Astoria 31st Street Rezoning

Environmental Assessment Statement

CEQR No. 21DCP117Q

Prepared for:
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2441 Astoria Associates
31 Neptune LLC

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June 18, 2021

Astoria 31st Street Rezoning

Environmental Assessment Statement

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ENVIRONMENTAL ASSESSMENT STATEMENT (EAS) SHORT FORM

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

Part I: GENERAL INFORMATION

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

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

2. *Project Name* Astoria 31st Street Rezoning

3. *Reference Numbers*

CEQR REFERENCE NUMBER (to be assigned by lead agency)	BSA REFERENCE NUMBER (if applicable)
21DCP117Q	
ULURP REFERENCE NUMBER (if applicable)	OTHER REFERENCE NUMBER(S) (if applicable) (*e.g.*, legislative intro, CAPA)
210200ZMQ; N210201ZRQ	

4a. *Lead Agency Information*			**4b. *Applicant Information***		
NAME OF LEAD AGENCY			NAME OF APPLICANT		
New York City Department of City Plannnig			MDM Development Group LLC, 2441 Astoria Associates, 31 Neptune LLC (the "Applicants")		
NAME OF LEAD AGENCY CONTACT PERSON			NAME OF APPLICANT'S REPRESENTATIVE OR CONTACT PERSON		
Olga Abinader, Director, EARD			Steven Sinacori, Akerman LLP		
ADDRESS 120 Broadway, 31st Floor			ADDRESS 666 Fifth Avenue, 20th Floor		
CITY New York	STATE NY	ZIP 10271	CITY New York	STATE NY	ZIP 10123
TELEPHONE 212.720.3493	EMAIL oabinad@planning.nyc.gov		TELEPHONE 212.822.2212	EMAIL Steven.sinacori@akerman.com	

5. *Project Description*

The Applicants are seeking two discretionary zoning actions in order to facilitate the three Applicant-controlled Development Sites in the Astoria neighborhood of Queens Community District (CD) 1. The discretionary actions include: (i) a zoning map amendment to rezone a portion of two blocks from R5B and C4-3 to C4-5X and C4-4; and, (ii) a zoning text amendment to ZR Appendix F to designate the rezoning area a Mandatory Inclusionary Housing (MIH) area. The development over the three Applicant-controlled Development Sites would total approximately 300,342 gsf of residential uses, 34,047 gsf of commercial uses, and 28,988 gsf of community facility uses. The three Applicant-controlled Development Sites would include a total of 295 dwelling units (DUs) of which 74 DUs would be affordable.

It is also expected that one additional site within the proposed rezoning area would be redeveloped in the future with the Proposed Actions, in accordance with the proposed C4-4 zoning district. The projected 13-story (135-feet tall), 79,666gsf building on Development Site 4 would be zoned C4-4. The proposed building is assumed to contain 14,721 gsf of ground floor local retail uses and 64,945 gsf of residential uses with 94 DUs (24-28 affordable DUs).

Project Location

BOROUGH Queens	COMMUNITY DISTRICT(S) 1	STREET ADDRESS 31st Street btw Astoria Boulevard North and 23rd Avenue.
TAX BLOCK(S) AND LOT(S) Block 835, Lots 1, 2, 3; and Block 837, Lots 9, 13, 15, 16, 17, 38, 39, 41, 42, 43, 44, 45, 46, 47, 48 and part of Lots 27, 49, 50, 54, 55, and 58		ZIP CODE 11102
DESCRIPTION OF PROPERTY BY BOUNDING OR CROSS STREETS 31st Street btw Hoyt Avenue North and 23rd Avenue		
EXISTING ZONING DISTRICT, INCLUDING SPECIAL ZONING DISTRICT DESIGNATION, IF ANY C4-3, R5B		ZONING SECTIONAL MAP NUMBER 9a

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

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

☐ CITY MAP AMENDMENT	☐ ZONING CERTIFICATION	☐ CONCESSION
☒ ZONING MAP AMENDMENT	☐ ZONING AUTHORIZATION	☐ UDAAP

☒ ZONING TEXT AMENDMENT ☐ ACQUISITION—REAL PROPERTY ☐ REVOCABLE CONSENT
☐ SITE SELECTION—PUBLIC FACILITY ☐ DISPOSITION—REAL PROPERTY ☐ FRANCHISE
☐ HOUSING PLAN & PROJECT ☐ OTHER, explain:
☐ SPECIAL PERMIT (if appropriate, specify type: ☐ modification; ☐ renewal; ☐ other); EXPIRATION DATE:
SPECIFY AFFECTED SECTIONS OF THE ZONING RESOLUTION

***Board of Standards and Appeals*:** ☐ YES ☒ NO
☐ VARIANCE (use)
☐ VARIANCE (bulk)
☐ SPECIAL PERMIT (if appropriate, specify type: ☐ modification; ☐ renewal; ☐ other); EXPIRATION DATE:
SPECIFY AFFECTED SECTIONS OF THE ZONING RESOLUTION

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

Other City Approvals Subject to CEQR (check all that apply)
☐ LEGISLATION ☐ FUNDING OF CONSTRUCTION, specify:
☐ RULEMAKING ☐ POLICY OR PLAN, specify:
☐ CONSTRUCTION OF PUBLIC FACILITIES ☐ FUNDING OF PROGRAMS, specify:
☐ 384(b)(4) APPROVAL ☐ PERMITS, specify:
☐ OTHER, explain:

Other City Approvals Not Subject to CEQR (check all that apply)
☐ PERMITS FROM DOT'S OFFICE OF CONSTRUCTION MITIGATION AND COORDINATION (OCMC) ☐ LANDMARKS PRESERVATION COMMISSION APPROVAL
☐ OTHER, explain:

***State or Federal Actions/Approvals/Funding*:** ☐ YES ☒ NO If "yes," specify:

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

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

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

Physical Setting (both developed and undeveloped areas)
Total directly affected area (sq. ft.): 82,869 sf (rezoning area) Waterbody area (sq. ft) and type: N/A
Roads, buildings, and other paved surfaces (sq. ft.): 82,869 sf (rezoning area) Other, describe (sq. ft.):

8. *Physical Dimensions and Scale of Project* (if the project affects multiple sites, provide the total development facilitated by the action)
SIZE OF PROJECT TO BE DEVELOPED (gross square feet):
NUMBER OF BUILDINGS: 4 GROSS FLOOR AREA OF EACH BUILDING (sq. ft.): 63,252 gsf; 189,128 gsf.; 110,997 gsf; 79,666 gsf
HEIGHT OF EACH BUILDING (ft.): 115'-145' NUMBER OF STORIES OF EACH BUILDING: 11-14 stories

Does the proposed project involve changes in zoning on one or more sites? ☒ YES ☐ NO
If "yes," specify: The total square feet owned or controlled by the applicant: 53,139 sf
The total square feet not owned or controlled by the applicant: 29,730 sf

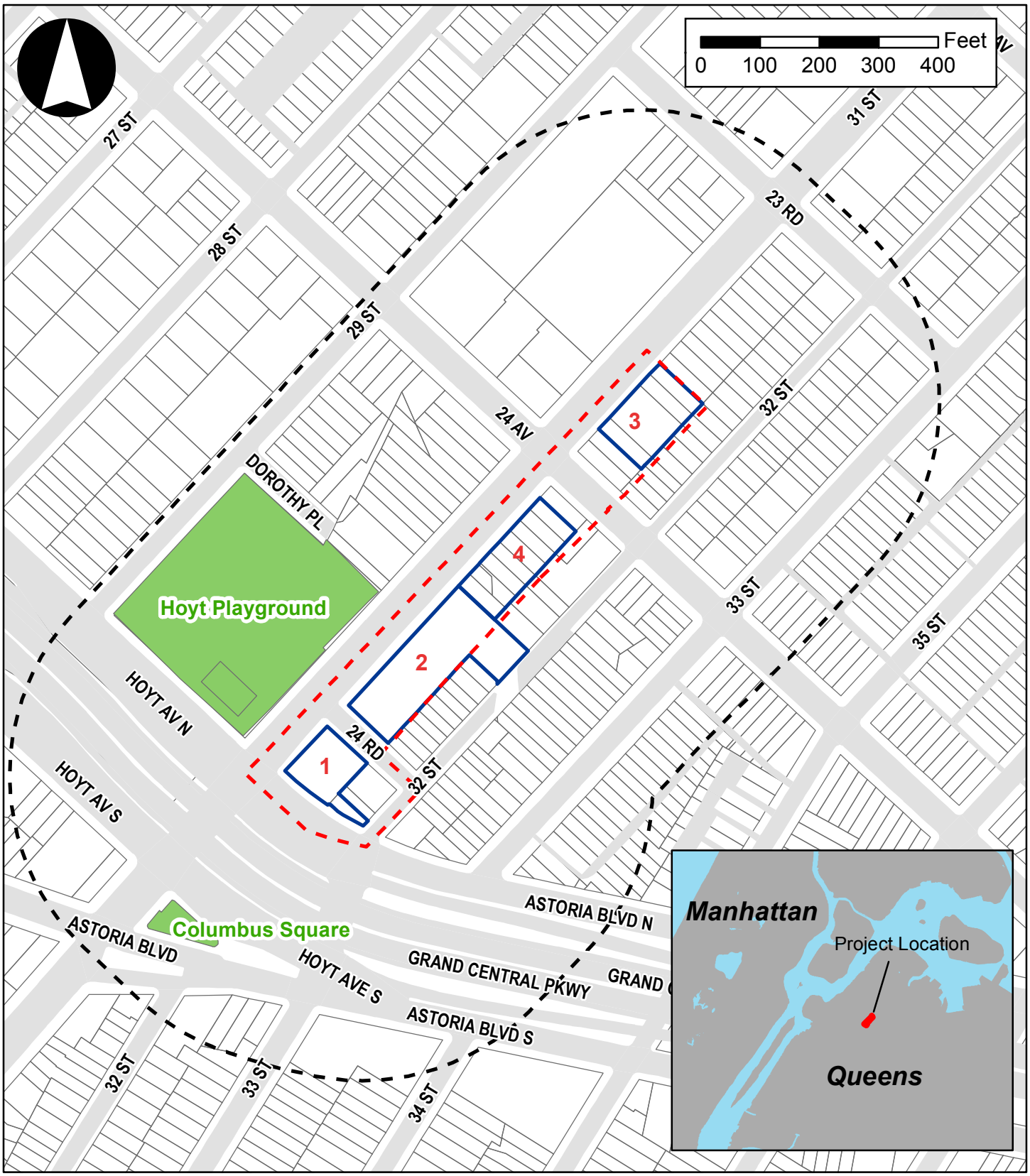
Does the proposed project involve in-ground excavation or subsurface disturbance, including, but not limited to foundation work, pilings, utility lines, or grading? ☒ YES ☐ NO
If "yes," indicate the estimated area and volume dimensions of subsurface permanent and temporary disturbance (if known):
AREA OF TEMPORARY DISTURBANCE: 69,633 sq. ft. (width x length) VOLUME OF DISTURBANCE: TBD cubic ft. (width x length x depth)
AREA OF PERMANENT DISTURBANCE: 69,633 sq. ft. (width x length)

