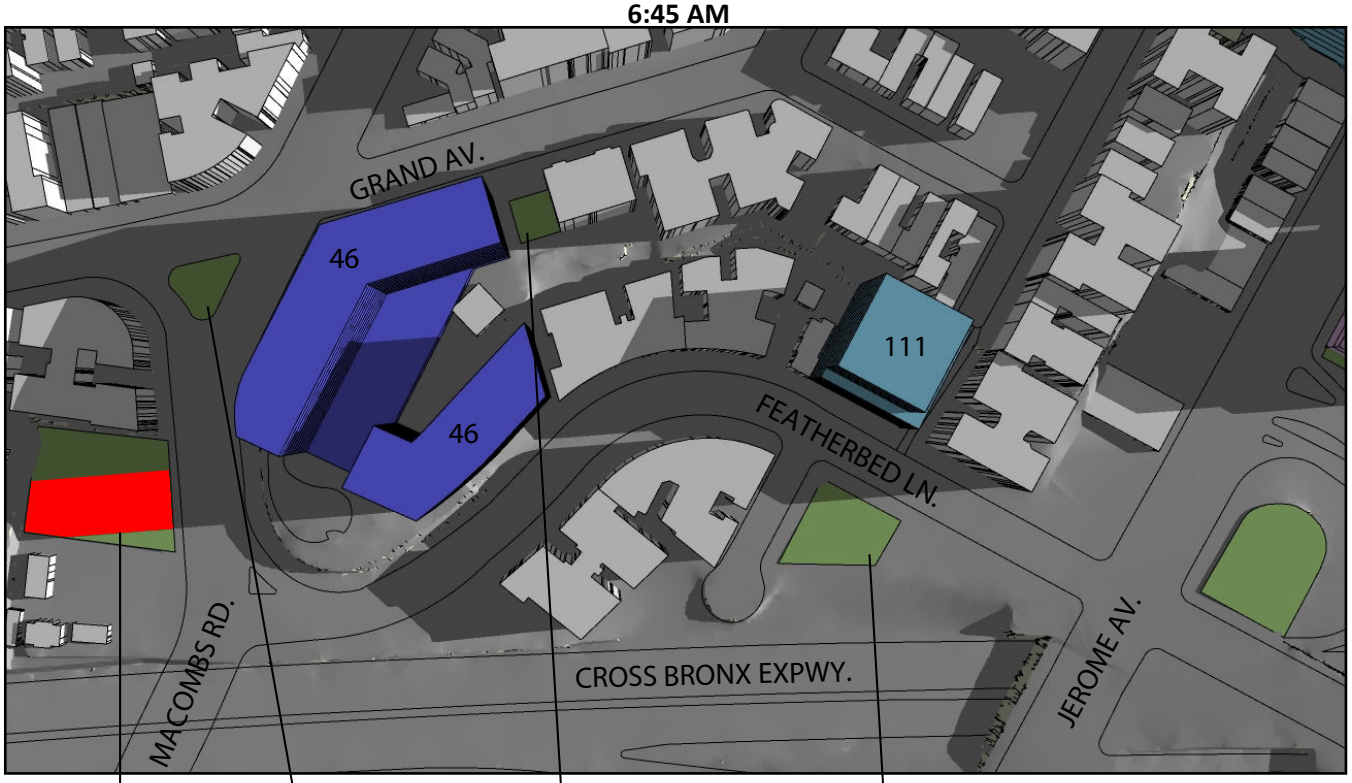
A-Application - Projected | **Open Space** | **Incremental Shadow**

A-Application - Potential

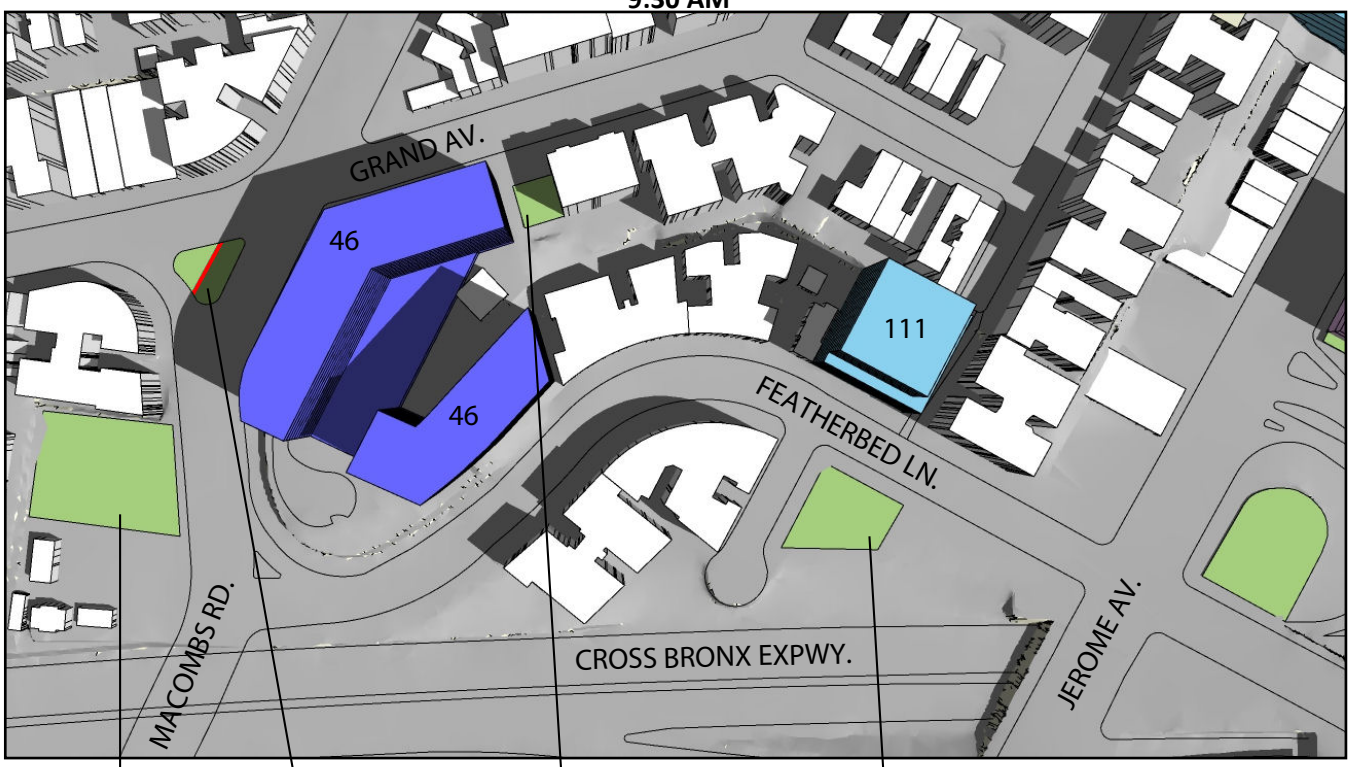
N

Figure 20.7.6-1

6:45 AM



9:30 AM



A-Application - Projected

Open Space

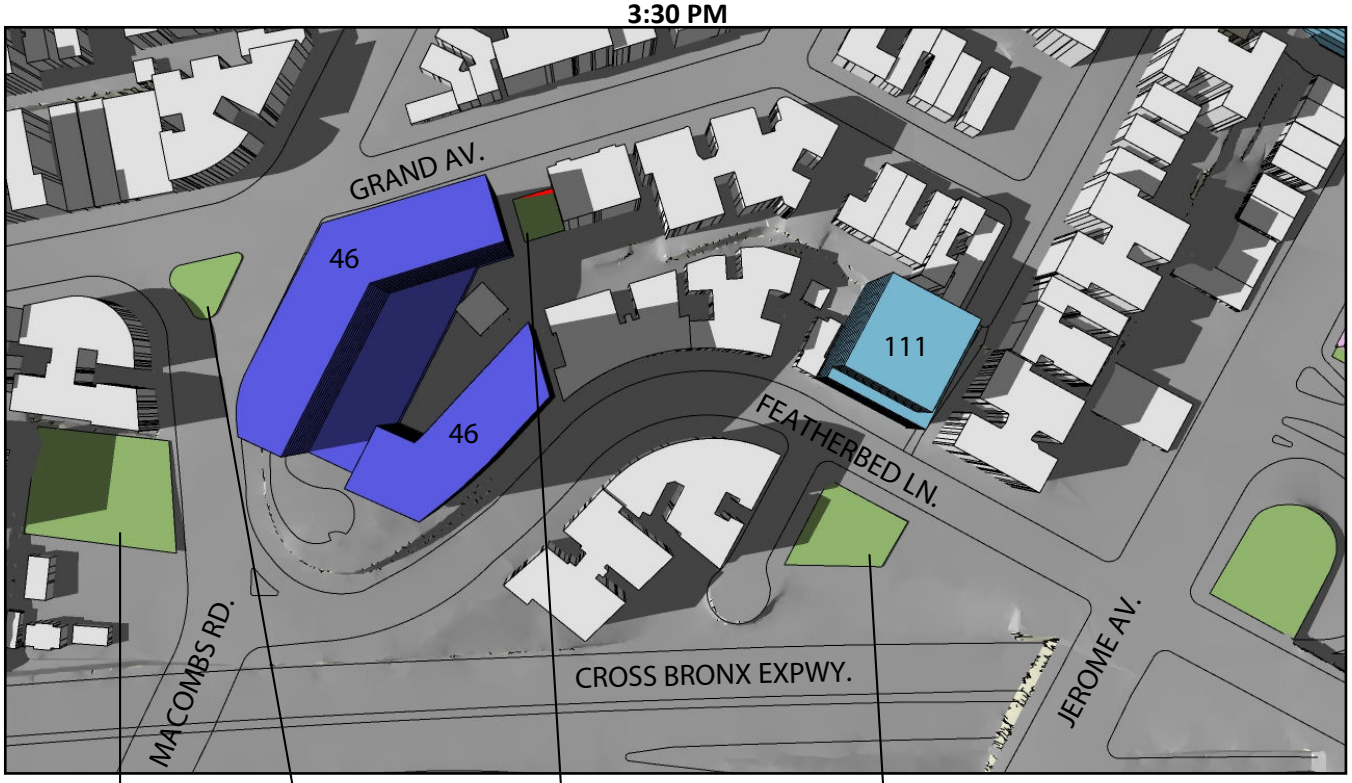
Incremental Shadow

A-Application - Potential

N

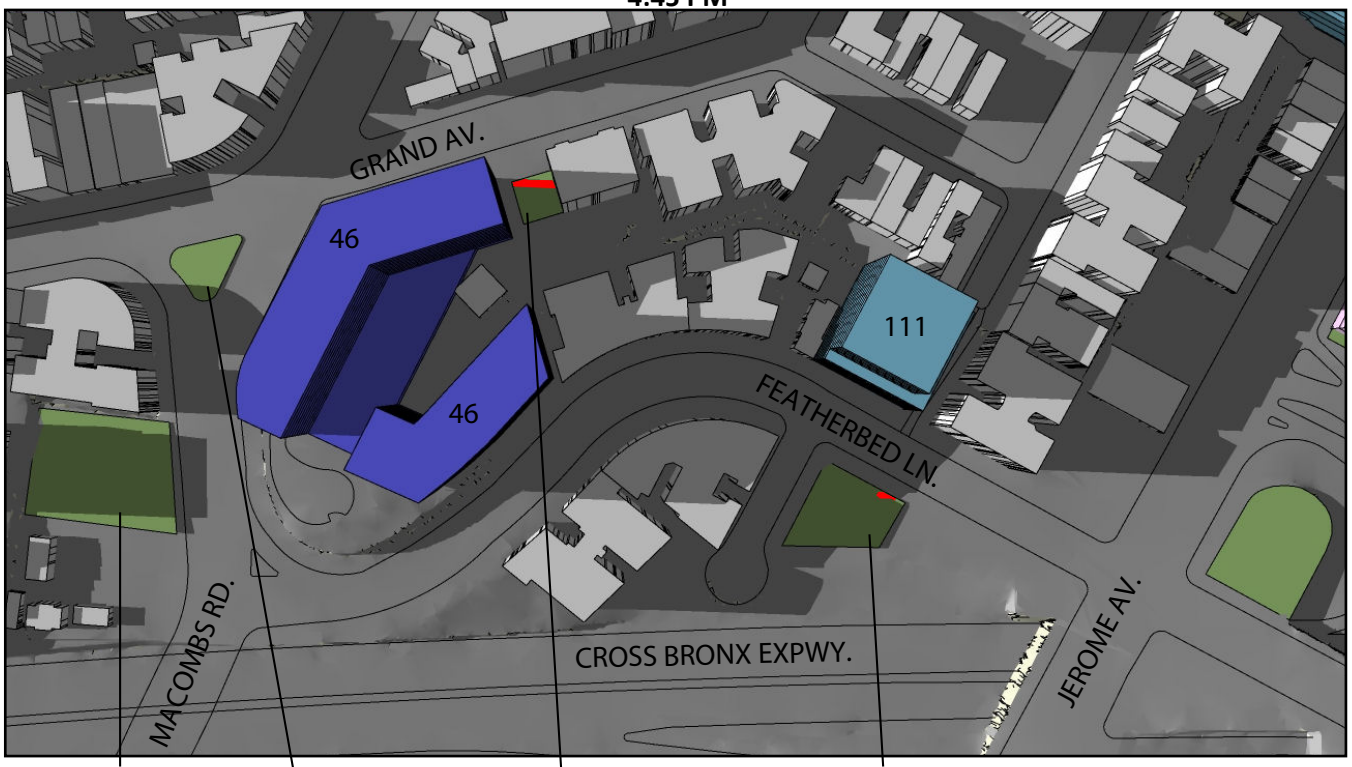
Figure 20.7.6-2

3:30 PM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

4:45 PM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

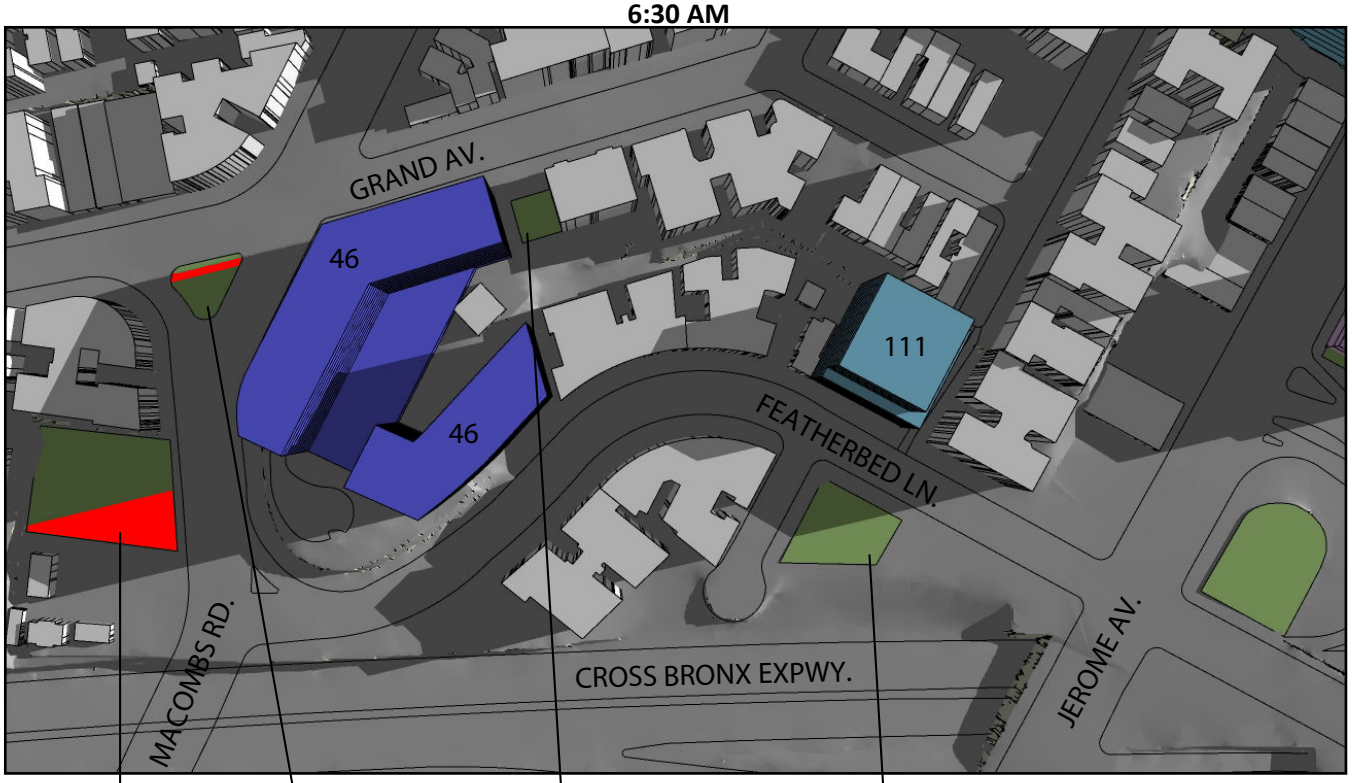
A-Application - Projected | **Open Space** | **Incremental Shadow**

A-Application - Potential

N

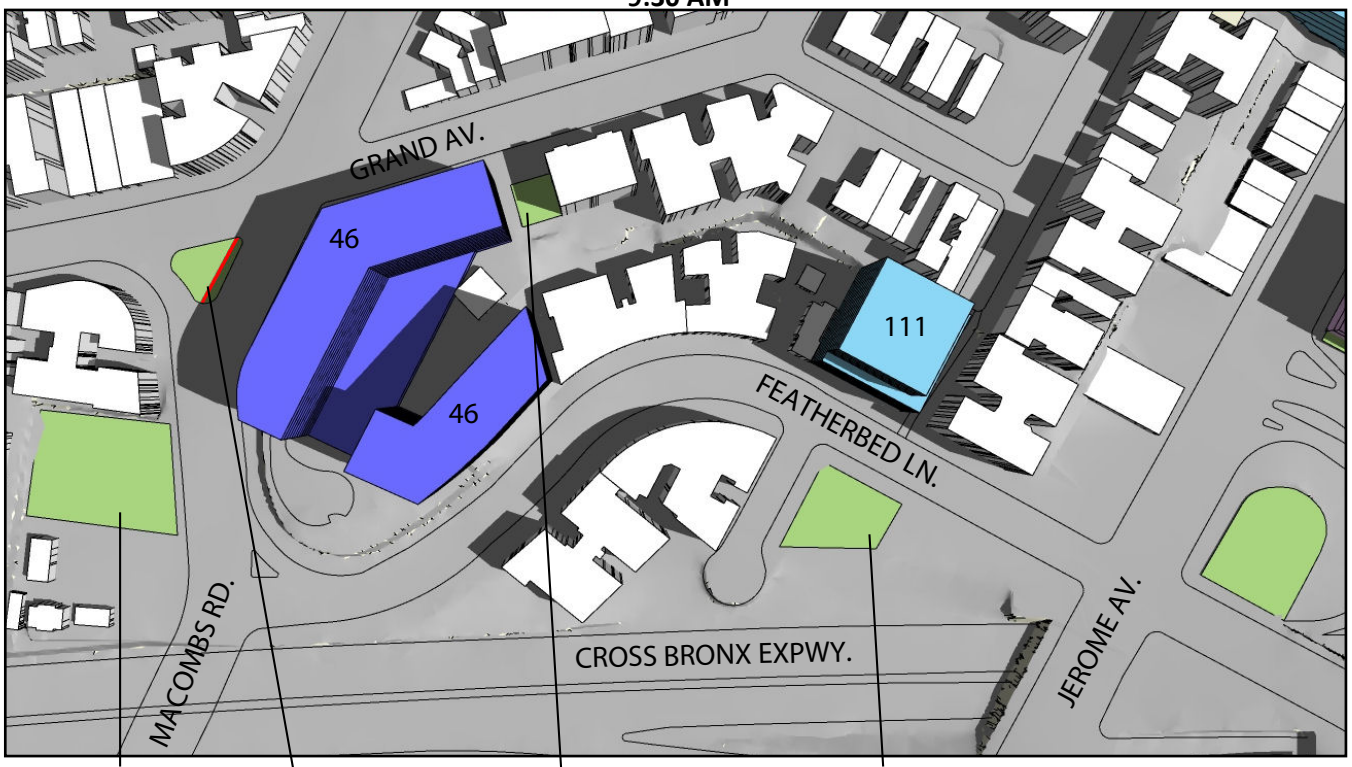
Figure 20.7.6-2

6:30 AM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

9:30 AM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

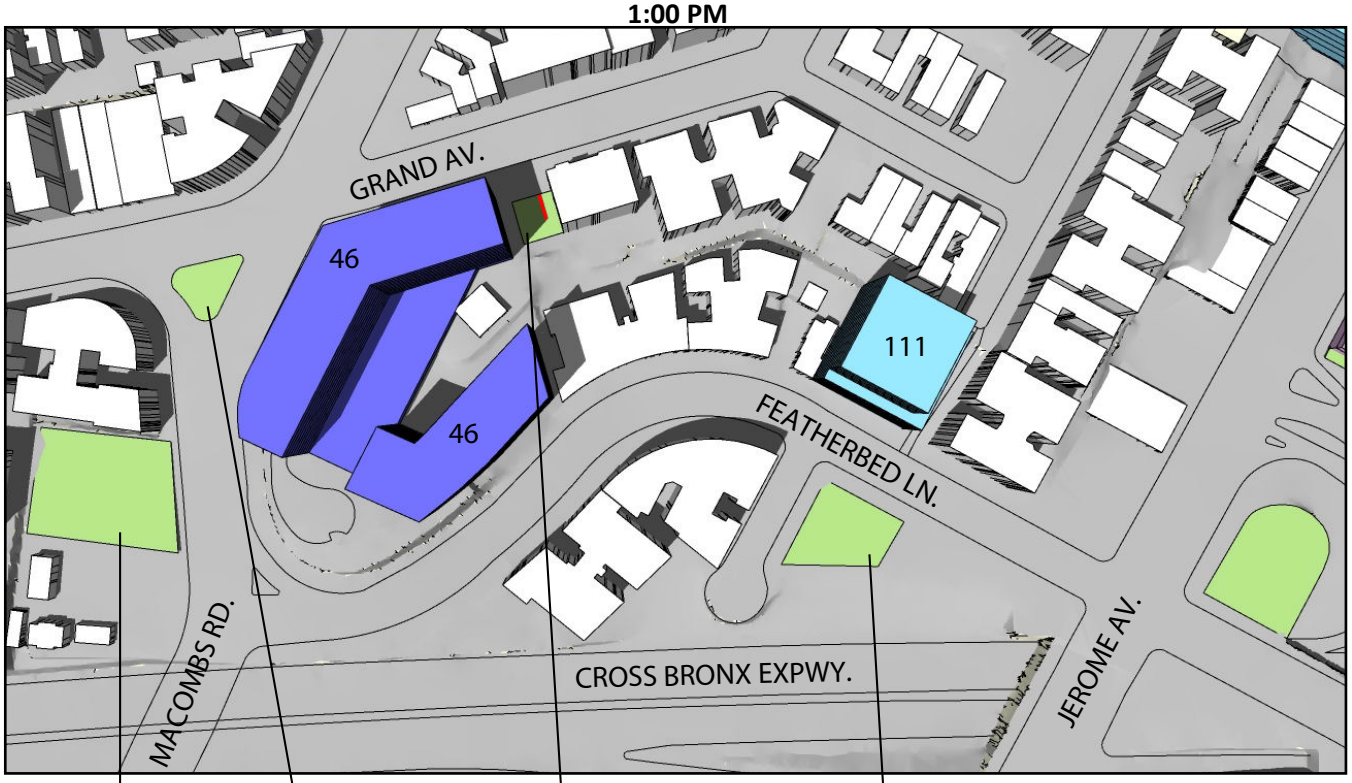
A-Application - Projected | **Open Space** | **Incremental Shadow**

A-Application - Potential

N

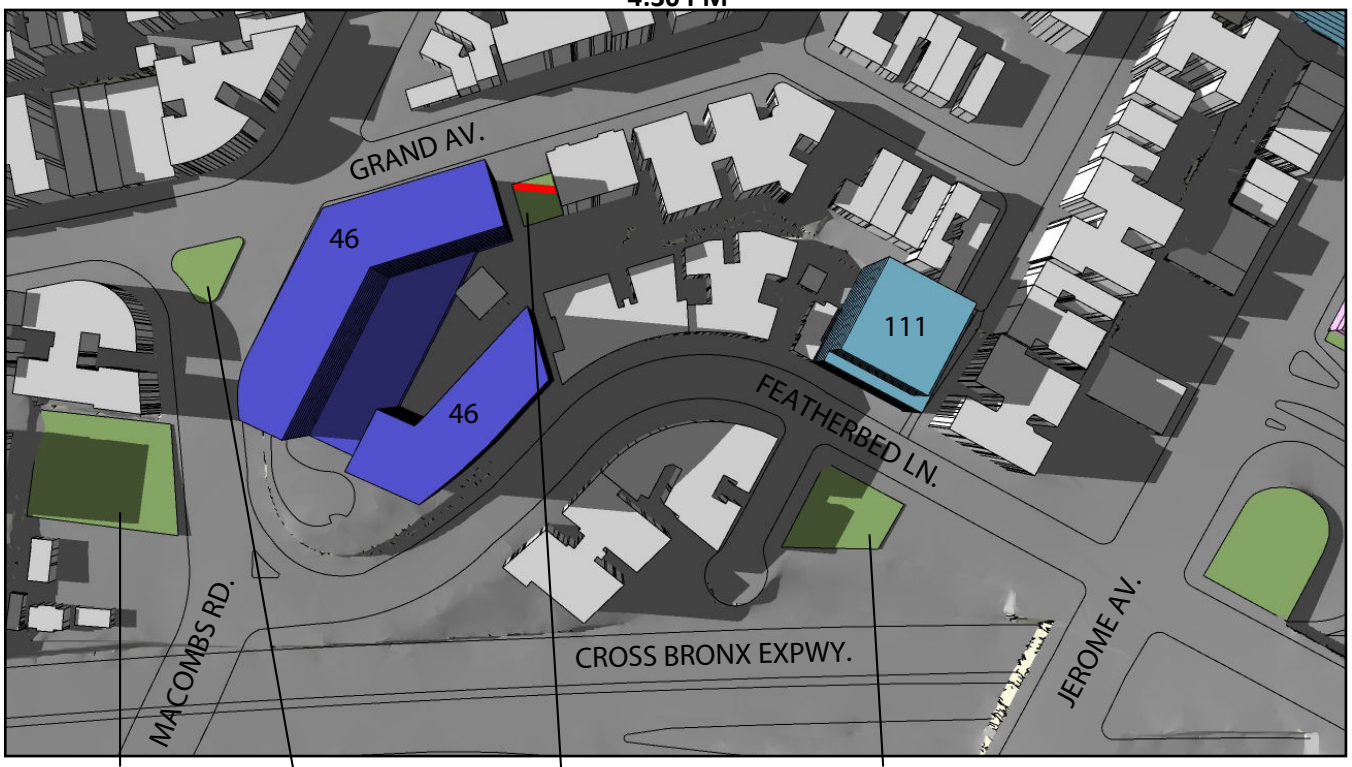
Figure 20.7.6-3

1:00 PM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

4:30 PM



Macombs Road Open Space | Grand/Macombs Greenstreet | Palladia Inc. Hill House | Featherbenches

A-Application - Projected | **Open Space** | **Incremental Shadow**

A-Application - Potential

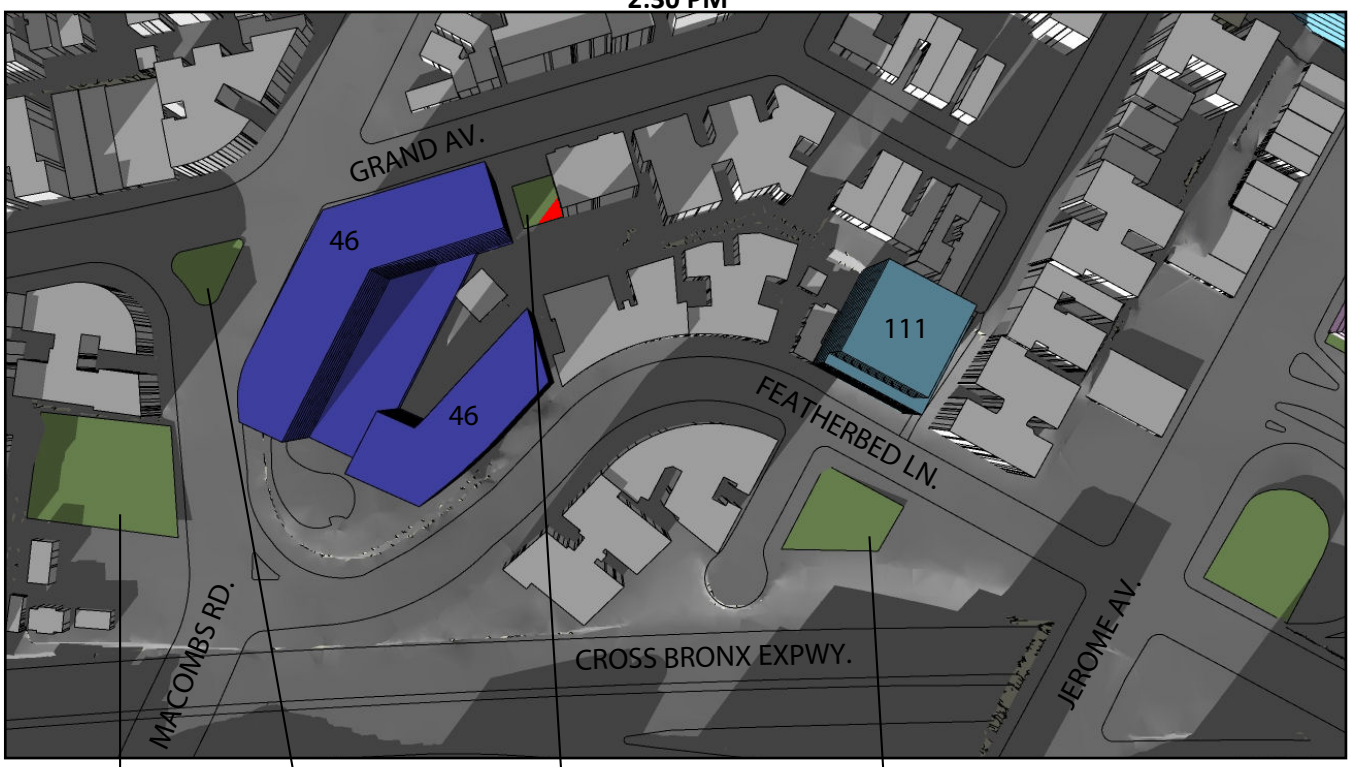
N

Figure 20.7.6-3

Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, Macombs Road Open Space

11:30 AM

2:30 PM



A-Application - Projected

A-Application - Potential

Open Space

Incremental Shadow

N

Figure 20.7.6-4

20.7.7 HISTORIC AND CULTURAL RESOURCES

The A-Application Alternative would not result in any significant adverse impacts to historic and cultural resources. The A-Application Alternative assumes that development would occur on 48 projected development sites and 107 potential development sites as opposed to 45 projected development sites and 101 potential development sites in the Proposed Actions, however, as with the Proposed Actions, the A-Application Alternative would not result in any significant adverse impacts to archaeological resources, any direct significant adverse impacts to architectural resources, any indirect significant adverse impacts to architectural resources, any significant adverse construction impacts, or any significant adverse shadow impacts on historic architectural resources.

Archaeological Resources

The New York City Landmarks Preservation Committee (LPC) reviewed the identified projected and potential development sites that could experience new/additional in-ground disturbance as a result of the A-Application Alternative and concluded that none of the lots comprising those sites have any archaeological significance. Therefore, the A-Application Alternative are not expected to result in any significant adverse impacts to archaeological resources.

Architectural Resources

The A-Application Alternative would not result in any direct or indirect (contextual) significant adverse impacts on architectural resources. It is possible that some or all of the buildings identified as eligible for LPC and/or S/NR could become listed with the A-Application Alternative. Privately-owned properties that are New York City Landmarks (NYCL) or S/NR-listed, or are pending designation as landmarks, are protected under the New York City Landmarks Law, which requires LPC review and approval before any alteration or demolition can occur. In addition, the City has procedures for avoiding damage to historic resources from adjacent construction.

Direct (Physical) Impacts

The A-Application Alternative would not result in any direct significant adverse impacts to any NYCL-designated and S/NR listed historic districts or individual landmark buildings and structures. The Historic Resources study area includes 17 historic resources two of which are historic districts. As with the Proposed Actions, the A-Application Alternative includes a portion of the Morris Avenue Historic District (NYCL-Designated). The A-Application Alternative also contains two eligible historic resources, the U.S. Post Office – Morris Heights Station (S/NR Eligible Individual Landmark) and the (Former) House of Calvary Hospital.

No projected or potential development sites are located within the Morris Avenue Historic District, and so the A-Application Alternative would result in no direct impacts to the Morris Avenue Historic District.

The U.S. Post Office – Morris Heights Station is not identified as a projected or potential development site, and so it would not be demolished or otherwise directly affected by the A-Application Alternative.

The (Former) House of Calvary Hospital, an eligible S/NR Historic Resource, is located in the A-Application boundary and is a projected development site in the A-Application Alternative. The Landmarks Preservation Committee reviewed all 48 of the projected development sites for the A-Application Alternative and determined that these sites to be with no architectural or archaeological significance.[3] Therefore, the A-Application Alternative would not result in a significant adverse impact.

Indirect (Contextual) Impacts

The A-Application Alternative would not result in any indirect (contextual) significant adverse impacts to any designated, listed or eligible historic resources. As with the Proposed Actions, the A-Application Alternative rezoning area extends into a portion of the Morris Avenue Historic District, however, no projected or potential development sites are located within the historic district or substantially contiguous to it. Therefore, no indirect, or contextual, impacts to the Morris Avenue Historic District would result with the A-Application Alternative. Similarly, the rezoning area extend into a portion of the Grand Concourse Historic District in the vicinity of East 173rd Street, but no projected or potential development sites are located within this portion of the rezoning area. Therefore, no indirect, or contextual, impacts to the Grand Concourse Historic District would result with the A-Application Alternative.

Although Potential Development Sites 20 and 21 are located near the Croton Aqueduct System within the area mapped as Aqueduct Walk, the A-Application Alternative would not result in indirect (contextual) impacts to the Croton Aqueduct System, itself, which is below-grade.

As described in Chapter 7 Historic and Cultural Resources, although several potential development sites and one projected development site are located adjacent to, or otherwise substantially contiguous to the U.S. Post Office – Morris Heights Station, the historic architectural significance of this resource is not dependent upon or otherwise specifically related to the surrounding development context. Therefore, the A-Application Alternative would not result in indirect impacts to the U.S. Post Office – Morris Heights Station.

LPC reviewed the (Former) House of Calvary Site as part of a review of all 48 projected development sites, and determined that all 48 projected development sites to have no architectural or archaeological significance. Therefore, the A-Application Alternative would not result in indirect impacts to the (Former) House of Calvary Hospital.

[3] The Landmarks Preservation Committee reviewed the 48 sites included in the A-Application Alternative as part of their review of projected development sites for the Proposed Actions and the Expanded Rezoning Area Alternative (please refer to Chapter 7, "Historic and Cultural Resources" for the Proposed Actions, and Section 20.6.7 previously in this Alternatives chapter, for the Expanded Rezoning Area Alternative).

Construction Impacts

The rezoning area is substantially contiguous to the Croton Aqueduct System at approximately West 183rd Street and also at approximately Ogden Avenue and Dr. Martin Luther King, Jr., Boulevard (just south of the Cross-Bronx Expressway). In each of these two areas, there is one potential development site within 90 feet of the mapped Croton Aqueduct System/Aqueduct Walk; as described in Chapter 7 Historic and Cultural Resources, it is presumed that appropriate protections would be in place during construction to ensure that the aqueduct system and the public park would not experience construction-related impacts.

Any designated NYCL or S/NR-listed historic buildings located within 90 linear feet of a projected or potential new construction site are subject to the protections of the New York City Department of Building's (DOB's) Technical Policy and Procedure Notice (TPPN) #10/88. In effect, this policy would prevent construction-related impacts to properties within the Grand Concourse Historic District that would be within 90 feet of Potential Development Sites 75, 76, and 77. Therefore, no construction impacts to the Grand Concourse Historic District would result with the A-Application Alternative. There are no projected or potential development sites within the Morris Avenue Historic District, and the nearest site that would be developed with the A-Application Alternative would be Potential Development Site 43, which is located approximately 170 feet southwest of the historic district boundary; therefore, the A-Application Alternative would result in no construction impacts to the Morris Avenue Historic District.

As described in Chapter 7 Historic and Cultural Resources, one projected development site and four potential development sites are located within approximately 90 feet of the U.S. Post Office – Morris Heights Station (S/NR-eligible). As defined in the procedure notice TPPN #10/88, "historic resources" that are considered adjacent to construction activities, only include designated NYCLs and S/NR-listed properties that are within 90 feet of a lot under development or alteration. They do not include S/NR-eligible, NYCL-eligible, potential, or unidentified architectural resources. Without the particular protections of TPPN #10/88, or similar protections in place, the A-Application Alternative could result in construction impacts on the U.S. Post Office – Morris Heights Station, with the development of Potential Development Sites 96 and 97, the boundaries of which are nearly adjacent to the post office building structure.

Shadow Impacts

As described in earlier in the Expanded Rezoning Area Alternative section of Chapter 20, subheading "Shadows," the A-Application Alternative would not result in any significant adverse impacts as a result of incremental shadows on historic architectural resources.

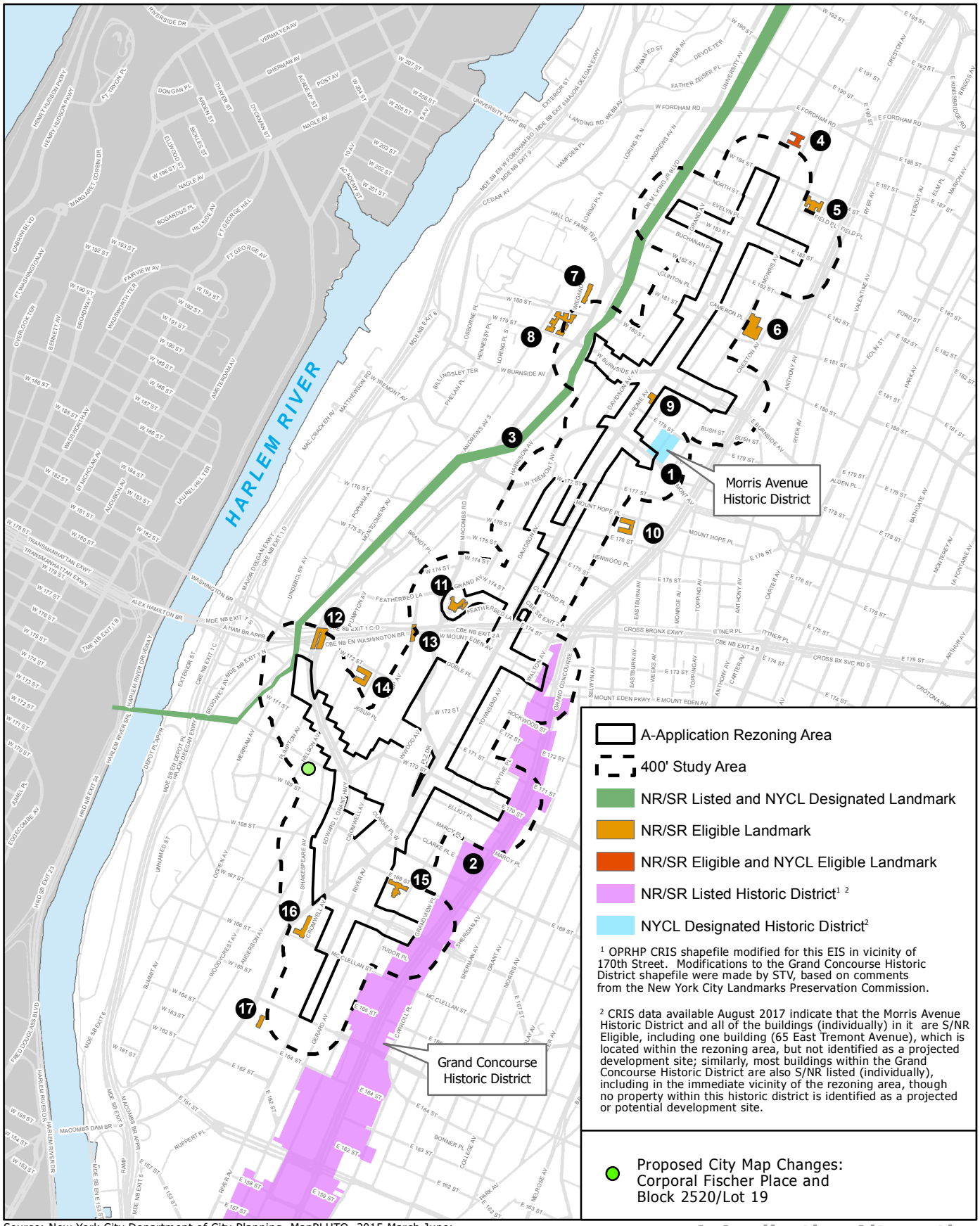
Table 20.7.7-1: Historic Resources

Map No.	Name	Individual Property or Historic District	S/NR Listed	NYCL Designated	S/NR Eligible	NYCL Eligible	Rezoning or 400-Foot Study Area
1	Morris Avenue Historic District	Historic District		X	x[1]		Partly within Rezoning Area
2	Grand Concourse Historic District	Historic District	X[1]	X			Partly within Rezoning Area
3	Croton Aqueduct System	Individual Landmark	X				Partly within Rezoning Area
4	P.S. 33	Individual Landmark			X	X	400-Foot
5	I.S. 459	Individual Landmark			X		400-Foot
6	P.S. 79	Individual Landmark			X		400-Foot
7	Loew Hall	Individual Landmark			X		400-Foot
8	The Castle	Individual Landmark			X		400-Foot
9	U.S. Post Office – Morris Heights	Individual Landmark			X		Rezoning
10	J.H.S. 117 – Joseph H. Wade School	Individual Landmark			X		400-Foot
11	(Former) House of Calvary Hospital*	Individual Landmark			X		400-Foot
12	E.L. Grant Highway Bridge	Individual Landmark			X		400-Foot
13	Jesup Avenue Bridge	Individual Landmark			X		400-Foot
14	P.S. 104	Individual Landmark			X		400-Foot
15	Morrisania Hospital Complex	Individual Landmark			X		400-Foot
16	P.S. 114	Individual Landmark			X		400-Foot
17	Mullaly Recreation Center	Individual Landmark			X		400-Foot

Notes: *LPC reviewed the (Former) House of Calvary Site as part of a review of all projected development sites for the A-Application Alternative; the Landmarks Preservation Committee reviewed the 48 sites included in the A-Application Alternative as part of their review of projected development sites for the Proposed Actions and the Expanded Rezoning Area Alternative (please refer to Chapter 7, "Historic and Cultural Resources" for the Proposed Actions, and Section 20.6.7 previously in this Alternatives chapter, for the Expanded Rezoning Area Alternative). All projected development sites were determined to be with no architectural or archaeological significance.

[1] CRIS data available August 2017 indicate that the Morris Avenue Historic District and all of the buildings (individually) in it are S/NR Eligible, including one building (65 East Tremont Avenue), which is located within the rezoning area, but not identified as a projected development site; similarly, most buildings within the Grand Concourse Historic District are also S/NR listed (individually), including in the immediate vicinity of the rezoning area, though no property within this historic district is identified as a projected or potential development site.

Source: New York State Cultural Resource Information Service; New York City Landmarks Preservation Commission; STV Incorporated, 2017.



Source: New York City Department of City Planning, MapPLUTO, 2015 March-June; New York State Cultural Resource Information Service; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.7-1

20.7.8 URBAN DESIGN AND VISUAL RESOURCES

Introduction

As described in the 2014 *City Environmental Quality Review* (*CEQR*) *Technical Manual*, alternatives selected for consideration in an environmental impact statement are generally those that are feasible and have the potential to reduce, eliminate, or avoid adverse impacts of a proposed action while meeting some or all of the goals and objectives of this action. As described in Chapter 1, "Project Description," the Jerome Avenue Rezoning consists of a series of land use actions (collectively, the "Proposed Actions") intended to facilitate the implementation of the objectives of the Jerome Avenue Neighborhood Plan. This section considers an A-Application Alternative as one alternative to the Proposed Actions.

The A-Application Alternative would include nearly the same zoning text and map amendments and city map changes as the Proposed Actions (as described in Chapter 2, "Land Use, Zoning, and Public Policy"). However, in the A-Application Alternative, the rezoning area would be expanded to include approximately five additional blocks in three discrete areas located west of Jerome Avenue and a total of three additional projected development sites and twenty-four additional potential development sites within these areas. Each of the three discrete areas would be mapped adjacent to the proposed rezoning area with new R7D and R8A zoning districts with C2-4 commercial overlays. In addition to mapping the proposed districts, the proposed Special Jerome Avenue District would also include rules to allow second story retail in mixed use buildings along the elevated rail line, thereby changing the programs of five projected development sites in common with the Proposed Actions.

It is important to note that the A-Application Alternative includes the entire area that was defined as the rezoning area for the Proposed Actions, as well as all the projected and potential development sites that are identified for the Proposed Actions. Thus, for the purposes of analyzing the potential effects to urban design and visual resources, the analysis of the A-Application Alternative may be undertaken with the presumption that the analysis of the Proposed Actions satisfies the environmental review for the A-Application Alternative except for the differences in physical area (A-Application Alternative delineation) and the additional projected and potential development sites within the expanded three geographical areas. In addition, as described in "Land Use, Zoning, and Public Policy," Section 20.7.2, there would be differences in development composition (second-story retail) at five sites that are also, otherwise, included within the Proposed Actions rezoning area. Also, as described in 20.7.1 (project description for the A-Application Alternative) the Proposed Actions Projected Development Site 35 is the A-Application Alternative Potential Development Site 89, while the adjacent Proposed Actions Potential Development Site 89 is the A-Application Alternative Projected Development Site 35.

Principal Conclusions

As with the Proposed Actions (see Chapter 8, "Urban Design and Visual Resources"), the A-Application Alternative would not result in any significant adverse impact to urban design or visual resources in the primary or secondary study areas. Compared to No-Action conditions, both the Proposed Actions and the

A-Application Alternative would be expected to result in a notable increase in both building height and bulk in the respective rezoning areas, and also a concentration of new development that would provide for greater cohesiveness in streetscape design. Neither the Proposed Actions nor the A-Application Alternative would result in any change to the existing street pattern, street hierarchy, or block forms that characterizes the respective rezoning areas and the surrounding neighborhoods. Likewise, neither the Proposed Actions nor the A-Application Alternative would result in any significant adverse impacts to visual resources or view corridors comprising the open space resources and historic resources within and surrounding the respective rezoning areas. Similar to the Proposed Actions, the A-Application Alternative would allow for new residential and mixed use developments at a greater density than what is currently permitted as-of-right.

