Chapter 20: Alternatives

20.1 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 (the "Plan"). The affected area comprises approximately 92 blocks of the Fordham Manor, University Heights, Fordham Heights, Morris Heights, Mount Hope, Mount Eden, Highbridge, and Concourse neighborhoods in Bronx Community Districts (CDs) 4, 5, and 7.

This chapter considers the following four alternatives to the Proposed Actions:

- A No-Action Alternative, which is mandated by CEQR and the State Environmental Quality Review Act (SEQRA) and is intended to provide the lead and involved agencies with an assessment of the expected environmental impacts of no action on their part (I.e., no zoning changes).
- A No Unmitigated Significant Adverse Impacts Alternative, which considers a development scenario that would not result in any identified significant, unmitigated adverse impacts.
- A Lower Density Alternative, which considers lower density residential zoning districts that would result in reduced residential and community facility development.
- An Expanded Rezoning Area Alternative, considered in response to comments relayed by Community Boards 4 and 5 as well as other interested property owners and affordable housing developers following the issuance of the Draft Scope of Work. The Expanded Area Alternative would include nearly the same zoning text and map amendments and city map changes as under the Proposed Actions, but map amendments would be made to a larger area to include approximately ten additional blocks located west of Jerome Avenue.

20.2 Principal Conclusions

20.2.1 NO-ACTION ALTERNATIVE

The No Action Alternative examines future conditions within the Project Area, but assumes the absence of the Proposed Actions (i.e., none of the discretionary approvals proposed as part of the Proposed Actions would be adopted). Under the No Action Alternative, existing zoning would remain in the area affected by the Proposed Actions. It is anticipated that Project Area would experience growth under the No Action Alternative by 2026. Under the No-Action Alternative, it is anticipated that new development would occur on nine of the 45 projected development sites identified under the reasonable worst-case development scenario (RWCDS). In total on the 45 projected development sites, there would be 894,761 sf of market-rate residential floor area (780 DUs), 532,608 sf of commercial uses, 47,795 sf of industrial uses, 82,219 sf of community facility uses, and 945 accessory parking spaces under the 2026 No-Action Alternative. The significant adverse impacts related to shadows, community facilities, transportation, and construction that would occur with the Proposed Actions would not occur with the No Action Alternative.

Under the No Action Alternative, there would be no change to zoning and MIH would not apply to the Project Area; and the expansion of the Corporal Fisher Park would not be facilitated. The substantial amount of affordable housing expected under the Proposed Actions would not be provided. In addition, as compared to the Proposed Actions, the benefits associated with improved economic activity, opportunities for high quality, permanent affordable housing, and enhanced pedestrian conditions and vibrant commercial corridor would not to be realized.

20.2.2 NO UNMITIGATED SIGNIFICANT ADVERSE IMPACTS ALTERNATIVE

The No Unmitigated Significant Adverse Impacts Alternative examines a scenario in which the density and other components of the Proposed Actions are changed specifically to avoid the unmitigated significant adverse impacts associated with the Proposed Actions. There is the potential for the Proposed Actions to result in unmitigated significant adverse impacts related to shadows, community facilities (elementary and middle schools), transportation (traffic, pedestrian and transit), and construction (noise).

This alternative considers development that would not result in any significant adverse impacts that could not be fully mitigated. However, to eliminate all unmitigated significant adverse impacts, the Proposed Actions would have to be modified to a point where the principal goals and objectives of the Proposed Actions would not be fully realized.

20.2.3 LOWER DENSITY ALTERNATIVE

The Lower Density Alternative would result in significant adverse impacts with respect to community facilities, shadows, transportation (traffic, pedestrians, and transit) and construction. As compared to the Proposed Actions, the significant adverse impacts expected under the Lower Density Alternative would be generally the same, although the duration and/or extent of the impacts would be less due to the smaller number of projected and potential development sites and overall lower density.

The Lower Density Alternative was developed for the purpose of assessing whether lower density residential development in some portions of the Project Area would eliminate or reduce the significant, adverse impacts of the Proposed Actions while also meeting the goals and objectives of the Proposed Actions. Under the Lower Density Alternative, three areas proposed for R8A districts would be mapped with R7A districts and one area proposed for a R7D district would be mapped with a R7A district. While the Lower Density Alternative may result in reduced significant adverse impacts, it would ultimately be less effective in achieving critical land use and housing goals outlined in the Proposed Action. The Lower Density 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 2,708,824 gsf of residential space (2,730 dwelling units), 57,975 gsf of community facility space, 20,866 gsf of commercial (retail and office) space; and net decrease of 47,795 square feet of industrial space and 98,002 gsf of auto-related uses.

The Lower Density Alternative would result in the same mix of uses as the Proposed Actions. However, the total amount of residential development would be reduced by approximately 15.6 percent (or 858 fewer residential units) under the Lower Density Alternative. It is noted that for CEQR impact areas that are density related (e.g., community facilities, open space, traffic, etc.), the effects of this alternative are reduced in magnitude since there would be fewer dwelling units, and therefore, fewer residents than under the Proposed Actions. However, since the projected and potential development sites for the Lower Density Alternative are the same as for the Proposed Actions, site-specific effects (e.g., hazardous materials) would be similar under both scenarios.

Mitigation measures for the impacts under the Lower Density Alternative would be similar to mitigation measures under the Proposed Actions. However, mitigation measures for the significant adverse transportation impacts would be somewhat different due to the overall decrease in density and difference in the location of projected development sites as compared to the Proposed Actions.

The Lower Density Alternative would support, to a lesser degree, the Proposed Actions' goals of promoting affordable housing development by increasing residential density and establishing MIH, encouraging economic development by mapping new commercial districts and increasing density in a highly transit accessible area of the City, and creating pedestrian-friendly streets through active ground floor retail uses. However, as the Lower Density Alternative would result in fewer residential units, it would be less supportive of the Proposed Action's objectives while continuing to result in significant adverse impacts related to shadows, community facilities, transportation, and construction.

20.2.4 EXPANDED REZONING AREA ALTERNATIVE

The Expanded Rezoning Area Alternative would result in significant impacts with respect to community facilities (elementary and middle schools and childcare services), shadows, transportation (traffic, pedestrians, and transit) and construction. An Expanded Rezoning Area Alternative has been considered in response to comments from Community Boards 4 and 5 as well as other interested property owners and affordable housing developers following the issuance of the Draft Scope of Work. The Expanded Rezoning Area Alternative would include nearly the same zoning text and map amendments and city map changes as under the Proposed Actions, but map amendments would be made to a larger area to include approximately ten additional blocks in four discrete areas located west of Jerome Avenue and a total of seven additional projected development sites within these areas. With the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would replace 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 with a commercial overlay to allow for a mix of commercial and residential uses in this area, thus permitting residential development in an area where none is currently permitted or would otherwise be permitted in the future without the Expanded Rezoning Area Alternative. Each of the four discrete areas would be mapped adjacent to the proposed rezoning area with new R7D, R8, 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.

With the Expanded Area 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 3,946,422 gsf of residential space (4,187 dwelling units), 99,748 gsf of community facility space, 34,678 square feet of commercial (retail and office) space; and net decrease of 57,795 square feet of industrial space and 115,116 square feet of auto-related uses.

As with the Proposed Actions, the Expanded Rezoning Area Alternative would not result in any significant adverse impacts to land use, zoning, or public policy, socioeconomics, open space, historic and cultural resources, urban design and visual resources, water and sewer infrastructure, solid waste and sanitation services, energy, greenhouse gas emissions and climate change, public health, or neighborhood character.

Similar to the Proposed Actions, the Expanded Rezoning Area Alternative would result in a significant adverse impact on elementary and intermediate schools, but unlike the Proposed Actions the Expanded Rezoning Area Alternative would also result in significant adverse impacts on child care services.

Compared to the Proposed Actions, the Expanded Zoning Alternative would result in increases to incremental shadow coverage at four open space resources, as well as new shadow coverage on five sunlight-sensitive open space resources. The four resources where incremental shadow coverage would increase compared to the Proposed Actions include: the Bronx School of Young Leaders, PS 306 Schoolyard, Townsend Walk, and Jerome/Gerard Greenstreet. As the Bronx School of Young Leaders and PS 306 Schoolyard would be significantly impacted under the Proposed Actions, increases in incremental shadow duration under the Expanded Zoning Alternative may further worsen conditions at these resources. While Townsend Walk and Jerome/Gerard Greenstreet would experience increases in incremental shadow duration, these resources do not feature any public amenities and are 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 Expanded Zoning Alternative are not anticipated to adversely impact Townsend Walk or the Jerome Avenue/Gerard Avenue Greenstreet. The Expanded Zoning Alternative would result in new incremental shadow coverage on five open space resources that would not be affected by the Proposed Actions, including: Jennie Jerome Playground, Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, and Macombs Road Open Space.

The addition of seven projected development sites and the land-use change of sites 3, 6, 19, 22, and 44 in the Expanded Rezoning Area 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). Expanded Rezoning Area Alternative would generate approximately 1,078, 4,502, 2,855, and 3,476 more incremental person trips in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively, compared to the Proposed Actions. Depending on the peak hour, this represents an approximately 27 to 47 percent increase in action-generated person trips compared to the Proposed Actions. As in the Proposed Actions, it is anticipated that the Expanded Rezoning Area Alternative would result in significant adverse traffic, bus, and pedestrian impacts. Neither the Proposed Actions nor the Expanded Rezoning Area Alternative would result in significant adverse subway or parking impacts.

The potential for construction-related impacts associated with the Expanded Rezoning Area Alternative, as with the Proposed Actions, would be limited to the vicinity of each projected and potential development site, because those are the locations where construction would occur as part of the Expanded Rezoning Area Alternative; because these projected development sites and the historic resources of concern are the same for either the Proposed Actions or the Expanded Rezoning Area Alternative, the potential for construction-period effects would be the same. Similar to the Proposed Actions, the Expanded Rezoning Area Alternative would result in significant adverse construction-period traffic and noise impacts. The mitigation measures that would be employed for the Expanded Rezoning Area Alternative would generally be similar to those required for the Proposed Actions, though somewhat different due to the overall increase in density and difference in the location of projected development sites as compared to the Proposed Actions. In addition the Expanded Rezoning Area

Alternative would result in significant adverse impacts to Child Care services that would not occur the Proposed Actions; therefore, mitigation measures to eliminate or reduce this impacts are discussed in the mitigation section of this alternative.

The Expanded Rezoning Area Alternative would support, to a similar degree, the Proposed Actions' goals of promoting affordable housing development by increasing residential density and establishing MIH, encouraging economic development by mapping new commercial districts and increasing density in a highly transit accessible area of the City, and creating pedestrian-friendly streets through active ground floor retail uses.

20.3 No-Action Alternative

20.3.1 INTRODUCTION

The No-Action Alternative assumes that the Proposed Actions are not implemented. This includes no zoning map and text changes and no city map changes to facilitate the development of Corporal Fischer Park. Conditions under this alternative are similar to the "Future without the Proposed Actions" described in the preceding chapters, which are compared in the following section to conditions under the Proposed Actions.

Under the No-Action Alternative, it is anticipated that new development would occur on nine of the 45 projected development sites identified under the reasonable worst-case development scenario (RWCDS). In total on the 45 projected development sites, there would be 894,761 sf of market-rate residential floor area (780 DUs), 532,608 sf of commercial uses, 47,795 sf of industrial uses, 82,219 sf of community facility uses, and 945 accessory parking spaces under the 2026 No-Action Alternative.

The effects of the No-Action Alternative in comparison to those of the Proposed Actions are provided below.

20.3.2 LAND USE, ZONING, AND PUBLIC POLICY

In the No-Action Alternative, based on existing zoning and land use trends and general development patterns, it is anticipated that the rezoning area would experience limited overall growth. Under the No-Action Alternative, it is expected that the rezoning area would experience a net increase in residential, commercial and community facility uses. In comparison to the future with the Proposed Actions, under the No-Action Alternative there would be less auto-related, warehouse, garage, other commercial, and industrial uses and more residential, local retail, FRESH supermarket, restaurant, office, and community facility uses in the rezoning area.

Like the Proposed Actions, the No-Action Alternative would not result in any significant adverse impacts to land use, zoning, or public policy. Development within the rezoning area would be consistent with existing uses and is not expected to significantly affect the mix of existing land uses in the area. However, under the No-Action Alternative, significantly fewer residential units would be constructed, with no new affordable housing developed under this alternative.

Under the No-Action Alternative, no changes to zoning are anticipated. Development could occur throughout the rezoning area under the current mix of residential, commercial, and manufacturing zoning districts. New developments within the existing zoning districts are expected to primarily comprise mixed-use developments with some residential, community facility, and commercial introduced under the No-Action Alternative. Unlike the Proposed Actions, the No-Action Alternative would not expand development opportunities for the creation of residential development and commercial and retail development.

New development under the Proposed Actions would occur at the densities and scale that are currently allowed under the existing zoning districts. Thus, the benefits of the Proposed Actions with respect to the creation of new residential development that would match the existing built character where feasible through the zoning of new contextual residential districts would be foregone, as would the proposed Mandatory Inclusionary Housing zoning, which would facilitate expansion of the neighborhood's supply of affordable housing and the construction of new permanently affordable housing development.

The benefits expected to result from the Proposed Actions – including providing opportunities for affordable housing development by increasing residential density and establishing Mandatory Inclusionary Housing, promoting local retail uses on the ground floor by mapping commercial overlays and require active ground floor uses in areas defined by the Special Jerome Avenue District, designating strategic locations as a full commercial district to strengthen an existing active commercial node, and maintaining existing zoning for heavy commercial and light industrial uses in targeted areas – would not be realized under this alternative.

20.3.3 SOCIOECONOMIC CONDITIONS

Future conditions with the No-Action Alternative would result in less residential, community facility, and commercial development than would otherwise occur with implementation of the Proposed Actions. Absent the Proposed Actions, it is anticipated that development would only occur on nine of the 45 projected development sites. No-Action development on these nine projected development sites would result in a net increase of 850,453 sf of residential floor area (674 DUs), 61,096 sf of commercial uses, and 36,120 sf of community facility uses than with the Proposed Actions, which would result in less housing production and comparatively fewer jobs. The following summarizes the potential socioeconomic effects of the No-Action Alternative as compared to those of the Proposed Actions for the five issues of socioeconomic concern under CEQR.

Direct Residential Displacement

Neither the No-Action Alternative nor the Proposed Actions would result in significant adverse impacts due to direct residential displacement. No direct residential displacement would occur under the No-Action Alternative, while the Proposed Actions could potentially directly displace an estimated 18 residents residing in six dwelling units on two projected development sites. Similar to the Proposed Actions, the Gerard Avenue Apartments (which contain 60 residential units) on projected development site 45 could potentially be enlarged with more dense residential use on the portion of the site occupied by at-grade parking lots fronting on River Avenue under the No-Action Alternative. As the 60 existing housing units are rent-stabilized[1], any redevelopment of this site would require that the owner present a plan to the New York State Homes and Community Renewal (NYSHCR) for relocation of these tenants. The owner of this projected development site has indicated that site 45 would be redeveloped based on the site's current zoning irrespective of the Proposed Actions.

Indirect Residential Displacement

Neither the No-Action Alternative nor the Proposed Actions would be expected to have a significant adverse indirect residential displacement impact. Under the No-Action Alternative, approximately 674 dwelling units would be constructed on eight of the 45 projected development sites, housing a population that would be well below the *CEQR Technical Manual* threshold of five percent of the existing study area population, indicating that the development would not be large enough to substantially alter the secondary study area's socioeconomic character and demographic composition or real estate market conditions.

Demand for housing in the secondary study area is expected to continue to increase given its relative affordability compared to the surrounding areas and its relatively convenient location and proximity to public transit. Given the trends experienced in the neighborhoods surrounding the study area, low vacancy rates, and the increased interest in and limited housing stock of the study area, it is likely that rents within the study area could significantly increase under the No-Action Alternative. In absence of the Proposed Actions, much of the new housing in the foreseeable future is expected to be affordable and targeted to a mix of incomes, providing new opportunities for a variety of housing types. Some of the new housing anticipated in absence of the Proposed Actions would be targeted to households that exceed typical income levels in the study area.

[1] Rent stabilized apartments are rent regulated. Tenants of rent stabilized apartments are protected from sharp increases in rent and have the right to renew their leases.

Based on upward trends in income and real estate values near the secondary study area and the limited stock of available apartments, it is likely that low-income households in unprotected units (at-risk households) would continue to experience indirect residential displacement pressures under the No-Action Alternative and could potentially decrease. The anticipated socioeconomic benefits of the Proposed Actions, including promoting the development of permanently affordable housing and facilitating mixed-income communities by requiring affordable housing units to be included in any new residential development, would not be realized under the No-Action Alternative. The Proposed Actions and associated RWCDS would create capacity for the construction of new affordable housing in the approximately 73-block rezoning area, in areas where residential uses are not currently permitted, and would also increase the allowable residential density in areas that can support additional development in a transit accessible area. Through providing affordable housing and increasing the supply of housing, it is anticipated that the Proposed Actions would help to relieve displacement pressures and provide for a more diverse demographic composition within the study area, which is not expected to occur in the No-Action Alternative.

Direct Business Displacement

Like the Proposed Actions, the No-Action Alternative would not result in significant adverse impacts due to direct business displacement. Both the Proposed Actions and the No-Action Alternative would result in some direct business and institutional displacement. The No-Action Alternative could result in the direct displacement of seven businesses affecting an estimated 86 workers in the retail, wholesale, and other services (public parking), health care and social assistance, and professional and educational services sectors on seven of the 45 projected development sites. As with the Proposed Actions, which could have the potential to directly displace significantly more businesses than the No-Action Alternative, the directly displaced businesses do not provide product or services that would no longer be available to local residents or businesses, nor are they the subject of regulations or publicly adopted plans aimed at preserving, enhancing, or otherwise protecting them in their current location. These businesses are not unique to the ¼ -mile secondary study area, nor do they serve a user base that is dependent on their location within the study area. As with the Proposed Actions, it is expected that the potentially displaced businesses would be able to find comparable space within the study area or elsewhere in the city under the No-Action Alternative.

Indirect Business Displacement

Neither the No-Action Alternative nor the Proposed Actions are expected to result in significant adverse impacts due to indirect business displacement. Similar to the Proposed Actions, the No-Action Alternative would not introduce new economic activities that would substantially alter existing economic patterns in the study area, nor would it alter the land use character of the study area. The ¼-mile secondary study area already has well-established commercial and residential markets, and

neither the Proposed Actions nor the No-Action Alternative are expected to substantially alter commercial real estate trends in the area.

Compared to the Proposed Actions, the No-Action Alternative would result in less commercial, community facility, and residential development than would otherwise occur with the implementation of the Proposed Actions. There would be comparably fewer new jobs under the No-Action Alternative. The anticipated socioeconomic benefits of the Proposed Actions, including creating new centers of activity that would bring together housing, commercial uses, community services and street level activities, promoting continuous active non-residential ground floor uses and minimizing curb cuts which disrupt the sidewalk, would not be realized under the No-Action Alternative. Jerome Avenue is anticipated to continue to remain a service area that is largely characterized by low-density commercial, automotive, and transportation-related uses.

Adverse Effects on Specific Industries

Neither the Proposed Actions nor the No-Action Alterative would result in significant adverse impacts on specific industries. A significant adverse impact on a specific industry would generally occur only in the case of a regulatory change affecting the city as a whole or in the case of a local action that affects an area in which a substantial portion of that sector is concentrated, relative to the city as a whole. Although the Proposed Actions could result in the potential direct displacement of a number of auto-related uses, which include used car sales, automotive parts and accessory stores, car leasing agencies, gas stations, car washes, automotive glass shops, tire stores, and repair and service shops, from the rezoning area, these displaced businesses and their associated employment are not expected to significantly impact the industry as a whole. The potentially displaced automotive repair and service shops represent a small percentage of employment within the industry in the Bronx, and these businesses could relocate within the City, potentially in other auto-related clusters, thereby maintaining existing business and employment counts within the industry. 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, which would ensure that there are ample locations to provide this type of service. Therefore, there would be on significant adverse impacts form the Proposed Actions. Under the No-Action Alternative, the area would not be rezoned and would continue to support a number of automotive uses. Like the Proposed Actions, the No-Action Alternative would not significantly affect business conditions in any industry or any category of business within or outside of the study area.

20.3.4 COMMUNITY FACILITIES AND SERVICES

The No-Action Alternative would introduce fewer residents to the study area as compared to the Proposed Actions and, therefore, would result in a smaller increase in demand on community facilities. Neither the Proposed Actions nor the No-Action Alternative would result in direct impacts to community facilities and services or indirect impacts to high schools, library services, child care facilities, or police, fire, and emergency medical services. Unlike the Proposed Actions, the No-Action Alternative would not result in significant adverse impacts to public schools.

Under the No-Action Alternative, there would be some new residential development on the projected development sites, introducing approximately 758 elementary school students, 352 intermediate school students and 382 high school students. As with the Proposed Actions, the No-Action Alternative would not result in significant adverse impacts to CSD 9, Sub-district 1 and 3 elementary and intermediate schools, and CSD 10, Sub-district 4 intermediate schools. The No-Action Alternative would add fewer students to CSD 9, Sub-district 2 elementary and intermediate schools and CSD 10, Sub-district 4 elementary schools and would not result in significant adverse impacts to these sub-districts.

20.3.5 OPEN SPACE

Similar to the Proposed Actions, the No-Action Alternative would not have any direct impacts on any open space resources.

In terms of indirect effects, the open space ratios for the non-residential (¼-mile) study area for the No-Action Alternative — like the Proposed Actions — would exceed the *CEQR Technical Manual* open space ratio guidelines. Therefore, daytime users of passive open space will be well-served by the resources available, and there would be no significant adverse 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 residential (½-mile) study area, the No-Action Alternative would have slightly higher ratios with respect to overall open space, as well as passive and active open space. Under the No-Action Alternative, the total, passive, and active open space ratios for the residential study area would be 0.540, 0.176, and 0.364 per 1,000 residents, respectively (compared to 0.526, 0.171, and 0.355, respectively, under the Proposed Actions). The passive open space ratio for the worker ¼-mile study area would be 0.567 per 1,000 total users, compared to 0.554 under the Proposed Actions. As under the Proposed Actions, under the No-Action Alternative the total, passive, and active open space ratios would be below the *CEQR Technical Manual* open space per 1,000 residents, including 0.5 aces of passive open space and 2.0 acres of active open space.

The open space ratios for both the non-residential and residential study areas under the No-Action Alternative would, therefore, generally be slightly higher than those under the Proposed Actions. However, as with the Proposed Actions, the open space ratios for the residential study area would be below the *CEQR Technical Manual* open space guidelines for open space adequacy and citywide planning goals.

20.3.6 SHADOWS

Unlike the Proposed Actions, the No-Action Alternative would not result in any significant adverse shadows impacts. In the No-Action Alternative, incremental shadows identified with the Proposed Actions would not be cast on publicly accessible open spaces or sunlight-sensitive historic resources. As such, the No-Action Alternative would not result in the significant adverse shadows impacts identified at eight resources (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) that would occur with the Proposed Actions. Furthermore, similar to the Proposed Actions, no other publicly accessible open spaces or sunlight-sensitive historic resources would be significantly affected by shadows under the No-Action Alternative.

20.3.7 HISTORIC AND CULTURAL RESOURCES

As with the Proposed Actions, the No-Action Alternative would not result in any significant adverse impacts to archaeological resources or any indirect impacts to architectural resources. Unlike the Proposed Actions, the No- Action Alternative would not result in direct or construction-related significant adverse impacts to architectural resources.

The No-Action Alternative assumes that development would occur on nine of the 45 projected development sites in accordance with existing zoning. The New York City Landmarks Preservation Commission (LPC) reviewed and identified projected and potential development sites that could experience new/additional in-ground disturbance and concluded that none of the lots comprising those sites have any archaeological significance. Therefore, like the Proposed Actions, the No-Action Alternative would not result in any significant adverse impacts to archaeological resources.

It is possible that some or all of the buildings identified as eligible for LPC and/or S/NR designation could become listed under the No-Action 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.

20.3.8 URBAN DESIGN AND VISUAL RESOURCES

Like the Proposed Actions, the No-Action Alternative would not have significant adverse impacts on urban design, view corridors, and visual resources. Under the No-Action Alternative, urban design in the rezoning area is expected to continue existing trends.

In the future without the proposed actions, there would be some notable change to urban design and streetscape appearance in two broadly defined portions of the primary study area – somewhat near the northern end of the primary study area, in the vicinity of Burnside Avenue and Tremont Avenue corridors, and in the southern and southwestern extent of the primary study area. Though the concentration of No-Action developments in the River Avenue corridor would be several blocks from the southernmost concentration of uses between the Edward L. Grant Highway and Jerome Avenue corridors, considered all together, these No-Action developments would contribute to a substantial concentration of new development at the southern end of the primary study area in the future without the Proposed Actions. In addition, as described, there would be two new commercial developments along the west side of Jerome Avenue, a couple of blocks north of the Cross Bronx Expressway, which would be adjacent to the rezoning area and contribute to the commercial character, urban design and streetscape of an approximately two-block portion of the Jerome Avenue corridor.

The changes to urban design and streetscape likely will be perceptible to the pedestrians in these areas of the primary study area where No-Action development will be relatively concentrated (such as in the River Avenue corridor). The overall pattern of expected No-Action development, however, generally would be scattered throughout the length of the primary study area corridor. The types of uses associated with the No-Action developments (multiple residential and/or commercial uses, as well as some community facilities) would be similar to existing uses and building typologies in the primary study area. The heights of No-Action buildings known at this time (expected to range in height from five stories to 12 stories), also would be similar to existing buildings in the area. Therefore, these No-Action developments would not be expected to represent substantial changes to the established development context of the Proposed Actions. The overall urban design of the primary study area, including building types, bulk, and height, as well as the conditions of properties that would not be directly changed by the expected No-Action development, and character of streetscapes throughout all corridors in the future without the Proposed Actions, would generally resemble existing conditions.

The neighborhood areas comprising the secondary study area would remain similar to existing conditions with regard to their characteristic land uses, building types, densities, and overall urban form. The changes to urban design and streetscape likely will be perceptible to the pedestrians in the immediate vicinity of each No-Action buildings. The overall pattern of expected No-Action development in the secondary study area, however, generally will be one of limited new construction distributed throughout the secondary study area. The types of uses associated with these No-Action developments in the secondary study area (residential and/or commercial uses, as well as some community facilities) would be similar to existing uses and building typologies in the secondary study area. The heights of the

No-Action buildings known at this time (expected to range in height from five stories to 13 stories), also would be similar to existing buildings in the study area.

Therefore, these No-Action developments will not represent substantial changes to the established development of the neighborhoods context surrounding the proposed rezoning area. The overall urban design of the secondary study area, including building types, bulk, and height, as well as the conditions of properties that will not be directly changed by the expected No-Action development, and character of streetscapes throughout the secondary study area in the future without the Proposed Actions, generally will resemble existing conditions.

Further, as described in Chapter 8, the inventory of existing visual resources is expected remain the same in the future without the Proposed Actions; none of the No-Action developments would alter the visual resources or otherwise affect view corridors, and it is expected that these visual resources, generally, would resemble their existing conditions.

Therefore, as would be the case the Proposed Actions, the No-Action Alternative, likewise, would result in no substantial change to, or significant adverse impacts to, urban design and visual resources in the rezoning area and its vicinity.

20.3.9 HAZARDOUS MATERIALS

The No-Action Alternative, like the Proposed Actions, would involve building construction, additions, and conversions. However, construction on new buildings for as-of-right uses under the current zoning may occur without regulatory oversight such that environmental conditions of these sites are not addressed, and residual contamination could be encountered by construction workers or the general public without their knowledge. It is assumed that all construction and required removal or handling of hazardous materials would be conducted in accordance with applicable state and federal requirements, thereby minimizing the potential for exposure.

A greater amount of ground disturbance in areas where soil is potentially contaminated from hazardous materials would occur under the Proposed Actions, as compared with the No-Action Alternative, since some projected development sites would be redeveloped under the Proposed Actions but not under the No-Action Alternative. However, development under the Proposed Actions would be conducted in accordance with the testing and remediation requirements required pursuant to the (E) designations or comparable measure that would be placed on the projected development sites under the Proposed Actions. As such, the No-Action Alternative would involve less soil disturbance, but potentially the controls on its performance would not be as stringent as under the Proposed Actions.

20.3.10 WATER AND SEWER INFRASTRUCTURE

Neither the Proposed Actions nor the No-Action Alternative would result in significant adverse impacts on the City's water supply, wastewater treatment, or stormwater conveyance infrastructure. Compared with the Proposed Actions, the No-Action Alternative would generate less demand on the City's Water supply and wastewater treatment infrastructure. Similar to the Proposed Actions, the incorporation of selected best management practices (BMPs) would be required as part of the New York City Department of Environmental Protection (DEP) site connection application process for new buildings.

20.3.11 SOLID WASTE AND SANITATION SERVICES

Neither the Proposed Actions nor the No-Action Alternative would adversely affect solid waste and sanitation services or place a significant burden on the City's solid waste management system. While solid waste generated by the projected development sites would increase under both the No-Action Alternative and the Proposed Actions, the No-Action Alternative would generate less demand on New York City's solid waste services and sanitation services.

20.3.12 ENERGY

Neither the Proposed Actions nor the No-Action Alternative would result in significant adverse impacts with respect to the transmission or generation of energy. Like the Proposed Actions, the No-Action Alternative would generate increased demands on New York City's energy services, but the demand generated under the No-Action Alternative would be considerably less than for the Proposed Actions. However, under both the Proposed Actions and the No-Action Alternative, the annual increase in demand would represent a negligible amount of the City's forecasted annual energy requirements for 2026.

20.3.13 TRANSPORTATION

The No-Action Alternative would not result in any significant adverse impacts with respect to transportation unlike the Proposed Actions, as discussed below. Unlike the Proposed Actions, the No-Action Alternative would not result in significant adverse traffic impacts to 14, 15, 21, and 19 intersections in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. The Proposed Actions' significant adverse impact to east and westbound Bx11, southbound Bx32, and eastbound Bx35 in the AM peak hour and on westbound Bx11, north and southbound Bx32, and east and westbound Bx35 in the PM peak hour would not occur in the No-Action Alternative. Furthermore, the Proposed Actions' significant adverse impacts to one sidewalk, one crosswalk, and one corner area in one or more peak hours would not occur in the No-Action Alternative. Like the Proposed Actions, within the parking study area, on-street parking spaces would remain available during the weekday and overnight peak periods. In the No-Action Alternative, traffic, parking, transit, and pedestrian demand in

the study area would increase as a result of background growth, development that could occur pursuant to existing zoning (i.e., as-of-right development), and other development projects likely to occur within and in the vicinity of the rezoning area.

Traffic

Independent of the Proposed Actions, traffic levels of services at many locations in the study area would experience congested conditions in the future. In the No-Action Alternative, a total of 19 intersections will have at least one congested lane group in one or more peak hours; these same 19 intersections have at least one congested lane group in one or more peak hours in the Proposed Actions. There would be no intersections with significant adverse traffic impacts in the No-Action Alternative compared to 14, 15, 21, and 19 impacted intersections during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively, in the Proposed Actions.

Transit

Subway

Subway Stations

The four analyzed subway stations would experience an increase in demand as a result of background growth and future developments anticipated within and in the vicinity of the rezoning area in the No-Action Alternative. All analyzed stairs and fare arrays at these stations would operate at an acceptable LOS C or better in both the weekday AM and PM peak hours in this alternative. Neither the No-Action Alternative nor the Proposed Actions are expected to result in significant adverse subway station impacts.

Subway Line Haul

Subway trains serving stations in proximity to the rezoning area would experience increased ridership through their maximum load points as a result of background growth and new development in the No-Action Alternative. In this alternative, southbound 4 trains and northbound 4 trains are projected to operate above capacity in the AM and PM peak hours, respectively. The 4 train would also operate over capacity in the Proposed Actions. Similar to the Proposed Action, the No-Action Alternative would not result in significant adverse line haul impacts.

Bus

Demands on the local bus services operating in the vicinity of the rezoning area are expected to increase compared to existing ridership as a result of background growth and new development in the No-Action Alternative. The existing levels of bus service would not be sufficient to provide adequate supply to meet the projected demand in the No-Action Alternative on the Bx11, Bx32, and Bx35 in both directions in the AM peak hour. The westbound Bx11 and the east and westbound Bx35 would also experience a capacity shortfall in the PM peak hour. Based on a loading guideline of 54 passengers per standard bus, an additional 13 standard buses per hour in the AM peak hour and six standard buses per hour in the PM peak hour would need to be added to accommodate projected demand in the No-Action Alternative. The Proposed Actions' significant adverse impacts to east and westbound Bx11, southbound Bx32, and eastbound Bx35 in the AM peak hour and to the westbound Bx11, north and southbound Bx32, and east and westbound Bx35 in the PM peak hour would not occur in the No-Action Alternative.

Pedestrians

Pedestrian volumes along analyzed sidewalks, crosswalks, and corner areas are expected to increase compared to existing levels as a result of background growth as well as demand from new development in the No-Action Alternative.

Sidewalks

All analyzed sidewalks are expected to operate at an acceptable LOS C or better in all peak hours with the exception of one sidewalk, which would operate at a congested LOS D in the weekday AM peak hour in the No-Action Alternative. This compares to one significant adverse impact to one sidewalk in the Saturday midday peak hour in the Proposed Actions, which would not occur in the No-Action Alternative.

Crosswalks

All analyzed crosswalks are expected to operate at an acceptable LOS C or better in all peak hours with the exception of one crosswalk, which would operate at a congested LOS D in the weekday PM peak hour in the No-Action Alternative. This compares to one significant adverse impact to one crosswalk in the weekday PM and Saturday midday peak hours in the Proposed Actions, which would not occur in the No-Action Alternative.

Corners

All analyzed corners are expected to operate at an acceptable LOS C or better in all peak hours with the exception of one corner, which would operate at a congested LOS D in the weekday PM peak hour in the No-Action Alternative. This compares to one significant adverse impact to one corner in the weekday PM and Saturday midday peak hours in the Proposed Actions, which would not occur in the No-Action Alternative.

Parking

It is anticipated that demand for both off-street and on-street parking would increase due to new development and general background growth in the No-Action Alternative. Four off-street parking facilities are projected to be displaced by new development in the No-Action Alternative pursuant to existing zoning, eliminating 316 parking spaces. Seventy-six off-street parking spaces will be constructed as part of development in the No-Action Alternative. Sufficient parking is projected within a ¼-mile radius of the study area to accommodate parking demand in the No-Action Alternative. Parking within a ¼-mile radius of the study area is projected to be 90 percent utilized during the weekday midday period and 84 percent utilized in the weekday overnight and Saturday midday periods. This compares to the Proposed Actions, when parking is projected to be 94 percent utilized during the weekday midday period, 92 percent utilized during the weekday overnight period, and 87 percent utilized during the Saturday midday period. Significant adverse parking impacts are therefore not anticipated in this alternative or the Proposed Actions.

20.3.14 AIR QUALITY

Mobile Sources

In the No-Action Alternative, emissions from traffic demand in the study area would increase as a result of background growth, development that could occur pursuant to existing zoning (i.e., as-of-right-development), and other development projects likely to occur within and in the vicinity of the rezoning area. As reported in Chapter 14, “Air Quality,” under the No-Action Alternative, no exceedances of the national ambient air quality standards for carbon monoxide or particulate matter less than ten micron in diameter. Significant adverse mobile source impacts are therefore not anticipated under this alternative.

Stationary Sources

As outlined in Chapter 14, while some development within the study area would occur under the No-Action Alternative, the Proposed Actions would result in more development and therefore the emissions from heat and hot water systems associated with the Proposed Actions would cumulatively be greater than the emissions from heat and hot water systems in the No-Action Alternative. However, unlike the Proposed Actions, the as-of-right development on 9 of the 45 projected development sites would not have an environmental assessment of air quality exposure as conducted for the Proposed Actions, and thus, such development would not be subject to any air quality (E) designations. Specifically, they would not have the restrictions specified in Chapter 14 for the control of emissions for fossil fuel-fired heating, ventilation, and air conditioning (HVAC) systems, which would be designed to ensure that there would be no significant adverse air quality impacts at nearby receptor locations.

20.3.15 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

With less development than under the Proposed Actions, the No-Action Alternative would have less energy use and would therefore result in fewer carbon dioxide equivalent (CO_2e) emissions per year. Neither the Proposed Actions nor the No-Action Alternative would result in significant greenhouse gas (GHG) emission or climate change impacts.

20.3.16 NOISE

In the No-Action Alternative, traffic volumes would increase in the area due to general background growth and trips associated with new development that would be independent of the Proposed Actions. These increases in traffic would in general result in small changes in noise levels but, as outlined in Chapter 16, "Noise," the maximum increase in Leq noise levels 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.

20.3.17 PUBLIC HEALTH

Neither the Proposed Actions nor the No-Action Alternative would result in significant adverse public health impacts. In the No-Action 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.

20.3.18 NEIGHBORHOOD CHARACTER

According to the *CEQR Technical Manual*, a proposed action could have a significant adverse neighborhood character impact if it would have the potential to affect the defining features of the neighborhood, either through the potential for a significant adverse impact in any relevant technical area, or through a combination of moderate effects in those technical areas. Like the Proposed Actions, the No-Action Alternative would not result in any significant adverse impacts to neighborhood character. The significant adverse transportation impacts would not affect any defining feature of neighborhood character, nor would a combination of moderately adverse effects affect such a defining feature. New development that could occur under the No-Action Alternative would be moderate, as compared to the Proposed Actions, and the overall neighborhood character of the area would remain substantially the same as it is today under the No-Action Alternative. The study area would continue to be characterized by the presence of multiple neighborhoods, often physically separated by the Jerome Avenue corridor, which extends north-south and accommodates the elevated viaduct of the No. 4 subway line, as well as the Cross Bronx Expressway, an eight-lane, below-grade east-west roadway. While each neighborhood is generally residential in character, Jerome Avenue, with its low-density commercial uses, including garages, tire shops, and other automotive businesses, currently creates a disjointed character within the overall study area. Neither the Proposed Actions nor the No-Action Alternative would result in significant adverse impacts to neighborhood character, however, the improvements to neighborhood character that would occur under the Proposed Actions, including reintegrating the Jerome Avenue corridor into the neighborhoods in the surrounding area, would not occur under this alternative.

20.3.19 CONSTRUCTION

As the amount of new construction under the No-Action Alternative would be less as compared to the Proposed Actions, the No-Action Alternative would not generate as much temporary construction disruption. The No-Action Alternative would result in shorter durations of construction-related noise and traffic than the Proposed Actions, and may also result in less potential construction-related impacts to non-designated historic resources in the area.

Neither the Proposed Actions nor the No-Action Alternative would result in significant adverse construction impacts with respect to land use and neighborhood character, socioeconomic conditions, community facilities, ore open space, hazardous materials, or air quality. The No-Action Alternative would involve less soil disturbance, but potentially the controls on its performance would not be as stringent as under the Proposed Actions.

With the No-Action Alternative, there could be new construction if parcels within the rezoning area are developed independent of the Proposed Actions. It is anticipated that this construction, if it would occur, would be smaller in scale and of a shorter duration than what would be undertaken for the Proposed Actions. Therefore, construction noise impacts would not be expected at locations in close proximity to development sites under the No-Action Alternative.

20.4 No Unmitigated Significant Adverse Impacts Alternative

20.4.1 INTRODUCTION

Based on the analyses presented in other chapters of this EIS, there is the potential for the Proposed Actions to result in a number of significant adverse impacts for which no practicable mitigation has been identified. Specifically, unmitigated impacts were identified with respect to community facilities (public schools), shadows, transportation, and construction-period traffic, air quality and noise**.** This alternative considers development that would not result in any significant adverse impacts that could not be fully mitigated. However, to eliminate all unmitigated significant adverse impacts, the Proposed Actions would have to be modified to a point where their principal goals and objectives would not be fully realized.

20.4.4 COMMUNITY FACILITIES AND SERVICES

Under the RWCDS, the Proposed Actions would result in a significant adverse impact to CSD 9, Sub-district 2 elementary and intermediate schools and CSD 10, Sub-district 4 elementary schools. By 2026, it is anticipated that 759 elementary school students and 312 intermediate school students would be added to Sub-district 2 of CSD 9 and 319 elementary school students would be added to Sub-district 4 of CSD 10. With the addition of these students, CSD 9, Sub-district 2 elementary school utilization would increase 22.8 percent above the No-Action condition to 151.5 percent. CSD 9, Sub-district 2 intermediate school utilization would increase 45.3 percent above the No-Action condition to 171.2 percent. CSD 10, Sub-district 4 elementary school utilization would increase 6.2 percent above the No-Action condition to 121.9 percent. Chapter 21, "Mitigation," outlines measures that could offset or would serve to at least partially mitigate the identified impacts. If however the significant adverse public school impacts are not completely eliminated, an unavoidable significant adverse impact would result.

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 427, generating 166 elementary school students as compared to No-Action conditions. This would represent a decrease of 1,520 DUs (78.1 percent) in CSD 9, Sub-district 2. Alternatively, 594 new seats could be added to CSD 9, Sub-district 2 elementary schools to avoid the unmitigated significant adverse impact.

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 1,737 DUs (89.2 percent) in CSD 9, Sub-district 2. Alternatively, 279 new seats could be added to CSD 9, Sub-district 2 intermediate schools to avoid the unmitigated significant adverse impact.

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 660 DUs, generating 257 elementary school students as compared to No-Action conditions. This would represent a decrease of 159 DUs (19.4 percent) in CSD 10, Sub-district 4. Alternatively, 63 new seats could be added to CSD 10, Sub-district 4 elementary schools to avoid the unmitigated significant adverse impact.

20.4.6 SHADOWS

As discussed in Chapter 6, "Shadows," the Proposed Actions would result in significant shadow impacts on 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. Potential mitigation measures for the identified impacts vary by resource. As discussed below and in Chapter 19, "Mitigation," between the DEIS and FEIS, DCP and NYC Parks will explore potential mitigation measures. As discussed below, in order to avoid these impacts, portions of the rezoning area would need to be eliminated or building heights reduced on certain development sites. If feasible and practicable mitigation measures are found, the impacts will be

considered partially mitigated. In the absence of feasible mitigation, the significant adverse impacts would remain unmitigated. The specific modifications to the Proposed Actions that would eliminate significant adverse shadow impacts on the eight open space resources are described below.

Bronx School of Young Leaders

The Bronx School of Young Leaders schoolyard is an approximately 1.09-acre open space located on West 177th Street between West Tremont Avenue and Jerome Avenue. Incremental shadows would last for a total of approximately 5 hours 44 minutes on March 21, approximately 6 hours 17 minutes on May 6, approximately 6 hours 39 minutes on June 21, and approximately 5 hours and 2 minutes on December 21. It should be noted that the site that would cast incremental shadows on this open space, Potential Development Site 40, is a potential, rather than a projected, development site. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on the schoolyard and eliminate the potential for an unmitigated impact, the maximum building height of Potential Development Site 40 would have to be reduced to approximately 65 feet, compared to a maximum height of 165 feet under the Proposed Actions. Such a reduction in height would substantially limit the development potential on this site. Furthermore, reducing the height of Potential Development Site 40 (located along Jerome Avenue) would be inconsistent with the urban design goals of the Proposed Actions of locating bulk along the rezoning area's primary corridors and preserving lower-scale side streets.

PS 306 Schoolyard

The PS 306 Schoolyard is an approximately 0.05-acre open space located immediately southeast of the Bronx School of Young Leaders schoolyard along West 177th Street. Incremental shadows would last for a total of approximately 5 hours 44 minutes on March 21, approximately 6 hours 17 minutes on May 6, approximately 6 hours 39 minutes on June 21, and approximately 5 hours and 2 minutes on December 21. It should be noted that the site that would cast incremental shadows on this open space, Potential Development Site 40, is a potential, rather than a projected, development site. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on the schoolyard and eliminate the potential for an unmitigated impact, the maximum building height of Potential Development Site 40 would have to be removed. This would substantially limit the development potential on the site. Furthermore, removal of Potential Development Site 40 (located along Jerome Avenue) would be inconsistent with the urban design goals of the Proposed Actions of locating bulk along the rezoning area's primary corridors and preserving lower-scale side streets.

Mount Hope Playground

Mount Hope Playground is an approximately 0.7-acre open space located on East 177th Street between Jerome Avenue and Walton Avenue. Incremental shadows would last for a total of approximately 3 hours 47 minutes on March 21, approximately 4 hours 59 minutes on May 6, approximately 5 hours 40 minutes on June 21, and approximately 1 hour and 57 minutes on December 21. It should be noted that the sites that would cast incremental shadows on this open space, Potential Development Sites 41, 42, 43, are potential, rather than projected, development sites. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on the playground and eliminate the potential for an unmitigated impact, the maximum building height of Potential Development Sites 41, 42, and 43 would have to be reduced to approximately 65, 65, and 85 feet, respectively, compared to a maximum height of 165, 165, and 145 feet, respectively, under the Proposed Actions. Such a reduction in height would substantially limit the development potential on these sites. Furthermore, reducing the height of Potential Development Sites 41, 42, and 43 (located along Jerome Avenue) would be inconsistent with the urban design goals of the Proposed Actions of locating bulk along the rezoning area's primary corridors and preserving lower-scale side streets.

Goble Playground

Goble Playground is an approximately 0.38-acre open space located on the south side of Goble Place between Inwood Avenue and Macombs Road. Incremental shadows would last for a total of approximately 7 hours 49 minutes on March 21, approximately 8 hours 3 minutes on May 6, approximately 9 hours 56 minutes on June 21, and approximately 6 hours 2 minutes on December 21. It should be noted that three of the four sites that would cast incremental shadows on this open space, Potential Development Sites 52, 53, and 54 are potential, rather than projected, development sites. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on the playground and eliminate the potential for an unmitigated impact, the maximum building height of Potential Development Sites 52, 53, and 54 would have to be reduced to approximately 95, 85, and 85 feet, respectively, compared to a maximum height of 115, 145, and 95 feet, respectively, under the Proposed Actions. Such a reduction in height would substantially limit the development potential on these sites. As such, reductions in building heights of development sites further to the south including Projected Development Site 23 may also be required to eliminate the potential for an unmitigated impact. Height reductions of this scale would substantially limit the development potential on these sites.

Inwood Park

Inwood Park is an approximately 0.36-acre open space located on West Mount Eden Avenue between Jerome Avenue and Inwood Avenue. This open space resource would experience incremental shadow coverage on all four representative analysis days, with incremental shadow duration ranging from approximately 6 hours and 2 minutes on December 21 to 12 hours and 4 minutes on June 21. It should be noted that two of the three sites that would cast incremental shadows on this open space, Potential Development Sites 49 and 50, are potential, rather than projected, development sites. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on the park and eliminate the potential for an unmitigated impact, Potential Development Site 49 would have to be removed and the maximum building height of Projected Development Site 21 and Potential Development Site 50, would have to both be reduced to approximately 20 feet, compared to maximum heights of 95 and 115 feet, respectively, under the Proposed Actions. It is important to note that these development sites are located between Inwood Park and other development sites further to the south. As such, reductions in building heights of development sites further to the south including Potential Development Site 52 may also be required to eliminate the potential for an unmitigated impact. Height reductions of this scale would substantially limit the development potential on these sites. Furthermore, removal or reducing the height of development sites located along Jerome Avenue (Potential Development Sites 49 and 50) would be inconsistent with the urban design goals of the Proposed Actions of locating bulk along the rezoning area's primary corridors and preserving lower-scale side streets.

Keltch Park

Keltch Park is an approximately 0.29-acre open space bounded by Jerome Avenue to the east, Plaza Drive to the west, Macombs Road to the north, and Elliot Place to the south. Incremental shadows would last for a total of approximately 5 hours 53 minutes on March 21, approximately 7 hours 7 minutes on May 6, approximately 7 hours 55 minutes on June 21, and approximately 4 hours 51 minutes on December 21. It should be noted that three of the sites that would cast incremental shadows on this open space, Potential Development Sites 63, 84, and 85 are potential, rather than projected, development sites. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on the park and eliminate the potential for an unmitigated impact, the maximum building height of Potential Development Sites 63, 84, and 85 would have to be reduced to approximately 65, 45, and 45 feet, respectively, compared to a maximum height of 165, 145, and 145 feet, respectively, under the Proposed Actions. It is important to note that some of these development sites are located between Keltch Park and other development sites further to the east. As such, reductions in the building heights of development sites further to the east including Projected Development Site 28 and Potential Development Sites 64 and 65 may also be required to eliminate the potential for an unmitigated impact. Such a reduction in height would substantially limit the development potential on these sites. Furthermore, reducing the height of development sites located

along Jerome Avenue, including Projected Development Site 27 and Potential Development Sites 63, 72, and 84, would be inconsistent with the urban design goals of the Proposed Actions of locating bulk along the rezoning area's primary corridors and preserving lower-scale side streets.

Edward L. Grant Greenstreet

This open space resource serves as a median for Edward L. Grant Highway, stretching the entire length of the street from University Avenue in the north to Jerome Avenue in the south. This greenstreet would experience incremental shadow coverage on all four representative analysis days ranging from 6 hours 2 minutes on December 21 to 9 hours 46 minutes on June 21. It should be noted that 12 of the 19 sites that would cast incremental shadows on this greenstreet, Potential Development Sites 76, 77, 78, 79, 80, 82, 83, 90, 92, 93, 95, and 101, are potential, rather than projected, development sites. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on the park and eliminate the potential for an unmitigated impact, the maximum building height of 19 projected and potential development sites would have to be reduced to approximately 25 to 45 feet. Such reductions in height would substantially limit the development potential on these sites. Furthermore, reducing the height of these 19 sites (located along Edward L. Grant Highway) would be inconsistent with the urban design goals of the Proposed Actions of locating bulk along the rezoning area's primary corridors and preserving lower-scale side streets.

Jerome Avenue/Grant Avenue Greenstreet

Jerome/Grant Greenstreet is an approximately 0.04-acre open space located at the intersection of Jerome Avenue and Edward L. Grant Highway. Incremental shadows would last for a total of approximately 7 hours 18 minutes on March 21, approximately 8 hours 36 minutes on May 6, approximately 9 hours 1 minute on June 21, and approximately 4 hours and 5 minutes on December 21. It should be noted that two of the three sites that would cast incremental shadows on this greenstreet, Potential Development Sites 93 and 95, are potential, rather than projected, development sites. As described in Chapter 1, "Project Description," potential development sites are considered less likely to be developed than projected development sites. Consequently, the likelihood of this impact occurring is less than if it were to result from development on a projected development site.

To minimize incremental shadow coverage on this facility and eliminate the potential for an unmitigated impact, the maximum building height of Projected Development Site 40 and Potential Development Sites 93 and 95 would have to be reduced to approximately 25, 45, and 25 feet, respectively, compared to a maximum height of 225, 225, and 175 feet, respectively, under the Proposed Actions. Such reductions in height would substantially limit the development potential on these sites. Furthermore, reducing the height of Projected Development Site 40 and Potential Development Sites 93 and 95 (located along Jerome Avenue) would be inconsistent with the urban design goals of the Proposed Actions of locating bulk along the rezoning area's primary corridors and preserving lower-scale side streets.

20.4.13 TRANSPORTATION

As presented in Chapter 21, "Mitigation," the Proposed Actions would result in significant adverse traffic impacts at 22 study area intersections (see Figure 21-1, "Summary of Lane Groups/Intersections with Significant Adverse Traffic Impacts") during one or more analyzed peak hours; specifically, 16 lane groups at 14 intersections during the weekday AM peak hour, 19 lane groups at 15 intersections in the weekday midday peak hour, 32 lane groups at 21 intersections in the weekday PM peak hour, and 30 lane groups at 19 intersections during the Saturday midday peak hour. Implementation of traffic engineering improvements such as signal timing changes or modifications to curbside parking regulations would provide mitigation for many, but not all, of the anticipated traffic impacts. Specifically, the significant adverse impacts would be fully mitigated at all but three lane groups at two intersections during the weekday AM and midday peak hours, 18 lane groups at nine intersections during the PM peak hour, and nine lane groups at five intersections during the Saturday midday peak hour.