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

	Residential	***Commercial***	***Community Facility***	***Industrial/Manufacturing***
Size (in gross sq. ft.)	365,287gsf	48,768 gsf	28,988 gsf	
Type (*e.g.,* retail, office, school)	389 units	Retail/Office	Senior Center, Day Care, Youth Center	

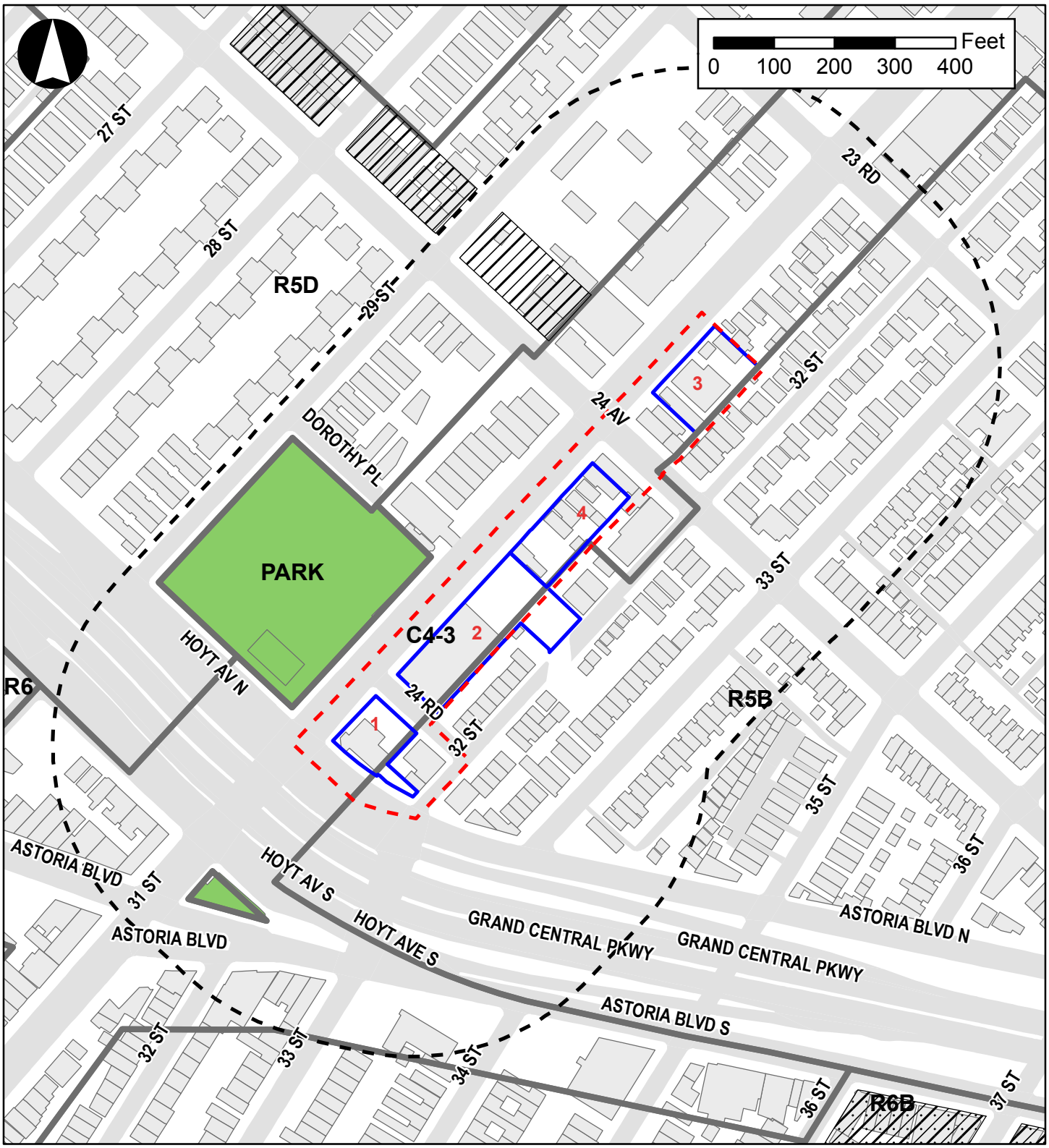
Does the proposed project increase the population of residents and/or on-site workers? ☒ YES ☐ NO