By comparison to the Proposed Actions, the A-Application Alternative would be expected to result in more projected and potential development sites within the vicinity of the Jerome Avenue corridor. Therefore, the greater distinction between the A-Application Alternative and the Proposed Actions lies in the slightly greater extent to which the A-Application Alternative may be expected to result in positive effects to urban design. The cohesiveness in streetscape design and potential for improved pedestrian experience would be similar within the area shared between the respective rezoning areas for the Proposed Actions and the A-Application Alternative (i.e., the area delineated as the rezoning area for the Proposed Actions, which is shared by both the Proposed Actions and the A-Application Alternative), and with the A-Application Alternative would also occur in three discrete geographical areas:

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), a portion of Davidson Avenue between approximately West 177th Street to the north and West 176th Street in the Morris Heights Neighborhood;

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), extending slightly over an approximately two-block length to encompass portions of irregular blocks, west from Jerome Avenue (to Macombs Road) into the Morris Heights neighborhood, along the northern side of Featherbed Lane; and

- Within the Jerome Avenue corridor (Cross-Bronx Expressway – 169th Street), portions of several irregular blocks between Edward L. Grant Highway to the west and Jerome Avenue to the east, in the Mount Eden neighborhood, south of West 170th Street;

A lesser distinction between the Proposed Actions and the A-Application Alternative relates to the second-story retail development that would result with the A-Application Alternative at Projected Development Sites 3, 6, 19, 22, and 44. While the pedestrian experience at the ground-floor would not be expected to be substantially different between the Proposed Actions and the A-Application Alternative, there may be expected to be slightly more pedestrian activity in the vicinity of these projected development sites as a result of the increase of retail space with the A-Application Alternative. Although the second-story retail may be perceptible, both to pedestrians and to passengers on the elevated 4-train, the distinction between the design characteristics of these buildings would be minimal considering the broader context

of change to urban design, and given that the overall height and mass of these buildings would be similar in both the Proposed Actions and the A-Application Alternative.

In summary, the A-Application Alternative would result in improvements to urban design that would be similar to the Proposed Actions, though extending over a slightly greater area, specifically at two locations in the Morris Heights neighborhood and one location in the Mount Eden neighborhood. No significant adverse impacts to urban design or visual resources would occur with either the Proposed Actions or the A-Application Alternative.

Methodology

The methodology for the urban design and visual resources assessments for the A-Application Alternative is conducted per the *CEQR Technical Manual*, and is described in detail in Chapter 8, "Urban Design and Visual Resources."

Please refer to Figure 20.7.8-1, "Urban Design and Visual Resources Primary and Secondary Study Areas (Aerial)," and Figure 20.7.8-2, "Urban Design and Visual Resources Primary and Secondary Study Areas (Topography)" for the illustrations of the A-Application Alternative study areas for the urban design and visual resources assessments.

Source: New York City Department of City Planning, 2017; ESRI, 2017; STV Incorporated, 2017.

A-Application Alternative

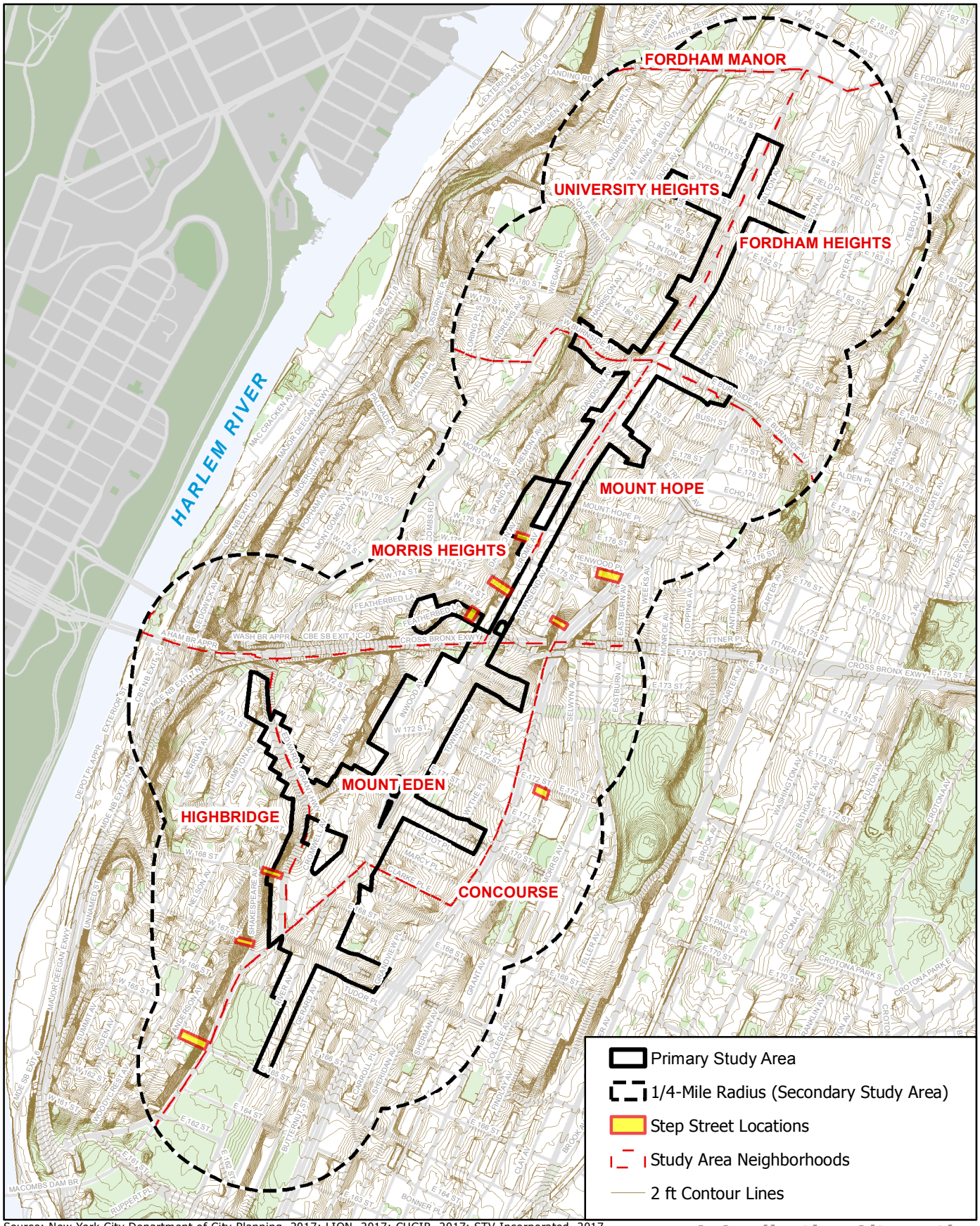
N

0 0.25 0.5 Mile

Jerome Avenue Rezoning EIS

Figure 20.7.8-1

URBAN DESIGN AND VISUAL RESOURCES
PRIMARY & SECONDARY STUDY AREAS
(AERIAL)



Source: New York City Department of City Planning, 2017; LION, 2017; CUGIR, 2017; STV Incorporated, 2017.

A-Application Alternative

N

0 0.25 0.5 Mile

Jerome Avenue Rezoning EIS

Figure 20.7.8-2

URBAN DESIGN AND VISUAL RESOURCES
PRIMARY & SECONDARY STUDY AREAS
(TOPOGRAPHY)

Preliminary Assessment

A preliminary assessment is appropriate when there is the potential for a pedestrian to observe, from the street level, a physical alteration beyond that allowed by existing zoning. (Please refer to Chapter 8, "Urban Design and Visual Resources," for further details regarding the conduct of a preliminary assessment per the guidance of the *CEQR Technical Manual.*) As with the Proposed Actions, a detailed assessment is warranted for the A-Application Alternative.

Detailed Assessment

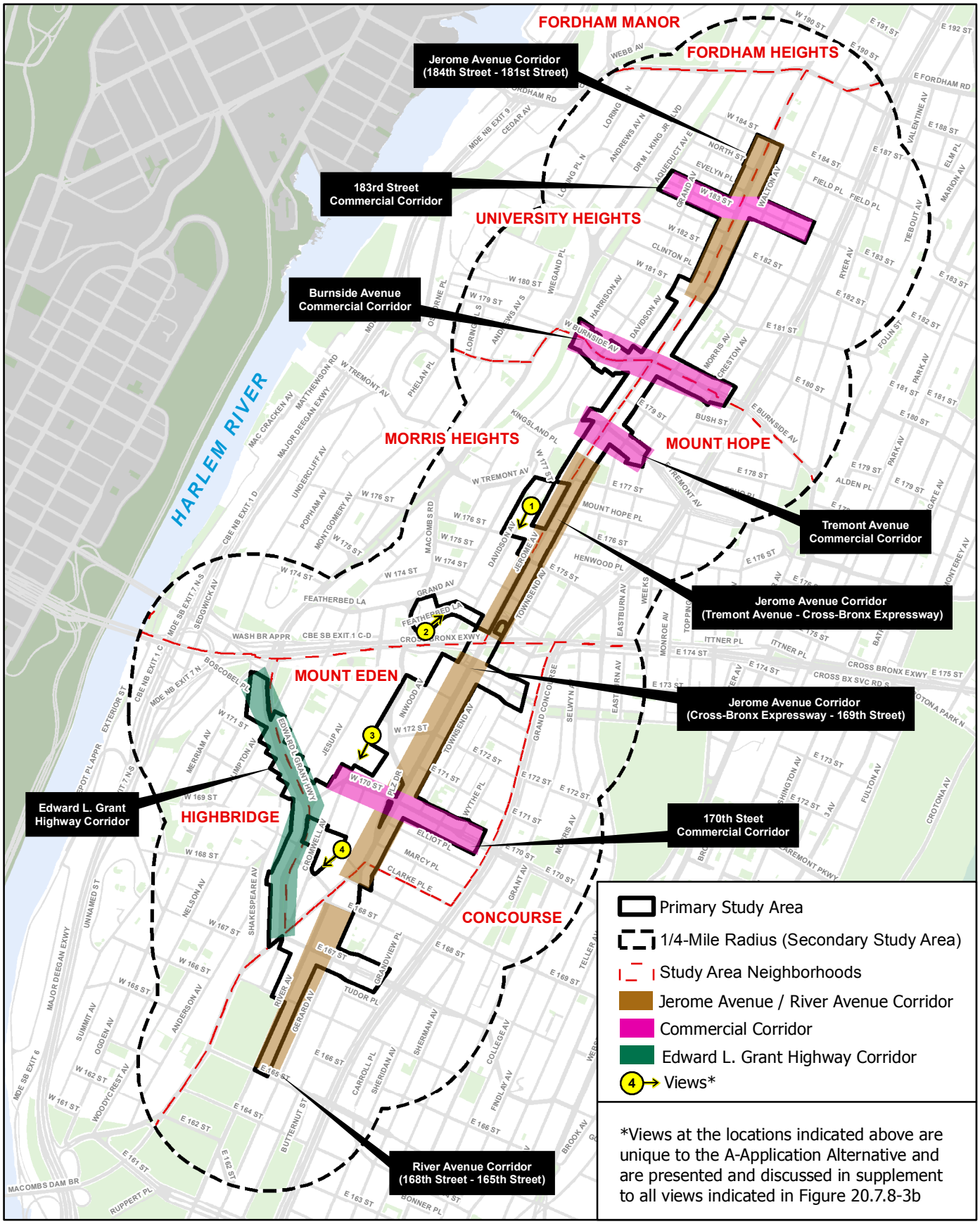
PART I – Urban Design

Existing Conditions

The topography within the limits of the primary study area is relatively flat for most of the north-south corridor of Jerome Avenue and River Avenue, though there are modest changes in elevation to the east and west of this central spine along the portions of east-west roads included in the study area (183rd Street, Burnside Avenue, East Tremont Avenue, and 170th Street, for example. The three portions of the primary study area that are unique to the A-Application Alternative, are located west of the Jerome Avenue spine; all comprise segments of local roadway less than approximately two-blocks in length. Given the limited physical extent of these four areas and their adjacency to the Proposed Actions rezoning area, they are characteristically similar to the primary study area as described for the Proposed Actions. Please refer to Chapter 8, "Urban Design and Visual Resources," for a detailed description of the topography, street patterns and block form along Jerome Avenue and the street patterns and blocks of the surrounding neighborhoods.

Primary Study Area

In addition, please refer to Chapter 8 for a detailed description of the primary study area "corridors," which are common to both the Proposed Actions and the A-Application Alternative, some of which currently exhibit distinctive development patterns and urban design. Chapter 8, Figure 8-3 provides existing views throughout the primary study area. Following, in this section, please refer to Figure 20.7.8-3, "Existing Views of the Built Context within the Primary Study Area," which provides additional views in supplement to those provided in Chapter 8, in order to represent the three portions of rezoning area that are unique to the A-Application Alternative.



A-Application Alternative

Figure 20.7.8-3a

0 0.25 0.5 Mile

Jerome Avenue Rezoning EIS

EXISTING VIEWS OF THE BUILT CONTEXT WITHIN THE PRIMARY STUDY AREA

1. Looking north on Davidson Avenue near 176th Street

2. Looking north on Featherbed Lane

3. Looking south on Cromwell Avenue towards 170th Street

4. Looking south on Inwood Avenue towards Cromwell Avenue

EXISTING VIEWS

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

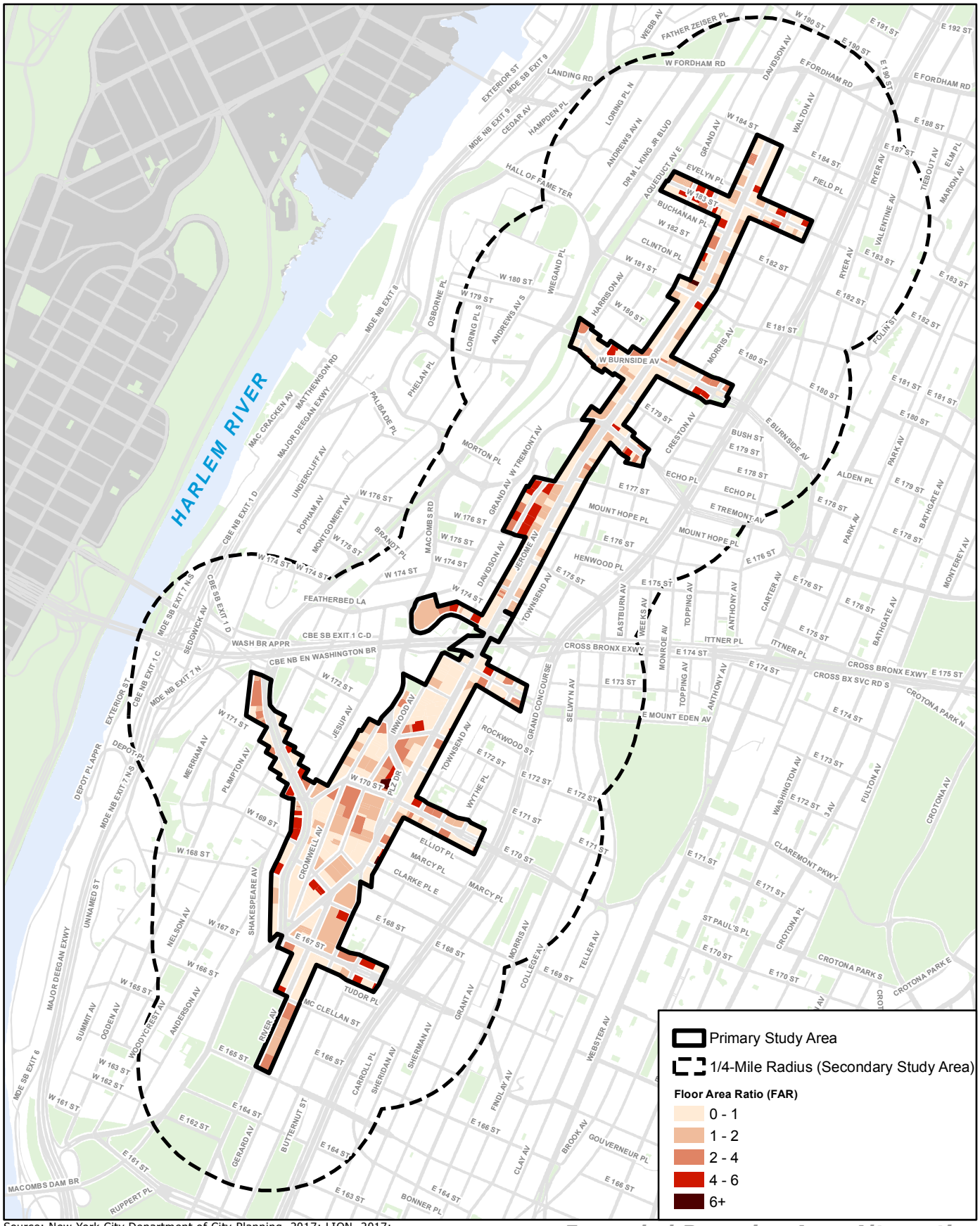
A-Application Alternative

Figure 20.7.8-3b

As with the primary study for the Proposed Actions (described in detail in Chapter 8), much of the urban design throughout the primary study area and its surrounding neighborhoods relates directly to the land use and corresponding building types. As described in Chapter 8 for the Proposed Actions, the FAR along Jerome Avenue is 2.0 or less, though development at higher FARs is present on the east-west cross streets. Higher FARs also characterize the development of the southernmost blocks in the primary study areas for both the Proposed Actions and the A-Application Alternative, as well as the irregular blocks in particular, south of the Cross Bronx Expressway. The three areas unique to the A-Application Alternative conform to this overall pattern. (Please refer to Figure 20.7.8-4, "Existing Density in Primary Study Area (FAR).")

As described in detail with regard to the Proposed Actions (Chapter 8), taller building heights correspond to higher FARs, and the four areas unique to the A-Application Alternative conform to this overall pattern, as well. (Please refer to Figure 20.7.8-5, "Existing Building Heights in Primary Study Area.")

Finally, as described in detail with the regard to the Proposed Actions (Chapter 8), building footprints are fairly large throughout the primary study area, corresponding to lot sizes that are generally larger on blocks lining Jerome Avenue than on the blocks east or west. These buildings tend to be built at the lot line throughout the entire primary study area, with little or no setback, no front or side yards, and no landscaping. However, in addition to low-density, one and two-story buildings with large footprints, the primary study area is also characterized by many unbuilt areas, including many parking lots that represent extensive lengths of the streetscape where there is no built streetwall. The three areas unique to the A-Application Alternative conform to this overall pattern. (Please refer to Figure 20.7.8-6a, "Building Footprints & Streetwall in Primary and Secondary Study Areas (north)" and Figure 20.7.8-6b, "Building Footprints & Streetwall in Primary and Secondary Study Areas (south)".)



Source: New York City Department of City Planning, 2017; LION, 2017; MapPLUTO, 2016; STV Incorporated, 2017.

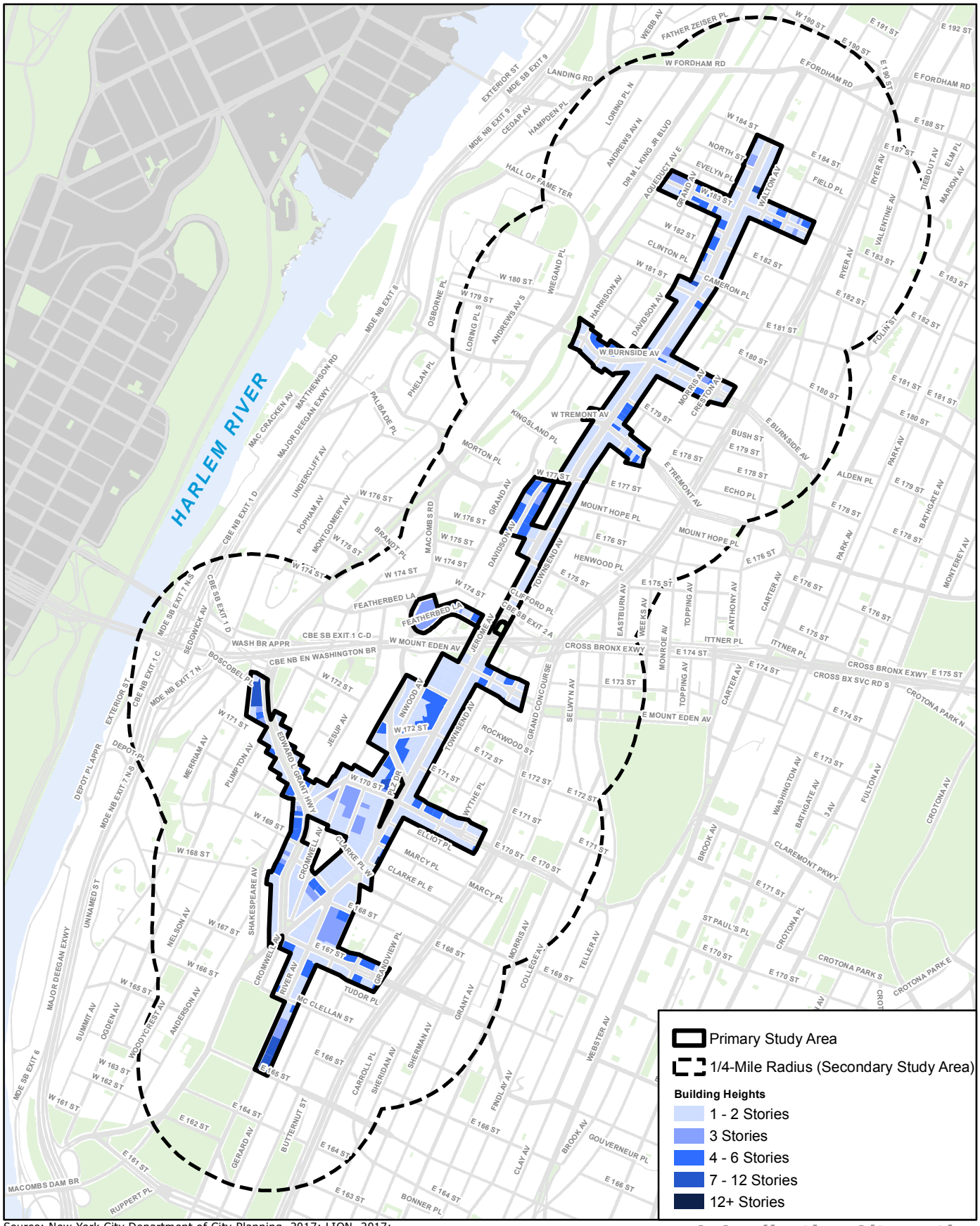
Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.8-4

EXISTING DENSITY IN PRIMARY STUDY AREA (FAR)



Source: New York City Department of City Planning, 2017; LION, 2017; MapPLUTO, 2016; STV Incorporated, 2017.

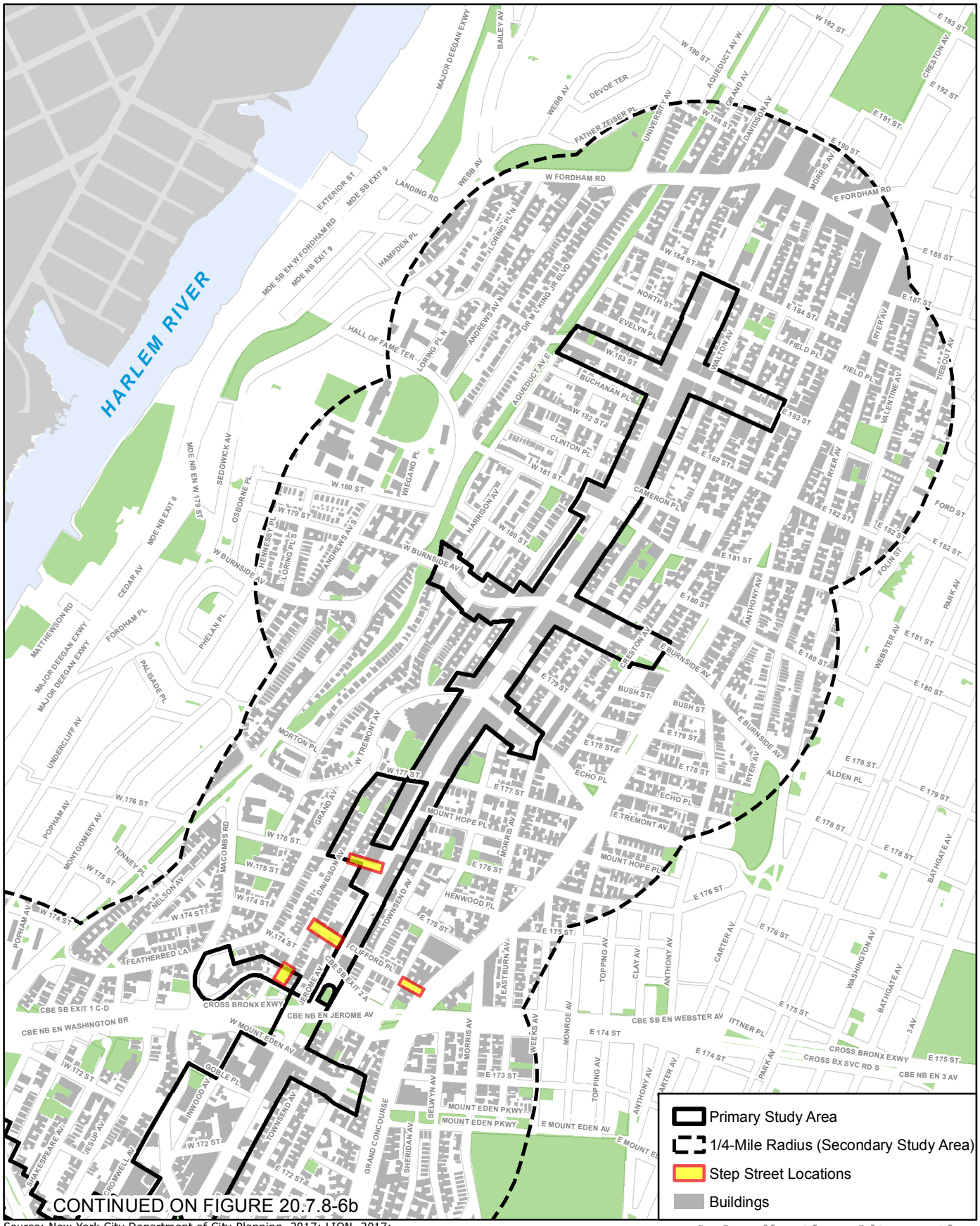
A-Application Alternative

N

0 0.25 0.5 Mile

Figure 20.7.8-5

EXISTING BUILDING HEIGHTS IN PRIMARY STUDY AREA



Source: New York City Department of City Planning, 2017; LION, 2017;
NYC DoITT, 2016; STV Incorporated, 2017.

A-Application Alternative

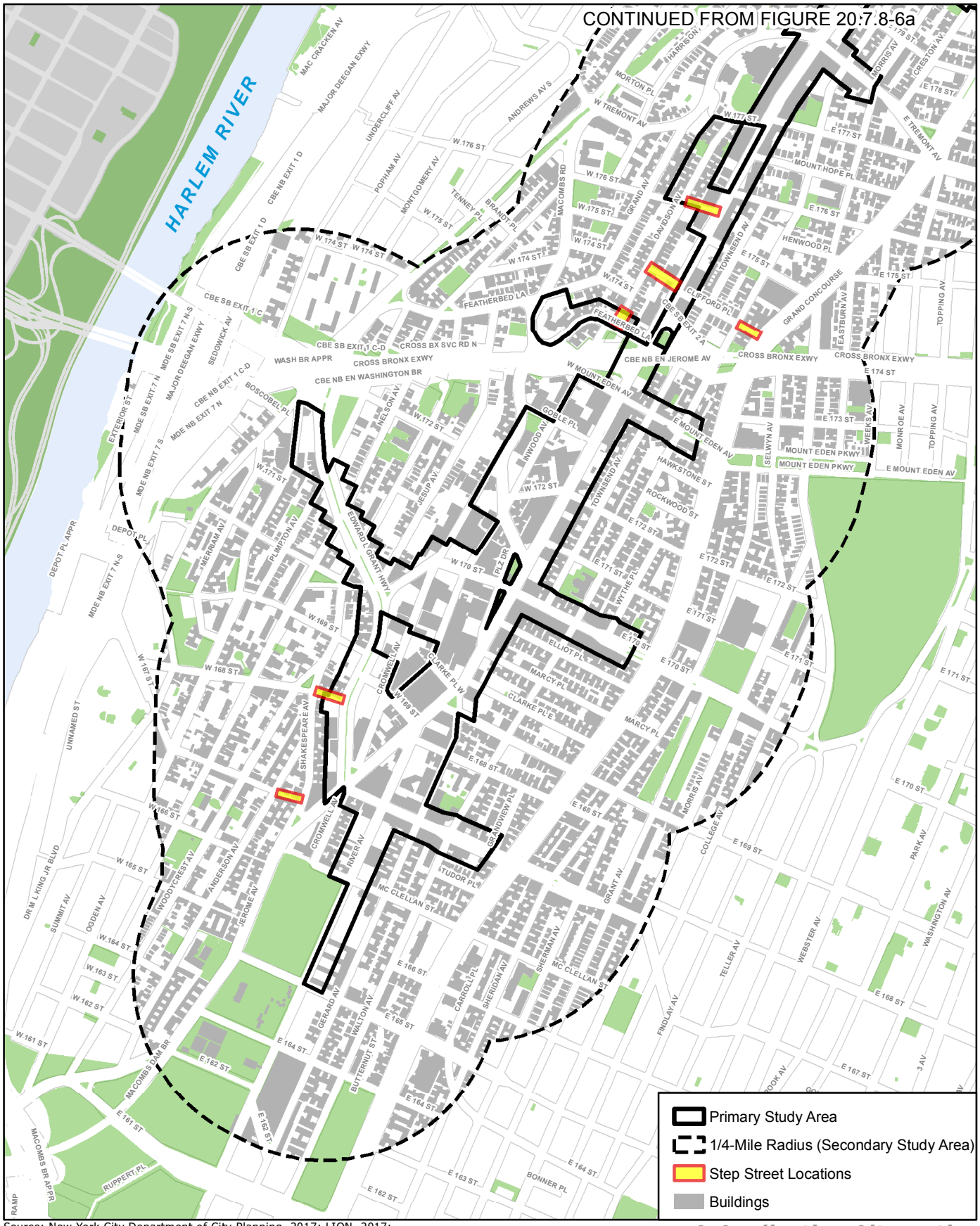
N

0 0.15 0.3 Mile

Figure 20.7.8-6a

BUILDING FOOTPRINTS & STREETWALL IN PRIMARY & SECONDARY STUDY AREAS

Jerome Avenue Rezoning EIS



Source: New York City Department of City Planning, 2017; LION, 2017; NYC DoITT, 2016; STV Incorporated, 2017.

A-Application Alternative

N

0 0.15 0.3 Mile

Figure 20.7.8-6b

Jerome Avenue Rezoning EIS

BUILDING FOOTPRINTS & STREETWALL IN THE PRIMARY & SECONDARY STUDY AREAS

Secondary Study Area

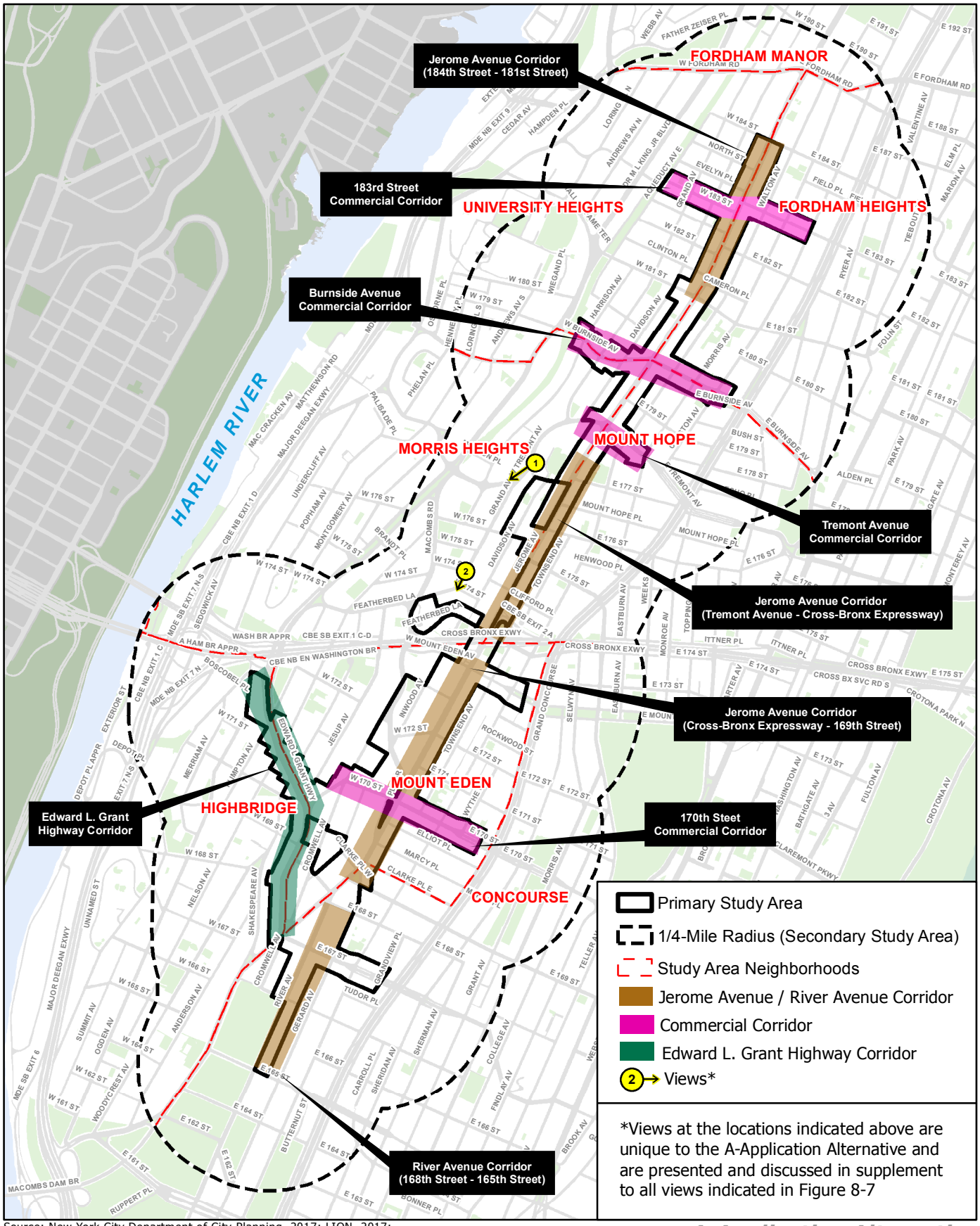
Please refer to Chapter 8, "Urban Design and Visual Resources," for detailed descriptions of urban design in the neighborhoods comprising the secondary study area for both the Proposed Actions and the A-Application Alternative. Chapter 8, Figure 8-7 provides existing views throughout the secondary study area. Following, in this section, please refer to Figure 20.7.8-7, "Existing Views of the Built Context within the Secondary Study Area," which provides additional Morris Heights neighborhood views in supplement to those provided in Chapter 8, in order to represent fully the portions of secondary study area that are in proximity to those areas unique to the A-Application Alternative, and which were not already shown in Chapter 8.

As described in Chapter 8 for the Proposed Actions, the secondary study area comprises many lots built out to FARs greater than 2.0 (compared to the FARs that are generally lower than 2.0 along Jerome Avenue). In most cases, the FAR is more than 4.0. (Please refer to Figure 20.7.8-8, "Existing Density in Secondary Study Area (FAR).")

As described for the Proposed Actions (Chapter 8), throughout the secondary study area most lots have buildings constructed at heights greater than four stories (compared to the more common one- and two-story buildings in the primary study area). Many lots throughout the secondary study area, particularly in the Concourse neighborhood comprising the southeastern portion of the study area, have buildings with heights of 7-12 stories or taller. (Please refer to Figure 20.7.8-5, "Existing Building Heights in Primary Study Area.")

Finally, as described for the Proposed Actions (Chapter 8), although there are some exceptions, many of the buildings throughout the secondary study area neighborhoods have smaller footprints than those buildings in the primary study area, largely corresponding to the residential and commercial development that characterizes many of the these neighborhoods. Also, with the notable exception of some institutional uses, such as Bronx Community College and the less intensely developed Highbridge area, most of the streetscapes are defined by fairly consistent streetwalls. (Please refer to previous Figure 20.7.8-6a, "Building Footprints & Streetwall in Primary and Secondary Study Areas (north)" and Figure 20.7.8-6b, "Building Footprints & Streetwall in Primary and Secondary Study Areas (south)".)

As described in detail in Chapter 8, a portion of the Fordham Road Business Improvement District (BID) includes parts of the Fordham Manor and Fordham Heights neighborhoods in the northern part of the secondary study area, and the 161st Street BID includes part of the southern portion of the secondary study area, along East 161st Street.



Source: New York City Department of City Planning, 2017; LION, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-7a

EXISTING VIEWS OF THE BUILT CONTEXT WITHIN THE SECONDARY STUDY AREA

1. Looking south along West Tremont Avenue and Grand Avenue

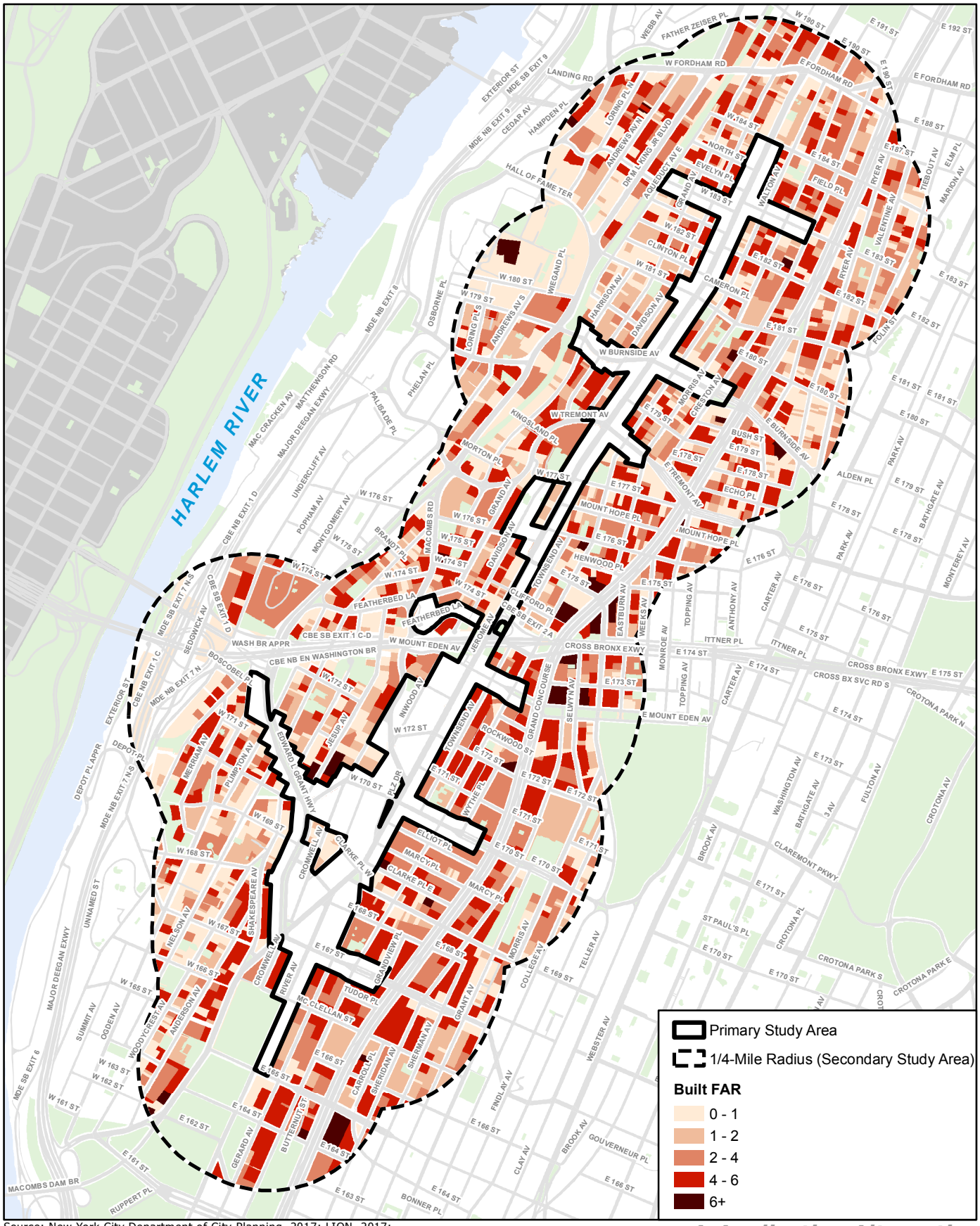
2. Looking south on Grand Avenue towards 174th Street

EXISTING VIEWS

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

Expanded Rezoning Area Alternative

Figure 20.6.8-7b

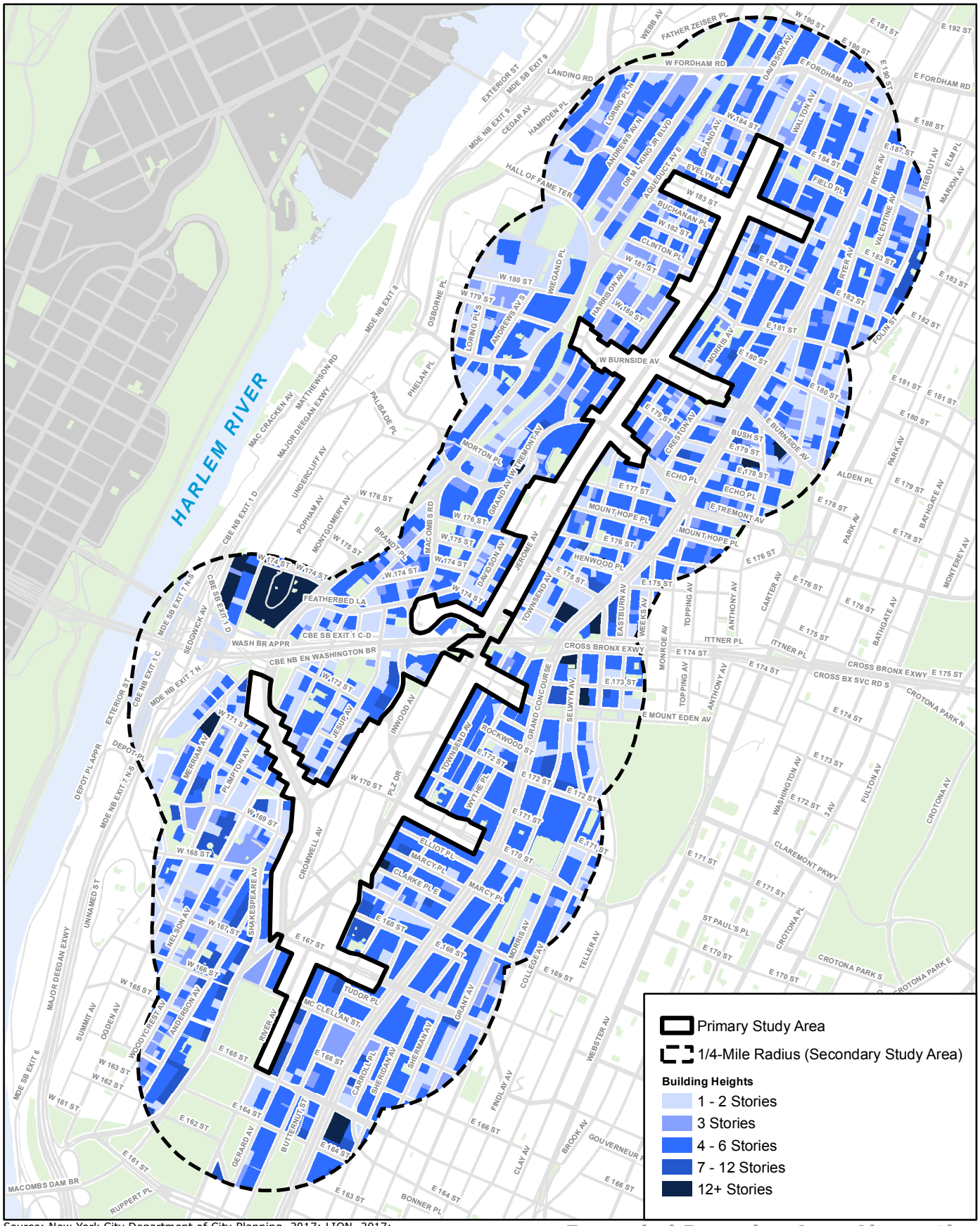


Source: New York City Department of City Planning, 2017; LION, 2017; MapPLUTO, 2016; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-8

EXISTING DENSITY IN SECONDARY STUDY AREA (FAR)



Source: New York City Department of City Planning, 2017; LION, 2017; MapPLUTO, 2016; STV Incorporated, 2017.