Because of existing congestion at a number of these intersections, even a minimal increase in traffic would result in unmitigated impacts. Specifically, in the No-Action condition, a total of 19 intersections will have at least one congested lane group in one or more peak hours in the No-Action condition. A total of 12, 8, 16, and 10 intersections would have one or more lane groups operating at or over capacity in the weekday AM, midday, PM, Saturday midday peak hours, respectively. According to the *CEQR Technical Manual*, for a lane group that would operate at LOS F in the No-Action condition, a projected delay of three or more seconds is considered a significant impact. As such, small increases in incremental With-Action traffic volumes at some of the congested intersection approach movements would result in significant adverse impacts that could not be fully mitigated during one or more analysis peak hours and almost any new development in the rezoning area could result in unmitigated traffic impacts. Therefore, no reasonable alternative could be developed to completely avoid such impacts without substantially compromising the Proposed Actions' stated goals.

20.4.19 CONSTRUCTION

HISTORIC AND CULTURAL RESOURCES

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 following, in this chapter, 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 Proposed Actions. There are no projected or potential development sites within the Morris Avenue Historic District, and the nearest site that would be developed with the Proposed Actions would be Potential Development Site 43, which is located approximately 170 feet southwest of the historic district boundary; therefore, the Proposed Actions would result in no construction impacts to the Morris Avenue Historic District.

As described following, in this chapter, 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 Proposed Actions 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.

NOISE

As presented in Chapter 19, "Construction," noise level increases exceeding CEQR Technical Manual impact criteria would occur at several locations throughout the rezoning area.

Construction activities would follow the requirements of the NYC Noise Control Code (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113) for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the NYC Noise Control Code. These measures could include a variety of source and path controls. In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the NYC Noise Control Code:

- Equipment that meets the sound level standards specified in Subchapter 5 of the NYC Noise Control Code would be utilized from the start of construction.
- As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practicable.
- Where feasible and practicable, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than three minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the NYC Administrative Code.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented to the extent feasible and practicable:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations.
- Noise barriers constructed from plywood or other materials would be erected to provide shielding; and
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) for certain dominant noise equipment would be employed to the extent feasible and practical based on the results of the construction noise calculations.

Construction activity is expected to follow the requirements of the NYC Noise Control Code. However, the implementation of these measures would not eliminate the identified significant adverse construction noise impacts predicted to occur during hours when the loudest pieces of construction equipment are in use. In order to completely avoid significant adverse construction noise impacts, project-generated construction would have to be restricted in such a manner so as to not occur on the same block as, or within one to two blocks from, existing sensitive receptors, which would require elimination of the proposed rezoning area in the vicinity of these sensitive receptors. This would severely limit achievable development density and the Proposed Actions' goals and objectives.

Overall, given the above-described limitations, in order to fully mitigate all identified significant adverse impacts, the Proposed Actions would have to be modified to a point at which the Proposed Actions' goals and objectives would not be realized.

AIR QUALITY

Quantitative air quality analysis for the two construction analysis areas, Projected Development Sites 33, 34, 35, and 36 for the peak emissions year 2018 and Projected Development Sites 43, 44, and 45 for the peak emissions year 2022 indicated that the construction activities of the Proposed Action would not result in any concentrations of NO_2, PM_{10}, and CO that exceed the National Ambient Air Quality Standards (NAAQS). However, the maximum predicted incremental concentrations of $PM_{2.5}$ would exceed the City's *de minimis* criteria for Projected Development Sites 43, 44, and 45. Therefore, adverse air quality impacts are expected from the construction-related sources.

20.5 Lower Density Alternative

20.5.1 INTRODUCTION

The Lower Density Alternative was developed for the purposes of assessing whether lower density residential development in some portions of the rezoning area would eliminate or reduce the significant, adverse impacts of the Proposed Actions while also meeting the goals and objectives of the Proposed Actions. Under the Lower Density Alternative, the proposal analyzed is the same as the Proposed Actions except for a few locations, as shown on Figure 20.5.1-1, "Comparison of Zoning Changes Under the Lower Density Alternative." As shown on the figure, three areas proposed for R8A districts would be mapped with R7A districts and one area proposed for a R7D district would be mapped with a R7A district.

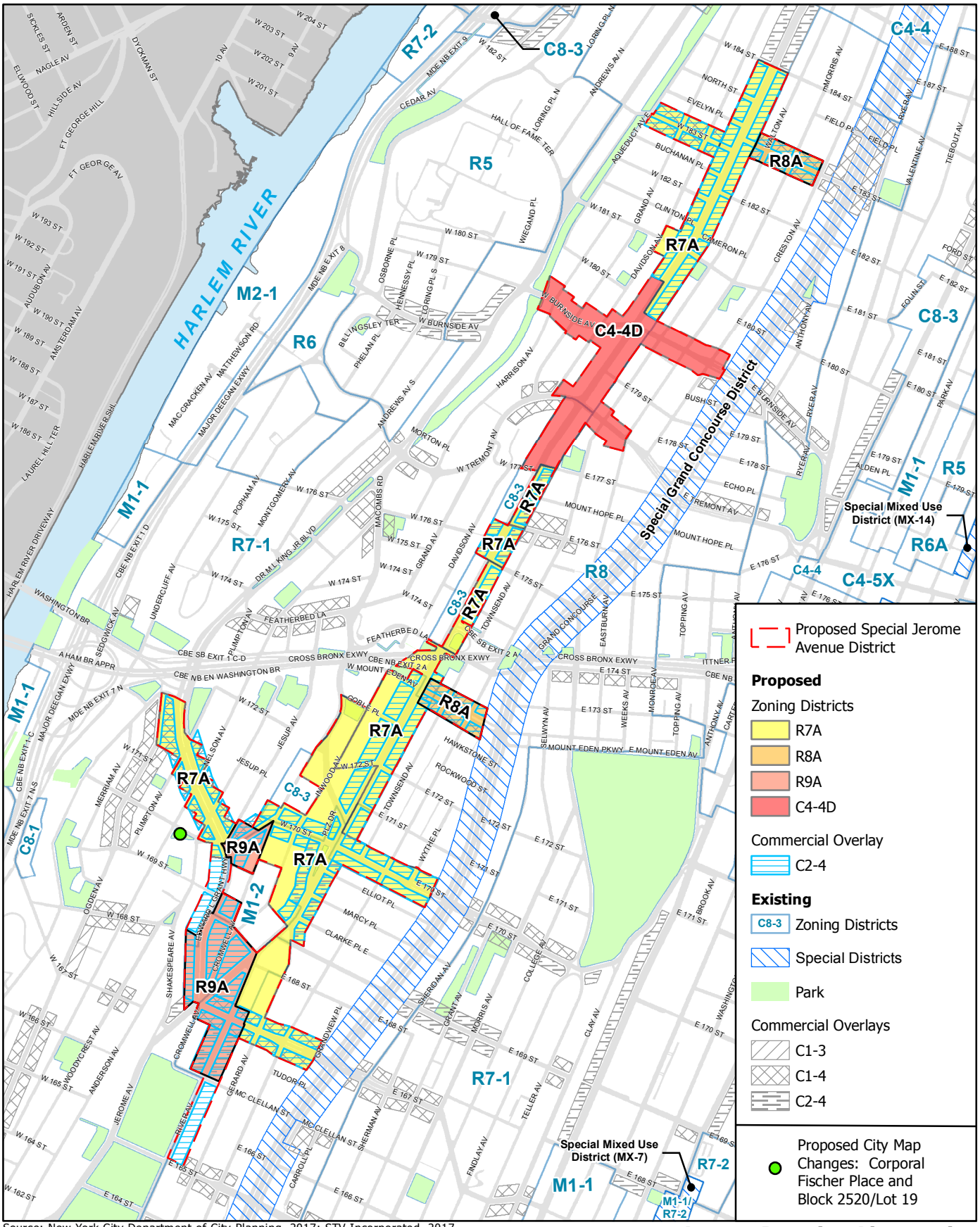
Table 20.5-1 below summarizes the zoning changes that would occur under this alternative, and provides a comparison of the maximum FAR that would be allowed in the affected portions of the rezoning area under the Lower Density Alternative.

Table 20.5.1-1: Comparison of Zoning Changes Under the Lower Density Alternative

Proposed Zoning – With-Action			Proposed Zoning – Lower Density Alternative			RWCDS Projected and Potential Development Sites Affected
District	**Maximum FAR**	**Max. Bldg. Height (ft)[1]**	**District**	**Maximum FAR**	**Max. Bldg. Height (ft)[1]**	
R8A	R: 6.02 (7.2 with IH); C: 0.0; CF: 6.5; M: 0.0	145	R7A	R: 4.0 (4.6 with IH); C: 0.0; CF: 4.0; M: 0.0	95	**Projected Sites** 18, 19, 23, 24, 25, 27, 28, 29, 30, 31, 34, and 35 **Potential Sites** 45, 46, 53, 56, 58, 59, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, 89
R7D	R: 4.2 (5.6 with IH); C: 0.0; CF: 4.2; M: 0.0	125	R7A	R: 4.0 (4.6 with IH); C: 0.0; CF: 4.0; M: 0.0	95	**Potential Sites** 43 and 44

Notes:
R=Residential; C=Commercial; CF=Community Facility; M=Manufacturing
[1] Based on maximum heights for Inclusionary Housing zones

Source: Zoning Resolution of the City of New York



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

Lower Density Alternative

N

0 0.25 0.5 Mile

Figure 20.5.1-1

PROPOSED LDA ZONING

Under the Lower Density Alternative, development would occur on the same 45 projected and 101 potential development sites. However, as the Lower Density Alternative would reduce the maximum permitted residential density on some portions of the rezoning area, as compared to the Proposed Actions (see Table 20.5.1-1), the RWCDS assumptions for 44 of the development sites in those affected areas (projected development sites 18, 19, 23, 24, 25, 27, 28, 29, 30, 31, 34, and 35 and potential development sites 43, 44, 45, 46, 53, 56, 58, 59, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, and 89) would change. Table 20.5.1-2 shows the change in program for the 12 projected development sites, whereas Table 20.5.1-3 shows the effect of those changes on the overall RWCDS analyzed for the Proposed Actions. As shown in Table 20.5.1-3, compared to the Proposed Actions, the Lower Density Alternative would result in 858 fewer residential units, 14,298 sf less community facility uses, and 48 fewer accessory parking spaces; the commercial floor area would remain the same as under the Proposed Actions.

Table 20.5.1-2: Comparison of RWCDS for Projected Development Sites 18, 19, 23, 24, 25, 27, 28, 29, 30, 34, and 35 - With-Action and Lower Density Alternative

Site	Residential (DUs)		Retail/Restaurant		Supermarket		Office		Comm. Facility	
	With-Action	LDA	With-Action	LDA	With-Action	LDA	With-Action	LDA	With-Action	LDA
18	99,282 (99 DUs)	13,290 (59 DUs)	12,490	12,490	0	0	0	0	800	800
19	120,650 (121 DUs)	71,250 (71 DUs)	16,150	16,150	0	0	0	0	0	0
23	147,021 (147 DUs)	85,367 (86 DUs)	0	0	0	0	0	0	0	0
24	58,615 (58 DUs)	34,034 (34 DUs)	0	0	0	0	0	0	0	0
25	127,000 (128 DUs)	75,000 (76 DUs)	0	0	17,000	17,000	0	0	0	0
27	71,755 (72 DUs)	42,375 (42 DUs)	9,605	9,605	0	0	0	0	0	0
28	82,842 (83 DUs)	48,923 (49 DUs)	11,089	11,089	0	0	0	0	0	0
29	56,147 (56 DUs)	33,158 (33 DUs)	7,516	7,516	0	0	0	0	0	0
30	169,767 (170 DUs)	100,256 (101 DUs)	22,725	22,725	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	48,913	34,615
34	141,887 (142 DUs)	82,386 (82 DUs)	0	0	0	0	0	0	0	0
35	133,573 (134 DUs)	77,558 (78 DUs)	0	0	0	0	0	0	0	0

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

Table 20.5.1-3: Comparison of RWCDS for All Projected Development Sites Under With-Action Conditions and Lower Density Alternative

Land Use	No-Action Condition	With-Action Condition	Lower Density Alternative	No-Action to With-Action Increment	No-Action to Lower Density Alternative Increment	Difference
Residential						
Total Residential	894,761 sf (780 DUs)	4,103,185 sf (4,008 DUs)	3,603,585 sf (3,510 DUs)	+ 3,208,424 sf (+ 3,228 DUs)	+ 2,708,824 sf (+ 2,730 DUs)	- 499,600 sf (- 858 DUs)
Commercial						
Local Retail	207,719 sf	443,916 sf	443,917 sf	+ 236,198 sf	+ 236,198 sf	0 sf
FRESH Supermarket	28,405 sf	51,562 sf	51,562 sf	+ 23,157 sf	+ 23,157 sf	0 sf
Restaurant	2,260 sf	13,891 sf	13,890 sf	+ 11,630 sf	+ 11,630 sf	0 sf
Auto-Related	98,002 sf	0 sf	0 sf	- 98,002 sf	- 98,002 sf	0 sf
Office	4,818 sf	44,105 sf	44,105 sf	+ 39,287 sf	+ 39,287 sf	0 sf
Warehouse	168,650 sf	0 sf	0 sf	- 168,650 sf	- 168,650 sf	0 sf
Garage	22,154 sf	0 sf	0 sf	- 22,154 sf	- 22,154 sf	0 sf
Other Commercial	600 sf	0 sf	0 sf	- 600 sf	- 600 sf	0 sf
Total Commercial	**532,608 sf**	**553,474 sf**	**553,474 sf**	**+ 20,866 sf**	**+ 20,866 sf**	**0 sf**
Other Uses						
Industrial	47,795 sf	0 sf	0 sf	- 47,795 sf	- 47,795 sf	0 sf
Community Facility	82,919 sf	155,192 sf	140,894 sf	+ 72,273 sf	+ 57,975 sf	- 14,298 sf
Parking						
Parking Spaces	945	1,162	1,114	- 217	+ 169	- 48
Population[1]						
Residents	2,268	11,727	10,279	+ 9,459	+ 8,011	- 1,448
Workers	1,154	2,128	2,063	+ 974	+ 909	- 65

[1] 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.

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

The Lower Density Alternative would result in the same mix of uses as the Proposed Actions, and the same amount of commercial development (refer to Table 20.5.1-3). As shown on Table 20.5.1-3, the total amount of residential development would be reduced by approximately 15.6 percent under the Lower Density Alternative. As shown on Table 20.5.1-3, compared to the Proposed Actions, the Lower Density Alternative would result in about 858 fewer incremental dwelling units compared to the No-Action conditions, which would represent a reduction of approximately 1,448 incremental residents. In addition, the Lower Density Alternative would result in a 19.8 percent reduction in community facility floor area increment over No-Actions conditions, as compared to the Proposed Actions. In total, the number of workers introduced in the rezoning area under the Lower Density Alternative would be approximately 65 fewer than under the Proposed Actions.

A comparison of conditions under this alternative with conditions under the Proposed Actions is presented below. It is noted that for CEQR impact areas that are density-related (e.g., community facilities, open space, traffic, etc.), the effects of this alternative are reduced in magnitude since there are fewer dwelling units and, therefore, fewer residents than under the Proposed Actions. However, since the projected and potential development sites for the Lower Density Alternative are the same as for the Proposed Actions, site-specific impacts (e.g., hazardous materials) would be the same under both scenarios.

20.5.2 LAND USE, ZONING, AND PUBLIC POLICY

As with the Proposed Actions, no significant adverse impacts on land use, zoning, or public policy are anticipated under the Lower Density Alternative.

Both the Proposed Actions and the Lower Density Alternative would result in an overall increase in residential, commercial, and community facility uses, when compared to conditions in the future without the Proposed Actions. However, this alternative would lead to the production of fewer housing units and less community facility development as compared to the Proposed Actions.

The Lower Density Alternative would include similar zoning actions as the Proposed Actions (zoning map amendments and zoning text changes) that would affect the same area. As noted earlier, three areas proposed for R8A districts would be mapped with R7A districts and one area proposed for a R7D district would be mapped with a R7A district. The Lower Density Alternative, like the Proposed Actions, would increase density in strategic locations where additional density and growth can be accommodated. The Lower Density Alternative, like the Proposed Actions, would include mapping contextual zoning districts that would protect the existing built context of the surrounding neighborhoods. Both the Proposed Actions and the Lower Density Alternative would also map new commercial overlays and an Enhanced Commercial District (ECD) to promote local retail uses on the ground floor, therefore providing an improved pedestrian experience.

The Lower Density Alternative would support the same housing goals of the Proposed Actions, though to a slightly lesser degree than the Proposed Actions. Like the Proposed Actions, this alternative would change zoning designations with the rezoning area in a manner that is intended to promote affordable housing development, encourage economic development, and create pedestrian-friendly streets. Although this alternative would increase the supply of housing available in the rezoning area, which is consistent with City housing policy, that additional housing would not be as extensive as under the Proposed Actions. Therefore, as this alternative would lead to the production of fewer housing units compared to the Proposed Actions, the beneficial effects would be similar to the Proposed Actions but would be less substantial under the Lower Density Alternative.

20.5.3 SOCIOECONOMIC CONDITIONS

The Lower Density Alternative (LDA) would result in less development than under the Proposed Actions and is expected to result in the same general socioeconomic effects as the Proposed Actions. Under this alternative, 500 (15 percent) fewer housing units and 344 (15 percent) fewer affordable housing units would be added to the proposed rezoning area than under the Proposed Actions. Thus, the LDA would introduce approximately 2,730 housing units, including roughly 1,899 affordable housing units, compared to No-Action conditions. In addition, the LDA would result in 14,298 sf less incremental community facility space compared to the No-Action conditions, which would represent an approximately 20 percent decrease in community facility floor area increment over No-Action conditions, as compared to the Proposed Actions. The LDA would result in the same amount of commercial square footage as the Proposed Actions. In total, the number of workers introduced in the rezoning area under the LDA would be approximately 65 fewer than under the Proposed Actions as compared to the No-Action condition.

The Proposed Actions and LDA would result in the same direct residential and business/institutional displacement. As with the Proposed Actions, the direct displacement of these uses would not constitute a significant adverse impact. The Proposed Actions and LDA would not displace a substantial or significant portion of the study area population, nor would they result in the direct displacement of businesses/institutions that provide products or services essential to the local economy that would no longer be available to local residents and businesses due to the difficulty of relocating, or the subject of regulations or publicly adopted plans to preserve, enhance, or protect them.

Like the Proposed Actions, the LDA would expand the opportunity for additional housing and promote the development of affordable housing within the proposed rezoning area, although the total number of housing units as compared with the Proposed Actions would be less. Like the Proposed Actions, this alternative would serve to support housing growth and affordable housing in the project area. The additional housing units would provide added supply to meet the increasing housing demands in New York City, although there would be fewer affordable units than under the Proposed Actions. With fewer residential units, the market may be less likely to meet the long-term demand for new housing in the area. However, the overall effects of this alternative with respect to direct and indirect impacts on residents and businesses would be comparable to the Proposed Actions.

Similar to the Proposed Actions, the LDA would result in increasing economic activity in an area where commercial corridors are largely characterized by heavy commercial, automotive, light industrial, and transportation-related uses. The proposed commercial overlays under both the Proposed Actions and the LDA are intended to improve walkability connecting neighborhood streets by promoting continuous retail and community facility uses. The LDA would not constitute new economic activities in the study area, nor would it alter or accelerate commercial markets in the study area, and therefore, it would not result in any significant adverse impacts due to indirect business displacement. In addition, like the Proposed Actions, the LDA would not result in any significant adverse impacts on specific industries.

20.5.4 COMMUNITY FACILITIES AND SERVICES

The Lower Density Alternative would introduce fewer residents to the study area as compared to the Proposed Actions and, therefore, would result in a smaller increase in demand on area community facilities. There are no direct effects to any existing community facilities in the Lower Density Alternative.

As the Lower Density Alternative would introduce fewer incremental residents to the rezoning area, as compared to the Proposed Actions, the Lower Density Alternative would similarly not result in significant adverse indirect impacts on high schools, libraries, or police, fire, and emergency medical services. Both the Proposed Actions and the Lower Density Alternative would result in significant adverse impacts to public elementary and middle school districts, although the Lower Density Alternative would result in lesser impacts to the affected sub-districts than the Proposed Actions.

Public Schools

Under the Lower Density Alternative, there would be new residential development on the projected development sites, with approximately 2,730 incremental residential dwelling units being added to the rezoning area over No-Action Alternative, including approximately 1,899 incremental affordable units. The Lower Density Alternative residential development would introduce an estimated 1,065 elementary school students, 437 intermediate school students, and 519 high school students.

Table 20.5.4-1: 2026 Lower Density Alternative Estimated With-Action School Enrollment, Capacity, and Utilization

Study Area	Students Introduced by the Lower Density Alternative	Total Lower Density Alternative With- Action Enrollment	Capacity	Available Seats	Utilization (%) under LDA	Change in Utilization (%) compared to No-Action Condition	Change in Utilization (%) compared to Proposed Actions
Elementary Schools							
CSD 9, Sub-district 1	155	7,355	6,352	-1,003	115.8	2.5	0.0
CSD 9, Sub-district 2	580	4,867	3,330	-1,537	146.2	17.5	-5.3
CSD 9, Sub-district 3	26	4,508	3,571	-937	126.2	0.7	0.0
CSD 10, Sub-district 4	304	6,153	5,057	-1,096	121.7	6.0	-0.2
Intermediate Schools							
CSD 9, Sub-district 1	64	4,014	3,896	-118	103.0	1.6	0.0
CSD 9, Sub-district 2	238	1,106	689	-417	160.5	34.6	-10.7
CSD 9, Sub-district 3	10	2,505	2,669	164	93.9	0.4	0.0
CSD 10, Sub-district 4	125	3,987	3,124	-863	127.6	4.0	-0.2
High Schools							
Bronx	519	54,421	70,817	16,396	76.8	0.8	-0.1

As with the Proposed Actions, CSD 9, Sub-district and CSD 10, Sub-district 4 elementary schools and CSD 9, Sub-district 2 intermediate schools would operate with significant adverse impacts in the Lower

Density Alternative, operating over capacity with utilization increases from the No-Action Alternative of more than five percent (the *CEQR Technical Manual* impact threshold). However as indicated in Table 20.5.4-1, "2026 Lower Density Alternative Estimated With-Action School Enrollment, Capacity, and Utilization," the significant adverse impacts with the Lower Density Alternative would be less than with the Proposed Actions, with an increase in CSD 9, Sub-district 2 elementary utilization rates of 17.5 percent, (compared to 22.8 percent with the Proposed Actions), and therefore requires lesser mitigation. CSD 10, Sub-district 4 elementary school utilization rate would increase in the Lower Density Alternative above the No-Action Alternative 6.0 percent (compared to 6.2 percent under the Proposed Actions), also requiring lesser mitigation. CSD 9, Sub-district 2 intermediate schools utilization rate would increase 34.6 percent under the Lower Density Alternative (10.7 percent lower than under the Proposed Actions), requiring lesser mitigation (See "Mitigation Measures Required" section, below).

Child Care Services

As noted above, the Lower Density Alternative would add an increment of 1,899 affordable units to the study area, a 344 DU reduction from the Proposed Actions. These units would generate 264 children under the age of 6 who are eligible for publicly funded childcare programs. While the child care facilities within the study area would be operating above 100 percent capacity in the Lower Density Alternative, the increase would be less than five percent above the 2026 No-Action Alternative, therefore not resulting in a significant adverse impact.

Table 20.5.4-2: Comparison of Budget Capacity, Enrollment, Available Slots, and Percent Utilized for the 2026 Future No-Action and With-Action Alternatives

	Budget Capacity	Enrollment	Available Slots	Utilization (%)
Existing Conditions	7,775	6,747	1,028	86.8
No-Action Increment	0	+808	-808	+10.4
2030 No-Action Condition	7,775	7,555	220	97.2
With-Action Increment	0	+264	-264	+3.4
2030 With-Action Condition	7,775	7,819	-44	100.6
Notes: *CEQR Technical Manual,* Table 6-1b.				

20.5.5 OPEN SPACE

The Lower Density 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 Lower Density Alternative on open space resources. The analysis finds that Lower Density 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 Lower Density 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 Proposed Actions.

A detailed open space analysis performed according to the guidance of the *CEQR Technical Manual* supports the conclusion that the Lower Density Alternative would not result in any significant adverse impacts to open space. Similar to the Proposed Actions, the Lower Density Alternative would not have any direct impacts on any open space resources. Also similar to the Proposed Actions, the Lower Density 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.

The Lower Density Alternative would result in incremental shadow coverage on 41 open space resources. The shadows analysis identified significant adverse impacts at eight of these resources. The analysis determined that six resources (Bronx School of Young Leaders, PS 306 Schoolyard, Mount Hope Playground, Goble Playground, Inwood Park, Keltch Park) would experience significant incremental shadow coverage, duration, and/or periods of complete sunlight loss that could have the potential to affect open space utilization or enjoyment. Two resources (Edward L. Grant Greenstreet, Jerome Avenue/Grant Avenue Greenstreet) would not receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) as a result of incremental shadow coverage and vegetation at these resources could be significantly impacted. The analysis found that although the significant adverse shadow impacts would reduce the utility of these open spaces and public's enjoyment, the open spaces would continue to be available and provide other passive or active open space uses and therefore would not be a direct significant open space impact.

The study area for the Lower Density 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 Lower Density Alternative would introduce fewer residents and workers than the Proposed Actions, in terms of indirect effects, the open space ratios for both the worker and residential study areas with the Lower Density Alternative would, therefore, generally be slightly higher than those with the Proposed Actions. As presented in Table 20.5.5-1, the open space ratios for the worker (1/4-mile) study area for the Lower Density 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 will 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 20.5.5-1, the Lower Density Alternative would have slightly higher total (0.529), passive (0.172), and active (0.357) 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"). Despite these slightly higher ratios, they 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 (0.525), passive (0.213), and active (0.311) open space ratios with the Lower Density Alternative would increase 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 (0.533), passive (0.122), and active (0.411) open space ratios with the Lower Density Alternative would increase 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 Lower Density 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 20.5.5-1: 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 LDA)
		Existing	No-Action	LDA	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.625	0.567	0.555	-2.12%
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.562	0.540	0.529	-2.04%
Passive - Residents	0.5	0.185	0.176	0.172	-2.27%
Active - Residents	2	0.378	0.364	0.357	-1.92%

North Subarea	*CEQR Technical Manual* Open Space Guideline	Open Space Ratios per 1,000			Percent Change (Future No-Action to Future LDA)
		Existing	No-Action	LDA	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.596	0.550	0.539	-2.00%
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.536	0.533	0.525	-1.50%
Passive - Residents	0.5	0.218	0.217	0.213	-1.84%
Active - Residents	2	0.318	0.317	0.311	-1.89%

South Subarea	*CEQR Technical Manual* Open Space Guideline	Open Space Ratios per 1,000			Percent Change (Future No-Action to Future LDA)
		Existing	No-Action	LDA	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.666	0.589	0.577	-2.04%
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.599	0.548	0.533	-2.70%
Passive - Residents	0.5	0.140	0.126	0.122	-3.17%
Active - Residents	2	0.458	0.422	0.411	-2.61%

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

20.5.6 SHADOWS

As with the Proposed Actions, the Lower Density 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. As noted previously, in terms of bulk, new development on projected and potential development sites would have the same maximum heights under the Lower Density Alternative (or taller) than under the Proposed Actions. Compared to the Proposed Actions, the maximum shadows cast by these development sites would be similar to those cast under the Proposed Actions. As such, the shadow effects of the projected and potential developments in the rezoning area would be essentially the same as with the Proposed Actions, and the same significant adverse shadows impacts identified for the Proposed Actions would be expected to occur under this Lower Density Alternative.

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.

20.5.7 HISTORIC AND CULTURAL RESOURCES

The Lower Density Alternative would not result in any significant adverse impacts to historic or cultural resources. The Lower Density Alternative assumes that development would occur on the same 45 projected development sites and 101 potential development sites as the Proposed Action, however, the development would be at a lower density. As with the Proposed Action, the Lower Density 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 Lower Density Alternative and concluded that none of the lots comprising those sites have any archaeological significance. Therefore, the Lower Density Alternative are not expected to result in any significant adverse impacts to archaeological resources.

Architectural Resources

The Lower Density Alternative would not result in any direct or indirect (contextual) significant adverse impacts to architectural resources. It is possible that some or all of the buildings identified as eligible for LPC and/or S/NR could become listed under the Lower Density 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 Lower Density Alternative would not result in any direct significant adverse impacts to any NYCL-designated and S/NR listed historic districts. As with the Proposed Actions, the Expanded Rezoning Area Alternative includes a portion of the Morris Avenue Historic District (NYCL-Designated) and one eligible historic resources, the U.S. Post Office – Morris Heights Station (S/NR Eligible Individual Landmark); the projected and potential development sites identified in the Reasonable Worst-Case Development Scenario are neither located within the Morris Avenue Historic District nor include any S/NR Eligible Individual Landmark buildings or structures. Therefore the Proposed Actions would not result in any direct impacts to the Morris Avenue Historic District or the U.S. Post Office – Morris Heights Station

Indirect (Contextual) Impacts

The Lower Density Alternative would not result in any indirect (contextual) significant adverse impacts to any designated, listed or eligible historic resources. As with the Proposed Action, the Lower Density 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 Lower Density Alternative. Similarly, the rezoning area extends 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 Lower Density Alternative.

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

Finally, 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 Lower Density Alternative would not result in indirect impacts to the U.S. Post Office – Morris Heights Station.

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 Lower Density 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 Lower Density Alternative would be Potential Development Site 43, which is located approximately 170 feet southwest of the historic district boundary; therefore, the Lower Density 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 Lower Density 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 earlier in the Lower Density Alternative section of Chapter 20, subheading "Shadows," the Lower Density Alternative would not result in any significant adverse impacts as a result of incremental shadows on historic architectural resources.

20.5.8 URBAN DESIGN AND VISUAL RESOURCES

Like the Proposed Actions, the Lower Density Alternative would not have significant adverse impacts on urban design, view corridors, and visual resources. Both the Lower Density Alternative and the Proposed Actions would result in development at a greater density than currently permitted as-of-right in the rezoning area and would represent a notable change in the urban design character of the rezoning area. As described previously in this section, the only differences between the Proposed Actions and the Lower Density Alternative would be on Projected Development Sites 18, 19, 23, 24, 25, 27, 28, 29, 30, 31, 34, and 35 and Potential Development Sites 43, 44, 45, 46, 53, 56, 58, 59, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, and 89. With the Lower Density Alternative, new development on Projected Development Sites 18, 19, 23, 24, 25, 27, 28, 29, 30, 31, 34, and 35 and Potential Development Sites 45, 46, 53, 56, 58, 59, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, and 89 would have maximum heights of 95 feet and a maximum permitted FAR of 4.6, as compared to maximum heights of 145 feet and a maximum permitted FAR of 7.2 under the Proposed Actions. With the Lower Density Alternative, new development on Potential Development Sites 43 and 44 would have maximum heights of 95 feet and a maximum permitted FAR of 4.6, as compared to maximum heights of 125 feet and a maximum permitted FAR of 5.6 under the Proposed Actions. While development on these 44 projected and potential development sites would be of a lower height and lesser bulk than would be the case with the Proposed Actions, it would be greater than the No-Action conditions. Given that the number of sites are the same between the Lower Density Alternative and the Proposed Actions, the overall extent to which

the pedestrian experience of the streetscape would be altered would be similar with either the Lower Density Alternative or the Proposed Actions, compared to the No-Action conditions.

As with the Proposed Actions, the development of the 45 projected development sites in the Lower Density Alternative would represent the addition of land uses and building typologies, bulk, and height that would not otherwise be present in the future without the Proposed Actions; however, the development of the 45 projected development sites, though perceptible at each location, would not necessarily represent wholesale change to individual corridors. Rather, the notable changes to urban design resulting with the Lower Density Alternative, as with the Proposed Actions, generally would represent consistency among the corridors throughout the primary study area.

Also, as with the Proposed Actions, the greatest potential change to urban design throughout the corridor with the Lower Density Alternative, particularly with regard to the effect of overall urban design consistency and streetscape improvement, may occur after 2026, if all 101 potential development sites were to be developed, in addition to the 45 projected development sites.

In addition to contributing to new bulk, height, and streetscape improvements at intersections, the Proposed Actions would also lead to similar urban design changes evident along the remaining block faces comprising the streetscapes in the primary study area. Therefore, as with the Proposed Actions, a pedestrian is likely to perceive changes to streetwall continuity, uniformity of setbacks, and landscaping, with the Lower Density Alternative, and changes to these elements of urban design may establish cohesiveness among buildings that although separate and potentially of varying architectural style, still share and contribute to the overall form of the streetscape. As with the Proposed Actions, the presence of such cohesiveness in urban design may contribute to a pleasant pedestrian experience with the Lower Density Alternative.

With the Lower Density Alternative, the concentrations of new bulk and height with the projected development sites would primarily be at intersections, as with the Proposed Actions, and specifically at the same intersections that would be similarly affected with the Proposed Actions. Excluding instances already accounted for previously in the discussion of urban design at intersections, there is one block with frontages that would be substantially developed with the development of two or more adjacent projected development sites and/or contiguous sites (directly opposite one another on two sides of the same street). In the River Avenue corridor, nearly the entire block frontages on both the east and west sides of River Avenue, between East 167th Street on the north and McClellan Street on the south, would be developed with Projected Development Sites 41, 42, 43, and 44; this development of contiguous block frontage would be adjacent to and, therefore, a continuation northward from the intersection of McClellan Street and River Avenue, as described for the Proposed Actions in Chapter 8, “Urban Design and Visual Resources.”

Similarly, assuming continuous streetwall is shared with the new developments that would be constructed adjacent to one another, these effects of streetwall continuity introduced by new development with the Proposed Actions would also be concentrated at intersections. However, to the extent that the projected development sites would be developed throughout the primary study area, it is likely that they would contribute by way of "infill," thus replacing existing vacant lots/parking areas with buildings that would thereby continue the streetwall that may already be present with existing buildings on either side, which would be expected to remain in place were only the projected development sites constructed. This effect with the Lower Density Alternative would be generally equivalent to such streetwall improvement described for the Proposed Actions in Chapter 8.

Assuming all the potential development sites would be developed, as well, then many block frontages throughout the entire primary study area would be completely – or nearly completely – redeveloped, thereby extending with some degree of continuity to/from the intersections described previously as being substantially redeveloped with the Lower Density Alternative, similar to the effect of the Proposed Actions. Existing development would be expected to remain in place in several instances as well, both on some corners, as discussed previously, and also midblock, wherever neither projected nor potential development sites have been identified.

In general, as with the Proposed Actions, the more extensive redevelopment of block frontages that would be expected with the development of the potential development sites in the Lower Density Alternative, sometime after the analysis year, would affect all but a few blocks throughout the entire primary study area, and would comprise much of the entire length of the Jerome Avenue corridor and the River Avenue corridor, which together form the north-south "spine" of the rezoning area along the elevated 4-train (and the effective "width" for much of the primary study area).

As with the Proposed Actions, the development of projected development sites with the Lower Density Alternative – compared to the No-Action conditions – would introduce relative clustering of new buildings that would, together, contribute new height and bulk within particular areas of the primary study area. This clustering would occur primarily in five areas and around 18 intersections, which comprise a series of nodal reference points for the urban design throughout the primary study area.

As with the Proposed Actions, the most substantial potential effect to urban design with the Lower Density Alternative, would likely occur sometime after the analysis year, when all potential development sites have been developed, together with the projected development sites. With the potential development sites, the urban design would be changed throughout the primary study area. Although not every property within the primary study area would be redeveloped as either a projected or potential development site, many would be redeveloped, even if sometime after the analysis year. The effect would be the establishment of urban design characterized by buildings of height and bulk that would be consistent throughout the primary study area and in particular, consistent throughout the combined north-south Jerome Avenue and River Avenue corridors that are both the spine of the

rezoning area (and not much less than the entire width of the rezoning area) and also the corridor served directly by the elevated 4-train subway line that follows it.

This substantial alteration of urban design would be perceptible to the pedestrians throughout the streetscapes of the rezoning area, and in particular it would define the experience of the pedestrian at almost any point along Jerome Avenue or River Avenue in the primary study area. Further, streetwall consistency, in particular, will be readily apparent as part of the broader urban design continuity in numerous instances where the new buildings developed on the projected and potential development sites would have frontage extending for nearly half of an entire block.

In addition, as with the Proposed Actions, the passenger on the elevated 4-train traveling along this corridor would perceive these same changes to urban design; though views from within a moving subway car, given the speed of travel as well as given the limitations of confined views through windows, are not comparable to the experience of the pedestrian at street level, the 4-train passenger would also perceive the clusters of development that would result with the projected development sites. Moreover, the subway passenger may experience the full extent of the change to urban design resulting with the Proposed Actions in a way that would not be experienced by a pedestrian at street level who may not be walking similar distances along the corridor.

With the full development of all the potential development sites, the continuity that would characterize much of the urban design of the primary study area with the Lower Density Alternative (as with the Proposed Actions), would likely be directly perceptible to the passenger of the 4-train during a single ride in a way that it would not be perceived by the pedestrian on the sidewalk whose experience is more localized. In all, the 4-train passenger – who reasonably, is also a pedestrian moving to and from the subway service, in addition to being a passenger – would experience the continuity of building heights and bulk, and perhaps architectural style, finishes, etc., in a way that would continue to inform their pedestrian experience while not a passenger on the train. Thus, not only would the urban design be consistent with the Lower Density Alternative, the pedestrian/subway passenger experience of it would also be consistent and more complete than may be possible in other parts of the city.

Finally, given that the projected and potential development sites are the same with either the Lower Density Alternative or the Proposed Actions, there would also be no significant adverse impacts to visual resources with either the Lower Density Alternative or the Proposed Actions. Overall, the improvement to the urban design context of the visual resources identified within and sharing view corridors with the rezoning area would be a positive effect to visual resources. No important view corridors would be substantially altered, however, in a way that would detract from the enjoyment of visual resources within or in the vicinity of the rezoning area with either the Lower Density Alternative or the Proposed Actions.

Therefore, as would be the case with the Proposed Actions, the Lower Density Alternative would not result in any significant adverse impacts to urban design and visual resources in the rezoning area and its vicinity.

20.5.9 HAZARDOUS MATERIALS

The effects of the Lower Density Alternative with respect to hazardous materials is expected to be similar to those of the Proposed Actions. While this alternative would result in a decrease in development bulk on 44 of the RWCDS development sites (Projected Development Sites 18, 19, 23, 24, 25, 27, 28, 29, 30, 31, 34, and 35 and Potential Development Sites 43, 44, 45, 46, 53, 56, 58, 59, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, and 89), the potential for site-specific hazardous materials impacts still remains for all projected and potential development sites identified in the RWCDS. As with the Proposed Actions, all of the projected and potential development sites would receive an (E) designation (E-442) or comparable measure under the Lower Density Alternative. The placement of (E) designations or comparable measure would ensure that no significant adverse impacts related to hazardous materials would occur as a result of the Proposed Actions or the Lower Density Alternative.

20.5.10 WATER AND SEWER INFRASTRUCTURE

Under this alternative, demands on water and sewer infrastructure would be somewhat less than under the Proposed Actions. However, neither this alternative nor the Proposed Actions would cause significant adverse impacts to water and sewer infrastructure. As presented in Table 20.5.10-1, the additional water usage as a result of the Lower Density Alternative is expected to total 1,250,440 gpd (compared to 1,303,561 gpd with the Proposed Actions). This represents an increment of 709,233 over the No-Action condition on the Lower Density Alternative. As with the Proposed Actions, this incremental demand would represent approximately 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.

Table 20.5.10-1: Water Demand and Wastewater Generation

Land Use	Water Demand & Wastewater Generation Rates[1]	Area (sf) or DUs	Domestic Water/Wastewater Generation (gpd)	Air Conditioning (gpd)
Residential	Domestic: 100 gpf/person[2]	3,510	1,024,920	0
Commercial/Office/ Retail[3]	Domestic: 0.24 gpd/sf	694,367	69,437	118,042
	A/C: 0.17 gpd/sf			
Community Facility[4]	Domestic: 0.10 gpd/sf	140,894	14,089	23,952
	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			***1,250,440***	
Total Wastewater Generation			***1,108,446***	

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. Assumes 2.92 residents per DU for all residential development.

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.

Based on rates in the *CEQR Technical Manual*, the Lower Density Alternative has the potential to result in a sanitary sewage discharge of approximately 1,108,446 gpd, (compared to approximately 1,180,587 gpd for the Proposed Actions). This represents an increment of 702,225 over the No-Action condition for the Lower Density Alternative.

The decreased sanitary flows under 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 Wastewater Treatment Plant (WWTP) would continue to have ample reserve capacity, and no significant adverse impacts to wastewater treatment would occur as a result of the Lower Density Alternative.

The same development sites would be developed under the Lower Density Alternative, with no significant changes in the sites' surface areas, as compared to the Proposed Actions. As such, for storm events from 0 to up to 2.5 inches of rainfall, the total runoff volumes to the WI-R60/WI-R60A combined sewer systems would range from 0.0 to 1.11 million gallons. As lower sanitary flows would be generated in subcatchment areas R60/WI-R60A, the combined sewer volumes in these subcatchment areas would be less than under the Proposed Actions (Table 20.5.10-2).

Because of the available assimilative capacity of the Wards Island WWTP, the projected increased flows to the combined sewer system would not have a significant adverse impact on water quality. As under the Proposed Actions, and in consideration of the required best management practices (BMP) measures that would be implemented on each projected development site by their respective developer in accordance with the City's site connection requirements, the Lower Density Alternative would not result in significant adverse impacts to local water supply or wastewater and stormwater conveyance and treatment infrastructure.

Table 20.5.10-2: 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	18.62	0.88	0.00	0.41	0.064
0.40	3.80	18.62	0.88	0.18	0.41	0.064
1.20	11.30	18.62	0.88	0.53	0.41	0.191
2.50	19.50	18.62	0.88	1.11	0.41	0.330
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	18.62	0.88	0.00	1.11	0.175
0.40	3.80	18.62	0.88	0.18	1.11	0.175
1.20	11.30	18.62	0.88	0.53	1.11	0.522
2.50	19.50	18.62	0.88	1.11	1.11	0.900

Notes:

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

$Q_{VOL} = [R_{VOL} \times A \times RC \times 7.48GAL/1{,}000{,}000 \text{ MGD per GAL}] - S_{VOL}$; 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*

Table 20.5.10-3: 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	0.06	0.06
0.40	3.80	0.00	0.18	0.06	0.24
1.20	11.30	0.00	0.53	0.19	0.72
2.50	19.50	0.00	1.11	0.33	1.44
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	0.18	0.18
0.40	3.80	0.00	0.25	0.18	0.36
1.20	11.30	0.00	0.75	0.52	1.05
2.50	19.50	0.00	1.56	0.90	2.01

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 assimilative capacity of the Wards Island WWTP, the projected increased flows to the combined sewer system with the Lower Density Alternative would not have a significant adverse impact on the plant or water quality. As under the Proposed Actions, and in consideration of the required best management practice (BMP) measures that would be implemented on each projected development site by their respective developer in accordance with the City's site connection requirements, the Lower Density Alternative would not result in significant adverse impacts to local water supply or wastewater and stormwater conveyance and treatment infrastructure.

20.5.11 SOLID WASTE AND SANITATION SERVICES

Solid Waste generation would increase under both the Proposed Actions and the Lower Density Alternative, with a slightly higher incremental increase under the Lower Density Alternative because of increased commercial uses. However, neither the Lower Density Alternative nor the Proposed Actions would cause significant adverse impacts to the City's solid waste services.

The Lower Density Alternative would result in an incremental development decrease of 498 fewer residential units and approximately 14,298 sf less of community facility uses than the Proposed Actions. This would result in slightly lower volumes of solid waste that would be handled by DSNY (74 tons/week, or an incremental increase of 57 tons/week over the No-Action conditions). Based on a typical DSNY collection truck capacity of approximately 12.5 tons, the Lower Density Alternative's incremental residential and community facility uses would be expected to generate solid waste equivalent to approximately six truckloads per week, compared to seven truckloads under the Proposed Action. As under the Proposed Actions, this increase is not expected to overburden the DSNY's solid waste handling services.

Table 20.5.11-1: Comparison of Weekly Solid Waste Generation on Projected Development Sites No-Action, Lower Density Alternative and Proposed Actions

	No Action	Proposed Action		Lower Density Alternative	
		Proposed Actions	Increment over No-Action	LDA	Increment over No-Action
Total Solid-Waste Generation (tons/week)	85	150	65	140	55
Solid Waste Handled by DSNY (tons/week)	17	84	67	74	57
Solid Waste Handled by Private Carters (tons/week)	67	66	-2	66	-2

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

The Lower Density Alternative would also result in no change to the 553,474 sf of commercial uses in the Proposed Actions. Therefore, there would be no change to the approximate volume of solid waste that would be handled by private carters (66 tons/week, or an equivalent of two tons/week less than the No-Action conditions). This would represent a less than 0.03 percent increase in 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 Lower Density Alternative would be expected to add the equivalent of two additional commercial carter truckloads per week. There are more than 2,000 private commercial carting businesses authorized to serve New York City. It is expected that their fleets would be sufficient to accommodate this increase. Therefore, as under the Proposed Actions, the net increase of commercial solid waste handled by private carriers would not overburden the City's waste management system.

20.5.12 ENERGY

While neither the Proposed Actions nor the Lower Density Alternative would result in significant adverse energy impacts, the Lower Density Alternative would result in a slightly lower incremental increase in energy usage compared to the No-Action condition.

As shown in Table 20.5.12-1, future development on the 45 potential development sites under the Lower Density Alternative would use approximately 642.1 billion BTUs of energy annually, which would represent an approximately 392.7 billion BTUs increase over the No-Action condition. By comparison, the Proposed Actions on the 45 development sites would result in an incremental annual increase of approximately 439.8 billion BTUs over the No-Action condition.

Table 20.5.12-1 – Annual Energy Consumption for the Projected Development Sites – No-Build, Lower Density Alternative and Proposed Alternative

Land Use	Floor Area (SF)	Average Yearly Energy Use Rate (MBTU/sf)[1]	Lower Density Alternative Annual Energy Use (MBTU)	LDA Incremental Annual Energy Use (MBTU) over No-Action Conditions	Proposed Action Incremental Annual Energy Use (MBTU) over No-Action Condition
Residential[2]	3,603,585	126.7	456,574,220	343,208,001	413,965,390
Commercial[3]	694,367	216.3	150,191,582	34,988,472	7,694,873
Industrial[4]	0	554.3	0	0	0
Community Facility[5]	140,894	250.7	35,322,126	14,534,333	18,118,560
		Total	**642,087,927**	**392,730,805**	**439,778,853**

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 NYCDCP, April 2016.
[3]Commercial: Data provided by NYCDCP, April 2016.
[4]Industrial use: Data provided by NYCDCP, April 2016.
[5]Community Facility: Data provided by NYCDCP, April 2016.

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

The incremental increase in annual energy consumption under the Proposed Actions would represent approximately 0.26 percent of the City's forecasted annual energy requirement of 171 Trillion BTUs, with slightly lower percentage, 0.23 percent, under the Lower Density Alternative. Increases of this magnitude would not result in adverse impacts on energy systems.

20.5.13 TRANSPORTATION

The reduction in size of projected development sites 3, 13, 18, 19, 21, 23, 24, 25, 27, 28, 29, 30, 31, 33, 34, and 35 in the Lower Density Alternative would generate fewer vehicle, transit, and pedestrian trips and less demand for on-street and off-street public parking compared to the Proposed Actions Based on the trip generation assumptions detailed in Chapter 13, "Transportation," the Lower Density Alternative would generate approximately 526, 671, 726, and 722 fewer incremental person trips in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively, compared to the Proposed Actions (see Table 20.5.13-1). Depending on the peak hour, this represents an approximately 7 to 13 percent decrease in action-generated person trips compared to the Proposed Actions. As in the Proposed Actions, it is anticipated that the Lower Density Alternative would result in significant adverse traffic, bus, and pedestrian impacts. Neither the Proposed Actions nor the Lower Density Alternative would result in significant adverse subway or parking impacts.

Table 20.5.13-1: Comparison of Incremental Peak Hour Person Trips by Mode – Proposed Actions vs. Lower Density Alternative

Scenario	Auto	Taxi	Bus	Subway	Railroad	Walk/Other	Total
Weekday AM							
Proposed Actions	363	71	555	1,382	77	1,607	4,055
Lower Density Alternative	276	61	481	1,169	64	1,478	3,529
Increment	***-87***	***-10***	***-74***	***-213***	***-13***	***-129***	***-526***
Weekday Midday							
Proposed Actions	410	205	1,037	1,136	40	6,772	9,600
Lower Density Alternative	347	192	958	1,007	34	6,391	8,929
Increment	***-63***	***-13***	***-79***	***-129***	***-6***	***-381***	***-671***
Weekday PM							
Proposed Actions	596	165	935	1,748	86	4,143	7,673
Lower Density Alternative	491	152	837	1,504	73	3,890	6,947
Increment	***-105***	***-13***	***-98***	***-244***	***-13***	***-253***	***-726***
Saturday Midday							
Proposed Actions	662	194	985	1,649	77	4,787	8,354
Lower Density Alternative	563	181	889	1,432	65	4,502	7,632
Increment	***-99***	***-13***	***-96***	***-217***	***-12***	***-285***	***-722***

Source: STV Incorporated, 2017.

Traffic

The Lower Density Alternative would generate approximately 90, 61, 102, and 78 fewer incremental vehicle trips during the weekday AM, midday, and PM and Saturday midday peak hours, respectively, compared to the Proposed Actions (see Table 20.5.13-2). Depending on the peak hour, this represents a decrease of approximately 12 to 22 percent as compared to the incremental vehicle trips that would be generated in the Proposed Actions. Study area intersections with significant adverse traffic impacts were therefore evaluated to determine if the impacts would also occur in the Lower Density Alternative, and if the impacts could be mitigated.

Overall, the Lower Density Alternative would result in significant adverse traffic impacts at a total of 21 study area intersections during one or more analyzed peak hours, one less intersection than in the Proposed Actions. Table 20.5.13-3 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 Lower Density Alternative. In the Lower Density Alternative, 13 lane groups at 11 intersections would be impacted (compared to 16 lane groups at 14 intersections in the Proposed Actions) in the weekday AM peak hour, 18 lane groups at 14 intersections (compared to 19 lane groups at 15 intersections in the Proposed Actions) in the midday, 33 lane groups at 21 intersections (compared to 32 lane groups at 21 intersections in the Proposed Actions) in the PM and 26 lane groups at 17 intersections (compared to 30 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 below.

Table 20.5.13-2: Comparison of Incremental Peak Hour Vehicle Trips by Mode – Proposed Actions vs. Lower Density Alternative

Scenario	Auto	Taxi	Truck	Total
Weekday AM				
Proposed Actions	293	104	8	405
Lower Density Alternative	223	90	2	315
Increment	***-70***	***-14***	***-6***	***-90***
Weekday Midday				
Proposed Actions	196	314	14	524
Lower Density Alternative	159	294	10	463
Increment	***-37***	***-20***	***-4***	***-61***
Weekday PM				
Proposed Actions	429	238	4	671
Lower Density Alternative	347	218	4	569
Increment	***-82***	***-20***	***0***	***-102***
Saturday Midday				
Proposed Actions	333	274	10	617
Lower Density Alternative	275	256	8	539
Increment	***-58***	***-18***	***-2***	***-78***

Source: STV Incorporated, 2017.