Project Location



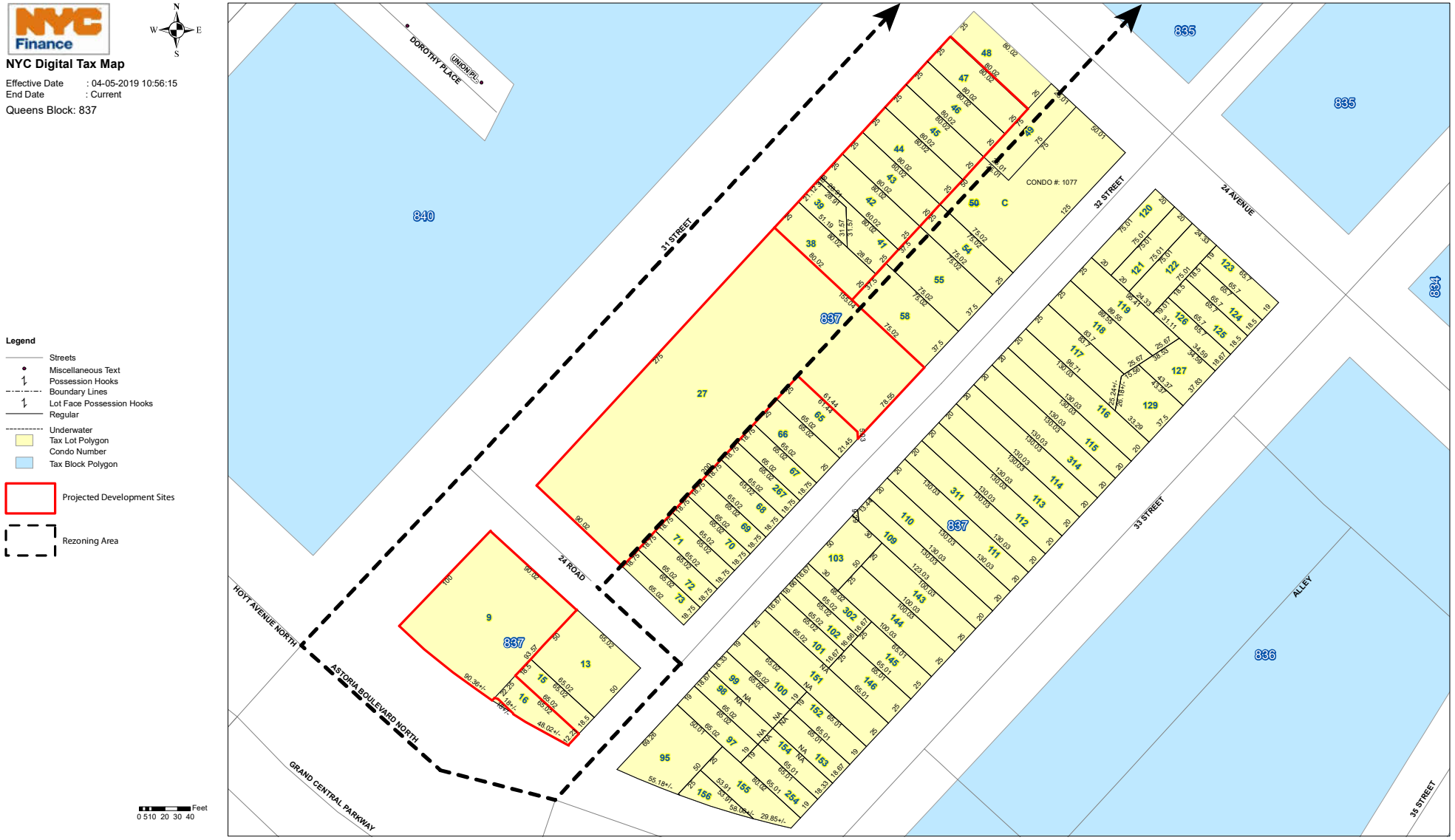
Legend

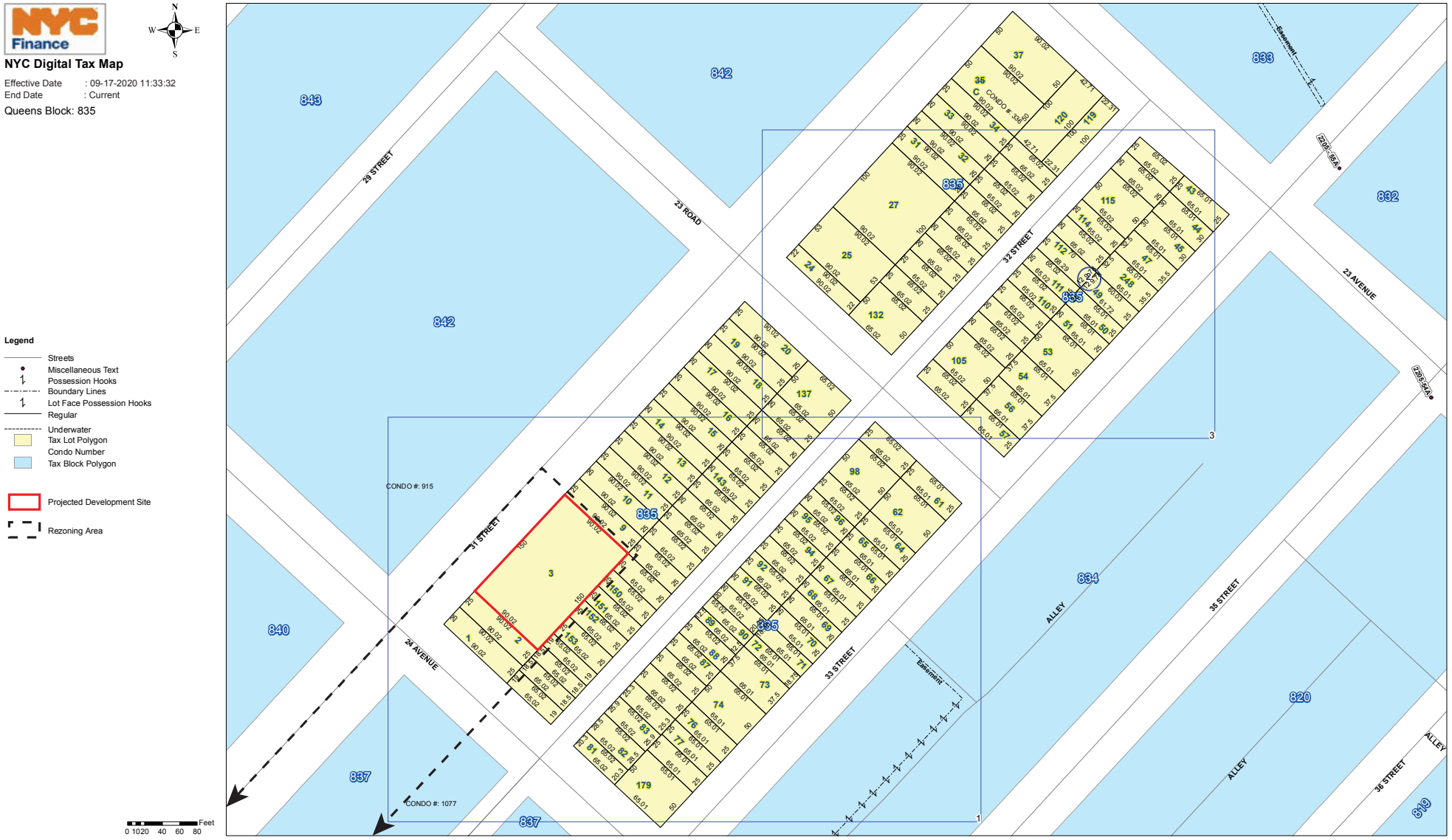
Rezoning Area | 400-Foot Radius | 1 Projected Development Sites | Open Space | Roadbed



Legend

- Rezoning Area
- 400-Foot Radius
- 1 Projected Development Sites
- Zoning Districts
- C2-3 Overlay
- C1-3 Overlay
- Building Footprints
- Open Space


NYC Finance
NYC Digital Tax Map
Effective Date : 04-05-2019 10:56:15
End Date : Current
Queens Block: 837
N
W
E
S
Legend
Streets
Miscellaneous Text
Possession Hooks
Boundary Lines
Lot Face Possession Hooks
Regular
Underwater
Tax Lot Polygon
Condo Number
Tax Block Polygon
Projected Development Sites
Rezoning Area
Feet
0 5 10 20 30 40
DOROTHY PLACE
UNION PL
31 STREET
32 STREET
24 AVENUE
24 ROAD
33 STREET
HOYT AVENUE NORTH
ASTORIA BOULEVARD NORTH
GRAND CENTRAL PARKWAY
ALLEY
35 STREET
835
840
836
834
837
CONDO #: 1077



Astoria 31st Street Rezoning EAS

Figure 2b

Tax Map

Study Area Land Uses



Legend

- Rezoning Area
- 400-Foot Radius
- 1 Projected Development Sites
- One- and Two-Family Buildings
- Multi-family Walkup Buildings
- Multi-family Elevatory Buildings
- Mixed Commercial/Residential
- Commercial/Office Buildings
- Industrial/Manufacturing
- Transportation/Utility
- Public Facilities & Institutions
- Open Space
- Parking Facilities
- Vacant Land

If "yes," please specify: NUMBER OF ADDITIONAL RESIDENTS: 906 NUMBER OF ADDITIONAL WORKERS: 233

Provide a brief explanation of how these numbers were determined: Estimated residents assumes 100% occupancy of dwelling units and is based on the average household size of 2.33 persons per unit in Queens CD 1. Retail Space & Community Facility: 3 employees/1,000 gsf; Office; 4 employees/1,000 gsf

Does the proposed project create new open space? ☐ YES ☒ NO If "yes," specify size of project-created open space: sq. ft.

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

9. *Analysis Year* CEQR Technical Manual Chapter 2

ANTICIPATED BUILD YEAR (date the project would be completed and operational): 2028

ANTICIPATED PERIOD OF CONSTRUCTION IN MONTHS: 72

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

BRIEFLY DESCRIBE PHASES AND CONSTRUCTION SCHEDULE:

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

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

Part II: TECHNICAL ANALYSIS

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

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

	YES	NO
1. *LAND USE, ZONING, AND PUBLIC POLICY*: CEQR Technical Manual Chapter 4		
(a) Would the proposed project result in a change in land use different from surrounding land uses?	☐	☒
(b) Would the proposed project result in a change in zoning different from surrounding zoning?	☒	☐
(c) Is there the potential to affect an applicable public policy?	☒	☐
(d) If "yes," to (a), (b), and/or (c), complete a preliminary assessment and attach.		
(e) Is the project a large, publicly sponsored project?	☐	☒
○ If "yes," complete a PlaNYC assessment and attach.		
(f) Is any part of the directly affected area within the City's Waterfront Revitalization Program boundaries?	☐	☒
○ If "yes," complete the Consistency Assessment Form.		
2. *SOCIOECONOMIC CONDITIONS*: CEQR Technical Manual Chapter 5		
(a) Would the proposed project:		
○ Generate a net increase of 200 or more residential units?	☒	☐
○ Generate a net increase of 200,000 or more square feet of commercial space?	☐	☒
○ Directly displace more than 500 residents?	☐	☒
○ Directly displace more than 100 employees?	☒	☐
○ Affect conditions in a specific industry?	☐	☒
3. *COMMUNITY FACILITIES*: CEQR Technical Manual Chapter 6		
(a) Direct Effects		
○ Would the project directly eliminate, displace, or alter public or publicly funded community facilities such as educational facilities, libraries, hospitals and other health care facilities, day care centers, police stations, or fire stations?	☐	☒
(b) Indirect Effects		
○ **Child Care Centers:** Would the project result in 20 or more eligible children under age 6, based on the number of low or low/moderate income residential units? (See Table 6-1 in Chapter 6)	☐	☒
○ **Libraries:** Would the project result in a 5 percent or more increase in the ratio of residential units to library branches? (See Table 6-1 in Chapter 6)	☐	☒
○ **Public Schools:** Would the project result in 50 or more elementary or middle school students, or 150 or more high school students based on number of residential units? (See Table 6-1 in Chapter 6)	☒	☐
○ **Health Care Facilities and Fire/Police Protection:** Would the project result in the introduction of a sizeable new neighborhood?	☐	☒
4. *OPEN SPACE*: CEQR Technical Manual Chapter 7		
(a) Would the proposed project change or eliminate existing open space?	☐	☒
(b) Is the project located within an under-served area in the Bronx, Brooklyn, Manhattan, Queens, or Staten Island?	☐	☒
○ If "yes," would the proposed project generate more than 50 additional residents or 125 additional employees?	☐	☐
(c) Is the project located within a well-served area in the Bronx, Brooklyn, Manhattan, Queens, or Staten Island?	☐	☒
○ If "yes," would the proposed project generate more than 350 additional residents or 750 additional employees?	☐	☐
(d) If the project in located an area that is neither under-served nor well-served, would it generate more than 200 additional residents or 500 additional employees?	☒	☐
5. *SHADOWS*: CEQR Technical Manual Chapter 8		

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

	YES	NO
(f) Would the proposed project be located in an area that is partially sewered or currently unsewered?	☐	☒
(g) Is the project proposing an industrial facility or activity that would contribute industrial discharges to a Wastewater Treatment Plant and/or generate contaminated stormwater in a separate storm sewer system?	☐	☒
(h) Would the project involve construction of a new stormwater outfall that requires federal and/or state permits?	☐	☒
11. *SOLID WASTE AND SANITATION SERVICES*: CEQR Technical Manual Chapter 14		
(a) Using Table 14-1 in Chapter 14, the project's projected operational solid waste generation is estimated to be (pounds per week): 18,067 lbs per week (net)		
○ Would the proposed project have the potential to generate 100,000 pounds (50 tons) or more of solid waste per week?	☐	☒
(b) Would the proposed project involve a reduction in capacity at a solid waste management facility used for refuse or recyclables generated within the City?	☐	☒
12. *ENERGY*: CEQR Technical Manual Chapter 15		
(a) Using energy modeling or Table 15-1 in Chapter 15, the project's projected energy use is estimated to be (annual BTUs): 56,681,611 BTUs (net)		
(b) Would the proposed project affect the transmission or generation of energy?	☐	☒
13. *TRANSPORTATION*: CEQR Technical Manual Chapter 16		
(a) Would the proposed project exceed any threshold identified in Table 16-1 in Chapter 16?	☒	☐
(b) If "yes," conduct the screening analyses, attach appropriate back up data as needed for each stage and answer the following questions:		
○ Would the proposed project result in 50 or more Passenger Car Equivalents (PCEs) per project peak hour?	☒	☐
If "yes," would the proposed project result in 50 or more vehicle trips per project peak hour at any given intersection? ***It should be noted that the lead agency may require further analysis of intersections of concern even when a project generates fewer than 50 vehicles in the peak hour. See Subsection 313 of Chapter 16 for more information.***	☒	☐
○ Would the proposed project result in more than 200 subway/rail or bus trips per project peak hour?	☒	☐
If "yes," would the proposed project result, per project peak hour, in 50 or more bus trips on a single line (in one direction) or 200 subway trips per station or line?	☒	☐
○ Would the proposed project result in more than 200 pedestrian trips per project peak hour?	☒	☐
If "yes," would the proposed project result in more than 200 pedestrian trips per project peak hour to any given pedestrian or transit element, crosswalk, subway stair, or bus stop?	☒	☐
14. *AIR QUALITY*: CEQR Technical Manual Chapter 17		
(a) *Mobile Sources*: Would the proposed project result in the conditions outlined in Section 210 in Chapter 17?	☒	☐
(b) *Stationary Sources*: Would the proposed project result in the conditions outlined in Section 220 in Chapter 17?	☒	☐
○ If "yes," would the proposed project exceed the thresholds in Figure 17-3, Stationary Source Screen Graph in Chapter 17? (Attach graph as needed)	☒	☐
(c) Does the proposed project involve multiple buildings on the project site?	☒	☐
(d) Does the proposed project require federal approvals, support, licensing, or permits subject to conformity requirements?	☐	☒
(e) Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to air quality that preclude the potential for significant adverse impacts?	☐	☒
15. *GREENHOUSE GAS EMISSIONS*: CEQR Technical Manual Chapter 18		
(a) Is the proposed project a city capital project or a power generation plant?	☐	☒
(b) Would the proposed project fundamentally change the City's solid waste management system?	☐	☒
(c) If "yes" to any of the above, would the project require a GHG emissions assessment based on the guidance in Chapter 18?	☐	☒
16. *NOISE*: CEQR Technical Manual Chapter 19		
(a) Would the proposed project generate or reroute vehicular traffic?	☒	☐
(b) Would the proposed project introduce new or additional receptors (see Section 124 in Chapter 19) near heavily trafficked roadways, within one horizontal mile of an existing or proposed flight path, or within 1,500 feet of an existing or proposed rail line with a direct line of site to that rail line?	☒	☐
(c) Would the proposed project cause a stationary noise source to operate within 1,500 feet of a receptor with a direct line of sight to that receptor or introduce receptors into an area with high ambient stationary noise?	☐	☒