Expanded Rezoning Area Alternative

N

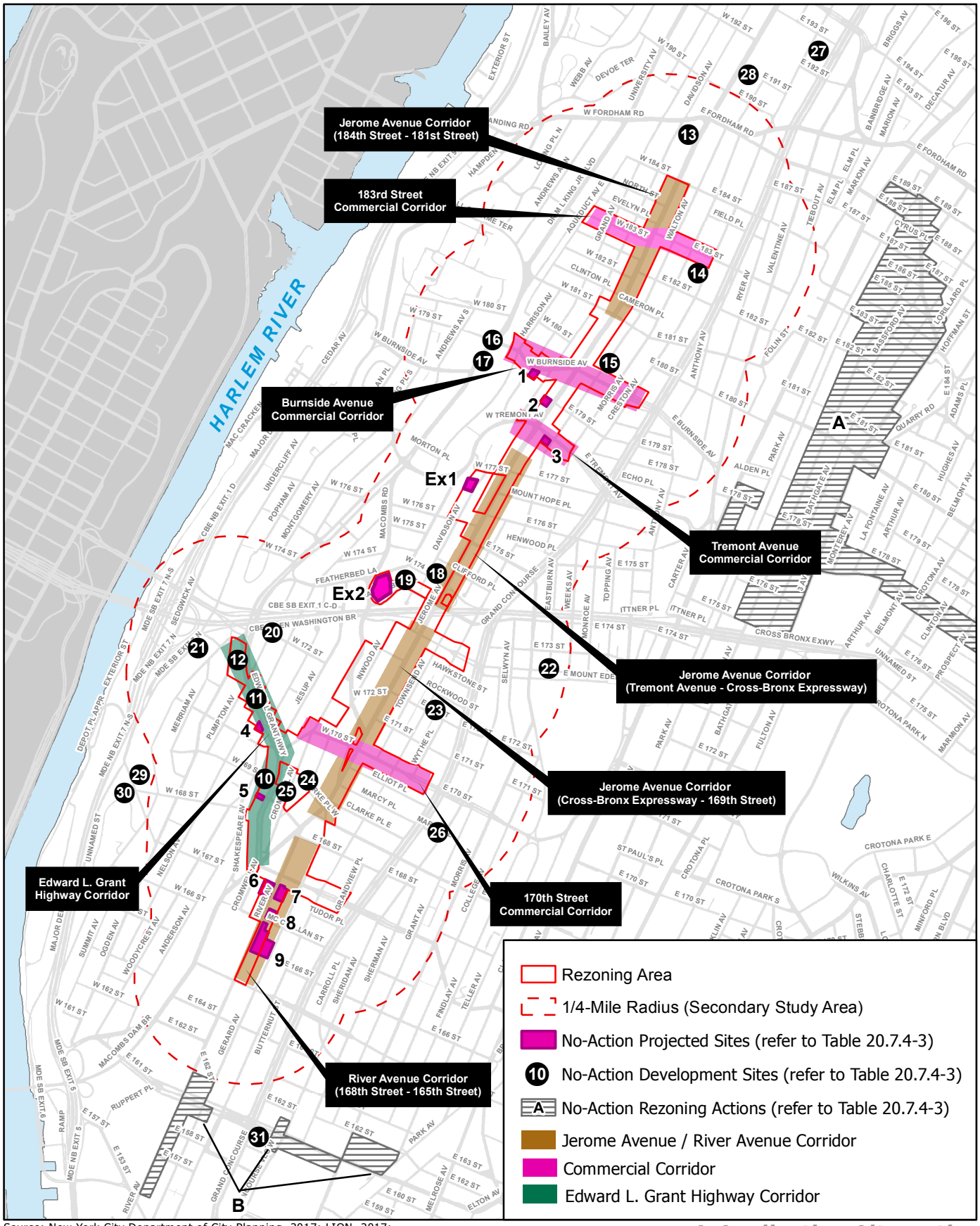
0 0.25 0.5 Mile

Figure 20.6.8-9

EXISTING BUILDING HEIGHTS IN SECONDARY STUDY AREA

No-Action Conditions

Please refer to Chapter 8, "Urban Design and Visual Resources," for a detailed description of the urban design characteristics associated with the No-Action developments, which are common to both the Proposed Actions and the A-Application Alternative, in the primary and secondary study areas. Figure 20.7.8-10, "No-Action Development Sites in the Primary & Secondary Study Areas," illustrates locations of No-Action development with respect to the A-Application Alternative primary study area; please note, that No-Action Development Site 24, which was located outside the primary study area for the Proposed Actions is located within the primary study area for the A-Application Alternative. Likewise, the No-Action Development Sites indicated as "Ex1," and "Ex2" on Figure 20.7.8-10, represent No-Action estimations specifically for projected development sites that are unique to the A-Application Alternative.



Source: New York City Department of City Planning, 2017; LION, 2017; STV Incorporated, 2017.

A-Application Alternative

N

0 0.25 0.5 Mile

Figure 20.7.8-10

NO-ACTION DEVELOPMENT SITES IN THE PRIMARY & SECONDARY STUDY AREAS

With-Action

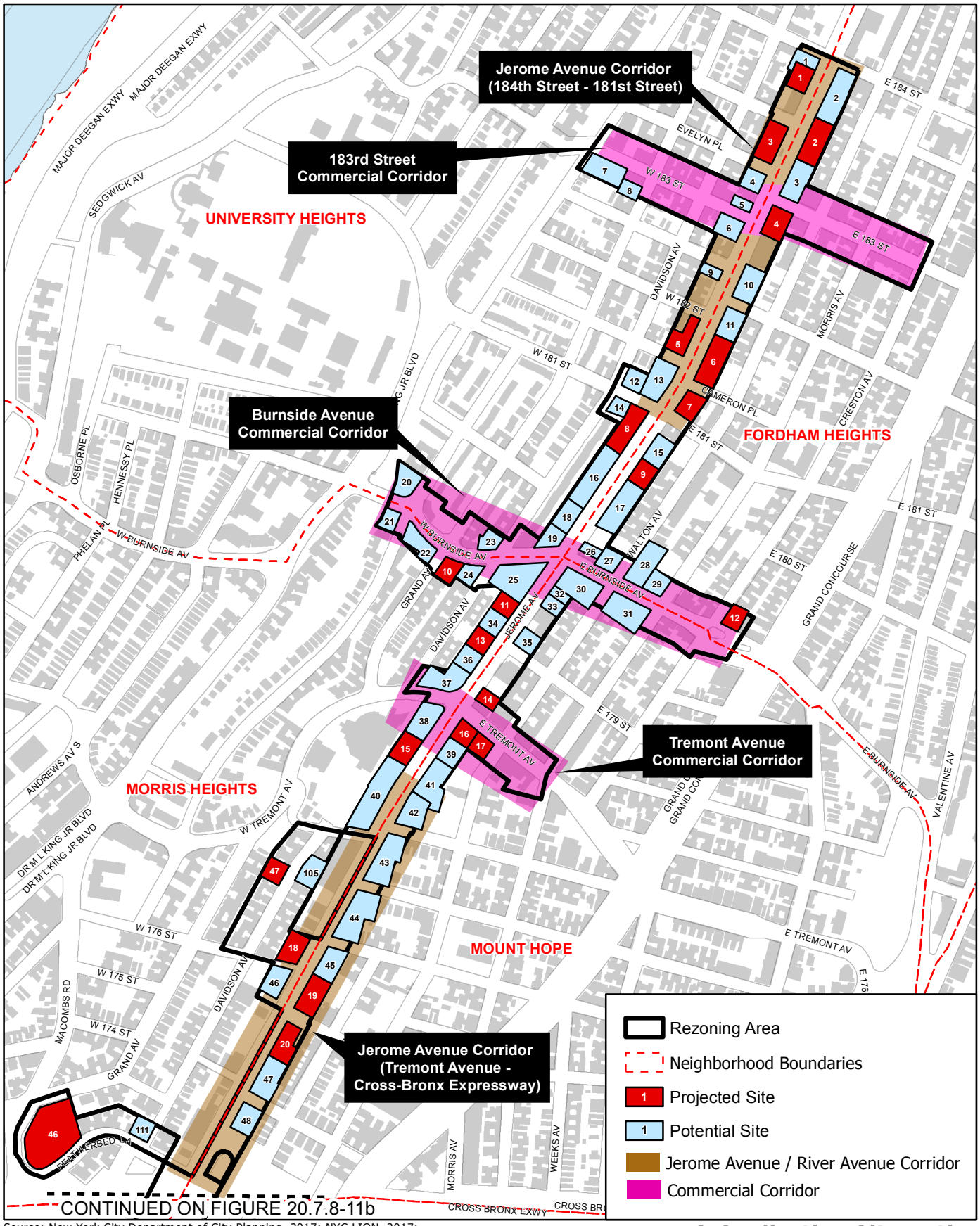
Primary Study Area

As with the Proposed Actions, described previously in Chapter 8, "Urban Design and Visual Resources," the A-Application Alternative would not introduce land uses that are not already present in the rezoning area. However, as with the Proposed Actions, the A-Application Alternative would change the balance of types of uses within the primary study area. The effect would be the introduction of residential buildings and commercial buildings that would, in terms of built area (both considered in terms of lot area and also in terms of built floor area), be greater than would be the case in the No-Action condition.

As with the Proposed Actions, the A-Application Alternative would not result in changes to the established street pattern or the block forms. Further, as with the Proposed Actions the development of projected development sites, alone, with the A-Application Alternative would represent a concentration of residential and commercial land uses, as well as new building typologies; it would result in development at greater building bulk and height than would be present in the future No-Action conditions.

Please refer to detailed description of zoning provided for the A-Application Alternative, which is presented in section 20.7.2, "Land Use, Zoning, and Public Policy."

See Figure 20.7.8-11a, "A-Application Alternative – Projected and Potential Development Sites (north)," and Figure 20.7.8-11b, "A-Application Alternative – Projected and Potential Development Sites (south)," for locations of the Projected and Potential Development Sites in the primary study area for the A-Application Alternative. In addition, 3-D computer model renderings are provided as further illustration of the A-Application Alternative, with figures 20.7.8-12 (a, b, and c) representing 2026 conditions in the primary study area with all the projected development sites having been fully developed, and Figure 20.7.8-12, "A-Application Alternative – Projected Development Sites 2026 (a, b, and c)" representing the entire primary study area with all projected and also all potential development sites fully developed.



Source: New York City Department of City Planning, 2017; NYC LION, 2017; NYC DoITT, 2016; STV Incorporated, 2017.

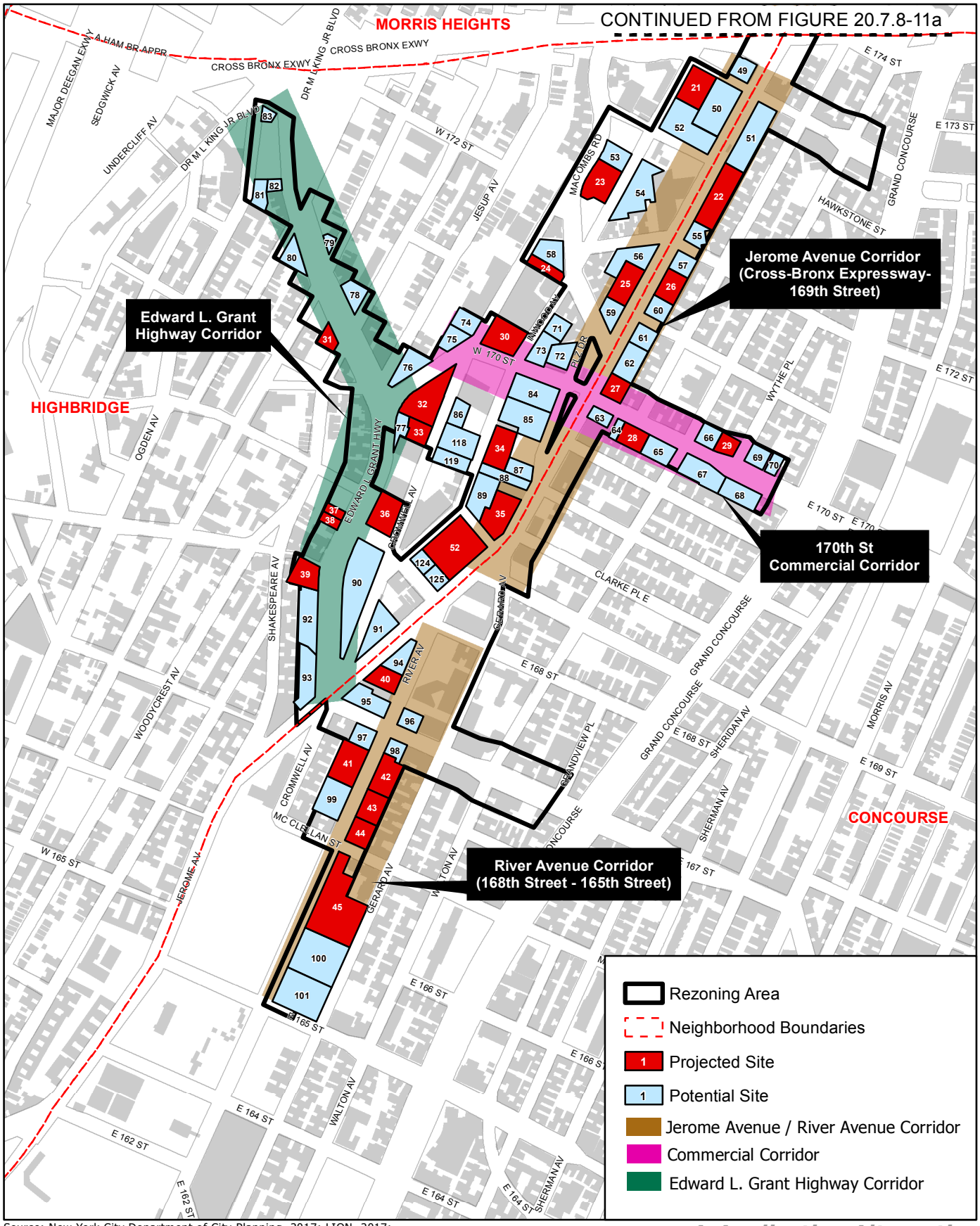
A-Application Alternative

N

0 0.125 0.25 Mile

Figure 20.7.8-11a

PROJECTED & POTENTIAL DEVELOPMENT SITES (NORTH)



Source: New York City Department of City Planning, 2017; LION, 2017; NYC DoITT, 2016; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-11b

PROJECTED & POTENTIAL DEVELOPMENT SITES (SOUTH)

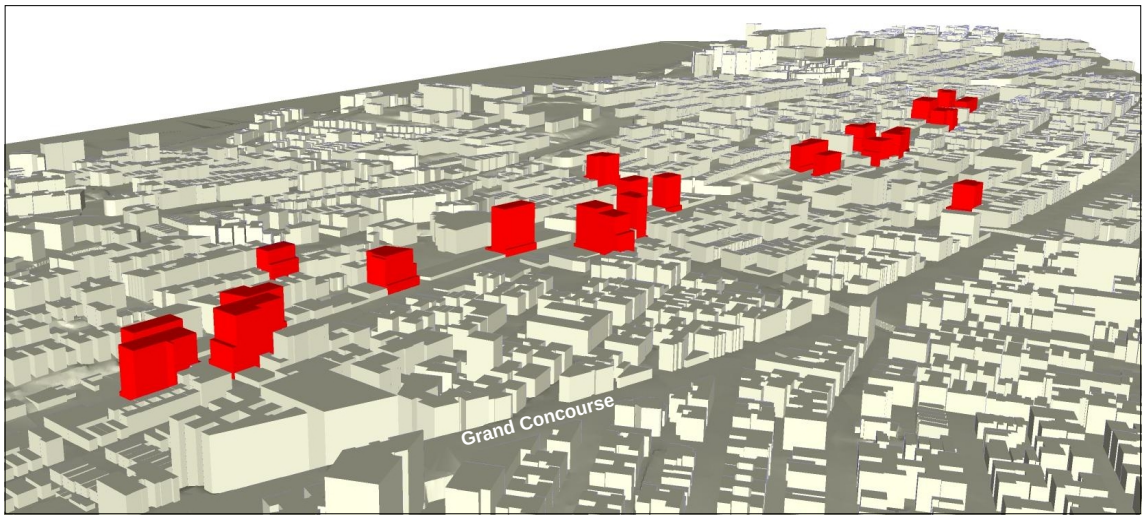


Figure 20.6.8-12a Proposed Action - Projected Development Sites 2026 - 3-D Model (North of Cross-Bronx Expressway)

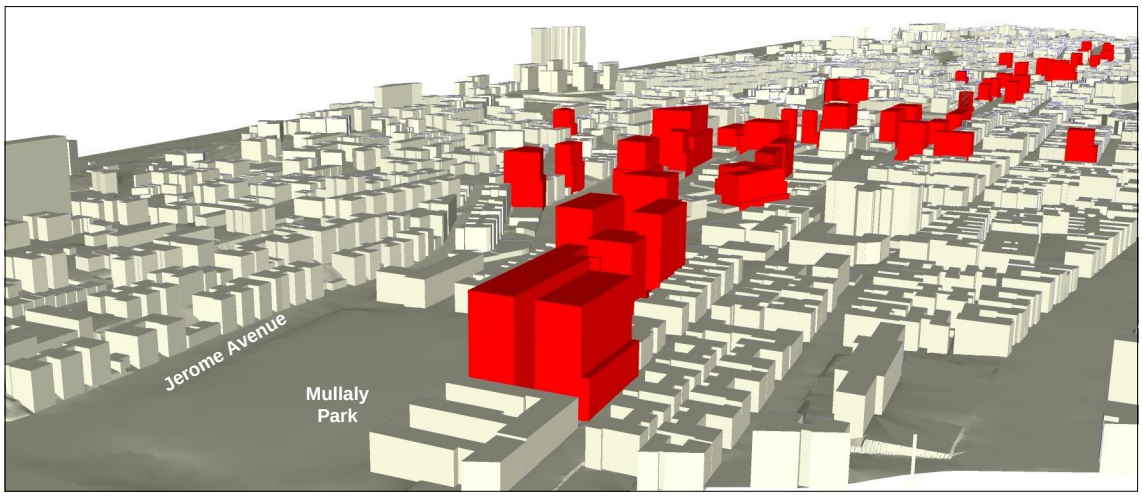


Figure 20.6.8-12b Proposed Action - Projected Development Sites 2026 - 3-D Model (South of Cross-Bronx Expressway) View 1

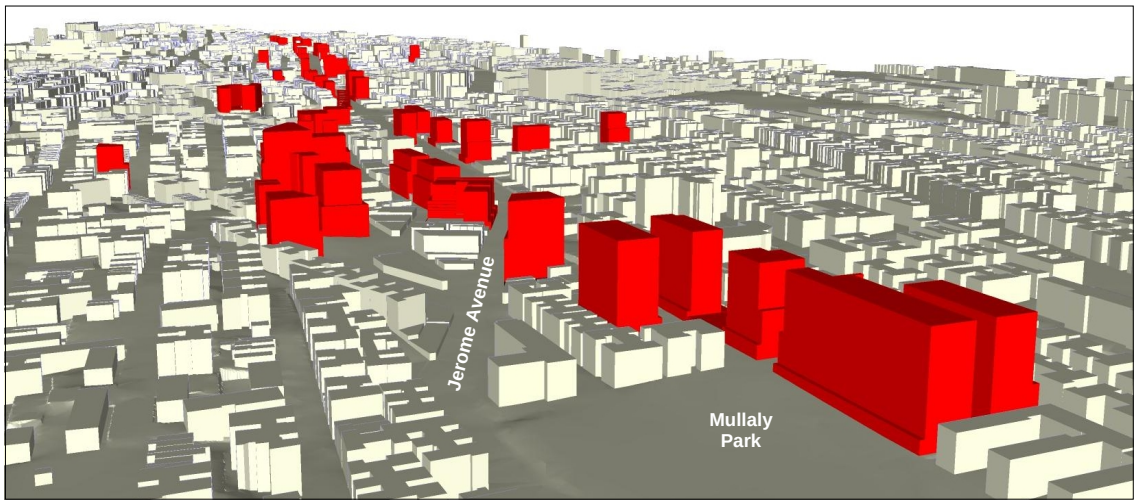


Figure 20.6.8-12c Proposed Action - Projected Development Sites 2026 - 3-D Model (South) of Cross-Bronx Expressway) View 2

Note: 3-D renderings are provided for illustrative purposes only

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

Expanded Rezoning Area Alternative

Figures 20.6.8-12a, 20.6.8-12b, & 20.6.8-12c

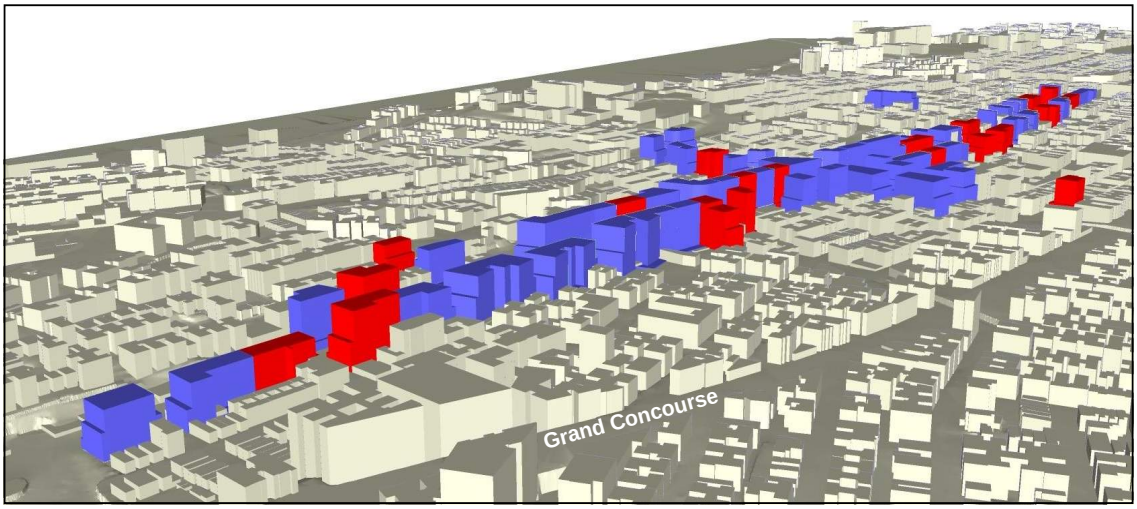


Figure 20.7.8-12a Proposed Action - Projected Development Sites 2026 - 3-D Model (North of Cross-Bronx Expressway)

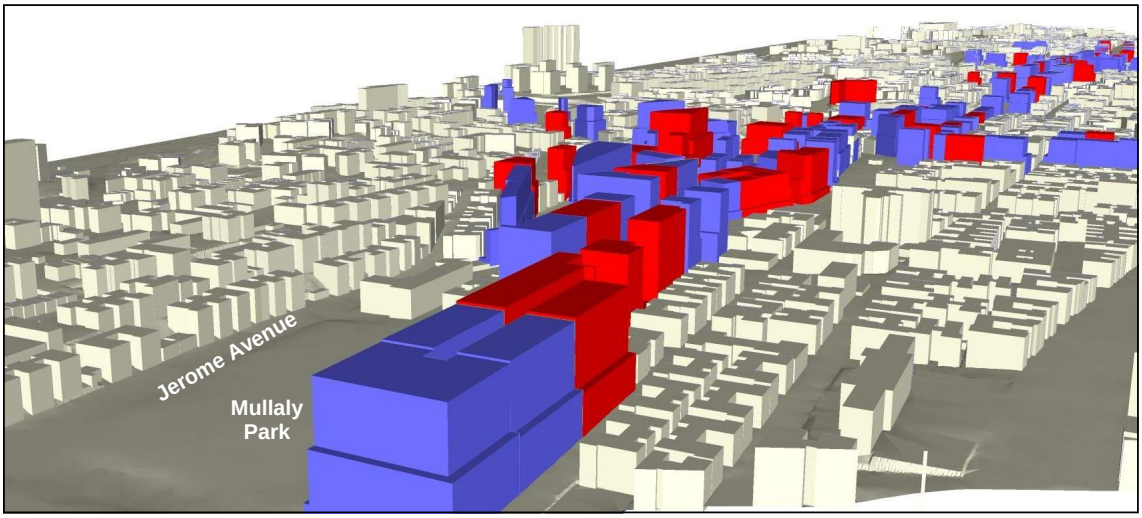


Figure 20.7.8-12b Proposed Action - Projected Development Sites 2026 - 3-D Model (South of Cross-Bronx Expressway)

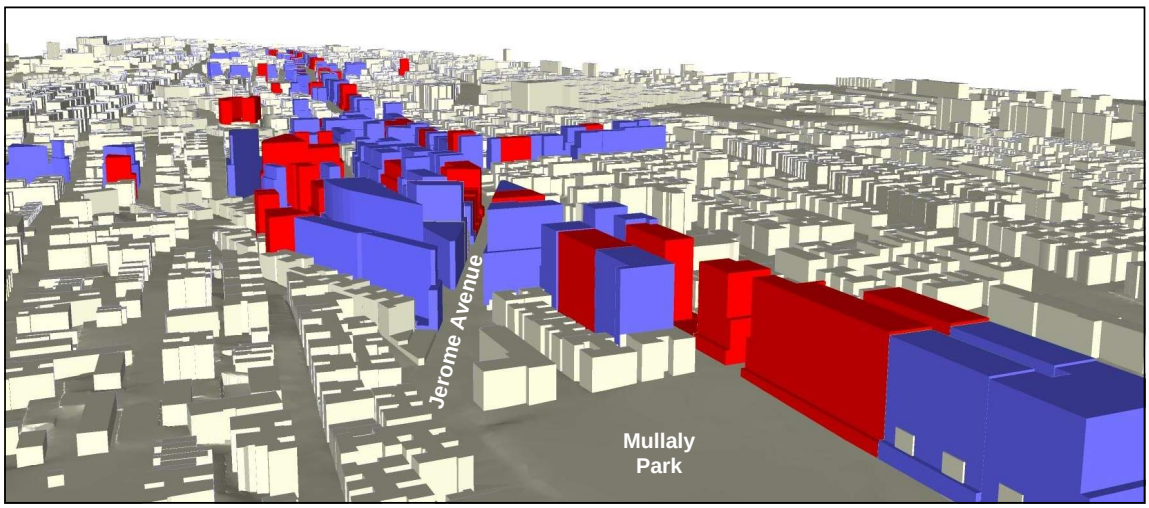


Figure 20.7.8-12c Proposed Action - Projected Development Sites 2026 - 3-D Model (South of Cross-Bronx Expressway) View 2

Note: 3-D renderings are provided for illustrative purposes only

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

Please refer to Chapter 8, "Urban Design and Visual Resources," for a detailed description of the 45 projected development sites and the 101 potential development sites, which would be developed with either the Proposed Actions or the A-Application Alternative, as they relate to study area corridors; Chapter 8 also describes in detail the urban design effects related to intersections and streetscapes, as well as effect of overall urban design continuity throughout the study area. Because these sites are common to both the Proposed Actions and A-Application Alternative, these findings are valid for both and not repeated in this section. Moreover, because these 45 projected development sites and 101 potential development sites represent the majority of the projected and potential development sites with the A-Application Alternative, the overall findings related to effects to urban design improvement are similar between the Proposed Actions and the A-Application Alternative.

There are some distinctions, however, between the Proposed Actions and the A-Application Alternative, though these distinctions do not result in substantially different urban design effects with the A-Application Alternative, compared to the Proposed Actions. Specifically, with the A-Application Alternative, the new projected and potential development sites would be located within three geographic areas (all immediately adjacent to the Proposed Actions rezoning area):

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), a portion of Davidson Avenue between approximately West 177th Street to the north and West 176th Street in the Morris Heights Neighborhood;

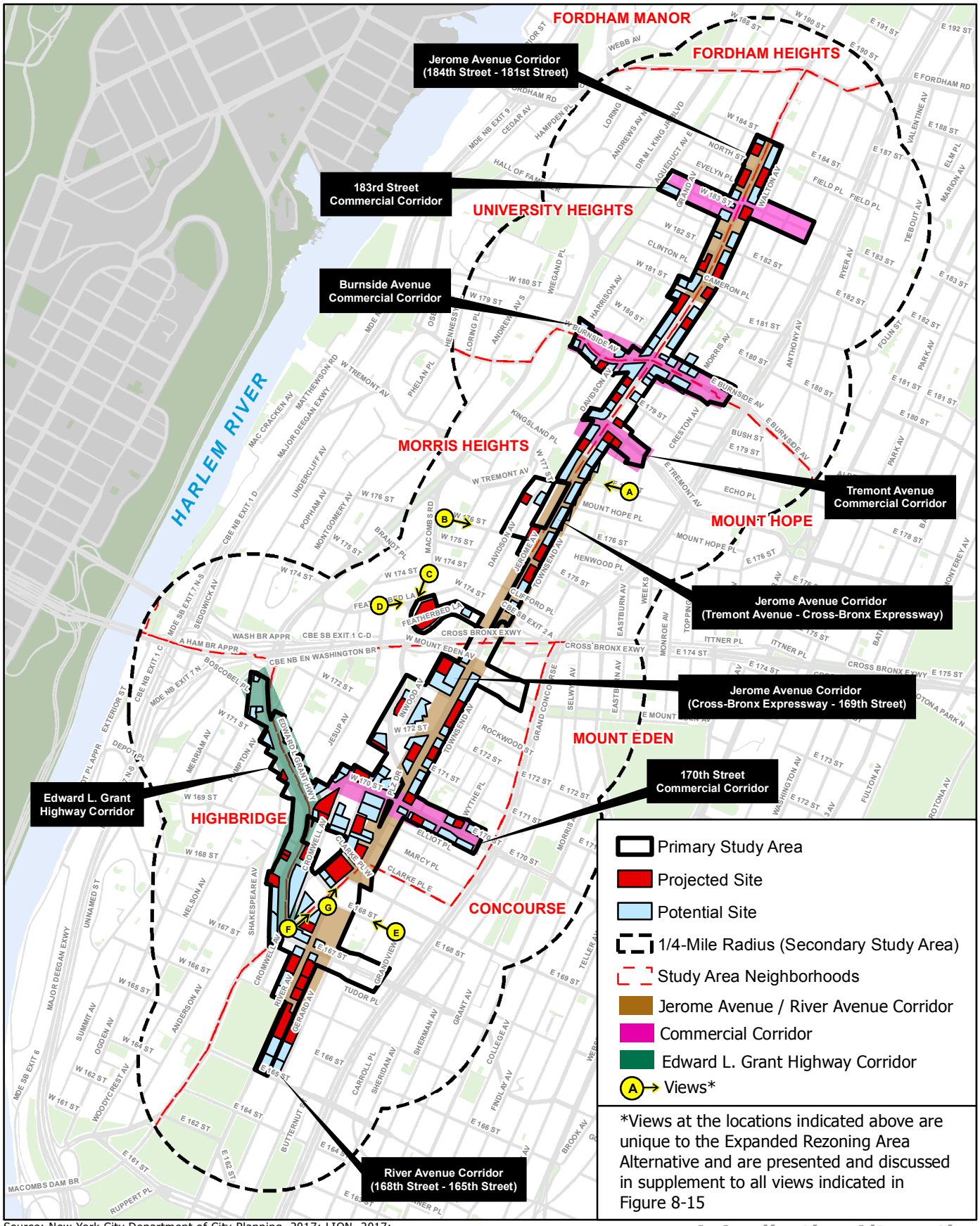
- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), extending slightly over an approximately two-block length to encompass portions of irregular blocks, west from Jerome Avenue (to Macombs Road) into the Morris Heights neighborhood, along the northern side of Featherbed Lane; and

- Within the Jerome Avenue corridor (Cross-Bronx Expressway – 169th Street), portions of several irregular blocks between Edward L. Grant Highway to the west and Jerome Avenue to the east, in the Mount Eden neighborhood, south of West 170th Street.

A lesser distinction between the Proposed Actions and the A-Application Alternative relates to the second-story retail development that would result with the A-Application Alternative at Projected Development Sites 3, 6, 19, 22, and 44. While the pedestrian experience at the ground-floor would not be expected to be substantially different between the Proposed Actions and the A-Application Alternative, there may be slightly more pedestrian activity expected in the vicinity of these projected development sites as a result of the increase of retail space with the A-Application Alternative. Although the second-story retail may be perceptible, both to pedestrians and to passengers on the elevated 4-train, the distinction between the design characteristics of these buildings would be minimal considering the broader context of change to urban design, and given that the overall height and mass of these buildings would be similar in both the Proposed Actions and the A-Application Alternative.

As with the Proposed Actions, the greatest potential change to urban design throughout the corridor with the A-Application Alternative, particularly with regard to the effect of overall urban design consistency and streetscape improvement, may occur after 2026, if all the 107 potential development sites were to be developed, in addition to the 48 projected development sites.

Chapter 8, Figure 8-15 provides detailed descriptions, together with 3-D renderings of key views, of the projected and potential development sites common to both the Proposed Actions and the A-Application Alternative at locations where the pedestrian experience of urban design would be substantially altered as the result of at least two projected development sites being developed at the same intersection. In addition, following, in this section, please refer to Figure 20.7.8-14, "A-Application Alternative – Streetscape Views: Projected and Potential Developments," which provides additional existing, No-Action, and With-Action views in supplement to those provided in Chapter 8, in order to represent the three portions of rezoning area that are unique to the A-Application Alternative, and the development of A-Application Projected Development Site 35 and Potential Development Site 89 (Figure 20.7.8-14g, "View G").



Source: New York City Department of City Planning, 2017; LION, 2017; STV Incorporated, 2017.

N

0 0.25 0.5 Mile

A-Application Alternative

Figure 20.7.8-14a

STREETSCAPE VIEWS PROJECTED & POTENTIAL DEVELOPMENTS

Existing/No-Action

With-Action

Note: 3-D renderings are provided for illustrative purposes only

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-14b

VIEW A: LOOKING WEST ALONG EAST 177TH STREET TOWARD JEROME AVENUE

Existing/No-Action

With-Action

Note: 3-D renderings are provided for illustrative purposes only

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-14b

VIEW B: LOOKING EAST ALONG WEST 176TH STREET TOWARD GRAND AVENUE

Existing

No-Action

With-Action

Note: 3-D renderings are provided for illustrative purposes only

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-14b

VIEW C: LOOKING SOUTH ALONG MACOMBS ROAD TOWARD FEATHERBED LANE

Existing

No-Action

With-Action

Note: 3-D renderings are provided for illustrative purposes only

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-14b

VIEW D: LOOKING EAST ALONG FEATHERBED LANE TOWARD MACOMBS ROAD

Existing/No-Action

With-Action

Note: 3-D renderings are provided for illustrative purposes only

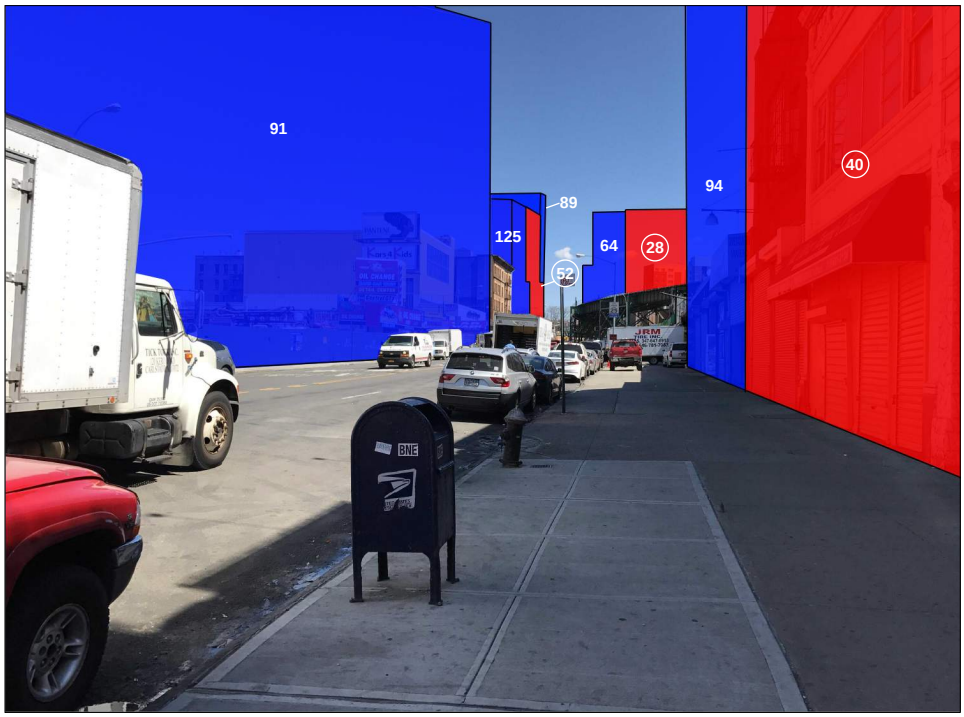
Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-14b

VIEW E: LOOKING WEST ALONG 168TH STREET TOWARD GERARD AVENUE

Existing/No-Action



With-Action

Note: 3-D renderings are provided for illustrative purposes only

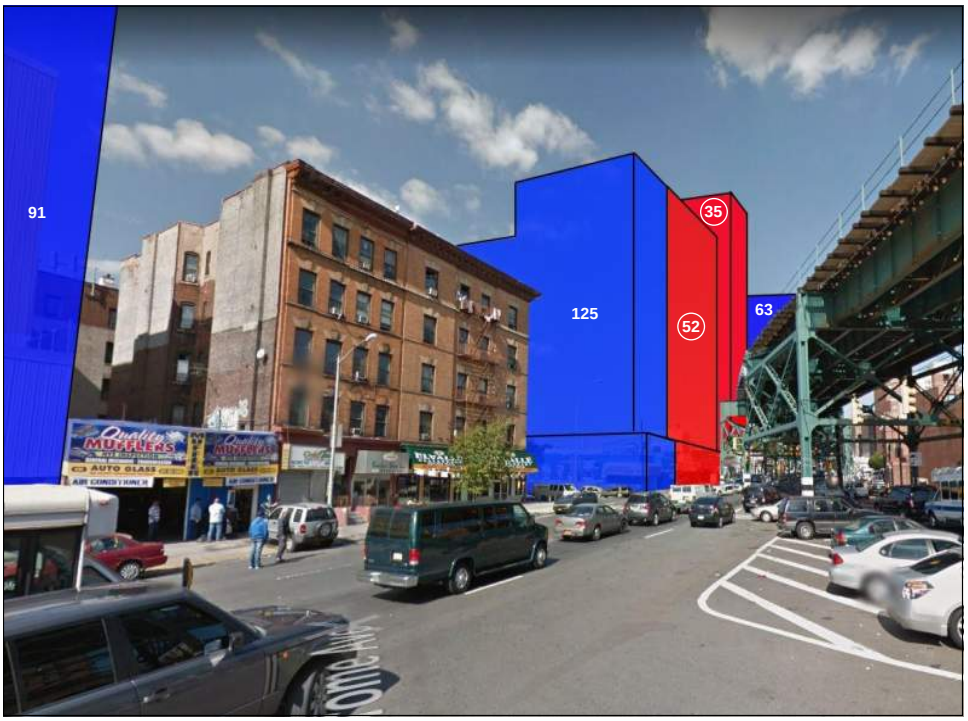
Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-14b

VIEW F: LOOKING NORTH ALONG JEROME AVENUE NEAR 167TH STREET

Existing/No-Action



With-Action

Note: 3-D renderings are provided for illustrative purposes only

Source: New York City Department of City Planning, 2017; STV Incorporated, 2017.

A-Application Alternative

Figure 20.7.8-15b

VIEW G: LOOKING NORTH ALONG JEROME AVENUE NEAR RIVER AVENUE

As described for the Proposed Actions (Chapter 8, "Urban Design and Visual Quality,") a variety of open spaces are present within the vicinity of the project. The assessment provided in Chapter 8 for the Proposed Actions remains appropriate and the findings valid for the A-Application Alternative, as well, though three additional open space resources are in the vicinity of the A-Application Alternative:

- Within the primary study area for the A-Application Alternative, an unnamed playground, identified as Open Space Resource #30 in for the qualitative analysis of open space in Chapter 5, "Open Space," comprises a playground next to an apartment building, on the west side of Davidson Avenue, south of West 177th Street. With the A-Application Alternative, the contribution of this open space resource to the aesthetic character of Davidson Avenue would be similar to the existing conditions and No-Action conditions.

- Just outside the primary study area for the A-Application Alternative, a Greenstreet, identified as Open Space Resource #54 for the qualitative analysis of open space in Chapter 5, is located at the intersection of Macombs Road, Grand Avenue, and Featherbed Lane. With the A-Application Alternative, the contribution of this open space resource to the aesthetic character of this intersection would be similar to the existing conditions and No-Action conditions.

- Within the primary study area for the A-Application Alternative, a basketball court associated with Palladia, Inc. – Hill House, identified as Open Space Resource #64, is located within the middle of the block surrounded by Grand Avenue to the north, Macombs Road to the west, and Featherbed Lane to the south. With the A-Application Alternative, the contribution of this open space resource to the aesthetic character of Grand Avenue would be similar to the existing conditions and No-Action conditions.

Therefore, as described for the Proposed Actions in Chapter 9, excluding the removal of one playground area associated with the MARC Academy and Family Center, neither the Proposed Actions nor the A-Application Alternative would alter the character of any park within or adjacent to the primary study area. As described in Chapter 8, the potential removal of the MARC Academy and Family Center playground (with the development of Potential Development Site 16), which comprises playground equipment but no vegetation or other unique contribution to the aesthetic character of the streetscape would not represent a significant adverse impact to urban design. Further, as described in Chapter 8, although there may be increased shadows at some parks with either the Proposed Actions or the A-Application Alternative (see Chapter 6, "Shadows," and Section 20.7.6, "Shadows"), the increased shadow would not be expected to alter the character of these parks, nor, specifically, their contribution to the pedestrian experience of the streetscape. Therefore, as with the Proposed Actions, no significant adverse impacts related to open space resources as a component of urban design in the primary study area would result with the A-Application Alternative. (See the subsequent review, in this section, of open space resources as components of view corridors.)

Regarding historic resources and the streetscape, the rezoning area for the A-Application Alternative, like the rezoning area for the Proposed Actions (described in Chapter 8), would not extend into either of the

nearby historic districts (Morris Avenue Historic District and Grand Concourse Historic District); the portion of the respective rezoning areas and the projected and potential development sites are the same for the Proposed Actions and the A-Application Alternative in the vicinity of these historic districts. Therefore, as described in Chapter 8 for the Proposed Actions, the A-Application Alternative would not substantially alter the character of the streetscapes of these historic districts or significantly affect their urban design.

Conclusion – Urban Design

In conclusion, as with the Proposed Actions (see Chapter 8, "Urban Design and Visual Resources"), the A-Application Alternative would result in no significant adverse impacts to urban design in the primary or secondary study areas. Compared to No-Action conditions, both the Proposed Actions and the A-Application Alternative would be expected to result in a notable increase in both building height and bulk in the respective rezoning areas, and also a concentration of new development that would provide for greater cohesiveness in streetscape design. Neither the Proposed Actions nor the A-Application Alternative would result in any change to the existing street pattern, street hierarchy, or block forms that characterize the respective rezoning areas and the surrounding neighborhoods. Likewise, neither the Proposed Actions nor the A-Application Alternative would result in any significant adverse impacts to open space resources and historic resources that contribute to the urban design of the rezoning area and surrounding neighborhoods.

By comparison to the Proposed Actions, the A-Application Alternative would be expected to result in more projected and potential development sites within the vicinity of the Jerome Avenue corridor. Therefore, the greater distinction between the A-Application Alternative and the Proposed Actions lies in the slightly greater extent to which the A-Application Alternative may be expected to result in positive effects to urban design. The cohesiveness in streetscape design and potential for improved pedestrian experience would be similar within the area shared between the respective rezoning areas for the Proposed Actions and the Expanded Rezoning Area Alternative (i.e., the area delineated as the rezoning area for the Proposed Actions, which is shared by both the Proposed Actions and the A-Application Alternative), would also occur in three discrete geographical areas:

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), a portion of Davidson Avenue between approximately West 177th Street to the north and West 176th Street in the Morris Heights Neighborhood;

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), extending slightly over an approximately two-block length to encompass portions of irregular blocks, west from Jerome Avenue (to Macombs Road) into the Morris Heights neighborhood, along the northern side of Featherbed Lane; and

- Within the Jerome Avenue corridor (Cross-Bronx Expressway – 169th Street), portions of several irregular blocks between Edward L. Grant Highway to the west and Jerome Avenue to the east, in the Mount Eden neighborhood, south of West 170th Street;

A lesser distinction between the Proposed Actions and the A-Application Alternative relates to the second-story retail development that would result with the A-Application Alternative at Projected Development Sites 3, 6, 19, 22, and 44. While the pedestrian experience at the ground-floor would not be expected to be substantially different between the Proposed Actions and the A-Application Alternative, there may be expected to be slightly more pedestrian activity in the vicinity of these projected development sites as a result of the increase of retail space with the A-Application Alternative. Although the second-story retail may be perceptible, both to pedestrians and to passengers on the elevated 4-train, the distinction between the design characteristics of these buildings would be minimal considering the broader context of change to urban design, and given that the overall height and mass of these buildings would be similar in both the Proposed Actions and the A-Application Alternative. In addition, the development of Projected Development Site 35 directly north of Projected Development Site 52, would result in the clearly defined streetscape, along the western side of Jerome Avenue, at the intersection of W Clarke Pl in 2026 (compared to the Proposed Actions in which the A-Application Alternative Projected Development Site 35 would be less likely to be developed by 2026, since the same site is identified in the Proposed Actions as Potential Development Site 89).

In summary, the A-Application Alternative would result in improvements to urban design that would be similar to the Proposed Actions described in detail in Chapter 8, though extending for a slightly greater area, specifically at two locations in the Morris Heights neighborhood and one location in the Mount Eden neighborhood. No significant adverse impacts to urban design would occur with either the Proposed Actions or the A-Application Alternative.

PART II – Visual Resources

As described in Chapter 8, a visual resource is defined as the visual connectivity shared between the public realm and significant natural or built features, affording the pedestrian views of the waterfront or natural resources, public parks, landmark structures or districts, and/or otherwise distinct views of buildings. (Please refer to the Visual Resources assessment included in Chapter 8 for a detailed explanation of methodology for conducting the visual resources assessment, per the guidance of the *CEQR Technical Manual*.) To the extent that the respective rezoning areas for the Proposed Actions and the A-Application Alternative, the entire visual resources assessment in Chapter 8 for the Proposed Actions is appropriate for the A-Application Alternative, and the findings are also valid for the A-Application Alternative, but for additional inclusion of the three additional open space resources (identified previously in the urban design assessment for the A-Application Alternative), which are in the vicinity of the A-Application Alternative.

As described in detail in Chapter 8, most of the open space resources included in the visual resources inventory are not of a type that would be affected by changes to their visual environs or general changes to the urban design of the surrounding area, notably; among such open spaces would be Greenstreets and playgrounds, which are the three additional open space resources considered with regard to the A-Application Alternative. Therefore, the visual resources assessment of open space resources for the A-Application Alternative may conclude with the equivalent findings as reported for the Proposed Actions

in Chapter 8; no significant adverse impacts to open spaces, as visual resources, would result with either the Proposed Actions or the A-Application Alternative.

Similarly, given the delineation of the respective rezoning areas, the visual resources assessment of historic resources for the A-Application Alternative may conclude with the equivalent findings as reported for the Proposed Actions in Chapter 8. Specifically, the A-Application Alternative includes area to the west that are not part of the Proposed Actions rezoning area; however, the nearest historic districts are to the east, where the rezoning area delineations are the same for both the Proposed Actions and the A-Application Alternative. Therefore, no significant adverse impacts to historic resources, as visual resources, would result with either the Proposed Actions or the A-Application Alternative.

Finally, as described in detail in Chapter 8, the topography and street pattern of the neighborhoods comprising the rezoning area and its surroundings give rise to components of street form and public streetscapes that are somewhat unique to this area: "step streets" take the form of pedestrian stairways connecting streets at different elevations where the rise between streets is too steep for traffic. The same inventory of step streets described and assessed in Chapter 8 for the Proposed Actions is applicable to the A-Application Alternative, without exception.

Although the A-Application Alternative may result in new development (A-Application Alternative Potential Development Site 111), which would be adjacent to the Davidson Avenue step street (see Chapter 8, Figure 8-16d), the view toward Featherbenches (public open space), as described in Chapter 8, with regard to the Proposed Actions, would not be substantially changed with the A-Application Alternative. Therefore, the general character of this step street and view corridor would not change with the Proposed Actions or the A-Application Alternative, and no significant adverse impacts to visual resources would result.

Likewise, the pertinent With-Action conditions for the remaining step streets described in Chapter 8 for the Proposed Actions, would remain the same with the A-Application Alternative. Therefore, no significant adverse impacts to step streets as visual resources would result with either the Proposed Actions or the A-Application Alternative.