Table 20.5.13-3: Comparison of the Numbers of Lane Groups/Intersections with Significant Adverse Impacts – Proposed Actions vs. Lower Density Alternative

Peak Hour	Development Scenario	Lane Groups/Intersections with Significant Impacts
AM	Proposed Actions	16/14
	Lower Density Alternative	13/11
Midday	Proposed Actions	19/15
	Lower Density Alternative	18/14
PM	Proposed Actions	32/21
	Lower Density Alternative	33/21
Saturday Midday	Proposed Actions	30/19
	Lower Density Alternative	26/17

Source: STV Incorporated, 2017.

Transit

Subway

Subway Stations

The Lower Density Alternative would generate 213 and 244 fewer incremental subway trips during the weekday AM and PM Peak hours, respectively, than would the Proposed Actions (see Table 20.5.13-1). Incremental subway trips generated in the Lower Density Alternative would not result in significant adverse impacts to any area subway stations, as in the Proposed Actions.

Subway Line-Haul

No analyzed subway line would be significantly adversely impacted in either the weekday AM or PM peak hour under *CEQR Technical Manual* impact criteria as in the Proposed Actions. The Lower Density Alternative would generate fewer new subway trips than the Proposed Actions; therefore, this alternative is also not expected to result in significant adverse subway line haul impacts in either period.

Bus

Weekday AM and PM peak hour incremental bus trips would total 481 and 837 in the Lower Density Alternative, compared to 555 and 935 trips in the Proposed Actions (see Table 20.5.13-1). Although there would be 74 and 98 fewer bus trips during the weekday AM and PM peak hours, respectively, in the Lower Density Alternative, this alternative, like the Proposed Actions, would result in a significant adverse bus impact to the Bx11, Bx32, and Bx35 services in one or more peak hours based on *CEQR Technical Manual* criteria (see Table 20.5.13-4).

Table 20.5.13-4: Lower Density 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	72	-42
		WB	E 170th St and Jerome Ave / Claremont Pky and Webster Av	13	19	18	1
	Bx32	NB	Morris Av and E 170th St	6	24	20	5
		SB	Morris Av and E 170th St / Morris Av and E 161st St	8	37	63	-25
	Bx35	EB	E 167th St and Grand Concourse / Webster Av and E 168th St	15	13	41	-28
		WB	E 167th St and College Av / E 167th St and Grand Concourse	18	40	15	26
PM	Bx11	EB	Claremont Pky and Webster Av	12	159	61	98
		WB	Claremont Pky and Webster Av	12	36	95	-59
	Bx32	NB	Morris Av and E 170th St	6	75	87	-11
		SB	Morris Av and E 170th St	5	57	59	-1
	Bx35	EB	E 167th St and Grand Concourse	10	24	44	-20
		WB	E 167th St and Grand Concourse / Webster Av and E 168th St	11	11	61	-50

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 Lower Density Alternative would result in the following capacity shortfalls:

- Eastbound Bx11 would experience a shortfall of 42 passengers in the AM peak hour, compared to 63 in the Proposed Actions.
- Westbound Bx11 would experience a shortfall of 59 passengers in the PM peak hour, compared to 78 in the Proposed Actions.
- Northbound Bx32 would experience a shortfall of 11 passengers in the PM peak hour, compared to 25 in the Proposed Actions.
- Southbound Bx32 would experience a shortfall of 25 passengers in the AM peak hour, compared to 35 in the Proposed Actions, and one passenger in the PM peak hour, compared to 11 in the Proposed Actions.
- Eastbound Bx35 would experience a shortfall of 28 passengers in the AM peak hour, the same as the Proposed Actions and 20 passengers in the PM peak hour, compared to 21 in the Proposed Actions.

- Westbound Bx35 would experience a shortfall of 50 passengers in the PM peak hour, the same as the Proposed Actions.

The Lower Density Alternative would not result in capacity shortfalls on the westbound Bx11 in the AM peak hour, as it would in the Proposed Actions. 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 Lower Density Alternative is expected to generate 3,468, 8,737, 6,795, and 7,451 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 a decrease of seven to thirteen 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. The decrease in pedestrian trips between the Proposed Actions and Lower Density Rezoning Alternative affects 16 of the 45 projected development sites. Of the locations with significant adverse impacts in the Proposed Actions, there was no change in pedestrian volumes at the south crosswalk and northeast corner of E. 167th Street and Jerome Avenue; therefore, 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 Lower Density Alternative as compared to the Proposed Actions (see Tables 20.5.13-5 through 20.5.13-7).

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 20.5.13-5: Sidewalk Conditions in the Lower Density Alternative

Intersection	Sidewalk	No-Action			With-Action			Lower Density 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	34.3	D
Notes: Shading denotes a significant adverse impact										

Source: STV Incorporated, 2017.

Crosswalks

The south crosswalk of East 167th Street and Jerome Avenue is projected to operate at LOS D during the weekday PM and Saturday midday peak hours, the same significant adverse impact as in the Proposed Actions.

Table 20.5.13-6: Crosswalk Conditions in the Lower Density Alternative

Intersection	Crosswalk	No-Action			With-Action			Lower Density Alternative		
		Width	SFP	LOS	Width	SFP	LOS	Width	SFP	LOS
Weekday PM Peak Hour										
East 167th Street and Jerome Avenue	South(1)	13	22.8	D	13	20.3	D	13	20.3	D
Saturday MD Peak Hour										
East 167th Street and Jerome Avenue	South(1)	13	24.1	C	13	19.4	D	13	19.4	D
Notes: Shading denotes a significant adverse impact										

Source: STV Incorporated, 2017.

Corner Areas

The northeast corner of East 167th Street and Jerome Avenue is projected to operate at LOS D during the Weekday PM and Saturday midday peak hours, the same significant adverse impact as in the Proposed Actions.

Table 20.5.13-7: Corner Area Conditions in the Lower Density Alternative

Intersection	Corner	No-Action		With-Action		Lower Density Alternative	
		SFP	LOS	SFP	LOS	SFP	LOS
Weekday PM Peak Hour							
East 167th Street and Jerome Avenue	Northeast	22.7	D	15.8	D	15.8	D
Saturday MD Peak Hour							
East 167th Street and Jerome Avenue	Northeast	43.5	B	19.7	D	19.7	D
Notes: Shading denotes a significant adverse impact							

Source: STV Incorporated, 2017.

Vehicular and Pedestrian Safety Evaluation

A review of NYCDOT 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. NYCDOT'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 Lower Density 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

As in the Proposed Actions, no additional parking capacity would be developed in the Lower Density Rezoning Alternative. Similarly, development in the Lower Density Rezoning Alternative would displace the same number of off-street parking spaces as in the Proposed Actions. The reduction in the amount of projected development between the Lower Density Rezoning Alternative and the Proposed Actions results in a lower demand for parking in the Lower Density Rezoning Alternative. As such, the supply of parking within a ¼-mile radius of the rezoning area in the Lower Density Rezoning Alternative is projected to be sufficient to accommodate the projected demand, as was the case in the Proposed Actions.

In the Lower Density Rezoning Alternative, there is projected to be a parking shortfall within ¼-mile of Projected Development Sites 30, 32, and 33 during the weekday midday and weekday overnight periods, as is also expected in the Proposed Actions. As listed in Table 20.5.13-8, a deficit of approximately 12 and 256 parking spaces is projected during the weekday midday and overnight periods, respectively, compared to a deficit of 88 and 453 parking spaces in the Proposed Actions. Sufficient parking would be available within a ¼-mile radius of Projected Development Sites 30, 32, and 33 during the Saturday midday period, with a projected utilization rate of 91 percent.

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 Lower Density Alternative is not expected to result in significant adverse parking impacts.

Table 20.5.13-8: **Lower Density Rezoning Alternative Public Parking Capacity, Demand, and Utilization within ¼-mile of 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 With-Action Developments	(175)	(175)	(175)
Total With-Action Capacity	4,119	4,174	4,119
Demand			
No-Action Demand (Off-Street and On-Street)	3,892	3,723	3,529
Projected Demand from With-Action Developments	239	707	220
Total With-Action Demand	4,131	4,430	3,749
Utilization			
With-Action Utilization	100%	106%	91%
With-Action Parking Surplus/(Deficit)	(12)	(256)	370

20.5.14 AIR QUALITY

Mobile Sources

In the Lower Density Alternative, emissions from traffic demand in the study area would increase as a result of background growth, development that could occur compared to the Proposed Actions. However, it would be lower than that of the Proposed Actions; and therefore, like the Proposed Actions, the Lower Density Alternative would not result in significant adverse mobile source impacts.

Stationary Sources

While some development within the study area would occur under the Lower Density Alternative, the Proposed Actions would result in more development and therefore the emissions from heat and hot water systems associated with the Proposed Actions would cumulatively be greater than the emissions from heat and hot water systems in the Lower Density Alternative. Similar to the Proposed Actions, all projected and potential development sites would receive an (E) designation requiring the use of natural gas in order to avoid potential significant air quality impacts under the Lower Density Alternative; and therefore, there would be no significant adverse air quality impacts.

20.5.15 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Greenhouse Gas Emissions

With less development than under the Proposed Actions, the Lower Density Alternative would have less energy use and would therefore result in fewer carbon dioxide equivalent (CO2e) emissions per year. Neither the Proposed Actions nor the Lower Density 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 Lower Density 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 Lower Density 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 Lower Density 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 Lower Density Alternative. The Lower Density 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.

20.5.16 NOISE

Under the Lower Density Alternative, less development would occur as compared to the Proposed Actions, resulting in fewer vehicular trips. Traffic volumes would be lower as compared to the Proposed Actions. The Lower Density Alternative would result in development of the same projected and potential development sites as with the Proposed Actions, though at a lower density and with a slightly different use mix in some buildings. The same projected development sites would be mapped with an E designation requiring an environmental assessment of noise exposure as for the Proposed Actions.

20.5.17 PUBLIC HEALTH

Neither the Proposed Actions nor the Lower Density Alternative would result in significant adverse public health impacts. Under the Lower Density 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 under the Lower Density Alternative.

20.5.18 NEIGHBORHOOD CHARACTER

As with the Proposed Actions, the Lower Density Alternative would not result in significant adverse impacts on neighborhood character. Compared to the Proposed Actions, the Lower Density 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 Lower Density Alternative would be similar to the effects of the Proposed Actions. The Lower Density Alternative would result in a slightly smaller increase in the residential population, as compared to the Proposed Actions, but would still 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. However, as noted above, less affordable housing would be built under the Lower Density Alternative. The proposed commercial overlays with both the Proposed Actions and the Lower Density 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 Lower Density Alternative would not result in any significant adverse impacts on neighborhood character.

20.5.19 CONSTRUCTION

The Lower Density Alternative would result in the same construction noise impacts that would occur with the Proposed Actions. As the amount of new construction under the Lower Density Alternative would be less as compared with the Proposed Actions, the Lower Density Alternative would not generate as much temporary construction disruption. Neither the Proposed Actions nor the Lower Density Alternative would result in significant adverse construction impacts with respect to land use and neighborhood character, socioeconomic conditions, community facilities, open space, hazardous materials, air quality, or vibration. The Lower Density Alternative would involve less soil disturbance, but potentially the controls on its performance would not be as stringent as under the Proposed Actions.

The construction processes and phasing under the Lower Density Alternative for the remaining projected development sites are expected to be similar to those for the Proposed Actions. Therefore, it is anticipated that the predicted noise levels due to peak construction-related activities at these locations under the Lower Density Alternative would be similar to the Proposed Actions. However, since the Lower Density Alternative would result in fewer projected development sites, the extent of the significant adverse noise impacts under this alternative would be reduced when compared with those under the Proposed Actions.

As discussed above, like the Proposed Actions, the Lower Density Alternative would result in significant adverse impacts to architectural resources as a result of demolition and construction or through inadvertent construction-related damage. The Lower Density Alternative would result in the same significant adverse construction-related impacts that would occur with the Proposed Actions.

20.5.20 MITIGATION MEASURES REQUIRED FOR THE LOWER DENSITY ALTERNATIVE

Transportation

The identified bus and pedestrian impacts could be fully mitigated in the Proposed Actions and Lower Density 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 Lower Density Alternative could not be fully mitigated through standard traffic improvement measures, as would also be the case in the Proposed Actions.

Traffic

Table 22-39 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 Lower Density Alternative. At most impacted intersections, recommended mitigation measures would be similar to the measures recommended for the Proposed Actions (see Table 21-5 in Chapter 21, “Mitigation”).

Tables 22-40 through 22-43 show the Lower Density 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 Lower Density 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 22-44, while Table 22-45 compares the numbers of lane groups and intersections with mitigated and unmitigated impacts in the Lower Density Alternative with the impacts in the Proposed Actions. The Lower Density Alternative would result in fewer unmitigated significant adverse impacts 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 Lower Density Alternative, unmitigated significant impacts would remain at a total of three lane groups at two intersections (compared to three lane groups at two intersections with the Proposed Actions) during the weekday AM peak hour, three lane groups at two intersections (compared to three lane groups at two intersections with the Proposed Actions) during the weekday midday peak hour, 17 lane groups at eight intersections (compared to 18 lane groups at nine intersections with the Proposed Actions) during the weekday PM peak hour, and seven lane groups at five intersections (compared to nine lane groups at five intersections with the Proposed Actions) during the Saturday midday peak hour. The following lane groups, which would be unmitigated in the Proposed Actions, would either be fully mitigated or would not be impacted in the Lower Density Alternative:

- The north and southbound Jerome Avenue shared left-through-right lane group at Fordham Road in the weekday PM peak hour; and

The northbound Jerome Avenue shared through-right lane group and defacto left-turn lane at 167th Street in the Saturday midday peak hour.

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 in the Lower Density Alternative.

Table 22-39: Proposed Traffic Mitigation Measures for Lower Density 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	36	54	39	- Transfer 3 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	40	52	37	
	Ped	7	7	7	7	7	7	7	7	
Jerome Avenue and Fordham Road	EB/WB	81	56	86	78	74	51	80	73	- Transfer 7 seconds of green time from the EB/WB to NB/SB during AM. - Transfer 5 seconds from EB/WB to NB/SB during Midday and Saturday. - Transfer 6 seconds from EB/WB to NB/SB during PM.
	NB/SB	39	34	34	42	46	39	40	47	
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	58	59	- Transfer 1 second from NB/SB to EB/WB during AM, Midday and PM. - Transfer 2 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	55	54	
Jerome Avenue and Featherbed Lane	EB/WB	30	30	30	30	32	31	31	31	- Transfer 2 seconds from NB/SB to EB/WB during AM. - Transfer 1 second from NB/SB to EB/WB during Midday, PM and Saturday.
	NB/SB	60	60	60	60	58	59	59	59	
Jerome Avenue and SB I-95 Ramps	WB	45	45	45	45	45	45	44	45	- Transfer 1 second from WB to NB/SB during PM.
	NB/SB	45	45	45	45	45	45	46	45	
Jerome Avenue and NB I-95 Ramps	EB	43	43	43	43	41	41	43	43	- Transfer 2 seconds of green from EB to SB-L during AM. - Transfer 2 seconds of green from EB to NB/SB during Midday. - Transfer 2 seconds of green from NB/SB to SB-L during PM. - Transfer 1 second of green from NB/SB to SB-L on Saturday.
	NB/SB	32	32	32	32	32	34	30	31	
	SB-L	15	15	15	15	17	15	17	16	
Jerome Avenue and Macombs Dam Bridge	EB	21	21	26	21	21	22	27	21	- Transfer 1 second of green time from NB/SB to EB during Midday and PM.
	Ped	31	31	31	31	31	31	31	31	
	NB/SB	38	38	33	38	38	37	32	38	
Jerome Avenue and 170th Street	EB/WB	31	31	31	31	32	33	34	33	- Transfer 1 second of green time from NB/SB to EB/WB during AM. - Transfer 2 seconds from NB/SB to EB/WB during Midday and Saturday. - Transfer 3 seconds from NB/SB to EB/WB during PM.
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	52	52	52	52	51	50	49	50	
Jerome Avenue and 167th Street	EB/WB-R	28	28	28	28	28	28	28	28	- AM, Midday, PM and Saturday are unmitigatable.
	WB/NE	30	30	30	30	30	30	30	30	
	NB/SB	32	32	32	32	32	32	32	32	
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	38	42	39	41	- Transfer 1 second from NB/SB to EB/WB during Midday 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	60	56	59	57	

Table 22-39 (continued): Proposed Traffic Mitigation Measures for Lower Density 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	42	42	42	- PM and Saturday are unmitigatable.
	NB-L/SB-L	16	16	16	16	16	16	16	16	
	NB/SB	62	62	62	62	62	62	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	43	42	43	- Transfer 2 seconds of green time from NB/SB, and add 1 second to EB/WB and 1 second to NB-L/SB-L during Midday. - PM is unmitigatable. - Transfer 1 second of green time from NB/SB to EB/WB on Saturday.
	NB-L/SB-L	15	15	15	15	15	16	15	16	
	Ped	7	7	7	7	7	7	7	7	
	NB/SB	56	56	56	56	56	54	56	54	
Grand Concourse and 170th Street	EB/WB	45	45	45	45	45	45	45	44	- Transfer 1 second from NB/SB to NB-L/SB-L during PM. - Transfer 1 second from EB/WB to NB-L/SB-L on Saturday.
	NB-L/SB-L	15	15	15	15	15	15	16	16	
	NB/SB	60	60	60	60	60	60	59	60	
Grand Concourse and 167th Street	EB/WB	42	43	42	43	42	48	42	43	- AM, PM and Saturday are unmitigatable. - Transfer 5 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	50	56	55	
River Avenue and 167th Street	EB/WB	54	52	52	52	54	50	52	51	- Transfer 2 seconds of green time from EB/WB to NB/SB during Midday. - PM is unmitigatable. - Transfer 1 second 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	33	31	32	
Edward L. Grant Highway and W. 170th Street	EB/WB	40	40	40	40	41	40	41	41	- Transfer 1 second of green time from NB/SB to EB/WB during AM, PM and Saturday.
	NB/SB	80	80	80	80	79	80	79	79	
Inwood Avenue and W. 170th Street	EB/WB	46	46	46	46	46	48	46	48	- Transfer 2 seconds from NB to EB/WB during Midday and Saturday. - Daylight to allow for two 10' lanes during PM.
	Ped	7	7	7	7	7	7	7	7	
	NB	30	30	30	30	30	28	30	28	
	Ped	7	7	7	7	7	7	7	7	
University Avenue and Washington Bridge Off-Ramps	EB	30	30	30	30	31	30	31	31	- Transfer 1 second from NB/SB2 to EB/WB during AM and PM. - Transfer 1 second from NB/SB to EB/WB during Saturday.
	NB2/SB2	33	33	35	33	32	33	34	33	
	NB/SB	27	27	25	27	27	27	25	26	

Table 22-40: Lower Density Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday AM Peak Hour

INTERSECTION & APPROACH		Mvt.	AM No-Action			AM Lower Density			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	1.16	146.4	F	0.92	67.0	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	1.12	155.9	F	0.96	101.4	F
Jerome Avenue and NB I-95 Off Ramps											
Jerome Avenue	SB	DefL	1.02	78.0	E	1.11	109.9	F	1.02	78.2	E
Jerome Avenue and 170th Street											
170th Street	EB	LTR	0.88	51.9	D	0.92	57.5	E	0.89	51.3	D
Jerome Avenue and 167th Street											
Edward L. Grant Highway	EB	R	1.18	154.9	F	1.31	207.8	F	1.31	207.8	F
Jerome Avenue	NB	DefL	0.84	63.6	E	0.91	77.0	E	0.91	77.0	E
Jerome Avenue and E. 165th Street											
E. 165th Street	WB	LR	0.94	61.8	E	0.97	67.7	E	0.94	60.0	E
Grand Concourse and Tremont Avenue											
Tremont Avenue	EB	L	0.92	101.6	F	0.92	101.6	F	0.88	91.5	F
Tremont Avenue	EB	TR	1.38	247.1	F	1.47	258.6	F	1.37	238.9	F
Grand Concourse and 167th Street											
167th Street	EB	TR	1.04	110.4	F	1.16	151.5	F	1.16	151.5	F
Edward L. Grant Highway and W. 170th Street											
W. 170th Street	WB	LTR	1.00	84.7	F	1.02	88.8	F	0.98	78.8	E
University Avenue and Washington Bridge Off-Ramps											
Washington Bridge Off-Ramps	EB	LR	1.03	84.6	F	1.04	88.8	F	1.00	76.0	E

Note: shaded cells indicate unmitigated delays.

Table 22-41: Lower Density Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday Midday Peak Hour

INTERSECTION & APPROACH		Mvt.	Midday No-Action			Midday Lower Density			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	1.26	167.2	F	1.05	87.5	F
Jerome Avenue and Fordham Road											
Jerome Avenue	NB	LTR	0.99	75.0	E	1.24	161.4	F	1.00	71.3	E
	SB	LTR	0.95	65.5	E	1.06	93.7	F	0.86	44.2	D
Jerome Avenue and Burnside Avenue											
Jerome Avenue	SB	LTR	0.68	31.8	C	0.89	48.5	D	0.89	48.5	D
Jerome Avenue and Tremont Avenue											
Tremont Avenue	EB	LTR	1.05	91.0	F	1.07	96.4	F	1.05	87.6	F
Jerome Avenue and Featherbed Lane											
Featherbed Lane	EB	DefL	1.02	116.7	F	1.07	129.8	F	1.00	107.5	F
Jerome Avenue and NB I-95 Ramps											
Jerome Avenue	SB	DefL	0.88	51.9	D	0.92	60.2	E	0.88	51.9	D
Jerome Avenue and Macombs Dam Bridge											
Jerome Avenue	EB	L	0.95	78.1	E	0.98	84.4	F	0.92	70.2	E
Jerome Avenue and 170th Street											
170th Street	WB	LTR	0.88	54.0	D	0.96	67.3	E	0.88	52.1	D
Jerome Avenue and 167th Street											
Edward L. Grant Highway	EB	R	1.01	104.8	F	1.05	118.0	F	1.05	118.0	F
Jerome Avenue	NB	DefL	0.82	57.4	E	1.08	120.5	F	1.08	120.5	F
River Avenue and 167th Street											
River Avenue	NB	LTR	1.07	112.6	F	1.15	138.1	F	1.07	106.8	F
Grand Concourse and 176th Street											
176th Street	EB	LTR	0.77	56.7	E	0.82	62.3	E	0.80	58.0	E
Grand Concourse and Mt. Eden Avenue											
Mt. Eden Avenue	EB	LTR	1.09	123.2	F	1.13	136.3	F	1.08	119.5	F
	WB	LTR	1.14	141.2	F	1.18	152.7	F	1.13	136.2	F
Grand Concourse Mainline	NB	L	0.53	66.7	E	0.61	71.8	E	0.55	66.1	E
Grand Concourse and 167th Street											
167th Street	EB	TR	1.15	144.4	F	1.33	213.4	F	1.16	140.7	F
Inwood Avenue and W. 170th Street											
W. 170th Street	EB	LT	1.04	78.8	E	1.12	107.9	F	1.04	78.8	E

Note: shaded cells indicate unmitigated delays.

Table 22-42: Lower Density Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday PM Peak Hour

INTERSECTION & APPROACH		Mvt.	PM No-Action			PM Lower Density			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	1.46	254.9	F	1.46	254.9	F
Jerome Avenue and Fordham Road											
Jerome Avenue	NB	LTR	1.21	163.1	F	1.49	284.8	F	1.18	148.8	F
	SB	LTR	1.34	222.4	F	1.41	250.9	F	1.07	112.6	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	57.0	E	0.94	57.0	E
Jerome Avenue	SB	LTR	0.79	38.3	D	0.91	51.7	D	0.91	51.7	D
Jerome Avenue and Tremont Avenue											
Tremont Avenue	EB	LTR	1.23	154.6	F	1.26	166.5	F	1.23	152.2	F
	WB	LTR	1.27	173.2	F	1.31	190.3	F	1.28	175.5	F
Jerome Avenue and SB I-95 Off Ramps											
Jerome Avenue	SB	DefL	0.85	45.2	D	0.91	55.0	D	0.88	49.3	D
Jerome Avenue and Featherbed Lane											
Featherbed Lane	EB	DefL	1.15	161.6	F	1.21	184.0	F	1.10	143.2	F
Jerome Avenue and NB I-95 Off Ramps											
Jerome Avenue	SB	DefL	1.01	81.4	F	1.07	98.6	F	1.00	77.0	E
Jerome Avenue and Macombs Dam Bridge											
Jerome Avenue	EB	L	0.69	41.6	D	0.79	47.7	D	0.75	43.9	D
Jerome Avenue and 170th Street											
170th Street	WB	LTR	1.01	78.8	E	1.12	112.1	F	1.00	71.6	E
Jerome Avenue and 167th Street											
Edward L. Grant Highway	EB	R	1.34	228.3	F	1.43	263.0	F	1.43	263.0	F
Jerome Avenue	NB	DefL	1.28	191.3	F	1.47	266.3	F	1.47	266.3	F
River Avenue and 167th Street											
River Avenue	NB	LTR	1.00	90.5	F	1.06	108.8	F	1.06	108.8	F
Jerome Avenue and E. 165th Street											
E. 165th Street	WB	LR	1.04	84.0	F	1.07	93.0	F	1.03	81.1	F
Grand Concourse and 176th Street											
176th Street	EB	LTR	1.05	116.6	F	1.08	125.7	F	1.04	111.9	F
Grand Concourse and Burnside Avenue											
Burnside Avenue	EB	LTR	0.73	51.0	D	0.79	55.2	E	0.79	55.2	E
Grand Concourse and Tremont Avenue											
Tremont Avenue	EB	TR	1.06	119.1	F	1.12	137.2	F	1.12	137.2	F
	WB	L	0.70	66.1	E	0.74	72.4	E	0.74	72.4	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	1.04	108.3	F	1.04	108.3	F
	WB	LTR	1.20	163.5	F	1.22	172.8	F	1.22	172.8	F
Grand Concourse Mainline	NB	L	0.72	80.9	F	0.78	88.6	F	0.78	88.6	F
Grand Concourse and 170th Street											
Grand Concourse Mainline	NB	L	0.67	76.1	E	0.81	91.6	F	0.73	79.4	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	1.11	127.8	F	1.11	127.8	F
	WB	TR	1.15	142.2	F	1.16	145.7	F	1.16	145.7	F

Table 22-42 (continued): Lower Density Alternative With-Mitigation Conditions at Impacted Lane Groups – Weekday PM Peak Hour

INTERSECTION & APPROACH	Mvt.	PM No-Action			PM Lower Density			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	0.97	76.5	E	0.94	68.8	E
Inwood Avenue and W. 170th Street										
W. 170th Street EB	L	1.13	109.4	F	1.25	157.1	F	0.75	38.0	D
University Avenue and Washington Bridge Off-										
Washington Bridge Off-Ramps EB	L	1.08	103.9	F	1.11	115.1	F	1.06	94.6	F
	LR	1.00	78.8	E	1.05	93.1	F	1.01	78.5	E

Note: shaded cells indicate unmitigated delays.

Table 22-43: Lower Density Alternative With-Mitigation Conditions at Impacted Lane Groups – Saturday Midday Peak Hour

INTERSECTION & APPROACH		Mvt.	Saturday Midday No-Action			Saturday Midday Lower Density			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	0.97	64.5	E	0.97	64.5	E
Jerome Avenue and Fordham Road											
Jerome Avenue	NB	LTR	0.99	84.9	F	1.20	156.6	F	1.01	85.7	F
	SB	LTR	0.91	68.3	E	0.99	86.7	F	0.84	52.9	D
Jerome Avenue and Burnside Avenue											
Burnside Avenue	WB	LTR	0.82	40.2	D	0.86	45.2	D	0.86	45.2	D
Jerome Avenue	SB	LTR	0.73	34.0	C	0.89	48.2	D	0.89	48.2	D
Jerome Avenue and Tremont Avenue											
Tremont Avenue	EB	LTR	1.09	102.7	F	1.12	113.1	F	1.07	92.3	F
	WB	LTR	1.03	83.2	F	1.09	101.1	F	1.04	82.3	F
Jerome Avenue and Featherbed Lane											
Featherbed Lane	EB	DefL	1.21	180.4	F	1.26	198.1	F	1.17	160.8	F
Jerome Avenue and NB I-95 Ramps											
Jerome Avenue	SB	DefL	0.99	78.3	E	1.02	85.8	F	0.97	71.7	E
Jerome Avenue and 170th Street											
170th Street	WB	LTR	1.00	77.2	E	1.09	104.4	F	1.01	76.0	E
Jerome Avenue and 167th Street											
Edward L. Grant Highway	EB	R	1.34	221.9	F	1.42	254.9	F	1.42	254.9	F
River Avenue and 167th Street											
River Avenue	NB	LTR	1.14	130.4	F	1.19	150.8	F	1.14	129.7	F
Grand Concourse and Burnside Avenue											
Burnside Avenue	EB	LTR	0.83	57.4	E	0.87	61.7	E	0.87	61.7	E
Grand Concourse and Tremont Avenue											
Tremont Avenue	EB	L	0.74	67.5	E	0.77	71.7	E	0.69	59.7	E
		TR	0.94	88.5	F	1.02	108.5	F	0.95	86.2	F
	WB	TR	0.86	72.3	E	0.90	78.5	E	0.84	66.1	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	WB	LTR	1.06	114.1	F	1.08	122.2	F	1.04	108.2	F
Grand Concourse Mainline	NB	L	0.66	75.6	E	0.71	79.5	E	0.64	71.4	E
Grand Concourse and 170th Street											
Grand Concourse Mainline	NB	L	0.47	63.4	E	0.59	69.7	E	0.53	64.6	E
Grand Concourse and 167th Street											
167th Street	EB	TR	1.04	104.4	F	1.15	140.6	F	1.15	140.6	F
	WB	L	0.76	67.3	E	0.83	80.5	F	0.83	80.5	F
Edward L. Grant Highway and W. 170th Street											
W. 170th Street	WB	LTR	1.05	98.3	F	1.08	106.6	F	1.05	94.6	F
Inwood Avenue and W. 170th Street											
W. 170th Street	EB	LT	1.16	116.7	F	1.26	155.8	F	1.15	111.9	F
University Avenue and Washington Bridge Off-Ramps											
Washington Bridge Off-Ramps	EB	L	1.03	86.9	F	1.04	91.6	F	0.99	75.3	E
		LR	1.06	94.4	F	1.09	104.0	F	1.04	87.9	F

Table 22-44: Lane Groups with Unmitigated Significant Adverse Traffic Impacts— Lower Density Alternative vs. Proposed Actions

Intersection	Weekday AM		Weekday Midday		Weekday PM		Saturday Midday	
	Proposed Actions	Lower Density	Proposed Actions	Lower Density	Proposed Actions	Lower Density	Proposed Actions	Lower Density
Jerome Avenue and Kingsbridge Road	--	--	--	--	NB - LTR	NB - LTR	NB - LTR	NB - LTR
Jerome Avenue and Fordham Road	--	--	--	--	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 - R, NB - DefL	EB - R, NB - DefL	EB - R, NB - DefL	EB - R, NB - DefL	EB - R, NB - DefL	EB - R, NB - DefL	EB - R, NB - TR, NB - DefL	EB - R
River Avenue and 167th Street	--	--	--	--	NB - LTR	NB - LTR	--	--
Grand Concourse and Burnside Avenue	--	--	--	--	EB - LTR	EB - LTR	EB - LTR	EB - 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 22-45: Comparison of the Number of Lane Groups and Intersections with Mitigated and Unmitigated Significant Adverse Impacts—Proposed Actions vs. Lower Density 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	16/14	13/12	3/2
	Lower Density Alternative	13/11	10/9	3/2
Midday	Proposed Actions	19/15	16/13	3/2
	Lower Density Alternative	18/14	15/12	3/2
PM	Proposed Actions	32/21	14/12	18/9
	Lower Density Alternative	33/21	16/13	17/8
Saturday Midday	Proposed Actions	30/19	21/14	9/5
	Lower Density Alternative	26/17	19/12	7/5

Transit

Bus

The Lower Density Alternative and the Proposed Actions would result in a significant adverse bus impact to the eastbound Bx11, 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 not be a significant adverse impact to the westbound Bx11 in the AM as there would in the Proposed Actions.

There would be a less of a shortfall of available capacity in the Lower Density Alternative compared with the Proposed Actions. As in the Proposed Actions, the significant adverse impact in the Lower Density Alternative could be mitigated by increasing bus service in the peak hours. As listed in Table 22-46, these significant adverse impacts could be fully mitigated by the addition of a total of three standard buses in the AM peak hour and six 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 22-46: Lower Density 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	72	-42	1	12
	Bx32	SB	Morris Av and E 170th St / Morris Av and E 161st St	8	37	63	-25	1	29
	Bx35	EB	E 167th St and Grand Concourse / Webster Av and E 168th St	15	13	41	-28	1	26
PM	Bx11	WB	Claremont Pky and Webster Av	12	36	95	-59	2	49
	Bx32	NB	Morris Av and E 170th St	6	75	87	-11	1	43
		SB	Morris Av and E 170th St	5	57	59	-1	1	53
	Bx35	EB	E 167th St and Grand Concourse	10	24	44	-20	1	34
		WB	E 167th St and Grand Concourse / Webster Av and E 168th St	11	11	61	-50	1	4

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 Lower Density Alternative and the Proposed Actions are projected to result in significant adverse impacts at one sidewalk, one crosswalk, and one corner area. Mitigation measures proposed in the Proposed Actions include widening the south crosswalk by three feet at East 167th Street and Jerome Avenue and 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 these same mitigation measures would mitigate the significant adverse impacts in the Lower Density Alternative at these two locations. Feasible mitigation measures could not be identified for the northeast corner of East 167th Street and Jerome Avenue and this location would remain an unmitigated significant adverse impact in the Lower Density Alternative, as is also the case in the Proposed Actions. A summary of proposed mitigation measures in the Lower Density Alternative are presented in Tables 22-47 through 22-49.

Table 22-47: Lower Density Alternative-With-Mitigation – Sidewalk Conditions

Intersection	Sidewalk	No-Action			Lower Density Alternative			Lower Density 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	52.1	C	8	141.4	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	43.6	C	8	118.9	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	47.2	C	8	128.3	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	34.3	D	**8**	**95.0**	**B**	**Pave 5' grass verge (13' total width)**
Note: Bold Text indicates Mitigated Significant Adverse Impact											

Table 22-48: Lower Density Alternative-With-Mitigation – Crosswalk Conditions

Intersection	Crosswalk	No-Action			Lower Density Alternative			Lower Density Alternative With-Mitigation			
		Width	SFP	LOS	Width	SFP	LOS	Width	SFP	LOS	Mitigation Measures
Weekday AM Peak Hour											
East 167th Street and Jerome Avenue	South	13	37.8	C	13	33.7	C	16	41.8	B	Not a significant impact, 3' widening addresses PM and Saturday MD impacts.
Weekday MD Peak Hour											
East 167th Street and Jerome Avenue	South	13	32.3	C	13	25.3	C	16	31.5	C	Not a significant impact, 3' widening addresses PM and Saturday MD impacts.
Weekday PM Peak Hour											
East 167th Street and Jerome Avenue	South	13	22.8	D	13	20.3	D	**16**	**25.3**	**C**	**3' crosswalk widening (1' mitigates PM, 3' mitigates Saturday MD)**
Saturday MD Peak Hour											
East 167th Street and Jerome Avenue	South	13	33.3	C	13	19.4	D	**16**	**24.3**	**C**	**3' crosswalk widening (1' mitigates PM, 3' mitigates Saturday MD)**
Note: Bold Text indicates Mitigated Significant Adverse Impact											

Table 22-49: Lower Density Alternative-With-Mitigation – Corner Area Conditions

Intersection	Corner	No-Action		Lower Density Alternative		Lower Density Alternative With-Mitigation		
		SFP	LOS	SFP	LOS	SFP	LOS	Mitigation Measures
Weekday AM Peak Hour								
No significant impacts								
Weekday Midday Peak Hour								
No significant impacts								
Weekday PM Peak Hour								
East 167th Street and Jerome Avenue	Northeast	22.7	D	15.8	D	15.8	D	Unmitigated
Saturday MD Peak Hour								
East 167th Street and Jerome Avenue	Northeast	74.3	A	19.7	D	19.7	D	Unmitigated

Community Facilities

Public Schools

With the Lower Density Alternative, significant adverse impacts to CSD 9, Sub-district 2 elementary and intermediate schools and CSD 10, Sub-district 4 elementary schools would occur. To avoid the significant adverse elementary school impact in CSD 9, Sub-district 2, the number of incremental dwelling units that could be developed in the sub-district would have to be reduced to 427, generating 166 elementary school students, as compared to No-Action conditions. This would represent a decrease of 1,061 DUs (71.3 percent) in CSD 9, Sub-district 2. To avoid the identified significant adverse intermediate school impacts in Sub-district 2 of CSD 9, 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 1,275 DUs (85.9 percent) in CSD 9, Sub-district 2. 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 660 DUs, generating 257 elementary school students, as compared to No-Action conditions. This would represent a decrease of 119 DUs (15.2 percent) in CSD 10, Sub-district 4. Alternatively, based on the RWCDS for the Lower Density Alternative, an additional 415 elementary school seats and 205 intermediate school seats would be needed in CSD 9, Sub-district 2 and 48 elementary school seats would be needed in CSD 10, Sub-district 4 in order to reduce the incremental utilization rates below *CEQR Technical Manual* impact threshold of five percent.

Possible administrative and capital mitigation measures have been identified:

- 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.

The New York City Department of City Planning (DCP), as lead agency, will explore possible mitigation measures with the New York City School Construction Authority (SCA)/Department of Education (DOE) between DEIS and FEIS. However, even if mitigation measures are determined to be feasible and practicable, some significant adverse public school impacts could potentially continue to be

experienced, as a result, be unavoidable. Consequently, the significant adverse public school impacts identified in Chapter 4, "Community Facilities and Services," would be unavoidable.

Shadows

Similar to the Proposed Actions, the Lower Density Alternative would result in new shadows that would significantly impact eight sunlight-sensitive resources: 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. The duration or extent of incremental shadow cast on these open spaces would be great enough to significantly impact the use of the open space or its ability to support vegetation.

Like the Proposed Actions, in the Lower Density Alternative 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. Other measures could include strategies to reduce or eliminate shadow impacts, including modifications to the height, shape, size, or orientation of a proposed development that creates the significant adverse shadow impact.

Construction

HISTORIC AND CULTURAL RESOURCES

Possible mitigation may include measures comparable to TPPN #10/88 applicable to the eligible historic resources. In the absence of site-specific approval, a mechanism would have to be developed to ensure implementation and compliance, since it is not known and cannot be assumed that owners of these properties would voluntarily implement the mitigation. Should no feasible mitigation be identified, the significant adverse construction impact on historic resources would be unavoidable.

NOISE

Like the Proposed Actions, the Lower Density Alternative 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), as required under the NYC Noise Code. These measures could include a variety of source and path controls.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the NYC Noise Code:

- Equipment that meets the sound level standards specified in Subchapter 5 of the NYC Noise Control Code would be utilized from the start of construction. See Chapter 20, "Construction," for the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction under the Proposed Actions.

- As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practicable.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented to the extent feasible and practicable:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations.

- Noise barriers constructed from plywood or other materials would be erected to provide shielding.

- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) for certain dominant noise equipment would be employed to the extent feasible and practical based on the results of the construction noise calculations. The details to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's "Rules for Citywide Construction Noise Mitigation."

- Where feasible and practicable, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than three minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the NYC Administrative Code.

- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In the event no practical or feasible mitigation measures are selected, the significant adverse construction noise impacts would be unavoidable.

20.6 Expanded Rezoning Area Alternative

20.6.1 INTRODUCTION

In addition to the Proposed Actions analyzed in the EIS, an Expanded Rezoning Area Alternative has been considered in response to comments relayed by Community Boards 4 and 5 as well as other interested property owners and affordable housing developers following the issuance of the Draft Scope of Work. The Expanded Rezoning Area Alternative would include nearly the same zoning text and map amendments and city map changes as under the Proposed Actions, but map amendments would be made to a larger area to include approximately ten additional blocks in four discrete areas located west of Jerome Avenue and a total of seven additional projected development sites within these areas. With the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would replace 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 with a commercial overlay to allow for a mix of commercial and residential uses in this area, thus permitting residential development in an area where none is currently permitted or would otherwise be permitted in the future without the Expanded Rezoning Area Alternative. Each of the four discrete areas would be mapped adjacent to the proposed rezoning area with new R7D, R8, 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.

With the Expanded Area 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 3,946,422 gsf of residential space (4,187 dwelling units), 99,748 gsf of community facility space, 34,678 square feet of commercial (retail and office) space; and net decrease of 57,795 square feet of industrial space and 115,116 square feet of auto-related uses.

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** (868 DU)	**4,928,808 sf** (5,055 DU)	**+ 3,946,422 sf** (+ 4,187 DU)
Commercial			
Local Retail	220,142 sf	591,364 sf	+ 371,222 sf
FRESH Supermarket	28,405 sf	64,062 sf	+ 35,656 sf
Restaurant	2,260 sf	21,390 sf	+ 19,130 sf
Auto-Related	155,116 sf	0 sf	- 155,116 sf
Office	19,802 sf	44,104 sf	+ 24,302 sf
Warehouse	195,650 sf	0	- 195,650 sf
Garage	121,382 sf	0	- 121,382 sf
Other Commercial	600	0	- 600 sf
Total Commercial	**686,243 sf**	**720,922 sf**	**+ 34,678 sf**
Other Uses			
Industrial	57,795 sf	0	-57,795 sf
Community Facility	327,041 sf[1]	426,789 sf[2]	+ 99,748 sf
Total Floor Area	**2,084,548 sf**	**6,076,486 sf**	**+ 3,991,938 sf**
Parking			
Parking Spaces	1,197	1,734	537
Population[3,4]			
Residents	2,536	14,847	12,311
Workers	1,828	3,502	1,674

[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, 79,100 sf of community centers and 181,201 sf 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 of day care center uses and 132,996 sf of community centers 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] Estimate of workers based on standard rates used in prior EIS documents, including the East Midtown Rezoning FEIS, Atlantic Yards FEIS, Western Rail Yards FEIS, Brownsville Ascend Charter School EA, Coliseum Redevelopment FSEIS, 125th Street Corridor Rezoning FEIS, West 57th Street Rezoning FEIS, and others. 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, one employee per 11.4 students in school uses, three employees per 1,000 sf of all other community facility uses, and one employee per 50 parking spaces.

20.6.2 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 an Expanded Rezoning Area Alternative as one alternative to the Proposed Actions.

The Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, the rezoning area would be expanded to include approximately ten additional blocks in four discrete areas located west of Jerome Avenue and a total of seven additional projected development sites within these areas. Each of the four discrete areas would be mapped adjacent to the proposed rezoning area with new R7D, R8, 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.

Principal Conclusions

As with the Proposed Actions (see Chapter 2, "Land Use, Zoning, and Public Policy"), the Expanded Rezoning Area Alternative would not result in any significant adverse impacts to land use, zoning, or public policy. With the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would replace 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 with a commercial overlay to allow for a mix of commercial and residential uses in this area, thus permitting residential development in an area where none is currently permitted or would otherwise be permitted in the future without the Expanded Rezoning Area Alternative. By comparison, the Expanded Rezoning Area Alternative would provide more opportunities for permanently affordable housing than with the Proposed Actions; however, neither the Expanded Rezoning Area 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 Expanded Rezoning Area 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 four discrete areas west of Jerome Avenue. The secondary study area for the Expanded Rezoning Area 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 20.6.2-1, "Land Use, Zoning, and Public Policy Study Areas."

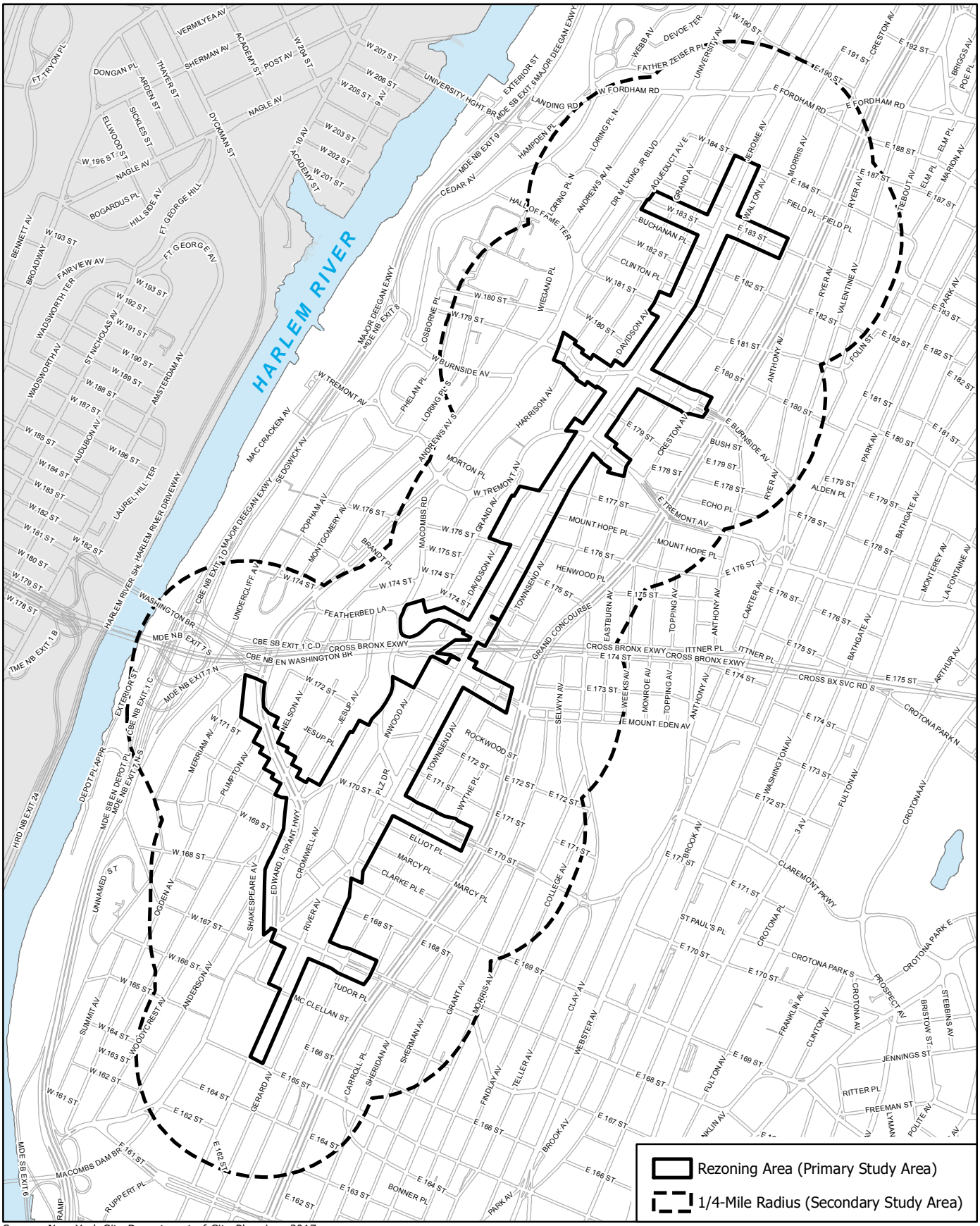
Existing Conditions

Land Use

The existing conditions with the Expanded Rezoning Area Alternative are consistent with the existing conditions described in Chapter 2, "Land Use, Zoning, and Public Policy." For the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative and the Proposed Actions.

<u>Primary Study Area</u>

As presented on Figure 20.6.2-2, "Primary Study Area Land Uses," and in Table 20.6.2-1a, "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 26.1 percent of total lots, 23.6 percent of the total lot area, and 17.8 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 18.4 and 18 percent, respectively; however, mixed use buildings account for the highest percentage of total built floor area at 31.9 percent within the primary study area. Auto-related uses account for the third highest percentage of primary study area lots and total lot area (16.5 and 17 percent, respectively), while representing a smaller percentage (9.5 percent) of the total built floor area. Residential uses occupy 14 percent of the primary study area lots, 11.1 percent of total lot area, and 19.2 percent of total built floor area. Public facilities and institutions occupy 7.9 percent of the primary study area lots, 14.2 percent of the total lot area, and 15.1 percent of the total built floor area. The remaining land uses in the primary study area include parking facilities (7.1 percent of the total lot area), industrial/manufacturing uses (3.1 percent of the total lot area), vacant land (2.3 percent of the total lot area), transportation/utility uses (1.9 percent of the total lot area), and open space (1.7 percent of the total lot area).



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

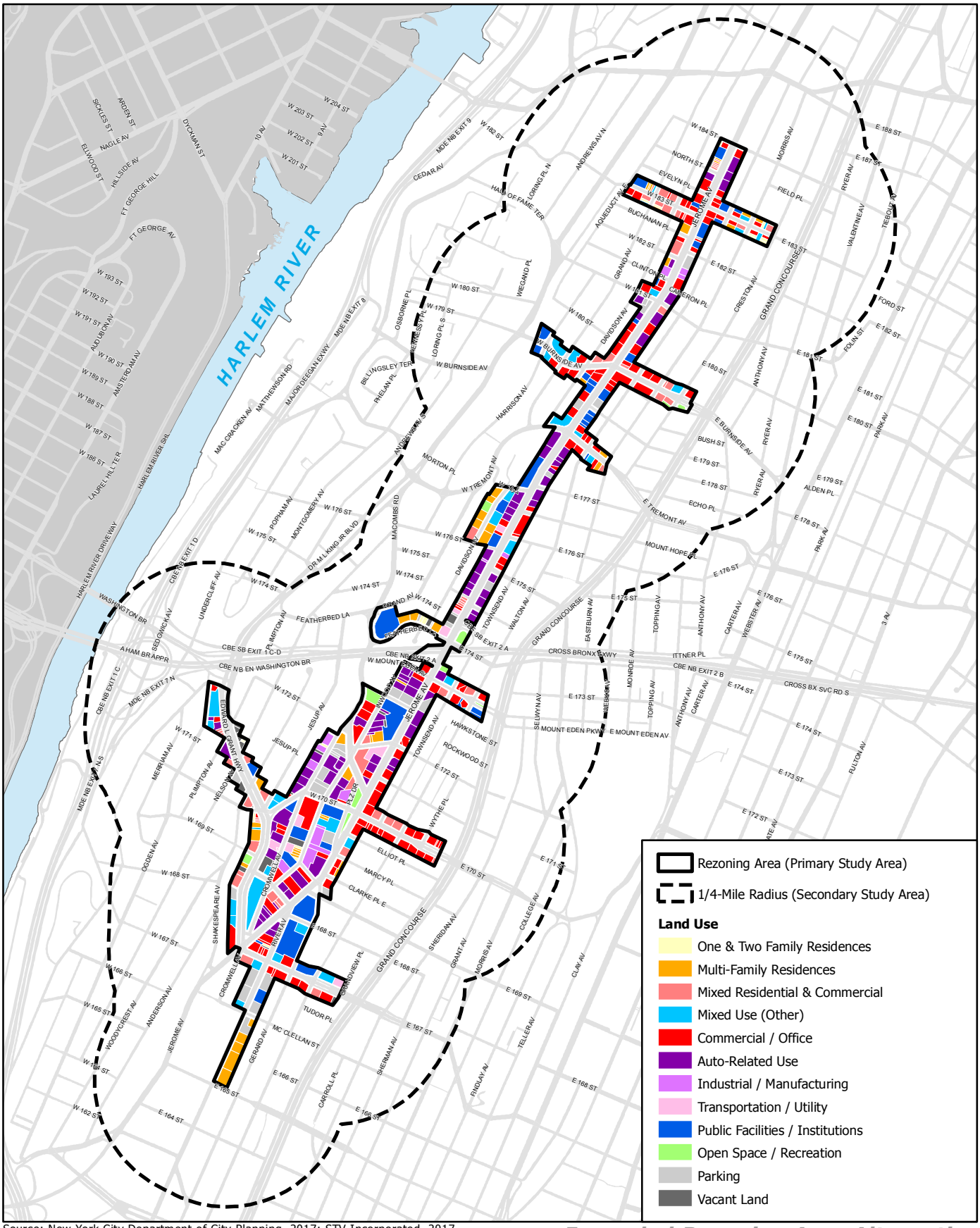
Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.2-1

LAND USE, ZONING, AND PUBLIC POLICY STUDY AREAS



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

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.2-2

Jerome Avenue Rezoning EIS

PRIMARY STUDY AREA LAND USES

Table 20.6.2-1a: 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	73	14.0	536,740	11.1	1,610,831	19.2
One and Two-Family Buildings	*23*	*4.4*	*51,948*	*1.1*	*41,070*	*0.5*
Multi-Family Walkup Buildings	*31*	*6.0*	*184,628*	*3.8*	*453,670*	*5.4*
Multi-Family Elevator Buildings	*19*	*3.6*	*300,164*	*6.2*	*1,116,091*	*13.3*
Mixed Use	96	18.4	868,014	18.0	2675423	31.9
Residential and Commercial	*59*	*11.3*	*437,325*	*9.1*	*1,571,211*	*18.7*
*Other**	*37*	*7.1*	*430,689*	*8.9*	*1,104,212*	*13.1*
Commercial/Office Buildings	136	26.1	1,137,206	23.6	1,496,957	17.8
Auto-Related Uses	86	16.5	818,274	17.0	799,457	9.5
Industrial/Manufacturing	14	2.7	147,859	3.1	295,431	3.5
Transportation/Utility	9	1.7	91,827	1.9	46,320	0.6
Public Facilities and Institutions	41	7.9	687,068	14.2	1,269,157	15.1
Open Space	10	1.9	83,584	1.7	4,609	0.1
Parking Facilities	34	6.5	344,639	7.1	141,210	1.7
Vacant Land	22	4.2	112,355	2.3	59,075	0.7
Total	**521**	**100.0**	**4,827,566**	**100.0**	**8,398,470**	**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 Expanded Rezoning Area Alternative, the boundaries of the proposed rezoning area include two areas west of Jerome within each subarea that are not part of the Proposed Actions. Table 20.6.2-1b, "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 (28 percent), 28.5 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 16.4 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 10.4 percent of the subarea's lots, public facilities and institutional uses represent 15.3 percent of the total lot area and 16.9 percent of the total building area in this subarea.