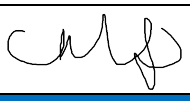
	YES	NO
(d) Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to noise that preclude the potential for significant adverse impacts?	☐	☒
17. *PUBLIC HEALTH*: CEQR Technical Manual Chapter 20		
(a) Based upon the analyses conducted, do any of the following technical areas require a detailed analysis: Air Quality; Hazardous Materials; Noise?	☒	☐
(b) If "yes," explain why an assessment of public health is or is not warranted based on the guidance in Chapter 20, "Public Health." Attach a preliminary analysis, if necessary. As discussed in the EAS, the Proposed Actions would not result in significant adverse Air Quality, Hazardous Materials, or Noise impacts. Therefore, an assessment of public health is not warranted.		
18. *NEIGHBORHOOD CHARACTER*: CEQR Technical Manual Chapter 21		
(a) Based upon the analyses conducted, do any of the following technical areas require a detailed analysis: Land Use, Zoning, and Public Policy; Socioeconomic Conditions; Open Space; Historic and Cultural Resources; Urban Design and Visual Resources; Shadows; Transportation; Noise?	☒	☐
(b) If "yes," explain why an assessment of neighborhood character is or is not warranted based on the guidance in Chapter 21, "Neighborhood Character." Attach a preliminary analysis, if necessary. The Proposed Actions do not have the potential to result in significant adverse impacts to land use, zoning, and public policy, socioeconomic conditions, open space, historic and cultural resources, urban design and visual resources, shadows, transportation, or noise. Nor would the Proposed Actions result in a combination of moderate effects to several elements that cumulatively may affect neighborhood character. Therefore, an assessment of neighborhood character is not warranted. See Attachment B, "Supplemental Sceening."		
19. *CONSTRUCTION*: CEQR Technical Manual Chapter 22		
(a) Would the project's construction activities involve:		
○ Construction activities lasting longer than two years?	☒	☐
○ Construction activities within a Central Business District or along an arterial highway or major thoroughfare?	☒	☐
○ Closing, narrowing, or otherwise impeding traffic, transit, or pedestrian elements (roadways, parking spaces, bicycle routes, sidewalks, crosswalks, corners, *etc.*)?	☒	☐
○ Construction of multiple buildings where there is a potential for on-site receptors on buildings completed before the final build-out?	☒	☐
○ The operation of several pieces of diesel equipment in a single location at peak construction?	☒	☐
○ Closure of a community facility or disruption in its services?	☐	☒
○ Activities within 400 feet of a historic or cultural resource?	☐	☒
○ Disturbance of a site containing or adjacent to a site containing natural resources?	☐	☒
○ Construction on multiple development sites in the same geographic area, such that there is the potential for several construction timelines to overlap or last for more than two years overall?	☒	☐
(b) If any boxes are checked "yes," explain why a preliminary construction assessment is or is not warranted based on the guidance in Chapter 22, "Construction." It should be noted that the nature and extent of any commitment to use the Best Available Technology for construction equipment or Best Management Practices for construction activities should be considered when making this determination.		

20. *APPLICANT'S CERTIFICATION*

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

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

APPLICANT/REPRESENTATIVE NAME	DATE
Christina Szczepanski, PHA	6/18/2021

SIGNATURE 

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

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

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

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

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

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

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

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

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

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

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

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

TITLE	LEAD AGENCY
Deputy Director, Environmental Assessment and Review Division	City Planning Commission
NAME Stephanie Shellooe	DATE June 18, 2021
SIGNATURE	

NEGATIVE DECLARATION

Statement of No Significant Effect

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

Reasons Supporting this Determination

The above determination is based on information contained in this EAS, which finds the proposed actions sought before the City Planning Commission would not have a significant adverse impact on the environment. Reasons supporting this determination are noted below.