Conclusion – Visual Resources

As with the Proposed Actions, the A-Application Alternative would result in no substantial change to any visual resource, including historic resources, open space resources, and step streets, nor would either the Proposed Actions or the A-Application Alternative result in any substantial change to view corridors identified within the study area. Therefore, neither the Proposed Actions nor the A-Application Alternative would result in any significant adverse impact to visual resources.

20.7.9 HAZARDOUS MATERIALS

Introduction

This chapter assesses the potential for the presence of hazardous materials in soil, groundwater and/or soil vapor at both the projected and potential development sites identified with the A-Application Alternative. This assessment encompasses all projected and potential development sites identified in the Reasonable Worst-Case Development Scenario (RWCDS) described in Chapter 9, "Hazardous Materials," as well as the additional development sites identified in the RWCDS for the A-Application Alternative.

As described in Chapter 1, "Project Description," the Jerome Avenue Rezoning consists of a series of land use actions (collectively, the "Proposed Actions") intended to facilitate the implementation of the objectives of the Jerome Avenue Neighborhood Plan (the "Plan"). The affected area comprises an approximately 92-block area primarily along Jerome Avenue and its east west commercial corridors in Bronx Community Districts (CDs) 4, 5, and 7 (the "rezoning area"). The rezoning area is generally bounded by 184th Street to the north and East 165th Street to the south, and also includes portions of 183rd Street, Burnside Avenue, Tremont Avenue, Mount Eden Avenue, 170th Street, Edward L. Grant Highway, and East 167th Street. With the A-Application Alternative, the proposed land use actions are the same as the Proposed Actions for all 45 projected development sites and 101 potential development sites identified as component to the Proposed Actions; however, in the A-Application Alternative, the rezoning area would be expanded to include approximately five additional blocks in three discrete areas located west of Jerome Avenue. With the A-Application Alternative, development would occur on an additional three projected development sites and an additional six potential development sites for a total of 155 development sites, of which 48 are considered projected development sites and 107 are considered potential development sites.

According to the *CEQR Technical Manual*, the goal of a hazardous materials assessment is to determine whether a proposed action would lead to a potential for increased exposure of hazardous materials to people or the environment or whether the increased exposure would lead to significant public health impacts or environmental damage. The objective of the hazardous materials assessment is to determine which, if any, of the projected and potential development sites identified as part of the A-Application Alternative may have been adversely affected by current or historical uses at or adjacent to the sites, such that the property would require an (E) designation or other measures comparable to such a designation.

A preliminary screening of potential hazardous materials impacts has been performed for the three projected and six potential development sites added in the A-Application Alternative, in order to determine whether additional investigations may be necessary and whether an (E) designation should be placed on the projected or potential development sites as part of the Proposed Actions to avoid the potential for impacts pertaining to hazardous materials on the sites.

Principal Conclusions

The A-Application Alternative is not expected to result in significant adverse impacts for hazardous materials. An assessment of potential hazardous materials impacts was performed for all of the additional development sites, three projected and six potential, identified in the A-Application Alternative. The hazardous materials assessment identified that each of the projected and potential development sites has some associated concern regarding environmental conditions. As a result, with the A-Application Alternative, (E) designations (E-442) for all projected and potential development sites would be required. With the requirements of the (E) designation or comparable measure on all additional projected and potential development sites, there would be no impact from the potential presence of contaminated materials. The implementation of the preventative and remedial measures outlined in the (E) designation would reduce or avoid the potential of significant adverse hazardous materials impacts from potential construction in the rezoning area resulting from this alternative. Following such construction, there would be no potential for significant adverse impacts.

Methodology

The review of the additional projected and potential development sites within the A-Application Alternative has been performed in accordance with the procedures described in Chapter 9, "Hazardous Materials." The regulatory agency database report, historic Sanborn fire insurance maps and city directory search reports, as provided by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut, are included as Appendix D, "Hazardous Materials."

Limitations

While the Sanborn map and city directory reviews were conducted in accordance with the protocols outlined in the ASTM-E-1527-13 standard, it should be emphasized that, as all of the projected and potential development sites identified with the A-Application Alternative are privately-owned, the scope of this project was limited to collecting and analyzing limited information sufficient to make a determination relevant to a hazardous materials (E) designation. Sanborn map and city directory review was limited to the properties and adjacent properties within the boundaries of the A-Application. The regulatory database review was also conducted in accordance with the protocols outlined in the ASTM-E-1527-13 standard and encompassed the site and a 400-foot radius around each site or cluster of sites. Other elements of a Phase I Environmental Site Assessment (ESA) and the protocols outlined in the *CEQR Technical Manual* (e.g., reviews of building department and fire department records, a title deed search, and interviews with current and former employees and owners) were not included as part of the assessment.

Existing Conditions

The existing conditions with the A-Application Alternative are consistent with the existing conditions described in Chapter 9, "Hazardous Materials," as related to the Proposed Actions.

The Future without the A-Application Alternative (No-Action Condition)

The No-Action conditions with the A-Application Alternative are consistent with the No-Action conditions described in Chapter 9, "Hazardous Materials," as related to the Proposed Actions. In addition, it is assumed that the No-Action conditions for the three projected and six potential development sites also included with the A-Application Alternative would either remain unchanged from existing conditions, or be redeveloped with uses that are as-of-right under existing zoning. As discussed in this chapter, in the No-Action condition, one of the three additional projected development sites will remain as in the existing condition, while two of the three additional projected development sites are expected to be redeveloped, or undergo conversion.

However, any construction related to development in the above No-Action Condition involving soil disturbance could potentially create or increase pathways for human exposure to any subsurface hazardous materials present. Because no (E) designations (which require the owner of a property to assess potential hazardous material impacts prior to construction) currently exist on any of the projected or potential development sites, such soil disturbance will not necessarily be conducted in accordance with the procedures (e.g. for conducting testing before commencing excavation and implementation of health and safety plans or community air monitoring plans during construction) described in the following section. However, the New York State Department of Environmental Conservation (NYSDEC) regulatory requirements pertaining to any identified petroleum tanks and/or spills, requirements for disturbance and handling of suspect lead-based paint and asbestos-containing materials, and requirements for off-site disposal of soil/fill, would need to be followed. As such, in the No-Action condition, the amount of soil disturbance will be less, but potentially the controls on its performance will not be as stringent as with the A-Application Alternative, as described below.

The Future with the A-Application Alternative (With-Action Condition)

The With-Action conditions for the A-Application Alternative include all the projected development sites and potential development sites that are also considered for the Proposed Actions (as described in Chapter 9, "Hazardous Materials"), as well as, three additional projected development sites that are considered likely to be developed by the 2026 analysis year, and seven additional potential development sites that are considered less likely to be developed over the same period. Only these additional three projected development sites and six potential development sites are described in detail in this section; however, the conclusions represent consideration of the A-Application Alternative in its entirety, inclusive of all projected and potential development sites described in detail in Chapter 9.

The analysis described in this section examines these additional projected and potential sites where it could be expected that development in the future with the A-Application Alternative would have the potential to increase the exposure of people or the environment to hazardous materials. These could include the potential for increased exposure detrimental to the health and safety of workers during construction, the potential for the transport of contaminated soil, or the potential for increased exposure for future residents or employees of individual buildings on these sites.

The hazardous materials assessment presented herein has identified that each of the additional projected and potential development sites from the A-Application Alternative has some associated concern regarding environmental conditions. As a result, the proposed zoning map actions include (E) designations (or other measures comparable to such a designation) for all of these additional projected and potential development sites, as discussed in this chapter.

Appendix A of the Hazardous Materials Appendix 5 (Chapter 24 of Title 15 of the Rules of the City of New York) provides a list of facilities, activities or conditions requiring consideration of an (E) designation. If the projected or potential development sites or adjacent properties had indications of uses listed in Appendix A, placement of an (E) designation is recommended. In addition, if properties within the 400-foot radius surrounding each residential site or cluster of residential sites had indications in the regulatory database of uses listed in Appendix A, placement of an (E) designation is also recommended. The (E) designation recommendations for the projected and potential development sites are shown in tables 22-1 and 22-2, respectively, and additional details from the findings of the hazardous materials assessment are provided in tables 22-3 through 22-5 (included at the end of this chapter). In tables 22-3 through 22-5, the results for the development sites are reported separately from findings for surrounding properties included within the 400-foot radius.

The screening for all sites is conducted by reviewing historical documentation for past or current uses that may have affected or may be affecting a projected or potential development site or an adjacent site. The past uses were compared to the list of types of facilities, activities or conditions which would lead to a site receiving an (E) designation given in Appendix A of the Hazardous Materials Appendix 5. Based on this screening, the additional seven projected and 24 potential development sites added in the A-Application meet the criteria for placement of an (E) designation.

By placing (E) designations (E-442), or other measures comparable to such a designation, on sites where there is a known or suspect environmental concern, the potential for an adverse impact to human health and the environment resulting from the A-Application Alternative would be reduced or avoided. The (E) designation provides the impetus to identify and address environmental conditions so that significant adverse impacts during site development would be reduced. The New York City Mayor's Office of Environmental Remediation (OER) would provide the regulatory oversight of the environmental investigation and remediation during this process. Building permits are not issued by DOB without prior OER approval of the investigation and/or remediation pursuant to the provisions of Section 11-15 of the New York City Zoning Resolution (Environmental Requirements).

The (E) designation would require that the fee owner of such a site conduct a testing and sampling protocol and have an approved remediation plan, where appropriate, to the satisfaction of OER. DOB will typically issue the foundation permits when OER approves the remedial action work plan – the actual remediation is usually done concurrently with the construction. The remediation plan provided to OER to satisfy the (E) designation must also include a mandatory construction-related health and safety plan, which must also be approved by OER.

The (E) designation requirements related to hazardous materials would apply to the following development sites:

Table 20.7.9-1: A-Application Alternative Additional Projected Development Sites

Projected Site Number	Tax Block	Tax Lot
46	2865	134
47	2867	142
52	2855	51
	2855	45
	2855	53

Table 20.7.9-2: A-Application Alternative Additional Potential Development Sites

Potential Site Number	Tax Block	Tax Lot
105	2861	129
111	2865	122
118	2864	25
119	2864	21
124	2855	42
125	2855	65

The (E) designation text related to hazardous materials is as follows:

Task 1

The applicant submits to OER, for review and approval, a Phase 1 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.

An OER-approved construction-related health and safety plan would be implemented during evacuation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil and/or groundwater. This plan would be submitted to OER for review and approval prior to implementation.

All demolition or rehabilitation would be conducted in accordance with applicable requirements for disturbance, handling, and disposal of suspect lead paint and asbestos-containing materials. For all projected and potential development sites where no E-designation is recommended, in addition to the requirements for lead-based paint and asbestos, requirements (including those of NYSDEC) would need to be followed should petroleum tanks and/or spills be identified and for off-site disposal of soil/fill.

As noted above, with the A-Application Alternative, (E) designations for all projected and potential development sites would be required. With the requirements of the (E) designation or comparable measure on all projected and potential development sites included as part of the A-Application Alternative, there would be no impact from the potential presence of contaminated materials. The implementation of the preventative and remedial measures outlined in the (E) designation would reduce or avoid the potential of significant adverse hazardous materials impacts from potential construction in the rezoning area with the A-Application Alternative. Following such construction, there would be no potential for significant adverse impacts.

20.7.10 WATER AND SEWER INFRASTRUCTURE

With the A-Application Alternative, demands on water and sewer infrastructure would be higher than with the Proposed Actions due to additional residential units and land coverage that would change from pervious to impervious. As presented in Table 20.7.10-1, "Water Demand and Wastewater Generation," the water demand from the A-Application Alternative is expected to total 1,686,094 gpd, an increment of 1,086,362 gpd over the No-Action condition (compared to 1,364,040 gpd with the Proposed Actions). As with the Proposed Actions, this incremental demand with the A-Application Alternative would represent less than 0.1 percent of the City's average daily water supply of one billion gpd, and changes of this magnitude would not be large enough to have a significant adverse impact on the City's water system.

Based on rates in the *CEQR Technical Manual*, the A-Application Alternative has the potential to result in a sanitary sewage discharge of approximately 1,488,205 gpd, an increment of 1,047,037 gpd over the No-Action condition (compared to an increment of approximately 869,677 gpd for the Proposed Actions). The increased sanitary flows with this alternative would only affect subcatchment area WI-R60/WI-R60A.

As with the Proposed Actions, with this incremental increase in sanitary flows, the Wards Island Waste Water Treatment Plant (WWTP) would continue to have ample capacity, and thus no significant adverse impacts to wastewater treatment would occur as a result of the A-Application Alternative.

With 48 projected development sites included in the A-Application Alternative, the wastewater increment flow of 1,047,037 gpd would produce an average of 21,813 gpd per site. In addition, similar to the effects of the Proposed Actions, as discussed in Chapter 10, "Water and Sewer Infrastructure," the additional wastewater generation would be sparsely distributed along approximately 2.25 miles of sewers, extending along 25 street blocks, due to the linear alignment of properties along both side of Jerome Avenue.

Table 20.7.10-1: Water Demand and Wastewater Generation

Land Use	Water Demand and Wastewater Generation Rates[1]	Area (sf) or DUs	Domestic Water/Wastewater Generation (gpd)	Air Conditioning (gpd)
Residential	Domestic: 100 gpd/person[2]	4,647	1,371,800	0
Commercial/Office/ Retail[3]	Domestic: 0.24 gpd/sf	685,762	68,576	116,580
	A/C: 0.17 gpd/sf			
Community Facility[4]	Domestic: 0.10 gpd/sf	478,289	47,829	81,309
	A/C: 0.17 gpd/sf			
Industrial/ Warehouse	Domestic: 10,000 gpd/acre[5]	0	0	0
	A/C: 0.17 gpd/sf			
Hotel	120 gpd/room/occupant	0	0	0
	A/C: 0.17 gpd/sf			
Total Water Demand			***1,686,094***	
Total Wastewater Generation			***1,488,205***	

Notes:

**All Calculations by CSA Group, 2017*

1. Consumption rates obtained from the *CEQR Technical Manual* Table 13-2, "Water Usage and Sewage Generation Rates for Use in Impact Assessment," unless otherwise noted.

2. Considers a population of 13,718 residents (data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario).

3. Uses comprise retail, supermarket, and restaurant.

4. Assumes same rate as commercial/office. Includes house of worship, day care, medical office, and community center uses.

5. Based on 2014 East NY *Rezoning FEIS.* Calculated based on total building floor area, assuming no additional water demand from open storage.

Source: New York City Department of City Planning, 2017; CSA Group, 2017.

The A-Application Alternative includes three discrete new geographies. However, none of these new geographies is currently undeveloped or green areas. Because the properties in the A-Application Alternative would have completely impervious surfaces at the full development phase, no increase in runoff generation is expected. Comparatively speaking, there is a sixteen percent increase in the number of residential units in the A-Application Alternative, compared to the Proposed Actions.

The increase in sanitary sewage flowing to the combined sewer system is presented in Table 20.7.10-2, "Runoff and Wastewater Volume Calculations." These results represent an increase beyond what has been identified for the Proposed Actions.

Table 20.7.10-2: Runoff and Wastewater Volume Calculations

EXISTING WI-R60/WI-R60A Sewershed						
Rainfall, in	**Duration, hr**	**Total Area (A), acre**	**Weighted Runoff Coefficient (C)**	**Stormwater to CSS, MG**	**Daily Sanitary Sewage Generation per CEQR TM, MGD**	**Sanitary to CSS, MG**
0.00	3.80	20.97	0.91	0.00	0.44	0.07
0.40	3.80	20.97	0.91	0.21	0.44	0.07
1.20	11.30	20.97	0.91	0.62	0.44	0.21
2.50	19.50	20.97	0.91	1.30	0.44	0.36
WITH-ACTION WI-R60/WI-R60A Sewershed						
Rainfall, in	**Duration, hr**	**Total Area (A), acre**	**Weighted Runoff Coefficient (C)**	**Stormwater to CSS, MG**	**Daily Sanitary Sewage Generation per CEQR TM, MGD**	**Sanitary to CSS, MG**
0.00	3.80	20.97	1.00	0.00	1.49	0.24
0.40	3.80	20.97	1.00	0.23	1.49	0.24
1.20	11.30	20.97	1.00	0.68	1.49	0.70
2.50	19.50	20.97	1.00	1.42	1.49	1.21

Notes:

1. RUNOFF VOLUMES for EXISTING and WITH-ACTION condition have been calculated as follows:

Q_{VOL} = [R_{VOL} x A x RC x 7.48GAL/1,000,000 MGD per GAL] - S_{VOL} ; where

Q_{VOL} = Total Volume of Rainfall for 24-hour storm event discharged offsite (either to River or into CSS), in MG

R_{VOL} = RAINFALL VOLUME, in Inches, for the corresponding RAINFALL RETURN PERIOD listed in WS2 in the EXISTING and PLAN tables.

A = SITE AREA, in SQ. FT., as indicated in WS1 EXISTING and WITH-ACTION tables for the various site areas.

RC = RAINFALL RUNOFF COEFFICIENT for each of the applicable Site Areas as per EXISTING and WITH-ACTION tables (refer to WS1).

2. RAINFALL RUNOFF COEFFICIENTS used are composite rates as shown in WS1 in the EXISTING and WITH-ACTION tables

Source: *WS2_Volume Calculations, Calculation Matrix spreadsheet, 2014 CEQR Technical Manual, NYCDEP*

Storm events from 0.0 to 2.5 inches of rainfall would produce total volumes of 0.24 to 2.63 MG to the combined sewer systems within subcatchment area WI-R60/WI-R60A (Table 20.7.10-3, "Total Volume to Combined Sewer System") for the With-Action condition. These values are slightly higher than those predicted for the Proposed Actions, which ranged from 0.20 to 2.27 MG.

Table 20.7.10-3: Total Volume to Combined Sewer System

EXISTING WI-R60/WI-R60A Sewershed					
RAINFALL VALUME (in)	**RAINFALL DURATION (hr)[1]**	**RUNOFF VOLUME DIRECT DRAINAGE (MG)**	**RUNOFF VOLUME TO CSS (MG)**	**SANITARY VOLUME TO CSS (MG)**	**TOTAL VOLUME TO CSS (MG)**
0.00	3.80	0.00	0.00	0.07	0.07
0.40	3.80	0.00	0.21	0.07	0.28
1.20	11.30	0.00	0.62	0.21	0.83
2.50	19.50	0.00	1.30	0.36	1.66
WITH-ACTION WI-R60/WI-R60A Sewershed					
RAINFALL VALUME (in)	**RAINFALL DURATION (hr)[1]**	**RUNOFF VOLUME DIRECT DRAINAGE (MG)**	**RUNOFF VOLUME TO CSS (MG)**	**SANITARY VOLUME TO CSS (MG)**	**TOTAL VOLUME TO CSS (MG)**
0.00	3.80	0.00	0.00	0.24	0.24
0.40	3.80	0.00	0.23	0.24	0.47
1.20	11.30	0.00	0.68	0.70	1.38
2.50	19.50	0.00	1.42	1.21	2.63

Notes:
1. Based on *Intensity/duration/Frequency Rainfall Analysis, New York City and the Catskill Mountain Water Supply Reservoirs, Vieux & Associates, Inc., April 4, 2006. The 24-hour rainfall volume is based on average rainfall intensity over 24-hours (inch/per) times 24 hrs. (Duration information provided by T. Newman & P. Jadhav, HydroQual).*

Source: *Summary Table, Calculation Matrix spreadsheet, 2014 CEQR Technical Manual, NYCDEP*

Because of the available capacity of the Wards Island WWTP, the projected increased flows to the combined sewer system with the A-Application Alternative would not have a significant adverse impact on the Plant. As with the Proposed Actions, an amended drainage plan would be required for the A-Application Alternative. In addition, a hydraulic analysis may be required at the time of site connection to determine whether the existing sewer system is capable of supporting higher density or if upgrades to the existing sewer system are required. With these requirements and the detention requirements of the City's stormwater rule, the A-Application Alternative would not result in significant adverse impacts to local water supply or wastewater and stormwater conveyance and treatment infrastructure.

20.7.11 SOLID WASTE AND SANITATION SERVICES

A-Application Alternative Future without the Proposed Actions (No-Action Condition)

The total No-Action development on the projected development sites in the A-Application Alternative RWCDS would comprise 867 residential units (982,386 sf), 639,359 sf of commercial uses, 36,925 sf industrial uses and 256,448 sf community facilities. Overall, the amount of solid waste generated by the

projected development sites would increase with the A-Application Alternative No-Action condition, as discussed below.

With the A-Application Alternative No-Action condition, a total of approximately 100.8 tons per week of solid waste would be generated by the projected development sites, which is an increase of 6 tons per week over the 95 tons per week generated in existing conditions. This includes 17 additional tons per week handled by DSNY and a reduction of 11 tons per week handled by private carriers. These results are shown in Table 20.7.11-1, "A-Application Alternative No-Action Solid Waste Generation – Projected Development Sites."

Table 20.7.11-1: A-Application Alternative No-Action Solid Waste Generation – Projected Development Sites

Use	Floor Area/Units		Occupants		Generation Rate (pounds per week)[1]		Solid Waste Generation	
							lbs/week	tons/week
Residential[2]	867	Units	867	Households	41	per household	35,547	18
Commercial[3]	639,359	square feet	1,918	Employees	79	per employee	151,528	76
Industrial[4]	36,925	square feet	36.9	Employees	182.5	per employee	6,739	3
Community Facility[5]	256,448	square feet	--		0.03	per square foot	7,693	4
Total Solid Waste Generation							**201,507**	**101**
Amount Handled by DSNY (Residential and CF)							**43,240**	**22**
Amount Handled by Private Carters (Commercial)							**158,267**	**79**

Notes:
[1]Solid waste generation is based on citywide average waste generation presented in Table 14-1 of the *CEQR Technical Manual*
[2]Residential: assumes all DUs are > 4 and generate 41 lbs/wk per DU. Data provided by NYCDCP April 2017.
[3]Commercial: assumes 3 employees per 1,000 sq. ft. Data provided by NYCDCP April 2017.
[4]Industrial use: assumes 1 employee per 1,000 sf. Data provided by NYCDCP April 2017
[5]Community Facility: Data provided by NYCDCP April 2017

Source: New York City Department of City Planning, 2017; CSA Group, 2017.

A-Application Alternative Future with the Proposed Actions (With-Action Condition)

In the A-Application Alternative With-Action condition, the 48 projected development sites are expected to accommodate 4,647 residential units (4,521,657 sf), 685,762 sf of commercial uses and 478,289 sf of community facility uses. As discussed below, based on the citywide average rates for solid waste generation the proposed A-Application Alternative With-Action condition would result in an overall increase in solid waste generation.

Solid waste generated due to the A-Application Alternative With-Action condition would be approximately 184 tons per week, an 83-ton increment over the weekly waste generation in the A-Application Alternative No-Action condition of 101 tons per week. The incremental increase of 83 tons per week represents an increase of 0.05 percent over the City's current waste generation of 151,560 tons per week. It also represents an increase of 0.04 percent of the City's estimated future weekly total of waste generation in 2026 of 189,830, as projected in the SWMP.

As shown in Table 20.7.11-2, "A-Application Alternative With-Action Solid Waste Generation – Projected Development Sites," commercial and industrial uses in the A-Application Alternative With-Action condition would generate approximately 81 tons of solid waste per week. Solid waste generated by these uses would be collected by private carters. Commercial and industrial facilities would also be subject to mandatory recycling requirements for paper, metals, construction waste, metal, aluminum foil, metal, glass and plastic containers.

Residential and community facility uses in the A-Application With-Action conditions would generate approximately 102 tons of solid waste per week and would be collected by DSNY trucks on existing DSNY collection routes, although DSNY often adjusts its operations to best service the community. Residents would be required to participate in the City's recycling program for paper, metals and certain types of plastic and glass containers.

Table 20.7.11-2: A-Application Alternative With-Action Solid Waste Generation – Projected Development Sites

Use	Floor Area/Units		Occupants		Generation Rate (pounds per week)[1]		Solid Waste Generation	
							lbs/week	tons/week
Residential[2]	4,647	Units	4,647	Households	41	per household	190,527	95
Commercial[3]	685,762	square feet	2,057	Employees	79	per employee	162,526	81
Industrial[4]	0	square feet	0	Employees	182.5	per employee	0	0
Community Facility[5]	478,289	square feet	--		0.03	per square foot	14,349	7
Total Solid Waste Generation							**367,401**	**183**
Amount Handled by DSNY (Residential and CF)							**204,876**	**102**
Amount Handled by Private Carters (Commercial)							**162,526**	**81**

Notes:
[1]Solid waste generation is based on citywide average waste generation presented in Table 14-1 of the *CEQR Technical Manual*
[2]Residential: assumes all DUs are > 4 and generate 41 lbs/wk per DU. Data provided by NYCDCP April 2017.
[3]Commercial: assumes 3 employees per 1,000 sq. ft. Data provided by NYCDCP April 2017.
[4]Industrial use: assumes average of apparel/textile and printing/publishing rate. Data provided by NYCDCP April 2017.
[5]Community Facility: Data provided by NYCDCP April 2017.

Source: New York City Department of City Planning, 2017; CSA Group, 2017.

Table 20.7.11-3, "Comparison of Weekly Solid Waste Generation on Projected Development Sites," shows the incremental change between the A-Application Alternative No-Action condition and A-Application Alternative With-Action condition. As a result of the A-Application Alternative With-Action condition, there would be an increase of approximately 83 tons per week of solid waste handled by DSNY. This would represent approximately 0.07 percent increase in City's anticipated future solid waste generation of 115,830 tons per week that would be handled by DSNY. Based on the typical DSNY collection truck capacity of approximately 12.5 tons, the residential and community facility uses introduced by the A-Application Alternative With-Action condition would be expected to generate solid waste equivalent to approximately seven truckloads per week. This increase is not expected to overburden the DSNY's solid waste handling facilities.

In addition, there would be an increase of approximately two tons per week of solid waste handled by private carters. This would represent a less than 0.01 percent increase in the City's anticipated future commercial and industrial solid waste generation of 74,000 tons per week that would be handled by private carters, according to the SWMP. Based on the typical commercial carter truck capacity of 12 to 15 tons of waste material per truck, the commercial and industrial uses introduced by the A-Application Alternative With-Action conditions would be expected to have no effect on the number of commercial carter truckloads per week. There are more than 2,000 private commercial carting businesses authorized to serve New York City. Therefore, the net increase of commercial solid waste handled by private carters would not affect the City's waste management system.

Table 20.7.11-3: Comparison of Weekly Solid Waste Generation on Projected Development Sites

	Existing Conditions	A-Application Alternative No-Action Conditions	A-Application Alternative With-Action Conditions	Increment (No-Action to With-Action)
Total Solid-Waste Generation (tons/week)	95	101	184	83
Solid Waste Handled by DSNY (tons/week)	5	22	102	81
Solid Waste Handled by Private Carters (tons/week)	90	79	81	2

Source: New York City Department of City Planning, 2017; CSA Group, 2017.

Overall, the A-Application Alternative With-Action condition is expected to generate solid waste equivalent to seven DSNY truckloads and less than one private carter truckloads per week. This overall increase would not overburden the DSNY or commercial solid waste handling services. Therefore, the proposed A-Application Alternative With-Action condition would not overburden the City's solid waste management capacity and would not have significant adverse impacts on solid waste and sanitation services. It would not conflict with the SWMP or have a direct effect on a solid waste management facility. As a result, no significant adverse impact on the City's solid waste and sanitation services would occur.

20.7.12 ENERGY

A-Application Alternative Future without the Proposed Actions (No-Action Condition)

Energy supply and transmission

The Long Range Transmission Plan for 2016-2026 (The Plan) issued by Con Edison in October of 2016 lays out Con Edison's transmission system over a ten year planning horizon. According to The Plan, no deficiencies were identified within the rezoning area. No new transmission stations were found to be

required for the ten-year period studied, however the Gowanus transmission station will be expanded to support two new area substations by the year 2026.

Con Edison anticipates peak demand in New York City and Westchester County area to increase to approximately 13,900 MW in 2026, a 1.8 percent increase over the peak demand of 13,650 estimated for 2016.

A-Application Alternative No-Action Demand

Energy consumption for the A-Application No-Action condition would increase compared to existing conditions. Annual energy consumption estimates for each use for A-Application Alternative No-Action condition are provided in Table 20.7.12-1, "A-Application Alternative No-Action Annual Energy Consumption for the Projected Development Sites." As shown in Table 20.7.12-1, it is estimated that energy demand from the projected development sites would total 347.5 billion BTUs of energy annually. This represents an increase of approximately 142.4 billion BTUs over existing conditions.

Table 20.7.12-1 – A-Application Alternative No-Action Annual Energy Consumption for the Projected Development Sites

Land Use	Average Yearly Energy Use Rate (MBTU/sf)[1]	Floor Area (SF)	Yearly Energy Use (MBTU)
Residential[2]	126.7	982,386	124,468,306
Commercial[3]	216.3	639,359	138,293,352
Industrial[4]	554.3	36,925	20,467,528
Community Facility[5]	250.7	256,448	64,291,514
		Total	**347,520,699**

Notes:
[1]Energy generation is based on citywide average rates presented in Table 15-1 of the CEQR Technical Manual
[2]Residential: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario
[3]Commercial: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario
[4]Industrial use: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario
[5]Community Facility: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario

Source: New York City Department of City Planning, 2017; CSA Group, 2017.

According to the *New York Independent System Operator's 2016 Load & Capacity Data report*, annual energy requirements for 2026 are forecasted at approximately 156,777 GWh (or 535 trillion BTUs). Of this forecasted annual energy demand, 50,066 GWh (or 171 trillion BTUs) is expected to come from Zone J (New York City). The anticipated 347.5 billion BTU increase in annual energy consumption due to anticipated development on the projected developments sites with the 2026 A-Application Alternative No-Action condition therefore represents approximately 0.065percent of Con Edison's service area's forecasted future total annual energy demand of 535 trillion BTUs and 0.2 percent of New York City's (Zone J) forecasted future total energy demand of 171 trillion BTUs.

A-Application Alternative Future with the Proposed Actions (With-Action Condition)

Energy supply and transmission

As discussed above, Con Edison regularly updates their long-term plans to meet forecasted demand on the system and currently no new transmission substations were found to be required by 2026. While it is possible that projected developments in the A-Application Alternative With-Action plan could potentially lead to utilizing additional alternatives, upgrades or impacting the future schedule for a new substation, development would occur on a site by site basis over an extended period of time. Con Edison would have sufficient advance notice of all developments which would allow them to incorporate changes into their long-term plans. Therefore, the A-Application Alternative With-Action condition would not adversely affect the electric transmission system serving the area.

A-Application Alternative With-Action Demand

The worst case development expected to occur on the 48 projected development sites with the A-Application Alternative With-Action condition would include 4,521,657 sf of residential floor area, (4,647 DUs), 685,762 sf of commercial uses, and 478,289 sf of community facility uses. Compared to the A-Application Alternative No-Action condition, the proposed A-Application Alternative With-Action condition would result in a net increase of 3,780 DUs, 221,841 sf of community facility uses, and 46,403 sf of commercial use. There would be a decrease of 22,437 sf of 36,925 sf of industrial uses.

Energy consumption for the A-Application Alternative With-Action condition would increase compared to existing conditions. Annual energy consumption estimates for each use with the A-Application Alternative With-Action condition are provided in Table 20.7.12-2, "A-Application Alternative With-Action Annual Energy Consumption for the Projected Development Sites." As shown in Table 20.7.12-2, it is estimated that energy demand from the projected development sites would total 841.1 billion BTUs of energy annually. This represents an increase of approximately 636 billion BTUs over existing conditions and an increase in 493.6 billion BTUs over the A-Application Alternative No-Action condition.

The anticipated 493.6 billion BTU increase in annual energy consumption due to development with the A-Application Alternative With-Action condition therefore, represents approximately 0.29 percent of New York City's future total energy demand of 171 Trillion BTUs as well as approximately 0.16 percent of Con Edison's service area's future total annual energy demand of 535 trillion BTUs. Therefore, the A-Application Alternative With-Action condition is not expected to result in a significant impact on energy systems.

Table 20.7.12-2: A-Application Alternative With-Action Annual Energy Consumption for the Projected Development Sites

Land Use	Average Yearly Energy Use Rate (MBTU/sf)[1]	Floor Area (SF)	Yearly Energy Use (MBTU)	Incremental Annual Energy Use (MBTU) over No-Action Condition
Residential[2]	126.7	4,521,657	572,893,942	448,425,636
Commercial[3]	216.3	685,762	148,330,321	10,036,969
Industrial[4]	554.3			-20,467,528
Community Facility[5]	250.7	478,289	119,907,052	55,615,539
		Total	**841,131,315**	**493,610,616**

Notes:
[1]Energy generation is based on citywide average rates presented in Table 15-1 of the CEQR Technical Manual
[2]Residential: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario
[3]Commercial: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario
[4]Industrial use: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario
[5]Community Facility: Data provided by Jerome Avenue Rezoning Reasonable Worst-Case Development Scenario

Source: New York City Department of City Planning, 2017; CSA Group, 2017.

In addition, new developments resulting from the A-Application Alternative With-Action condition would be required to comply with the New York City Energy Conservation Code (NYCECC), which governs performance requirements of HVAC and the exterior building envelopes of any new construction. To be in compliance with NYCECC, new developments must meet standards for energy conservation, including energy efficiency and combined thermal transmittance. If voluntary utilization of high performance standard design is installed on projected development sites there would be an even greater reduction in energy consumption than what is indicated in Table 20.7.12-2.

Based on the above information, no significant adverse impacts would result from the With-Action condition.

20.7.13 TRANSPORTATION

The addition of three projected development sites and the land-use change of Sites 3, 6, 19, 22, 35 and 44 in the A-Application Alternative would generate a greater number of vehicle, transit, and pedestrian trips and more demand for on-street and off-street public parking as compared to the Proposed Actions (See Appendix I for a summary of the projected sites). Based on the trip generation assumptions detailed in Chapter 13, "Transportation," the A-Application Alternative would generate approximately 2,030, 3,797, 2,612, and 2,905 more incremental person trips in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively, compared to the Proposed Actions (see Table 20.7.13-1). Depending on the peak hour, this represents an approximately 34 to 50 percent increase in action-generated person

trips compared to the Proposed Actions. As in the Proposed Actions, it is anticipated that the A-Application Alternative would result in significant adverse traffic, bus, and pedestrian impacts. Neither the Proposed Actions nor the A-Application Alternative would result in significant adverse subway or parking impacts.

Table 20.7.13-1: Comparison of Incremental Peak Hour Person Trips by Mode – Proposed Actions vs. A-Application Alternative

Scenario	Auto	Taxi	Bus	Subway	Railroad	Walk/Other	Total
Weekday AM							
Proposed Actions	363	71	555	1,382	77	1,607	4,055
A-Application Alternative	526	91	785	1,639	89	2,955	6,085
Increment	***163***	***20***	***230***	***257***	***12***	***1,348***	***2,030***
Weekday Midday							
Proposed Actions	410	205	1,037	1,136	40	6,772	9,600
A-Application Alternative	525	292	1,414	1,439	47	9,680	13,397
Increment	***115***	***87***	***377***	***303***	***7***	***2,908***	***3,797***
Weekday PM							
Proposed Actions	596	165	935	1,748	86	4,143	7,673
A-Application Alternative	719	229	1,210	2,109	100	5,918	10,285
Increment	***123***	***64***	***275***	***361***	***14***	***1,775***	***2,612***
Saturday Midday							
Proposed Actions	662	194	985	1,649	77	4,787	8,354
A-Application Alternative	794	274	1,274	2,007	89	6,821	11,259
Increment	***132***	***80***	***289***	***358***	***12***	***2,034***	***2,905***

Source: STV Incorporated, 2017.

Traffic

The A-Application Alternative would generate approximately 243, 201, 184 and 180 more incremental vehicle trips during the weekday AM, midday, and PM and Saturday midday peak hours, respectively, compared to the Proposed Actions (see Table 20.7.13-2). Depending on the peak hour, this represents an increase of approximately 27 to 60 percent as compared to the incremental vehicle trips that would be generated in the Proposed Actions. Overall, the A-Application Alternative would result in significant adverse traffic impacts at a total of 21 study area intersections during one or more analyzed peak hours, the same number of intersection as in the Proposed Actions. Table 20.7.13-3 presents a comparison of the numbers of lane groups and intersections that would have significant adverse impacts in each peak hour in the Proposed Actions and the A-Application Alternative. In the A-Application Alternative, 18 lane groups at 16 intersections would be impacted (compared to 15 lane groups at 14 intersections in the Proposed Actions) in the weekday AM peak hour, 19 lane groups at 16 intersections (compared to 17 lane groups at 14 intersections in the Proposed Actions) in the midday, 35 lane groups at 21 intersections (compared to 33 lane groups at 20 intersections in the Proposed Actions) in the PM and 29 lane groups at

18 intersections (compared to 28 lane groups at 19 intersections in the Proposed Actions) in the Saturday midday. Potential measures to mitigate significant adverse traffic impacts are discussed in the Mitigation section.

Table 20.7.13-2: Comparison of Incremental Peak Hour Vehicle Trips by Mode – Proposed Actions vs. A-Application Alternative

Scenario	Auto	Taxi	Truck	Total
Weekday AM				
Proposed Actions	293	104	8	405
A-Application Alternative	500	134	14	648
Increment	***207***	***30***	***6***	***243***
Weekday Midday				
Proposed Actions	196	314	14	524
A-Application Alternative	255	448	22	725
Increment	***59***	***134***	***8***	***201***
Weekday PM				
Proposed Actions	429	238	4	671
A-Application Alternative	523	326	6	855
Increment	***94***	***88***	***2***	***184***
Saturday Midday				
Proposed Actions	333	274	10	617
A-Application Alternative	399	386	12	797
Increment	***66***	***112***	***2***	***180***

Source: STV Incorporated, 2017.

Table 20.7.13-3: Comparison of the Numbers of Lane Groups/Intersections with Significant Adverse Impacts – Proposed Actions vs. A-Application Alternative

Peak Hour	Development Scenario	Lane Groups/Intersections with Significant Impacts
AM	Proposed Actions	15/14
	A-Application Alternative	18/16
Midday	Proposed Actions	17/14
	A-Application Alternative	19/16
PM	Proposed Actions	33/20
	A-Application Alternative	35/21
Saturday Midday	Proposed Actions	28/19
	A-Application Alternative	29/18

Source: STV Incorporated, 2017.

Transit

Subway

Subway Stations

The A-Application Alternative would generate 257 and 361 more incremental subway trips during the weekday AM and PM Peak hours, respectively, than would the Proposed Actions (see Table 20.7.13-1). Tables 20.7.13-4 and 20.7.13-5 list conditions at stairs and fare arrays at the four analyzed subway stations on the No. 4 line in the A-Application Alternative. All other analyzed stairs and fare arrays are projected

to operate at an acceptable LOS C or better in both the AM and PM peak hours, and would therefore not be significantly adversely impacted based on *CEQR Technical Manual* criteria.

Table 20.7.13-4: A-Application Alternative Stair Analysis at Jerome Avenue Subway Stations

Peak Hour	Station	Stair	Total Width (feet)	Effective Width (feet)	Project Increment		15-Min Peak Volume		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down	Up	Down			
AM	183rd Street (4)	S1	5	4	6	1	77	13	1.00	0.80	0.90	0.17	A
		S2	5	4	31	7	190	63	1.00	0.80	0.90	0.50	B
		S3	5	4	6	3	161	54	1.00	0.80	0.90	0.42	A
		P1/P3	5	4	20	2	205	20	1.00	0.75	0.90	0.43	A
		P2/P4	5	4	2	3	15	36	1.00	0.75	0.90	0.12	A
		P5/P7	5	4	20	2	186	19	1.00	0.75	0.90	0.39	A
		P6/P8	5	4	2	5	22	55	1.00	0.75	0.90	0.18	A
	Burnside Avenue (4)	S1	6	5	10	4	46	34	1.00	0.80	0.90	0.13	A
		S2	6	5	7	3	60	20	1.00	0.80	0.90	0.13	A
		S3	6	5	13	4	225	174	1.00	0.80	0.90	0.66	B
		S4	6	5	5	4	163	77	1.00	0.80	0.90	0.38	A
		P1/P3	7.83	6.33	14	1	238	25	1.00	0.75	0.90	0.32	A
		P2/P4	7.83	6.33	4	5	49	109	1.00	0.75	0.90	0.23	A
		P5/P7	7.83	6.33	14	1	157	28	1.00	0.75	0.90	0.23	A
		P6/P8	7.83	6.33	4	7	49	142	1.00	0.75	0.90	0.28	A
	170th Street (4)	S1	5	4	138	29	355	102	1.00	0.80	0.90	0.89	C
		S2	5	4	22	4	135	31	1.00	0.80	0.90	0.32	A
		S3	5	4	0	0	172	69	1.00	0.80	0.90	0.48	B
		P1/P3	5	4	69	5	294	33	1.00	0.75	0.90	0.63	B
		P2/P4	5	4	11	9	40	54	1.00	0.75	0.90	0.21	A
		P5/P7	5	4	69	6	280	39	1.00	0.75	0.90	0.61	B
		P6/P8	5	4	11	12	48	76	1.00	0.75	0.90	0.28	A
	167th Street (4)	S2	5	4	10	4	226	84	1.00	0.80	0.90	0.61	B
		S3	5	4	22	5	209	41	1.00	0.80	0.90	0.48	B
		S4	8.33	6.83	0	0	127	42	1.00	0.80	0.90	0.20	A
		S5	5	4	11	1	89	28	1.00	0.80	0.90	0.23	A
		P3/P5	5	4	17	2	285	48	1.00	0.75	0.90	0.65	B
		P4/P6	5	4	5	5	92	91	1.00	0.75	0.90	0.39	A
		P7/P9	5	4	17	1	219	20	1.00	0.75	0.90	0.45	B
		P8/P10	5	4	5	2	56	37	1.00	0.75	0.90	0.20	A
PM	183rd Street (4)	S1	5	4	4	7	24	40	1.00	0.80	0.90	0.14	A
		S2	5	4	18	33	71	161	1.00	0.80	0.90	0.50	B
		S3	5	4	6	13	47	117	1.00	0.80	0.90	0.36	A
		P1/P3	5	4	12	4	64	25	1.00	0.75	0.90	0.18	A
		P2/P4	5	4	2	21	10	123	1.00	0.75	0.90	0.32	A
		P5/P7	5	4	12	4	53	24	1.00	0.75	0.90	0.16	A
		P6/P8	5	4	2	24	15	146	1.00	0.75	0.90	0.39	A
	Burnside Avenue (4)	S1	6	5	10	46	33	80	1.00	0.80	0.90	0.20	A
		S2	6	5	6	24	39	63	1.00	0.80	0.90	0.17	A
		S3	6	5	8	48	138	336	1.00	0.80	0.90	0.83	C
		S4	6	5	7	19	79	146	1.00	0.80	0.90	0.39	A
		P1/P3	7.83	6.33	11	10	133	46	1.00	0.75	0.90	0.23	A
		P2/P4	7.83	6.33	4	57	35	261	1.00	0.75	0.90	0.45	A
		P5/P7	7.83	6.33	11	10	78	44	1.00	0.75	0.90	0.16	A
		P6/P8	7.83	6.33	4	60	42	274	1.00	0.75	0.90	0.48	B
	170th Street (4)	S1	5	4	63	133	144	249	1.00	0.80	0.90	0.84	C
		S2	5	4	9	20	64	117	1.00	0.80	0.90	0.39	A
		S3	5	4	0	0	78	160	1.00	0.80	0.90	0.52	B
		P1/P3	5	4	22	18	87	61	1.00	0.75	0.90	0.31	A
		P2/P4	5	4	14	51	49	175	1.00	0.75	0.90	0.52	B
		P5/P7	5	4	22	17	86	59	1.00	0.75	0.90	0.30	A
		P6/P8	5	4	14	67	65	232	1.00	0.75	0.90	0.69	B
	167th Street (4)	S2	5	4	10	14	104	224	1.00	0.80	0.90	0.71	C
		S3	5	4	12	23	92	146	1.00	0.80	0.90	0.51	B
		S4	8.33	6.83	0	0	56	92	1.00	0.80	0.90	0.19	A
		S5	5	4	4	11	35	78	1.00	0.80	0.90	0.25	A
		P3/P5	5	4	9	5	111	56	1.00	0.75	0.90	0.34	A
		P4/P6	5	4	4	27	43	303	1.00	0.75	0.90	0.83	C
		P7/P9	5	4	9	2	83	26	1.00	0.75	0.90	0.22	A
		P8/P10	5	4	4	14	50	155	1.00	0.75	0.90	0.48	B

Source: STV Incorporated, 2017.

Table 20.7.13-5: A-Application Alternative Fare Array Analysis at Jerome Avenue Subway Stations

Peak Hour	Station	Fare Array ID	Control Element	Quantity	Project Increment		15-Min Peak Volume		Surging Factor		Friction Factor	V/C Ratio	LOS
					Entries	Entries	Entries	Exits	Entries	Exits			
AM	183rd Street (4)	R288	Two-Way Turnstile	4	43	11	428	130	1.00	0.80	0.90	0.35	A
	Burnside Avenue (4)	R287	HEETs	2	36	15	494	305	1.00	0.80	0.90	0.41	A
			HXTs	2									
			Two-Way Turnstile	3									
	170th Street (4)	R284	Two-Way Turnstile	4	160	32	662	203	1.00	0.80	0.90	0.55	B
	167th Street (4)	R283	Two-Way Turnstile	4	44	10	652	195	1.00	0.80	0.90	0.54	B
PM	183rd Street (4)	R288	Two-Way Turnstile	4	28	53	142	318	1.00	0.80	0.90	0.26	A
	Burnside Avenue (4)	R287	HEETs	2	31	136	289	625	1.00	0.80	0.90	0.39	A
			HXTs	2									
			Two-Way Turnstile	3									
	170th Street (4)	R284	Two-Way Turnstile	4	72	153	287	526	1.00	0.80	0.90	0.47	B
	167th Street (4)	R283	Two-Way Turnstile	4	-190	-303	288	540	1.00	0.80	0.90	0.48	B

Source: STV Incorporated, 2017.

Subway Line-Haul

Table 20.7.13-6 lists line-haul conditions on the No. 4 line serving the rezoning area in the A-Application Alternative. The No. 4 line trains are projected to continue to operate over guideline capacity in the AM and PM peak hours, with v/c ratios of 1.12 and 1.14, respectively. Incremental increases in ridership would average 3.9 northbound trips per car in the AM and 3.9 southbound trips in the PM. The No. 4 line is expected to experience fewer than five incremental trips per car in each direction in each peak hour as a result of the A-Application Alternative; therefore, significant adverse impacts to subway line-haul conditions are not anticipated based on *CEQR Technical Manual* criteria.

Table 20.7.13-6: A-Application Alternative Subway Line Haul Analysis

Peak Hour	Route	Direction	Maximum Load Point (Leaving Station)	Average Trains per Hour [1]	Average Cars per Hour [1]	Guideline Passengers per Car [2]	2026 No-Action Condition			2026 With-Action Condition			
							Average Passengers per Hour	Average Passengers per Car	V/C Ratio [3]	Average Passengers per Hour	Average Passengers per Car	V/C Ratio[3]	Average Additional Passengers per Car
AM	4	SB	86 Street	14.5	145.0	110	17,344	120	1.09	17,912	124	1.12	3.91
PM	4	NB	59 Street	11.7	117.0	110	14,203	121	1.10	14,654	125	1.14	3.85

Notes:

(1) Based on 2013-2014 ridership and train throughput data from NYCT.