While the northern subarea comprises fewer lots (13.2 percent) than the southern subarea, there is a higher percentage of total lot area (17.8 percent) and total built area (9.7 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 four located north of the Cross-Bronx Expressway. Parking facilities account for 5.6 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 (24.4 percent), 20.3 percent of the subarea's lot area, and 17.3 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 19.6 percent of the southern subarea's lots; however, the southern subarea has a slightly lower percentage of total lot area (16.4 percent) and total built area (9.4 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 (10.8 percent) and total built area (17.9 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 7.4 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 3.2 percent of the subarea's total lot area. The southern subarea has a higher percentage of industrial/manufacturing built area (5.4 percent) than the northern subarea.

Table 20.6.2-1b: Existing Land Uses within the Primary Study Area Subareas

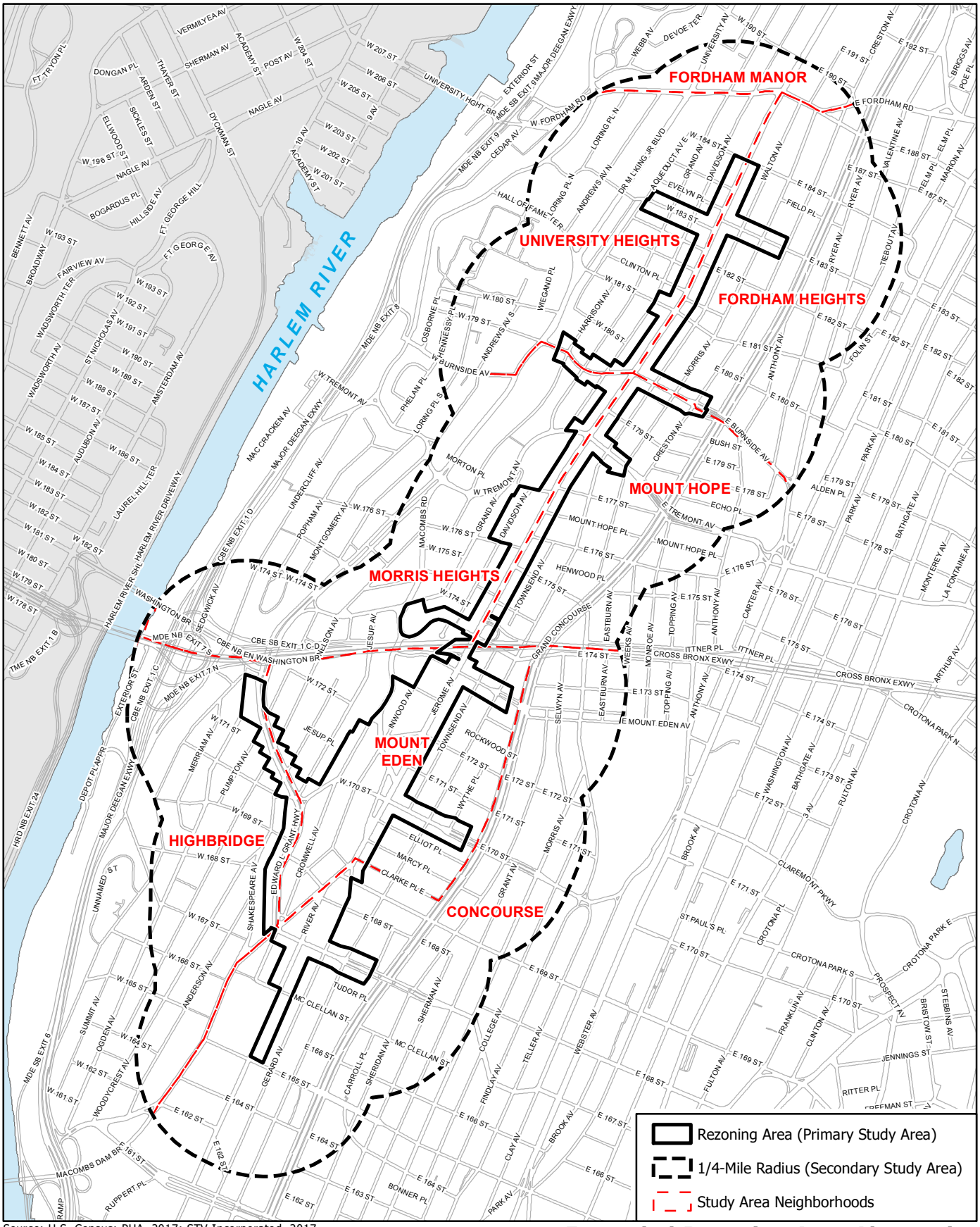
Land Use	Number of Lots	Percentage of Total Lots	Lot Area (sf)	Percentage of Total Lot Area	Building Area (sf)	Percentage of Total Building Area
North of the Cross Bronx Expressway (Northern Subarea)						
Residential	41	16.4	224,314	11.6	754,325	20.9
One and Two-Family Buildings	14	5.6	37,520	1.9	27,172	0.8
Multi-Family Walkup Buildings	17	6.8	83,654	4.3	275,395	7.6
Multi-Family Elevator Buildings	10	4.0	103,140	5.3	451,758	12.5
Mixed Use	50	20.0	337,035	17.5	1136850	31.5
Residential and Commercial	31	12.4	173,925	9.0	636,470	17.6
*Other**	19	7.6	163,110	8.5	500,380	13.8
Commercial/Office Buildings	70	28.0	549,610	28.5	669,564	18.5
Auto-Related Uses	33	13.2	343,735	17.8	349,561	9.7
Industrial/Manufacturing	5	2.0	30,000	1.6	38,750	1.1
Transportation/Utility	3	1.2	15,000	0.8	2,320	0.1
Public Facilities and Institutions	26	10.4	294,598	15.3	612,448	16.9
Open Space	4	1.6	33,090	1.7	-	0.0
Parking Facilities	14	5.6	82,218	4.3	50,668	1.4
Vacant Land	4	1.6	20,010	1.0	-	0.0
Subarea Total	***250***	***100.0%***	***1,929,610***	***100.0%***	***3,614,486***	***100.0%***
South of the Cross Bronx Expressway (Southern Subarea)						
Residential	32	11.8	312,426	10.8	856,506	17.9
One and Two-Family Buildings	9	3.3	14,428	0.5	13,898	0.3
Multi-Family Walkup Buildings	14	5.2	100,974	3.5	178,275	3.7
Multi-Family Elevator Buildings	9	3.3	197,024	6.8	664,333	13.9
Mixed Use	46	17.0	530,979	18.3	1538573	32.2
Residential and Commercial	28	10.3	263,400	9.1	934,741	19.5
*Other**	18	6.6	267,579	9.2	603,832	12.6
Commercial/Office Buildings	66	24.4	587,596	20.3	827,393	17.3
Auto-Related Uses	53	19.6	474,539	16.4	449,896	9.4
Industrial/Manufacturing	9	3.3	117,859	4.1	256,681	5.4
Transportation/Utility	6	2.2	76,827	2.7	44,000	0.9
Public Facilities and Institutions	15	5.5	392,470	13.5	656,709	13.7
Open Space	6	2.2	50,494	1.7	4,609	0.1
Parking Facilities	20	7.4	262,421	9.1	90,542	1.9
Vacant Land	18	6.6	92,345	3.2	59,075	1.2
Subarea Total	***271***	***100.0%***	***2,897,956***	***100.0%***	***4,783,984***	***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 Expanded Rezoning Area 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 20.6.2-3, "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 20.6.2-4, "Secondary Study Area Land Uses," and in Table 20.6.2-2, "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 (72.2 percent) as compared to the primary study area's lots (14 percent). Commercial/office buildings represent a smaller percentage of total lots in the secondary study area (4.3 percent) as compared to the primary study area (26.1 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 20.3 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 (15.6 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.

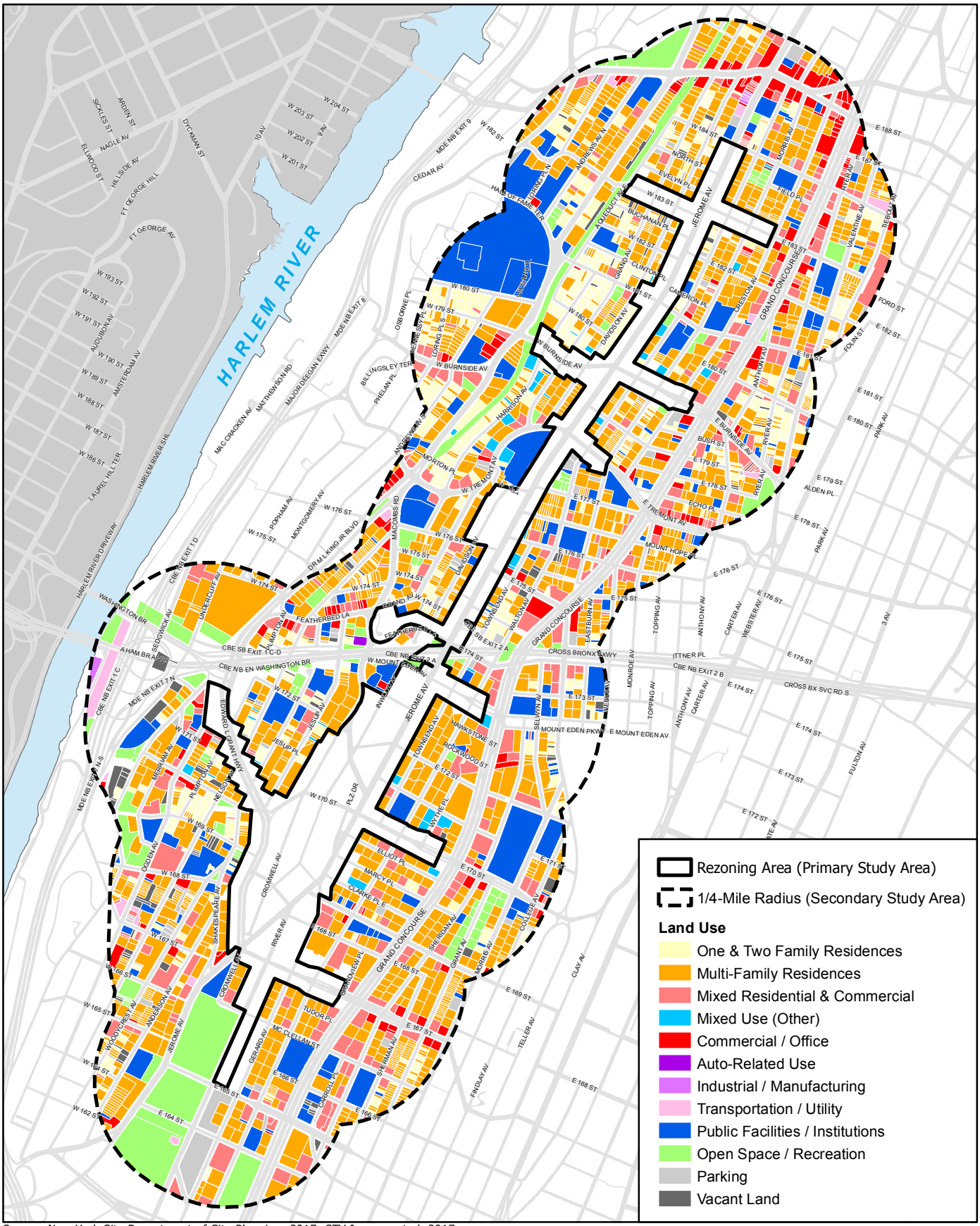
Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.2-3

LAND USE, ZONING, AND PUBLIC POLICY STUDY AREA NEIGHBORHOODS



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

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.2-4

Jerome Avenue Rezoning EIS

SECONDARY STUDY AREA LAND USES

Table 20.6.2-2: 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	2873	72.2	16,309,224	50.6	51,412,833	64.8
One and Two-Family Buildings	1169	29.4	2,929,884	9.1	2,889,054	3.6
Multi-Family Walkup Buildings	1307	32.8	7,513,500	23.3	23,801,301	30.0
Multi-Family Elevator Buildings	397	10.0	5,865,840	18.2	24,722,478	31.2
Mixed Use	370	9.3	4,030,783	12.5	16080473	20.3
Residential and Commercial	332	8.3	3,722,563	11.6	14,921,893	18.8
Other	38	1.0	308,220	1.0	1,158,580	1.5
Commercial/Office Buildings	170	4.3	1,395,345	4.3	2,274,324	2.9
Auto-Related Uses	1	0.0	13,907	0.0	-	0.0
Industrial/Manufacturing	7	0.2	203,947	0.6	18,645	0.0
Transportation/Utility	17	0.4	242,611	0.8	21,042	0.0
Public Facilities and Institutions	179	4.5	5,015,124	15.6	7,256,301	9.1
Open Space	125	3.1	3,608,374	11.2	1,665,630	2.1
Parking Facilities	97	2.4	825,132	2.6	588,133	0.7
Vacant Land	141	3.5	583,140	1.8	-	0.0
Total	***3980***	***100.0%***	***32,227,587***	***100.0%***	***79,317,381***	***100.0%***
Notes: *Mixed Use (Other) includes a community facility in combination with residential and/or commercial uses.						

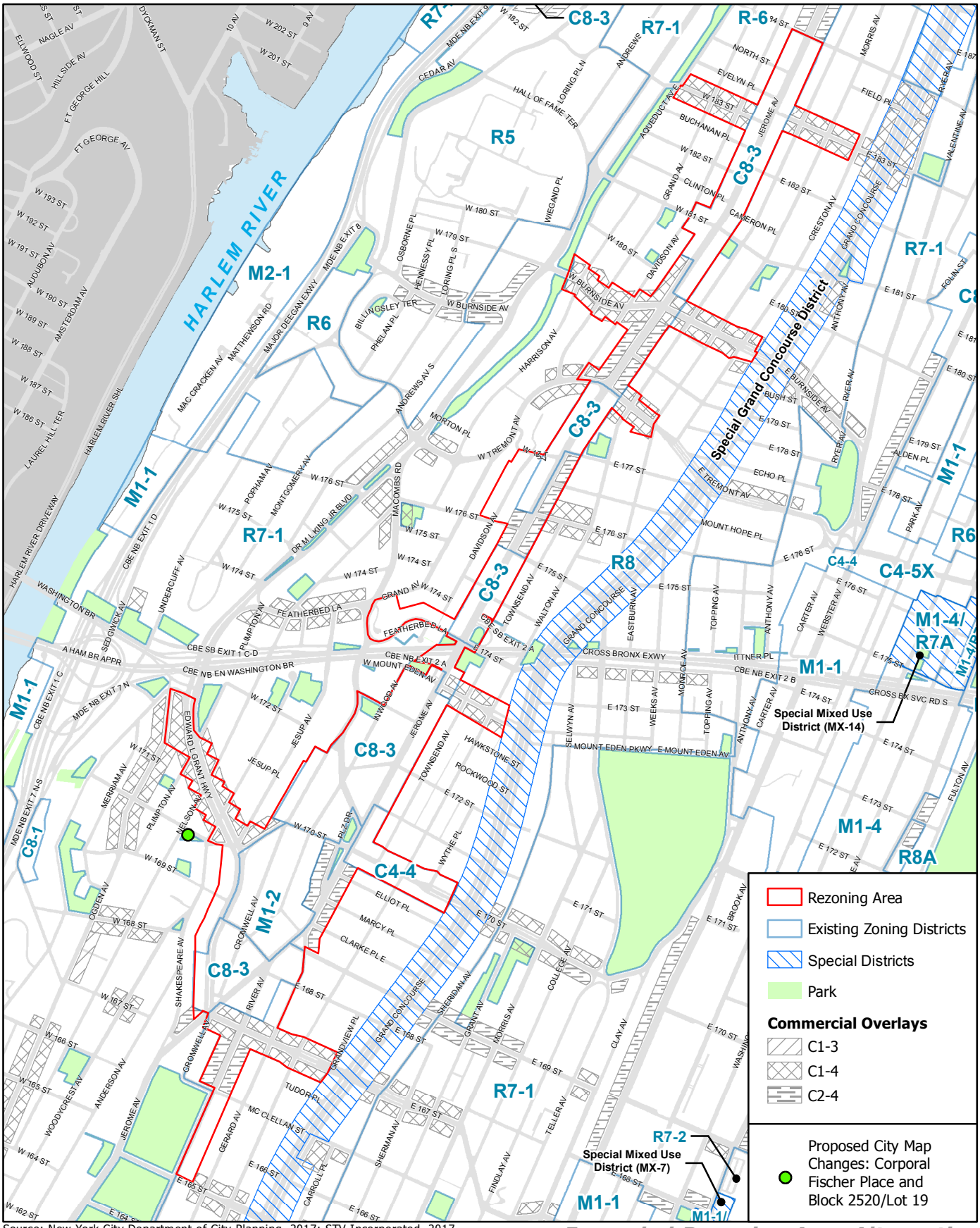
Source: New York City MapPLUTO, 2016; STV Incorporated, 2017.

Zoning

As shown on Figure 20.6.2-5, "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

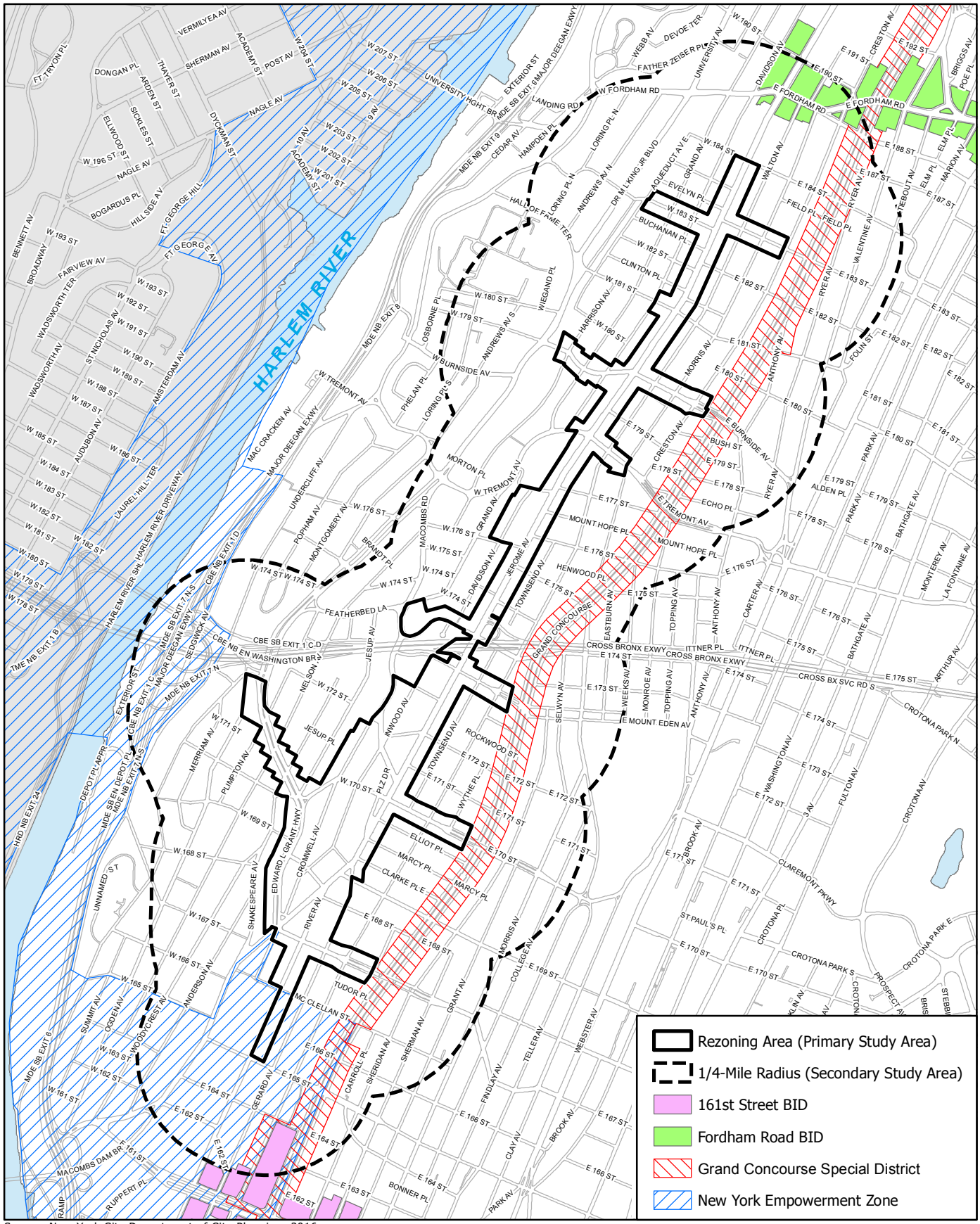
As the same public policies applicable to the Proposed Actions apply to the Expanded Rezoning Area Alternative, please refer to Chapter 2, "Land Use, Zoning, and Public Policy" for a detailed discussion of the public policies applicable to the primary and secondary study areas for the Expanded Rezoning Area 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 20.6.2-6, "New York Empowerment Zone, Business Improvement Districts, & Special Grand Concourse District."



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

Expanded Rezoning Area Alternative

Figure 20.6.2-5



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

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Jerome Avenue Rezoning EIS

Figure 20.6.2-6

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

The Future Without the Expanded Rezoning Area Alternative (No-Action Condition)

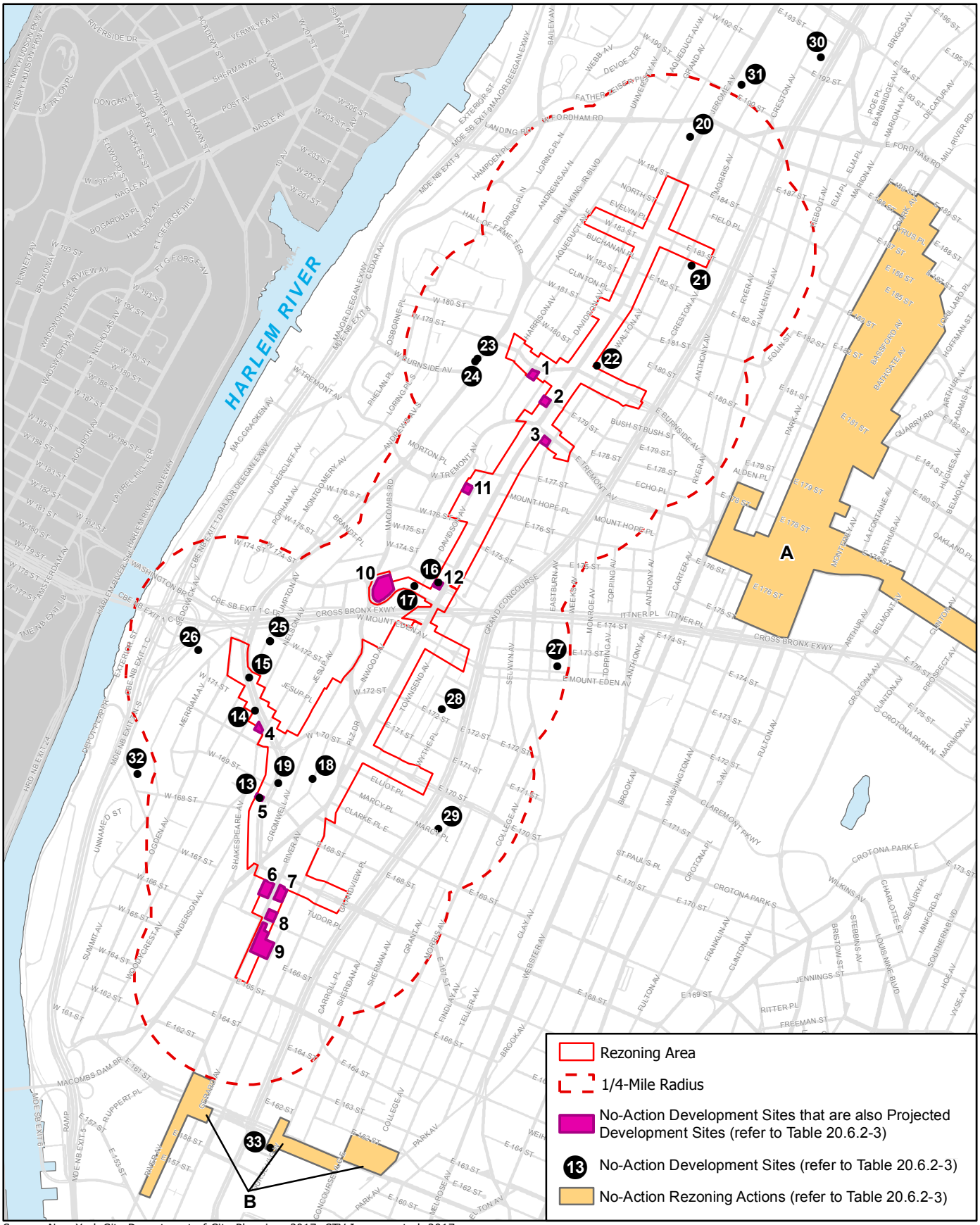
Land Use

Primary Study Area

The No-Action Condition with the Expanded Rezoning Area 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, three additional projected development sites (Sites 46, 47, and 50) are expected to be redeveloped, or undergo conversion, in the future without the Expanded Rezoning Area Alternative. The incremental development anticipated on these twelve projected development sites in the future without the Expanded Rezoning Area Alternative is shown in Table 20.6.2-3, "Development Projects in the Future without the Expanded Rezoning Area Alternative." No-Action development on these twelve projected development sites will result in a net 860,828 sf of market-rate residential floor area (822 dwelling units [DUs]), 108,934 sf of commercial uses, and 280,603 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 seven additional sites are expected to be developed the in the future without the Expanded Rezoning Area Alternative (see Figure 20.6.2-7, "No-Action Development Sites," and Table 20.6.2-3). These seven known and anticipated developments in the rezoning area include two residential developments, two mixed use developments, two commercial developments, and one community facility (community center).

In total, the new primary study area No-Action developments with the Expanded Rezoning Area Alternative would introduce an estimated 3,058 new residents and 1,493 new workers to the primary study area.



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

Expanded Rezoning Area Alternative

Figure 20.6.2-7

Jerome Avenue Rezoning EIS

NO-ACTION DEVELOPMENT SITES

Secondary Study Area

Ten known and anticipated developments are expected in the ¼-mile secondary study area, including five residential developments, two commercial developments, and three mixed use developments. In total, the new secondary study area No-Action developments in the Expanded Rezoning Area Alternative would introduce an estimated 1,684 new residents and 378 new workers to the secondary study area. (Please refer to Figure 20.6.2-7, "No-Action Development Sites" and Table 20.6.2-3, "Development Projects in the Future without the Expanded Rezoning Area Alternative.)

Other Developments Outside of the Study Areas

Five 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 20.6.2-7 and Table 20.6.2-3.)

Table 20.6.2-3: Development Projects in the Future without the Expanded Rezoning Area 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	Projected Development Site 50 - 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

Table 20.6.2-3 (continued): Development Projects in the Future without the Expanded Rezoning Area Alternative

13	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
14	1384 Nelson Avenue	A new commercial (local retail) development with a total floor area of 9,695 sf	2017	0	29
15	1448 Plimpton Avenue	A new mixed-use development with 61 DUs and 22,557 sf of community facility (community center)	2017	178	68
16	1665 Jerome Avenue	A new residential development with 71 DUs	2026	217	0
17	29 Featherbed Lane	A new residential development with 59 DUs	2018	181	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
Net Incremental Development for Primary Study Area		*Residential = 1,080,828 sf (1042 DUs)* *Commercial = 207,707 sf* *Community Facility = 346,180 sf*		3,058	1,493
Secondary Study Area (1/4-Mile Radius)					
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 20.6.2-3 (continued): Development Projects in the Future without the Expanded Rezoning Area Alternative

Net Incremental Development for Secondary Study Area		*Residential = 568,000 sf (568 DUs)* *Commercial = 37,130 sf* *Community Facility = 88,818 sf*		1,684	378
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] Net Residents for developments 1-12 were sourced from the RWCDS.

[3] Net residents for developments 13-33 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 1-12 were sourced from the RWCDS.

[5] Net workers for developments 13-33 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 Expanded Rezoning Area Alternative (With-Action Condition)

The With-Action condition for the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative includes the additional effects

associated with the Expanded Rezoning Area Alternative on approximately ten additional blocks located west of Jerome Avenue. The Expanded Rezoning Area Alternative, as compared to the No-Action condition, is described following.

Land Use

Primary Study Area

With the Expanded Rezoning Area Alternative, the RWCDS for the With-Action condition would include seven projected development sites (Sites 46 – 52), in addition to those projected development sites in common with the Proposed Actions, for a total of 52 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 20.6.2-4, "2026 RWCDS No-Action and With-Action Land Uses," provides a summary of the RWCDS for the 52 projected development sites compared to the No-Action condition for the Expanded Rezoning Area 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 6,076,517 sf of floor area, including 4,928,808 sf of residential floor area (5,055 DUs), 720,920 sf of commercial uses, 426,789 sf of community facility uses, as well as 1,734 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 3,946,422 sf of residential floor area (4,187 DUs), 99,748 sf of community facility uses, and 537 accessory parking spaces, as well as a net reduction of 57,795 sf of industrial uses and 22,437 sf of commercial uses. The difference between the total built square footage in the No-Action and With-Action conditions would be approximately 3,965,938 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative.

Table 20.6.2-4: 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**	**4,928,808 sf**	**+3,946,422 sf**
	(868 DUs)	(5,055 DUs)	(+ 4,187 DUs)
Commercial			
Local Retail	220,142 sf	591,364 sf	+ 371,222 sf
FRESH Supermarket	28,405 sf	64,062 sf	+ 35,657 sf
Restaurant	2,260 sf	21,390 sf	+ 19,130 sf
Auto-Related	155,116 sf	0 sf	- 155,116 sf
Office	19,802 sf	44,104 sf	+ 24,302 sf
Warehouse	195,650 sf	0 sf	- 195,650 sf
Garage	121,382 sf	0 sf	- 121,382 sf
Other Commercial	600 sf	0 sf	- 600 sf
Total Commercial	**743,357 sf**	**720,920 sf**	**- 22,437 sf**
Other Uses			
Industrial	57,795 sf	0 sf	- 57,795 sf
Community Facility	327,041 sf[1]	426,789 sf[2]	+ 99,748 sf
Total Floor Area	**2,110,579 sf**	**6,076,517 sf**	**+ 3,965,938 sf**
Parking			
Parking Spaces	1,197	1,734	+ 537

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, 79,100 sf of community centers, and 181,201 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 185,693 sf of other community facility uses.

Source: DCP; STV Incorporated, 2017.

Zoning

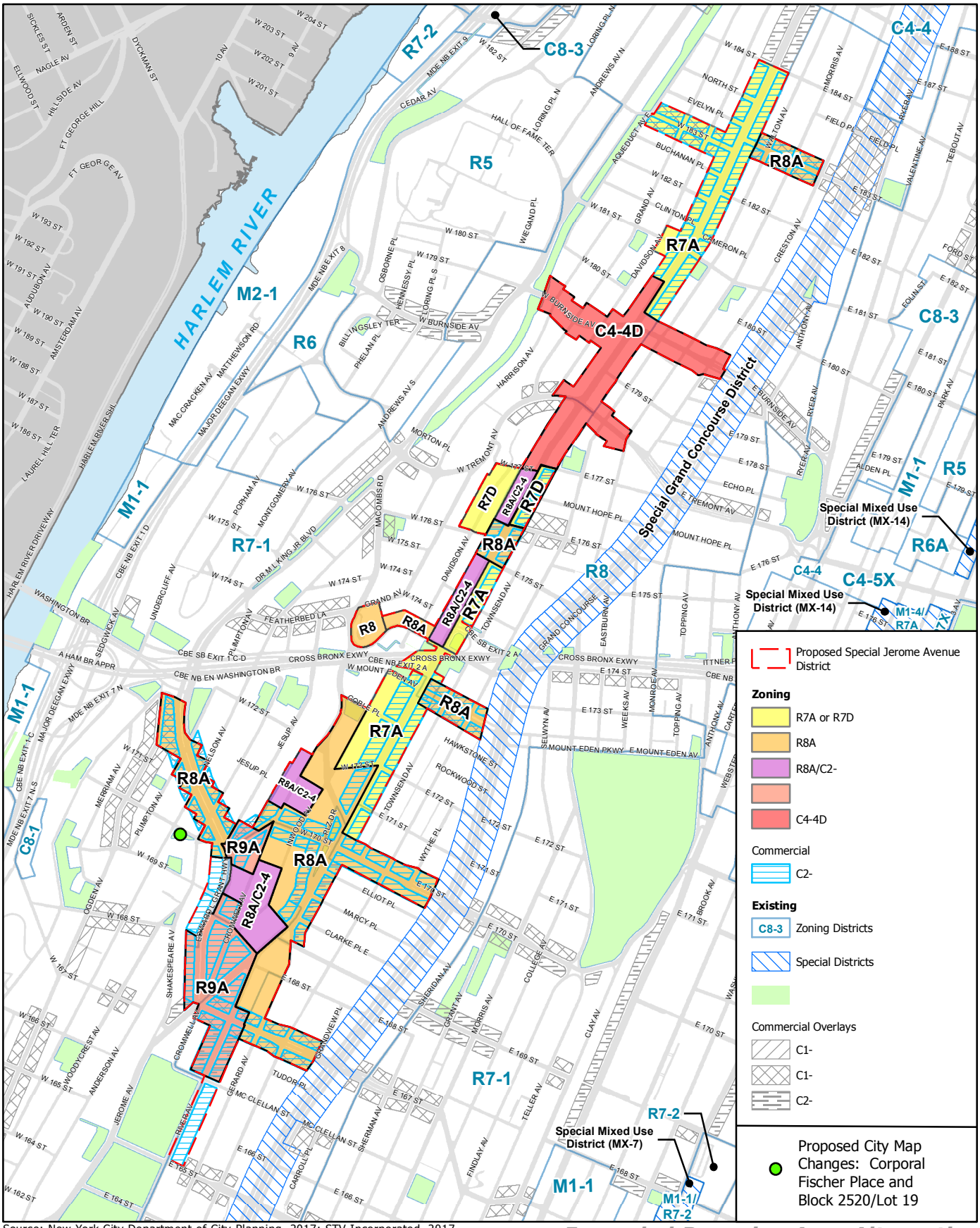
Primary Study Area

The Expanded Rezoning Area 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 four discrete locations comprising the portions of the rezoning area unique to the Expanded Rezoning Area Alternative would be mapped adjacent to the portion of the rezoning area shared with the Proposed Actions with new R7D, R8, and R8A zoning districts with C2-4 commercial overlays, as shown on Figure 20.6.2-8, "Proposed Zoning." Specifically, one area, currently zoned R7-1, would be mapped with R7D; one area, currently zoned R7-1, would be mapped with R8 and R8A; one area, currently zoned M1-2, would be mapped with R8A (with a C2-4 commercial overlay); and three areas, currently zoned C8-3, 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 20.6.2-9, "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 five 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative.



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

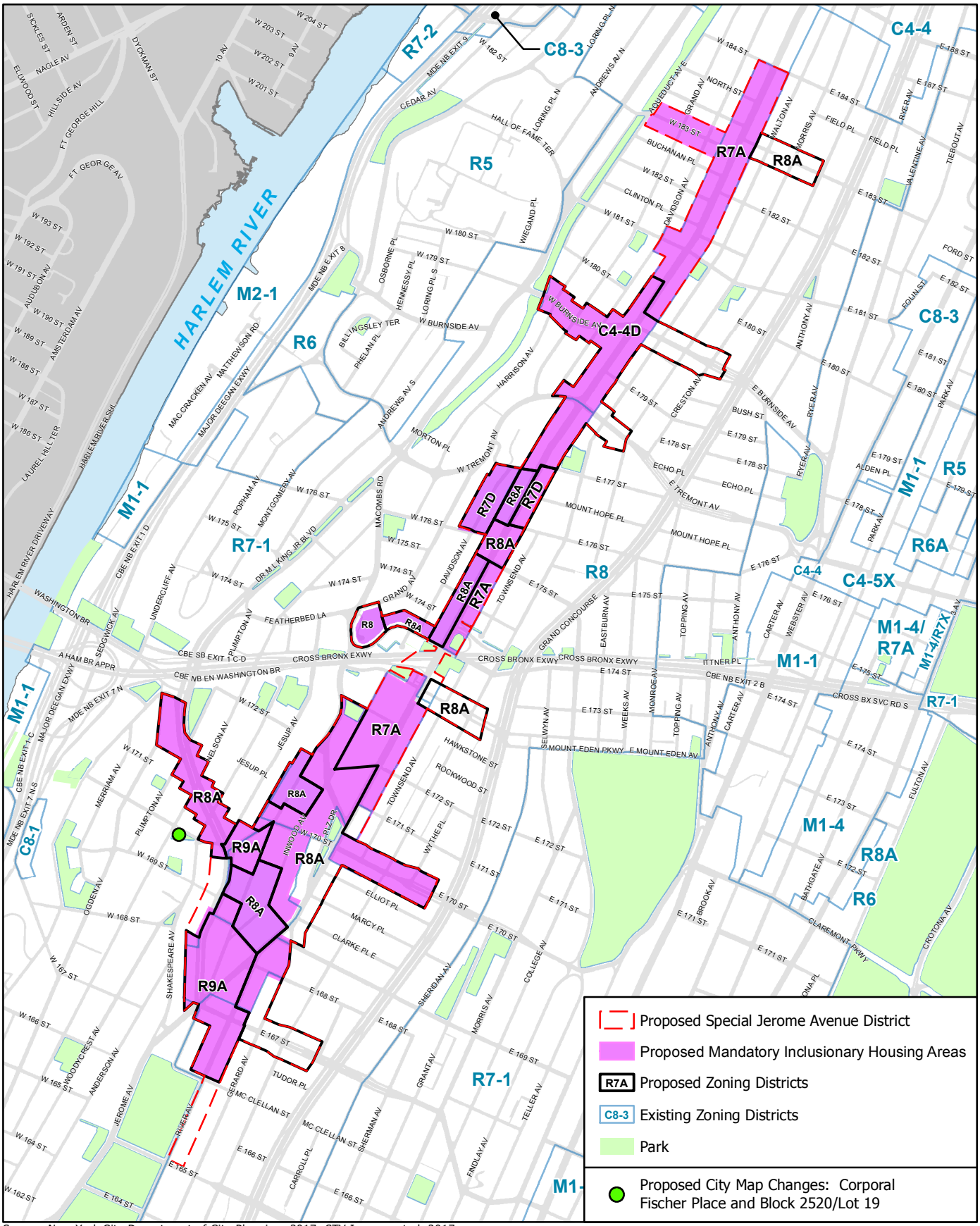
Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.2-8

EXPANDED REZONING AREA ALTERNATIVE ZONING



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

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.2-9

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 Expanded Rezoning Area Alternative; further, the Expanded Rezoning Area Alternative would be consistent with the public policy currently in place and expected to remain applicable in the future without the Expanded Rezoning Area Alternative.

Assessment

Land Use and Zoning

Primary Study Area

With the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would replace 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 with a commercial overlay to allow for a mix of commercial and residential uses in this area, thus permitting 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative; further, the Expanded Rezoning Area Alternative would be consistent with the public policy currently in place and expected to remain applicable in the future without the Expanded Rezoning Area Alternative. Therefore, the Expanded Rezoning Area Alternative would result in no significant adverse impact to public policy, and no further analysis is warranted.

20.6.3 SOCIOECONOMIC CONDITIONS

The Expanded Rezoning Area Alternative (ERAA) 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. With this alternative, development would occur on all 45 projected development sites, as well as on seven additional projected development sites within an approximately ten 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 to increase the allowable residential density in areas that can support additional development. In the Proposed Actions, these ten blocks would retain existing zoning. In addition to enlarging the proposed rezoning area to include these ten blocks, the Special Jerome Avenue District in the Expanded Rezoning Area Alternative would allow second story retail in mixed-used buildings along the elevated rail, which would permit additional retail development on Projected Development Sites 3, 6, 19, 22, and 44, as compared to the Proposed Actions.

For the Expanded Rezoning Area Alternative, 957 (30 percent) additional housing units and 550 (24 percent) additional affordable housing units would be added as compared to the Proposed Actions. Thus, the Expanded Rezoning Area Alternative would introduce approximately 4,187 housing units, including roughly 2,793 affordable housing units, compared to No- Action conditions. The Expanded Rezoning Area Alternative would also result in 13,812 sf more of incremental commercial and 27,475 sf more of community facility space as compared to the Proposed Actions. In addition, the Expanded Rezoning Area Alternative would result in an additional loss of 10,000 sf of industrial space than with the Proposed Actions.

Direct Residential Displacement

Both the Proposed Actions and the Expanded Rezoning Area 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 Expanded Rezoning Area 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*.

It is expected that the existing 88 units of supportive housing located on projected site 46 would remain with the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative.

Indirect Residential Displacement

Like the Proposed Actions, the Expanded Rezoning Area Alternative is not expected to result in significant adverse impacts due to indirect residential displacement. The Expanded Rezoning Area 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 959 more DUs and an estimated 2,8 additional residents compared to the RWCDS associated with the Proposed Actions, which would result in slightly less than a six percent increase in the ¼-mile secondary study area population.

Similar to the Proposed Actions, the Expanded Rezoning Area 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 provide added supply to meet increasing demands in New York City.

Table 20.6.3-1, "Comparison of Residential Development for the Proposed Actions and Expanded Rezoning Area (ERA) Alternative," provides a comparison of the anticipated incremental residential development for the Proposed Actions and the Expanded Rezoning Area 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 Expanded Rezoning Area 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 2,222 housing units and an estimated 6,488 residents with the Expanded Rezoning Area Alternative, which would represent an approximately 23 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 Expanded Rezoning Area Alternative. However, in the Expanded Rezoning Area 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 847 housing units and an estimated 2,592 residents, which would represent slightly

more than an eight 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 Expanded Rezoning Area (ERA) Alternative

	Proposed Actions		Expanded Rezoning Area 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	847	2,592
Highbridge Subarea	135	394	135	394
Mount Eden Subarea	1,761	5,141	2,222	6,488
Concourse Subarea	263	768	249	727
Total	***3,230***	***9,573***	***4,187***	***12,443***

Similar to the Proposed Actions, the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would create the capacity for the construction of new residential development that would provide new housing options at a greater diversity of price point, considerably expanding the supply of affordable housing. The amount of affordable housing units would be greater for the Expanded Rezoning Area Alternative, and is expected to help further 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 projected increase in housing units overall is expected to decrease rent pressures and capture some of those for affordable housing would also create additional housing for those in most need.

Direct Business Displacement

Both the Proposed Actions and the Expanded Rezoning Area Alternative are not 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 45 projected development sites. In addition the businesses that would be potentially directly displaced by the Proposed Actions, the Expanded Rezoning Area Alternative could potentially directly displace an additional 14 businesses and an estimated 76 jobs associated with these businesses from Projected Development Sites 48, 49, 51, and 52. These additional businesses conduct a variety of business activities, including four automotive service and repair shops, two public parking facilities, two fast food establishments, a deli, tire center, automotive dealer, a graphic designer, professional organization, and a wholesale trade establishment. Thus, the Expanded Rezoning Area Alternative would potentially directly displace 91 businesses and an estimated 660 jobs associated with

those businesses (see Table 20.6.3-2), which represents an approximately 18 percent increase in the amount of directly displaced firms and 13 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 Expanded Rezoning Area (ERA) 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	9	9.9	62	9.4
Health Care and Social Assistance	2	2.2	45	6.8
Other Services	41	45.0	196	29.7
Professional and Technical Services	2	2.2	1[2]	0.1
Real Estate and Rental and Leasing	3	3.3	44	6.7
Retail Trade	28	30.8	271	41.1
Wholesale Trade	5	5.5	37	5.6
Total	91	100.0	660	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 and April 2017

Similar to the Proposed Actions, the industry sector with the greatest number of potentially directly displaced employees is Retail Trade, with 256 displaced workers, and the industry sector with the greatest number of firms is Other Services, with 41 displaced establishments, followed by Retail Trade, with 28 displaced firms (refer to Table 20.6.3-2). As for the Proposed Actions, none of the 91 businesses that could be potentially directly displaced in the Expanded Rezoning Area 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 Expanded Rezoning Area (ERA) 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 Expanded Rezoning Area 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 (28 of the 44 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 48 percent of the firms (44 businesses) that could be potentially directly displaced by the Expanded Rezoning Area Alternative are in auto-related industries, and these firms account for approximately 37 percent of the directly displaced employment (246 jobs), which represents an approximately 1.5 percent increase in the number of automotive firms and less than a three 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 Expanded Rezoning Area (ERA) 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	9	9.9	31	4.7
Used Car Sales	3	3.3	13	2.0
Auto Parts (incl. tires) and Accessory Sales	6	6.6	18	2.7
Total Auto-Related Wholesale- Used Vehicle Sales	1	1.1	2	0.3
Total Automotive-Related Other Services	22	24.2	139	21.1
Automotive Service Repair	13	14.3	71	10.8
Gas/Car Wash	2	2.2	36	5.4
Automotive Glass/Paint	7	7.7	32	4.8
Total Rental and Leasing- Livery Vehicles	3	3.3	47	7.2
Public Parking Facilities	9	9.9	27	4.1
Directly Displaced Automotive-Related	***44***	***48.3%***	***246***	***37.3%***
Total Directly Displaced (from Table 20.6.3-3)	**91**	**100%**	**660**	**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 and are anticipated to still be available to consumers as other existing businesses would remain in the surrounding area that provide similar types of products or services. Automotive 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 shops in the borough (1,839 workers[1]), the potentially directly displaced automotive service establishments in the Expanded Rezoning Area Alternative represent less than six percent of employment within the 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.

[1] Census Bureau's 2014 County Business Patterns.

As for the Proposed Actions, the 91 potentially directly displaced businesses in the Expanded Rezoning Area 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.

Like the Proposed Actions, it is the intent of the Expanded Rezoning Area Alternative to expand development opportunities, and permit a wider range of land uses, mixed-use development, and increase the allowable floor area ratio (FAR), 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 Expanded Rezoning Area Alternative would result in the incremental development of 371,222 sf of retail, 35,657 sf of FRESH supermarket, 19,130 sf of restaurant, 24,304 sf of office, and 99,748 sf of community facility space, and a net decrease of approximately 57,795 sf of industrial, 155,116 sf of automotive, 195,650 sf of storage, 121,382 sf of garage, and 600 sf of other commercial uses. Comparable services and employment opportunities to those provided by directly displaced commercial businesses could be provided as part of both the Proposed Actions and Expanded Rezoning Area Alternative.

Like the Proposed Actions, the Expanded Rezoning Area 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 services to support surrounding dense residential neighborhoods. The Expanded Rezoning Area Alternative would result in 13,812 sf more of incremental commercial space than the Proposed Actions as compared No-Action condition.

Indirect Business Displacement

Similar to the Proposed Actions, the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, an increment of 4,187 DUs, including an increment of 2,793 affordable units, which would help to ensure a range of household incomes within the study area. With this alternative, economic activity along commercial corridors would increase. Therefore, the Expanded Rezoning Area Alternative would not result in a significant adverse indirect business displacement.

Adverse Effects on Specific Industries

Similar to the Proposed Actions, the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative represent less than six percent of employment within the industry in the Bronx, and these businesses could relocate within the City, potentially in other auto-related clusters, thereby maintaining existing business and employment counts within the industry. 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, which would ensure that there are ample locations to provide this type of service. However, this alternative would not retain any existing C8-3 and M1-2 zoning districts in Mount Eden and Morris Heights*.*

20.6.4 COMMUNITY FACILITIES

INTRODUCTION

This chapter examines the potential effects of the Expanded Rezoning Area 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.

As described in Chapter 1, "Project Description," the proposed Jerome Avenue Rezoning includes zoning map amendments and zoning text amendments affecting an approximately 102-block area in the Southwest Bronx. The rezoning area includes portions of the Fordham, University Heights, Mount Hope, Morris Heights, Mount Eden, Highbridge, and Concourse neighborhoods in Community Districts 4, 5, and 7. 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 were conducted for the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would result in a significant adverse impact on elementary and intermediate schools, but unlike the Proposed Actions the Expanded Rezoning Area Alternative would result in significant adverse impacts on child care services. No significant adverse impacts to high schools, or libraries are expected.