(2) Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.

(3) Volume to guideline capacity ratio.

Source: STV Incorporated, 2017.

Bus

Weekday AM and PM peak hour incremental bus trips would total 785 and 1,210 in the A-Application Alternative, respectively, compared to 555 and 935 trips in the Proposed Actions, as listed in Table 20.7.13-1. As listed in Table 20.7.13-7, demand on the Bx11 route is expected to increase by approximately 145 eastbound trips and 72 westbound trips at the maximum load points in the AM peak hour and by 107 eastbound trips and 165 westbound trips in the PM. Demand on the Bx32 route is expected to increase by approximately 33 northbound trips and 77 southbound trips at the maximum load points in the AM peak hour, and 132 northbound trips and 93 southbound trips in the PM. Demand on the Bx35 route is expected to increase by approximately 43 eastbound trips and 17 westbound trips at the maximum load points in the AM peak hour and by 51 eastbound and 68 westbound trips in the PM.

Table 20.7.13-7: A-Application Alternative Local Bus Analysis

Peak Hour (1)	Route	Direction	Maximum Load Point(s)	Peak Hour Buses (1)	No-Action Available Capacity (2)	Project Increment	Available Capacity w/Proposed Actions (2)
AM	Bx11	EB	Claremont Pky and Webster Av / W 170th St and Jerome Av	13	29	145	-115
		WB	E 170th St and Jerome Ave / Claremont Pky and Webster Av	13	19	72	-53
	Bx32	NB	Morris Av and E 170th St	6	27	33	-6
		SB	Morris Av and E 170th St / Morris Av and E 161st St	8	38	77	-39
	Bx35	EB	E 167th St and Grand Concourse / Webster Av and E 168th St	15	13	43	-29
		WB	E 167th St and College Av / E 167th St and Grand Concourse	18	40	17	24
PM	Bx11	EB	Claremont Pky and Webster Av	12	159	107	52
		WB	Claremont Pky and Webster Av	12	36	165	-129
	Bx32	NB	Morris Av and E 170th St	6	77	132	-55
		SB	Morris Av and E 170th St	5	65	93	-28
	Bx35	EB	E 167th St and Grand Concourse	10	24	51	-27
		WB	E 167th St and Grand Concourse / Webster Av and E 168th St	11	11	68	-57

Notes:
(1) Assumes service levels adjusted to address capacity shortfalls in the No-Action Condition.
(2) Available capacity based on NYCT loading guideline of 54 passengers per standard bus.

Source: STV Incorporated, 2017.

Based on projected levels of bus service in the No-Action condition, the A-Application Alternative would result in the following capacity shortfalls:

- Eastbound Bx11 would experience a shortfall of 115 passengers in the AM peak hour.
- Westbound Bx11 would experience a shortfall of 53 passengers in the AM peak hour and 129 passengers in the PM peak hour.

- Northbound Bx32 would experience a shortfall of 6 passengers in the AM peak hour and 55 passengers in the PM peak hour.
- Southbound Bx32 would experience a shortfall of 39 passengers in the AM peak hour and 28 passengers in the PM peak hour.
- Eastbound Bx35 would experience a shortfall of 29 passengers in the AM peak hour and 27 passengers in the PM peak hour.
- Westbound Bx35 would experience a shortfall of 57 passengers in the PM peak hour.

Therefore, the Bx11, Bx32, and Bx35 services would be significantly adversely impacted in one or more peak hours based on *CEQR Technical Manual* criteria. As discussed in the Mitigation section below, the significant adverse impacts to bus service could be mitigated by increasing the number of buses in service. The general policy of the MTA is to provide additional bus service where demand warrants, taking into account fiscal and operational constraints.

Pedestrians

The A-Application Alternative is expected to generate 5,994, 13,105, 10,056, and 10,985 incremental pedestrian trips (including walk/other trips and trips to/from area transit services and public parking facilities) in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. This represents an increase of 34 to 50 percent compared to the 3,984, 9,395, 7,508, and 8,160 incremental pedestrian trips that would be generated in the Proposed Actions during these same periods, respectively. There would be no change in the number or location of significant adverse impacts as a result of the overall decrease in incremental pedestrian trips in the A-Application Alternative as compared to the Proposed Actions (see Table 20.7.13-8).

Sidewalks

The south sidewalk of West 170th Street between Edward L. Grant Highway and Cromwell Avenue is projected to experience a significant adverse impact during the Saturday midday peak hour, operating at LOS D, the same significant adverse impact as in the Proposed Actions.

Table 20.7.13-8: Sidewalk Conditions in the A-Application Alternative

Intersection	Sidewalk	No-Action			With-Action			A-Application Alternative		
		Effective Width	SFP	LOS	Effective Width	SFP	LOS	Effective Width	SFP	LOS
Saturday MD Peak Hour										
West 170th Street between Edward L. Grant Highway and Cromwell Avenue	South	3	126.1	B	3	33.8	D	3	36.1	D
Notes: Shading denotes a significant adverse impact										

Source: STV Incorporated, 2017.

Vehicular and Pedestrian Safety Evaluation

A review of DOT crash data for the three-year reporting period between January 1, 2012, and December 31, 2014 identified nine intersections in proximity to the rezoning area as high crash accident locations. The *Vision Zero Bronx Pedestrian Safety Action Plan* was released on February 18, 2015. Portions of the Jerome Avenue Rezoning traffic study area were identified as Priority Areas where safety issues were found to occur systematically at an area-wide level. DOT's recommended improvements to select intersections and corridors in the study area include measures to improve pedestrian safety, such as the installation of additional lighting under elevated trains, expanded midblock treatments, and modifications to signal timings to add exclusive pedestrian cross time. In both the Proposed Actions and the A-Application Alternative, additional improvements to increase pedestrian/bicyclist safety at high crash locations could include the installation of high-visibility crosswalk striping, pedestrian countdown signals, signs warning turning vehicles to yield to pedestrians in the crosswalk, and improved street lighting.

Parking

No additional parking capacity would be developed in the A-Application Alternative, the same as in the Proposed Actions. In the A-Application Alternative as compared to the Proposed Actions one additional existing parking facility would be displaced. Redevelopment of this property would result in a decrease of 240 parking spaces in area-wide parking capacity as compared to the Proposed Actions.

As listed in Table 20.7.13-9 and Table 20.7.13-10, the A-Application Alternative is expected to generate a demand for approximately 936 parking spaces in the weekday 1-2 PM period, 2,159 during the weekday overnight period, and 786 during the Saturday 1-2 PM period. This is compared to the Proposed Actions which are expected to generate a demand for 770, 1,853, and 656 parking spaces during the same periods, respectively.

Parking utilization for the A-Application Alternative is projected to be 96 percent during the weekday midday period, 94 percent during the weekday overnight period, and 89 percent during the Saturday midday period (see Table 20.7.13-11). In the A-Application Alternative sufficient parking would be available within a ¼-mile radius of the study area to accommodate projected demand during the weekday midday, weekday overnight, and Saturday midday periods. There is projected to be a parking shortfall

within ¼-mile of Projected Development Sites 30, 32, and 33 during the weekday midday and overnight analysis periods in the A-Application Area Alternative. A deficit of approximately 401 parking spaces during the weekday midday and 838 during the weekday overnight periods is projected. A surplus of approximately 20 spaces is projected to exist during the Saturday midday analysis period.

Overall, the study area has a parking surplus. Some drivers destined for the Projected Development Sites 30, 32, and 33 would potentially have to travel a greater distance (e.g., between ¼ and ½ mile) to find available parking in the weekday midday and overnight periods. The parking shortfall for the Projected Development Sites 30, 32, and 33 would not be considered a significant adverse impact, based on *CEQR Technical Manual* criteria, due to the availability of sufficient parking outside the ¼-mile radius within the overall study area and the magnitude of available alternative modes of transportation. Therefore, the A-Application Alternative is not expected to result in significant adverse parking impacts.

Table 20.7.13-9: Weekday A-Application Alternative Net Incremental Hourly Parking Accumulation by Land Use

	Local Retail	Office	Regional Retail	Residential	Hotel	Light Industrial	Restaurant (Sit Down)	Restaurant (Drive-Through)[1]	Auto Repair	Warehouse	FRESH Supermarket	Pre-K & PS/IS School (staff)	Community Facility				Total Demand
													Community Center	House of Worship	Medical Office	Daycare[2]	
12-1 AM	0	0	0	2125	0	0	0	0	0	0	0	0	0	0	0	0	2,125
1-2	0	0	0	2159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
2-3	0	0	0	2159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
3-4	0	0	0	2159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
4-5	0	0	0	2159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
5-6	0	0	0	2103	0	0	0	0	0	0	0	0	0	0	0	0	2,103
6-7	0	0	0	1854	0	0	0	0	0	0	0	0	0	0	0	0	1,854
7-8	2	3	0	1482	0	-1	0	0	-1	-5	0	0	1	2	0	4	1,487
8-9	2	41	0	889	0	-13	4	0	-11	-21	0	16	3	5	3	7	925
9-10	10	68	3	827	0	-23	9	0	-32	-36	0	16	2	5	5	7	861
10-11	22	70	5	794	0	-25	14	0	-34	-39	0	16	1	5	6	7	842
11-12	31	67	6	798	0	-23	27	1	-26	-34	0	16	1	11	5	7	887
12-1 PM	34	66	6	786	0	-24	49	1	-14	-31	0	16	2	11	4	7	913
1-2	34	66	7	788	0	-24	65	2	-14	-31	2	16	3	11	4	7	936
2-3	36	74	6	847	0	-25	31	1	-17	-36	2	16	3	14	4	7	963
3-4	34	73	6	1058	0	-26	19	1	-17	-36	2	14	4	16	4	5	1,157
4-5	27	49	5	1348	0	-20	9	0	-5	-28	4	13	3	18	3	4	1,430
5-6	24	7	5	1715	0	-4	18	1	-5	-10	5	0	1	18	3	0	1,778
6-7	11	1	5	1939	0	0	46	1	-1	-3	4	0	1	18	0	0	2,022
7-8	7	0	5	2043	0	0	65	2	0	0	0	0	1	11	0	0	2,134
8-9	3	0	4	2131	0	0	39	1	0	0	2	0	0	5	0	0	2,185
9-10	0	0	2	2140	0	0	12	0	0	0	0	0	0	0	0	0	2,154
10-11	0	0	1	2101	0	0	0	0	0	0	0	0	0	0	0	0	2,102
11-12	0	0	0	2090	0	0	0	0	0	0	0	0	0	0	0	0	2,090

Notes:
Parking accumulation patterns based on *East New York Rezoning Proposal FEIS* unless otherwise noted.
[1] *ITE Parking Generation Manual, 4th Edition*
[2] *Crotona Park East/West Farms Rezoning* FEIS

Source: STV Incorporated, 2017.

Table 20.7.13-10: Saturday A-Application Alternative Net Incremental Hourly Parking Accumulation by Land Use

	Local Retail	Office	Regional Retail	Residential	Hotel	Light Industrial	Restaurant (Sit Down)	Restaurant (Drive-Through)[1]	Auto Repair	Warehouse	FRESH Supermarket	Pre-K & PS/IS School (staff)	Community Facility				Total Demand
													Community Center	House of Worship	Medical Office	Daycare[2]	
12-1 AM	0	0	0	1,787	0	0	0	0	0	0	0	0	0	0	0	0	1,787
1-2	0	0	0	2,159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
2-3	0	0	0	2,159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
3-4	0	0	0	2,159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
4-5	0	0	0	2,159	0	0	0	0	0	0	0	0	0	0	0	0	2,159
5-6	0	0	0	1,769	0	0	0	0	0	0	0	0	0	0	0	0	1,769
6-7	0	0	0	1,560	0	0	0	0	0	0	0	0	0	0	0	0	1,560
7-8	2	1	0	1,246	0	0	0	0	-1	-2	0	0	1	3	0	0	1,250
8-9	2	9	0	747	0	-2	4	0	-11	-7	0	0	1	5	3	0	751
9-10	12	15	3	695	0	-3	9	0	-32	-13	0	0	1	5	5	0	697
10-11	26	15	6	668	0	-4	15	0	-34	-13	0	0	1	5	6	0	691
11-12	37	14	8	671	0	-3	28	1	-26	-12	0	0	1	13	5	0	737
12-1 PM	40	14	8	661	0	-4	51	1	-14	-11	0	0	1	13	4	0	764
1-2	40	14	8	663	0	-4	68	2	-14	-11	2	0	1	13	4	0	786
2-3	42	16	8	712	0	-4	32	1	-17	-13	2	0	1	15	4	0	799
3-4	40	16	7	890	0	-4	20	1	-17	-13	2	0	2	18	4	0	966
4-5	32	11	6	1,134	0	-3	9	0	-5	-10	5	0	1	21	3	0	1,204
5-6	28	1	6	1,443	0	-1	19	0	-5	-4	7	0	1	21	3	0	1,519
6-7	13	0	6	1,631	0	0	48	1	-1	-1	5	0	0	21	0	0	1,723
7-8	8	0	6	1,718	0	0	68	2	0	0	0	0	0	13	0	0	1,815
8-9	3	0	5	1,792	0	0	40	1	0	0	2	0	0	5	0	0	1,848
9-10	0	0	3	1,800	0	0	13	0	0	0	0	0	0	0	0	0	1,816
10-11	0	0	1	1,767	0	0	0	0	0	0	0	0	0	0	0	0	1,768
11-12	0	0	0	1,758	0	0	0	0	0	0	0	0	0	0	0	0	1,758

Notes:
Parking accumulation patterns based on *East New York Rezoning Proposal FEIS* unless otherwise noted.
[1] *ITE Parking Generation Manual, 4th Edition*
[2] *Crotona Park East/West Farms Rezoning* FEIS

Source: STV Incorporated, 2017.

Table 20.7.13-11: A-Application Alternative Public Parking Capacity, Demand, and Utilization within ¼-mile of Sites 30, 32, and 33

Parking Analysis Study Area (1/4-Mile Radius from the Rezoning Area)	Weekday Midday	Weekday Overnight	Saturday Midday
Capacity			
No-Action Capacity (Off-Street and On-Street)	24,318	24,841	24,804
Capacity Displaced by A-Application Alternative Developments	(448)	(448)	(448)
Total With-Action Capacity	23,870	24,393	24,356
Demand			
No-Action Demand (Off-Street and On-Street)	21,895	20,800	20,850
Projected Demand from A-Application Alternative Developments	936	2,159	786
Total With-Action Demand	22,831	22,960	21,636
Utilization			
A-Application Alternative Utilization	96%	94%	89%
A-Application Alternative Parking Surplus/(Deficit)	1,039	1,433	2,720
Parking Analysis Sub-Area (1/4-Mile Radius from Sites 30, 32, and 33)	**Weekday Midday**	**Weekday Overnight**	**Saturday Midday**
Capacity			
No-Action Capacity (Off-Street and On-Street)	4,294	4,349	4,294
Capacity Displaced by A-Application Alternative Developments	(415)	(415)	(415)
Total With-Action Capacity	3,879	3,934	3,879
Demand			
No-Action Demand (Off-Street and On-Street)	3,892	3,723	3,529
Projected Demand from A-Application Alternative Developments	388	1,048	330
Total With-Action Demand	4,280	4,772	3,859
Utilization			
A-Application Alternative Utilization	110%	121%	99%
A-Application Alternative Parking Surplus/(Deficit)	(401)	(838)	20

Source: STV Incorporated, 2017

20.7.14 AIR QUALITY

Introduction

As described in Chapter 1, "Project Description," the Jerome Avenue Rezoning consists of a series of land use actions (collectively, the "Proposed Actions A-Application Alternative") intended to facilitate the implementation of the objectives of the Jerome Avenue Neighborhood Plan (the "Plan"). The affected area comprises an approximately 92-block area primarily along Jerome Avenue and its east west commercial corridors in Bronx Community Districts (CDs) 4, 5, and 7 (the "rezoning area"). The rezoning area is generally bounded by 184th Street to the north and East 165th Street to the south, and also includes portions of 183rd Street, Burnside Avenue, Tremont Avenue, Mount Eden Avenue, 170th Street, Edward L. Grant Highway, and East 167th Street.

This chapter discusses potential impacts to air quality as a result of the Proposed Actions A-Application Alternative. The air quality analyses are concerned with both mobile source and stationary source impacts, as follows:

- The potential for traffic volumes and a redistribution of traffic associated with the Proposed Actions A-Application Alternative (along with the inclusion of new parking garages) to result in significant mobile source air quality impacts Development sites within the rezoning area would include on−site parking. Therefore, an evaluation potential future pollutant concentrations from the proposed parking facilities was required);

- The potential for emissions from the heating, ventilation, and air conditioning (HVAC) systems of the Proposed Actions A-Application Alternative to result in stationary source pollutants that would significantly impact existing land uses;

- The potential for emissions from the HVAC systems of individual proposed buildings to result in stationary source pollutants that would significantly impact other proposed buildings;

- The potential for emissions from existing stationary sources of pollution from either large-scale boiler systems or industrial processes to result in significant impacts on the Proposed Actions A-Application Alternative.

These air quality analyses are conducted per the guidance of the *City Environmental Quality Review (CEQR) Technical Manual*, as well as other relevant guidance and protocols provided by New York State Department of Environmental Conservation (NYSDEC), New York City Department of Environmental Protection (DEP), and United States Environmental Protection Agency (USEPA). As appropriate, applicable environmental reports for other nearby projects have been reviewed. In addition, the air quality characteristics of the Proposed Actions A-Application are identified and discussed within the context of the Clean Air Act (CAA) requirements and other applicable state and local air quality standards.

Principal Conclusions

The detailed analyses conclude that the Proposed Actions A-Application Alternative would not result in any significant adverse air quality impacts on sensitive uses in the surrounding community, and the Proposed Actions A-Application Alternative would not be adversely affected by existing sources of air emissions in the rezoning area. A summary of the general findings is presented below.

The stationary source analyses determined that there would be no potential significant adverse air quality impacts from fossil fuel−fired heat and hot water systems at the projected and potential development sites. At certain sites, an (E) designation (E−442) would be mapped as part of the zoning proposal to ensure the developments would not result in any significant air quality impacts from fossil fuel−fired HVAC systems emissions due to individual or groups of development sites.

An analysis of the cumulative impacts of industrial sources on projected and potential development sites was performed. Maximum concentration levels at projected and potential development sites were below the air toxic guideline levels and health risk criteria established by regulatory agencies, and below National Ambient Air Quality Standards (NAAQS). Large and major emissions sources within 1,000 feet of a projected or potential development site were also analyzed. Results of this analysis show that none of the projected or potential development sites would be impacted by the two large emissions sources identified within the project area

The assessment of mobile sources demonstrated that project related emissions of CO and fine particulate matter less than ten microns in diameter (PM_{10}) due to project−generated traffic at intersections would not result in any violations of NAAQS, or the CEQR de minimis criteria. The screening assessment results also show that project related daily (24−hour) $PM_{2.5}$ increments would not surpass the de minimis criteria thresholds.

The parking facilities assumed to be developed as a result of the Proposed Actions A-Application Alternative would not result in any significant adverse air quality impacts.

Pollutants of Concern

Ambient air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Ambient concentrations of CO are predominantly influenced by mobile source emissions. Particulate matter (PM), volatile organic compounds (VOCs), and nitrogen oxides (nitric oxide (NO) and nitrogen dioxide (NO_2), collectively referred to as NOx) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NOx, sulfur oxides (SOx), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of sulfur dioxide (SO2) are associated mainly with stationary sources, and some sources utilizing non−road diesel such as large international marine engines. On−road diesel vehicles currently contribute very little to SO2 emissions since the sulfur content of on−road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NOx and VOCs. Ambient

concentrations of CO, PM, NO_2, SO_2, ozone, and lead are regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act, and are referred to as 'criteria pollutants'; emissions of VOCs, NOx, and other precursors to criteria pollutants are also regulated by EPA.

Carbon monoxide

Carbon monoxide (CO) is a colorless and odorless gas, which is primarily associated with the incomplete combustion of vehicle fuel. CO is highly reactive and its concentrations are limited to relatively short distances near crowded intersections and along slow moving, heavily traveled roadways. Pursuant to the CAA, each state is committed to offset any CO emissions resulting from vehicle miles traveled (VMT) growth in non-attainment areas. In 2010, New York City was re-designated as a maintenance area. To ensure that air quality conditions continue to improve within the New York City metropolitan area, it is important to monitor potential impacts of new traffic-generating projects. Emissions of CO could increase as a result of a project related increase in vehicle volumes in the rezoning area. As a result, concentrations of CO are evaluated on a local, or microscale, basis.

Nitrogen Oxides, VOC's and Ozone

NOx are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow, and occur as the pollutants are transported downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NOx and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions. In addition to being a precursor to the formation of ozone, NO_2 (one component of NO_x) is also a regulated pollutant. Since NO_2 is mostly formed from the transformation of NO in the atmosphere, it has mostly been of concern further downwind from large stationary point sources, and not a local concern from mobile sources. (NO_x emissions from fuel combustion consist of approximately 90 percent NO and 10 percent NO_2 at the source.) While NO_2 emissions are a concern from stationary sources of combustion, with the promulgation of the 2010 1−hour average standard for NO_2, local sources such as vehicular emissions have also become of greater concern for this pollutant. However, any increase in NO_2 associated with the Proposed Actions A-Application Alternative would be relatively small, as demonstrated below for CO and PM, due to the very small increases in the number of project induced vehicles. This increase would not be expected to significantly affect levels of NO_2 experienced near roadways.

Potential impacts on local NO_2 concentrations from the fuel combustion for Projected and potential development sites' HVAC systems were evaluated.

Lead

Lead emissions are associated with industrial uses and motor vehicles that use gasoline containing lead additives. Most vehicles available since 1975 and all after 1980 that are manufactured in this country are designed to use unleaded fuel. As a result, lead emissions have decreased significantly. There would also be

no industrial sources associated with the operation of the Proposed Actions A-Application Rezoning Area Alternative. Therefore, lead is not a pollutant of concern for the project.

Respirable Particulate Matter – PM_{10} and $PM_{2.5}$

Inhalable particulate matter (PM) is a respiratory irritant and is of most concern when classified as being less than 10 microns in diameter (PM_{10}). PM is primarily generated by stationary sources, such as industrial facilities and power plants; however, PM can also be produced by the combustion of diesel fuel used in some buses and trucks, as well as residential and commercial HVAC systems using oil as fuel. PM also develops from the mechanical breakdown of coarse particulate matter (e.g., from building demolition or roadway surface wear as well as other construction-related activities).

Also of concern is PM that is classified as being less than 2.5 microns in diameter ($PM_{2.5}$). $PM_{2.5}$ is extremely persistent in the atmosphere and has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that bind to the surfaces of the particles. Many of these particles can be toxic and oftentimes are also carcinogenic in nature. DEP, in conjunction with NYSDEC, has promulgated guidance for the screening and assessment of these fine particulates that is outlined in the *CEQR Technical Manual*. The mobile source screening portion of the guidelines requires that if the Proposed Actions A-Application Alternative would generate fewer heavy duty diesel vehicles (HDDV) per hour (or its equivalent in vehicular emissions) than listed below, the need for a detailed $PM_{2.5}$ analysis is unlikely:

- 12 HDDV: for paved roads with < 5000 vehicles/day
- 19 HDDV: for collector type roads
- 23 HDDV: for principal and minor arterials
- 23 HDDV: for expressways and limited access roads

The Proposed Actions A-Application Alternative would generate traffic, some of which would be diesel vehicles. In addition, the HVAC systems of the Proposed Actions A-Application Alternative may also contribute to emissions of PM. As a result, both PM_{10} and $PM_{2.5}$ are evaluated as pollutants of particular concern.

Sulfur dioxide

Sulfur dioxide (SO_2) are respiratory irritants associated with the combustion of sulfur-containing fuels (such as heating oil and coal). SO_2 is a precursor to acid rain and to $PM_{2.5}$, both of which create damage to individual health and the environment. This pollutant is typically associated with large industrial operations, but can also result from smaller sources. All NYSDEC sulfur dioxide monitoring sites have remained in compliance with the New York State/Federal annual mean standard for over twenty years, consecutively. As it is assumed that the proposed development could potentially use No. 2 fuel oil for its HVAC heating and hot water systems, SO_2 is a pollutant of concern.

Non-criteria Pollutants

In addition to criteria pollutants, a wide range of the non-criteria air pollutants, known as hazardous air pollutants (HAPs), which could be emitted from industrial and commercial facilities, are also of potential concern. These pollutants can be grouped into two categories: carcinogenic air pollutants and non-

carcinogenic air pollutants. These two groups include hundreds of pollutants, ranging from high to low toxicity. No federal standards have been promulgated for toxic air pollutants. However, USEPA and NYSDEC have issued guidelines that establish acceptable ambient levels for these pollutants based on human exposure criteria. The NYSDEC guidance document DAR−1 (2016)[4] contains a compilation of annual and short term (1−hour) guideline concentrations for these compounds. The NYSDEC guidance thresholds represent ambient levels that are considered safe for public exposure. EPA has also developed guidelines for assessing exposure to non-criteria pollutants. These exposure guidelines are used in health risk assessments to determine the potential effects to the public.

The rezoning area contains a zoned manufacturing area, some of which would remain once the Proposed Actions A-Application Alternative are in effect. Therefore, air toxics are potential pollutants of concern.

Air Quality Standards and Guidelines

National and State Air Quality Standards

National and New York State primary and secondary ambient air quality standards are pollutant concentration limits for each of the criteria pollutants specified by USEPA. The NAAQS for all of the criteria pollutants are listed in Table 20.7.14-1, "National Ambient Air Quality Standards." Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air ($\mu g/m^3$).

[4] NYSDEC DAR−1 (Air Guide−1) AGC/SGCAGC/SGC Tables, June 2016.

Table 20.7.14-1: National Ambient Air Quality Standards

National Ambient Air Quality Standards Pollutant	Primary / Secondary	Averaging Period	Concentration	
Carbon Monoxide (CO)	Primary	1-Hour	35 ppm	*Not to be exceeded more than once per year*
		8-Hour	9 ppm	
Lead (Pb)	Primary and Secondary	Rolling 3 Month Average	0.15 μg/m^3 (1)	*Not to be exceeded*
Nitrogen Dioxide (NO_2)	Primary	1-Hour	188 μg/m^3	*98th percentile of 1-hour daily maximum concentrations, averaged over 3 years*
	Primary and Secondary	Annual	100 μg/m^3 (2)	*Annual mean*
Ozone (O_3)	Primary and Secondary	8-Hour	0.070 ppm (3)	*Annual fourth highest daily maximum 8-hour concentration, averaged over 3 years*
Particulates ($PM_{2.5}$)	Primary	Annual	12 μg/m^3	*Annual mean, averaged over 3 years*
	Secondary	Annual	15 μg/m^3	*Annual mean, averaged over 3 years*
	Primary and Secondary	24-Hour	35 μg/m^3	*98th percentile, averaged over 3 years*
Particulates (PM_{10})	Primary and Secondary	24-Hour	150 μg/m^3	*Not to be exceeded more than once per year on average over 3 years*
Sulfur Dioxide (SO_2)	Primary	1-Hour	75 ppb (4)	*99th percentile of 1-hour daily maximum concentrations, averaged over 3 years*
	Secondary	3-Hour	0.5 ppm	*Not to be exceeded more than once per year*

Notes:
(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 μg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
(2) The official level of the annual NO_2 standard is 100 μg/m^3.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.
(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation per the current (2010) standards, and (2)any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment per the previous SO_2 standards or is not meeting the requirements of a SIP call per the previous SO_2 standards (40 CFR 50.4(3)), A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

Source: US Environmental Protection Agency; New York State Department of Environmental Conservation, 2016

Determining the Significance of Air Quality Impacts

Based on the USEPA Clean Air Act, the State Environmental Quality Review Act (SEQRA) regulations, and the guidance of the *CEQR Technical Manual*, predicted criteria pollutant levels that are greater than those represented in Table 14-1, "National Ambient Air Quality Standards," above would be considered a potential

significant adverse impact. Similarly, for non-criteria pollutants, predicted exceedance of the NYSDEC's DAR-1 guideline concentrations would be considered a potential significant adverse impact.

To ensure that pollutant concentration levels are kept below the NAAQS in attainment areas and that concentrations are not significantly increased in non-attainment areas, threshold levels not to be exceeded have also been defined for criteria pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

CO De Minimis Criteria

With respect to CO, in addition to the Federal and State standards, New York City has developed *de minimis* threshold criteria to assess the significance of project-related impacts on local air quality. These criteria set the minimum change in an 8-hour average CO concentration that would constitute a significant adverse environmental impact. Significant increases of CO concentrations in New York City are defined as:

- An increase of 0.5 ppm or greater in the maximum eight-hour concentration if the projected future ambient No-Action condition concentration is equal to 8 ppm or between 8 ppm and 9 ppm.
- An increase of more than half the difference between the baseline concentrations and the 8-hour standards when No-Action condition concentrations are below 8 ppm.

Project-related impacts less than these values are not considered to be significant.

$PM_{2.5}$ De Minimis Criteria

With respect to $PM_{2.5}$, NYSDEC and DEP have developed criteria guidance for the study and assessment of project-related significant adverse impacts. These threshold criteria are related to analyses which determine potential microscale and neighborhood scale incremental (the difference between the future with and without the Proposed Actions A-Application Alternative) impacts at sensitive receptor locations. The criteria are as follows:

- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 2 $\mu g/m^3$ but no greater than 5.0 $\mu g/m^3$ could be considered a significant adverse impact on air quality based on the frequency, duration and location of the predicted concentrations.
- Predicted increase of more than half the difference between the background concentration and the 24-hour standard.
- The maximum annual impact criteria of 0.3 $\mu g/m^3$ is applicable to stationary sources and construction only, or;
- The criteria threshold concentration for the neighborhood scale increment on a yearly basis is 0.1 $\mu g/m^3$ (for stationary sources, receptor locations are based on a 1km x 1km grid centered at the maximum predicted microscale annual concentration - averaged over all receptors; for mobile sources, receptors are located at a distance of 15 meters from the edge of roadway).

Non-Criteria Pollutant Thresholds

In order to evaluate short-term and annual impacts of non-carcinogenic toxic air pollutants, NYSDEC has established through their DAR-1 guidance document, short-term guideline concentrations (SGC) and annual guideline concentrations (AGC) for exposure limits. Air toxic concentration values can be found in the NYSDEC DAR-1 AGC/SGC tables; they represent maximum allowable one-hour and annual guideline concentrations, respectively, that are considered acceptable concentrations below which there should be no adverse effects on the health of the general public.

In order to evaluate impacts of non−carcinogenic toxic air emissions, EPA developed a methodology called the "Hazard Index Approach." The acute hazard index is based on short−term exposure, while the chronic non− carcinogenic hazard index is based on annual exposure limits. If the combined ratio of pollutant concentration divided by its respective short−term or annual exposure threshold for each of the toxic pollutants is found to be less than 1, no significant air quality impacts are predicted to occur due to these pollutant releases.

In addition, the EPA has developed unit risk factors for carcinogenic pollutants. The EPA considers an overall incremental cancer risk from a proposed action of less than one−in−one million to be insignificant. Using these factors, the potential cancer risk associated with each carcinogenic pollutant, as well as the total cancer risk of the releases of all of the carcinogenic toxic pollutants combined, can be estimated. If the total incremental cancer risk of all of the carcinogenic toxic pollutants combined is less than one−in−one million, no significant air quality impacts are predicted to occur due to these pollutant releases.

Existing Conditions and Regulatory Setting

Monitored Data

USEPA and NYSDEC operate a network of monitoring stations throughout New York City to measure ambient air quality with the results published on an annual basis. The most recent USEPA and NYSDEC air monitoring databases identify existing air quality levels for the rezoning area based on data from the monitoring stations nearest the rezoning area. Background air quality levels for the rezoning area are shown in Table 20.7.14-2, "Monitored Ambient Air Quality Data." Selected locations represent available background sites nearest to the rezoning area.

Table 20.7.14-2: Monitored Ambient Air Quality Data

Pollutant	Location	Units	Period	Concentrations			Number of Exceedances of Federal Standard	
				Mean	Highest	Second Highest	Primary	Secondary
CO	Botanical Garden, Bronx	ppm	8-hour	-	1.1	1.0	0	0
			1-hour	-	1.9	1.8	0	0
SO_2	Botanical Garden, Bronx	ppm	3-hour	-	-	-	0	-
			1-hour	-	10.6	9.6	-	0
Respirable Particulates (PM10)	IS 52, Bronx	µg/m^3	24-hour	-	37	32	0	0
Respirable Particulates (PM2.5)	IS 52, Bronx	µg/m^3	Annual	8.5	-	-	0	0
			24-hour	21.9	22.2	19.3	0	0
NO_2	IS 52, Bronx	ppb	Annual	18.3	-	-	0	0
			1-hour	64.3	75.9	73.5	0	0
Lead (Pb)	IS 52, Bronx	µg/m^3	3-month	.0047	0.0161	.0134	0	0
O_3	IS 52, Bronx	ppm	8-hour	0.068	0.082	0.073	3	0

Source: NYSDEC Region 2 – Air Quality Data, 2016, http://www.dec.ny.gov/docs/air_pdf/2016airqualreport.pdf

Regulatory Setting

Attainment Status/State Implementation Plan (SIP)

The CAA defines non-attainment areas as geographic regions that have not met one or more of the NAAQS. When an area within a state is designated as non-attainment by USEPA, the state is required to develop and implement a State Implementation Plan (SIP), which describes how it will meet the NAAQS per deadlines established by the CAA. Bronx County complies with the NAAQS for SO_2, NO_2, CO, PM_{10} and lead, but is designated as a moderate nonattainment area for eight-hour O_3 and redesignated as a maintenance area for $PM_{2.5}$. Violations of the CO standard have not been recorded at the NYSDEC monitoring sites for many years. As part of its ongoing effort to maintain its attainment designation for CO, New York State has committed to the implementation of area-wide and site-specific control measures to continue to reduce CO levels.

Historical monitoring data for New York City indicate that the O_3 eight-hour standard is exceeded. To be in compliance, the three-year average of the annual fourth highest maximum eight-hour average concentration should not exceed the O_3 eight-hour standard. In August 2007, the state submitted the final proposed revision of the SIP for O_3, documenting how the area would attain the eight-hour O_3 standard of 0.08 ppm by 2013. In March 2008, USEPA revised the eight-hour O_3 NAAQS to 0.075 ppm, and on May 2012 designated the New York City region as marginally nonattainment. In November 2014, USEPA proposed to revise the 0.075 ppm standard to within the range of 0.065 ppm to 0.070 ppm. On October 1, 2015, and effective December 28, 2015, the final rule was signed establishing the standard as 0.07 ppm. The previous (2008) O_3 standards remain in effect in some areas, including New York City. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

As of 2015, New York City has been designated as a maintenance area for $PM_{2.5}$. New York State submitted a 2010 draft SIP to USEPA demonstrating that the annual average standard would be met by April 8, 2010. USEPA concurred with the state's finding, and on December 15, 2010, finalized its determination that this area had attained the annual NAAQS. The state also submitted on May 5, 2011 a clean data petition for this area pertaining to the 24-hour $PM_{2.5}$ NAAQS. On December 31, 2012, USEPA finalized its approval of this petition, determining that the NYC Region nonattainment area had attained the 24-hour NAAQS. USEPA made its initial designations for annual standards on December 18th, 2014. USEPA lowered the annual average primary standard to 12 $\mu g/m^3$, effective March 2013. USEPA designated the area as in attainment for the new 12 $\mu g/m^3$ NAAQS effective January 15, 2015.

On February 9, 2010, USEPA revised the CAA primary NAAQS for NO_2 by supplementing the previous annual primary standard of 53 ppb with a new one-hour primary standard at 100 ppb based on the 3-year average of the 98^{th} percentile of the daily maximum one-hour average concentrations, and establishing a new monitoring program (75 Fed. Reg. 6475 [Feb. 9, 2010]). The final rule became effective on April 12, 2010. The current monitoring network focuses upon concentrations for general population exposure at neighborhood and larger scale uses to support the current annual NO_2 standard and, therefore, does not include monitors near major roadways that could measure the localized concentrations, which are estimated to be responsible for the majority of one-hour peak NO_2 exposures (75 Fed. Reg. 6479 [Feb. 9, 2010]). As a result, states were required to locate NO_2 monitors near roadways and have them operational by January 1, 2013. This means that sufficient air quality data from the new network is not yet available to determine final compliance with the revised NAAQS in certain areas. On January 20, 2012, based on the most recent air quality monitoring data (2008-2010), USEPA determined that no area in the country was violating the 2010 NAAQS for NO_2. On October 5, 2012, USEPA proposed to establish a series of deadlines that would require states and local agencies to begin operating the near-road component of the NO_2 monitoring network in phases between January 1, 2014 and January 1, 2017. This would replace the 2010 rule requirement that all new NO_2 monitors were required to begin operating no later than January 1, 2013. Preparations are currently underway for the commencement of near road monitoring in New York City.

Until the NO_2 designations are made, USEPA states that "major new and modified sources applying for New Source Review (NSR)/ Prevention of Significant Deterioration (PSD) permits will initially be required to demonstrate that their proposed emissions increases of nitrogen oxide (NO_x) will not cause or contribute to a violation of both the annual or one-hour NO2 NAAQS and the annual PSD increment." (75 Fed. Reg. 6525 (Feb. 9, 2010) (referring to 40 C.F.R. 51.166[k]). In 2012, USEPA provided additional guidance, "The Near-road NO_2 Technical Assistance Document" (TAD), to assist states and emissions sources to comply with the CAA requirements for implementing new or revised NO_2 NAAQS.

On June 22, 2010, USEPA promulgated a new one-hour NAAQS for SO_2, replacing the 24-hour and annual standards. The final rule became effective on August 23, 2010. States were required to submit their initial area designation recommendations for SO_2 to USEPA no later than June 2011. On March 20, 2012, USEPA took final action to retain the current secondary NAAQS for oxides of sulfur (SO_x). On July 25, 2013, USEPA designated 29 areas in 16 states as "nonattainment" for the 2010 SO_2 standard. Air quality monitors in each of these areas measured violations of the standard based on 2009–2011 data. State plans demonstrating

how these areas will meet the SO_2 standard were due to USEPA by April 4, 2015. Currently, USEPA indicates that it intends to address designation for the remainder of the country in separate future actions. As a result, USEPA will complete designations for all remaining areas in the country in up to three additional rounds: the first round by July 2, 2016, the second round by December 31, 2017, and the final round by December 31, 2020. USEPA has not yet made a designation recommendation for the New York City region.

Methodology for Predicting Pollutant Concentrations

The air quality assessment examines potential significant adverse CO and $PM_{2.5}$ air quality impacts resulting from the implementation of the Proposed Actions A-Application Alternative. Specific methodology and background information are discussed below.

Mobile Sources

Vehicular traffic, whether on a road or in a parking garage, may affect air quality. Once operational, the Proposed Actions A-Application Alternative may result in significant adverse mobile source air quality impacts due to the increase or redistribution of traffic and the addition of new parking areas located near mobile sources.

The Proposed Actions A-Application Alternative would be located in the Bronx, New York. Per the guidance of the *CEQR Technical Manual*, in this area of the city, actions that would result in the generation of 170 or more peak-hour vehicle trips at an intersection may cause significant adverse air quality impacts and require a detailed air quality analysis for CO. Also, as described above, NYSDEC and DEP have developed guidelines for determining potential project-related $PM_{2.5}$ impacts. These guidelines are based on the number of project-induced heavy vehicle trips. Finally, the Proposed Action Expanded Area Alternative is located near the Cross Bronx Expressway which is a truck corridor. As a result, impacts from heavy Vehicle highway emissions may affect some of the projected and potential developments adjacent to the highway. All mobile source analyses are performed for the 2026 future year.

Vehicular Emissions

CO and PM emission factors are estimated using the USEPA Motor Vehicle Emissions Simulator (MOVES) released in 2010 and updated in 2014. Emissions are supplied for average projected free flow speeds provided by the traffic analysis. Applicable and up to date environmental and vehicular traffic data for MOVES are supplied by NYSDEC to accurately model project conditions. Additional link-based data files requirements for MOVES are compiled by obtaining volume, speed and traffic distribution data from the traffic analysis. Appropriate credits are used to accurately reflect the inspection and maintenance program. County−specific hourly temperature and relative humidity data obtained from NYSDEC are used. [5]

[5] The inspection and maintenance programs require inspections of automobiles and light trucks to determine if pollutant emissions from each vehicle exhaust system are lower than emission standards. Vehicles failing the emissions test must undergo maintenance and pass a repeat test to be registered in New York State.

Emissions of fugitive dust are estimated using EPA's latest Air Pollutant Emission Factor (AP-42) equation for paved roads. Emissions from fugitive dust are dependent upon vehicle weight and the surface silt loading in accordance with the latest NYCDEP guidelines regarding roadway silt loading factors and average fleet vehicle weight. Fugitive road dust is not included in the neighborhood scale PM2.5 microscale analyses, because DEP considers it to have an insignificant contribution on that scale.

Traffic Data

Traffic data for the air quality analysis are derived from vehicle counts and other information developed as part of the traffic analysis. Peak traffic periods considered in the air quality analysis are the same peak periods selected for the traffic analysis and consist of the weekday AM, midday, PM, and Saturday midday peak hours. These are the periods when the maximum changes in pollutant concentrations are expected based on overall traffic volumes and anticipated changes in traffic patterns due to the Proposed Actions A-Application Alternative.

The 2010 Highway Capacity Manual and Highway Capacity Software is used to develop the traffic data necessary for the air quality analysis. The vehicle classification is determined through field data collection. Existing vehicle speeds are obtained from field measurements for the area, and adjusted to estimate future free flow speeds.

Dispersion Model

Maximum CO concentrations adjacent to streets within the surrounding area, resulting from vehicle emissions are predicted using the Tier 1 CAL3QHC model Version 2. The CAL3QHC model employs a Gaussian (normal distribution) dispersion assumption and includes an algorithm for estimating vehicular queue lengths at signalized intersections. CAL3QHC calculates emissions and dispersion of CO from idling and moving vehicles. The queuing algorithm includes site−specific traffic parameters, such as signal timing and delay (from the 2000 Highway Capacity Manual traffic forecasting model), saturation flow rate, vehicle arrival type, and signal actuation (i.e., pre−timed or actuated signal) characteristics to project the number of idling vehicles. The CAL3QHC model has been updated with an extended module, CAL3QHCR, which allows for the incorporation of hourly meteorological data into the modeling, instead of worst−case assumptions regarding meteorological parameters. This refined (Tier 2) version of the model, CAL3QHCR, is employed if maximum predicted future CO concentrations are greater than the applicable ambient air quality standards or when de minimis thresholds are exceeded using the first level of CAL3QHC modeling.

As mentioned above, the project would include development sites nearby the Cross Bronx Expressway. Since one development site (Projected Development Site 46) would be located within 200 feet of the Cross Bronx Expressway, the CAL3QHCR model was utilized to determine motor vehicle generated PM2.5 concentrations adjacent to the highway. This refined version of the model can use hourly traffic and meteorology data, and is therefore more appropriate for calculating 24−hour and annual average concentrations.

Meteorology

In general, the transport and concentration of pollutants from vehicular sources are influenced by three principal meteorological factors: wind direction, wind speed, and atmospheric stability. Wind direction influences the direction in which pollutants are dispersed, and atmospheric stability accounts for the effects

of vertical mixing in the atmosphere. These factors, therefore, influence the concentration at a particular prediction location (receptor).

TIER I CO ANALYSIS—CAL3QHC

In applying the CAL3QHC model, the wind angle is varied to determine the wind direction resulting in the maximum concentrations at each receptor.

Following the EPA guidelines, CAL3QHC computations are performed using a wind speed of one meter per second, and the neutral stability class D. The 8−hour average CO concentrations are estimated by multiplying the predicted one−hour average CO concentrations by a factor of 0.7 to account for persistence of meteorological conditions and fluctuations in traffic volumes. A surface roughness of 3.21 meters is chosen. At each receptor location, concentrations are calculated for all wind directions, and the highest predicted concentration was reported, regardless of frequency of occurrence. These assumptions ensured that reasonable worst−case meteorology was used to estimate impacts.

TIER II PM2.5 ANALYSIS—CAL3QHCR

For Tier II analyses performed with the CAL3QHCR, the modeling considers hourly traffic data and five years of monitored hourly meteorological data. The latest available five years of meteorological data from La Guardia Airport (LGA Airport) are used for the years 2011 through 2015. All hours are modeled, and the highest resulting concentration for each averaging period is presented.

Analysis Year

The microscale analyses are performed for existing conditions and 2026, the year by which the Proposed Actions A-Application Alternative are likely to be completed. The future analysis is performed both without the Proposed Actions A-Application Alternative (the No-Action condition) and with the Proposed Actions A-Application Alternative (the With-Action condition).

Background Concentrations

To properly represent the total impact of the Proposed Actions A-Application Alternative in the analysis, it is necessary to consider representative background levels for each of the analyzed pollutants. The background level is the component of the total concentration not accounted for through the microscale modeling analysis. Applicable background concentrations are added to the modeling results to obtain the total pollutant concentrations at each receptor site for the analysis year. The CO background values are provided by DEP using the latest NYSDEC procedures based on the most recent ambient monitoring data and future decreases in vehicular emissions. $PM_{2.5}$, PM_{10}, NO_2 and SO_2 background values are also obtained from DEP. These values are added to the modeling results, as appropriate, to obtain the total pollutant concentrations at each receptor site for the future analysis year. The background values used in the air quality analyses are provided in Table 20.7.14-3, “Background Pollutant Concentrations.”

Table 20.7.14-3: Background Pollutant Concentrations

Pollutant	Averaging Time	Monitoring Location	Background Concentration	NAAQS/De Minimis
Carbon Monoxide (CO)	1-Hour[1]	Botanical Garden, Bronx	1.76 ppm	35 ppm
	8-Hour[1]	Botanical Garden, Bronx	1 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1-Hour[2]	IS 52, Bronx	120.9 µg/m^3	188 µg/m^3
	Annual[3]	IS 52, Bronx	37.5 µg/m^3	100 µg/m^3
Particulate Matter (PM_{10})	24-Hour[4]	IS 52, Bronx	32 µg/m^3	150 µg/m^3
Particulate Matter ($PM_{2.5}$)	24-Hour[5]	Botanical Garden, Bronx	24 µg/m^3	35 µg/m^3
	Annual[6]	Botanical Garden, Bronx	-	5.5 µg/m^3
Sulfur Dioxide ((SO_2)	1-Hour[7]	Botanical Garden, Bronx	28.8 µg/m^3	197 µg/m^3

Notes:

[1] 1-hour CO and 8-hour CO background concentrations are based on the highest second max value from the latest five years of available monitoring data from NYSDEC (2012-2016).

[2] 1-hour NO_2 background concentration is based on three-year average (2014-2016) of the 98th percentile of daily maximum 1-hour concentrations from available monitoring data from NYSDEC.

[3] Annual NO_2 background concentration is based on the maximum annual average from the latest five years of available monitoring data from NYSDEC (2012-2016).

[4] 24-hour PM_{10} is based on the highest second max value from the latest three years of available monitoring data from NYSDEC (2014-2016).

[5] The 24-hour $PM_{2.5}$ background concentration is based on maximum 98th percentile concentration averaged over three years of data from NYSDEC (2014-2016).

[6] $PM_{2.5}$ annual average impacts are assessed on an incremental basis and compared with the $PM_{2.5}$ *de minimis* criteria without considering the annual background.

[7] The 1-hour SO_2 background concentration is based on maximum 99th percentile concentration averaged over three years of data from NYSDEC (2014-2016).

Source: NYSDEC Ambient Air Quality Report, 2016, http://www.dec.ny.gov/chemical/8536.html

Analysis Sites

To determine locations at which microscale modeling analysis would be required to estimate CO and PM concentration levels at the most heavily congested intersections in the rezoning area, screening procedures described in the *CEQR Technical Manual* are utilized in order to select the worst case analysis sites. These procedures include a determination as to whether future traffic volumes from the studied traffic intersections would exceed the CEQR CO screening threshold of 170 vehicles during peak traffic hours. For $PM_{2.5}$, in concert with its interim guidelines, NYCDEP has developed a screening threshold procedure according to roadway type which examines the minimum allowable project-induced Heavy Duty Diesel (HDD) truck trips per hour that would not result in significant emissions of $PM_{2.5}$. Traffic periods considered in the air quality analysis consist of the weekday AM, midday, PM, and Saturday midday peak hours. Future conditions for the study year 2026, with and without the Proposed Actions A-Application Alternative, are considered in the selection

process. The screening process concluded that four of the studied traffic intersections would exceed the CEQR screening thresholds for CO. However, these selected four were reduced to the worst intersection in terms of LOS. As shown in Table 20.7.14-4, "Mobile Source Analysis Sites," and on Figure 20.7.14-1, "Mobile Source Analysis Sites," one location was selected for analysis. In addition, since Projected Site 46 would be located directly adjacent to the Cross Bronx Expressway (CBX), an analysis of $PM_{2.5}$ emissions from the existing highway on Projected Site 46 is warranted. Consequently, further analysis of mobile source traffic emissions is required.

Table 20.7.14-4: Mobile Source Analysis Sites

Analysis Site	Location
1	Jerome Avenue & NB I-95 Ramps
2	Projected Site 46 near the CBX

Parking Garage

The Proposed Actions A-Application Alternative would include parking facilities to account for the new parking demand and supply. Emissions from vehicles using the parking areas could potentially affect ambient levels of CO and PM2.5 at the project intersections analyzed in the With-Action conditions. Of the parking associated with the projected development sites, the parking garage at projected development site 46 was examined. Projected Development Site 46 was analyzed due to its capacity (190 Auto Parking Spaces) and proximity to intersections that were analyzed. In addition, it represents a worst-case condition when compared to other proposed development site parking garages within the project study area.

An analysis of the emissions from the outlet vents and their dispersion in the environment was performed, calculating pollutant levels in the surrounding area, using the methodology set forth in the CEQR Technical Manual. Emissions from vehicles entering, parking, and exiting the garages were estimated using the EPA MOVES mobile source emission model, as referenced in the CEQR Technical Manual. For all arriving and departing vehicles, an average speed of five miles per hour was conservatively assumed for travel within the parking garages. In addition, all departing vehicles were assumed to idle for one minute before proceeding to the exit. The concentrations of CO and PM2.5 within the garages were calculated assuming a minimum ventilation rate, based on New York City Building Code requirements, of one cubic foot per minute of fresh air per gross square foot of garage area. To determine compliance with the NAAQS, CO concentrations were determined for the maximum eight-hour average period. (No exceedances of the one-hour standard would occur, and the eight-hour values are the most critical for impact assessment.) PM2.5 concentrations were determined for the maximum 24-hour and annual average periods.

To determine pollutant concentrations, the outlet vents were analyzed as a "virtual point source" using the methodology in EPA's Workbook of Atmospheric Dispersion Estimates, AP-26. This methodology estimates CO and PM concentrations at various distances from an outlet vent by assuming that the concentration in the garage is equal to the concentration leaving the vent, and determining the appropriate initial horizontal and vertical dispersion coefficients at the vent faces.

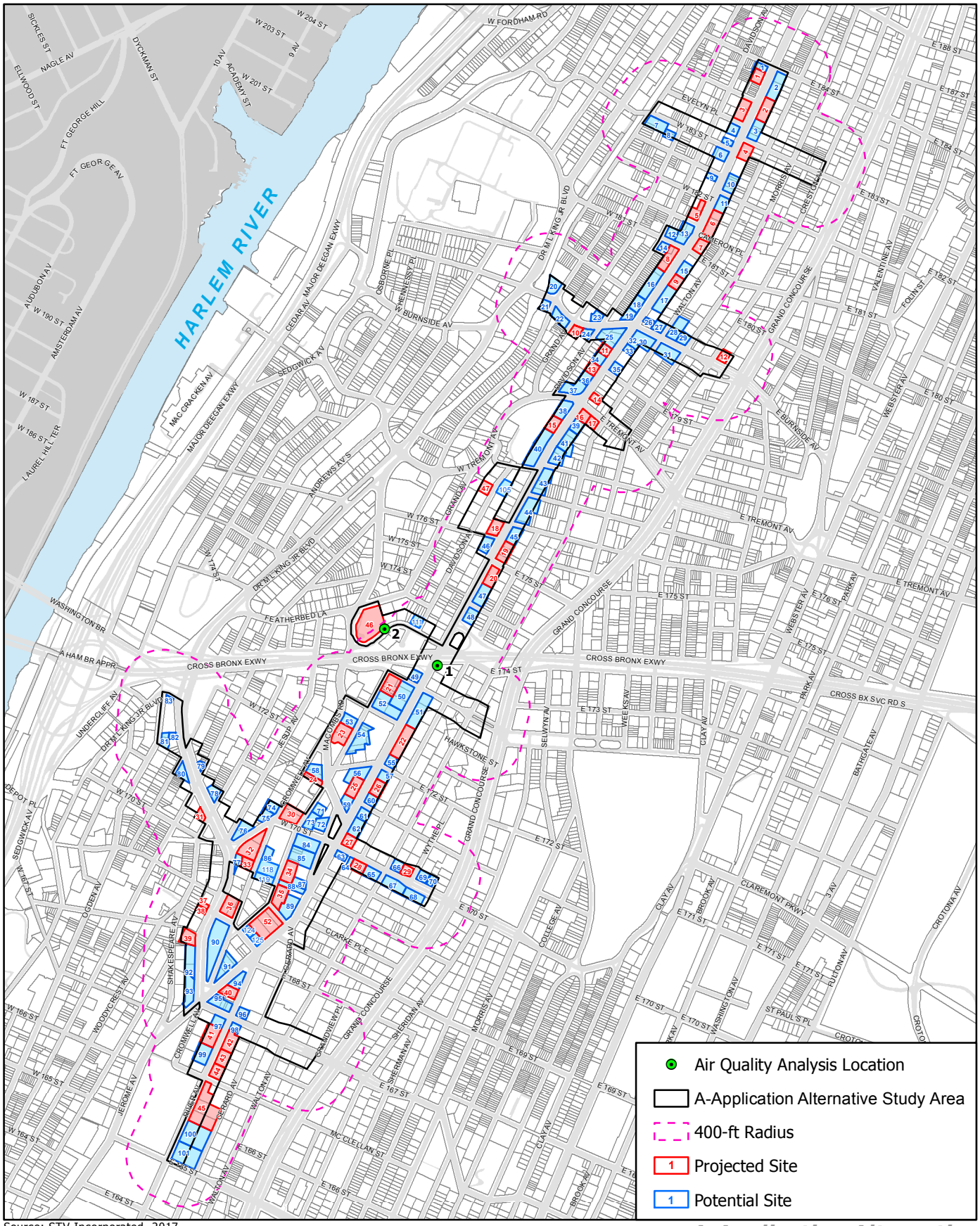
The CO and PM2.5 concentrations were determined for the time periods when overall garage usage would be the greatest, considering the hours when the greatest number of vehicles would exit the facility. Traffic data for the parking garage analysis was derived from the trip generation analysis described in the traffic section of this EIS. Background and on-street concentrations were added to the modeling results to obtain the total ambient levels for CO.

Stationary Sources

A stationary source analysis was conducted to evaluate potential impacts from the Projected and potential development sites' HVAC systems. In addition, an assessment was conducted to determine the potential for impacts due to industrial activities within the affected area, and from any nearby large emission sources.

Individual HVAC Systems

The potential for emissions from the HVAC systems of individual proposed buildings to result in stationary source pollutants that would significantly impact existing land uses (project-on-existing impacts) and other proposed buildings (project-on-project impacts) are conducted utilizing a stepped analysis procedure following the sequence described below:



Source: STV Incorporated, 2017.

A-Application Alternative

N

0 1,000 2,000 Feet

Figure 20.7.14-1

MOBILE SOURCE AIR QUALITY ANALYSIS LOCATIONS

Jerome Avenue Rezoning

1. Impacts would be initially analyzed using the HVAC screening procedures described in the CEQR Technical Manual assuming the use of No. 2 fuel oil.
2. If the *CEQR Technical Manual* nomographic screening result fails with the use of No. 2 fuel oil, a more detailed analysis would be conducted utilizing EPA's AERMOD[6] dispersion model.
3. If the detailed AERMOD analysis result fails with the use of No. 2 fuel oil, HVAC screening procedures will be utilized assuming a cleaner burning fuel (natural gas), and an air quality (E) designation would be proposed for the site, providing the fuel type restriction that would be required to avoid a significant adverse air quality impact.
4. If the *CEQR Technical Manual* nomographic screening result fails with natural gas, a more detailed analysis will be conducted utilizing the EPA's AERMOD dispersion model.
5. If the detailed AERMOD analysis result fails with the use of natural gas, additional analysis and further stack restrictions (i.e., stack setback, stack height and/or low NOx burner) would be required to avoid a significant adverse air quality impact. An air quality (E) designation would be proposed for the site in the ~~Draft~~ Final Environmental Impact Statement (EIS), providing the fuel type and stack height restriction.

Screening Analysis

A screening analysis was performed to assess air quality impacts associated with emissions from HVAC systems associated with each Projected and potential development site. The methodology described in the CEQR Technical Manual was used for the analysis and considered impacts on sensitive uses (i.e., existing residences and other proposed developments).

The methodology determines the threshold of development size below which the action would not have a significant adverse impact. The screening procedures utilize information regarding the type of fuel to be used, the maximum development size, and the HVAC systems exhaust stack height to evaluate whether a significant adverse impact may occur. Based on the distance from the development site to the nearest building of similar or greater height, if the maximum development size is greater than the threshold size in the CEQR Technical Manual, there is the potential for significant air quality impacts, and a refined dispersion modeling analysis would be required. Otherwise, the source passes the screening analysis, and no further analysis is required.

Since information on the HVAC systems' design was not available, the distance from lot line to lot line was used for the screening analysis for conservative purposes. The maximum floor area of each Projected and potential development site from Reasonable Worst-Case Development Scenario (RWCDS) was used as input for the screening analysis.

It was assumed that No. 2 fuel oil or natural gas would be used in the Projected and potential development sites' HVAC systems, and that exhaust stacks would be located three feet above roof height (as per the CEQR

[6] EPA, AERMOD: Description of Model Formulation, 454/R−03−004, September 2004; and EPA, User's Guide for the AMS/EPA Regulatory Model AERMOD, 454/B−03−001, September 2004 and Addendum December 2006.

Technical Manual). For sources that did not pass the screening analyses using the *CEQR Technical Manual* procedures, a refined modeling analysis was performed. For fuel oil, the primary pollutants of concern are SO_2 and $PM_{2.5}$, while for natural gas, the primary pollutant of concern is NO_2 and $PM_{2.5}$.

Refined Dispersion Analysis

A detailed dispersion modeling analysis using the USEPA AERMOD model is conducted for projected and potential development sites that do not pass the screening analysis. AERMOD is a versatile model capable of predicting pollutant concentrations from continuous point, area, and volume sources. AERMOD uses enhanced plume and wake dispersion algorithms that are capable of estimating pollutant concentrations in a building's cavity and wake regions.

Accordingly, the nearest existing building and/or proposed building of a similar or greater height is analyzed as the potential receptor. Because information on the HVAC systems' design is not available, appropriately conservative dispersion modeling stack options and assumptions are applied per the guidance of the *CEQR Technical Manual.* It is assumed that exhaust stacks are located three feet above roof height, and are assumed to be located 10 feet from the wall of any adjacent taller building. Where exceedances of thresholds are predicted to occur with this scenario, additional iterations of the analysis are conducted utilizing subsequent setback distances from the wall of the adjacent building. If the maximum distance is reached (i.e., the edge of the subject rooftop directly opposite the adjacent building property line), then the analysis is run assuming interval increases in stack height. Building receptor locations are located on every floor and spaced 25 feet (horizontally).

The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, 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 analyses of potential impacts from exhaust stacks were made assuming stack tip downwash, urban dispersion and surface roughness length, and elimination of calms. AERMOD can be run with and without building downwash (the downwash option accounts for the effects on plume dispersion created by the structure the stack is located on, and other nearby structures). In general, modeling "without" building downwash produces higher estimates of pollutant concentrations when assessing the impact of elevated sources on elevated receptor locations. Therefore, the analysis was performed using the AERMOD model with the no downwash option only.

The refined dispersion modeling analysis was performed for 1-hour SO_2, 24-hour and annual $PM_{2.5}$ when fuel oil was assumed for the HVAC systems, and 1-hour SO_2, 24-hour and annual $PM_{2.5}$ when natural gas was assumed for the HVAC systems.

Receptor Placement

Discrete receptors (i.e., locations at which concentrations are calculated) were modeled along the existing and proposed building façades to represent potentially sensitive locations such as operable windows and

intake vents. Rows of receptors at spaced intervals on the modeled buildings were analyzed at multiple elevations.

Emission Estimates and Stack Parameters

Fuel consumption was estimated based on procedures outlined in the *CEQR Technical Manual* as discussed above. Using worst−case assumptions, fuel was assumed to be No. 2 fuel oil for SO2 and $PM_{2.5}$, and natural gas for NO2 and $PM_{2.5}$. Emission factors from the fuel oil and natural gas combustion sections of EPA's AP−42 were used to calculate emission rates for the Projected and potential development site's HVAC systems.

EPA's preferred regulatory stationary source model, AERMOD, is capable of producing detailed output data that can be analyzed at the hourly level required for the form of the 1-hour standard. EPA has also developed guidance to estimate the transformation ratio of NO2 to NOx, applicable to heating and hot water systems, as discussed further below.

1-hour average NO2 concentration increments associated with the Projected and potential development sites' hot water systems were estimated using AERMOD model's Ozone Limiting Method (OLM) module to analyze chemical transformation within the model. The OLM module incorporates hourly background ozone concentrations to estimate NOx transformation within the source plume. Ozone concentrations were taken from the NYSDEC Queens College monitoring station that is the nearest ozone monitoring station and had complete five years of hourly data available. An initial NO2 to NOx ratio of 0.1 at the source exhaust stack was assumed, which is considered representative for boilers.

The methodology used to determine the compliance of total 1-hour NO_2 concentrations from the Proposed Action's HVAC systems with the 1-hour NO_2 NAAQS was based on adding the monitored background to modeled concentrations, as follows: hourly modeled concentrations from proposed sources were first added to the hourly background monitored concentrations; then the highest combined daily 1-hour NO_2 concentration was determined at each receptor location and the 98th percentile daily 1-hour maximum concentration for each modeled year was calculated within the AERMOD model; finally the maximum of the 98th percentile concentrations over the latest five years was selected as the total 1-hour NO_2 concentration.

Cumulative Impacts from Heat and Hot Water Systems

The Proposed Actions A-Application Alternative will include nine additional development sites (three projected and six potential) as compared to the Proposed Actions. In general, these nine additional sites would have varying heights and would be scattered thorough the project area. While potential development sites 118 and 119 would have similar heights and also be located in close proximity to one other, they are anticipated to result in lower levels of pollutant concentrations compared to clusters analyzed with the Proposed Actions which involves more sites and have larger overall development sizes. Therefore, no additional cumulative HVAC impact analysis is warranted and there will be no significant adverse impact from combined emissions from HVAC systems at the additional development sites.

Industrial Sources

Based on a review of the PLUTO database, potential manufacturing or industrial sources were identified. A request was made to DEP's Bureau of Environmental Compliance (BEC) and NYSDEC for information regarding

the release of air pollutants from these potential sources within the entire study area. The DEP and NYSDEC air permit data provided was compiled into a database of source locations, air emission rates, and other data pertinent to determining source impacts. A comprehensive search was also performed to identify NYSDEC Title V permits and permits listed in the EPA Envirofacts database.[7]

For industrial sources, a review of land use mapping and a visual inspection of the rezoning area are conducted to determine whether any industrial emissions sources could be found within 400 feet of a projected or potential development site. Existing processing and manufacturing sources that are located within a radius of 400 feet of a projected or potential development site are identified. Any industrial sources beyond 400 feet of a projected or potential development site are excluded from the analysis. In addition, the analysis excludes industrial sources located at projected development sites because the Proposed Actions A-Application Alternative assume that all such sites would be redeveloped. However, for potential development sites, the industrial analysis is performed for both of two conditions, as follows:

1. Assuming the site is developed, in which case the industrial source is not assumed to be operating in the With-Action condition. In this case, potential air quality impacts from other industrial sources in the rezoning area are analyzed to evaluate their potential effects on the potential development site.

2. Assuming the site is not developed, in which case the industrial source is assumed to be operating in the With-Action condition, its potential effects on other potential development sites is determined.

For industrial source locations confirmed to be within 400 feet of the rezoning area, a field survey was performed to confirm the operational status of the sites identified in the permit search, and to identify if any additional sites have sources of emissions that would warrant an analysis. Of the sites identified, 10 have been determined to be active and not located on a projected development site.[8]

A cumulative analysis for each toxic pollutant is conducted from multiple sources. NYSDEC Annual Guideline Concentration (AGC) and Short-term Guideline Concentration (SGC) are used as the thresholds to determine impact significance. If an initial screening assessment predicts exceedances of an AGC or SGC, a refined modeling analysis using the AERMOD model is performed in association with the five-year meteorological data to determine if significant air quality impacts on projected and potential development sites would result from existing toxic emissions sources.

For some autobody shops that perform paint spraying, in some cases the pollutant emissions were not listed on the permit. To estimate the individual air toxic emissions in these cases, generic emissions of several pollutants are utilized based on material safety data sheet information from representative sources.

[7] EPA, Envirofacts Data Warehouse, http://oaspub.epa.gov/enviro/ef_home2.air, July 2010.

[8] At one of the ten permitted locations, one permit (PB34510) which had previously been identified as being cancelled was reactivated just prior to the certification of the DEIS, and as a result, a detailed analysis was not conducted for the DEIS. Therefore, for this FEIS, a more refined analysis has been conducted.

Emissions were calculated based on maximum percentage by weight for individual air toxics that are commonly found in coatings used in paint spraying operations. A generic solvent usage was multiplied by the weight percentage for each air toxic to estimate the maximum emission rate for the air toxics, by source.

Refined Dispersion Analysis

After compiling the information on facilities with manufacturing or process operations in the study area, maximum potential pollutant concentrations from different sources, at various distances from the projected and potential development sites, are evaluated with a refined modeling analysis using the EPA/AMS AERMOD dispersion model. The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on emission rates, source parameters and hourly meteorological data, stack tip downwash, urban dispersion and surface roughness length, and elimination of calms. Because the highest concentrations are predicted to occur at nearby elevated locations, the AERMOD model was run without downwash—a procedure which produces the highest concentrations at elevated locations. The meteorological data set consisted of five years of meteorological data: surface data collected at La Guardia Airport (2011−2015) and concurrent upper air data collected at Brookhaven, Suffolk County, New York.

Predicted worst−case impacts on the projected and potential development sites are compared with the short−term guideline concentrations (SGCs) and annual guideline concentrations (AGCs) recommended in *NYSDEC's DAR−1 AGC/SGC Tables*. These guidelines present the airborne concentrations which are applied as a screening threshold to determine if the future residents of the projected and potential development sites could be significantly impacted by nearby sources of air pollution.

To assess the effects of multiple sources emitting the same pollutants, cumulative source impacts were determined. Concentrations of the same pollutant from industrial sources that were within 400 feet of an individual development site are combined and compared to the guideline concentrations discussed above.

Discrete receptors (i.e., locations at which concentrations were calculated) are placed on the potentially affected projected and potential development sites. The receptor network consisted of receptors located at spaced intervals along the sides of the development site from the ground floor to the upper level.

Emission rates and stack parameters, obtained from the DEP permits, are input into the AERMOD dispersion model.

HEALTH RISK ASSESSMENT

Potential cumulative impacts are evaluated based on EPA's Hazard Index Approach for non−carcinogenic compounds and EPA's Unit Risk Factors for carcinogenic compounds. Both methods are based on equations that use EPA health risk information at referenced concentrations for individual compounds to determine the level of health risk posed by an expected ambient concentration of these compounds at a sensitive receptor. For non−carcinogenic compounds, EPA considers a concentration−to−reference dose level ratio of less than 1.0 to be acceptable. For carcinogenic compounds, the EPA unit risk factors represent the concentration at which an excess cancer risk of one− in−one million is predicted. In cases where an EPA reference dose or unit risk factor did not exist, the NYSDEC AGC was used.

Additional Sources

The *CEQR Technical Manual* requires an analysis of projects that may result in a significant adverse impact due to certain types of new uses located near a "large" or "major" emissions source. Major sources are defined as those located at facilities that have a Title V or Prevention of Significant Deterioration air permit, while large sources are defined as those located at facilities that require a State Facility Permit. To assess the potential effects of these existing sources on the projected and potential development sites, a review of existing permitted facilities was conducted. Sources of information reviewed included the USEPA's Envirofacts database[9], the NYSDEC Title V and State Facility Permit websites[10], the New York City Department of Buildings website[11], and DEP permit data. The review indicates that no facilities with state facility permits have been identified within 1,000 feet of any Proposed Actions A-Application Alternative development site. As a result, no further analysis of large sources was required.

The Future without the Proposed Actions A-Application Alternative (No-Action Condition)

Mobile Sources

CO concentrations in the No−Action condition were determined for using the methodology previously described. Table 20.7.14-5 shows future maximum predicted eight−hour average CO concentrations, including background concentrations, at the analysis locations in the No−Action condition. The values shown are the highest predicted concentrations for the receptor locations for any of the time periods analyzed.

As shown in Table 20.7.14-5, No−Action values are predicted to be below the eight−hour CO standard of nine ppm.

Table 20.7.14-5: Maximum Predicted CO Concentrations for No -Action Condition

Analysis Site	Location	Time Period	No-Action
1	Jerome Avenue & NB I-95 Ramps	SAT	6.45
2	Projected Site 46	SAT	2.12

Notes:
Eight−hour NAAQS standard is 9 ppm.
Concentration includes an 8-Hour background concentration of 1.0 ppm.

[9] EPA, Envirofacts Data Warehouse, https://www3.epa.gov/enviro/.

[10] NYSDEC Title V and State Facility permit websites:

Title V- http://www.dec.ny.gov/dardata/boss/afs/issued_atv.html;

State Permit- http://www.dec.ny.gov/dardata/boss/afs/issued_asf.html.

[11] http://www1.nyc.gov/site/buildings/index.page.

Stationary Sources

Some development within the study area will occur in the future without the Proposed Actions A-Application Alternative by 2026. The Proposed Actions A-Application Alternative would result in more development and therefore the emissions from heat and hot water systems associated with the Proposed Actions A-Application Alternative would cumulatively be greater than the emissions from heat and hot water systems in the No−Action condition.

The Future with the Proposed Actions A-Application Alternative (With-Action Condition)

Mobile Sources

CO concentrations for the With−Action condition were predicted using the methodology previously described. Table 20.7.14−7 shows the future maximum predicted 8−hour average CO concentrations at the intersection studied. (No 1−hour values are shown, since no exceedances of the NAAQS would occur and the *de minimis* criteria are only applicable to 8−hour concentrations; therefore, the 8−hour values are the most critical for impact assessment.) The values shown are the highest predicted concentrations. The results indicate that the proposed actions would not result in any violations of the 8−hour CO standard. In addition, the incremental increases in 8−hour average CO concentrations are very small, and consequently would not result in a violation of the CEQR *de minimis* CO criteria. Therefore, mobile source CO emissions from the proposed actions would not result in a significant adverse impact on air quality.

Table 20.7.14-6: Maximum Predicted CO Concentrations for With-Action Condition

Analysis Site	Location	Time Period	No-Action	With Action	Increase	*De minimis*
1	Jerome Avenue & NB I-95 Ramps	PM	6.45	7.00	0.55	1.78
2	Projected Site 46	PM	2.12	2.12	0.00	3.44

Notes:
Eight−hour NAAQS standard is 9 ppm.
Concentration includes a background concentration of 1.0 ppm.
De Minimis value = (9.0 – No Build) / 2

Maximum predicted 24-hour and annual average $PM_{2.5}$ concentration increments were predicted using the methodology described above to be compared with the *de minimis* criteria. Tables 20.7.14-7 and 20.7.14-8 show the maximum predicted localized 24-hour average and neighborhood-scale annual average increment for $PM_{2.5}$. The results show that the daily (24-hour) $PM_{2.5}$ and annual average increments are predicted to be below the *de minimis* criteria. Therefore, mobile source $PM_{2.5}$ emissions from the proposed actions would not result in a significant adverse impact on air quality.

Table 20.7.14-7: Maximum Predicted 24-hour $PM_{2.5}$ Incremental Concentrations

Analysis Site	Location	Time Period	Increase (µg/m³)	*De minimis (µg/m³)*
2	Projected Site 46	PM	0.84	5.5 µg/m³
Notes: $PM_{2.5}$ de minimis criteria – 24 hour average, not to exceed more than half the difference between the background concentration 24 µg/m³ and the 24-hour NAAQS of 35 µg/m³				

Table 20.7.14-8: Maximum Predicted Annual $PM_{2.5}$ Incremental Concentrations

Analysis Site	Location	Time Period	Increase (µg/m³)	*De minimis (µg/m³)*
2	Projected Site 46	PM	0.23	0.3 µg/m³
Notes: $PM_{2.5}$ de minimis criteria – Annual average, not to exceed more than 0.3 µg/m³				

GARAGE PARKING ANALYSIS

Based on the methodology previously described, the maximum predicted CO and PM concentrations from the proposed parking facilities at projected development site 46 was analyzed, assuming a near side sidewalk receptor on the same side of the street (ten feet) as the parking facility and a far side sidewalk receptor on the opposite side of the street (95 feet) from the parking facility.

The maximum predicted eight-hour average CO concentration of all the receptors modeled at projected site 46 is 1.1 ppm. This values includes a predicted concentration of 0.07 ppm from emissions within the parking garage, on-street concentration of 0.03 ppm, and a background level of 1.0 ppm. The maximum predicted concentration is substantially below the applicable standard of 9 ppm and the CEQR *de minimis* CO criteria.

The maximum predicted 24-hour and annual average $PM_{2.5}$ increments, including increments associated with on street traffic is 0.41 µg/m³ and 0.063 µg/m³ respectively. The maximum predicted $PM_{2.5}$ increments are well below the respective $PM_{2.5}$ de minimis criteria of 5.5 µg/m³ for the 24-hour average concentration and 0.3 µg/m³ for the annual concentration. Therefore, the proposed parking garage would not result in any significant adverse air quality impacts.

Stationary Sources

Individual HVAC Systems

SCREENING ANALYSIS

The screening analysis was performed to evaluate whether potential air quality impacts from the HVAC systems associated with the Projected and potential development sites of the Proposed Actions A-Application Alternative could potentially impact other Projected and potential development sites, or existing buildings.

For the Proposed Actions A-Application Alternative, a total of seven projected and potential development sites (two projected and five potential development sites) failed the screening analysis using No. 2 fuel oil as the fuel source. Therefore, each of these development sites required a refined modeling analysis for the use of No. 2 fuel oil. Of the sites that failed the screening analysis using No.2 fuel oil analysis, a total of five projected and potential development sites (one projected and four potential development sites) failed the refined modeling analysis using No. 2 fuel oil as the fuel source. Therefore, a screening analysis using natural gas was conducted for each of these development sites. None of these five projected and potential development sites (one projected and four potential development sites) passed the screening analysis using natural gas as the fuel source, therefore, each of these development site required a further refined modeling analysis.

REFINED DISPERSION ANALYSIS

As indicated above, a total of seven projected and potential development sites (two projected and five potential development sites) required a refined modeling analysis, to determine the potential for air quality impacts. The results of the HVAC screening analysis and the refined modeling analysis determined the following:

- Two (one projected and one potential) of the development sites passed the HVAC screening analysis for fuel oil; therefore, no restrictions are required for these sites.
- Two (one projected and one potential) of the development sites passed the refined modeling analysis for fuel oil; therefore, no restrictions are required for these sites.
- None of the development sites passed the HVAC screening analysis for natural gas.
- If the fuel type is restricted to natural gas only, and heating and hot water system stacks are set back from the building edge to address $PM_{2.5}$ and NO_2 emissions, no significant adverse impacts are predicted at one of the potential development sites.
- If the fuel type is restricted to natural gas only, and the height of the exhaust stack is increased where feasible to address $PM_{2.5}$ and NO_2 emissions, no significant adverse impacts are predicted at one of the potential development sites.
- If the fuel type is restricted to natural gas only, heating and hot water system stacks are set back from the building edge, and the height of the exhaust stack is increased where feasible to address $PM_{2.5}$ and NO_2 emissions, no significant adverse impacts are predicted at two of the sites (one projected and one potential development sites).
- If the fuel type is restricted to natural gas only, heating and hot water system stacks are set back from the building edge, and the height of the exhaust stack is increased where feasible to address $PM_{2.5}$ and NO_2 emissions, and low NOx burners are required to address NO_2 emissions, no significant adverse impacts are predicted at one of the potential development sites.

Table 20.7.14−9 presents a summary of the analysis results and proposed restrictions, with additional detail provided in Table 20.7.14−10 (projected development sites) and Table 20.7.14-11 (potential development site.

Table 20.7.14-9: HVAC Analysis Summary

Analysis	Projected Development Sites		Potential Development Sites	
No. 2 Oil	**Pass**	**Fail**	**Pass**	**Fail**
No.2 Oil Screening	1	2	1	5
No.2 Oil Refined Analysis	1	1	1	4
Total	2	5	2	4
Natural Gas	**Pass**	**Fail**	**Pass**	**Fail**
Natural Gas Screening	0	1	0	4
Natural Gas Refined Analysis	0	1	0	4
Natural Gas and Stack Setback Requirement	0	1	1	3
Natural Gas and Stack Height Requirement	0	1	1	2
Natural Gas, Stack Setback and Stack Height Requirement	1	0	1	1
Natural Gas, Stack Setback, and Low NOx Requirement	0	0	1	0

Overall, to preclude the potential for significant adverse air quality impacts on other Projected and potential development sites, or existing buildings, from the HVAC emissions, an (E) designation (E−442) would be assigned as part of the Proposed Actions A-Application Alternative for five projected and potential development sites (including one projected and four potential development sites). These designations would specify the various restrictions, such as type of fuel to be used, the distance that the vent stack on the building roof must be from its lot line(s), the above-grade stack height, and the use of ow NOx burner.

Table 20.7.14-10: HVAC Analysis Results for Projected Development Sites

Site No.	Building Height (ft)	Ground Elevation (ft)	Absolute Height (ft)	No.2 Oil Modeled Concentrations (µg/m³)					Natural Gas Modeled Concentrations (µg/m³)					Requires (E) Designation (Yes/No)
				24-hr $PM_{2.5}$	Annual $PM_{2.5}$	1-hr SO_2	24-hr $PM_{2.5}$/Annual $PM_{2.5}$/1-hr SO_2 Standard	Pass/Fail	24-hr $PM_{2.5}$	Annual $PM_{2.5}$	1-hr NO_2	24-hr $PM_{2.5}$/Annual $PM_{2.5}$/1-hr NO_2 Standard	Pass/Fail	
46	130	72	202	Passes Screening	Passes Screening	Passes Screening	5.5/0.3/196	Pass	Passes Screening	Passes Screening	Passes Screening	5.5/0.3/188	Pass	No
47	125	60	185	4.1	0.19	29.4	5.5/0.3/196	Pass	Passes Screening	Passes Screening	Passes Screening	5.5/0.3/188	Pass	No
52	115	30	145	>5.5	>0.3	111.6	5.5/0.3/196	Fail	3.4	0.14	186.9	5.5/0.3/188	Pass	Yes

Table 20.7.14-11: HVAC Analysis Results for Potential Development Sites

Site No.	Building Height (ft)	Ground Elevation (ft)	Absolute Height (ft)	No.2 Oil Modeled Concentrations (µg/m³)					Natural Gas Modeled Concentrations (µg/m³)					Requires (E) Designation (Yes/No)
				24-hr $PM_{2.5}$	Annual $PM_{2.5}$	1-hr SO_2	24-hr $PM_{2.5}$/Annual $PM_{2.5}$/1-hr SO_2 Standard	Pass/Fail	24-hr $PM_{2.5}$	Annual $PM_{2.5}$	1-hr NO_2	24-hr $PM_{2.5}$/Annual $PM_{2.5}$/1-hr NO_2 Standard	Pass/Fail	
105	125	56	181	3	0.1	29.9	5.5/0.3/196	Pass	Passes Screening	Passes Screening	Passes Screening	5.5/0.3/188	Pass	No
111	95	51	146	Passes Screening	Passes Screening	Passes Screening	5.5/0.3/196	Pass	Passes Screening	Passes Screening	Passes Screening	5.5/0.3/188	Pass	No
118	95	34	129	>5.5	>0.3	94.1	5.5/0.3/196	Fail	4.5	0.18	174.2	5.5/0.3/188	Pass	Yes
119	95	32	127	>5.5	>0.3	137.4	5.5/0.3/196	Fail	1.5	0.07	180.4	5.5/0.3/188	Pass	Yes
124	95	30	125	>5.5	>0.3	93.6	5.5/0.3/196	Fail	1.1	0.06	139.5	5.5/0.3/188	Pass	Yes
125	115	33	148	>5.5	>0.3	33.3	5.5/0.3/196	Fail	3.1	0.13	175.9	5.5/0.3/188	Pass	Yes

Proposed (E) Designation Requirements

At affected projected and potential development sites, the proposed (E) designation (E−442) would specify the type of fuel to be used, whether low NOx burners are required, the distance that the vent stack on the building roof must be from its lot line(s), and for the minimum stack height. A summary of the proposed (E) designations is presented in Appendix F.

For each of the projected and potential development sites with a proposed (E) designation, the (E) designation process, as set forth in Zoning Resolution Section 11−15 and Chapter 24 of Title 15 of the Rules of the City of New York, allows for the modification of the measures required under an (E) designation in the event of new information or technology, additional facts or updated standards that are relevant at the time the site is ultimately developed. Because the air quality analysis is based on conservative assumptions due to the absence of information on the actual design of buildings that would be constructed, the actual design of buildings may result in modification of the (E) designation measures under these procedures. When an (E) designation is placed for more than one pollutant (e.g., for $PM_{2.5}$ and NO2), any modifications must address the measures required with respect to each pollutant.

With the foregoing, the evaluation of $PM_{2.5}$, and thus the (E) designations, would be able to take into account the fact that air quality in New York City is expected to improve. As discussed in the Section "NAAQS Attainment Status and Implementation Plan," EPA recently redesignated the New York City Metropolitan Area, which had been nonattainment with the 2006 24−hour $PM_{2.5}$ NAAQS since November 2009, as in attainment. Under the required maintenance plans, NYSDEC would continue to address the attainment of the 24−hour and annual NAAQS in the area, which would require further reductions in emissions of $PM_{2.5}$ and its precursors. In addition, New York City has prohibited the use of No. 6 and No. 4 oil in new boiler installations, and is phasing out their use at existing installations, which would result in direct reductions of

$PM_{2.5}$ emissions, and reductions in SO_2 emissions, which is a $PM_{2.5}$ precursor (because chemical reactions in the atmosphere convert some SO_2 to $PM_{2.5}$). Although these measures do not address the emissions of $PM_{2.5}$ associated with Proposed Actions A-Application Alternative, taken together, they are anticipated to result in an improvement in air quality in the rezoning area, resulting in significant reductions from current levels of the ambient background $PM_{2.5}$ concentrations and, consequently, in the total $PM_{2.5}$ concentrations with the Proposed Actions A-Application Alternative.

Industrial Source Analysis

As discussed above, a study is conducted to analyze industrial uses within 400 feet of the projected and potential development sites, large sources or major sources within 1,000 feet of a projected or potential development site. DEP−BEC, NYSDEC and EPA permit databases were used to identify existing sources of emissions. A total of 11 facilities (consisting of 11 sources) were analyzed. The information from these permits (emission rates, stack parameters, etc.) is input to the AERMOD dispersion model.

Table 20.7.14-12, "Maximum Predicted Impacts on Projected and Potential Sites from Industrial Sources," presents the maximum predicted impacts at the projected and potential development sites using the

AERMOD refined dispersion model. As shown in Table 20.7.14-13, for all projected and potential development sites, the refined modeling demonstrates that there would be no predicted significant adverse air quality impacts on these development sites from existing industrial sources in the area.

Table 20.7.14-12: Maximum Predicted Impacts on Projected and Potential Sites from Industrial Sources

Modeled Pollutants	CAS#	Maximum Modeled Short Term Concentration (µ/m3)	SGC (µ/m³)	Maximum Modeled Annual Concentration (µ/m3)	AGC (µ/m³)
Aromatic Petro Dist	64742-95-6	---	---	0.17	100
V,M, & P Naptha	64742-89-8	---	---	0.26	3200
Toluene	00108-88-3	5245.80	37000	6.81	5000
Ethyl Benzene	00100-41-4	791.37	54000	1.40	1000
1-Methoxy - 2 - Propyl	00108-65-6	85.24	55000	0.25	2000
Methylcyclohexane	00108-87-6	---	---	0.01	3800
N-Butyl Acetate	00123-86-4	439.64	95000	0.78	17000
Xylenes	01330-20-7	1539.92	4300	3.44	100
N-Heptane	00142-82-5	4.26	210000	0.01	3900
Acetone	00067-64-1	3780.86	180000	6.65	30000
Prop. Glycol Mono. Et	00107-98-2	78.85	55000	0.22	2000
Iso Butyl Acetate	00108-88-3	63.93	37000	0.18	5000
Isopropyl Alcohol	00067-63-0	212.68	98000	0.80	7000
Isobutyl Alcohol	00078-83-1	---	---	0.09	360
Oxo-Heptyl Acetate	90438-79-2	27.70	150000	0.08	2100
2-Butoxyethyl Acetate	00112-07-2	0.00	---	0.10	310
Butoxy Ethanol	00111-76-2	34.09	14000	0.10	1600
Ester Alcohol	25265-77-4	17.05	550	0.05	300
Propylene Glycol	00057-55-6	14.90	55000	0.04	2000
Stoddard Solvent	08052-41-3	---	---	6.21	900
Aromatic Solvent	64742-95-8	---	---	0.22	100
Polyfunctional Azirid	64265-57-2	---	---	0.81	16
N,n - Dimethyl Ethanol	00108-01-0	---	---	0.00	26
Propylenenimine	00075-55-8	0.00	93	0.00	1.1
2 Ethylhexyl Acetate	00103-11-7	0.00	---	0.01	17
Methyl Isobutyl Keton	00108-10-1	55.41	31000	0.15	3000
Ethyl Acetate	00141-78-6	12.78	10000	0.04	140
Petroleum Distillates	64741-65-7	---	---	0.04	16
Naptha	64742-48-9	---	---	0.08	900
Aromatic Naptha	64742-95-6	---	---	0.04	100
N Butyl Alcohol	00071-36-3	---	---	0.15	1500
Naptha	08032-32-4	---	---	0.04	900

Modeled Pollutants	CAS#	Maximum Modeled Short Term Concentration (µ/m3)	SGC (µ/m³)	Maximum Modeled Annual Concentration (µ/m3)	AGC (µ/m³)
Aliphatic Hydrocarbons	08052-41-3	---	---	1.55	900
1,2,4 - Trimethyl Benzene	00095-63-6	---	---	0.15	6
Glycol Ether	00111-46-6	12.78	440	0.04	240
Ethylene Glycol Mono	02807-30-9	70.33	430	0.20	230
1,3,5 Trimethyl Benzene	00108-67-8	---	---	0.05	290
Mica	12001-26-2	---	---	0.01	7.1
Microcrystalline Silica	14808-60-7	---	---	0.01	0.06
Aluminum Flake	07429-90-5	---	---	0.01	2.4
Carbon Black	01333-86-4	---	---	0.00	8.3
Titanium Dioxide	13463-67-7	---	---	0.03	24
Graphite	07782-42-5	---	---	0.01	4.8
Prop. Nickel Comp	Not Established	0.00	300	0.00	10
Aromatic Petroleum distillates	64742-94-5	---	---	0.78	3,800.00
Butane	00106-97-8	---	---	0.78	57,000.00
Ethanol	00064-17-5	---	---	1.70	45,000.00
Ethyl 3-Ethoxyproprioanate	00763-69-9	69.15	140	1.55	64
Methyl Ethyl Ketone	00078-93-3	439.64	13,000.00	0.78	5,000.00
Propane	00074-98-6	---	---	4.65	43,000.00
Particulates (PM2.5) [1]	NY075-02-5 [2]	35.64	88	4.64	12
1-Methoxy-2-Propyl Acetate	00108-65-6	352.60	55000	1.01	2000

Notes:

(1) Pollutant includes emissions from both Particulates (NY075-00-0) and Total Solid Particulate (NY079-00-0)

(2) Conservatively assumes all particulate emissions would be $PM_{2.5}$. SGC and AGC from Particulate (PM-2.5) used.

HEALTH RISK ASSESSMENT

Cumulative impacts are also determined for the combined effects of multiple air contaminants in accordance with the approach described above in the "Methodology for Predicting Pollutant Concentrations" section. Using the predicted concentrations of each pollutant, the maximum hazard index are calculated for each affected projected and potential development site associated with the Proposed Actions A-Application Alternative. The hazard index approach is used to determine the effects of multiple non−carcinogenic compounds. None of the pollutants studied were carcinogens so a cancer risk assessment was not required.

Table 20.7.14-13, "Estimated Maximum Hazard Index," presents the results of the assessment of cumulative non−carcinogenic effects on the Proposed Actions A-Application Alternative.

Table 20.7.14-13: Estimated Maximum Hazard Index

Modeled Pollutants	CAS#	Maximum Modeled Annual Concentration (µ/m3)	AGC (µ/m³)	Concentration to AGC Pollution Ratio
Aromatic Petro Dist	64742-95-6	0.17	100	1.65E-03
V,M, & P Naptha	64742-89-8	0.26	3200	7.99E-05
Toluene	00108-88-3	6.81	5000	1.36E-03
Ethyl Benzene	00100-41-4	1.40	1000	1.40E-03
1-Methoxy - 2 - Propyl	00108-65-6	0.25	2000	1.23E-04
Methylcyclohexane	00108-87-6	0.01	3800	2.78E-06
N-Butyl Acetate	00123-86-4	0.78	17000	4.56E-05
Xylenes	01330-20-7	3.44	100	3.44E-02
N-Heptane	00142-82-5	0.01	3900	2.71E-06
Acetone	00067-64-1	6.65	30000	2.22E-04
Prop. Glycol Mono. Et	00107-98-2	0.22	2000	1.12E-04
Iso Butyl Acetate	00108-88-3	0.18	5000	3.68E-05
Isopropyl Alcohol	00067-63-0	0.80	7000	1.14E-04
Isobutyl Alcohol	00078-83-1	0.09	360	2.58E-04
Oxo-Heptyl Acetate	90438-79-2	0.08	2100	3.72E-05
2-Butoxyethyl Acetate	00112-07-2	0.10	310	3.34E-04
Butoxy Ethanol	00111-76-2	0.10	1600	6.20E-05
Ester Alcohol	25265-77-4	0.05	300	1.62E-04
Propylene Glycol	00057-55-6	0.04	2000	2.01E-05
Stoddard Solvent	08052-41-3	6.21	900	6.90E-03
Aromatic Solvent	64742-95-8	0.22	100	2.15E-03
Polyfunctional Azirid	64265-57-2	0.81	16	5.07E-02
N,n - Dimethyl Ethanol	00108-01-0	0.00	26	0.00E+00
Propylenenimine	00075-55-8	0.00	1.1	0.00E+00
2 Ethylhexyl Acetate	00103-11-7	0.01	17	4.97E-04
Methyl Isobutyl Keton	00108-10-1	0.15	3000	5.14E-05
Ethyl Acetate	00141-78-6	0.04	140	2.72E-04
Petroleum Distillates	64741-65-7	0.04	16	2.38E-03
Naptha	64742-48-9	0.08	900	8.68E-05
Aromatic Naptha	64742-95-6	0.04	100	3.80E-04
N Butyl Alcohol	00071-36-3	0.15	1500	1.03E-04
Naptha	08032-32-4	0.04	900	4.22E-05
Aliphatic Hydrocarbons	08052-41-3	1.55	900	1.72E-03
1,2,4 - Trimethyl Benzene	00095-63-6	0.15	6	2.43E-02
Glycol Ether	00111-46-6	0.04	240	1.58E-04

Modeled Pollutants	CAS#	Maximum Modeled Annual Concentration (μ/m3)	AGC (μ/m³)	Concentration to AGC Pollution Ratio
Ethylene Glycol Mono	02807-30-9	0.20	230	8.63E-04
1,3,5 Trimethyl Benzene	00108-67-8	0.05	290	1.68E-04
Mica	12001-26-2	0.01	7.1	1.19E-03
Microcrystalline Silica	14808-60-7	0.01	0.06	1.76E-01
Aluminum Flake	07429-90-5	0.01	2.4	6.16E-03
Carbon Black	01333-86-4	0.00	8.3	5.08E-04
Titanium Dioxide	13463-67-7	0.03	24	1.06E-03
Graphite	07782-42-5	0.01	4.8	1.76E-03
Prop. Nickel Comp	Not Established	0.00	10	0.00E+00
Aromatic Petroleum Distillates	64742-94-5	0.78	3,800.00	2.04E-04
Butane	00106-97-8	0.78	57,000.00	1.36E-05
Ethanol	00064-17-5	1.70	45,000.00	3.79E-05
Ethyl 3-Ethoxyproprioanate	00763-69-9	1.55	64	2.43E-02
Methyl Ethyl Ketone	00078-93-3	0.78	5,000.00	1.55E-04
Propane	00074-98-6	4.65	43,000.00	1.08E-04
Particulates (PM2.5) [1]	NY075-02-5 [2]	4.64	12	3.87E-01
1-Methoxy-2-Propyl Acetate	00108-65-6	1.01	2000	5.04E-04
			Total Hazard Index	**0.73**
			Hazard Index Threshold Value	**1.0**

Notes:
(1) Pollutant includes emissions from both Particulates (NY075-00-0) and Total Solid Particulate (NY079-00-0)
(2) Conservatively assumes all particulate emissions would be PM2.5. SGC and AGC from Particulate (PM-2.5) used.