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 Expanded Rezoning Area Alternative would introduce a net increment of 3,099 total students, with approximately 1,633 elementary school students, 670 intermediate school students and 796 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 Expanded Rezoning Area 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 161.1 percent utilization rate (a 32.4 percent increase above the No-Action Alternative and a 9.6 percent increase over the Proposed Actions). This is above the 5 percent threshold and 100 percent utilization, resulting in a larger significant adverse impact than those from the Proposed Action. CSD 9, Sub-district 3 elementary schools would operate with a 127.3 percent utilization rate (a 1.8 percent increase above the No-Action Alternative and a 1.1 percent increase above the Proposed Actions). CSD 10, Sub-district 4 elementary schools would operate above capacity at 122.5 percent utilization rate (a 6.8 percent increase above the No-Action Alternative and a 0.6 percent increase above 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 Expanded Rezoning Area 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 190.1 percent utilization (a 64.2 percent increase above the No-Action Alternative and an 18.9 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 94.4 percent utilization rate. CSD 10, Sub-district 4 would operate at 128.1 percent capacity (a 4.5 percent increase above the No-Action Alternative and a 0.3 percent increase above 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 Expanded Rezoning Area Alternative would add 4,187 dwelling units, resulting in 796 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would introduce an estimated 12,311 additional residents to the libraries' combined catchment area (compared to the No-Action Alternative). The Expanded Rezoning Area 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 Expanded Rezoning Area 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 four 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 Expanded Rezoning Area Alternative is not expected to result in a significant adverse impact on public libraries.

Child Care Services

The Expanded Rezoning Area Alternative would result in a significant adverse impact on publicly funded child care facilities. It is expected to introduce approximately 2,907 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 404 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 184 slots in the study area by 2026 (102.4 percent utilization). The Expanded Rezoning Area Alternative would result in a utilization rate increase of 5.2 percent compared to the No-Action Alternative. In accordance with the *CEQR Technical Manual,* this would 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would not result in any direct effects to existing community facilities.

INDIRECT EFFECTS

Public Schools

The Expanded Rezoning Area Alternative would add 4,187 dwelling units (DUs), which corresponds to an additional 1,634 elementary school students, 670 intermediate school students, and 796 high school students. The Expanded Rezoning Area Alternative would affect the same CSD and Sub-districts as the Proposed Actions. The seven additional projected development sites from the Expanded Rezoning Area Alternative (Sites 46-52) would be located within CSD 9, Sub-district 2 and Sub-district 3, and CSD 10, Sub-district 4.

In CSD 9, Sub-district 2, Projected Development Sites 46, 50, and 51 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. Projected Development Site 49 would be zoned to P.S. 204 Morris Heights in CSD 9, Sub-district 3 elementary

schools. In CSD 10, Sub-district 4, Projected Development Sites 47 and 48 would be zoned to P.S. 306 for elementary school.

According to current zoning practices, Projected Development Sites 46, 50, and 51 (located in CSD 9, Sub-district 2) would be zoned to the shared intermediate school district of I.S. 232 (The Alexander Macomb's Middle School) and I.S.303 (Leadership and Community Service) in CSD 9, Sub-district 3 Similarly, 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*, students residing in these projected development sites are presumed to attend intermediate schools located within CSD 9, Sub-district 2.

Projected Development Sites 47 and 48 (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). Projected Development Site 49, located in CSD 9, Sub-district 3 would also be zoned to I.S. 232 and I.S. 303. For more information regarding the zoning practices of CSD 9 and 10, refer to Chapter 4 "Community Facilities and Services."

With the Expanded Rezoning Area 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 161.1 percent utilization rate (a 32.4 percent increase above the No-Action Alternative and a 9.6 percent increase over the Proposed Actions). This is above the 5 percent threshold and 100 percent utilization, resulting in a larger significant adverse impact than those from the Proposed Actions. CSD 9, Sub-district 3 elementary schools would operate with a 127.3 percent utilization rate (a 1.8 percent increase above the No-Action Alternative and a 1.1 percent increase above the Proposed Actions). CSD 10, Sub-district 4 elementary schools would operate above capacity at 122.5 percent utilization rate (a 6.8 percent increase above the No-Action Alternative and a 0.6 percent increase above 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 Expanded Rezoning Area 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 190.1 percent utilization (a 64.2 percent increase above the No-Action Alternative and an 18.9 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 under the Proposed Actions. CSD 9, Sub-district 3 intermediate schools would operate below capacity with a 94.4 percent utilization rate. CSD 10, Sub-district 4 would operate at 128.1 percent capacity (a 4.5 percent increase above the No-Action Alternative and a 0.3 percent increase above 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 Expanded Rezoning Area Alternative would add 4,187 dwelling

units, resulting in 796 new high school students and a utilization rate of 77.2 percent; therefore, no significant adverse impact is anticipated.

Table 20.6.4-1: 2026 Estimated Expanded Rezoning Area 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	1,077	5,364	3,330	-2,034	161.1	32.4	9.6
CSD 9, Sub-district 3	4,482	63	4,545	3,571	-974	127.3	1.8	1.1
CSD 10, Sub-district 4	5,849	344	6,193	5,057	-1,136	122.5	6.8	0.6
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	442	1,310	689	-621	190.1	64.2	18.9
CSD 9, Sub-district 3	2,495	26	2,521	2,669	148	94.4	0.9	0.5
CSD 10, Sub-district 4	3,862	141	4,003	3,124	-872	128.1	4.5	0.3
High Schools								
Bronx	53,902	796	54,698	70,817	16,119	77.2	1.1	0.3

Notes:
[1] DOE Enrollment Projects (Actual 2014, Projected 2015-2024). Per CEQR, 2026 projections were assumed for the 2024 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.

INDIRECT EFFECTS ON PUBLIC LIBRARIES

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 Expanded Rezoning Area Alternative, residents at Projected Development Sites 46-50 would likely be patrons of the Sedgwick Library and Sites 51 and 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 Expanded Rezoning Area Alternative would not result in significant adverse impacts to public libraries.

Table 20.6.4-2: Anticipated Library Catchment Area Population Increases with Expanded Rezoning Area Alternative

Library Catchment Area	No-Action Population	Projected Development Sites within Catchment Area	Population Introduced in Expanded Rezoning Area 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, 51-52	5,274	138,400	4.0	1.1
Sedgwick Branch	140,122	10, 11, 13-17, 46-50	2,880	143,002	2.1	1.5
Notes: Residential units located within more than one library catchment area are assigned to the closest library for analysis purposes.						

Table 20.6.4-3: 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	138,400	0.33	0.0
Sedgwick Branch	37,380	143,002	0.26	-0.1
Notes: Residential units located within more than one library catchment area are assigned to the closest library for analysis purposes.				

INDIRECT EFFECTS ON CHILD CARE FACILITIES

Child Care Services

The Expanded Rezoning Area Alternative would build 2,907 affordable units, which would result in 404 children under the age of 6 eligible for publicly funded childcare. With the addition of these children, there would be a deficit of 184 slots in the study area by 2026 (102.4 percent utilization). The Expanded Rezoning Area Alternative would result in a utilization rate increase of 5.2 percent compared to the No-Action Alternative. In accordance with the *CEQR Technical Manual,* this would result in a significant adverse impact.

Table 20.6.4-4: Comparison of Budget Capacity, Enrollment, Available Slots, and Percent Utilized for the Proposed Actions and Expanded Rezoning Area 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
Expanded Rezoning Area Alternative Increment	0	+404	-404	+5.2
2026 Expanded Rezoning Area Alternative	7,775	7,959	-184	102.4
Notes: *CEQR Technical Manual,* Table 6-1b.				

20.6.5 OPEN SPACE

The Expanded Rezoning Area 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 Expanded Rezoning Area Alternative on open space resources. The analysis finds that Expanded Rezoning Area 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 Expanded Rezoning Area 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 Proposed Actions.

A detailed open space analysis performed per the guidance of the CEQR Technical Manual supports the conclusion that the Expanded Rezoning Area Alternative would not result in any significant adverse impacts to open space. Similar to the Proposed Actions, the Expanded Rezoning Area Alternative would not have any direct impacts on any open space resources. Also similar to the Proposed Actions, the Expanded Rezoning Area 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.

The Expanded Rezoning Area Alternative would result in incremental shadow coverage on 41 open space resources. The shadows analysis identified significant adverse impacts at eight of these resources. The analysis determined that six resources (Bronx School of Young Leaders, PS 306 Schoolyard, Mount Hope Playground, Goble Playground, Inwood Park, Keltch Park) would experience significant incremental shadow coverage, duration, and/or periods of complete sunlight loss that could have the potential to affect open space utilization or enjoyment. Two resources (Edward L Grant Greenstreet, Jerome Avenue/Grant Avenue Greenstreet) would not receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the CEQR Technical Manual) as a result of incremental shadow coverage and vegetation at these resources could be significantly impacted. The analysis found that although the significant adverse shadow impacts would reduce the utility of these open spaces and public's enjoyment, the open spaces would continue to be available and provide other passive or active open space uses and therefore would not be a direct significant open space impact.

The western boundary of the open space study area for the Proposed Actions borders the Harlem River. Given that the Expanded Rezoning Area Alternative includes additional properties to the west of the rezoning area, the Expanded Rezoning Area Alternative's ½-mile radius extends into the Harlem River. As a result, the study area for the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would, therefore, generally be slightly lower than those with the Proposed Actions. As presented in Table 20.6.5-3, "Open Space Ratios Summary," the open space ratios for the worker (1/4-mile) study area for the Expanded Rezoning Area 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 20.6.5-3, "Open Space Ratios Summary," the Expanded Rezoning Area 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 (0.520), passive (0.211), and active (0.309) open space ratios with the Expanded Rezoning Area 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 (0.524), passive (0.120), and active (0.404) 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 Expanded Rezoning Area 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 20.6.5-1: Expanded Rezoning Area Alternative Open Space Study Area Population

Total Study Area	**No-Action Population**	**Additional Population on Projected Development Sites**	**2026 Lower Density Alternative Population**
Worker (1/4-Mile) Study Area			
Workers	44,001	1,674	45,675
Combined Workers and Residents	253,513	13,985	267,498
Residential (1/2-Mile) Study Area			
Residents	330,981	12,311	343,292
Combined Workers and Residents	405,812	13,985	419,797
North Subarea	**No-Action Population**	**Additional Population on Projected Development Sites**	**2026 With-Action Population**
Worker (1/4-Mile) Study Area			
Workers	25,094	1,208	26,302
Combined Workers and Residents	136,618	5,908	142,526
Residential (1/2-Mile) Study Area			
Residents	182,609	4,700	187,309
Combined Workers and Residents	224,388	5,908	230,296
South Subarea	**No-Action Population**	**Additional Population on Projected Development Sites**	**2026 With-Action Population**
Worker (1/4-Mile) Study Area			
Workers	18,907	466	19,373
Combined Workers and Residents	116,894	8,077	124,971
Residential (1/2-Mile) Study Area			
Residents	148,372	7,611	155,983
Combined Workers and Residents	181,424	8,077	189,501

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

Table 20.6.5-2: Adequacy of Open Space Resources: Expanded Rezoning Area 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	45,675	72.14	24.93	47.21	1.579	0.546	1.034	N/A	0.15	N/A
Combined Workers and Residents	267,498				0.270	0.093	0.176	N/A	0.440	N/A
Residential 1/2-Mile Study Area										
Residents	343,292	179.18	58.32	120.86	0.522	0.170	0.352	2.5	0.5	2
Combined Workers and Residents	419,797				0.427	0.139	0.288	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	26,302	46.39	13.97	32.42	1.764	0.531	1.233	N/A	0.15	N/A
Combined Workers and Residents	142,526				0.325	0.098	0.227	N/A	0.435	N/A
Residential 1/2-Mile Study Area										
Residents	187,309	97.39	39.56	57.83	0.520	0.211	0.309	2.5	0.5	2
Combined Workers and Residents	230,296				0.423	0.172	0.251	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	19,373	25.75	10.96	14.79	1.329	0.566	0.763	N/A	0.15	N/A
Combined Workers and Residents	124,971				0.206	0.088	0.118	N/A	0.446	N/A
Residential 1/2-Mile Study Area										
Residents	155,983	81.79	18.76	63.03	0.524	0.120	0.404	2.5	0.5	2
Combined Workers and Residents	189,501				0.432	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 20.6.5-3: 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 ERAA)
		Existing	No-Action	ERAA	
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 ERAA)
		Existing	No-Action	ERAA	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.596	0.557	0.531	-4.67%
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.536	0.533	0.520	--2.44%
Passive - Residents	0.5	0.218	0.217	0.211	-2.76%
Active - Residents	2	0.318	0.317	0.309	-2.52%

South Subarea	*CEQR Technical Manual* Open Space Guideline	Open Space Ratios per 1,000			Percent Change (Future No-Action to Future ERAA)
		Existing	No-Action	ERAA	
Worker (1/4-Mile) Study Area					
Passive-Workers	0.15	0.666	0.580	0.566	--2.41%
Residential (1/2-Mile) Study Area					
Total - Residents	2.5	0.599	0.548	0.524	-4.38%
Passive - Residents	0.5	0.140	0.126	0.120	-4.76%
Active - Residents	2	0.458	0.421	0.404	-4.04%

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

20.6.6 SHADOWS

As shown in Table 20-1, compared to the Proposed Actions, the Expanded Zoning Alternative would result in increases to incremental shadow coverage at four resources, as well as new shadow coverage on five sunlight-sensitive open spaces. The four resources where incremental shadow coverage would increase compared to the Proposed Actions include: the Bronx School of Young Leaders, PS 306 Schoolyard, Townsend Walk, and Jerome/Gerard Greenstreet. As the Bronx School of Young Leaders and PS 306 Schoolyard would be significantly impacted under the Proposed Actions, increases in incremental shadow duration under the Expanded Zoning Alternative may further worsen conditions at these resources. While Townsend Walk and Jerome/Gerard Greenstreet would experience increases in

incremental shadow duration, these resources do not feature any public amenities and are 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 Expanded Zoning Alternative are not anticipated to adversely impact Townsend Walk or the Jerome Avenue/Gerard Avenue Greenstreet.

The Expanded Zoning Alternative would result in new incremental shadow coverage on five open space resources that would not be affected by the Proposed Actions, including: Jennie Jerome Playground, Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, and Macombs Road Open Space, as shown in Table 20-1 and discussed below.

Jennie Jerome Playground

The Jennie Jerome Playground is an approximately 0.29-acre open space located on Jerome Avenue between East 174th Street and the Cross Bronx Expressway. The open space features jungle-gyms, swings, blacktop games, and benches. The playground would receive incremental shadow coverage on May 6 and June 21 (see Figures 20-2 and 20-3). On both days, incremental shadows would cover portions of the open space. The playground would continue to receive direct sunlight throughout the morning and early afternoon and the playground 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. Therefore, the Expanded Zoning Alternative would not result in significant adverse shadow impacts on the Jennie Jerome Playground.

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 20-2 and 20-3). 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 Expanded Zoning 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 20-1 through 20-4). 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 Expanded Zoning 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 20-1 through 20-3). 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 Expanded Zoning 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 20-2 and 20-3). 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 Expanded Zoning Alternative would not result in significant adverse shadow impacts on the Macombs Road Open Space.

Table 20.6.6-1: Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with Expanded Rezoning Area Alternative

Resource	Analysis Day	March 21/Sept. 21		May 6/August 6		June 21		December 21	
		Proposed Actions	Expanded Rezoning Area Alternative	Proposed Actions	Expanded Rezoning Area Alternative	Proposed Actions	Expanded Rezoning Area Alternative	Proposed Actions	Expanded Rezoning Area 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 20.6.6-1 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with Expanded Rezoning Area 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	7:36 – 8:41 AM 3:26 – 4:29 PM	6:27 – 9:32 AM	6:27 – 9:32 AM 3:29 – 5:18 PM	6:15 – 10:06 AM	6:15 – 10:06 AM 3:41 – 6:01 PM	--	No Change
	Incremental shadow duration	1 hour 5 minutes	1 hour 5 minutes 1 hour 3 minutes	3 hours 5 minutes	3 hours 5 minutes 1 hour 49 minutes	3 hours 51 minutes	3 hours 51 minutes 2 hours 20 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 20.6.6-1 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with Expanded Rezoning Area 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		--	

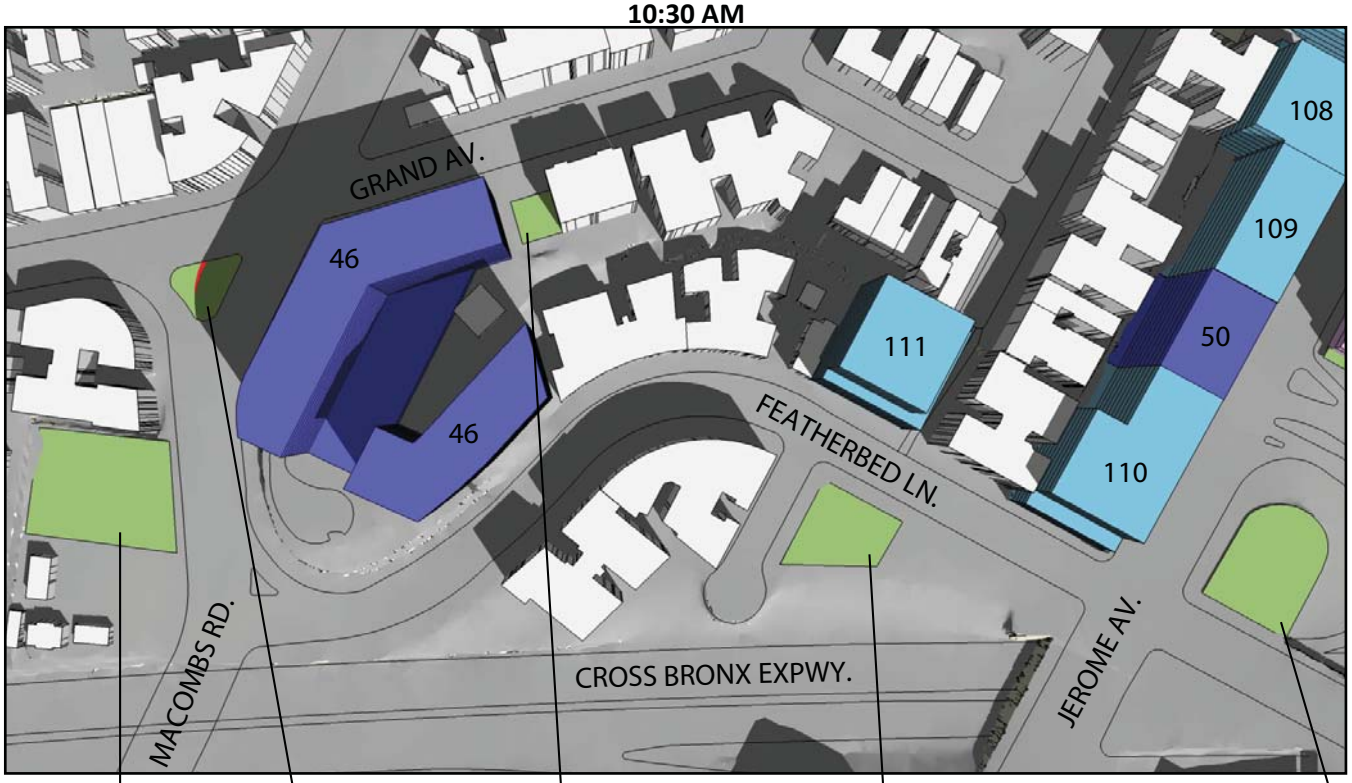
Table 20.6.6-1 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action) with Expanded Rezoning Area Alternative

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	
Jennie Jerome Playground	Shadow enter-exit time	--	--	--	3:44 – 5:18 PM	--	3:48 – 6:01 PM	--	--
	Incremental shadow duration	--	--	--	1 hour 34 minutes	--	2 hours 13 minutes	--	--
Featherbenches	Shadow enter-exit time	--	--	--	6:27 – 7:32 AM 4:38 – 5:01 PM	--	5:57 – 7:40 AM 4:48 – 5:21 PM	--	--
	Incremental shadow duration	--	--	--	55 minutes 23 minutes	--	1 hour 43 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative

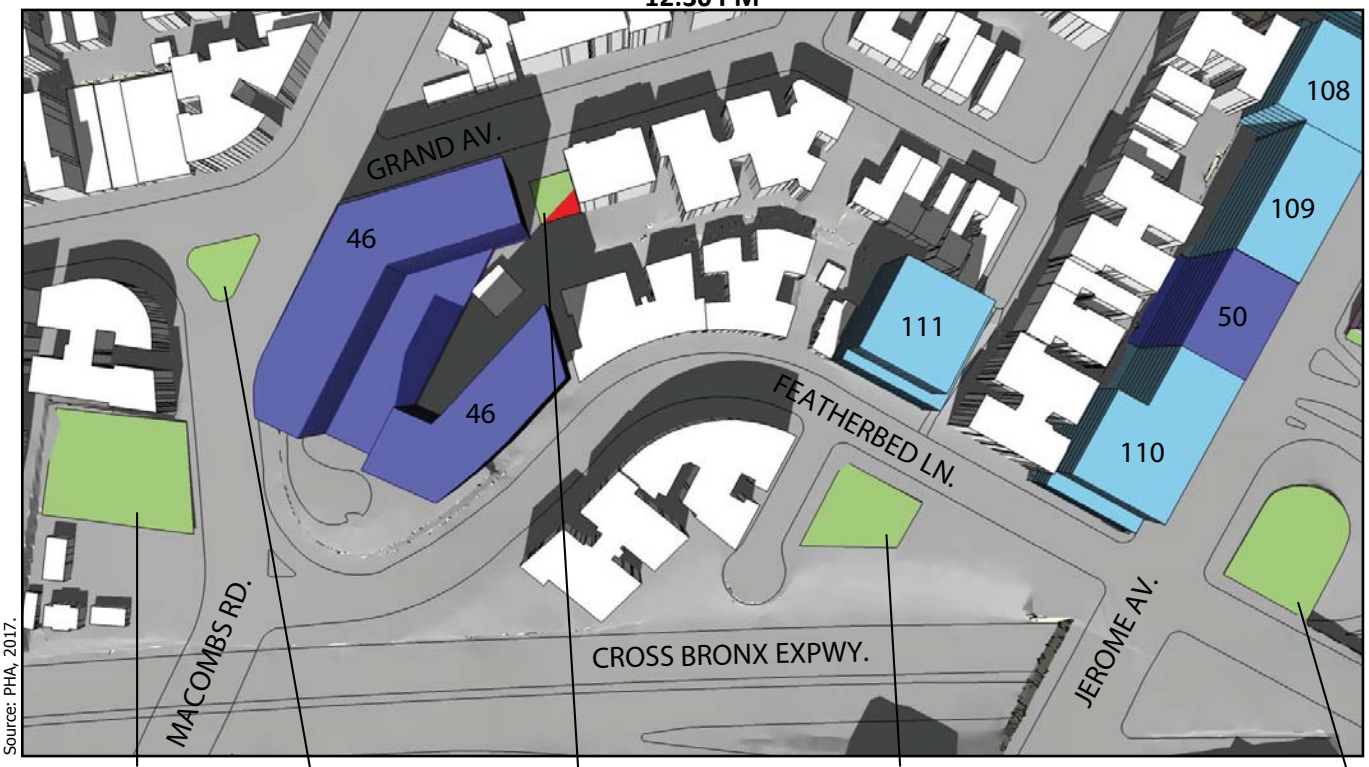
Jennie Jerome Playground, Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, Macombs Road Open Space

10:30 AM



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

12:30 PM



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

Source: PHA, 2017.

Expanded Zoning - Projected | **Open Space** | **Incremental Shadow**

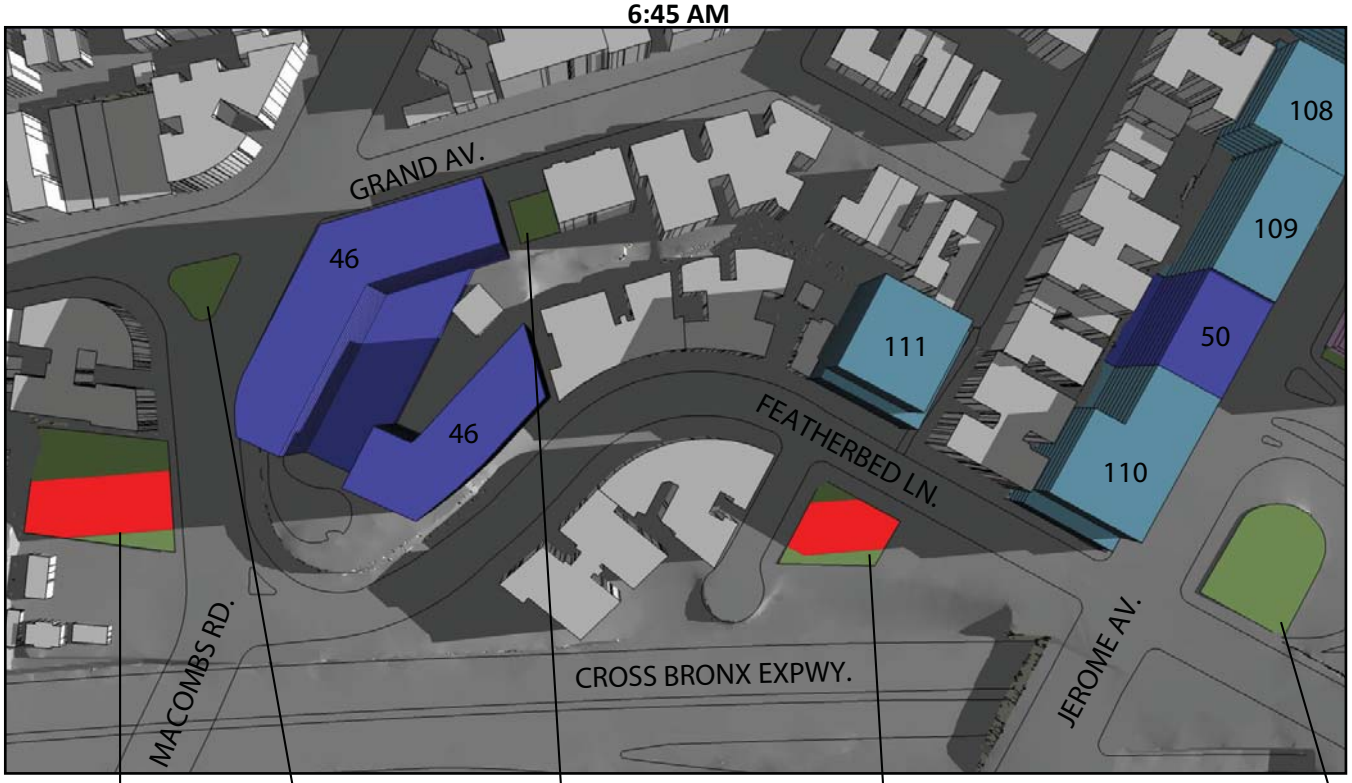
Expanded Zoning - Potential

N

Figure 20.6.6-1

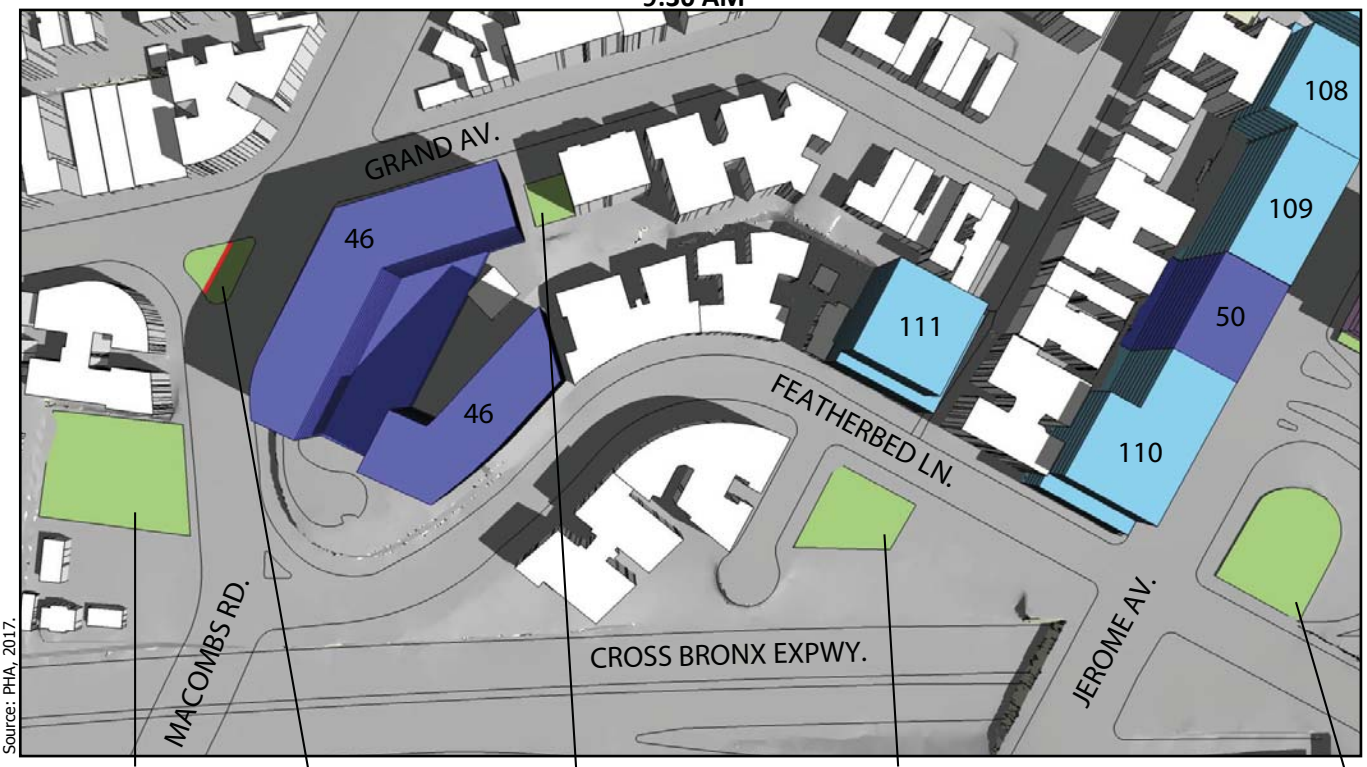
Jennie Jerome Playground, Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, Macombs Road Open Space

6:45 AM



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

9:30 AM



Source: PHA, 2017.

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

Expanded Zoning - Projected | **Open Space** | **Incremental Shadow**

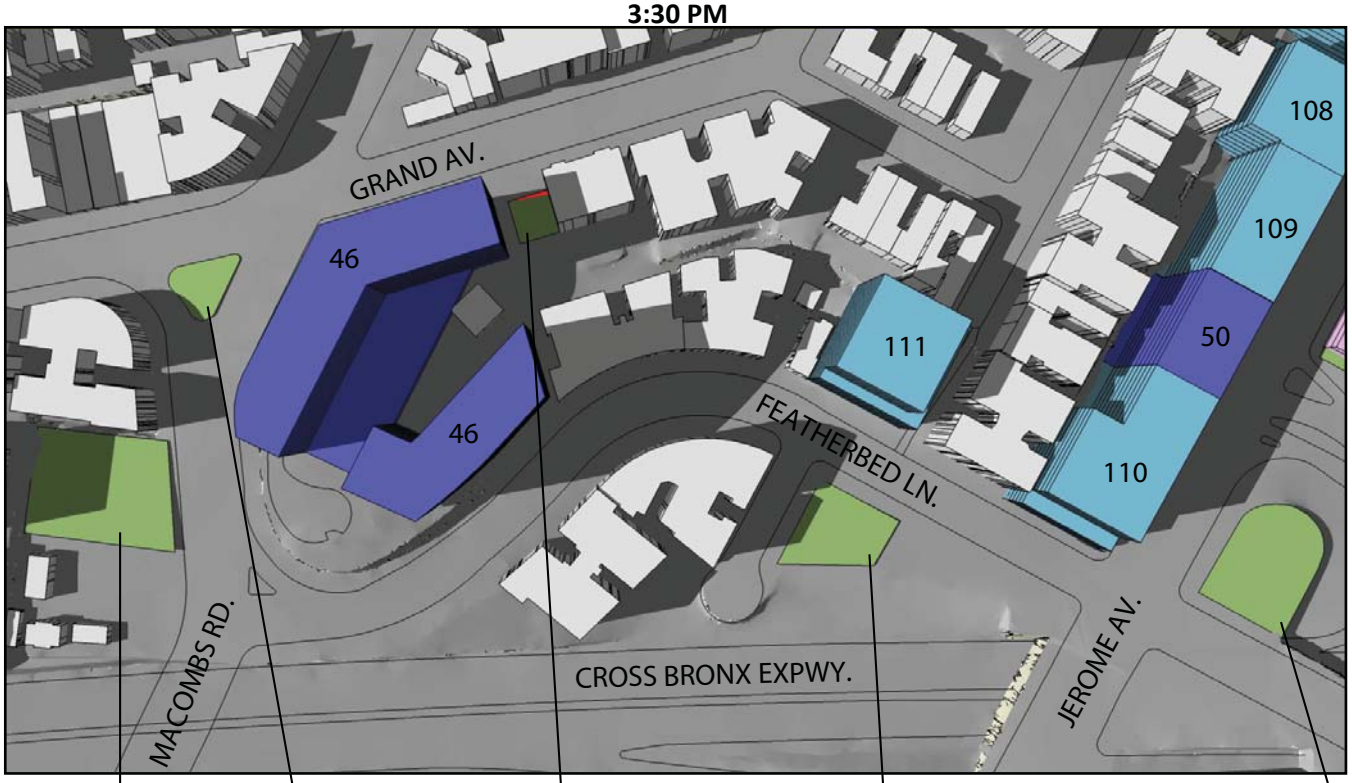
Expanded Zoning - Potential

N

Figure 20.6.6-2

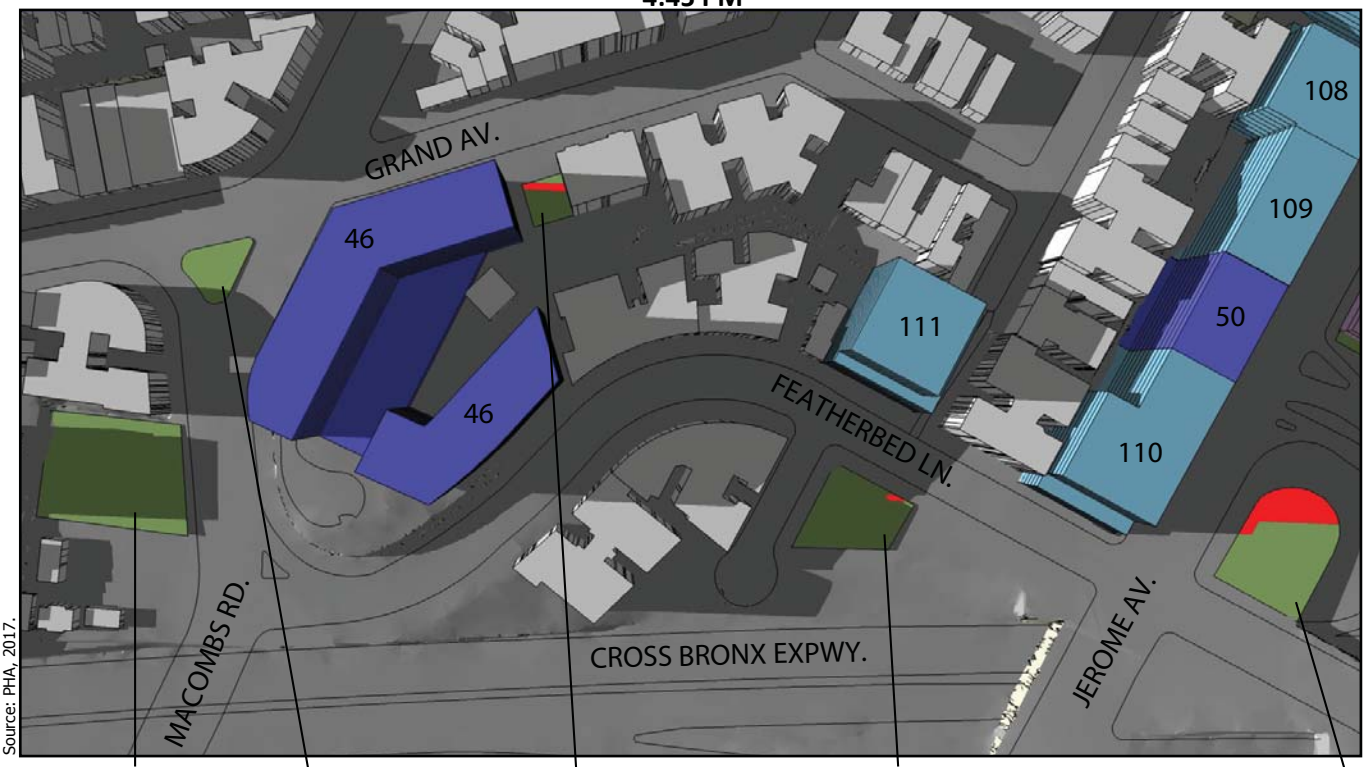
Jennie Jerome Playground, Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, Macombs Road Open Space

3:30 PM



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

4:45 PM



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

Source: PHA, 2017.

Expanded Zoning - Projected | **Open Space** | **Incremental Shadow**

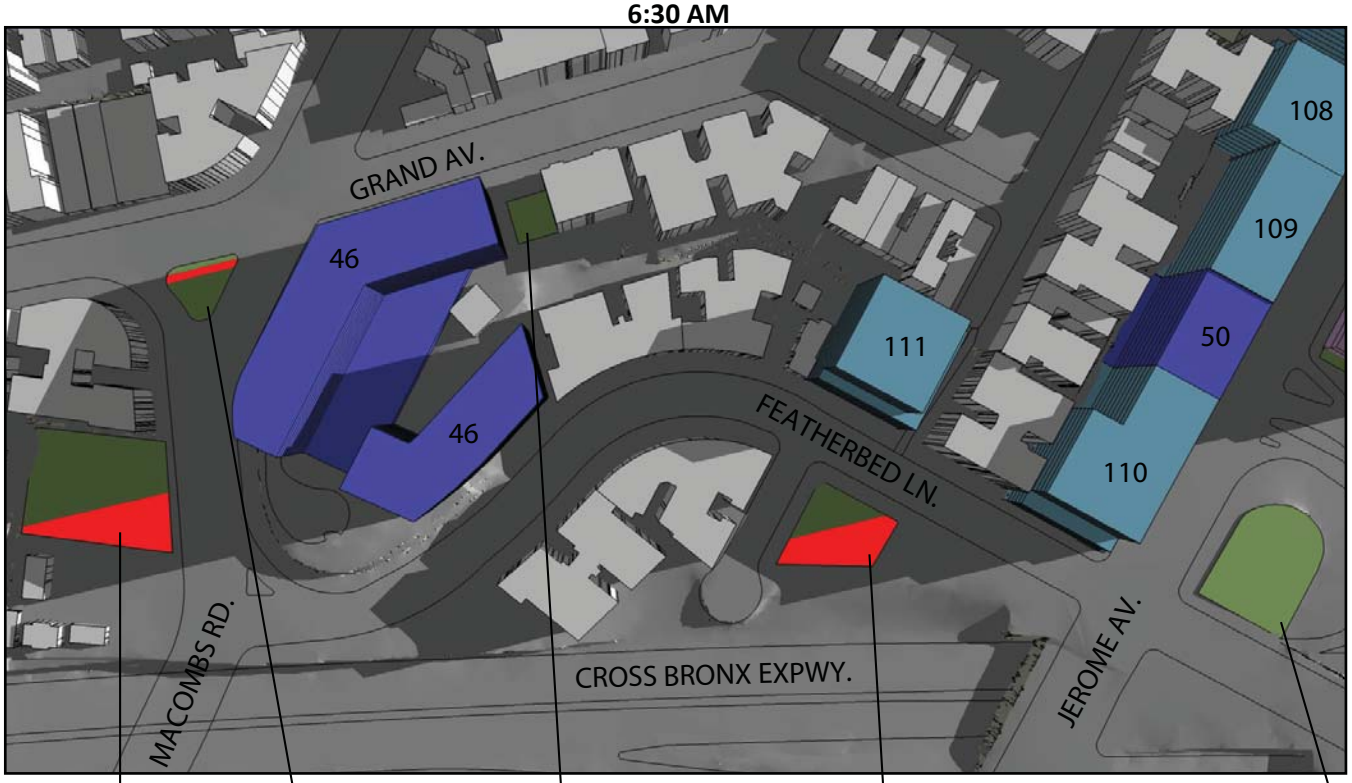
Expanded Zoning - Potential

N

Figure 20.6.6-2

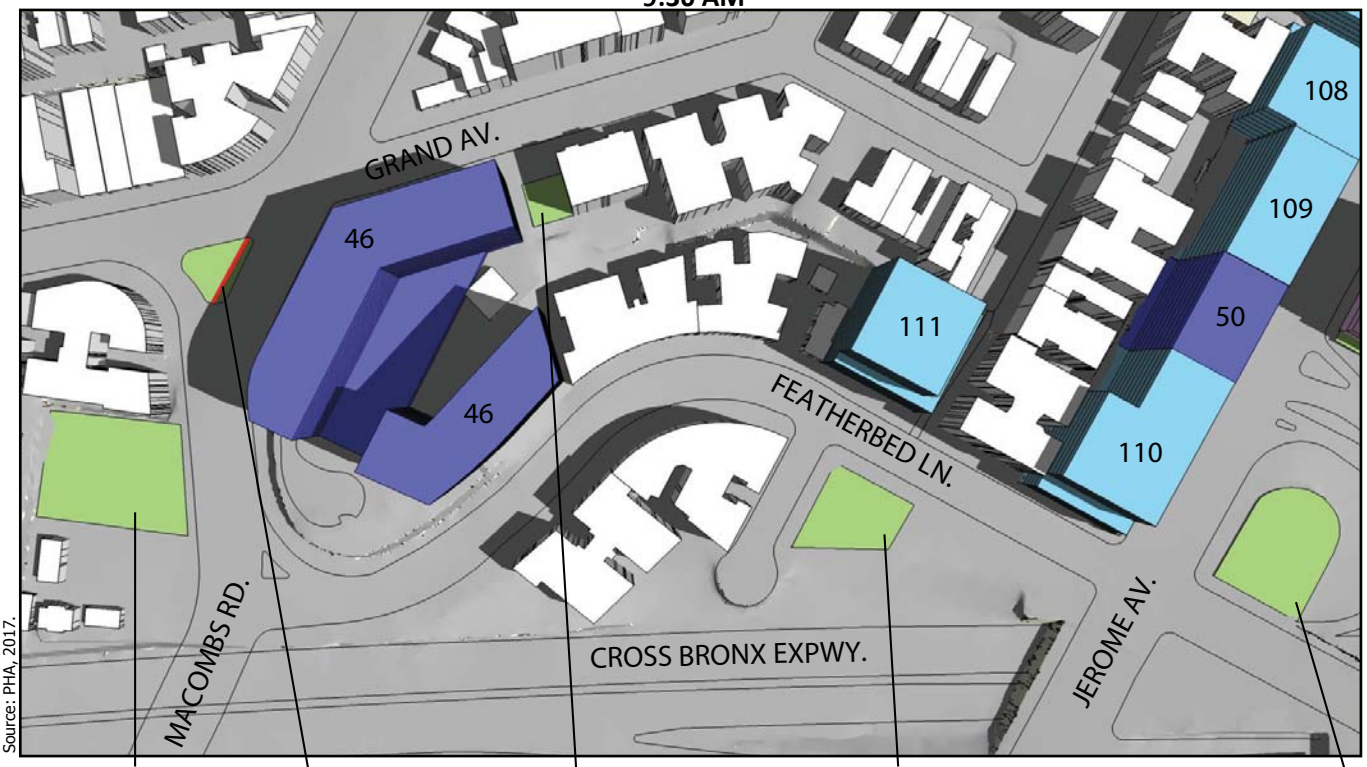
Jennie Jerome Playground, Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, Macombs Road Open Space

6:30 AM



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

9:30 AM



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

Source: PHA, 2017.

Expanded Zoning - Projected | **Open Space** | **Incremental Shadow**

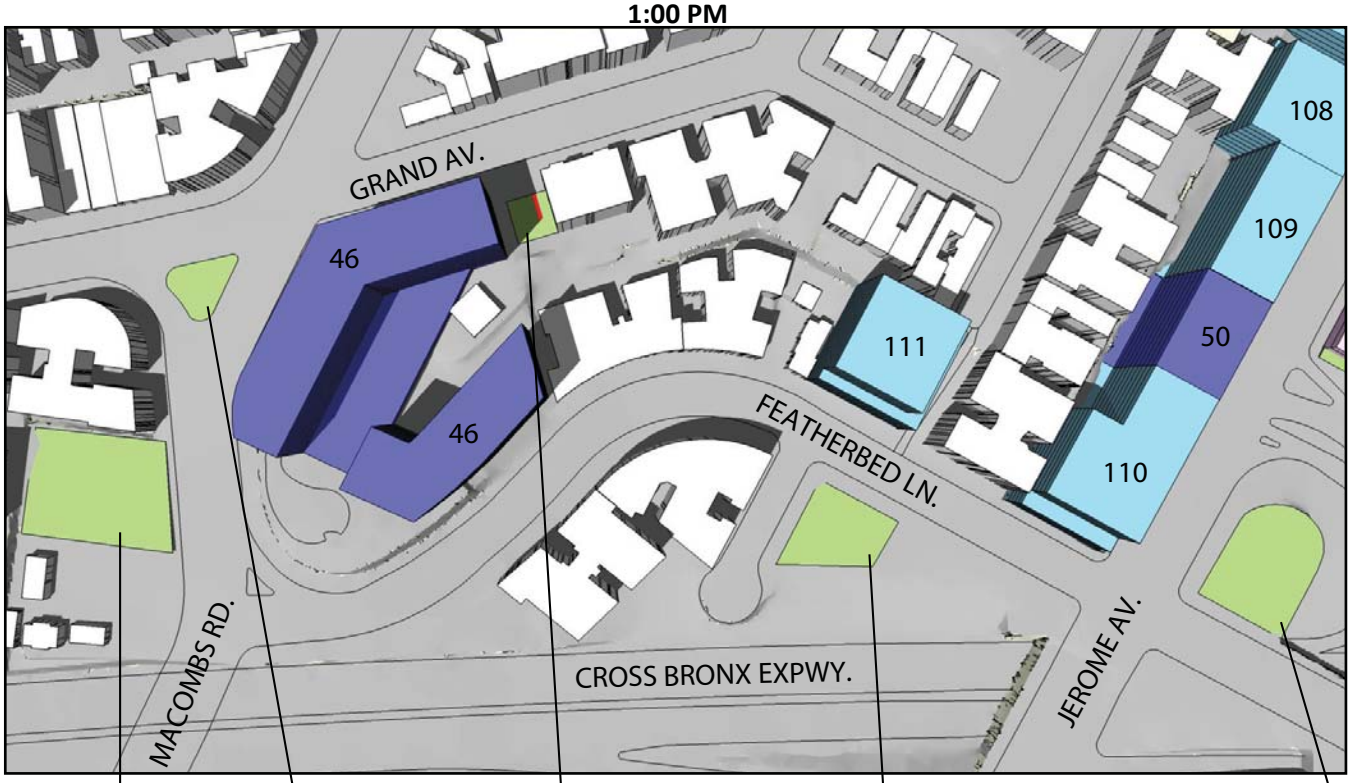
Expanded Zoning - Potential

N

Figure 20.6.6-3

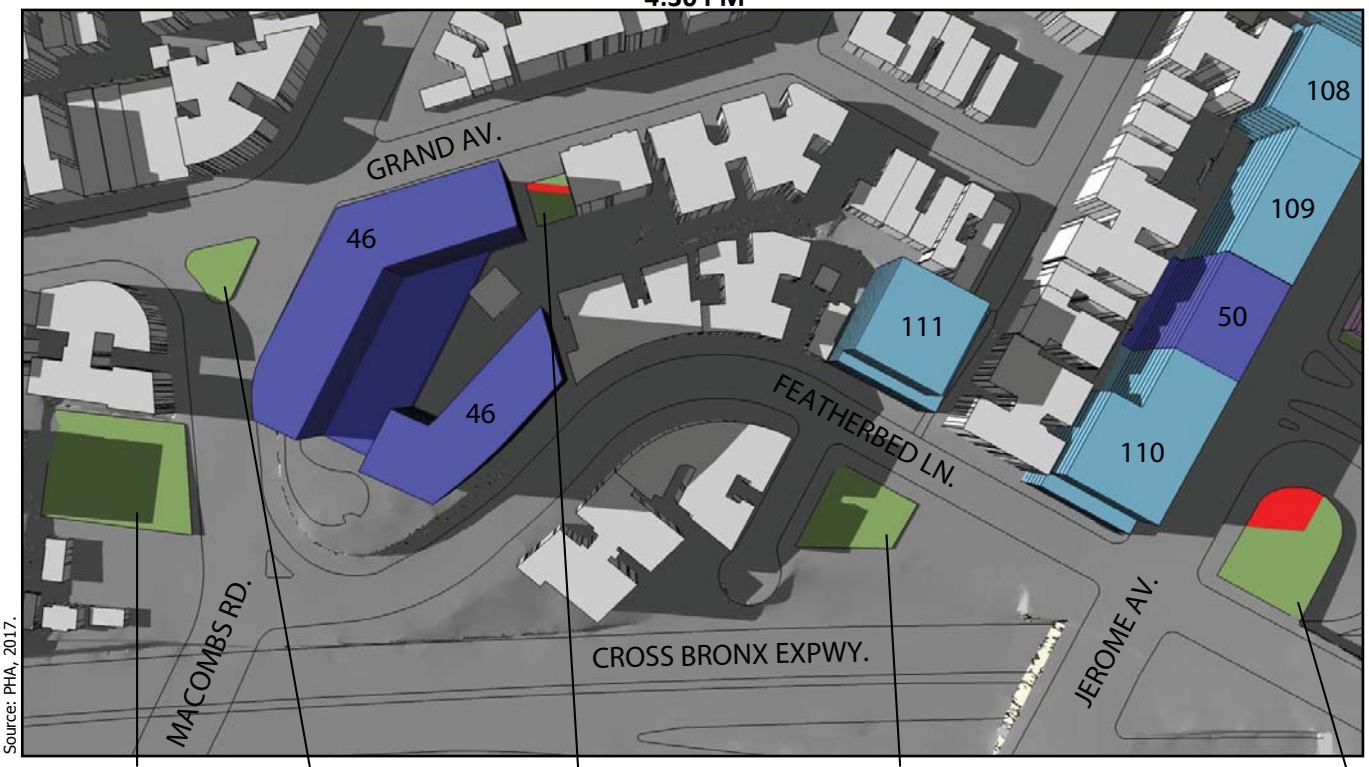
Jennie Jerome Playground, Featherbenches, Palladia Inc. Hill House, Grand/Macombs Greenstreet, Macombs Road Open Space

1:00 PM



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

4:30 PM



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

Source: PHA, 2017.

Expanded Zoning - Projected

Expanded Zoning - Potential

Open Space

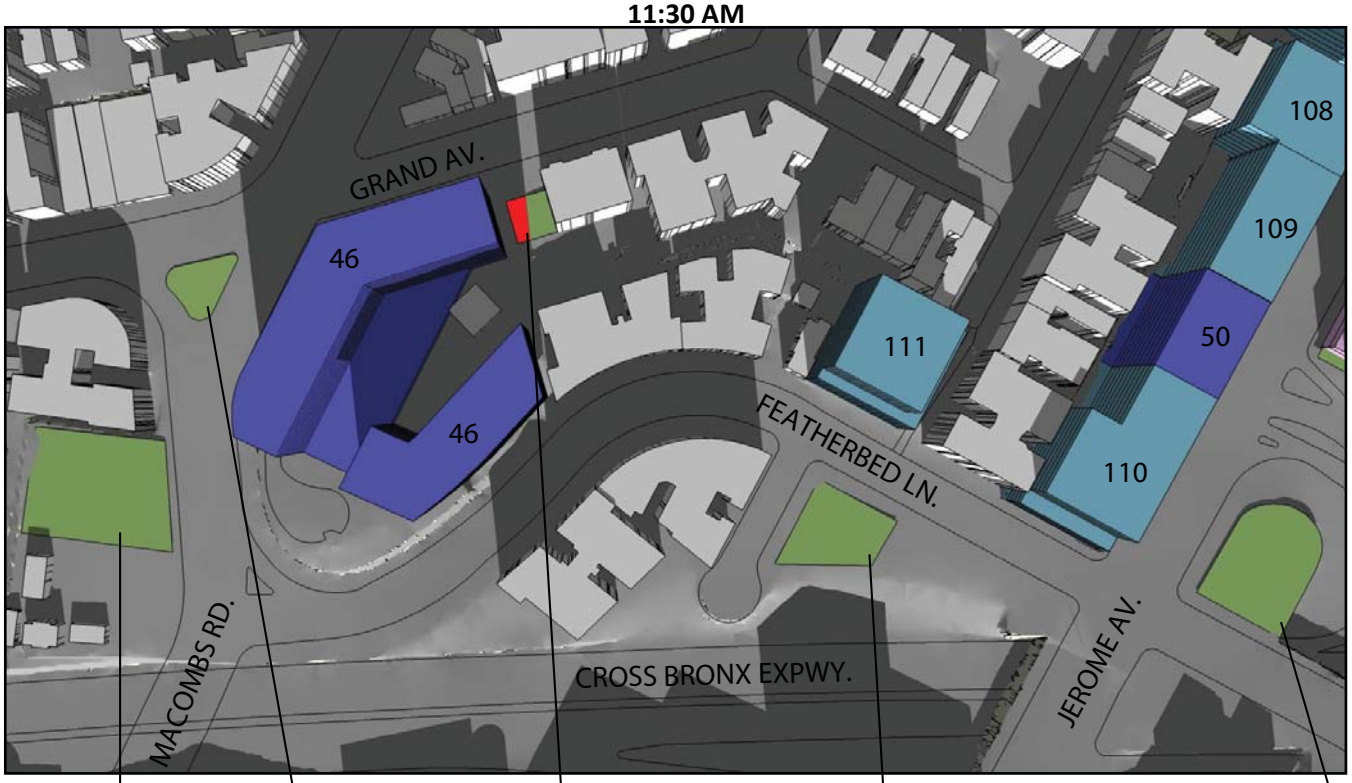
Incremental Shadow

N

Figure 20.6.6-3

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

11:30 AM



2:30 PM



Source: PHA, 2017.

Expanded Zoning - Projected

Expanded Zoning - Potential

Open Space

Incremental Shadow

N

Figure 20.6.6-4

20.6.7 HISTORIC AND CULTURAL RESOURCES

The Expanded Rezoning Area Alternative would not result in any significant adverse impacts to historic and cultural resources. The Expanded Rezoning Area Alternative assumes that development would occur on 52 projected development sites and 125 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 Expanded Rezoning Area 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 Proposed Actions and concluded that none of the lots comprising those sites have any archaeological significance. Therefore, the Proposed Actions are not expected to result in any significant adverse impacts to archaeological resources.

Architectural Resources

The Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative includes a portion of the Morris Avenue Historic District (NYCL-Designated). The Expanded Rezoning Area 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 Proposed Actions 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 Proposed Actions.

The (Former) House of Calvary Hospital, an eligible S/NR Historic Resource, is located in the Expanded Rezoning Area boundary and is a projected development site in the Expanded Rezoning Area Alternative. The Landmarks Preservation Committee reviewed all 52 of the projected development sites for the Expanded Rezoning Area Alternative and determined that these sites to be with no architectural or archaeological significance. Therefore, the Expanded Rezoning Area Alternative would not result in a significant adverse impact.

Indirect (Contextual) Impacts

The Expanded Rezoning Area 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 Expanded Rezoning Area 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 Proposed Actions. 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 Proposed Actions.

Although Potential Development Sites 20 and 21 are located near the Croton Aqueduct System within the area mapped as Aqueduct Walk, the Lower Density 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 Proposed Actions 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 52 projected development sites for the Expanded Rezoning Area Alternative. All 52 projected development sites were determined to be with no architectural or archaeological significance. Therefore, the Proposed Actions would not result in indirect impacts to the (Former) House of Calvary Hospital.

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 Sites75, 76, and 77. Therefore, no construction impacts to the Grand Concourse Historic District would result with the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would be Potential Development Site 43, which is located approximately 170 feet southwest of the historic district boundary; therefore, the Proposed Actions 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 Proposed Actions could result in construction impacts on the U.S. Post Office – Morris Heights Station, with the development of Potential Development Sites96 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 Expanded Rezoning Area Alternative would not result in any significant adverse impacts as a result of incremental shadows on historic architectural resources.

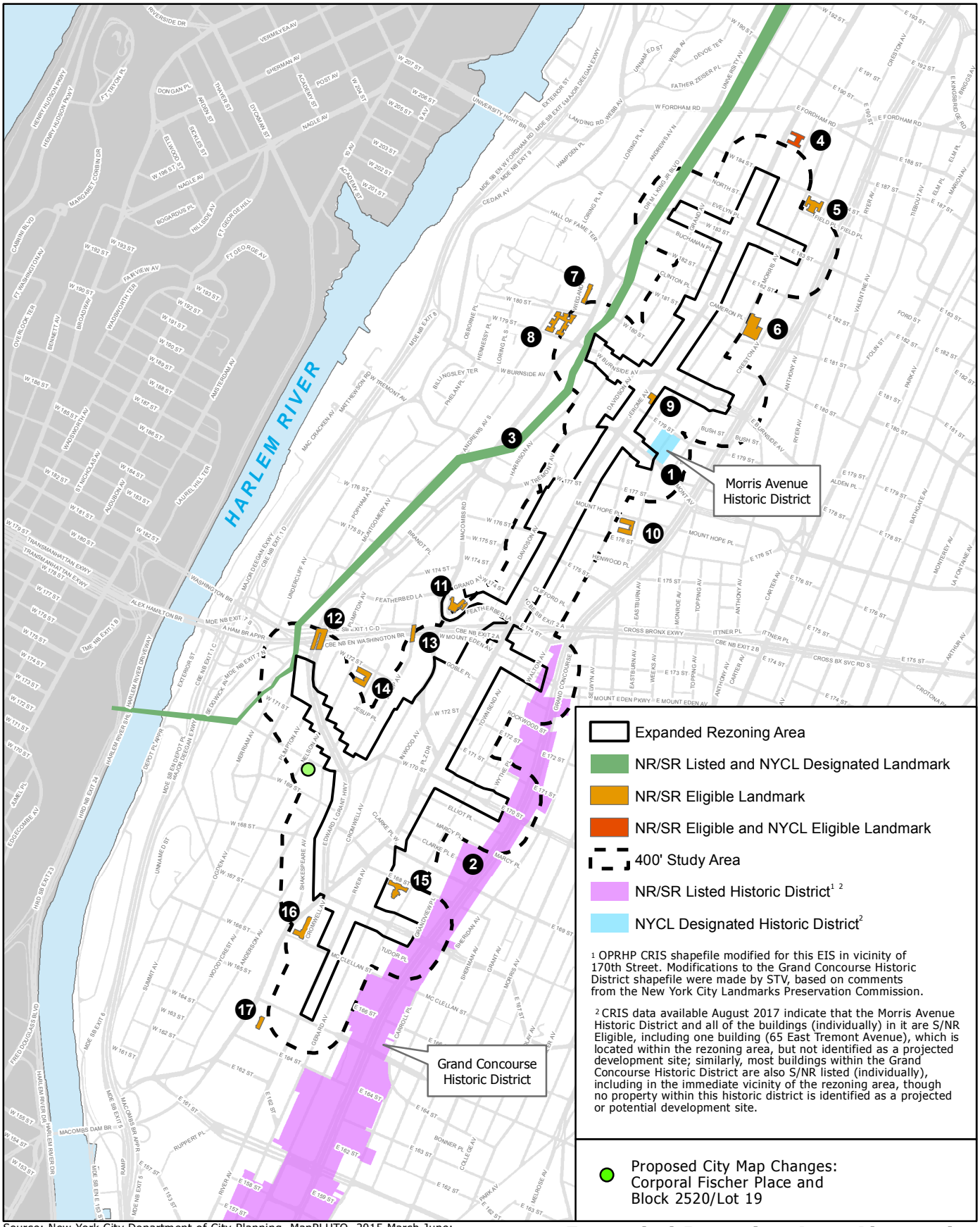
Table 20.6.7-1: Historic Resources

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 52 projected development sites for the Expanded Rezoning Area Alternative. All 52 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.

Expanded Rezoning Area Alternative

Figure 20.6.7-1

20.6.8 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 Expanded Rezoning Area Alternative as one alternative to the Proposed Actions.

The Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, the rezoning area would be expanded to include approximately ten additional blocks in four discrete areas located west of Jerome Avenue and a total of seven additional projected development sites and twenty-four additional potential development sites within these areas. Each of the four discrete areas would be mapped adjacent to the proposed rezoning area with new R7D, R8, 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 Expanded Rezoning Area includes the entire area that was defined as the rezoning area for the Proposed Actions, as well as all the same 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 Expanded Rezoning Area Alternative may be undertaken with the presumption that the analysis of the Proposed Actions satisfies the environmental review for the Expanded Rezoning Area Alternative except for the differences in physical area (expanded rezoning area delineation) and the additional projected and potential development sites within the expanded four geographical areas. In addition, as described in "Land Use, Zoning, and Public Policy," Section 20.6.2, there would be differences in development composition (second-story retail) at five sites that are also, otherwise, included within the Proposed Actions rezoning area.

Principal Conclusions

As with the Proposed Actions (see Chapter 8, "Urban Design and Visual Resources"), the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative and the Proposed Actions lies in the slightly greater extent to which the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative), and with the Expanded Rezoning Area Alternative would also occur in four discrete geographical areas:

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), extending slightly over a block-width, west from Jerome Avenue (to just west of Davidson Avenue) into the Morris Heights neighborhood, between approximately West 177th Street to the north and West 176th Street to the south;

- 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;

- Within the Jerome Avenue corridor (Cross-Bronx Expressway – 169th Street), extending approximately one and one-half block-widths, west from Inwood Avenue (to include the west side of Cromwell Avenue) in the Mount Eden neighborhood, between Macombs Road to the north and West 170th Street to the south;

- 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 Expanded Rezoning Area Alternative relates to the second-story retail development that would result with the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative.

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

Methodology

The methodology for the urban design and visual resources assessments for the Expanded Rezoning Area 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 20.6.8-1, "Urban Design and Visual Resources Primary and Secondary Study Areas (Aerial)," and Figure 20.6.8-2, "Urban Design and Visual Resources Primary and Secondary Study Areas (Topography)" for the illustrations of the Expanded Rezoning Area 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.

Expanded Rezoning Area Alternative

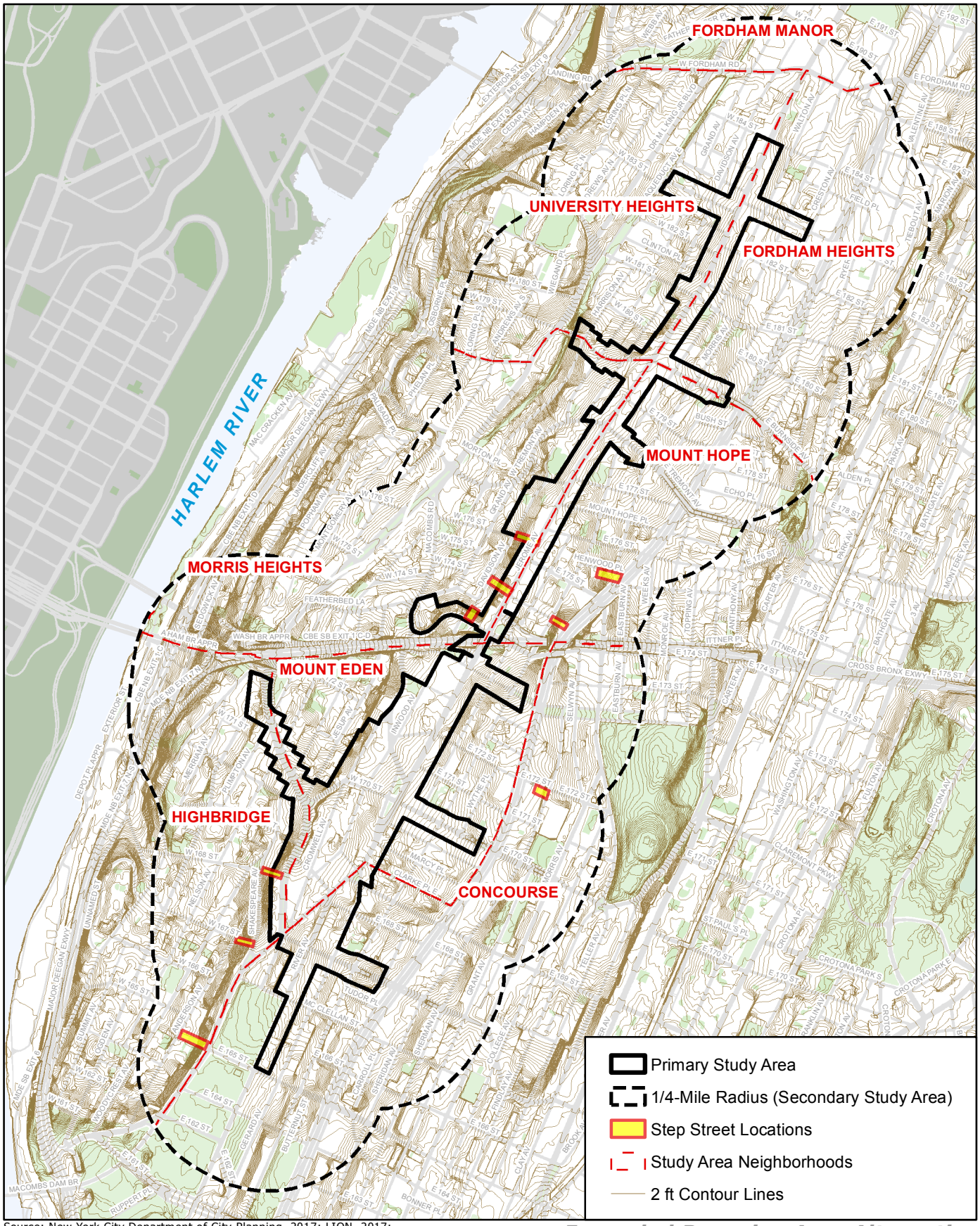
N

0 0.25 0.5 Mile

Jerome Avenue Rezoning EIS

Figure 20.6.8-1

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.

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Jerome Avenue Rezoning EIS

Figure 20.6.8-2

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 Expanded Rezoning Area Alternative.

Detailed Assessment

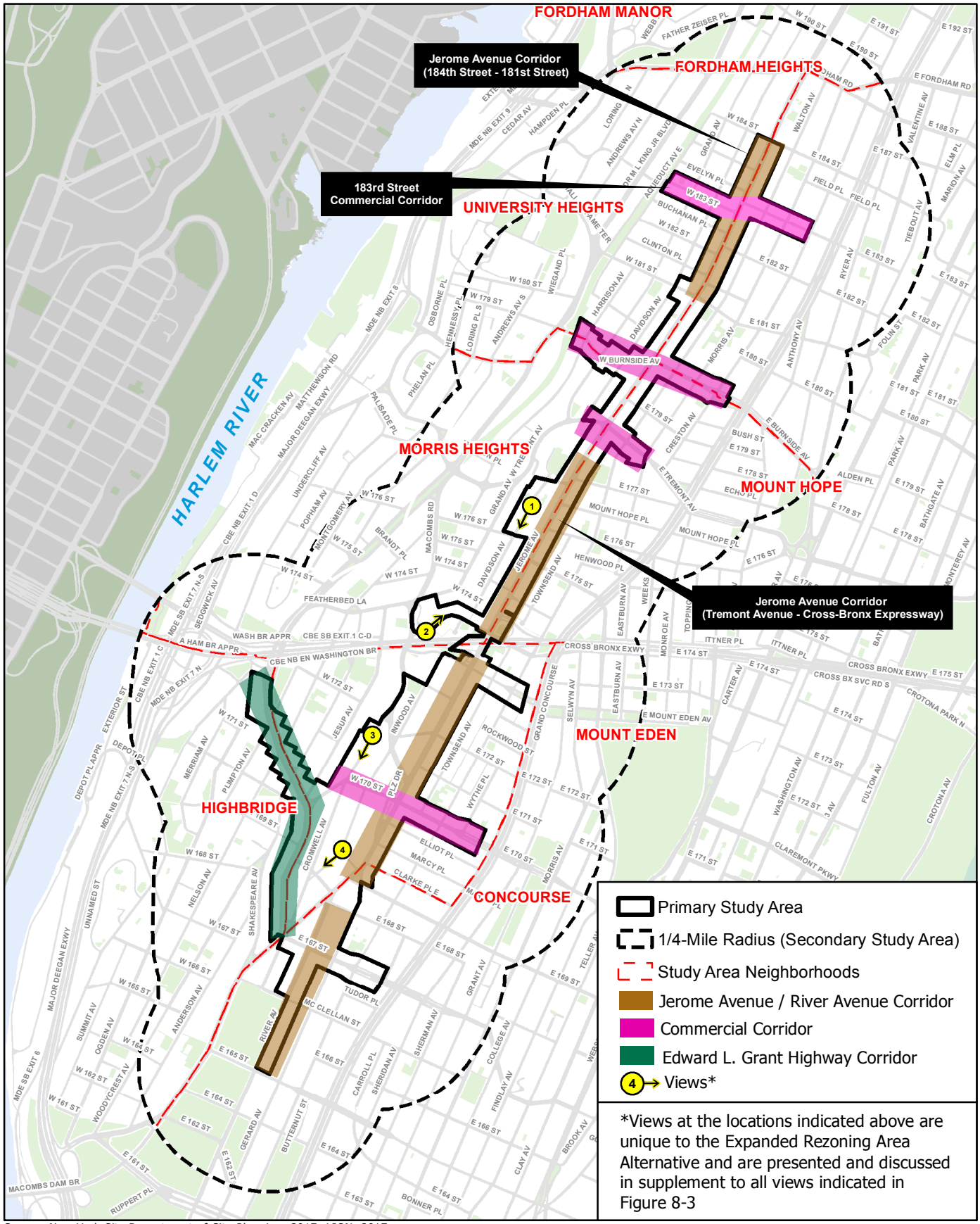
PART I – Urban Design

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, thought 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 four portions of the primary study area that are unique to the Expanded Rezoning Area 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 Expanded Rezoning Area 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 20.6.8-3, "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 four portions of rezoning area that are unique to the Expanded Rezoning Area Alternative.



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

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.8-3a

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.

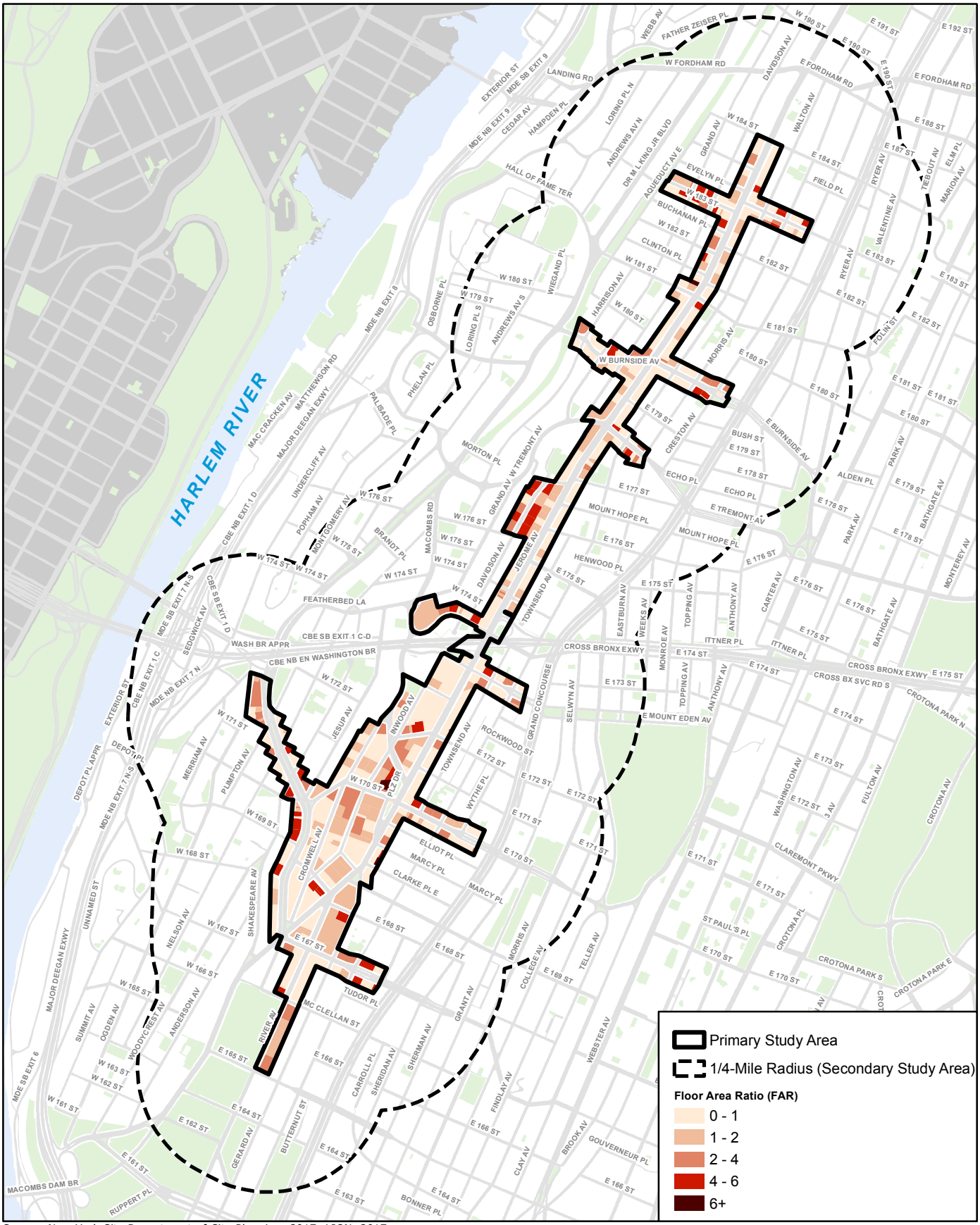
Expanded Rezoning Area Alternative

Figure 20.6.8-3b

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 Expanded Rezoning Area Alternative, as well as the irregular blocks in particular, south of the Cross Bronx Expressway. The four areas unique to the Expanded Rezoning Area Alternative conform to this overall pattern. (Please refer to Figure 20.6.8-4, "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 Expanded Rezoning Area Alternative conform to this overall pattern, as well. (Please refer to Figure 20.6.8-5, "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 lots 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 fourth areas unique to the Expanded Rezoning Area Alternative conform to this overall pattern. (Please refer to Figure 20.6.8-6a, "Building Footprints & Streetwall in Primary and Secondary Study Areas (north)" and Figure 20.6.8-6b, "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.

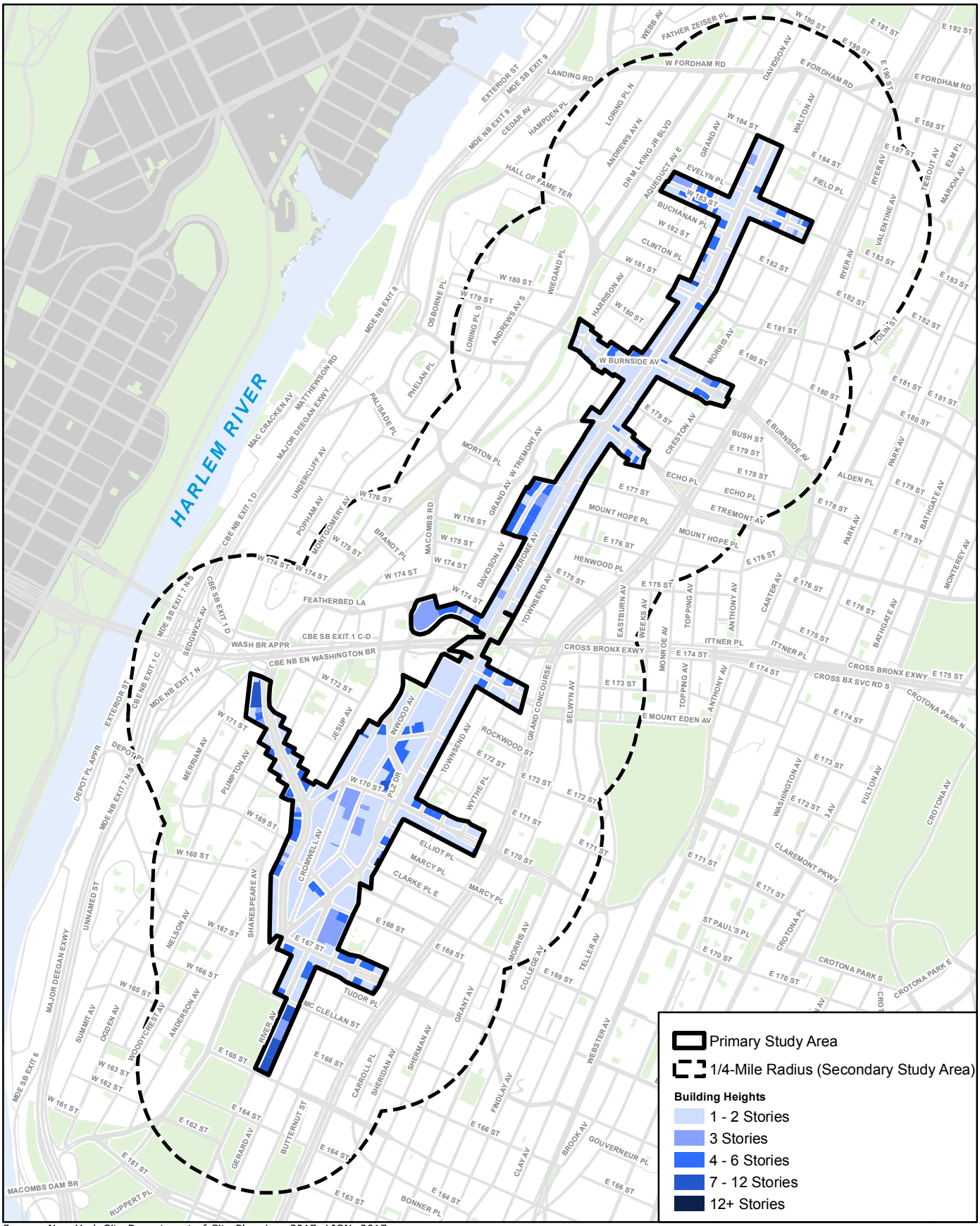
Expanded Rezoning Area Alternative

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.

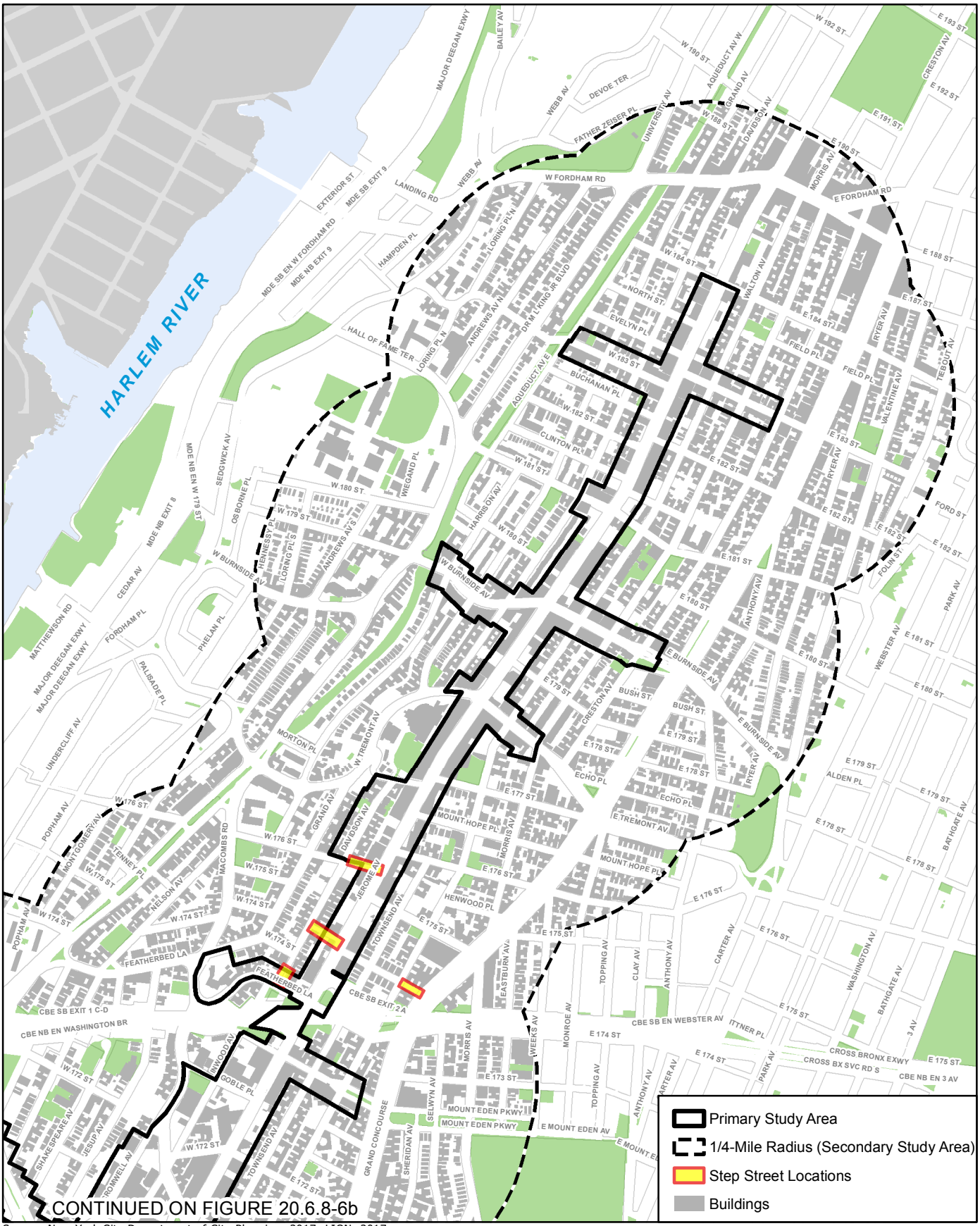
Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.8-5

EXISTING BUILDING HEIGHTS IN PRIMARY STUDY AREA



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

Expanded Rezoning Area Alternative

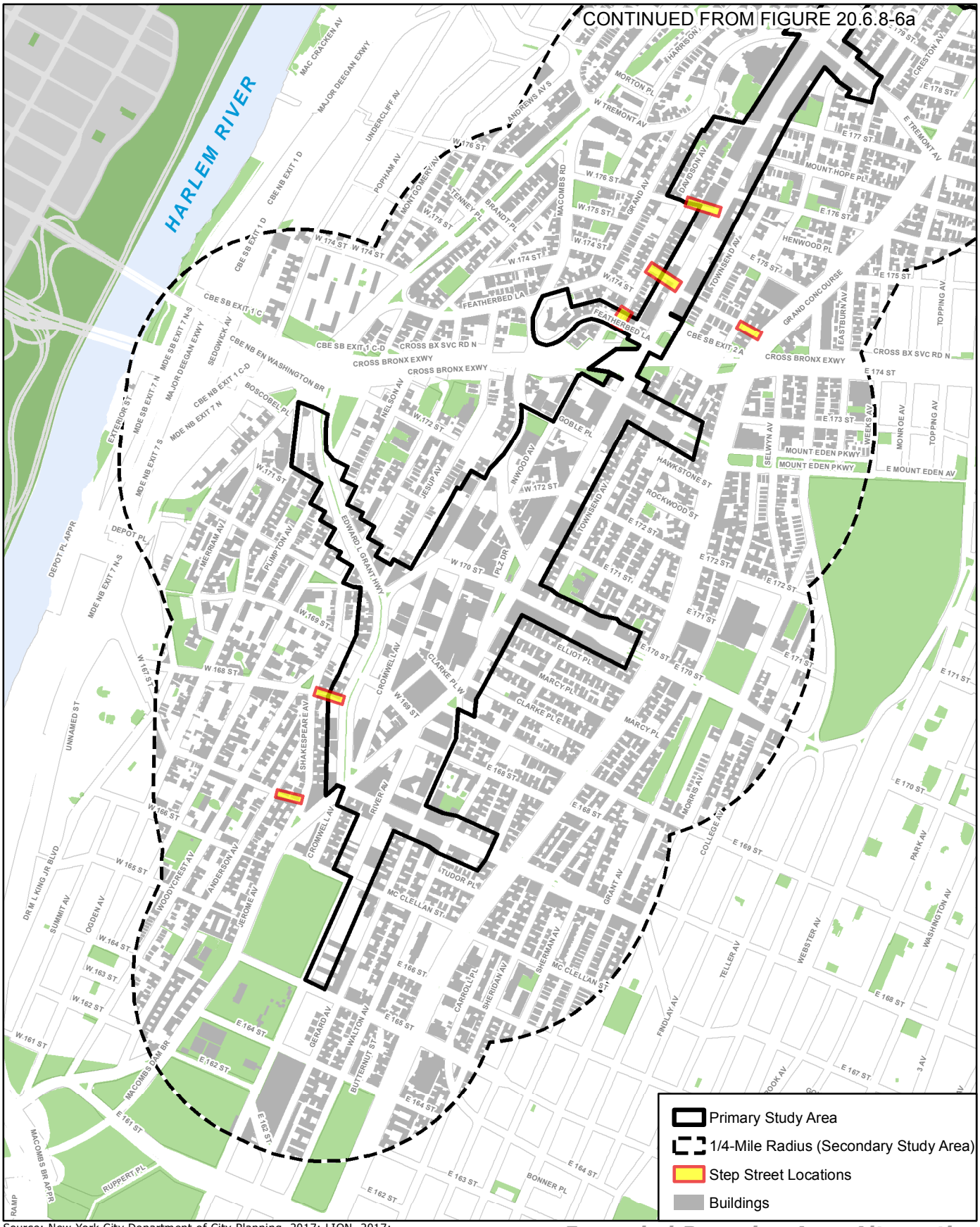
N

0 0.15 0.3 Mile

Figure 20.6.8-6a

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.

Expanded Rezoning Area Alternative

N

0 0.15 0.3 Mile

Figure 20.6.8-6b

Jerome Avenue Rezoning EIS

BUILDING FOOTPRINTS & STREETWALL IN THE PRIMARY & SECONDARY STUDY AREAS

Secondary Study Area

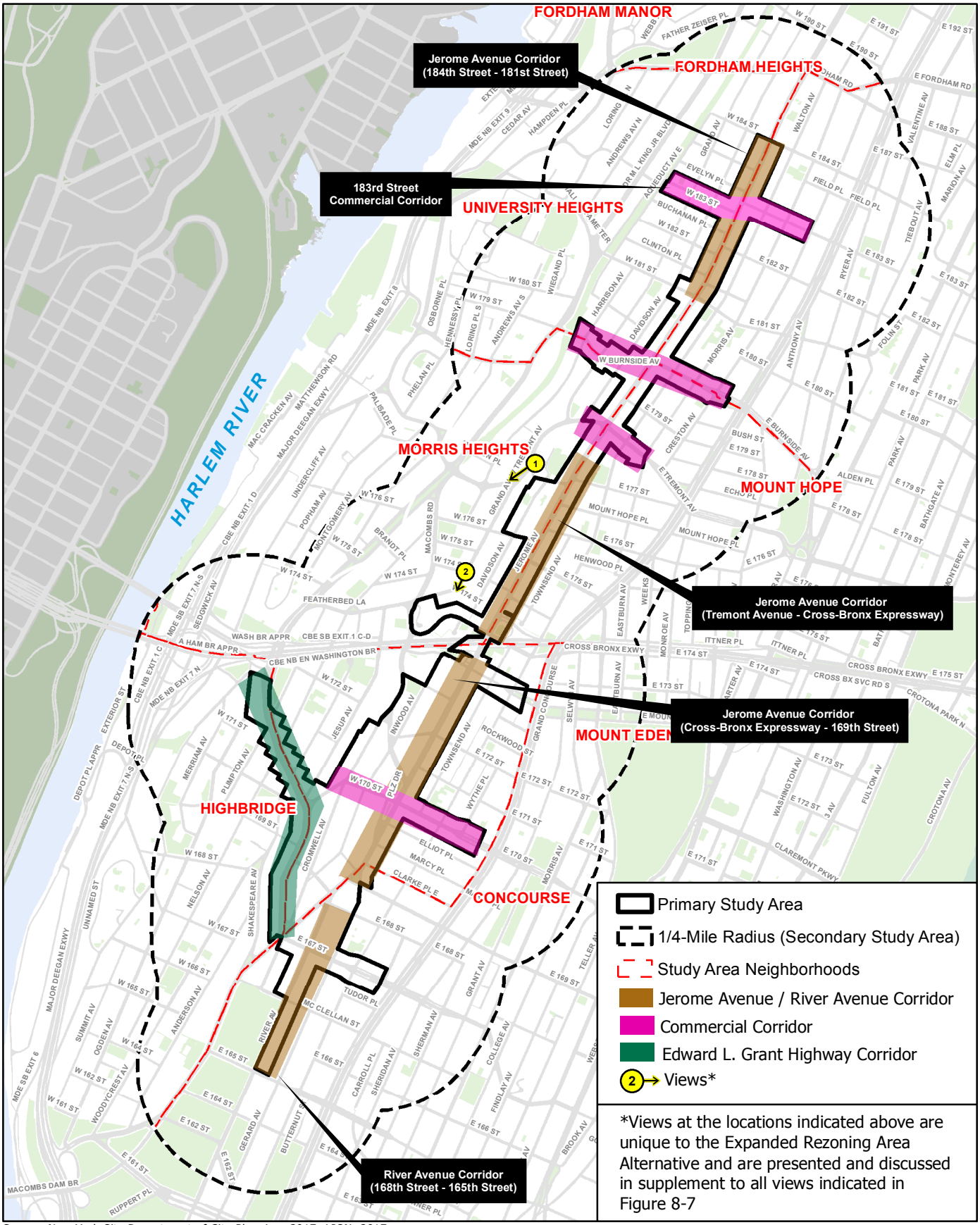
Please refer to Chapter 8, "Urban Design and Visual Resources," for detailed descriptions of urban design in the neighborhoods comprising the secondary study area for both the Proposed Actions and the Expanded Rezoning Area Alternative. Chapter 8, Figure 8-7 provides existing views throughout the secondary study area. Following, in this section, please refer to Figure 20.6.8-7, "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 Expanded Rezoning Area 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 20.6.8-8, "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 20.6.8-5, "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 20.6.8-6a, "Building Footprints & Streetwall in Primary and Secondary Study Areas (north)" and Figure 20.6.8-6b, "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.

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.8-7a

Jerome Avenue Rezoning EIS

EXISTING VIEWS OF THE BUILT CONTEXT WITHIN THE SECONDARY STUDY AREA



1. Looking south along West Tremont Avenue and Grand Avenue



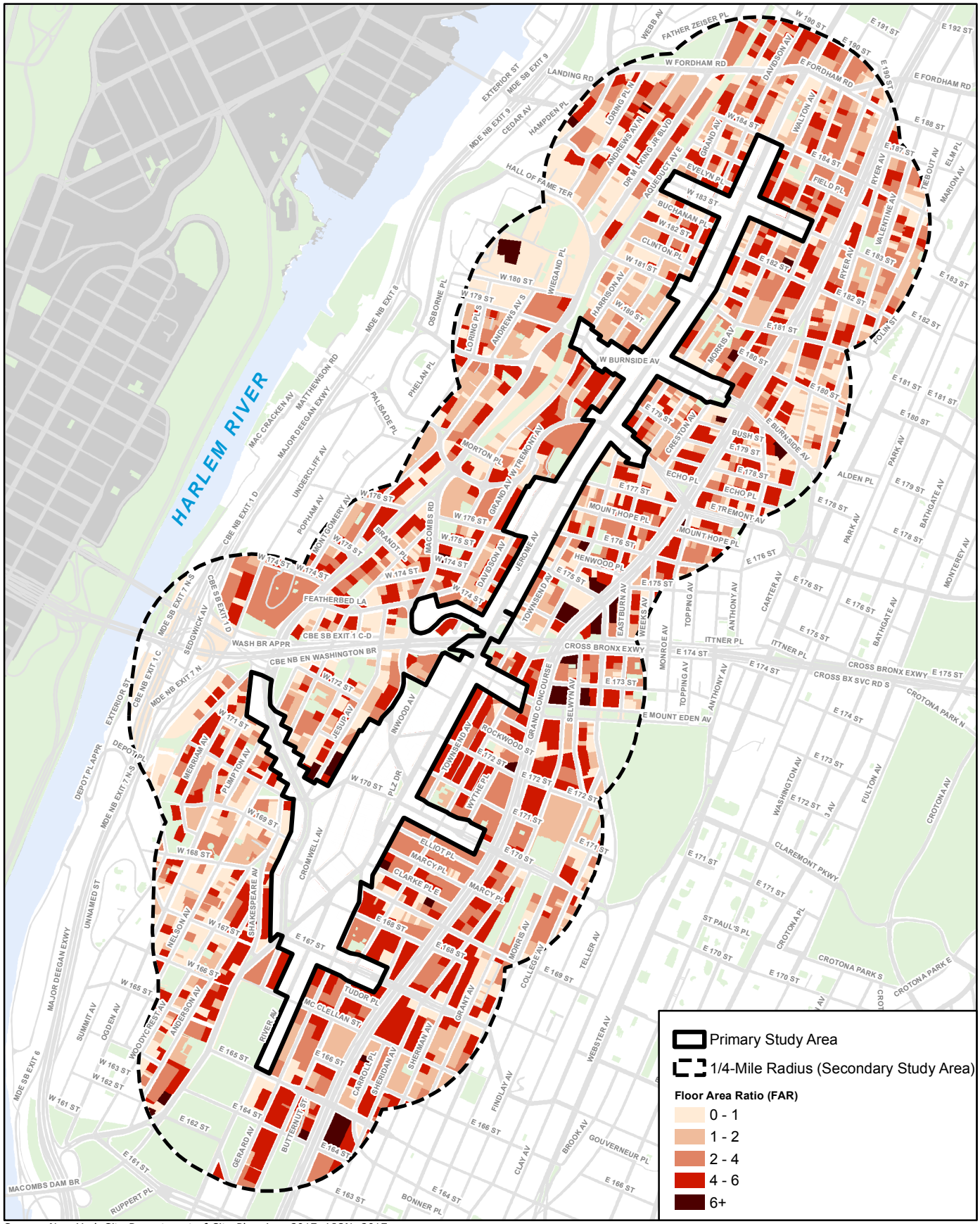
2. Looking south on Grand Avenue towards 174th Street

EXISTING VIEWS

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

Expanded Rezoning Area Alternative

Figure 20.6.8-7b

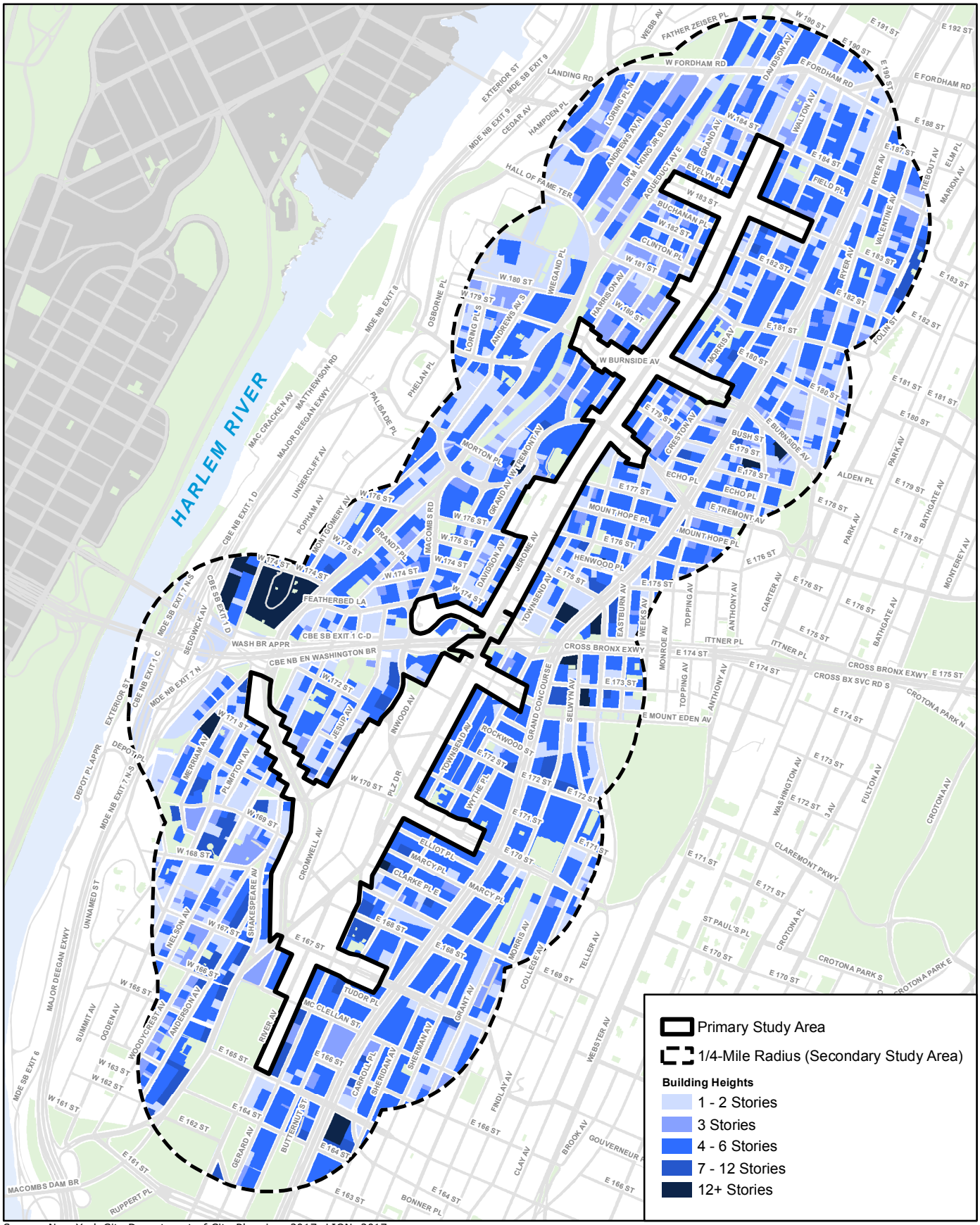


Source: New York City Department of City Planning, 2017; LION, 2017; MapPLUTO, 2016; STV Incorporated, 2017.

Expanded Rezoning Area Alternative

Figure 20.6.8-8

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

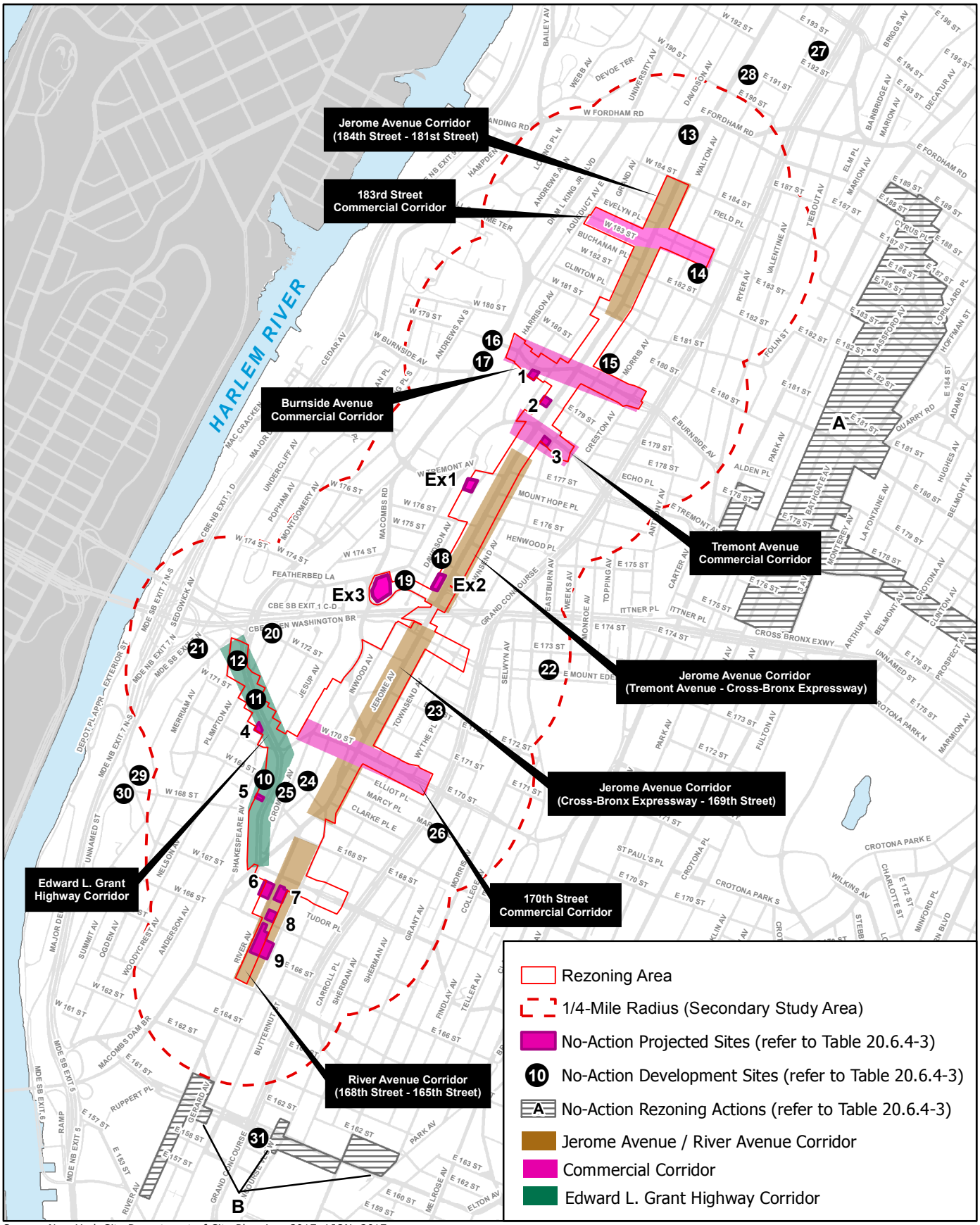
Figure 20.6.8-9

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 Expanded Rezoning Area Alternative, in the primary and secondary study areas. Figure 20.6.8-10, "No-Action Development Sites in the Primary & Secondary Study Areas," illustrates locations of No-Action development with respect to the Expanded Rezoning Area Alternative primary study area; please note, that No-Action Development Sites 24 and 25, which were located outside the primary study area for the Proposed Actions are located within the primary study area for the Expanded Rezoning Area Alternative. Likewise, the No-Action Development Sites indicated as "Ex1," "Ex2," and "Ex3" on Figure 20.6.8-10, represent No-Action estimations specifically for projected development sites that are unique to the Expanded Rezoning Area Alternative.