As shown in Table 20.7.14-13, the results of this health risk assessment indicated that there would be no significant adverse air quality impacts on the projected and potential development sites because the hazard index for any affected site would not exceed 1.0.

The procedures used to estimate maximum potential impacts from industrial sources showed that their operations would not result in any predicted violations of the NAAQS or any exceedances of the recommended SGC or AGC. Therefore, based on the data available on the surrounding industrial uses, development resulting from the Proposed Actions A-Application Alternative would not experience significant air quality impacts from these facilities.

20.7.15 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

GREENHOUSE GAS EMISSIONS

Although this would result in slightly more development than the Proposed Actions, neither the Proposed Actions nor the A-Application Alternative would result in significant GHG emission or climate change impacts.

RESILIENCE TO CLIMATE CHANGE

Similar to the Proposed Actions, since sites would be developed as a result of the A-Application Alternative but would not otherwise be controlled by the City, and since implementing specific resilience measures for each site prior to design while considering local street and utility elevations and the effect on existing buildings is not practicable, addressing resilience through the A-Application Alternative is not practicable. Resilience for the Project Area will be addressed in the future as part of the resilience process for the City overall.

Regarding the impact of the A-Application Alternative on resilience in the area and on other environmental effects as they may be affected by climate change, the Proposed Actions would not result in any development in the water or on the waterfront, and therefore other considerations identified in WRP Policy 6.2 such as providing protection to avoid coastal erosion, protecting other properties, and other design considerations for waterfront areas, are not relevant for the A-Application Alternative. A-Application Alternative would also not adversely affect other resources (including ecological systems, public access, visual quality, water-dependent uses, infrastructure, and adjacent properties) due to climate change.

20.7.16 NOISE

Introduction

This section discusses potential impacts to the neighborhood noise environment as a result of the A-Application Alternative. Therefore, a noise analysis is prepared to evaluate the potential effect of the A-Application Alternative at projected and potential development sites and nearby noise sensitive locations in the rezoning area. Existing noise levels in the rezoning area are predominantly the result of vehicular traffic and the elevated NYCT No. 4 line operating along Jerome Avenue. Noise sensitive locations include residential, commercial, and open space uses.

In order to assess the potential for significant adverse noise impacts, the noise analysis considers changes in noise due to increases in traffic and the introduction of sensitive receptors into an area with high existing noise levels. The noise analysis addresses two factors: 1) the change in noise levels from the existing condition in the area as a result of the A-Application Alternative; and 2) the location of new sensitive receptors and the degree to which window/wall attenuation would provide acceptable interior noise levels.

Principal Conclusions

The noise analysis concludes that the A-Application Alternative 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 the passenger car equivalents which would be necessary to cause a three dBA increase in noise levels). At all noise receptor sites, the maximum noise level increase would be 1.6 dBA, which would not be considered a significant adverse noise impact. Therefore, the noise analysis concludes that the traffic generated by the A-Application Alternative would not have the potential to produce significant increases to noise levels at any sensitive receptors within the rezoning area. Ambient noise levels adjacent to the projected and potential development sites were examined to determine if building noise attenuation requirements for maintaining interior noise levels would be necessary. That assessment finds that noise levels would range between the "marginally unacceptable" and "clearly unacceptable" exterior noise exposure categories, resulting in a noise attenuation requirement range of 30 to 42 dBA to ensure noise levels within the proposed development sites would comply with all applicable requirements. As a result, the A-Application Alternative includes (E) designations for all of the projected and potential development sites. The window/wall attenuation levels required under the (E) designations would avoid the potential for significant adverse noise impacts due to the A-Application Alternative; refer to Appendix G, "Noise," for the proposed (E) designations.

Acoustical 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 (a whistle compared with a French horn, for example)

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 one 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 discernible 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 20.7.16-1 "Typical Noise Levels," the threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

Table 20.7.16-1: Typical 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 ten dBA increase in level appears to double the loudness, and a ten 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.

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of ten 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 three dBA. At five dBA, the change will be readily noticeable.

Noise Descriptors Used in Impact Assessment

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise over extended periods have been developed. One way of describing fluctuating sound is to describe the fluctuating noise 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., one hour, denoted by $L_{eq}(1)$, or 24 hours, denoted as $L_{eq}[24]$), conveys the same sound energy as the actual time−varying sound. The Day−Night Sound Level (i.e., L_{dn}) refers to a 24−hour average noise level with a 10 dB penalty applied to the noise levels during the hours between 10 PM and 7 AM, due to increased sensitivity to noise levels during these hours. 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 very 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 ten 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 A-Application Alternative, the maximum one−hour equivalent sound level (i.e., $L_{eq}[1]$) has been selected as the noise descriptor to be used in this noise impact evaluation. $L_{eq}(1)$ is the noise descriptor recommended for use in the *CEQR Technical Manual* for vehicular traffic and is used to provide an indication of highest expected sound levels. The one−hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines for city environmental impact review classification

Noise Standards and Criteria

New York CEQR Technical Manual Noise Standards

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise levels (see Table 20.7.16-2, "Required Attenuation Values to Achieve Acceptable Interior Noise Levels"). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential uses and 50 dBA or lower for commercial uses, and are determined based on exterior L_{10} noise levels.

Table 20.7.16-2: 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 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)$[B] dB(A)

Notes:

[A] The above composite window-wall attenuation values are for residential dwellings. Retail and office spaces would be 5 dB(A) less in each category. All of the above categories require a closed window situation and hence an alternate means of ventilation.

[B] Required attenuation values increase by 1 dB(A) increments for L_{10} values greater than 80 dBA.

Source: New York City Department of Environmental Protection (DEP)

New York City Noise Control Code

Specific noise standards for the proposed development site would be governed by the 2005 New York City Noise Code. Table 20.7.16-3, "2005 New York City Noise Code," shows the permitted sound levels for sources operating in connection with any residential, commercial or business enterprises. These noise levels do not apply to construction activities or equipment, but do apply to mechanical systems which may be related to the A-Application's operation.

Table 20.7.16-3: New York City Noise Code

Octave Band	Maximum Sound Pressure Levels (dB) as measured within a receiving property, as specified below	
Frequency (Hz)	Residential receiving property for mixed use buildings and residential buildings (as measured within any room of the residential portion of the building with windows open, if possible).	Commercial receiving Property (as measured within any room containing offices within the building with windows open, if possible).
31.5	70	74
63	61	64
125	53	56
250	46	50
500	40	45
1000	36	41
2000	34	39
4000	33	38
8000	32	37

Source: NYC Noise Code, 2005.

For purposes of the A-Application Alternative, the maximum one−hour equivalent sound level (i.e., $L_{eq}[1]$) has been selected as the noise descriptor to be used in this noise impact evaluation. $L_{eq}(1)$ is the noise descriptor recommended for use in the *CEQR Technical Manual* for vehicular traffic and is used to provide an indication of highest expected sound levels. The one−hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines for city environmental impact review classification.

The L_{dn} is the noise descriptor used in the *HUD Noise Guidebook* sets exterior noise standards for housing construction projects receiving federal funds.

Existing Noise Levels

Selection of Noise Receptor Locations

Information concerning specific land usage in and around the study area site, as well as trip assignments for potential future uses, are reviewed to select monitoring sites and assess future noise impacts on existing and future sensitive land uses. The 21 monitoring sites depicted in Table 20.7.16-4, "Noise Receptor Locations," and shown in Chapter 16, "Noise," on Figure 16-1, "Noise Receptor Locations," are nearby sites of projected and potential development and are representative of the sensitive land uses in the rezoning area.

Table 20.7.16-4: Noise Receptor Locations

Receptor	Location
1	River Avenue and East 167th Street
2	River Avenue and East 165th Street
3	Edward L. Grant Highway between Jerome Avenue and West 169th Street
4	Jerome Avenue (west side) and West 168th Street
5	Corner of Jerome Ave and E. Clark Place, north of Jerome Avenue, Gerard Avenue and E. Clark Place Triangle
6	Edward L. Grant Highway between Jesup Avenue and Shakespeare Avenue
7	Cromwell Avenue between West 169th Street and West 170th Street
8	East 170th Street between Townsend Avenue and Walton Avenue
9	Inwood Avenue between West 170th Street and Macombs Road
10	Jerome Avenue and West 172nd Street. (northwest corner)
11	West Mount Eden Avenue between Jerome Avenue and Inwood Avenue
12	Jerome Avenue between Clifford Place East and East 175th Street
13	Jerome Avenue between East 177th Street and East Tremont Avenue
14	East Burnside Avenue between Walton Avenue and Morris Avenue
15	Jerome Avenue and East 182nd Street
16	West 183rd Street between Grand Avenue and Davidson Avenue
17	East Tremont Avenue between Jerome Avenue and Walton Avenue
18	Northeast corner of Creston Avenue and East Tremont Avenue (replacement monitoring site for Burnside due to construction)
19	River Avenue between East 167th Street and East 168th Street (Elevated)
20	Jerome Avenue between East 172nd Street and East 171st Street (Elevated)
P1	PS 306 Playground
P2	Proposed New School on Projected Development Site 35 (Inwood Avenue and West Clarke Place)

Source: STV Incorporated, 2017.

Noise Monitoring

Noise monitoring was performed on several weekdays from May 5th to May 17th, 2016 and weekends from September 17th to September 24th, 2016. Time periods chosen for monitoring include the weekday AM (7-9 AM), midday (11:30AM-12:30 PM), early PM (2:30-3:30 PM) for receptors near school locations, PM (5-6 PM), and Saturday midday (12-5 PM) peak hours for locations near destination retail stores. These time periods represent the peak hours when the majority of existing and future project-generated traffic would be passing these locations. The noise monitoring took into account the peak work week, commercial, and school-related traffic and the peak weekend commercial traffic. Measurements were conducted for a 20 minute time period so that the typical fluctuations in peak hour traffic could be properly accounted for.

In addition to $L_{eq}(h)$ and L_{10} noise levels, other statistical noise descriptors (L_{50}, L_{90}, L_{max}, and L_{min}) were also sampled at all locations for all time periods. For the A-Application Alternative, the analysis of potential noise impacts utilizes the L_{10} and $L_{eq}(h)$ descriptors. The other noise descriptors collected during the monitoring program are utilized to assist in the characterization of the existing noise environment. Typically, L_{50} tends to describe the statistical median noise value, while the L_{90} typically describes the residual background noise level in an environment.

Equipment Used During Noise Monitoring

Noise measurements were taken with a 3M SoundPro DL Type I sound level meters ("SLM") and a Larson and Davis (L&D) LxT SLM. A windscreen was placed over the microphone for all measurements. The SLM had a laboratory calibration date within the past year at the time of use, as is standard practice. The SLMs were also properly field calibrated for all measurements using the 3M AC-300 and the L&D Cal 200 calibrators. There were no significant variances between the beginning and ending calibration measurements. To avoid interference with sound propagation, the measuring microphone was placed approximately six feet away from any reflecting surfaces and at a height of approximately five feet from the ground surface. Weather conditions during the measurement periods, with respect to temperature and wind conditions, were conducive to obtaining valid noise readings, per guidelines outlined in ANSI Standard S1.13-2005.

Existing Noise Levels at Noise Receptor Locations

Measured Noise Levels

As with the Proposed Actions, the A-Application Alternative is located in an area that is exposed to numerous sources of noise. These sources include vehicular traffic from local streets, highway noise from the depressed Cross Bronx Expressway, and transit noise from the elevated NYC Transit IRT No. 4 line which traverses River Avenue and Jerome Avenue within the entire project corridor. Receptors which are exposed to the most noise are those which are in close proximity to the elevated train line along River Avenue and Jerome Avenue. The dominant source of neighborhood noise comes from local vehicular traffic and transit noise. Per the guidance of the *CEQR Technical Manual* noise exposure criteria, receptors 1, 4, 5, 10, 13, 15, and 17 would be within the "clearly unacceptable" category. The remaining sites, which include receptor locations 2, 3, 6, 7, 8, 11, 12, 14, 16, 18, 19, and 20, are all in the "marginally

unacceptable" category. Receptor 9 would be in the "marginally acceptable" category. The results of the measurements of existing noise levels are summarized in Table 20.7.16-5, "Existing Noise Levels."

Table 20.7.16-5: Existing Noise Levels (in dBA)*

Receptor	Measurement Location	Time	L_{eq}	L_{10}	L_{50}	L_{90}
1	River Avenue and East 167th Street	AM	76.9	84.5	71.5	66.0
		Midday	76.9	83.9	69.9	65.2
		PM	77.0	84.7	70.4	66.3
		Saturday	77.2	83.6	70.8	66.6
2	River Avenue and East 165th Street	AM	74.7	78.2	66.5	59.6
		Midday	73.2	77.1	66.2	60.6
		PM	73.3	79.3	65.7	60.7
		Saturday	73.6	76.1	64.9	58.8
3	Edward L. Grant Highway between Jerome Avenue and West 169th Street	AM	68.5	72.5	66.0	60.9
		Midday	66.1	69.2	65.0	59.9
		PM	66.6	69.5	64.1	59.2
		Saturday	66.5	70.8	64.5	58.8
4	Jerome Avenue (west side) and West 168th Street	AM	73.3	82.2	65.0	58.0
		Midday	68.2	71.4	62.3	57.9
		PM	74.5	83.7	64.0	58.2
		Saturday	75.1	78.4	65.5	61.2
5	Corner of Jerome Avenue and E. Clark Place, north of Jerome Avenue, Gerard Avenue and E. Clark Place Triangle	AM	73.7	80.3	64.6	59.2
		Midday	73.6	76.9	65.3	61.5
		PM	74.2	78.6	65.0	60.6
		Saturday	70.4	72.3	61.6	58.2
6	Edward L. Grant Highway between Jesup Avenue and Shakespeare Avenue	AM	69.5	74.0	66.0	61.3
		Midday	65.5	69.4	63.8	60.3
		PM	67.2	70.4	65.3	61.1
		Saturday	64.1	64.3	63.9	63.6
7	Cromwell Avenue between West 169th Street and West 170th Street	AM	61.3	64.3	59.9	55.2
		Midday	67.5	70.7	65.7	62.5
		PM	59.7	63.0	58.2	55.2
		Saturday	61.9	67.8	57.5	52.6
8	East 170th Street between Townsend Avenue and Walton Avenue	AM	68.6	72.5	67.1	62.7
		Midday	62.4	66.7	59.8	55.2
		PM	67.8	71.6	66.3	62.2
		Saturday	68.3	73.1	66.4	63.1
9	Inwood Avenue between West 170th Street and Macombs Road	AM	64.2	69.6	61.7	56.9
		Midday	61.2	65.0	58.8	55.2
		PM	62.1	65.5	61.0	56.7
		Saturday	65.2	68.9	62.6	58.8
10	Jerome Avenue and West 172nd Street (northwest corner)	AM	74.5	82.4	67.1	60.8
		Midday	74.0	75.5	65.2	58.3
		PM	73.1	78.4	64.1	58.5
		Saturday	72.9	76.0	64.1	60.3

Table 20.7.16-5 (continued): Existing Noise Levels (in dBA)

Receptor	Measurement Location	Time	L_{eq}	L_{10}	L_{50}	L_{90}
11	West Mount Eden Avenue between Jerome Avenue and Inwood Avenue	AM	67.8	71.6	65.5	63.4
		Midday	67.8	71.1	66.2	64.2
		PM	62.3	65.6	60.5	57.9
		Saturday	64.7	68.4	62.9	60.3
12	Jerome Avenue between Clifford Place East and East 175th Street	AM	73.2	74.0	65.2	59.8
		Midday	70.3	72.7	62.6	59.5
		PM	73.7	77.9	64.7	61.0
		Saturday	72.5	73.1	64.6	61.7
13	Jerome Avenue between East 177th Street and East Tremont Avenue	AM	77.3	81.9	68.0	61.3
		Midday	76.1	77.8	65.8	62.4
		PM	77.4	83.6	66.6	61.7
		Saturday	72.3	73.5	66.0	62.1
14	East Burnside Avenue between Walton Avenue and Morris Avenue	AM	70.1	73.5	66.7	61.3
		Midday	66.4	71.6	64.3	60.1
		PM	67.0	70.4	65.1	60.8
		Saturday	70.1	73.1	66.9	64.4
15	Jerome Avenue and East 182nd Street	AM	75.0	83.2	65.9	60.2
		Midday	72.9	77.8	67.9	60.1
		PM	74.0	80.5	65.9	58.3
		Saturday	72.6	76.2	65.6	62.3
16	West 183rd Street between Grand Avenue and Davidson Avenue	AM	64.4	67.2	61.8	57.7
		Midday	63.9	67.6	60.6	56.3
		PM	62.2	65.9	60.2	57.8
		Saturday	69.1	72.8	65.3	62.1
17	East Tremont Avenue between Jerome Avenue and Walton Avenue	AM	72.5	78.4	67.1	61.4
		Midday	71.4	75.9	68.6	64.0
		PM	72.9	80.8	68.6	61.5
		Saturday	73.0	78.2	68.8	62.5
18	Northeast corner of Creston Avenue and East Tremont Avenue (replacement monitoring site for Burnside due to construction)	AM	67.5	72.0	65.1	60.7
		Midday	64.6	68.9	61.6	56.1
		PM	67.6	72.1	65.5	60.9
		Saturday	69.9	71.7	63.8	59.7
19	River Avenue between East 167th Street and East 168th Street (Elevated)	AM	72.4	77.4	60.1	55.9
		Midday	71.5	76.7	59.0	55.4
		PM	78.2	73.8	62.0	56.7
		Saturday	72.6	74.6	61.0	57.1
20	Jerome Avenue between East 172nd Street and East 171st Street (Elevated)	AM	72.2	76.5	66.1	55.3
		Midday	71.4	73.1	63.9	58.2
		PM	71.9	73.6	65.5	59.7
		Saturday	71.7	72.6	65.2	61.2

Source: STV Incorporated, 2017.

In addition to the above noise monitoring locations, Potential Development Site 40 would be located directly adjacent to the PS 306 school playground along West 177th Street. As a result, one noise measurement site P1 was also monitored to determine the midday sound level nearby Potential Development Site 40. The resulting L_{eq} noise level was measured at 68.6 dBA. Also, since the ground floor of Projected Development Site 35 would be developed as a school in the A-Application Alternative, several adjacent development sites could also be affected by playground noise. As a result, an additional noise measurement site P2 was monitored to determine the early PM sound levels nearby Potential

Development Sites 88 and 89 and Projected Development Sites 35 and 52. The resulting L_{eq} noise level was measured at 66.2 dBA.

Noise Prediction Methodology

General Methodology

Proportional Modeling

In order to predict the noise levels in the future with and without the A-Application Alternative, monitored noise levels are projected by using a proportional modeling procedure, per the guidance of the *CEQR Technical Manual* guidelines. This procedure takes into account the changes in noise levels due to increases in traffic associated with area growth. First, future traffic volumes are obtained by adding future traffic volumes to the existing baseline conditions. Then, vehicular traffic volumes under the baseline and future conditions are converted into Passenger Car Equivalent ("PCE") values. For this conversion, one medium truck is estimated to generate the noise equivalent of 13 cars, one bus is estimated to generate the noise equivalent of 18 cars, and one heavy truck is estimated to generate the noise equivalent of 47 cars. Future noise levels are calculated using the following equation:

$$Future\ Noise\ Level\ = 10 * log\ (\frac{Future\ PCE}{Existing\ PCE}) + Baseline\ Noise\ Level$$

The calculation is conducted using the L_{eq} noise measurement results. L_{10} values are calculated by adding the difference between the L_{10} and L_{eq} descriptors found to exist in the measurement program to the calculated future L_{eq} noise level.

Noise from the School Playground

Future development sites located adjacent to existing school playgrounds areas require an analysis of school playground noise to determine the potential for window/wall attenuation. Therefore, as Potential Development Site 40 is located directly adjacent to P.S. 306 (40 W. Tremont Avenue), and Potential Sites 88 and 89 and Projected Sites 35 and 52 are located adjacent to a proposed school site on the ground floor of Projected Site 35, additional analyses of the potential for noise from school playground areas to impact adjacent development sites is performed. The *CEQR Technical Manual* provides the following guidance to determine the sound effects of proposed playgrounds:

> *"….based upon noise measurements made at 10 school playground sites in 1987, it may be assumed the $L_{eq(1)}$ noise levels at the boundary would be 75 dB(A), 15 feet from the boundary would be 73 dB(A), 30 feet from the boundary would be 70 dB(A), and the noise level would decrease by 4.5 dB(A) per doubling of distance beyond 30 feet."*

As a result, the analysis of the proposed playground consists of the following procedures:

- Existing noise measurements were conducted along the edge of the existing playground nearby Potential Development Site 30 during the midday period;
- The distances between the playground boundary and nearby noise-sensitive building are determined;
- Play area noise levels are predicted per the guidance of the *CEQR Technical Manual* outlined above;
- Play area noise levels are combined with the predicted With-Action traffic noise levels to determine total future noise levels with the A-Application Alternative; and
- Total future noise levels with the A-Application Alternative are compared to the predicted No-Action noise levels for purposes of impact determination.

The Future without the Proposed Actions (No-Action Condition)

Using the methodologies previously described, No−Action noise levels for the 2026 analysis year are calculated at the 20 mobile source noise analysis receptors. These No−Action values are shown in Table 20.7.16-6.

Table 20.7.16-6: 2026 No-Action Condition Noise Levels (in dBA)

Receptor	Measurement Location	Time	Existing L_{eq}	No Action L_{eq}	L_{eq} change	No Action L_{10}
1	River Avenue and East 167th Street	AM	76.9	78.6	1.7	86.2
		Midday	76.9	78.3	1.4	85.3
		PM	77.0	78.3	1.3	86.0
		Saturday	77.2	78.6	1.4	85.0
2	River Avenue and East 165th Street	AM	74.7	75.5	0.8	79.0
		Midday	73.2	73.7	0.5	77.6
		PM	73.3	73.3	0.0	79.3
		Saturday	73.6	73.6	0.0	76.1
3	Edward L. Grant Highway between Jerome Avenue and West 169th Street	AM	68.5	70.1	1.6	74.1
		Midday	66.1	67.5	1.4	70.6
		PM	66.6	68.9	2.3	71.8
		Saturday	66.5	68.2	1.7	72.5
4	Jerome Avenue (west side) and West 168th Street	AM	73.3	74.0	0.7	82.9
		Midday	68.2	68.5	0.3	71.7
		PM	74.5	74.8	0.3	84.0
		Saturday	75.1	75.2	0.1	78.5
5	Corner of Jerome Avenue and E. Clark Place, north of Jerome Avenue, Gerard Avenue and E. Clark Place Triangle	AM	73.7	74.3	0.6	80.9
		Midday	73.6	73.6	0.0	76.9
		PM	74.2	74.2	0.0	78.6
		Saturday	70.4	70.4	0.0	72.3
6	Edward L. Grant Highway between Jesup Avenue and Shakespeare Avenue	AM	69.5	71.2	1.7	75.7
		Midday	65.5	66.3	0.8	70.2
		PM	67.2	68.6	1.4	71.8
		Saturday	64.1	65.3	1.2	65.5
7	Cromwell Avenue between West 169th Street and West 170th Street	AM	61.3	62.0	0.7	65.0
		Midday	67.5	67.6	0.1	70.8
		PM	59.7	59.7	0.0	63.0
		Saturday	61.9	61.9	0.0	67.8
8	East 170th Street between Townsend Avenue and Walton Avenue	AM	68.6	71.0	2.4	74.9
		Midday	62.4	63.2	0.8	67.5
		PM	67.8	70.0	2.2	73.8
		Saturday	68.3	69.8	1.5	74.6
9	Inwood Avenue between West 170th Street and Macombs Road	AM	64.2	64.2	0.0	69.6
		Midday	61.2	61.2	0.0	65.0
		PM	62.1	62.1	0.0	65.5
		Saturday	65.2	65.2	0.0	68.9

~~Source:~~ ~~STV Incorporated, 2017~~

Table 20.7.16-6 (continued): 2026 No-Action Condition Noise Levels (in dBA)

Receptor	Measurement Location	Time	Existing L_{eq}	No Action L_{eq}	L_{eq} change	No Action L_{10}
10	Jerome Avenue and West 172nd Street (northwest corner)	AM	74.5	75.9	1.4	83.8
		Midday	74.0	74.4	0.4	75.9
		PM	73.1	73.5	0.4	78.8
		Saturday	72.9	72.9	0.0	76.0
11	West Mount Eden Avenue between Jerome Avenue and Inwood Avenue	AM	67.8	75.2	7.4	79.0
		Midday	67.8	74.8	7.0	78.1
		PM	62.3	68.2	5.9	71.5
		Saturday	64.7	69.6	4.9	73.3
12	Jerome Avenue between Clifford Place East and East 175th Street	AM	73.2	75.1	1.9	75.9
		Midday	70.3	71.4	1.1	73.8
		PM	73.7	75.3	1.6	79.5
		Saturday	72.5	73.5	1.0	74.1
13	Jerome Avenue between East 177th Street and East Tremont Avenue	AM	77.3	78.7	1.4	83.3
		Midday	76.1	77.3	1.2	79.0
		PM	77.4	79.2	1.8	85.4
		Saturday	72.3	73.6	1.3	74.8
14	East Burnside Avenue between Walton Avenue and Morris Avenue	AM	70.1	72.6	2.5	76.0
		Midday	66.4	67.9	1.5	73.1
		PM	67.0	68.8	1.8	72.2
		Saturday	70.1	71.4	1.3	74.4
15	Jerome Avenue and East 182nd Street	AM	75.0	77.1	2.1	85.3
		Midday	72.9	73.8	0.9	78.7
		PM	74.0	75.9	1.9	82.4
		Saturday	72.6	73.6	1.0	77.2
16	West 183rd Street between Grand Avenue and Davidson Avenue	AM	64.4	66.8	2.4	69.6
		Midday	63.9	64.7	0.8	68.4
		PM	62.2	63.4	1.2	67.1
		Saturday	69.1	70.0	0.9	73.7
17	East Tremont Avenue between Jerome Avenue and Walton Avenue	AM	72.5	75.4	2.9	81.3
		Midday	71.4	74.3	2.9	78.8
		PM	72.9	75.1	2.2	83.0
		Saturday	73.0	74.6	1.6	79.8
18	Northeast corner of Creston Avenue and East Tremont Avenue (replacement monitoring site for Burnside due to construction)	AM	67.5	70.0	2.5	74.5
		Midday	64.6	66.9	2.3	71.2
		PM	67.6	69.4	1.8	73.9
		Saturday	69.9	71.2	1.3	73.0
19	River Avenue between East 167th Street and East 168th Street (Elevated)	AM	72.4	74.7	2.3	79.7
		Midday	71.5	74.6	3.1	79.8
		PM	78.2	80.6	2.4	76.2
		Saturday	72.6	73.9	1.3	75.9

In 2026, the maximum increase in $L_{eq}(1)$ noise levels for the No−Action condition would be 7.4 dBA. Changes of this magnitude would be clearly perceptible to nearby residents. However, this increase would only apply to site 11. No other site would experience noise increases greater than the 3dBA perception threshold. In terms of CEQR noise exposure guidelines, noise levels at receptor site 9 would remain classified in the "marginally acceptable" category, noise levels at receptor sites 2, 3, 6, 7, 8, 11, 12, 14, 16, 18, 19, and 20 would remain in the "marginally unacceptable" category, and noise levels at receptor sites 1, 4, 5, 10, 13, 15, and 17 would remain in the "clearly unacceptable" category.

The Future with the A-Application Alternative

Noise Impact Identification

Using the methodologies previously described, noise levels in the future with the A-Application Alternative are calculated at the 20 noise impact analysis receptors for the 2026 analysis year. The With−Action noise levels for all receptors are shown in Table 20.7.16-7.

In 2026, the maximum increase in $L_{eq}(1)$ noise levels for the future with the A-Application Alternative compared to the No−Action condition for all receptor sites would be 1.6 dBA. Changes of this magnitude would be barely perceptible and would not constitute a significant noise impact according to *CEQR Technical Manual* impact criteria. In terms of CEQR noise exposure guidelines, noise levels at receptor site 9 would remain in the "marginally acceptable" category, noise levels at receptor sites 2, 3, 6, 7, 8, 11, 12, 14, 16, 18, 19, and 20 would remain in the "marginally unacceptable" category, and noise levels at receptor sites 1, 4, 5, 10, 13,15, and 17 would remain in the "clearly unacceptable" category.

Table 20.7.16-7: 2026 With-Action Condition Noise Levels (in dBA)

Receptor	Measurement Location	Time	No Action L_{eq}	With-Action L_{eq}	L_{eq} change	With-Action L_{10}
1	River Avenue and East 167th Street	AM	78.6	86.4	0.2	86.4
		Midday	78.3	85.5	0.2	85.5
		PM	78.3	86.2	0.2	86.2
		Saturday	78.6	85.1	0.1	85.1
2	River Avenue and East 165th Street	AM	75.5	79.2	0.2	79.2
		Midday	73.7	77.8	0.2	77.8
		PM	73.3	79.5	0.2	79.5
		Saturday	73.6	76.3	0.2	76.3
3	Edward L. Grant Highway between Jerome Avenue and West 169th Street	AM	70.1	74.2	0.1	74.2
		Midday	67.5	70.8	0.2	70.8
		PM	68.9	71.9	0.1	71.9
		Saturday	68.2	72.7	0.2	72.7

Table 20.7.16-7 (continued): 2026 With-Action Condition Noise Levels (in dBA)

Receptor	Measurement Location	Time	No Action L_{eq}	With-Action L_{eq}	L_{eq} change	With-Action L_{10}
4	Jerome Avenue (west side) and West 168th Street	AM	74.0	83.0	0.1	83.0
		Midday	68.5	71.9	0.2	71.9
		PM	74.8	84.2	0.2	84.2
		Saturday	75.2	78.7	0.2	78.7
5	Corner of Jerome Avenue and E. Clark Place, north of Jerome Avenue, Gerard Avenue and E. Clark Place Triangle	AM	74.3	81.2	0.3	81.2
		Midday	73.6	77.1	0.2	77.1
		PM	74.2	78.8	0.2	78.8
		Saturday	70.4	72.5	0.2	72.5
6	Edward L. Grant Highway between Jesup Avenue and Shakespeare Avenue	AM	71.2	75.8	0.1	75.8
		Midday	66.3	70.4	0.2	70.4
		PM	68.6	71.9	0.1	71.9
		Saturday	65.3	65.6	0.1	65.6
7	Cromwell Avenue between West 169th Street and West 170th Street	AM	62.0	65.0	0.0	65.0
		Midday	67.6	71.7	0.9	71.7
		PM	59.7	64.6	1.6	64.6
		Saturday	61.9	68.8	1.0	68.8
8	East 170th Street between Townsend Avenue and Walton Avenue	AM	71.0	75.3	0.4	75.3
		Midday	63.2	67.8	0.3	67.8
		PM	70.0	74.2	0.4	74.2
		Saturday	69.8	75.0	0.4	75.0
9	Inwood Avenue between West 170th Street and Macombs Road	AM	64.2	69.6	0.0	69.6
		Midday	61.2	65.1	0.1	65.1
		PM	62.1	65.6	0.1	65.6
		Saturday	65.2	69.0	0.1	69.0
10	Jerome Avenue and West 172nd Street (northwest corner)	AM	75.9	84.2	0.4	84.2
		Midday	74.4	76.1	0.2	76.1
		PM	73.5	79.4	0.6	79.4
		Saturday	72.9	76.4	0.4	76.4
11	West Mount Eden Avenue between Jerome Avenue and Inwood Avenue	AM	75.2	79.0	0.0	79.0
		Midday	74.8	78.1	0.0	78.1
		PM	68.2	71.5	0.0	71.5
		Saturday	69.6	73.3	0.0	73.3
12	Jerome Avenue between Clifford Place East and East 175th Street	AM	75.1	76.1	0.2	76.1
		Midday	71.4	74.3	0.5	74.3
		PM	75.3	80.0	0.5	80.0
		Saturday	73.5	74.5	0.4	74.5

Table 20.7.16-7 (continued): 2026 With-Action Condition Noise Levels (in dBA)

Receptor	Measurement Location	Time	No Action L_{eq}	With-Action L_{eq}	L_{eq} change	With-Action L_{10}
13	Jerome Avenue between East 177th Street and East Tremont Avenue	AM	78.7	83.3	0.0	83.3
		Midday	77.3	79.5	0.5	79.5
		PM	79.2	85.8	0.4	85.8
		Saturday	73.6	75.2	0.4	75.2
14	East Burnside Avenue between Walton Avenue and Morris Avenue	AM	72.6	76.2	0.2	76.2
		Midday	67.9	73.5	0.4	73.5
		PM	68.8	72.4	0.2	72.4
		Saturday	71.4	74.6	0.2	74.6
15	Jerome Avenue and East 182nd Street	AM	77.1	85.5	0.2	85.5
		Midday	73.8	79.6	0.9	79.6
		PM	75.9	83.2	0.8	83.2
		Saturday	73.6	78.0	0.8	78.0
16	West 183rd Street between Grand Avenue and Davidson Avenue	AM	66.8	69.7	0.1	69.7
		Midday	64.7	68.4	0.0	68.4
		PM	63.4	67.1	0.0	67.1
		Saturday	70.0	73.7	0.0	73.7
17	East Tremont Avenue between Jerome Avenue and Walton Avenue	AM	75.4	81.3	0.0	81.3
		Midday	74.3	78.9	0.1	78.9
		PM	75.1	83.1	0.1	83.1
		Saturday	74.6	79.9	0.1	79.9

Source: STV Incorporated, 2017.

PLAYGROUND NOISE ASSESSMENT

To address the potential impacts that playground noise could have on the proposed project, playground noise analyses were conducted for two school locations at potentially affected project sites. For the existing PS306, predicted playground L_{10} noise levels at Potential Development Site 40 are subsequently used to determine building attenuation requirements at the western façade of that location. As shown in Table 20.7.16-8, "Noise Levels due to the School Playground (in dBA)," the total With Action noise level at the residential receiver were calculated by logarithmically adding the adjusted future playground noise to the No Action (assumed to be unchanged from the existing condition) traffic noise level. As shown in Table 20.7.16-8, the resulting L_{10} noise levels would be 75.9 dBA at the western façade of Potential Development Site 40.

Table 20.7.16-8: Noise Level at Potential Site 40 due to the PS 306 School Playground (in dBA)

Potentially Affected Project Site	Time of Day	Total No Action Noise [1]	Approximate Distance to Playground (feet)	With -Action Playground Noise	Total With-Action Noise	Predicted L_{10} [2]
Potential Development Site 40	Midday	68.6	1	71.2	73.1	75.9

Notes: [1] Assumes no significant change in noise level along W 177th Street between the Existing and No Action scenario.
[2] Predicted L10 is calculated by adding 2.8 dBA to the predicted combined Leq based on SCA Playground Noise Study, AKRF, Inc., October 23, 1992. Source: STV Incorporated, 2017

Predicted playground L_{10} noise levels at Potential Development Site 40 were used to determine building attenuation requirements for the western façade of the proposed building.

For the proposed school site at Projected Site 35, predicted playground L_{10} noise levels were subsequently used to determine building attenuation requirements at Potential Sites 88 and 89 and Projected Sites 35 and 52. As shown in Table 20.7.16-9, "Noise Levels due to the proposed School Playground (in dBA)," the total With Action noise level at the residential receiver were calculated by logarithmically adding the adjusted future playground noise to the No Action (assumed to be unchanged from the existing condition) traffic noise level.

Table 20.7.16-9: Playground Noise Level for Proposed School at Projected Site 35 (in dBA)

Potentially Affected Project Site	Time of Day	Total No Action Noise [1]	Approximate Distance to Playground (feet)	With -Action Playground Noise	Total With-Action Noise	Predicted L_{10} [2]
Potential Development Site 88	Early PM	66.2	50	60.0	67.1	69.9
Potential Development Site 89	Early PM	66.2	1	71.2	72.4	75.2
Projected Development Site 35	Early PM	66.2	1	71.2	72.4	75.2
Projected Development Site 52	Early PM	66.2	49	60.3	67.2	70.0

Notes: [1] Assumes no significant change in noise level along the perimeter of the playground area between the Existing and No Action scenario.
[2] Predicted L_{10} is calculated by adding 2.8 dBA to the predicted combined Leq based on SCA Playground Noise Study, (AKRF, Inc., October 23, 1992).
Source: STV Incorporated, 2017

Noise Attenuation Measures

CEQR

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 uses and 50 dBA or lower for commercial uses, and are determined based on exterior $L_{10}(1)$ noise levels.

Table 20.7.16-10 shows the minimum window/wall attenuation necessary to meet *CEQR Technical Manual* requirements for internal noise levels at each of the noise measurement locations. The $L_{10}(1)$ noise levels for the future with the A-Application Alternative are calculated using the existing noise measurements, the traffic noise analysis, and the playground noise analysis. Based on the values shown in Table 20.7.16-10, required attenuation levels are determined for all projected and potential development sites. These values are shown in Appendix G.

Table 20.7.16-10: Required Attenuation at Noise Measurement Locations

Receptor #	Location	Maximum Calculated Total $L_{10(1)}$ Noise Level in dBA	CEQR Minimum Required Attenuation in dBA [2]
1	River Avenue and East 167th Street	86.4	43
2	River Avenue and East 165th Street	79.5	35
3	Edward L. Grant Highway between Jerome Avenue and West 169th Street	74.2	31
4	Jerome Avenue (west side) and West 168th Street	84.2	41
5	Corner of Jerome Ave and E. Clark Place, north of Jerome Avenue, Gerard Avenue and E. Clark Place Triangle	81.2	38
6	Edward L. Grant Highway between Jesup Avenue and Shakespeare Avenue	75.8	31
7	Cromwell Avenue between West 169th Street and West 170th Street	71.7	28
8	East 170th Street between Townsend Avenue and Walton Avenue	75.3	31
9	Inwood Avenue between West 170th Street and Macombs Road	70.0	28
10	Jerome Avenue and West 172nd Street. (northwest corner)	84.2	40
11	West Mount Eden Avenue between Jerome Avenue and Inwood Avenue	79.0	35
12	Jerome Avenue between Clifford Place East and East 175th Street	80.0	36
13	Jerome Avenue between East 177th Street and East Tremont Avenue	85.8	42
14	East Burnside Avenue between Walton Avenue and Morris Avenue	76.2	33
15	Jerome Avenue and East 182nd Street	85.5	42
16	West 183rd Street between Grand Avenue and Davidson Avenue	73.7	31
17	East Tremont Avenue between Jerome Avenue and Walton Avenue	83.1	40
18	Northeast corner of Creston Avenue and East Tremont Avenue (replacement monitoring site for Burnside due to construction)	74.6	31
19	River Avenue between East 167th Street and East 168th Street (Elevated)	80.1	37
20	Jerome Avenue between East 172nd Street and East 171st Street (Elevated)	78.8	35
P1	PS 306	75.9	31
P2	Proposed New School on Projected Development Site 35	75.2	31

Notes:
1 Attenuation values are shown for residential uses; retail and office uses would be 5 dBA less.
2 "N/A" indicates that the highest calculated L_{10} is below 70 dBA. The *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L_{10} values below this level.

Source: STV Incorporated, 2017.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and the surface area of each part. Normally, a building façade consists of wall, glazing, and any vents or louvers associated with the building mechanical systems in various ratios of area. The designs for the projected and potential development site A-Application Alternative buildings would include acoustically rated windows and air conditioning (a means of alternate ventilation). The buildings would be designed, including these elements, to provide a composite Outdoor−Indoor Transmission Class (OITC) rating[12] greater than or equal to the values listed in Appendix G, "Noise," along with an alternative means of ventilation in all habitable rooms of the residential units.

[12] The OITC classification is defined by ASTM International (ASTM E1332) and provides a single−number rating that is used for designing a building façade including walls, doors, glazing, and combinations thereof. The OITC

To implement the attenuation requirements shown in Appendix G, "Noise," an (E) Designation for noise would be applied to all privately held projected and potential development sites specifying the appropriate amount of window/wall attenuation. The text of Noise (E) Designation E-422 for window/wall attenuation of 40 dBA or less would be as follows:

> **To ensure an acceptable interior noise environment, the building façade(s) or future development must provide minimum composite building façade attenuation as shown in Appendix G, "Noise," of the Jerome Avenue Rezoning Environmental Impact Statement in order to maintain an interior L10 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 building without degrading the acoustical performance of the building façade(s) must also be provided.**

The text of Noise (E) Designation E-422 for window/wall attenuation greater than 40 dBA would be as follows:

> **To ensure an acceptable interior noise environment, the building façade(s) or future development must provide minimum composite building façade attenuation as shown in Appendix G, "Noise," of Jerome Avenue Rezoning Environmental Impact Statement in order to maintain 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 achieve up to 44 dBA of building attenuation, special design features that go beyond the normal double-glazed windows are necessary and may include using specifically designed windows (i.e., windows with small sizes, windows with air gaps, windows with thicker glazing, etc.), and additional building attenuation. To maintain a closed-window condition in these areas, an alternate means of ventilation that brings outside air into the building without degrading the acoustical performance of the building façade(s) must also be provided.**

To implement the attenuation requirements shown in Appendix G2, an (E) Designation for noise would be applied to all privately held projected and potential development sites specifying the appropriate amount of window/wall attenuation. The text of Noise (E) Designation E-442 for window/wall attenuation of 40 dBA or less would be as follows:

> **To ensure an acceptable interior noise environment, the building façade(s) or future development must provide minimum composite building façade attenuation as shown in Appendix G2 of the Jerome Avenue Rezoning Environmental Impact Statement in order to maintain an interior L10 noise level not greater than 45 dBA for residential and community**

rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise.

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 building without degrading the acoustical performance of the building façade(s) must also be provided.

The text of Noise (E) Designation E-442 for window/wall attenuation greater than 40 dBA would be as follows:

To ensure an acceptable interior noise environment, the building façade(s) or future development must provide minimum composite building façade attenuation as shown in Appendix G2 of Jerome Avenue Rezoning Environmental Impact Statement in order to maintain an interior L10 noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial uses. To achieve up to 41 dBA of building attenuation, special design features that go beyond the normal double-glazed windows are necessary and may include using specifically designed windows (i.e., windows with small sizes, windows with air gaps, windows with thicker glazing, etc.), and additional building attenuation. To maintain a closed-window condition in these areas, an alternate means of ventilation that brings outside air into the building without degrading the acoustical performance of the building façade(s) must also be provided.

Mechanical Equipment

It is assumed that building mechanical systems (i.e., HVAC systems) for all buildings associated with the A-Application Alternative would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24−227 of the New York City Noise Control Code, the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels. Therefore, the A-Application Alternative would not result in any significant adverse noise impacts related to building mechanical equipment.

20.7.17 PUBLIC HEALTH

Neither the Proposed Actions nor the A-Application Alternative would result in significant adverse public health impacts. In the A-Application Alternative, no unmitigated significant adverse impacts would occur in the areas of hazardous materials, air quality, noise, or construction, and thus there would be no significant adverse public health impacts associated with construction or operation of the new development anticipated with the A-Application Alternative.

20.7.18 NEIGHBORHOOD CHARACTER

As with the Proposed Actions, the A-Application Alternative would not result in significant adverse impacts on neighborhood character. Although the A-Application Alternative would result in direct changes to a slightly larger rezoning area than the Proposed Actions, the types of effects would be similar. Compared to the Proposed Actions, the A-Application Alternative would result in similar impacts on shadows, transportation, and noise, while also resulting in similar effects to land use zoning and public policy, as well as socioeconomic conditions, and open space. Therefore, the effects to the neighborhood character with the A-Application Alternative would be similar to the effects of the Proposed Actions. The A-Application Alternative would facilitate the development of a mix of residential, commercial, and community facility uses that would be consistent with the mixed-use character of the neighborhoods. In addition, under both scenarios the affordable housing units would help to ensure that a considerable portion of the new households would have incomes that would more closely reflect existing incomes in the study area and help ensure that the neighborhoods continue to serve diverse housing needs. The proposed commercial overlays with both the Proposed Actions and the A-Application Alternative are intended to improve walkability connecting neighborhood streets by promoting continuous retail and community facility uses, thereby improving the neighborhood character, as compared to No-Action conditions. Therefore, as with the Proposed Actions, the A-Application Alternative would not result in any significant adverse impacts on neighborhood character.

20.7.19 CONSTRUCTION

Air Quality

With the A-Application Alternative as compared the Proposed Action, the locations of Potential Site 89 and Projected Site 35 would be exchanged, one for the other. As a result the configuration of Projected Sites 33, 34, 35, and 36 (selected as part of the Proposed Action construction assessment) would differ slightly. However, this change in comparison to the Proposed Action, would result in a dispersal of construction activities and would result in Projected Site 35 being located further away from residential

receptors. Therefore, as with the Proposed Actions, the construction-period air quality analyses for the A-Application would not predict any significant adverse air quality impacts. Consequently, there is no potential for significant adverse air quality impacts under either the A-Application Alternative or the Proposed Action Alternative.

Noise

As with the Proposed Actions, the construction-period noise analyses for the A-Application would predict significant adverse noise impacts. Based on the construction predicted to occur at each development site during each of the selected analysis periods, each receptor is expected to experience an exceedance of the *CEQR Technical Manual* noise impact threshold. One peak construction period per year was analyzed for each of the two, development site clusters (Projected Development Sites 43, 44, 45 and Projected Development Sites 33, 34, 35, 36). The peak construction analysis years identified for the two construction clusters were identified as 2018 and 2022. Receptors where noise level increases are predicted to exceed the noise impact threshold criteria were identified. The noise analysis results show that the predicted noise levels could exceed the *CEQR Technical Manual* impact criteria throughout the rezoning area. This analysis is based on a conceptual site plan and construction schedule. It is possible that the actual construction may be of less magnitude, or that construction on multiple projected development sites may not overlap, in which case construction noise would be less intense than the analysis predicts.

Vibration

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration would be historic buildings and other structures immediately adjacent to the projected development sites. For those historic buildings and structures that would be within 90 feet of the projected development sites, vibration monitoring would be required per New York City Department of Buildings (DOB) Technical Policy and Procedure Notices (TPPN) #10/88 regulations, and PPV during construction would be prohibited from exceeding the 0.50 inches/second threshold. For non-historic buildings and other structures immediately adjacent to projected development sites, vibration levels within 25 feet may result in peak particle velocity (PPV) levels between 0.50 and 2.0 in/sec, which is generally considered acceptable for a non-historic building or structure. In terms of potential vibration levels that would be perceptible and annoying, the equipment that would have the most potential for producing levels that exceed the 65 vibration decibels (VdB) limit is also the pile driver. However, the operation would only occur for limited periods of time at a particular location and therefore would not result in any significant adverse impacts. Consequently, there is no potential for significant adverse vibration impacts under either the A-Application Alternative or the Proposed Actions.

Other Technical Areas

Construction of the 52 projected development sites would not result in significant adverse impacts in any other technical areas analyzed in this EIS. Based on the RWCDS construction schedule, construction

activities would be spread out over a period of approximately nine years (similar to the time period for the Proposed Actions), throughout the A-Application rezoning area (five blocks more than with the Proposed Actions), and construction of most of the projected development sites would be short-term (i.e., lasting up to 24 months). While construction of the projected development sites would result in temporary increases in traffic during the construction period, access to residences, businesses, and institutions in the area surrounding the development sites would be maintained throughout the construction period (as required by City regulations). No open space resources would be located on any of the projected development construction sites, nor would any access to publically accessible open space be impeded during construction within the proposed rezoning area. In addition, measures would be implemented to control noise, vibration, emissions, and dust on construction sites, including the erection of construction fencing incorporating sound reducing measures. While construction of the new buildings due to the A-Application Alternative would cause temporary impacts, particularly related to noise, it is expected that such impacts in any given area would be relatively short term, even under the worst-case construction sequencing, and therefore would not create an open space or neighborhood character impact.

Any potential construction-related hazardous materials would be avoided by the inclusion of (E) designations, or other measures comparable to such a designation, for all RWCDS development sites. In addition, demolition of interiors, portions of buildings, or entire buildings are regulated by DOB and require abatement of asbestos prior to any intrusive construction activities, including demolition. OSHA regulates construction activities to prevent excessive exposure of workers to contaminants in the building materials, including lead paint. New York State Solid Waste regulations control where demolition debris and contaminated materials associated with construction are handled and disposed of. Adherence to these existing regulations would prevent impacts from construction activities at any of the projected development sites in the rezoning area.

20.7.20 MITIGATION MEASURES REQUIRED FOR THE A-APPLICATION ALTERNATIVE

Construction

Transportation

There would be no construction-related significant adverse traffic impacts during the weekday construction 6-7 AM peak hour and eleven intersections significantly impacted by constructed-related traffic during the weekday construction PM peak hour (3-4 PM). Most significant adverse impacts would be mitigated with the implementation of recommended mitigation measures, but unmitigated significant adverse impacts remain at four intersections during the construction PM peak hour. No basic intersection improvement measures could mitigate the significant adverse construction-related impacts at these four intersections and these impacts would constitute unavoidable significant adverse traffic impacts as a result of the A-Application Alternative.

Transit trips with full build-out of the A-Application Alternative in 2026 would be substantially greater in number during the weekday commuter peak periods as compared to the peak construction analysis year. Therefore, 2024 (Q2) transit conditions during the 6-7 AM and 3-4 PM construction peak hours are expected to be generally better than during the analyzed commuter peak hours with full build-out of the A-Application Alternative in 2026. As the A-Application Alternative is not expected to result in any significant subway station impacts, no subway station impacts are expected during construction in 2024 (Q2). The A-Application Alternative's significant adverse bus impact would also be less likely to occur in the construction analysis year than with full build-out of the A-Application Alternative in 2026. It is expected that the mitigation measures previously identified for 2026 operational transit impacts would also be effective at mitigating any potential impacts from construction transit trips during the 2024 (Q2) peak quarter for cumulative construction and operational travel demand.

Pedestrian trips with full build-out of the A-Application Alternative in 2026 would be substantially greater in number during the analyzed weekday 7:30-8:30 AM, 1-2 PM midday, and 5-6 PM operational peak hours as compared to the peak construction analysis year. Therefore, 2024 (Q2) pedestrian conditions during the 6-7 AM and 3-4 PM construction peak hours are expected to be generally better than during the analyzed operational peak hours with full build-out of the A-Application Alternative in 2026. Consequently, there would be less likelihood of significant adverse pedestrian impacts during the construction peak hours in the cumulative analysis year than with full build-out of the A-Application Alternative in 2026. It is expected that the mitigation measures identified for 2026 operational pedestrian impacts would also be effective at mitigating any potential impacts from construction pedestrian trips during the 2024 (Q2) analysis period for cumulative construction and operational travel demand. Adequate protection or temporary sidewalks and appropriate signage would be provided in accordance with DOT requirements at locations where temporary sidewalk closures are required during construction activities.

Parking demand with full build-out of the A-Application Alterative in 2026 would be substantially greater in number during the analysis periods as compared to the peak construction year. Based on the extent of available parking spaces, there would be sufficient parking capacity to accommodate all of the construction projected demand. As such, construction activities during the 2024 (Q2) peak construction traffic period would not result in a significant adverse parking impact.

Noise

As with the Proposed Action, development with the A-Application Alternative would occur on multiple development sites within the same geographic area and, as a result, has the potential to increase interior noise levels of existing adjacent commercial and residential buildings. These increases would likely approach or marginally exceed the impact threshold for short periods of time. The same potential to exceed the noise limits exist during other construction quarters bordering the peak construction period

As with the Proposed Actions, noise levels above the CEQR impact threshold are expected at several existing buildings adjacent to Projected Development Sites 33, 34, 35, 36 and to Projected Development Sites 43, 44, 45. Although these locations are expected to experience exterior noise levels significantly

above CEQR limits, for those buildings with double-paned glazed-glass windows and a closed ventilation system, it would keep interior noise levels for those buildings below or near the CEQR 50-dBA L10 impact threshold for commercial buildings and the CEQR 45-dBA L10 impact threshold for residential buildings. The interior noise levels of these adjacent buildings would likely approach or marginally exceed the CEQR L10 impact thresholds for short periods of time. The same potential for noise impacts also exist for similar noise-level increases at these and/or other receptor locations in the immediate vicinity of Project Development Sites 33, 34, 35, 36 and 43, 44, 45 during other construction quarters bordering this peak construction period. If the peak construction scenario conservatively assumed for simultaneous construction on Project Development Sites 33, 34, 35, 36 and 43, 44, 45, the Proposed Action would result in a significant adverse construction noise impact.

Noise Reduction Measures

Construction of the Proposed Projected would be required to follow the requirements of the NYC Noise Control Code for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the NYC Noise Code. These measures could include a variety of source and path controls.

The following proposed mitigation measures go beyond the noise control measures already identified in Chapter 19, "Construction," and may partially mitigate significant adverse impacts (and substantially reduce construction-related noise levels) at some locations:

- Noise barriers constructed from plywood or other materials at a height of 12 to 16 feet utilized to provide shielding;
- Utilization of isolation pads between pile driver hammer and piles;
- Acoustical shrouds surrounding the pile driver hammer and piles;
- Electric cranes or cranes with exhaust silencers that have lower noise emission levels; and
- Excavators with exhaust silencers that have lower noise emission levels.

The above mitigation measures, which are intended to address the pieces of construction equipment that would produce the highest noise levels, were explored between the DEIS and the FEIS. However, even if all of the above mitigation measures are determined to be feasible and practicable, some significant adverse construction noise impacts could potentially continue to be experienced at sensitive receptors and, as a result, be unavoidable. In the event no additional practicable or feasible mitigation measures are determined, the significant adverse construction noise impacts identified would be unavoidable.

The proposed measures discussed above are considered partial mitigations only. Consequently, these impacts would not be completely eliminated and they would constitute an unmitigated significant adverse construction noise impact.

Transportation

The identified bus and pedestrian impacts could be fully mitigated in the Proposed Actions and A-Application Alternative. Due to the existing congested conditions at many study area intersections, it is anticipated that a number of the significant adverse traffic impacts in the A-Application Alternative could not be fully mitigated through standard traffic improvement measures, as would also be the case in the Proposed Actions.

Traffic

Table 20.7.20-1 summarizes the recommended mitigation measures for each intersection with significant adverse traffic impacts during the weekday AM, midday, and PM, and Saturday midday peak hours in the A-Application Alternative. At most impacted intersections, recommended mitigation measures would be similar to the measures recommended for the Proposed Actions (see Table 21.5-1 in Chapter 21, "Mitigation").

Tables 20.7.20-2 through 20.7.20-5 show the A-Application Alternative Action-with-Mitigation v/c ratios, delays, and levels of service (LOS) for impacted lane groups at each intersection with implementation of these mitigation measures and compares them to No-Action and A-Application Alternative With-Action conditions for the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. Lane groups that would have unmitigated significant adverse impacts are summarized in Table 20.7.20-6, while 20.7.20-7 compares the numbers of lane groups and intersections with mitigated and unmitigated impacts in the A-Application Alternative with the impacts in the Proposed Actions. The A-Application Alternative would result in one additional unmitigated significant adverse impact than the Proposed Actions during the PM and Saturday midday peak hours. Unmitigated impacts would remain the same during the weekday AM and midday peak hours. Specifically, in the A-Application Alternative, unmitigated significant impacts would remain at a total of one lane group at one intersection (compared to one lane group at one intersection with the Proposed Actions) during the weekday AM peak hour, one lane group at one intersection (compared to one lane group at one intersection with the Proposed Actions) during the weekday midday peak hour, 21 lane groups at nine intersections (compared to 20 lane groups at nine intersections with the Proposed Actions) during the weekday PM peak hour, and seven lane groups at four intersections (compared to six lane groups at four intersections with the Proposed Actions) during the Saturday midday peak hour. [13]

An unmitigated significant adverse impact would be added at the eastbound Burnside Avenue shared left-through-right lane group at Jerome Avenue during the weekday PM peak hour and at the westbound

[13] Shortly before completion of the FEIS, the New York City Department of Transportation (DOT) informed the lead agency that it had implemented signal timing changes at certain intersections within the traffic study area to accommodate new Select Bus Service (SBS) traffic operations along Fordham Road. These changes may make the identified mitigation measures at the intersection of East Fordham Road and Jerome Avenue infeasible. The feasibility of implementing the identified mitigation measures at this intersection will be studied as part of the Traffic Monitoring Program. If, as a result of the monitoring, it is determined that no mitigation would be feasible, this impacted intersection would remain unmitigated.

Burnside Avenue shared left-through-right lane group at Grand Concourse during the Saturday midday peak hour in the A-Application Alternative.

Table 20.7.20-1: Proposed Traffic Mitigation Measures for A-Application Alternative

Intersection	Signal Phase	No-Action Signal Timing (Seconds)				Proposed Signal Timing (Seconds)				Recommended Mitigation
		AM	MD	PM	SAT MD	AM	MD	PM	SAT MD	
Jerome Avenue and Kingsbridge Road	EB/WB	54	39	54	39	54	35	54	39	- Transfer 4 seconds of green from EB/WB to NB/SB during Midday. - PM and Saturday are unmitigatable.
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	52	37	52	37	52	41	52	37	
	Ped	7	7	7	7	7	7	7	7	
Jerome Avenue and Fordham Road	EB/WB	81	56	86	78	75	50	86	72	- Transfer 6 seconds of green time from the EB/WB to NB/SB during AM, Midday and Saturday. - PM is unmitigatable.
	NB/SB	39	34	34	42	45	38	34	48	
Jerome Avenue and Burnside Avenue	EB/WB	60	60	60	60	60	60	60	60	- Midday, PM, and Saturday are unmitigatable
	NB/SB	60	60	60	60	60	60	60	60	
Jerome Avenue and Tremont Avenue	EB/WB	57	57	57	57	58	58	59	60	- Transfer 1 second from NB/SB to EB/WB during AM and Midday. - Transfer 2 seconds from NB/SB to EB/WB during PM. - Transfer 3 seconds from NB/SB to EB/WB during Saturday.
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	56	56	56	56	55	55	54	53	
Jerome Avenue and SB I-95 Ramps	WB	45	45	45	45	45	45	42	43	- Transfer 3 seconds from WB to NB/SB during PM. - Transfer 2 seconds from WB to NB/SB during Saturday.
	NB/SB	45	45	45	45	45	45	48	47	
Jerome Avenue and Featherbed Lane	EB/WB	30	30	30	30	33	32	32	32	- Transfer 3 seconds from NB/SB to EB/WB during AM. - Transfer 2 seconds from NB/SB to EB/WB during Midday, PM and Saturday.
	NB/SB	60	60	60	60	57	58	58	58	
Jerome Avenue and NB I-95 Ramps	EB	43	43	43	43	40	42	43	42	- Transfer 3 seconds of green from EB to SB-L during AM. - Transfer 1 seconds of green from EB to SB-L during Midday and Saturday. - Transfer 2 seconds of green from NB/SB to SB-L during PM.
	NB/SB	32	32	32	32	32	32	30	32	
	SB-L	15	15	15	15	18	16	17	16	
Jerome Avenue and Macombs Dam Bridge	EB	21	21	26	21	22	22	28	21	- Transfer 1 second of green time from NB/SB to EB during AM and Midday. - Transfer 2 seconds of green time from NB/SB to EB during PM.
	Ped	31	31	31	31	31	31	31	31	
	NB/SB	38	38	33	38	37	37	31	38	
Jerome Avenue and 170th Street	EB/WB	31	31	31	31	35	35	36	34	- Transfer 4 second of green time from NB/SB to EB/WB during AM and Midday. - Transfer 5 seconds from NB/SB to EB/WB during PM. - Transfer 3 seconds from NB/SB to EB/WB during Saturday.
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	52	52	52	52	48	48	47	49	
Jerome Avenue and 167th Street	EB/WB	35	35	35	35	37	35	35	36	- Transfer 2 seconds from NB/SB to EB/WB during AM. - PM is unmitigatable. - Transfer 1 second from NB/SB to EB/WB during Saturday.
	Ped	15	15	15	15	15	15	15	15	
	NB/SB	40	40	40	38	38	40	40	39	
Jerome Avenue and E. 165th Street	WB	36	36	36	36	37	36	37	36	- Transfer 1 second from NB/SB to WB during AM and PM.
	NB/SB	54	54	54	54	53	54	53	54	
Grand Concourse and 176th Street	EB/WB	38	41	38	41	39	44	40	41	- Transfer 1 second from NB/SB to EB/WB during AM. - Transfer 3 seconds from NB/SB to EB/WB during Midday. - Transfer 2 seconds from NB/SB to EB/WB during and PM.
	SB/SB-L	15	15	15	15	15	15	15	15	
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	60	57	60	57	59	54	58	57	

Table 20.7.20-1 (continued): Proposed Traffic Mitigation Measures for A-Application Alternative

Intersection	Signal Phase	No-Action Signal Timing (Seconds)				Proposed Signal Timing (Seconds)				Recommended Mitigation
		AM	MD	PM	SAT MD	AM	MD	PM	SAT MD	
Grand Concourse and Burnside Avenue	EB/WB	42	42	42	42	42	43	42	42	- Transfer 1 second from NB/SB to EB/WB during Midday. - PM and Saturday are unmitigatable.
	NB-L/SB-L	16	16	16	16	16	16	16	16	
	NB/SB	62	62	62	62	62	61	62	62	
Grand Concourse and Tremont Avenue	EB/WB	36	36	36	36	37	36	36	38	- Transfer 1 second from NB/SB to EB/WB during AM. - PM is unmitigatable. - Transfer 3 seconds from NB/SB and add 2 second to EB/WB and 1 second to NB-L/SB-L during Saturday.
	NB-L/SB-L	16	16	16	16	16	16	16	17	
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	61	61	61	61	60	61	61	58	
Grand Concourse and Mt. Eden Avenue	EB/WB	42	42	42	42	42	44	42	44	- Transfer 4 seconds of green time from NB/SB, and add 2 seconds to EB/WB and 2 seconds to NB-L/SB-L during Midday. - PM is unmitigatable. - Transfer 3 seconds of green time from NB/SB, and add 2 seconds to EB/WB and 1 second to NB-L/SB-L on Saturday.
	NB-L/SB-L	15	15	15	15	15	17	15	16	
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	56	56	56	56	56	52	56	53	
Grand Concourse and 170th Street	EB/WB	45	45	45	45	46	45	45	45	- Transfer 1 second from NB/SB to EB/WB during AM. - Transfer 1 second from NB/SB to NB-L/SB-L during Midday and Saturday. - Transfer 2 seconds from NB/SB to NB-L/SB-L during PM.
	NB-L/SB-L	15	15	15	15	15	16	17	16	
	NB/SB	60	60	60	60	59	59	58	59	
Grand Concourse and 167th Street	EB/WB	42	43	42	43	42	49	42	43	- AM, PM and Saturday are unmitigatable. - Transfer 6 seconds of green time from NB/SB to EB/WB during Midday.
	SB-L	15	15	15	15	15	15	15	15	
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	56	55	56	55	56	49	56	55	
River Avenue and 167th Street	EB/WB	54	52	52	52	54	48	52	49	- Daylight parking along the NB approach for approximately 200' during AM. - Transfer 4 seconds of green time from EB/WB to NB/SB during Midday. - PM is unmitigatable. - Transfer 3 seconds of green time from EB/WB to NB/SB during Saturday.
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	36	31	31	31	36	35	31	34	
Edward L. Grant Highway and W. 170th Street	EB/WB	40	40	40	40	42	44	42	42	- Transfer 2 second of green time from NB/SB to EB/WB during AM, PM and Saturday. - Transfer 4 second of green time from NB/SB to EB/WB during Midday.
	NB/SB	80	80	80	80	78	76	78	78	
Inwood Avenue and W. 170th Street	EB/WB	46	46	46	46	45	46	46	46	- Remove parking to allow for two 10' lanes during Midday, PM and Saturday. - Remove parking to allow for two 10' lanes and transfer 1 second from EB/WB to NB during AM.
	Ped	7	7	7	7	7	7	7	7	
	NB	30	30	30	30	31	30	30	30	
	Ped	7	7	7	7	7	7	7	7	
University Avenue and Washington Bridge Off-Ramps	EB	30	30	30	30	31	30	32	31	- Transfer 1 second from NB/SB2 to EB/WB during AM. - Transfer 2 seconds from NB/SB2 to EB/WB during PM. - Transfer 1 second from NB/SB to EB/WB during Saturday.
	NB2/SB2	33	33	35	33	32	33	33	33	
	NB/SB	27	27	25	27	27	27	25	26	

Table 20.7.20-2: A-Application Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday AM Peak Hour

INTERSECTION & APPROACH		Mvt.	AM No-Action			AM A-Application			AM Mitigated		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Jerome Avenue and Fordham Road											
Jerome Avenue	NB	LTR	0.88	67.6	E	1.13	134.8	F	0.92	68.5	E
Jerome Avenue and Tremont Avenue											
Tremont Avenue	EB	LTR	1.07	95.4	F	1.09	101.9	F	1.06	92.6	F
Jerome Avenue and Featherbed Lane											
Featherbed Lane	EB	DefL	1.11	152.9	F	1.36	245.1	F	1.10	137.7	F
Jerome Avenue and NB I-95 Off Ramps											
Jerome Avenue	SB	DefL	1.02	78.0	E	1.15	125.3	F	1.01	76.0	E
Jerome Avenue and 170th Street											
170th Street	EB	LTR	0.88	51.9	D	1.07	94.5	F	0.93	54.3	D
	WB	LTR	1.07	96.4	F	1.12	113.2	F	0.97	63.9	E
Jerome Avenue and E. 167th Street											
Edward L. Grant Highway	EB	R	0.69	36.6	D	0.87	53.2	D	0.80	42.3	D
River Avenue and E. 167th Street											
River Avenue	NB	LTR	0.63	39.6	D	0.79	52.0	D	0.64	44.6	D
Jerome Avenue and E. 165th Street											
E. 165th Street	WB	LR	0.94	61.8	E	0.97	66.6	E	0.94	59.0	E
Jerome Avenue and Macombs Dam Bridge											
Jerome Avenue	EB	L	0.88	64.9	E	0.92	71.7	E	0.86	61.4	E
Grand Concourse and 176th Street											
176th Street	EB	LTR	0.78	62.5	E	0.85	70.1	E	0.82	64.9	E
Grand Concourse and Tremont Avenue											
Tremont Avenue	EB	TR	1.38	247.1	F	1.42	264.3	F	1.38	244.4	F
Grand Concourse and 170th Street											
170th Street	EB	TR	0.56	39.4	D	0.70	46.7	D	0.68	44.6	D
Grand Concourse and 167th Street											
167th Street	EB	TR	1.04	110.4	F	1.21	167.2	F	1.21	167.2	F
Edward L. Grant Highway and W. 170th Street											
W. 170th Street	WB	LTR	1.00	84.7	F	1.07	105.3	F	1.00	82.0	F
Inwood Avenue and W. 170th Street											
W. 170th Street	EB	LT	1.02	71.6	E	1.09	91.6	F	-	-	-
		L	-	-	-	-	-	-	0.63	29.4	C
		T	-	-	-	-	-	-	0.46	18.6	B
Inwood Avenue	NB	LTR	0.67	37.9	D	0.81	47.8	D	0.77	43.5	D
University Avenue and Washington Bridge Off-Ramps											
Washington Bridge Off-Ramps	EB	LR	1.03	84.6	F	1.05	91.0	F	1.01	77.8	E

Note: shaded cells indicate unmitigated delays.

Table 20.7.20-3: A-Application Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday Midday Peak Hour

INTERSECTION & APPROACH		Mvt.	Midday No-Action			Midday A-Application			Midday Mitigated		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Jerome Avenue and Kingsbridge Road											
Jerome Avenue	NB	LTR	1.09	104.5	F	1.40	227.9	F	1.10	101.4	F
Jerome Avenue and Fordham Road											
Jerome Avenue	NB	LTR	0.99	75.0	E	1.32	194.5	F	1.02	75.7	E
	SB	LTR	0.95	65.5	E	1.14	122.2	F	0.89	46.9	D
Jerome Avenue and Burnside Avenue											
Jerome Avenue	SB	LTR	0.68	31.8	C	0.98	67.8	E	0.98	67.8	E
Jerome Avenue and Tremont Avenue											
Tremont Avenue	EB	LTR	1.05	91.0	F	1.07	97.3	F	1.05	87.6	F
Jerome Avenue and Featherbed Lane											
Featherbed Lane	EB	DefL	1.02	116.7	F	1.15	156.6	F	1.01	106.2	F
Jerome Avenue and NB I-95 Ramps											
Jerome Avenue	SB	DefL	0.88	51.9	D	0.94	63.6	E	0.90	55.3	E
Jerome Avenue and 170th Street											
170th Street	WB	LTR	0.88	54.0	D	1.04	89.3	F	0.89	52.3	D
River Avenue and 167th Street											
River Avenue	NB	LTR	1.07	112.6	F	1.26	180.5	F	1.08	108.0	F
Jerome Avenue and Macombs Dam Bridge											
Jerome Avenue	EB	L	0.95	78.1	E	0.98	86.1	F	0.92	71.4	E
Grand Concourse and 176th Street											
176th Street	EB	LTR	0.77	56.7	E	0.87	68.2	E	0.79	55.6	E
Grand Concourse and Burnside Avenue											
Burnside Avenue	EB	LTR	0.70	48.8	D	0.79	54.9	D	0.76	51.6	D
Grand Concourse and Mt. Eden Avenue											
Mt. Eden Avenue	EB	LTR	1.09	123.2	F	1.19	157.5	F	1.09	120.3	F
	WB	LTR	1.14	141.2	F	1.21	167.1	F	1.13	133.9	F
Grand Concourse Mainline	NB	L	0.53	66.7	E	0.71	80.0	E	0.59	66.3	E
Grand Concourse and 170th Street											
Grand Concourse Mainline	NB	L	0.33	58.3	E	0.44	62.4	E	0.40	59.2	E
Grand Concourse and 167th Street											
167th Street	EB	TR	1.15	144.4	F	1.37	230.2	F	1.17	141.6	F
Edward L. Grant Highway and W. 170th Street											
W. 170th Street	WB	LTR	0.83	55.0	D	0.98	80.7	F	0.86	55.9	E
Inwood Avenue and W. 170th Street											
W. 170th Street	EB	LT	1.04	78.8	E	1.14	114.7	F	-	-	-
		L	-	-	-	-	-	-	0.61	26.8	C
		T	-	-	-	-	-	-	0.40	18.2	B

Note: shaded cells indicate unmitigated delays.

Table 20.7.20-4: A-Application Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday PM Peak Hour

INTERSECTION & APPROACH		Mvt.	PM No-Action			PM A-Application			PM Mitigated		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Jerome Avenue and Kingsbridge Road											
Jerome Avenue	NB	LTR	1.34	206.1	F	1.53	287.1	F	1.53	287.1	F
Jerome Avenue and Fordham Road											
Jerome Avenue	NB	LTR	1.21	163.1	F	1.70	373.0	F	1.70	373.0	F
	SB	LTR	1.34	222.4	F	1.45	267.2	F	1.45	267.2	F
Jerome Avenue and Burnside Avenue											
Burnside Avenue	EB	LTR	0.85	42.9	D	0.89	48.2	D	0.89	48.2	D
	WB	LTR	0.85	43.3	D	0.94	56.0	E	0.94	56.0	E
Jerome Avenue	SB	LTR	0.79	38.3	D	0.99	69.3	E	0.99	69.3	E
Jerome Avenue and Tremont Avenue											
Tremont Avenue	EB	LTR	1.23	154.6	F	1.27	172.1	F	1.21	144.6	F
	WB	LTR	1.27	173.2	F	1.32	191.2	F	1.25	162.5	F
Jerome Avenue and SB I-95 Off Ramps											
Jerome Avenue	SB	DefL	0.85	45.2	D	0.96	64.7	E	0.87	45.1	D
Jerome Avenue and Featherbed Lane											
Featherbed Lane	EB	DefL	1.15	161.6	F	1.34	233.8	F	1.14	152.4	F
Jerome Avenue and NB I-95 Off Ramps											
Jerome Avenue	SB	DefL	1.01	81.4	F	1.10	111.0	F	1.01	80.8	F
Jerome Avenue and Macombs Dam Bridge											
Jerome Avenue	EB	L	0.69	41.6	D	0.82	50.8	D	0.75	42.7	D
Jerome Avenue and 170th Street											
170th Street	WB	LTR	1.01	78.8	E	1.20	146.0	F	1.01	72.9	E
Jerome Avenue and 167th Street											
Edward L. Grant Highway	EB	LT	0.76	38.7	D	0.86	48.5	D	0.86	48.5	D
		R	0.80	46.7	D	0.89	58.0	E	0.89	58.0	E
167th Street	WB	LT	0.91	39.6	D	0.96	48.7	D	0.96	48.7	D
Jerome Avenue	NB	DefL	0.88	53.8	D	1.12	119.2	F	1.12	119.2	F
River Avenue and 167th Street											
River Avenue	NB	LTR	1.00	90.5	F	1.12	127.4	F	1.12	127.4	F
Jerome Avenue and E. 165th Street											
E. 165th Street	WB	LR	1.04	84.0	F	1.06	92.2	F	1.03	80.4	F
Grand Concourse and 176th Street											
176th Street	EB	LTR	1.05	116.6	F	1.14	144.8	F	1.05	113.4	F
Grand Concourse and Burnside Avenue											
Burnside Avenue	EB	LTR	0.73	51.0	D	0.80	56.1	E	0.80	56.1	E
Grand Concourse and Tremont Avenue											
Tremont Avenue	EB	TR	1.06	119.1	F	1.12	139.7	F	1.12	139.7	F
	WB	L	0.70	66.1	E	0.75	73.3	E	0.75	73.3	E
Grand Concourse Mainline	NB	L	0.78	84.7	F	0.81	89.0	F	0.81	89.0	F
Grand Concourse and Mt. Eden Avenue											
Mt. Eden Avenue	EB	LTR	1.03	103.6	F	1.09	121.3	F	1.09	121.3	F
	WB	LTR	1.20	163.5	F	1.25	183.6	F	1.25	183.6	F
Grand Concourse Mainline	NB	L	0.72	80.9	F	0.84	97.2	F	0.84	97.2	F
Grand Concourse and 170th Street											
Grand Concourse Mainline	NB	L	0.67	76.1	E	0.88	103.5	F	0.73	76.8	E
Grand Concourse and 167th Street											
167th Street	EB	L	1.16	172.6	F	1.17	176.3	F	1.17	176.3	F
		TR	1.00	95.3	F	1.14	139.1	F	1.14	139.1	F
	WB	TR	1.15	142.2	F	1.16	145.7	F	1.16	145.7	F

Table 20.7.20-4 (continued): A-Application Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday PM Peak Hour

INTERSECTION & APPROACH		Mvt.	PM No-Action			PM A-Application			PM Mitigated		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Edward L. Grant Highway and W. 170th Street											
W. 170th Street	WB	LTR	0.95	72.0	E	1.03	91.8	F	0.97	74.5	E
Inwood Avenue and W. 170th Street											
W. 170th Street	EB	LT	1.13	109.4	F	1.29	173.0	F	-	-	-
		L	-	-	-	-	-	-	0.78	40.7	D
		T	-	-	-	-	-	-	0.36	16.1	B
University Avenue and Washington Bridge Off-											
Washington Bridge Off-Ramps	EB	L	1.08	103.9	F	1.12	118.1	F	1.01	79.7	E
		LR	1.00	78.8	E	1.07	97.8	F	0.98	71.1	E

Note: shaded cells indicate unmitigated delays.

Table 20.7.20-5: A-Application Alternative With-Mitigation Conditions at Impacted Lane Groups – Saturday Midday Peak Hour

INTERSECTION & APPROACH		Mvt.	Saturday Midday No-Action			Saturday Midday A-Application			Saturday Midday Mitigated		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Jerome Avenue and Kingsbridge Road											
Jerome Avenue	NB	LTR	0.85	44.8	D	1.04	84.7	F	1.04	84.7	F
Jerome Avenue and Fordham Road											
Jerome Avenue	NB	LTR	0.99	84.9	F	1.25	175.0	F	1.02	86.1	F
	SB	LTR	0.91	68.3	E	1.05	102.9	F	0.86	53.9	D
Jerome Avenue and Burnside Avenue											
Burnside Avenue	WB	LTR	0.82	40.2	D	0.89	48.0	D	0.89	48.0	D
Jerome Avenue	SB	LTR	0.73	34.0	C	0.94	57.0	E	0.94	57.0	E
Jerome Avenue and Tremont Avenue											
Tremont Avenue	EB	LTR	1.09	102.7	F	1.14	119.3	F	1.06	88.3	F
	WB	LTR	1.03	83.2	F	1.10	106.8	F	1.03	78.7	E
Jerome Avenue and SB I-95 Ramps											
Jerome Avenue	SB	DefL	0.76	37.5	D	0.86	49.1	D	0.80	39.5	D
Jerome Avenue and Featherbed Lane											
Featherbed Lane	EB	DefL	1.21	180.4	F	1.37	238.2	F	1.19	163.9	F
Jerome Avenue and NB I-95 Ramps											
Jerome Avenue	SB	DefL	0.99	78.3	E	1.02	87.3	F	0.97	72.7	E
Jerome Avenue and 170th Street											
170th Street	WB	LTR	1.00	77.2	E	1.14	122.4	F	1.02	78.4	E
Jerome Avenue and 167th Street											
Edward L. Grant Highway	EB	R	0.74	40.7	D	0.82	48.5	D	0.79	44.2	D
River Avenue and 167th Street											
River Avenue	NB	LTR	1.14	130.4	F	1.30	195.8	F	1.15	130.5	F
Grand Concourse and Burnside Avenue											
Burnside Avenue	EB	LTR	0.83	57.4	E	0.88	63.1	E	0.88	63.1	E
	WB	LTR	0.73	52.9	D	0.79	57.6	E	0.79	57.6	E
Grand Concourse and Tremont Avenue											
Tremont Avenue	EB	L	0.74	67.5	E	0.78	72.5	E	0.70	60.2	E
		TR	0.94	88.5	F	1.02	108.5	F	0.95	86.2	F
	WB	TR	0.86	72.3	E	0.91	79.9	E	0.84	67.0	E
Grand Concourse Mainline	NB	L	0.72	78.1	E	0.77	83.1	F	0.70	74.0	E
Grand Concourse and Mt. Eden Avenue											
Mt. Eden Avenue	EB	LTR	0.86	65.2	E	0.92	74.6	E	0.85	61.2	E
	WB	LTR	1.06	114.1	F	1.12	133.9	F	1.04	106.4	F
Grand Concourse Mainline	NB	L	0.66	75.6	E	0.76	85.0	F	0.69	75.1	E
Grand Concourse and 170th Street											
Grand Concourse Mainline	NB	L	0.47	63.4	E	0.60	70.6	E	0.55	65.3	E
Grand Concourse and 167th Street											
167th Street	EB	TR	1.04	104.4	F	1.17	148.4	F	1.17	148.4	F
	WB	L	0.76	67.3	E	0.85	83.1	F	0.85	83.1	F
Edward L. Grant Highway and W. 170th Street											
W. 170th Street	WB	LTR	1.05	98.3	F	1.11	117.2	F	1.04	92.1	F
Inwood Avenue and W. 170th Street											
W. 170th Street	EB	LT	1.16	116.7	F	1.26	159.7	F	-	-	-
		L	-	-	-	-	-	-	0.75	35.7	D
		T	-	-	-	-	-	-	0.44	17.4	B
University Avenue and Washington Bridge Off-Ramps											
Washington Bridge Off-Ramps	EB	L	1.03	86.9	F	1.05	92.4	F	0.99	75.9	E
		LR	1.06	94.4	F	1.10	105.6	F	1.05	89.3	F

Table 20.7.20-6: Lane Groups with Unmitigated Significant Adverse Traffic Impacts — A-Application Alternative vs. Proposed Actions

Intersection	Weekday AM		Weekday Midday		Weekday PM		Saturday Midday	
	Proposed Actions	A-Application	Proposed Actions	A-Application	Proposed Actions	A-Application	Proposed Actions	A-Application
Jerome Avenue and Kingsbridge Road	--	--	--	--	NB - LTR	NB - LTR	NB - LTR	NB - LTR
Jerome Avenue and Fordham Road	--	--	--	--	NB - LTR, SB - LTR	NB - LTR, SB - LTR	--	--
Jerome Avenue and Burnside Avenue	--	--	SB - LTR	SB - LTR	WB - LTR, SB - LTR	EB - LTR, WB - LTR, SB - LTR	WB - LTR, SB - LTR	WB - LTR, SB - LTR
Jerome Avenue and 167th Street		--		--	EB - LT, EB - R, WB - LT , NB - DefL	EB - LT, EB - R, WB - LT NB - DefL	--	--
River Avenue and 167th Street	--	--	--	--	NB - LTR	NB - LTR	--	--
Grand Concourse and Burnside Avenue	--	--	--	--	EB - LTR	EB - LTR	EB - LTR	EB - LTR, WB - LTR
Grand Concourse and Tremont Avenue	--	--	--	--	EB - TR, WB - L, NB - L	EB - TR, WB - L, NB - L	--	--
Grand Concourse and Mt. Eden Avenue	--	--	--	--	EB - LTR, WB - LTR, NB - L	EB - LTR, WB - LTR, NB - L	--	--
Grand Concourse and 167th Street	EB - TR	EB - TR	--	--	EB - L, EB - TR, WB - TR	EB - L, EB - TR, WB - TR	EB - TR, WB - L	EB - TR, WB - L

Table 20.7.20-7: Comparison of the Number of Lane Groups and Intersections with Mitigated and Unmitigated Significant Adverse Impacts—Proposed Actions vs. A-Application Alternative

Peak Hour	Development Scenario	Lane Groups/ Intersections with Significant Impacts	Lane Groups/ Intersections with Mitigated Impacts	Lane Groups/ Intersections with Unmitigated Impacts
AM	Proposed Actions	15/14	14/13	1/1
	A-Application Alternative	18/16	17/15	1/1
Midday	Proposed Actions	17/14	16/13	1/1
	A-Application Alternative	19/16	18/15	1/1
PM	Proposed Actions	33/20	13/11	20/9
	A-Application Alternative	35/21	14/12	21/9
Saturday Midday	Proposed Actions	28/19	22/15	6/4
	A-Application Alternative	29/18	22/14	7/4

Transit

Bus

The A-Application Alternative would result in a significant adverse bus impact to the east and westbound Bx11, north and southbound Bx32, and eastbound Bx35 in the AM peak hour and on the westbound Bx11, north and southbound Bx32, and east and westbound Bx35 in the PM peak hour.

There would be a larger shortfall of available capacity in the A-Application Alternative compared with the Proposed Actions. The A-Application Alterative would result in a significant adverse bus impact to the same routes and directions as in the Proposed Actions, and include a significant adverse impact to the northbound Bx32 route during the AM peak hour. As in the Proposed Actions, the significant adverse impact in the A-Application Alternative could be mitigated by increasing bus service in the peak hours. As listed in Table 20.7.20-8, these significant adverse impacts could be fully mitigated by the addition of a total of seven standard buses in the AM peak hour and nine standard buses in the PM peak hour (compared to five buses in the AM peak hour and six buses in the PM peak hour in the Proposed Actions). The general policy of NYCT is to provide additional bus service where demand warrants, taking into account financial and operational constraints.

Table 20.7.20-8: A-Application Alternative Action-With-Mitigation Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point(s)	Peak Hour Buses (1)	No-Action Available Capacity (2)	Project Increment	Available Capacity w/ Proposed Actions (2)	Additional Peak Hour Buses Needed to Accommodate Project-Generated Demand	Available Capacity with Mitigation(2)
AM	Bx11	EB	Claremont Pky and Webster Av / W 170th St and Jerome Av	13	29	145	-115	3	47
		WB	E 170 St and Jerome Ave / Claremont Pky and Webster Av	13	19	72	-53	1	1
	Bx32	NB	Morris Av and E 170th St	6	27	33	-6	1	48
		SB	Morris Av and E 170th St / Morris Av and E 161st St	8	38	77	-39	1	15
	Bx35	EB	E 167th St and Grand Concourse / Webster Av and E 168th St	15	13	43	-29	1	25
PM	Bx11	WB	Claremont Pky and Webster Av	12	36	165	-129	3	33
	Bx32	NB	Morris Av and E 170th St	6	77	132	-55	2	53
		SB	Morris Av and E 170th St	5	65	93	-28	1	26
	Bx35	EB	E 167th St and Grand Concourse	10	24	51	-27	1	27
		WB	E 167th St and Grand Concourse / Webster Av and E 168th St	11	11	68	-57	2	51

Notes:
(1) Assumes service levels adjusted to address capacity shortfalls in the No-Action Condition.
(2) Available capacity based on NYCT loading guideline of 54 passengers per standard bus.

Pedestrians

The A-Application Alternative and the Proposed Actions are projected to result in significant adverse impacts at one sidewalk area. The mitigation measure proposed in the Proposed Actions includes paving the five-foot grass buffer between the south sidewalk and fence line on West 170th Street between Edward L. Grant Highway and Cromwell Avenue. Implementing this same mitigation measures would mitigate the significant adverse impacts in the A-Application Alternative at this one location. A summary of proposed mitigation measures in the A-Application Alternative are presented in Table 20.7.20-9.

Table 20.7.20-9: A-Application Alternative-With-Mitigation – Sidewalk Conditions

Intersection	Sidewalk	No-Action			A-Application Alternative			A-Application Alternative With-Mitigation			
		Effective Width	SFP	LOS	Effective Width	SFP	LOS	Effective Width	SFP	LOS	Mitigation Measures
Weekday AM Peak Hour											
West 170th Street between Edward L. Grant Highway and Cromwell Avenue	South	3	66.5	C	3	42.8	C	8	117.0	B	Not a significant impact in AM. 5' sidewalk widening addresses Saturday MD impact
Weekday MD Peak Hour											
West 170th Street between Edward L. Grant Highway and Cromwell Avenue	South	3	152.3	B	3	41.6	C	8	113.9	B	Not a significant impact in MD. 5' sidewalk widening addresses Saturday MD impact
Weekday PM Peak Hour											
West 170th Street between Edward L. Grant Highway and Cromwell Avenue	South	3	115.6	B	3	46.6	C	8	127.0	B	Not a significant impact in PM. 5' sidewalk widening addresses Saturday MD impact
Saturday MD Peak Hour											
West 170th Street between Edward L. Grant Highway and Cromwell Avenue	South	3	126.1	B	3	36.1	D	8	**99.6**	**B**	**Pave 5' grass verge (13' total width)**
Note: **Bold** Text indicates Mitigated Significant Adverse Impact											

Community Facilities

Public Schools

With the A-Application Alternative, elementary school enrollment in CSD 9, Sub-district 2 is anticipated to exceed the significant adverse impact threshold in the year 2025 based on the conceptual construction schedule. CSD 9, Sub-district 2 intermediate school enrollment is anticipated to exceed the significant adverse impact threshold in the year 2019. Elementary school enrollment in Sub-district 4 of CSD 10 is anticipated to exceed the significant adverse impact threshold in the year 2025. As CSD 9, Sub-district 2 elementary and intermediate schools and CSD 10, Sub-district 4 elementary schools would operate over capacity in the future with an increase of five percentage points or more to their collective utilization rates between the No-Action and With-Action conditions, significant adverse impacts to these sub-districts would result.

In the RWCDS for the A-Application Alternative, 2,513 incremental DUs would be developed within CSD 9, Sub-district 2 (compared to the No-Action condition), which would result in significant adverse impacts on elementary schools within the sub-district that are projected to occur in the year 2026, based on the conceptual construction schedule. To avoid the identified significant adverse elementary school impact in CSD 9, Sub-district 2, the number of incremental dwelling units that could be developed would have to be

reduced to 1987, generating 775 elementary school students, as compared to No-Action conditions. This would represent a decrease of 526 DUs (20.9 percent) in CSD 9, Sub-district 2. An increase of 775 elementary school students within Sub-district 2 of CSD 9, would increase the No-Action utilization rate in the sub-district by less than five percentage points and would be below the *CEQR Technical Manual* threshold and thus, not a significant adverse impact.

In the RWCDS for the A-Application Alternative, 2,513 incremental DUs would be developed within CSD 9, Sub-district 2 (compared to the No-Action condition), which would result in significant adverse impacts on intermediate schools within the sub-district that are projected to occur in the year 2019, based on the conceptual construction schedule. To avoid the significant adverse intermediate school impact in CSD 9, Sub-district 2, the number of incremental dwelling units that could be developed would have to be reduced to 210 DUs, generating 34 intermediate school students, as compared to the No-Action condition. This would represent a decrease of 2,303 DUs (91.6 percent) in CSD 9, Sub-district 2. The 34 intermediate school students within CSD 9, Sub-district 2 would increase the No-Action utilization rate in the sub-district by less than five percentage points and would similarly be below the *CEQR Technical Manual* threshold that would be considered a significant adverse impact.

In the RWCDS for the A-Application Alternative, 817 incremental DUs would be developed within CSD 10, Sub-district 4 (compared to the No-Action condition), which would result in significant adverse impacts on elementary schools within the sub-district that are projected to occur in the year 2025, based on the conceptual construction schedule. To avoid the significant adverse elementary school impact in CSD 10, Sub-district 4, the number of incremental dwelling units that could be developed would have to be reduced to 692 DUs, generating 270 elementary school students, as compared to No-Action conditions. This would represent a decrease of 127 DUs (15.5 percent) in CSD 10, Sub-district 4. An increase of 270 elementary school students within Sub-district 4 of CSD 10, would increase the No-Action utilization rate in the sub-district by less than five percentage points and would be below the *CEQR Technical Manual* threshold and thus, not a significant adverse impact.

Similar to the Proposed Actions, DUs will be added to Sub-districts 1 and 3 of CSD 9, however, no significant adverse public school impacts would occur in these sub-districts in the 2026 With-Action condition. The 817 DUs in Sub-district 4 of CSD 10 would not create a significant adverse impact on intermediate schools in the 2026 With-Action condition and therefore would not require mitigation measures.

Table 20.7.20-1, below, indicates the number of incremental dwelling units within CSD 9, Sub-district 2 and CSD 10, Sub-district 4 that would result in a significant adverse impact requiring mitigation, as well as the number of additional elementary and intermediate schools that would need to be provided in order to mitigate the identified significant adverse impacts. In accordance with the *CEQR Technical Manual* impact criteria, the number of seats needed to mitigate the significant adverse impacts would either: (1) reduce the incremental increase in the sub-district's elementary or intermediate school capacity to less

than five percent over the No-Action condition; or (2) reduce the With-Action utilization rate to less than 100 percent.

Table 20.7.20-10: Elementary and Intermediate School Impact Thresholds and Mitigation School Seats

District and Sub-District and Grade Level	Impact Thresholds[1]	Mitigation Seats Needed to Fully Mitigate the Significant Adverse Impact
CSD 9, Sub-District 2, Elementary	1987 DUs (775 students)	217
CSD 9, Sub-District 2, Intermediate	210 DUs (34 students)	373
CSD 10, Sub-District 4, Elementary	692 DUs (270 students)	49
Notes: [1]Represents increment over No-Action Condition		

As indicated in the table, based on the RWCDS for the Proposed Actions, an additional 217 elementary school seats and 373 intermediate school seats would be needed in order to reduce the CSD 9, Sub-district 2 elementary and intermediate school utilization rates below the CEQR Technical Manual impact threshold of five percent. CSD 10, Sub-district 4 elementary schools would need 49 additional school seats in order to reduce the incremental utilization rates to less than five percent.

Several administrative and potential capital measures could also be available to mitigate the significant adverse impacts, including:

- Restructuring or reprogramming existing school space under the DOE's control in order to make available more capacity in existing school buildings located within CSD 9, Sub-district 2 and CSD 10, Sub-district 4;
- Relocating administrative functions to another site, thereby freeing up space for classrooms; and/or
- Creating additional capacity in the area by constructing a new school(s), building additional capacity at existing schools, or leasing additional school space constructed as part of projected development within CSD 9, Sub-district 2 and CSD 10, Sub-district 4.

To mitigate the identified elementary and intermediate school impacts resulting from the A-Application Alternative, enrollment in CSD 9, Sub-district 2, and CSD 10, Sub-district 4, will be monitored. If a need for additional capacity is identified, DOE will evaluate the appropriate timing and mix of measures, identified above, to address increased school enrollment. In coordination with the SCA, if additional school construction is warranted, and if funding is available, it will be identified in the Five-Year Capital Plan that covers the period in which the capacity need would occur (refer to the DOE's letter to the City Planning Commission Chairman dated December 21, 2017, provided in Appendix K, "Written Comments Received on the DEIS").

In general, the A-Application Alternative would allow for the development of community facility space, including new school facilities, within the project area. It should also be noted that any new school facility would be subject to its own site selection process and separate environmental review.

Shadows

As with the Proposed Actions, the A-Application Alternative would result in significant adverse impacts to eight open space resources, including: Bronx School of Young Leaders, PS 306 Schoolyard, Mount Hope Playground, Goble Playground, Inwood Park, Keltch Park, Edward L Grant Greenstreet, Jerome Avenue/Grant Avenue Greenstreet. Per *CEQR Technical Manual* guidelines, possible measures that could mitigate significant adverse shadow impacts on open spaces may include relocating sunlight-sensitive features within an open space to avoid sunlight loss; relocating or replacing vegetation; undertaking additional maintenance to reduce the likelihood of species loss; or providing replacement facilities on another nearby site. Other potential mitigation strategies include the redesign or reorientation of the open space site plan to provide for replacement facilities, vegetation, or other features. Additional strategies could include the modification of height, shape, size, or orientation of the projected and potential development sites that create the significant adverse shadow impacts. As discussed in Chapter 21, "Mitigation," it has been determined that there are no feasible or practicable mitigation measures that can be implemented to mitigate the significant adverse impacts identified on the open space resources and Greenstreets, and the A-Application Alternative's significant adverse shadows impacts on these resources would therefore remain unmitigated.