[NOTE: Make sure this section aligns with No-Action section in ERAA Land Use]



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

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.8-10

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

Jerome Avenue Rezoning EIS

With-Action

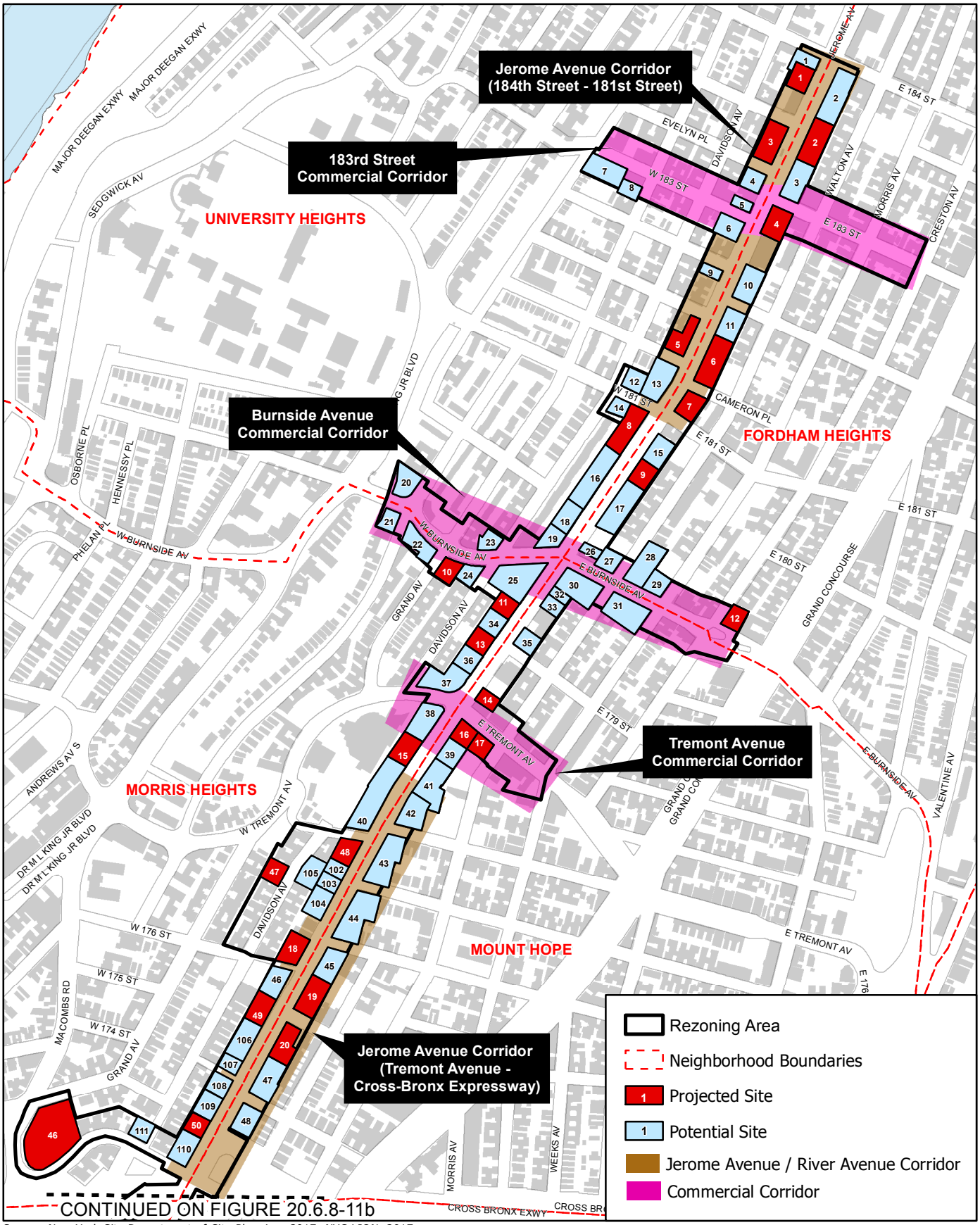
Primary Study Area

As with the Proposed Actions, described previously in Chapter 8, "Urban Design and Visual Resources," the Expanded Rezoning Area Alternative would not introduce land uses that are not already present in the rezoning area. However, as with the Proposed Actions, the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, which is presented in section 20.6.2, "Land Use, Zoning, and Public Policy."

See Figure 20.6.8-11a, "Expanded Rezoning Area Alternative – Projected and Potential Development Sites (north)," and Figure 20.6.8-11b, "Expanded Rezoning Area Alternative – Projected and Potential Development Sites (south)," for locations of the Projected and Potential Development Sites in the primary study area for the Expanded Rezoning Area Alternative. In addition, 3-D computer model renderings are provided as further illustration of the Expanded Rezoning Area Alternative, with figures 20.6.8-12 (a, b, and c) representing 2026 conditions in the primary study area with all the projected development sites having been fully developed, and Figure 20.6.8-12, "Expanded Rezoning Area 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.

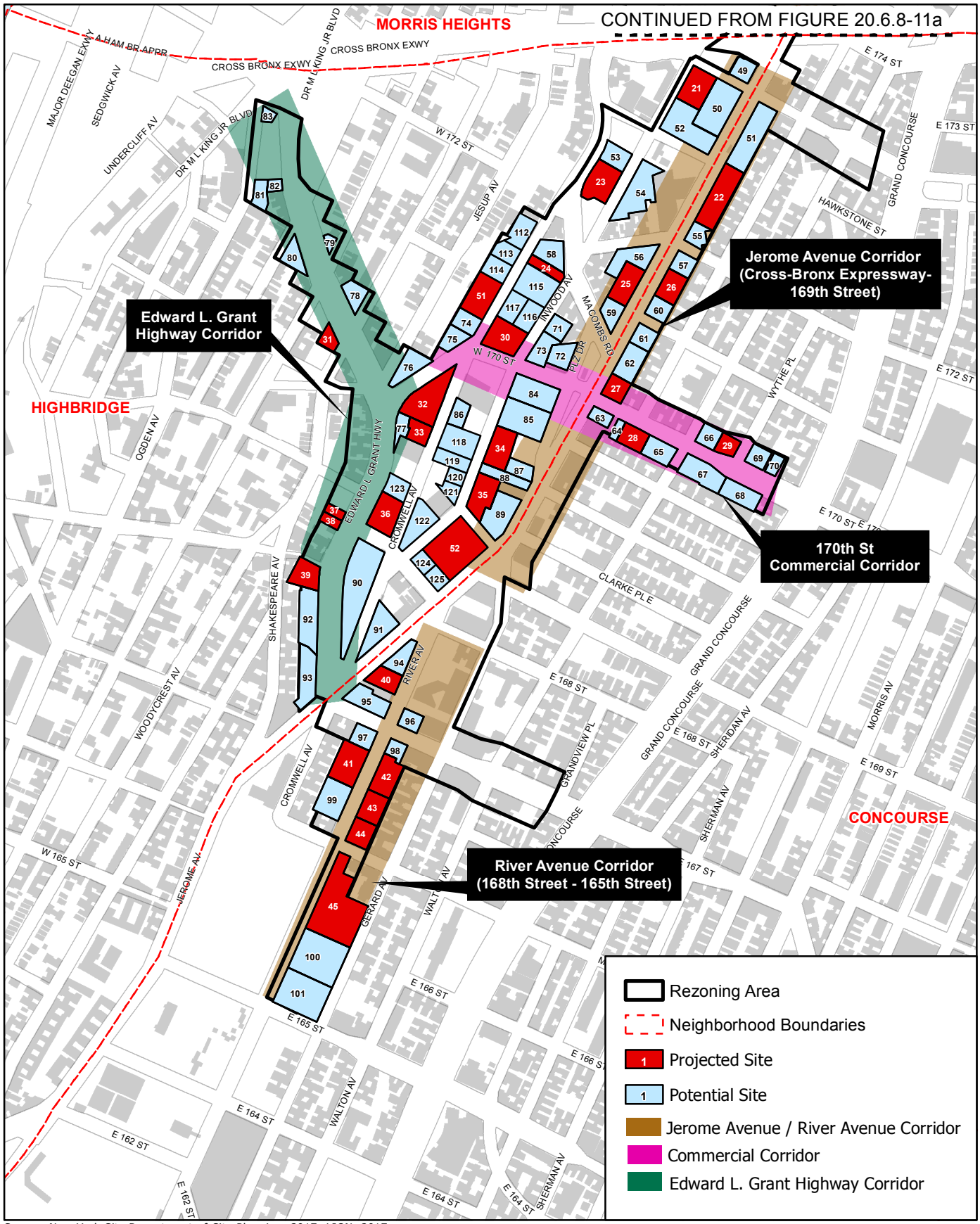
N

0 0.125 0.25 Mile

Expanded Rezoning Area Alternative

Figure 20.6.8-11a

PROJECTED & POTENTIAL DEVELOPMENT SITES (NORTH)



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

Expanded Rezoning Area Alternative

Figure 20.6.8-11b

PROJECTED & POTENTIAL DEVELOPMENT SITES (SOUTH)

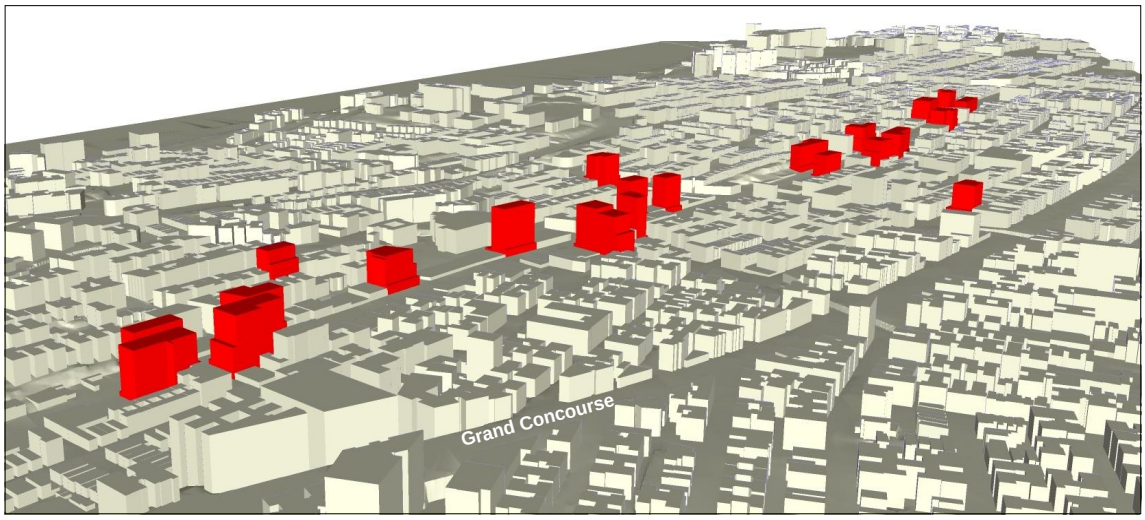


Figure 20.6.8-12a Proposed Action - Projected Development Sites 2026 - 3-D Model (North of Cross-Bronx Expressway)

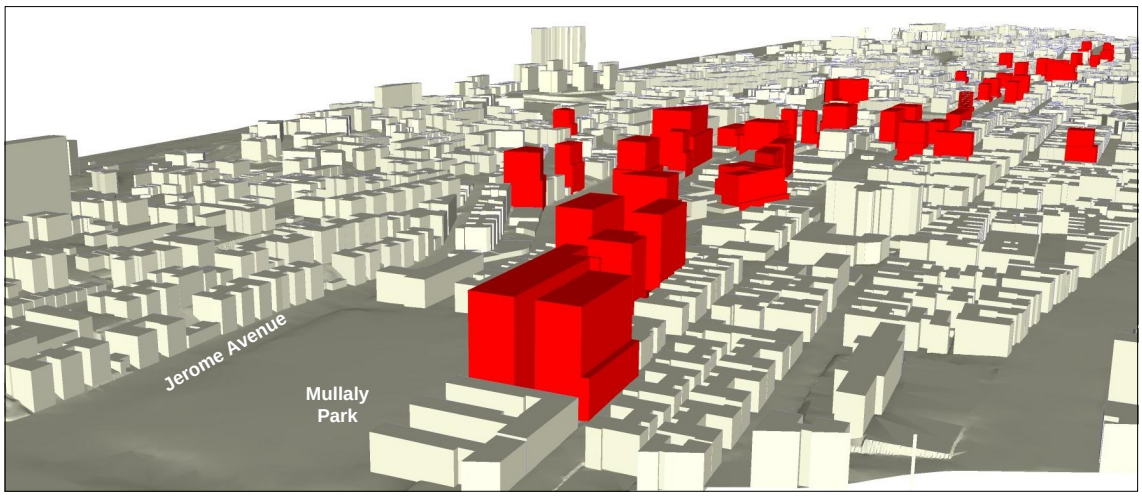


Figure 20.6.8-12b Proposed Action - Projected Development Sites 2026 - 3-D Model (South of Cross-Bronx Expressway) View 1

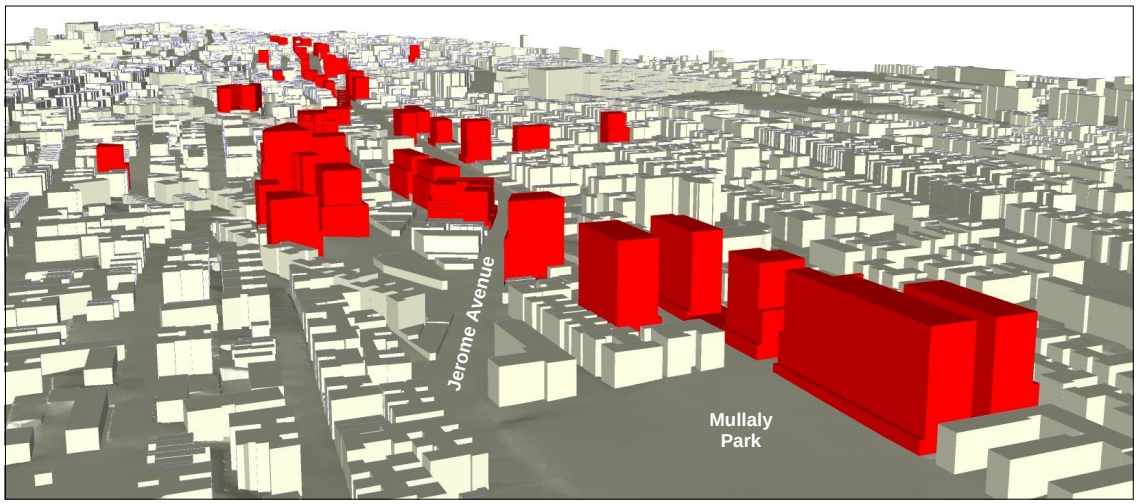


Figure 20.6.8-12c Proposed Action - Projected Development Sites 2026 - 3-D Model (South) of Cross-Bronx Expressway) View 2

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

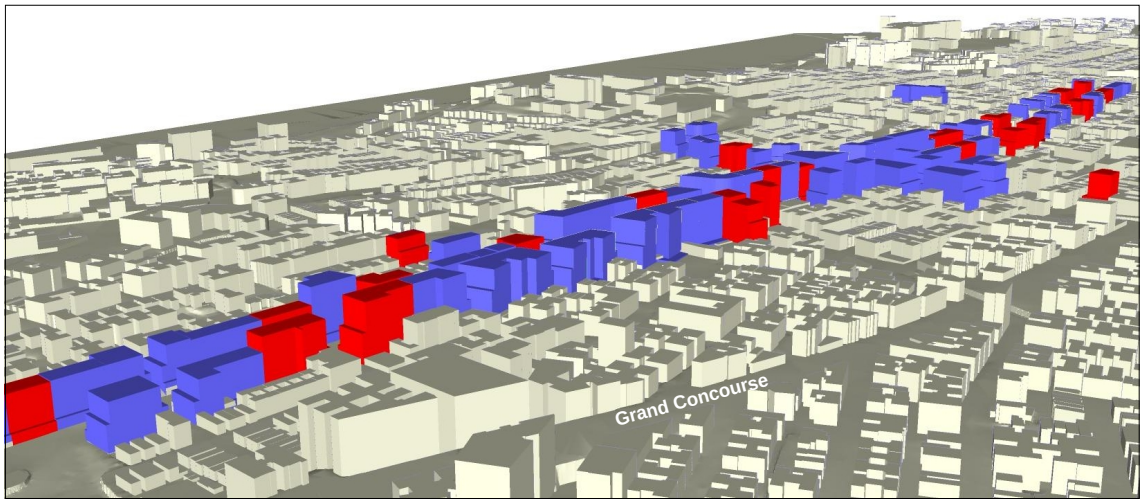


Figure 20.6.8-13a Proposed Action - Projected & Potential Development Sites - 3-D Model (North of Cross-Bronx Expressway)

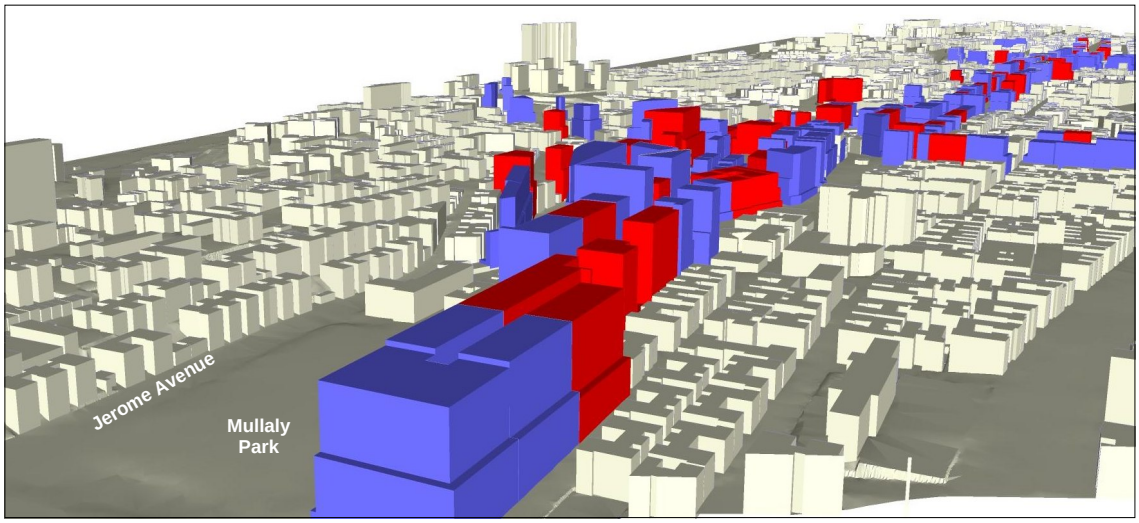


Figure 20.6.8-13b Proposed Action - Projected & Potential Development Sites - 3-D Model (South of Cross-Bronx Expressway) View 1

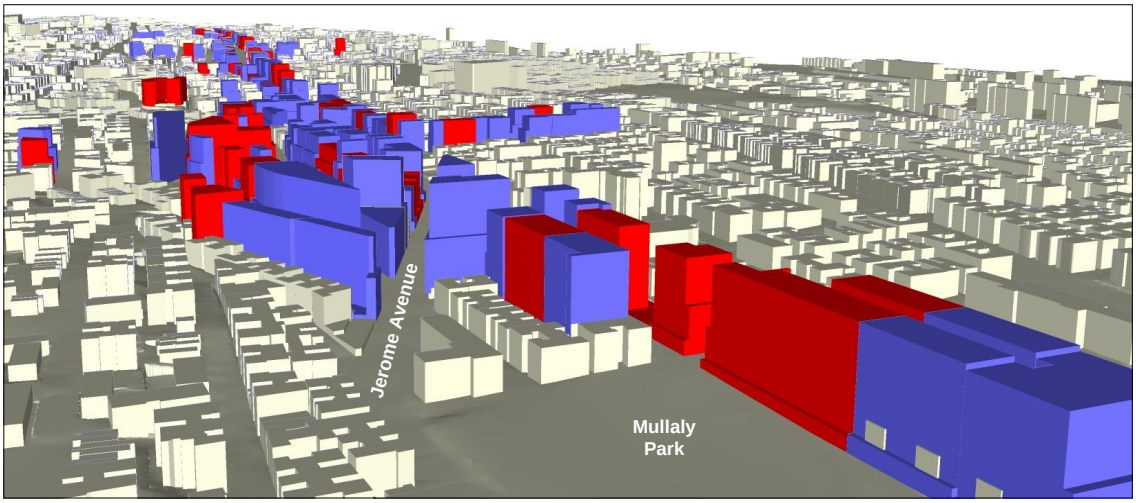


Figure 20.6.8-13c Proposed Action - Projected & Potential Development Sites - 3-D Model (South of Cross-Bronx Expressway) View 2

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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, the overall findings related to effects to urban design improvement are similar between the Proposed Actions and the Expanded Rezoning Area Alternative.

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

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), extending slightly over a block-width, west from Jerome Avenue (to just west of Davidson Avenue) into the Morris Heights neighborhood, between approximately West 177th Street to the north and West 176th Street to the south;

- 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;

- Within the Jerome Avenue corridor (Cross-Bronx Expressway – 169th Street), extending approximately one and one-half block-widths, west from Inwood Avenue (to include the west side of Cromwell Avenue) in the Mount Eden neighborhood, between Macombs Road to the north and West 170th Street to the south; and

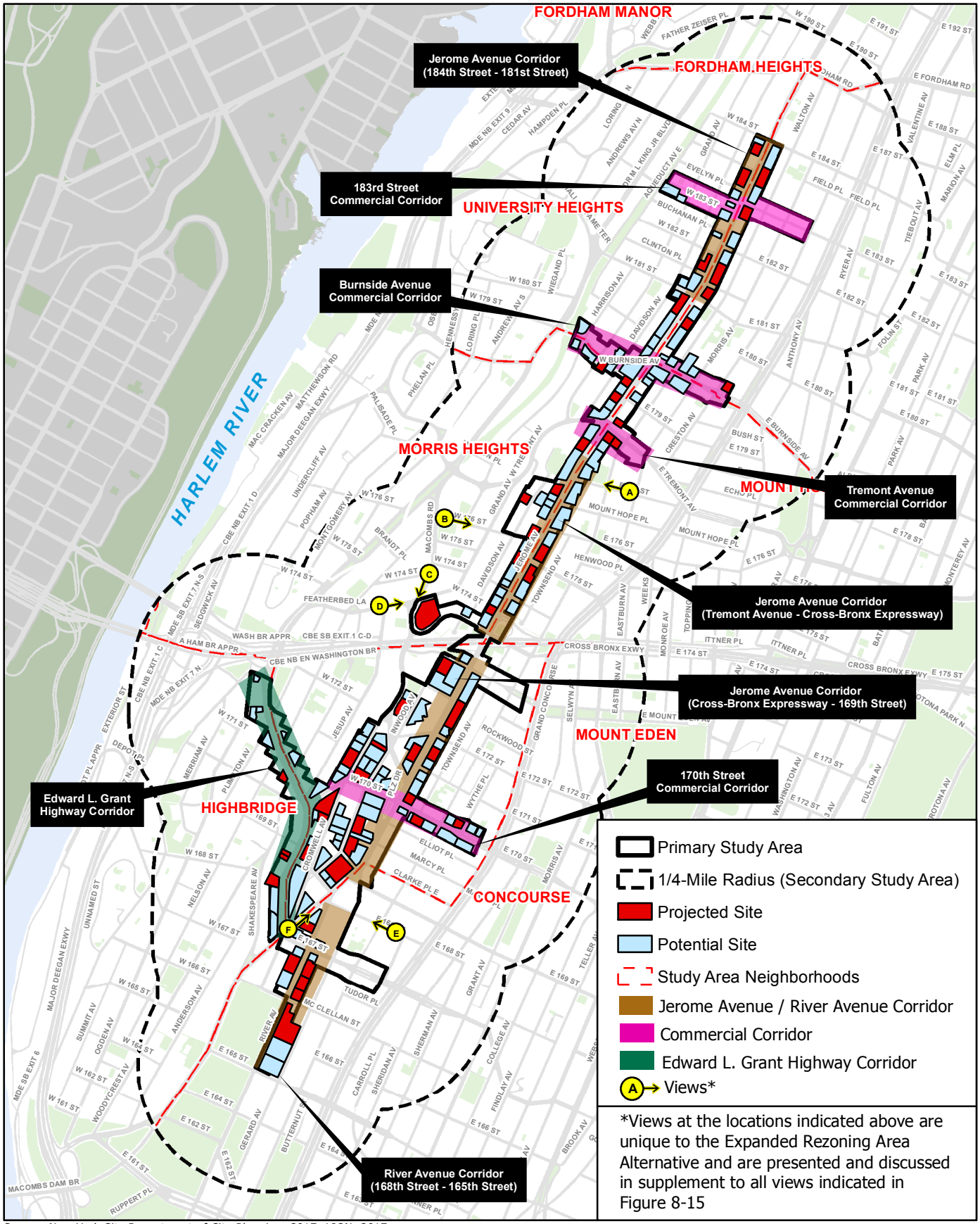
- Within the Jerome Avenue corridor (Cross-Bronx Expressway – 169th Street), portions of several irregular blocks between Edward L. Grant Highway to the west and Jerome Avenue to the east, in the Mount Eden neighborhood, south of West 170th Street.

A lesser distinction between the Proposed Actions and the Expanded Rezoning Area Alternative relates to the second-story retail development that would result with the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative.

As with the Proposed Actions, the greatest potential change to urban design throughout the corridor with the Expanded Rezoning Area Alternative, particularly with regard to the effect of overall urban design consistency and streetscape improvement, may occur after 2026, if all the 125 potential development sites were to be developed, in addition to the 52 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 Expanded Rezoning Area 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 20.6.8-14, "Expanded Rezoning Area 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 four portions of rezoning area that are unique to the Expanded Rezoning Area Alternative.



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

Expanded Rezoning Area Alternative

N

0 0.25 0.5 Mile

Figure 20.6.8-14a

STREETSCAPE VIEWS PROJECTED & POTENTIAL DEVELOPMENTS

Jerome Avenue Rezoning EIS



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.

Expanded Rezoning Area Alternative

Figure 20.6.8-14b

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.

Expanded Rezoning Area Alternative

Figure 20.6.8-14b

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.

Expanded Rezoning Area Alternative

Figure 20.6.8-14b

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.



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.



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.

Expanded Rezoning Area Alternative

Figure 20.6.8-14b

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

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 Expanded Rezoning Area Alternative, as well, though three additional open space resources are in the vicinity of the Expanded Rezoning Area Alternative:

- Within the primary study area for the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative (see Chapter 6, "Shadows," and Section 20.6.6, "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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative in the vicinity of these historic districts. Therefore, as described in Chapter 8 for the Proposed Actions, the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative and the Proposed Actions lies in the slightly greater extent to which the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative), would also occur in four discrete geographical areas:

- Within the Jerome Avenue corridor (Tremont Avenue – Cross-Bronx Expressway), extending slightly over a block-width, west from Jerome Avenue (to just west of Davidson Avenue) into the Morris Heights neighborhood, between approximately West 177th Street to the north and West 176th Street to the south;

- 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;

- Within the Jerome Avenue corridor (Cross-Bronx Expressway – 169th Street), extending approximately one and one-half block-widths, west from Inwood Avenue (to include the west side of Cromwell Avenue) in the Mount Eden neighborhood, between Macombs Road to the north and West 170th Street to the south;

- 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 Expanded Rezoning Area Alternative relates to the second-story retail development that would result with the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative.

In summary, the Expanded Rezoning Area 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 two locations in the Mount Eden neighborhood. No significant adverse impacts to urban design would occur with either the Proposed Actions or the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, the entire visual resources assessment in Chapter 8 for the Proposed Actions is appropriate for the Expanded Rezoning Area Alternative, and the findings are also valid for the Expanded Rezoning Area Alternative, but for additional inclusion of the three additional open space resources (identified previously in the urban design assessment for the Expanded Rezoning Area Alternative), which are in the vicinity of the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative. Therefore, the visual resources assessment of open space resources for the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative.

Similarly, given the delineation of the respective rezoning areas, the visual resources assessment of historic resources for the Expanded Rezoning Area Alternative may conclude with the equivalent findings as reported for the Proposed Actions in Chapter 8. Specifically, the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative. Therefore, no significant adverse impacts to historic resources, as visual resources, would result with either the Proposed Actions or the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, without exception.

Although the Expanded Rezoning Area Alternative may result in new development (Expanded Rezoning Area 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 Expanded Rezoning Area Alternative. Therefore, the general character of this step street and view corridor would not change with the Proposed Actions or the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative. Therefore, no significant adverse impacts to step streets as visual resources would result with either the Proposed Actions or the Expanded Rezoning Area Alternative.

Conclusion – Visual Resources

As with the Proposed Actions, the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative result in any substantial change to view corridors identified within the study area. Therefore, neither the Proposed Actions nor the Expanded Rezoning Area Alternative would result in any significant adverse impact to visual resources.

20.6.9 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, the rezoning area would be expanded to include approximately ten additional blocks in four discrete areas located west of Jerome Avenue. With the Expanded Rezoning Area Alternative, development would occur on an additional seven projected development sites and an additional 24 potential development sites for a total of 177 development sites, of which 52 are considered projected development sites and 125 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 Expanded Rezoning Area 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 seven projected and 24 potential development sites added in the Expanded Rezoning Area 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 Expanded Rezoning Area 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, seven projected and 24 potential, identified in the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 expanded rezoning area. 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 Expanded Rezoning Area Alternative are consistent with the existing conditions described in Chapter 9, "Hazardous Materials," as related to the Proposed Actions.

The Future without the Expanded Rezoning Area Alternative (No-Action Condition)

The No-Action conditions with the Expanded Rezoning Area 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 seven projected and 24 potential development sites also included with the Expanded Rezoning Area 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, four of the seven additional projected development sites will remain as in the existing condition, while three of the seven 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 Expanded Rezoning Area Alternative, as described below.

The Future with the Expanded Rezoning Area Alternative (With-Action Condition)

The With-Action conditions for the Expanded Rezoning Area 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, seven additional projected development sites that are considered likely to be developed by the 2026 analysis year, and 24 additional potential development sites that are considered less likely to be developed over the same period. Only these additional seven projected development sites and 24 potential development sites are described in detail in this section; however, the conclusions represent consideration of the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 was 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 expanded rezoning area 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 Expanded Rezoning Area 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 20.6.9-1: Expanded Rezoning Area Alternative Additional Projected Development Sites

Projected Site Number	Tax Block	Tax Lot
46	2865	134
47	2867	142
48	2861	140
49	2861	80
50	2861	35

Projected Site Number	Tax Block	Tax Lot
51	2872	74
	2872	78
52	2855	51
	2855	45
	2855	53

Table 20.6.9-2: Expanded Rezoning Area Alternative Additional Potential Development Sites

Potential Site Number	Tax Block	Tax Lot
102	2861	145
103	2861	148
104	2861	154
	2861	151
105	2861	129
106	2861	86
	2861	91
107	2861	94
108	2861	25
	2861	26
	2861	27
	2861	28
	2861	29
109	2861	32
	2861	34
	2861	30
	2861	31
110	2861	1
	2861	39
111	2865	122
112	2872	170
	2872	177

Potential Site Number	Tax Block	Tax Lot
113	2872	182
	2872	179
114	2872	183
115	2857	48
	2857	45
	2857	15
116	2857	51
117	2857	8
118	2864	25
119	2864	21
120	2864	69
	2864	70
	2864	71
121	2864	72
	2864	73
	2864	74
122	2864	8
	2864	1
123	2871	69
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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative. Following such construction, there would be no potential for significant adverse impacts.

20.6.10 WATER AND SEWER INFRASTRUCTURE

With the Expanded Rezoning Area 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 20.6.10-1, "Water Demand and Wastewater Generation," the water demand from the Expanded Rezoning Area Alternative is expected to total 1,794,556 gpd (compared to 1,364,040 gpd with the Proposed Actions). Comparing this water demand with the Expanded Rezoning Area Alternative represents an increment of 1,124,786 gpd over the No-Action Condition (compared to an incremental increase of 877,385 gpd for the Proposed Actions). As with the Proposed Actions, this incremental demand with the Expanded Rezoning Area Alternative would represent approximately 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 Expanded Rezoning Area Alternative has the potential to result in a sanitary sewage discharge of approximately 1,599,446 gpd, an increment of 1,121,468 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 Expanded Rezoning Area Alternative.

With 52 projected development sites included in the Expanded Rezoning Area Alternative, the wastewater increment flow of 1,121,468 gpd would produce an average of 21,567 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 20.6.10-1: 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]	5,055	1,484,675	0
Commercial/Office/ Retail[3]	Domestic: 0.24 gpd/sf	720,920	72,092	122,556
	A/C: 0.17 gpd/sf			
Community Facility[4]	Domestic: 0.10 gpd/sf	426,789	42,679	72,554
	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			***1,794,556***	
Total Wastewater Generation			***1,599,446***	

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 14,847 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 Expanded Rezoning Area Alternative includes four discrete new geographies adding a total of 188,969 sf of built area, or nineteen percent more than in the Proposed Actions. However, only approximately one-quarter of this area is currently green areas, resulting in only four percent of green areas in the total built area within the Expanded Rezoning Area Alternative. Because the properties in the Expanded Rezoning Area Alternative would become completely impervious at the full development phase, a minor increase in runoff generation is expected. Comparatively speaking, there is also a twenty-five percent increase in the number of residential units in the Expanded Rezoning Area Alternative, compared to the Proposed Actions.

The increase in sanitary sewage flowing to the combined sewer system is presented in Table 20.6.10-2, "Runoff and Wastewater Volume Calculations." These results represent an increase beyond what has been identified for the Proposed Actions.

Table 20.6.10-2: 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	22.96	0.88	0.00	0.48	0.08
0.40	3.80	22.96	0.88	0.22	0.48	0.08
1.20	11.30	22.96	0.88	0.66	0.48	0.23
2.50	19.50	22.96	0.88	1.37	0.48	0.39
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	22.96	1.00	0.00	1.60	0.25
0.40	3.80	22.96	1.00	0.25	1.60	0.25
1.20	11.30	22.96	1.00	0.75	1.60	0.75
2.50	19.50	22.96	1.00	1.56	1.60	1.30

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 0.25 to 1.30 MG to the combined sewer systems within subcatchment area WI-R60/WI-R60A (Table 20.6.10-3, "Total Volume to Combined Sewer System"). These values are slightly greater than those predicted for the Proposed Actions, which ranged from 0.14 to 0.83 MG.

Table 20.6.10-3: 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	0.08	0.08
0.40	3.80	0.00	0.22	0.07	0.30
1.20	11.30	0.00	0.66	0.23	0.89
2.50	19.50	0.00	1.37	0.39	1.76
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	0.25	0.25
0.40	3.80	0.00	0.25	0.25	0.50
1.20	11.30	0.00	0.75	0.75	1.50
2.50	19.50	0.00	1.56	1.30	2.86

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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would not result in significant adverse impacts to local water supply or wastewater and stormwater conveyance and treatment infrastructure.

20.6.11 SOLID WASTE AND SANITATION SERVICES

Expanded Rezoning Area Alternative Future without the Proposed Actions (No-Action Condition)

The total No-Action development on the projected development sites in the Expanded Rezoning Area Alternative RWCDS would comprise 868 residential units (982,386 sf), 743,357 sf of commercial uses, 57,795 sf industrial uses and 327,041 sf community facilities. Overall, the amount of solid waste

generated by the projected development sites would increase with the Expanded Rezoning Area Alternative No-Action condition, as discussed below.

With the Expanded Rezoning Area Alternative No-Action condition, a total of approximately 109 tons per week of solid waste would be generated by the projected development sites, which is an increase of 11 tons per week over the 98 tons per week generated in existing conditions. This includes 18 additional tons per week handled by DSNY and a reduction of six tons per week handled by private carriers. These results are shown in Table 20.6.11-1, "Expanded Rezoning Area Alternative No-Action Solid Waste Generation – Projected Development Sites," below.

Table 20.6.11-1: Expanded Rezoning Area 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]	868	Units	868	Households	41	per household	35,588	18
Commercial[3]	686,243	square feet	2059	Employees	79	per employee	162,640	81
Industrial[4]	57,795	square feet	57.8	Employees	182.5	per employee	10,548	5
Community Facility[5]	327041	square feet	--		0.03	per square foot	9,811	5
Total Solid Waste Generation							**218,586**	**109**
Amount Handled by DSNY (Residential and CF)							**45,399**	**23**
Amount Handled by Private Carters (Commercial)							**173,187**	**87**

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.

Expanded Rezoning Area Alternative Future with the Proposed Actions (With-Action Condition)

In the Expanded Rezoning Area Alternative With-Action condition, the 52 projected development sites are expected to accommodate 5,055 residential units (4,928,808 sf), 720,922 sf of commercial uses and 426,789 sf of community facility uses. As discussed below, based on the citywide average rates for solid waste generation the proposed Expanded Rezoning Area Alternative With-Action condition would result in an overall increase in solid waste generation.

Solid waste generated due to the Expanded Rezoning Area Alternative With-Action condition would be approximately 195 tons per week, an 86-ton increment over the weekly waste generation in the Expanded Rezoning Area Alternative No-Action condition of 109 tons per week. The incremental increase of 86 tons per week represents an increase of 0.06 percent over the City's current waste generation of 151,560 tons per week. It also represents an increase of 0.05 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 20.6.11-2, "Expanded Rezoning Area Alternative With-Action Solid Waste Generation – Projected Development Sites," commercial and industrial uses in the Expanded Rezoning Area Alternative With-Action condition would generate approximately 85 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 Expanded Rezoning Area With-Action conditions would generate approximately 110 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 20.6.11-2: Expanded Rezoning Area 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]	5,055	Units	5,055	Households	41	per household	207,255	104
Commercial[3]	720,922	square feet	2,163	Employees	79	per employee	170,859	85
Industrial[4]	0	square feet	0	Employees	182.5	per employee	0	0
Community Facility[5]	426,789	square feet	--		0.03	per square foot	12,804	6
Total Solid Waste Generation							**390,917**	**195**
Amount Handled by DSNY (Residential and CF)							**220,059**	**110**
Amount Handled by Private Carters (Commercial)							**170,859**	**85**

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 20.6.11-3, "Comparison of Weekly Solid Waste Generation on Projected Development Sites," shows the incremental change between the Expanded Rezoning Area Alternative No-Action condition and Expanded Rezoning Area Alternative With-Action condition. As a result of the Expanded Rezoning Area Alternative With-Action condition, there would be an increase of approximately 87 tons per week of solid waste handled by DSNY. This would represent approximately 0.08 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 Expanded Rezoning Area 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 a decrease of approximately one ton per week of solid waste handled by private carters. This would represent a less than 0.01 percent decrease in 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 Expanded Rezoning Area 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 decrease of commercial solid waste handled by private carters would not affect the City's waste management system.

Table 20.6.11-3: Comparison of Weekly Solid Waste Generation on Projected Development Sites

	Existing Conditions	Expanded Rezoning Area Alternative No-Action Conditions	Expanded Rezoning Area Alternative With-Action Conditions	Increment (No-Action to With-Action)
Total Solid-Waste Generation (tons/week)	98	109	195	86
Solid Waste Handled by DSNY (tons/week)	5	23	110	87
Solid Waste Handled by Private Carters (tons/week)	93	87	85	-2

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

Overall, the Expanded Rezoning Area Alternative With-Action condition is expected to generate solid waste equivalent to seven DSNY truckloads with no increase to private carter truckloads per week. This overall increase would not overburden the DSNY or commercial solid waste handling services. Therefore, the proposed Expanded Rezoning Area 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.

20.6.12 ENERGY

Expanded Rezoning Area 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.

Expanded Rezoning Area Alternative No-Action Demand

Energy consumption for the Expanded Rezoning Area No-Action condition would increase compared to existing conditions. Annual energy consumption estimates for each use for Expanded Rezoning Area Alternative No-Action condition are provided in Table 20.6.12-1, "Expanded Rezoning Area Alternative No-Action Annual Energy Consumption for the Projected Development Sites." As shown in Table 20.6.12-1, it is estimated that energy demand from the projected development sites would total 399.3 billion BTUs of energy annually. This represents an increase of approximately 204.7 billion BTUs over existing conditions.

Table 20.6.12-1 – Expanded Rezoning Area 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	743,357	160,788,119
Industrial[4]	554.3	57,795	32,035,769
Community Facility[5]	250.7	327,041	81,989,179
		Total	**399,281,373**

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 399.3 billion BTU increase in annual energy consumption due to anticipated development on the projected developments sites with the 2026 Expanded Rezoning Area Alternative No-Action condition therefore represents approximately 0.08 percent of Con Edison's service area's forecasted future total annual energy demand of 535 trillion BTUs and 0.23 percent of New York City's (Zone J) forecasted future total energy demand of 171 trillion BTUs.

Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative With-Action condition would not adversely affect the electric transmission system serving the area.

Expanded Rezoning Area Alternative With-Action Demand

The worst case development expected to occur on the 52 projected development sites with the Expanded Rezoning Area Alternative With-Action condition would include 4,928,808 sf of residential floor area, (5,055 DUs), 720,920 sf of commercial uses, and 426,789 sf of community facility uses. Compared to the Expanded Rezoning Area Alternative No-Action condition, the proposed Expanded Rezoning Area Alternative With-Action condition would result in a net increase of 4,187 DUs and 99,748 sf of community facility uses. There would be a decrease of 22,437 sf of commercial use and 57,795 sf of industrial uses.

Energy consumption for the Expanded Rezoning Area Alternative With-Action condition would increase compared to existing conditions. Annual energy consumption estimates for each use with the Expanded Rezoning Area Alternative With-Action condition are provided in Table 20.6.12-2, "Expanded Rezoning Area Alternative With-Action Annual Energy Consumption for the Projected Development Sites." As shown in Table 20.6.12-2, it is estimated that energy demand from the projected development sites would total 887.4 billion BTUs of energy annually. This represents an increase of approximately 692.8 billion BTUs over existing conditions and an increase in 488.1 billion BTUs over the Expanded Rezoning Area Alternative No-Action condition.

The anticipated 488.1 billion BTU increase in annual energy consumption due to development under the Expanded Rezoning Area 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 0.09 percent of Con Edison's service area's future total annual energy demand of 535 trillion BTUs. Therefore, the Expanded Rezoning Area Alternative With-Action condition is not expected to result in a significant impact on energy systems.

Table 20.6.12-2: Expanded Rezoning Area 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	4,928,808	624,479,974	500,011,667
Commercial[3]	216.3	720,920	155,934,996	-4,853,123
Industrial[4]	554.3			-32,035,769
Community Facility[5]	250.7	426,789	106,996,002	25,006,824
		Total	**887,410,972**	**488,129,599**

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 Expanded Rezoning Area 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 20.6.12-2.

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

20.6.13 TRANSPORTATION

The addition of seven projected development sites and the land-use change of sites 3, 6, 19, 22, and 44 in the Expanded Rezoning Area 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 14, "Transportation," the Expanded Rezoning Area Alternative would generate approximately 1,078, 4,502, 2,855, and 3,476 more incremental person trips in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively, compared to the Proposed Actions (see Table 22-1). Depending on the peak hour, this represents an approximately 27 to 47 percent

increase in action-generated person trips compared to the Proposed Actions. As in the Proposed Actions, it is anticipated that the Expanded Rezoning Area Alternative would result in significant adverse traffic, bus, and pedestrian impacts. Neither the Proposed Actions nor the Expanded Rezoning Area Alternative would result in significant adverse subway or parking impacts.

Traffic

The Expanded Rezoning Area Alternative would generate approximately 2, 60, 77, and 105 more incremental vehicle trips during the weekday AM, midday and PM and Saturday midday peak hours, respectively, compared to the Proposed Actions (see Table 22-2). Depending on the peak hour, this represents an increase of up to 17 percent as compared to the incremental vehicle trips that would be generated in the Proposed Actions. Overall, the Expanded Rezoning Area Alternative would result in significant adverse traffic impacts at a total of 21 study area intersections during one or more analyzed peak hours, one less intersection than in the Proposed Actions. Table 22-3 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 Expanded Rezoning Area Alternative. In the Expanded Rezoning Area Alternative, 17 lane groups at 14 intersections would be impacted (compared to 16 lane groups at 14 intersections in the Proposed Actions) in the weekday AM peak hour, 19 lane groups at 15 intersections (compared to 19 lane groups at 15 intersections in the Proposed Actions) in the midday, 32 lane groups at 20 intersections (compared to 32 lane groups at 21 intersections in the Proposed Actions) in the PM and 31 lane groups at 18 intersections (compared to 30 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 below.

Table 20.6.13-1: Comparison of Incremental Peak Hour Person Trips by Mode – Proposed Actions vs. Expanded Rezoning Area Alternative

Scenario	Auto	Taxi	Bus	Subway	Railroad	Walk/Other	Total
Weekday AM							
Proposed Actions	363	71	555	1,382	77	1,607	4,055
Expanded Rezoning Area Alternative	276	84	723	1,776	98	2,176	5,133
Increment	***-87***	***13***	***168***	***394***	***21***	***569***	***1,078***
Weekday Midday							
Proposed Actions	410	205	1,037	1,136	40	6,772	9,600
Expanded Rezoning Area Alternative	263	296	1,523	1,544	51	10,425	14,102
Increment	***-147***	***91***	***486***	***408***	***11***	***3,653***	***4,502***
Weekday PM							
Proposed Actions	596	165	935	1,748	86	4,143	7,673
Expanded Rezoning Area Alternative	512	225	1,282	2,282	110	6,117	10,528
Increment	***-84***	***60***	***347***	***534***	***24***	***1,974***	***2,855***
Saturday Midday							
Proposed Actions	662	194	985	1,649	77	4,787	8,354
Expanded Rezoning Area Alternative	641	277	1,377	2,179	98	7,259	11,830
Increment	***-21***	***83***	***392***	***530***	***21***	***2,472***	***3,476***

Source: STV Incorporated, 2017.

Table 20.6.13-2: Comparison of Incremental Peak Hour Vehicle Trips by Mode – Proposed Actions vs. Expanded Rezoning Area Alternative

Scenario	Auto	Taxi	Truck	Total
Weekday AM				
Proposed Actions	293	104	8	405
Expanded Rezoning Area Alternative	263	132	12	407
Increment	***-30***	***28***	***4***	***2***
Weekday Midday				
Proposed Actions	196	314	14	524
Expanded Rezoning Area Alternative	93	470	20	584
Increment	***-103***	***156***	***6***	***60***
Weekday PM				
Proposed Actions	429	238	4	671
Expanded Rezoning Area Alternative	406	336	6	748
Increment	***-23***	***98***	***2***	***77***
Saturday Midday				
Proposed Actions	333	274	10	617
Expanded Rezoning Area Alternative	306	402	14	722
Increment	***-27***	***128***	***4***	***105***

Source: STV Incorporated, 2017.

Table 20.6.13-3: Comparison of the Numbers of Lane Groups/Intersections with Significant Adverse Impacts – Proposed Actions vs. Expanded Rezoning Area Alternative

Peak Hour	Development Scenario	Lane Groups/Intersections with Significant Impacts
AM	Proposed Actions	16/14
	Expanded Rezoning Area Alternative	17/14
Midday	Proposed Actions	19/15
	Expanded Rezoning Area Alternative	19/15
PM	Proposed Actions	32/21
	Expanded Rezoning Area Alternative	32/20
Saturday Midday	Proposed Actions	30/19
	Expanded Rezoning Area Alternative	31/18

Source: STV Incorporated, 2017.

Transit

Subway

Subway Stations

The Expanded Rezoning Area Alternative would generate 394 and 534 more incremental subway trips during the weekday AM and PM Peak hours, respectively, than would the Proposed Actions as listed in Table 22-1. Tables 22-4 and 22-5 list conditions at stairs and fare arrays at the four analyzed subway stations on the No. 4 line in the Expanded Rezoning Area Alternative. Stair S1 at the 170th Street subway station is expected to operate over practical capacity with a v/c ratio of 1.01 and 1.00 in the AM and PM peak hours, respectively. The width increment threshold required to return the stair to a v/c ratio of 1.00 would remain below the *CEQR Technical Manual* impact threshold and this stair would not be significantly adversely impacted as a result of new demand from the Expanded Rezoning Area 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 20.6.13-4: With-Action 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	WIT (in.)	WIT for Significant Impact (in.)
					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	193	33	411	107	1.00	0.80	0.90	1.01	D	0.37	8
		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	93	6	318	34	1.00	0.75	0.90	0.67	B	-	-
		P2/P4	5	4	14	10	44	55	1.00	0.75	0.90	0.22	A	-	-
		P5/P7	5	4	93	7	304	40	1.00	0.75	0.90	0.66	B	-	-
		P6/P8	5	4	14	14	52	78	1.00	0.75	0.90	0.29	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	84	185	165	301	1.00	0.80	0.90	1.00	D	0.10	8
		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	28	24	93	67	1.00	0.75	0.90	0.34	A	-	-
		P2/P4	5	4	18	68	53	192	1.00	0.75	0.90	0.57	B	-	-
		P5/P7	5	4	28	23	92	65	1.00	0.75	0.90	0.33	A	-	-
		P6/P8	5	4	18	90	69	255	1.00	0.75	0.90	0.76	C	-	-
	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 20.6.13-5: With-Action 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	216	37	718	207	1.00	0.80	0.90	0.59	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	92	205	307	578	1.00	0.80	0.90	0.51	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 22-6 lists line-haul conditions on the No. 4 line serving the rezoning area in the Expanded Rezoning Area 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 1.13 and 1.14, respectively. Incremental increases in ridership would average 4.3 northbound trips per car in the AM and 4.3 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 Expanded Rezoning Area Alternative; therefore, significant adverse impacts to subway line-haul conditions are not anticipated based on *CEQR Technical Manual* criteria.

Table 20.6.13-6: With-Action 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	17,974	124	1.13	4.34
PM	4	NB	59 Street	11.7	117.0	110	14,203	121	1.10	14,703	126	1.14	4.28

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 723 and 1,282 in the Expanded Rezoning Area Alternative, respectively, compared to 555 and 935 trips in the Proposed Actions, as listed in Table 22-1. As listed in Table 22-7, demand on the Bx11 route is expected to increase by approximately 140 eastbound trips and 33 westbound trips at the maximum load points in the AM peak hour and by 105 eastbound trips and 173 westbound trips in the PM. Demand on the Bx32 route is expected to increase by approximately 32 northbound trips and 90 southbound trips at the maximum load points in the AM peak hour, and 156 northbound trips and 107 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 20.6.13-7: Expanded Rezoning Area 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	140	-110
		WB	E 170th St and Jerome Ave / Claremont Pky and Webster Av	13	19	33	-14
	Bx32	NB	Morris Av and E 170th St	6	24	32	-8
		SB	Morris Av and E 170th St / Morris Av and E 161st St	8	37	90	-53
	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	105	54
		WB	Claremont Pky and Webster Av	12	36	173	-137
	Bx32	NB	Morris Av and E 170th St	6	75	156	-81
		SB	Morris Av and E 170th St	5	57	107	-50
	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 Expanded Rezoning Area Alternative would result in the following capacity shortfalls:

- Eastbound Bx11 would experience a shortfall of 110 passengers in the AM peak hour.
- Westbound Bx11 would experience a shortfall of 14 passengers in the AM peak hour and 137 passengers in the PM peak hour.

- Northbound Bx32 would experience a shortfall of 8 passengers in the AM peak hour and 81 passengers in the PM peak hour.
- Southbound Bx32 would experience a shortfall of 53 passengers in the AM peak hour and 50 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 Expanded Rezoning Area Alternative is expected to generate 5,049, 13,806, 10,303, and 11,553 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 27 percent to 47 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. As listed in Tables 22-8 through 22-10, with this increase in incremental pedestrian trips in the Expanded Rezoning Area Alternative there would be no change in the number or location of significant adverse impacts as compared to the Proposed Actions.

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 20.6.13-8: Sidewalk Conditions in the Expanded Rezoning Area Alternative

Intersection	Sidewalk	No-Action			With-Action			Expanded Rezoning Area 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	33.6	D
Note: Shading denotes a significant adverse impact										

Source: STV Incorporated, 2017.

Crosswalks

The south crosswalk of East 167th Street and Jerome Avenue is projected to operate at LOS D during the weekday PM and Saturday midday peak hours, the same significant adverse impact as in the Proposed Actions.

Table 20.6.13-9: Crosswalk Conditions in the Expanded Rezoning Area Alternative

Intersection	Crosswalk	No-Action			With-Action			Expanded Rezoning Area Alternative		
		Width	SFP	LOS	Width	SFP	LOS	Width	SFP	LOS
Weekday PM Peak Hour										
East 167th Street and Jerome Avenue	South(1)	13	22.8	D	13	20.3	D	13	20.2	D
Saturday MD Peak Hour										
East 167th Street and Jerome Avenue	South(1)	13	24.1	C	13	19.4	D	13	19.4	D
Note: Shading denotes a significant adverse impact										

Source: STV Incorporated, 2017.

Corner Areas

The northeast corner of East 167th Street and Jerome Avenue is projected to operate at LOS D during the Weekday PM and Saturday midday peak hours, the same significant adverse impact as in the Proposed Actions.

Table 20.6.13-10: Corner Area Conditions in the Expanded Rezoning Area Alternative

Intersection	Corner	No-Action		With-Action		Expanded Rezoning Area Alternative	
		SFP	LOS	SFP	LOS	SFP	LOS
Weekday PM Peak Hour							
East 167th Street and Jerome Avenue	Northeast	22.7	D	15.8	D	15.6	D
Saturday MD Peak Hour							
East 167th Street and Jerome Avenue	Northeast	43.5	B	19.7	D	18.9	D
Note: Shading denotes a significant adverse impact							

Source: STV Incorporated, 2017.

Vehicular and Pedestrian Safety Evaluation

A review of NYCDOT 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. NYCDOT'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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative, the same as in the Proposed Actions. In the Expanded Rezoning Area 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 22-11 and Table 22-12, the Expanded Rezoning Area Alternative is expected to generate a demand for approximately 940 parking spaces in the weekday 1-2 PM period, 2,394 during the weekday overnight period, and 830 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.

Table 20.6.13-11: Weekday Expanded Rezoning Area 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	2,355	0	0	0	0	0	0	0	0	0	0	0	0	2,355
1-2	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
2-3	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
3-4	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
4-5	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
5-6	0	0	0	2,332	0	0	0	0	0	0	0	0	0	0	0	0	2,332
6-7	0	0	0	2,056	0	0	0	0	0	0	0	0	0	0	0	0	2,056
7-8	2	2	0	1,642	0	-2	0	0	-1	-5	0	0	1	2	0	4	1,645
8-9	2	25	0	985	0	-21	4	-2	-11	-21	0	0	3	5	3	7	979
9-10	11	42	3	916	0	-36	9	-4	-33	-37	0	0	2	5	5	7	890
10-11	25	43	5	881	0	-41	14	-6	-35	-40	0	0	1	5	6	7	865
11-12	35	41	6	885	0	-36	27	-11	-27	-35	0	0	1	11	5	7	909
12-1 PM	38	41	6	871	0	-38	49	-21	-14	-32	0	0	2	11	4	7	924
1-2	38	41	7	874	0	-38	65	-28	-14	-32	2	0	3	11	4	7	940
2-3	40	46	6	939	0	-41	31	-13	-17	-37	2	0	3	14	4	7	984
3-4	38	45	6	1,172	0	-43	19	-8	-17	-37	2	0	4	16	4	5	1,206
4-5	30	30	5	1,495	0	-32	9	-4	-5	-29	4	0	3	18	3	4	1,531
5-6	27	4	5	1,901	0	-6	18	-8	-5	-11	5	0	1	18	3	0	1,952
6-7	12	0	5	2,149	0	0	46	-20	-1	-3	4	0	1	18	0	0	2,211
7-8	8	0	5	2,264	0	0	65	-28	0	0	0	0	1	11	0	0	2,326
8-9	3	0	4	2,362	0	0	39	-17	0	0	2	0	0	5	0	0	2,398
9-10	0	0	2	2,373	0	0	12	-5	0	0	0	0	0	0	0	0	2,382
10-11	0	0	1	2,329	0	0	0	0	0	0	0	0	0	0	0	0	2,330
11-12	0	0	0	2,317	0	0	0	0	0	0	0	0	0	0	0	0	2,317

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 20.6.13-12: Weekday Expanded Rezoning Area 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	1,981	0	0	0	0	0	0	0	0	0	0	0	0	1,981
1-2	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
2-3	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
3-4	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
4-5	0	0	0	2,394	0	0	0	0	0	0	0	0	0	0	0	0	2,394
5-6	0	0	0	1,961	0	0	0	0	0	0	0	0	0	0	0	0	1,961
6-7	0	0	0	1,729	0	0	0	0	0	0	0	0	0	0	0	0	1,729
7-8	2	0	0	1,382	0	0	0	0	-1	-2	0	0	1	3	0	0	1,384
8-9	2	5	0	828	0	-3	4	-1	-11	-7	0	0	1	5	3	0	826
9-10	13	9	3	771	0	-5	9	-3	-33	-13	0	0	1	5	5	0	762
10-11	29	9	6	741	0	-6	15	-5	-35	-14	0	0	1	5	6	0	751
11-12	41	9	8	744	0	-5	28	-10	-27	-12	0	0	1	13	5	0	793
12-1 PM	44	9	8	733	0	-6	51	-18	-14	-11	0	0	1	13	4	0	814
1-2	44	9	8	735	0	-6	68	-24	-14	-11	2	0	1	13	4	0	830
2-3	47	10	8	790	0	-6	32	-11	-17	-13	2	0	1	15	4	0	861
3-4	44	10	7	986	0	-6	20	-7	-17	-13	2	0	2	18	4	0	1,050
4-5	36	7	6	1,257	0	-5	9	-3	-5	-10	5	0	1	21	3	0	1,321
5-6	31	1	6	1,599	0	-1	19	-7	-5	-4	7	0	1	21	3	0	1,671
6-7	14	0	6	1,808	0	0	48	-17	-1	-1	5	0	0	21	0	0	1,883
7-8	9	0	6	1,905	0	0	68	-24	0	0	0	0	0	13	0	0	1,977
8-9	3	0	5	1,987	0	0	40	-14	0	0	2	0	0	5	0	0	2,029
9-10	0	0	3	1,996	0	0	13	-5	0	0	0	0	0	0	0	0	2,006
10-11	0	0	1	1,959	0	0	0	0	0	0	0	0	0	0	0	0	1,960
11-12	0	0	0	1,949	0	0	0	0	0	0	0	0	0	0	0	0	1,949

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.

Parking utilization for the Expanded Rezoning Area Alternative is projected to be 96 percent during the weekday midday period, 95 percent during the weekday overnight period, and 89 percent during the Saturday midday period (see Table 22-13). In the Expanded Rezoning Area 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 each of the three analysis periods in the Expanded Rezoning Area Alternative. A deficit of approximately 409 parking spaces during the weekday midday, 933 during the weekday overnight, and 9 during the Saturday midday periods is projected.

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 Expanded Rezoning Area Alternative is not expected to result in significant adverse parking impacts.

Table 20.6.13-13: Expanded Rezoning Area Alternative Public Parking Capacity, Demand, and Utilization

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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative Developments	940	2,394	830
Total With-Action Demand	22,834	23,194	21,381
Utilization			
Expanded Rezoning Area Alternative Utilization	96%	95%	89%
Expanded Rezoning Area Alternative Parking Surplus/(Deficit)	1,036	1,199	2,675
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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative Developments	396	1,144	359
Total With-Action Demand	4,288	4,867	3,888
Utilization			
Expanded Rezoning Area Alternative Utilization	111%	124%	100%
Expanded Rezoning Area Alternative Parking Surplus/(Deficit)	(409)	(933)	(9)

Source: STV Incorporated, 2017

20.6.14 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative Expanded Rezoning Area Alternative 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 Expanded Rezoning Area Alternative would not result in any significant adverse air quality impacts on sensitive uses in the surrounding community, and the Proposed Actions Expanded Rezoning Area 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) PM2.5 increments would not surpass the de minimis criteria thresholds.

The parking facilities assumed to be developed as a result of the Proposed Actions Expanded Rezoning Area 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 (NO2), 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, NO2, SO2, 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 Expanded Rezoning Area 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 Expanded 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would generate traffic, some of which would be diesel vehicles. In addition, the HVAC systems of the Proposed Actions Expanded Rezoning Area 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)[2] 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 Expanded Rezoning Area 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 20.6.14-1, "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 (µg/m^3).

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

Table 20.6.14-1: 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.

PM2.5 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 Expanded Rezoning Area 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 20.6.14-2, "Monitored Ambient Air Quality Data." Selected locations represent available background sites nearest to the rezoning area.

Table 20.6.14-2: 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/m³	24-hour	-	37	32	0	0
Respirable Particulates (PM2.5)	IS 52, Bronx	µg/m³	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/m³	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 an unclassified/attainment 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 98th 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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. [3]

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 Expanded Rezoning Area 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

[3] 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.

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.

To determine motor vehicle generated PM2.5 concentrations adjacent to streets within the traffic study area, the CAL3QHCR model is applied. 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 Expanded Rezoning Area Alternative are likely to be completed. The future analysis is performed both without the Proposed Actions Expanded Rezoning Area Alternative (the No-Action condition) and with the Proposed Actions Expanded Rezoning Area Alternative (the With-Action condition).

Background Concentrations

To properly represent the total impact of the Proposed Actions Expanded Rezoning Area 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 20.6.14-3, "Background Pollutant Concentrations."

Table 20.6.14-3: 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 Expanded Rezoning Area Alternative, are considered in the selection process. As shown in Figure 20.6.14-1, the screening process concluded that two of the studied traffic intersections would exceed the CEQR screening thresholds for CO. 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 20.6.14: Mobile Source Analysis Sites

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

Parking Garage

The Proposed Actions Expanded Rezoning Area 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 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.

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 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.)

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 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 DEIS. 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:

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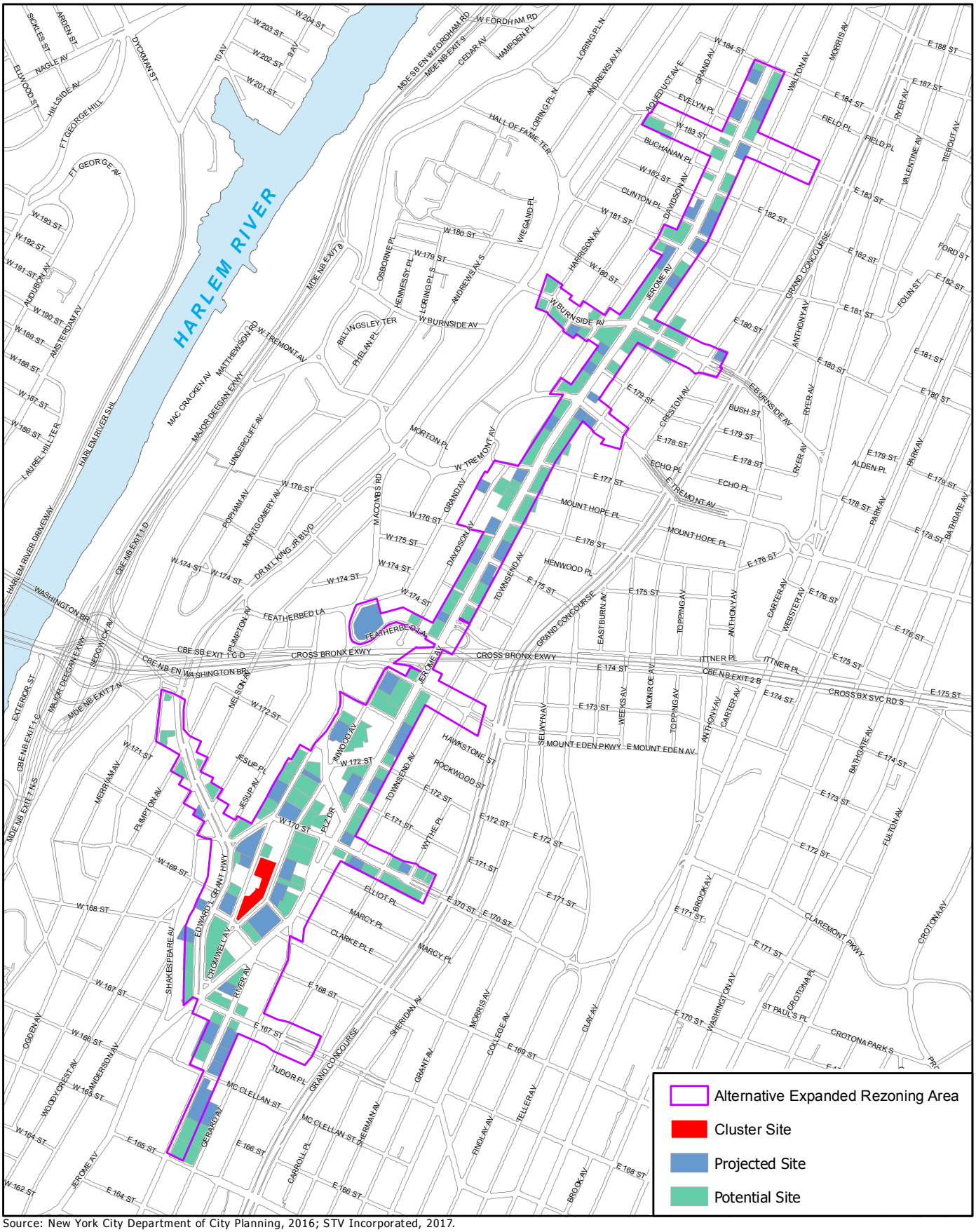

Source: New York City Department of City Planning, 2016; STV Incorporated, 2017.

N

0 1,000 2,000 Feet

Figure 20.6.14-2

Jerome Avenue Rezoning EIS

HVAC CLUSTER LOCATION

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 nomographic screening result fails with the use of No. 2 fuel oil, a more detailed analysis would be conducted utilizing EPA's AERMOD[4] 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 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 Environmental Impact Statement (EIS), providing the fuel type and stack height restriction. However, more refined analysis will be performed between Draft and Final to determine the further stack restrictions.

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.

[4] 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.

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 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 SO2 and PM2.5, while for natural gas, the primary pollutant of concern is NO2 and PM2.5.

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[5].

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.

<u>Receptor Placement</u>

[5] One development site with the largest development size will be analyzed with and without downwash between Draft and Final.

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

A cumulative HVAC impact analysis is performed for projected and/or potential development sites with buildings that would have a similar stack height and were located in close proximity to one another (i.e., site clusters). Development cluster sites are grouped based on the following criteria:

- Density and scale of development;
- Similarity of building stack height; and
- Proximity to other nearby buildings of a similar height.

The HVAC cluster analysis was performed to identify potential impacts of SO_2, NO_2, and $PM_{2.5}$ emissions using the most recent version of the AERMOD refined model. An estimate of the emissions from the HVAC systems is made based on the proposed development size per the RWCDS, type of fuel used, and type of construction with fuel consumption rates shown below:

- For residential developments, 60.3 ft^3/ft^2-year and 0.43 gal/ft^2-year are used for natural gas and fuel oil, respectively; and
- For commercial developments, 45.2 ft^3/ft^2-year and 0.21 gal/ft^2-year are used for natural gas and fuel oil, respectively.

Short-term factors are determined by using peak hourly fuel consumption estimates for heating, hot water, and cooling systems.

Emission factors for each fuel are obtained from the EPA Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources. The SO_2 emissions rates are calculated based on a maximum fuel oil sulfur content of 0.0015 percent (based on use of ultra-low sulfur No. 2 oil) using the appropriate AP-42 formula.

The average minimum distance from the source clusters to the nearest buildings is used in the modeling analysis. The analysis examines existing buildings or other projected or potential development sites which are of a similar or greater height than the source cluster.

The results of the analysis are added to background concentrations to determine whether impacts are below ambient air quality standards. The maximum concentrations from a cluster is predicted for both fuel oil and national gas types. In the event that an exceedance of a standard for a specific pollutant is predicted with either No. 2 fuel oil or natural gas, an air quality E-designation is proposed for the site, describing the fuel and/or HVAC exhaust stack restrictions that would be required to avoid a significant adverse air quality impact.

One cluster has been selected for analysis. The projected and potential development sites associated with this cluster and its location are presented in Table 20.6.14-5, "Cluster Analysis Sites," and on Figure 20.6.14-2, "HVAC Cluster Locations."

Table 20.6.14-5: Cluster Analysis Sites

Cluster	Projected and Potential Development Sites
C	Potential Development Sites 118,119,120,121,122

Source: STV Incorporated, 2017

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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.[6]

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 Expanded Rezoning Area 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.[7]

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

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

[7] At one of the ten permitted locations, one permit (PB34510) which had previously been identified as being canceled was reactivated just prior to the certification of this DEIS. As a result, a detailed analysis was not conducted. Therefore for this DEIS, an E designation will be attached to nearby projected or potential sites for inoperable windows. A more refined analysis will be conducted between the Draft and Final document.

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. 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[8], the NYSDEC Title V and State Facility Permit websites[9], the New York City Department of Buildings website[10], 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 Expanded Rezoning Area Alternative development site. As a result, no further analysis of large sources was required.

The Future without the Proposed Actions Expanded Rezoning Area Alternative (No-Action Condition)

Mobile Sources

CO concentrations in the No−Action condition were determined for using the methodology previously described. Table 20.6.14-6 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.

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

[9] 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.

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

As shown in Table 20.6.14- 6, No−Action values are predicted to be below the eight−hour CO standard of nine ppm.

Table 20.6.14-6: Maximum Predicted CO Concentrations for With-Action Condition

Analysis Site	Location	Time Period	No-Action
1	Jerome Avenue & NB I-95 Ramps	SAT	6.45
2	Jerome Avenue & Mt. Eden Avenue	SAT	3.38
3	Projected Site 46	SAT	2.12
Notes: Eight−hour NAAQS standard is 9 ppm.			

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Stationary Sources

Some development within the study area will occur in the future without the Proposed Actions Expanded Rezoning Area Alternative by 2026. The Proposed Actions Expanded Rezoning Area Alternative would result in more development and therefore the emissions from heat and hot water systems associated with the Proposed Actions Expanded Rezoning Area 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 Expanded Rezoning Area Alternative (With-Action Condition)

Mobile Sources

CO concentrations for the With−Action condition were predicted using the methodology previously described. Table 20.6.14−7 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 20.6.14-7: Maximum Predicted CO Concentrations for With-Action Condition

				With	Increase	
1	Jerome Avenue & NB I-95 Ramps	SAT	6.45	6.46	0.01	1.78
2	Jerome Avenue & Mt. Eden Avenue	SAT	3.38	3.38	0.00	2.81
3	Projected Site 46	SAT	2.12	2.12	0.00	3.44
Notes: Eight−hour NAAQS standard is 9 ppm.						

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 20.6.14-8 and 20.6.14-9 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 20.6.14-8: Maximum Predicted 24-hour $PM_{2.5}$ Incremental Concentrations

			Increase (µg/m³)	
3	Projected Site 46	SAT	0.85	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 20.6.14-9: Maximum Predicted Annual $PM_{2.5}$ Incremental Concentrations

			Increase (µg/m³)	
3	Projected Site 46	SAT	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

For the Proposed Alternatives Expanded Rezoning Area Alternative, Projected site 46 would include a 190 parking garage. Although it is not anticipated that this parking facility would result in any violations of the CO NAAQS or de minimis criteria, a detailed parking garage analysis will be conducted for CO between Draft and Final to demonstrate that no exceedances of these criteria would occur.

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 Expanded Area Rezoning Alternative could potentially impact other Projected and Potential development sites, or existing buildings.

For the Expanded Area Rezoning Alternative, a total of six Projected and 23 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 22 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. A total of five Projected and 22 Potential development sites failed 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 29 Projected and Potential development sites (six Projected and 23 Potential development sites) required a refined modeling analysis assuming No.2 fuel oil is used for the HVAC systems, and a total of 27 Projected and Potential development sites (5 Projected and 22 Potential development sties) required a refined modeling analysis using natural gas as the fuel source, 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
- One (zero Projected and one Potential) of the development sites passed the refined modeling analysis for natural gas; therefore, an (E) designation would be required for these sites with fuel type restricted to natural gas only.
- 26 (five Projected and 21 Potential) of the development sites failed the refined modeling analysis for natural gas; therefore, an (E) designation was proposed for these sites with stack height restriction and fuel type restricted to natural gas only. However, more refined analysis will be

performed between Draft and Final to determine the further stack restrictions (i.e., stack setback, stack height and/or low NOx burner).

Table 20.6.14−10 presents a summary of the analysis results and proposed restrictions, with additional detail provided in Table 20.6.14−11 (projected development sites) and Table 20.6.14-12(Potential development site.

Table 20.6.14-10 HVAC Analysis Summary

Analysis	Projected Development Sites		Potential Development Sites	
No. 2 Oil	**Pass**	**Fail**	**Pass**	**Fail**
No.2 Oil Screening	1	6	1	23
No.2 Oil Refined Analysis	1	5	1	22
Total	2	5	2	22
Natural Gas	**Pass**	**Fail**	**Pass**	**Fail**
Natural Gas Screening	0	5	0	22
Natural Gas Refined Analysis	0	5	1	21
Natural Gas, Stack Setback, Stack Height and/or Low NOx Requirement (to be determined between Draft and Final)	5		21	

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 Expanded Rezoning Area Alternative for 27 Projected and Potential development sites (including five Projected and 22 Potential development sites). These designations would specify the various restrictions, such as type of fuel to be used, and the above-grade stack height. [11]

[11] For sites requiring E designations, further analysis and restrictions (i.e., the distance that the vent stack on the building roof must be from its lot line(s), the increase of the exhaust stack height, and/or the use of low NOx burners) will be determined between Draft and Final at 114 (including 33 Projected and 81 Potential) development sites.

Table 20.6.14-11: 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)					Required (E) Designation
				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	Pass Screening	Pass Screening	Pass Screening	5.5/0.3/196	Pass	Pass Screening	Pass Screening	Pass Screening	5.5/0.3/188	Pass	No
47	125	60	185	4.1	0.19	29.4	5.5/0.3/196	Pass	Pass Screening	Pass Screening	Pass Screening	5.5/0.3/188	Pass	No
48	115	47	162	>5.5	>0.3	34.4	5.5/0.3/196	Fail	>5.5	0.28	>188	5.5/0.3/188	Fail	NG & Stack Height
49	115	43	158	>5.5	>0.3	142.6	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
50	115	45	160	>5.5	>0.3	37.2	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
51	95	53	148	>5.5	>0.3	112.1	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
52	115	30	145	>5.5	>0.3	111.6	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height

Note: The 1-hour SO_2 and 1-hour NO_2 concentrations represented in this table include the respective background concentrations.

Table 20.6.14-12: 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)					Required (E) Designation
				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	
102	115	47	162	>5.5	>0.3	39.3	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
103	115	47	162	>5.5	>0.3	37	5.5/0.3/196	Fail	>5.5	0.27	>188	5.5/0.3/188	Fail	NG & Stack Height
104	115	46	161	>5.5	>0.3	40.8	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
105	125	56	181	3	0.1	29.9	5.5/0.3/196	Pass	Pass Screening	Pass Screening	Pass Screening	5.5/0.3/188	Pass	No
106	115	44	159	>5.5	>0.3	31.7	5.5/0.3/196	Fail	3.2	0.13	181.6	5.5/0.3/188	Pass	NG Only
107	115	44	159	>5.5	>0.3	37.3	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
108	115	45	160	>5.5	>0.3	36.7	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
109	115	45	160	>5.5	>0.3	34.5	5.5/0.3/196	Fail	>5.5	0.21	>188	5.5/0.3/188	Fail	NG & Stack Height
110	115	44.5	160	>5.5	>0.3	35.6	5.5/0.3/196	Fail	5.4	0.16	>188	5.5/0.3/188	Fail	NG & Stack Height
111	95	50.5	146	Pass Screening	Pass Screening	Pass Screening	5.5/0.3/196	Pass	Pass Screening	Pass Screening	Pass Screening	5.5/0.3/188	Pass	No
112	95	46	141	>5.5	>0.3	82.5	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
113	95	49.5	145	>5.5	>0.3	85.9	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
114	95	52.5	148	>5.5	>0.3	36.6	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
115	95	50.5	146	>5.5	>0.3	94.6	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
116	95	47	142	>5.5	>0.3	81	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
117	95	50	145	>5.5	>0.3	127.5	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height

Site No.	Building Height (ft)	Ground Elevation (ft)	Absolute Height (ft)	No.2 Oil Modeled Concentrations (µg/m³)					Natural Gas Modeled Concentrations (µg/m³)					Required (E) Designation
				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	
118	95	33.5	129	>5.5	>0.3	94.1	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
119	95	32	127	>5.5	>0.3	137.4	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
120	115	32	147	>5.5	>0.3	37.9	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
121	115	32	147	>5.5	>0.3	37.2	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
122	95	28	123	>5.5	>0.3	32.9	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
123	95	32	127	>5.5	>0.3	79.2	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
124	95	29.5	125	>5.5	>0.3	93.6	5.5/0.3/196	Fail	>5.5	>0.3	>188	5.5/0.3/188	Fail	NG & Stack Height
125	115	32.5	148	>5.5	>0.3	33.3	5.5/0.3/196	Fail	>5.5	0.24	>188	5.5/0.3/188	Fail	NG & Stack Height

Note: The 1-hour SO_2 and 1-hour NO_2 concentrations represented in this table include the respective background concentrations.

Cumulative Impacts from Heat and Hot Water Systems (Cluster Analysis)

With respect to the Proposed Alternatives Expanded Rezoning Area Alternative, one cluster group described in Table 20.6.14-5 above, has been identified. The individual HVAC analyses for each of the individual sites in the cluster predicted that an E-designation (natural gas) would be required for all of these sites. As a result, an E-designation will also be required for the Proposed Alternatives Expanded Rezoning Area Alternative cluster. Detailed analyses for the expanded cluster will be conducted between Draft and Final.

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 PM2.5 and NO2), any modifications must address the measures required with respect to each pollutant.

With the foregoing, the evaluation of PM2.5, 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 PM2.5 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 PM2.5 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

PM2.5 emissions, and reductions in SO2 emissions, which is a PM2.5 precursor (because chemical reactions in the atmosphere convert some SO2 to PM2.5). Although these measures do not address the emissions of PM2.5 associated with Proposed Actions Expanded Rezoning Area 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 PM2.5 concentrations and, consequently, in the total PM2.5 concentrations with the Proposed Actions Expanded Rezoning Area 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 9 facilities (consisting of 9 sources) were analyzed. The information from these permits (emission rates, stack parameters, etc.) is input to the AERMOD dispersion model.

Table 20.6.14-13, "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 20.6.14-14, 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 20.6.14-13: 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	---	---	0.08	100
V,M, & P Naptha	64742-89-8	---	---	0.14	3200
Toluene	00108-88-3	5245.79803	37000	6.81	5000
Ethyl Benzene	00100-41-4	568.47468	54000	0.97	1000
1-Methoxy - 2 - Propyl	00108-65-6	86.75381	55000	0.14	2000
Methylcyclohexane	00108-87-6	---	---	0.01	3800
N-Butyl Acetate	00123-86-4	188.71064	95000	0.30	17000
Xylenes	01330-20-7	1539.91876	4300	3.44	100
N-Heptane	00142-82-5	4.34372	210000	0.01	3900
Acetone	00067-64-1	1293.95981	180000	0.68	30000
Prop. Glycol Mono. Et	00107-98-2	80.25546	55000	0.12	2000
Iso Butyl Acetate	00108-88-3	65.06966	37000	0.10	5000
Isopropyl Alcohol	00067-63-0	140.9814	98000	0.22	7000
Isobutyl Alcohol	00078-83-1	---	---	0.05	360
Oxo-Heptyl Acetate	90438-79-2	28.19973	150000	0.04	2100
2-Butoxyethyl Acetate	00112-07-2	0	---	0.06	310
Butoxy Ethanol	00111-76-2	34.69808	14000	0.06	1600
Ester Alcohol	25265-77-4	17.35766	550	0.03	300
Propylene Glycol	00057-55-6	15.18579	55000	0.02	2000
Stoddard Solvent	08052-41-3	---	---	0.13	900
Aromatic Solvent	64742-95-8	---	---	0.12	100
Polyfunctional Azirid	64265-57-2	---	---	0.45	16
N,n - Dimethyl Ethanol	00108-01-0	---	---	0.00	26
Propylenenimine	00075-55-8	0	93	0.00	1.1
2 Ethylhexyl Acetate	00103-11-7	0	---	0.00	17
Methyl Isobutyl Keton	00108-10-1	56.39945	31000	0.09	3000
Ethyl Acetate	00141-78-6	13.01393	10000	0.02	140
Petroleum Distillates	64741-65-7	---	---	0.02	16
Naptha	64742-48-9	---	---	0.04	900
Aromatic Naptha	64742-95-6	---	---	0.02	100
N Butyl Alcohol	00071-36-3	---	---	0.09	1500
Naptha	08032-32-4	---	---	0.02	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	---	---	0.16	900
1,2,4 - Trimethyl Benzene	00095-63-6	---	---	0.08	6
Glycol Ether	00111-46-6	13.01393	440	0.02	240
Ethylene Glycol Mono	02807-30-9	71.58525	430	0.11	230
1,3,5 Trimethyl Benzene	00108-67-8	---	---	0.03	290
Mica	12001-26-2	---	---	0.00	7.1
Microcrystalline Silica	14808-60-7	4.34372	---	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	---	---	0.01	24
Graphite	07782-42-5	---	---	0.00	4.8
Prop. Nickel Comp	Not Established	0	300	0.00	10
Aromatic Petroleum distillates	64742-94-5	---	---	0.08	3,800.00
Butane	00106-97-8	---	---	0.08	57,000.00
Ethanol	00064-17-5	---	---	0.17	45,000.00
Ethyl 3-Ethoxyproprioanate	00763-69-9	60.18817	140	0.03	64
Methyl Ethyl Ketone	00078-93-3	150.46088	13,000.00	0.08	5,000.00
Propane	00074-98-6	---	---	0.47	43,000.00
Particulates (PM2.5) [1]	NY075-02-5 [2]	34.90298	88	0.47	12
1-Methoxy-2-Propyl Acetate	00108-65-6	352.59822	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 Expanded Rezoning Area 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 20.6.14-14, "Estimated Maximum Hazard Index," presents the results of the assessment of cumulative non−carcinogenic effects on the Proposed Actions Expanded Rezoning Area Alternative.

Table 20.6.14-14: 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	7.71E-04
V,M, & P Naptha	64742-89-8	0.26	3200	4.45E-05
Toluene	00108-88-3	1.59	5000	1.36E-03
Ethyl Benzene	00100-41-4	1.40	1000	9.67E-04
1-Methoxy - 2 - Propyl	00108-65-6	0.25	2000	6.82E-05
Methylcyclohexane	00108-87-6	0.01	3800	1.55E-06
N-Butyl Acetate	00123-86-4	0.78	17000	1.74E-05
Xylenes	01330-20-7	1.70	100	3.44E-02
N-Heptane	00142-82-5	0.01	3900	1.51E-06
Acetone	00067-64-1	6.65	30000	2.26E-05
Prop. Glycol Mono. Et	00107-98-2	0.22	2000	6.23E-05
Iso Butyl Acetate	00108-88-3	0.18	5000	2.05E-05
Isopropyl Alcohol	00067-63-0	0.39	7000	3.13E-05
Isobutyl Alcohol	00078-83-1	0.09	360	1.44E-04
Oxo-Heptyl Acetate	90438-79-2	0.08	2100	2.07E-05
2-Butoxyethyl Acetate	00112-07-2	0.10	310	1.86E-04
Butoxy Ethanol	00111-76-2	0.10	1600	3.46E-05
Ester Alcohol	25265-77-4	0.05	300	9.02E-05
Propylene Glycol	00057-55-6	0.04	2000	1.12E-05
Stoddard Solvent	08052-41-3	6.21	900	1.40E-04
Aromatic Solvent	64742-95-8	0.22	100	1.20E-03
Polyfunctional Azirid	64265-57-2	0.81	16	2.82E-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	2.77E-04
Methyl Isobutyl Keton	00108-10-1	0.15	3000	2.86E-05
Ethyl Acetate	00141-78-6	0.04	140	1.51E-04
Petroleum Distillates	64741-65-7	0.04	16	1.32E-03
Naptha	64742-48-9	0.08	900	4.84E-05
Aromatic Naptha	64742-95-6	0.04	100	2.12E-04
N Butyl Alcohol	00071-36-3	0.15	1500	5.72E-05
Naptha	08032-32-4	0.04	900	2.35E-05
Aliphatic Hydrocarbons	08052-41-3	1.55	900	1.75E-04
1,2,4 - Trimethyl Benzene	00095-63-6	0.15	6	1.35E-02
Glycol Ether	00111-46-6	0.04	240	2.12E-03

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	4.81E-04
1,3,5 Trimethyl Benzene	00108-67-8	0.05	290	9.33E-05
Mica	12001-26-2	0.01	7.1	6.63E-04
Microcrystalline Silica	14808-60-7	0.01	0.06	9.80E-02
Aluminum Flake	07429-90-5	0.01	2.4	3.43E-03
Carbon Black	01333-86-4	0.00	8.3	2.83E-04
Titanium Dioxide	13463-67-7	0.03	24	5.88E-04
Graphite	07782-42-5	0.01	4.8	9.81E-04
Prop. Nickel Comp	Not Established	0.00	10	0.00E+00
Aromatic Petroleum distillates	64742-94-5	0.78	3,800.00	2.07E-05
Butane	00106-97-8	0.78	57,000.00	1.38E-06
Ethanol	00064-17-5	1.70	45,000.00	3.85E-06
Ethyl 3-Ethoxyproprioanate	00763-69-9	1.55	64	4.92E-04
Methyl Ethyl Ketone	00078-93-3	0.78	5,000.00	1.57E-05
Propane	00074-98-6	4.65	43,000.00	1.10E-05
Particulates (PM2.5) [1]	NY075-02-5 [2]	4.64	12	3.93E-02
1-Methoxy-2-Propyl Acetate	00108-65-6	0.03	2000	5.04E-04
			Total Hazard Index	**0.23**
			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 20.6.14-14, 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 Expanded Rezoning Area Alternative would not experience significant air quality impacts from these facilities.

20.6.15 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative. Expanded Rezoning Area 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.

20.6.16 NOISE

Introduction

This section discusses potential impacts to the neighborhood noise environment as a result of the Expanded Rezoning Area Alternative. Therefore, a noise analysis is prepared to evaluate the potential effect of the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 1.7 dBA, which would not be considered a significant adverse noise impact. Therefore, the noise analysis concludes that the traffic generated by the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 20.6.16-1 "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 20.6.16-1: 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 Expanded Rezoning Area 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 20.6.16-2, "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 20.6.16-2: 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 20.6.16-3, "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 Expanded Rezoning Area's operation.

Table 20.6.16-3: 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 Expanded Rezoning Area 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 20.6.16-4, "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 20.6.16-4: 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)
P	PS 306 Playground

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 Expanded Rezoning Area 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 Expanded Rezoning Area 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 20.6.16-5, "Existing Noise Levels."

Table 20.6.16-5: 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 20.6.16-5 (con't): 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.

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 P 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.

Noise Prediction Methodology

General Methodology

Proportional Modeling

In order to predict the noise levels in the future with and without the Expanded Rezoning Area 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), an additional analysis of the potential for noise from school playground areas to impact the development site 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 for the west façade of potential development site 30 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 Expanded Rezoning Area Alternative; and
- Total future noise levels with the Expanded Rezoning Area 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 20.6.16-6.

Table 20.6.16-6: 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	73.0	-0.3	79.0
		Saturday	73.6	73.2	-0.4	75.7
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	73.3	-0.3	76.6
		PM	74.2	74.1	-0.1	78.5
		Saturday	70.4	69.5	-0.9	71.4
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	58.4	-1.3	61.7
		Saturday	61.9	61.7	-0.2	67.6
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	63.6	-0.6	69.0
		Midday	61.2	60.9	-0.3	64.7
		PM	62.1	62.0	-0.1	65.4
		Saturday	65.2	63.0	-2.2	66.7

Table 20.6.16-6 (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	72.7	-0.2	75.8
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	6.9	77.0
		PM	62.3	68.2	5.9	69.9
		Saturday	64.7	69.6	4.9	72.3
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
20	Jerome Avenue between East 172nd Street and East 171st Street (Elevated)	AM	72.2	74.1	1.9	78.4
		Midday	71.4	72.6	1.2	74.3
		PM	71.9	72.5	0.6	74.2
		Saturday	71.7	72.2	0.5	73.1

Source: STV Incorporated, 2017

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 Expanded Rezoning Area Alternative

Noise Impact Identification

Using the methodologies previously described, noise levels in the future with the Expanded Rezoning Area 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 20.6.16-7.

In 2026, the maximum increase in $L_{eq}(1)$ noise levels for the future with the Expanded Rezoning Area Alternative compared to the No−Action condition for all receptor sites would be 1.4 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 20.6.16-7: 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	78.7	0.1	86.3
		Midday	78.3	78.6	0.3	85.6
		PM	78.3	78.5	0.2	86.2
		Saturday	78.6	78.7	0.2	85.1
2	River Avenue and East 165th Street	AM	75.5	75.6	0.1	79.1
		Midday	73.7	74.0	0.3	77.9
		PM	73.0	73.2	0.2	79.2
		Saturday	73.2	73.5	0.2	76.0
3	Edward L. Grant Highway between Jerome Avenue and West 169th Street	AM	70.1	70.2	0.2	74.2
		Midday	67.5	67.7	0.3	70.8
		PM	68.9	69.0	0.1	71.9
		Saturday	68.2	68.4	0.2	72.7
4	Jerome Avenue (west side) and West 168th Street	AM	74.0	74.1	0.1	83.0
		Midday	68.5	68.7	0.2	71.9
		PM	74.8	74.9	0.2	84.1
		Saturday	75.2	75.4	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	74.4	0.1	81.0
		Midday	73.3	73.5	0.2	76.8
		PM	74.1	74.3	0.2	78.7
		Saturday	69.5	69.8	0.3	71.7

Table 20.6.16-7 (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}
6	Edward L. Grant Highway between Jesup Avenue and Shakespeare Avenue	AM	71.2	71.3	0.1	75.8
		Midday	66.3	66.4	0.1	70.3
		PM	68.6	68.7	0.1	71.9
		Saturday	65.3	65.4	0.1	65.6
7	Cromwell Avenue between West 169th Street and West 170th Street	AM	62.0	62.0	0.0	65.0
		Midday	67.6	68.5	1.0	71.7
		PM	58.4	60.1	1.7	63.4
		Saturday	61.7	62.8	1.1	68.7
8	East 170th Street between Townsend Avenue and Walton Avenue	AM	71.0	71.2	0.2	75.1
		Midday	63.2	63.3	0.1	67.6
		PM	70.0	70.3	0.3	74.1
		Saturday	69.8	70.1	0.3	74.9
9	Inwood Avenue between West 170th Street and Macombs Road	AM	63.6	63.6	0.0	69.0
		Midday	60.9	61.1	0.2	64.9
		PM	62.0	62.1	0.1	65.5
		Saturday	63.0	63.0	0.0	66.7
10	Jerome Avenue and West 172nd Street (northwest corner)	AM	75.9	76.2	0.3	84.1
		Midday	74.4	74.6	0.3	76.1
		PM	73.5	74.1	0.5	79.4
		Saturday	72.7	73.2	0.4	76.3
11	West Mount Eden Avenue between Jerome Avenue and Inwood Avenue	AM	75.2	76.0	0.8	79.8
		Midday	74.8	75.7	1.0	79.0
		PM	68.2	69.5	1.4	72.8
		Saturday	69.6	70.7	1.1	74.4
12	Jerome Avenue between Clifford Place East and East 175th Street	AM	75.1	75.2	0.1	76.0
		Midday	71.4	71.6	0.2	74.0
		PM	75.3	75.6	0.3	79.8
		Saturday	73.5	73.7	0.3	74.3
13	Jerome Avenue between East 177th Street and East Tremont Avenue	AM	78.7	78.7	0.0	83.3
		Midday	77.3	77.6	0.3	79.3
		PM	79.2	79.5	0.3	85.7
		Saturday	73.6	73.9	0.3	75.1
14	East Burnside Avenue between Walton Avenue and Morris Avenue	AM	72.6	72.7	0.1	76.1
		Midday	67.9	68.3	0.4	73.5
		PM	68.8	69.0	0.2	72.4
		Saturday	71.4	71.6	0.2	74.6
15	Jerome Avenue and East 182nd Street	AM	77.1	77.2	0.1	85.4
		Midday	73.8	74.5	0.7	79.4
		PM	75.9	76.6	0.6	83.1
		Saturday	73.6	74.2	0.6	77.8
16	West 183rd Street between Grand Avenue and Davidson Avenue	AM	66.8	66.9	0.0	69.7
		Midday	64.7	64.7	0.0	68.4
		PM	63.4	63.4	0.0	67.1
		Saturday	70.0	70.0	0.0	73.7
17	East Tremont Avenue between Jerome Avenue and Walton Avenue	AM	75.4	75.4	0.1	81.3
		Midday	74.3	74.6	0.4	79.1
		PM	75.1	75.3	0.2	83.2
		Saturday	74.6	74.7	0.2	79.9

Table 20.6.16-7 (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}
18	Northeast corner of Creston Avenue and East Tremont Avenue (replacement monitoring site for Burnside due to construction)	AM	70.0	70.1	0.1	74.6
		Midday	66.9	67.3	0.4	71.6
		PM	69.4	69.6	0.2	74.1
		Saturday	71.2	71.4	0.2	73.2
19	River Avenue between East 167th Street and East 168th Street (Elevated)	AM	74.7	74.7	0.0	79.7
		Midday	74.6	74.6	0.0	79.8
		PM	80.6	80.6	0.0	76.2
		Saturday	73.9	73.9	0.0	75.9
20	Jerome Avenue between East 172nd Street and East 171st Street (Elevated)	AM	74.1	74.4	0.3	78.7
		Midday	72.6	73.0	0.4	74.7
		PM	72.5	73.1	0.6	74.8
		Saturday	72.2	72.7	0.5	73.6

Source: STV Incorporated, 2017.

PLAYGROUND NOISE ASSESSMENT

To address the potential impacts that playground noise could have on the proposed project, a playground noise analysis was conducted at potentially affected project site. 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 20.6.16-8, "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 20.6.16-8, the resulting L_{10} noise levels would be 75.9 dBA at the western façade of Potential Development Site 40.

Table 20.6.16-8: 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	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.

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 20.6.16-9 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 Expanded Rezoning Area Alternative are calculated using the existing noise measurements, the traffic noise analysis, and the playground noise analysis. Based on the values shown in Table 20.6.16-9, required attenuation levels are determined for all projected and potential development sites. These values are shown in Appendix G.

Table 20.6.16-9: 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	86.3	42
2	River Avenue and East 165th Street	79.2	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	84.1	40
5	Corner of Jerome Ave and E. Clark Place, north of Jerome Avenue, Gerard Avenue and E. Clark Place Triangle	81.0	37
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	75.1	31
9	Inwood Avenue between West 170th Street and Macombs Road	69.0	N/A
10	Jerome Avenue and West 172nd Street. (northwest corner)	84.1	40
11	West Mount Eden Avenue between Jerome Avenue and Inwood Avenue	79.8	35
12	Jerome Avenue between Clifford Place East and East 175th Street	79.8	35
13	Jerome Avenue between East 177th Street and East Tremont Avenue	85.7	42
14	East Burnside Avenue between Walton Avenue and Morris Avenue	76.1	33
15	Jerome Avenue and East 182nd Street	85.4	41
16	West 183rd Street between Grand Avenue and Davidson Avenue	73.7	31
17	East Tremont Avenue between Jerome Avenue and Walton Avenue	83.2	39
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)	79.8	35
20	Jerome Avenue between East 172nd Street and East 171st Street (Elevated)	78.7	35
P	PS 306	75.9	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 L10 is below 70 dBA. The *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L10 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 Expanded Rezoning Area 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.

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.

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

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 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would not result in any significant adverse noise impacts related to building mechanical equipment.

20.6.17 PUBLIC HEALTH

Neither the Proposed Actions nor the Expanded Rezoning Area Alternative would result in significant adverse public health impacts. Under the Expanded Rezoning Area 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 under the Expanded Rezoning Area Alternative.

20.6.18 NEIGHBORHOOD CHARACTER

As with the Proposed Actions, the Expanded Rezoning Area Alternative would not result in significant adverse impacts on neighborhood character. Although the Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would be similar to the effects of the Proposed Actions. The Expanded Rezoning Area 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 Expanded Rezoning Area 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 Expanded Rezoning Area Alternative would not result in any significant adverse impacts on neighborhood character.

20.6.19 CONSTRUCTION

Noise

As with the Proposed Actions, the construction-period noise analyses for the Expanded Rezoning Area 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 Expanded Rezoning Area Alternative or the Proposed Actions.

Historic and cultural resources

The potential for construction-related impacts associated with the Expanded Rezoning Area Alternative, as with the Proposed Actions, would be limited to the vicinity of each projected and potential development site, because those are the locations where construction would occur as part of the Expanded Rezoning Area Alternative. Therefore, the following discussion of construction-related impacts is limited to the historic resources that are at least partly within the rezoning area.

Potential Construction Impacts to Designated Resources within the Rezoning Area

Historic Districts – Morris Avenue Historic District and Grand Concourse Historic District

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, development resulting from the Expanded Rezoning Area Alternative (as would be the case with the Proposed Actions). 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 68, 69, and 70 (as would be the case with the Proposed Actions). Therefore, no construction impacts to the Grand Concourse Historic District would result with either the Expanded Rezoning Area Alternative or the Proposed Actions. There are no projected or potential development sites within the Morris Avenue Historic District, and the nearest site is Projected Development Site 43, which is approximately 170 feet away from the historic district boundary; therefore, neither the Expanded Rezoning Area Alternative nor the Proposed Actions would result in construction impacts to the Morris Avenue Historic District.

Individual Property – Croton Aqueduct System

In addition, 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; 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.

Potential Construction Impacts to Eligible Resources within the Rezoning Area

Individual Property – U.S. Post Office -Morris Heights Station

Adjacent historic resources, as defined in the procedure notice, 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. Construction period impacts on any designated historic resources would be protected, by ensuring that adjacent development projected as a result of the Expanded Rezoning Area Alternative (as would be the case with the Proposed Actions) adheres to all applicable construction guidelines and follows the requirements laid out in TPPN #10/88.

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, which is located on the east side of Jerome Avenue. Projected Development Site 12 and as potential development sites 17 and 23, are located across Jerome Avenue, to the west. Potential development sites 96 and 97 are the lots adjacent to the U.S. Post Office property, located north and south of it, respectively. All five of these projected and potential development sites are located within 90 feet of the U.S. Post Office property, as is potential development site 95, which is just to the north, separated from the U.S. Post Office property by potential development site 96.

However, as the U.S. Post Office – Morris Heights Station, is not designated or calendared for landmark designation by LPC or SHPO, it would not be afforded the protections of TPPN #10/88. As described previously in this chapter, the New York City Building Code provides some measures of protection for all properties against accidental damage from adjacent construction by requiring that all buildings, lots, and service facilities adjacent to the foundation and earthwork areas be protected and supported. However, without the particular protections of TPPN #10/88, or similar protections in place, either the Expanded Rezoning Area Alternative or the Proposed Actions 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.

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 an approximately 102-block rezoning area (ten 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 Expanded Rezoning Area 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.

20.6.20 MITIGATION MEASURES REQUIRED FOR THE EXPANDED REZONING AREA ALTERNATIVE

CONSTRUCTION

Transportation

As described in Chapter 19, "Construction," construction-related traffic would have significant adverse impacts at one intersection during the weekday construction 6-7 AM peak hour and 13 intersections 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 one intersection during the construction AM peak hour and five intersections during the construction PM peak hour. No basic intersection improvement measures could mitigate the significant adverse construction-related impacts at these five intersections. Further measures to address these impacts will be explored with the relevant agencies between the DEIS and FEIS. If no additional practicable mitigation is identified, these impacts would constitute unavoidable significant adverse traffic impacts as a result of the Proposed Action.

Noise

As with the Proposed Action, development with the Expanded Rezoning Area 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.

Between the DEIS and FEIS, the above mitigation measures will be explored, which are intended to address the pieces of construction equipment that would produce the highest noise levels. 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.

Community Facilities

Public Schools

With the Expanded Rezoning Area Alternative, elementary school enrollment in CSD 9, Sub-district 2 is anticipated to exceed the significant adverse impact threshold in the year 2020 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 2020. 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 Expanded Rezoning Area Alternative, 2,762 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 2020, 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 427, generating 166 elementary school students, as compared to No-Action conditions. This would represent a decrease of 2,335 DUs (84.5 percent) in CSD 9, Sub-district 2. An increase of 166 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 Expanded Rezoning Area Alternative, 2,762 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 2,552 DUs (92.4 percent) in CSD 9, Sub-district 2. The 34 intermediate school students within CSD 19, 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 Expanded Rezoning Area Alternative, 882 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 660 DUs, generating 257 elementary school students, as compared to No-Action conditions. This would represent a decrease of 222 DUs (25.2 percent) in CSD 10, Sub-district 4. An increase of 257 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 882 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 20.6.20-1, 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 20.6.20-1: 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	427 DUs (166 students)	593
CSD 9, Sub-District 2, Intermediate	210 DUs (34 students)	278
CSD 10, Sub-District 4, Elementary	660 DUs (257 students)	62
Notes: [1]Represents increment over No-Action Condition		

As indicated in the table, based on the RWCDS for the Proposed Actions, an additional 912 elementary school seats and 409 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 88 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 Proposed Actions, 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 New York City School Construction Authority (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.

In general, the Expanded Rezoning Area 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. Other measures may be may be identified in consultation with the SCA/DOE between the publication of the DEIS and FEIS.

Child Care

Unlike the Proposed Actions, the Expanded Rezoning Area Alternative would increase the number of low-income children under the age of six to an extent that would result in a child care center utilization rate increase greater than five percent. According to the *CEQR Technical Manual,* this would constitute a significant adverse impact. The Proposed Actions would not result in a significant adverse impact to child care and would not require mitigation, and therefore the mitigation measures presented herein would only be required under the Expanded Rezoning Area Alternative.

To avoid the identified significant adverse child care center impact, the number of affordable DU that could be developed on the projected development sites would have to be reduced to 2,758, a 149 DU

reduction in the number of affordable units anticipated under the RWCDS. The 2,758 affordable DU would generate 383 children under age six eligible for publicly funded child care and study area child care facilities would operate at capacity with no child care slot shortfall.

Possible mitigation measures for this significant adverse impact on publicly funded child care centers may be further explored in consultation with the New York City Administration for Children's Services (ACS).

Several factors could limit the number of children in need of publicly funded child care slots in ACS contracted child care facilities. The projected increase in demand for child care slots could be offset by private day care facilities and day care centers outside of the study area, which are not included in this analysis –some parents may choose day care providers that are closer to their workplace rather than their home. Additionally, the City's new universal Pre-Kindergarten program has greatly expanded the number of free Pre-K seats available for 4-5 year olds, which seats are not accounted for in this analysis. Families might choose to enroll their children in Pre-K rather than in day care, reducing the demand for child care seats.

While the above measures could offset or partially mitigate the identified impact, in the event that the significant adverse impact on publicly funded child care facilities is not completely eliminated, an unavoidable significant adverse impact would result.

Shadows

As with the Proposed Actions, the Expanded Zoning 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.