Land Use, Zoning, and Public Policy

A detailed analysis of land use, zoning, and public policy is included in the EAS. The proposed actions are a Zoning Map Amendment to rezone a portion of two blocks from C4-3 and R5B to C4-5X and C4-4, and a Zoning Text Amendment to Appendix F of the Zoning Resolution (ZR) to designate the rezoning area as a Mandatory Inclusionary Housing (MIH) area. The proposed actions would affect Queens, Block 835, Lots 1, 2 and 3; and Block 837, Lots 9, 13, 15, 16, 17, 38, 39, 41, 42, 43, 44, 45, 46, 47, 48 and parts of Lots 27, 49, 50, 54, 55, and 58. The proposed actions would facilitate a series of developments by the applicants, MDM Development Group LLC, 2442 Astoria Associates, and 31 Neptune LLC to develop three Applicant-controlled development sites that would total approximately 300,342 gross square feet (gsf) of residential uses (295 dwelling units, of which between 74 and 89 would be affordable pursuant to MIH), 34,047 gsf of commercial uses and 28,988 gsf of community facility uses in the Astoria neighborhood of Queens, Community District 1. The proposed actions would also facilitate development on one non-Applicant owned site The projected 13-story (135-feet tall), 94,387 gsf building on Development Site 4 would contain approximately 14,721 gsf of ground floor local retail uses and 79,666 gsf of residential uses with 94 DUs (24-28 affordable DUs) and 37 parking spaces. The proposed zoning map amendment would allow new residential and commercial development at a scale and density that is compatible with the existing zoning designations in the surrounding areas. The analysis concludes that no significant adverse impacts are anticipated for land use, zoning, and public policy.

Socioeconomics

A preliminary analysis of socioeconomic conditions is included in the EAS, including a preliminary assessment of direct residential and business displacement and indirect residential displacement. Based on CEQR Technical Manual guidance, analysis related to indirect business displacement or adverse impacts to specific industries is not warranted. Redevelopment of Projected Development Site 4 as a result of the proposed actions could result in potential direct displacement of approximately 51 residents which would account for approximately 0.11 percent of the total study area population. The CEQR Technical Manual threshold for potential significant adverse impacts is five percent, which would not be exceeded, and no further analysis is warranted. A preliminary assessment finds that the proposed actions would not result in significant adverse impacts related to direct business displacement. The four commercial business and estimated 120 jobs that could potentially be directly displaced as a result of the proposed actions do not provide products or services essential to the local economy that would no longer be available in the trade area due to the difficulty of either relocating or establishing a new comparable business, nor are there any publicly adopted plans that call for the preservation of such businesses in this area. With respect to indirect residential displacement, a preliminary assessment finds that the average income of the project-generated population is expected to be comparable to the current average in the ½-mile study area as well as the future population, given existing trends of household incomes in the area. The permanently affordable housing pursuant to MIH would help to maintain a diverse demographic composition in the study area. Therefore, the proposed actions would not introduce a new concentration of higher-income residents that could alter rental market conditions in the study area, and there would be no significant adverse impacts due to indirect residential displacement.

Open Space

A detailed analysis related to open space is included in this EAS. The proposed actions would not result in any significant direct impacts on any open space resources. Indirect effects occur to an area's open spaces when a proposed action would add enough population, either workers or residents, to noticeably diminish the ability of an area's open space to serve the existing or future population. In the future with the proposed actions, the total, active and passive open space ratios would decrease by approximately 1.8% for the Study Area population in an area with a relatively low open space ratio. However, based on the existing moderate utilization of many of the study area's open spaces, and the availability of additional open spaces conservatively not included in the quantitative analysis, and nearby large regional parks, the Proposed Actions would not result in a significant adverse impact on open space.

Shadows

A detailed analysis related to shadows is included in this EAS. The Proposed Actions would result in incremental shadow coverage (i.e. additional, or new, shadow coverage) on portions of one sunlight-sensitive open space resource, Hoyt Playground, as well as on portions of one sunlight-sensitive S/NR-listed historic resource, Bohemian Hall and Park. The extent and duration of the incremental shadows on these sunlight-sensitive resources would not (1) significantly reduce or completely eliminate direct sunlight exposure on any of the two resource's sunlight-sensitive features; and would not (2) significantly alter the public's utilization or enjoyment of the two resource's facilities or threaten the viability of vegetation or other sunlight-sensitive features within these two resources. Therefore, incremental shadows from the Projected Development Sites on Hoyt Playground and Bohemian Hall and Park would not be considered a significant adverse impact, in accordance with CEQR Technical Manual methodology.

Transportation

A detailed analysis related to transportation is included in this EAS, including traffic, subway and pedestrian assessment. Based on CEQR Technical Manual guidance, analysis thresholds related to subway line haul, bus transit and parking for detailed analysis is not exceeded and further analysis is not warranted. Traffic conditions were evaluated at three intersections where incremental vehicle trips generated by the Proposed Actions would exceed the 50-trip per hour threshold in the CEQR Technical

Project Name: 31st Street and Hoyt Ave. Rezoning
CEQR # 21DCP117Q
SEQRA Classification: Unlisted

Manual. At the intersection of Astoria Boulevard North/Hoyt Avenue North and 31st Street, a traffic improvement measure consisting of a signal timing changes of one second in the weekday AM peak hour is proposed in conjunction with the Proposed Actions. With incorporation of this improvement measure, the Proposed Actions would not result in significant adverse traffic impacts in any peak hour based on CEQR Technical Manual criteria. The Proposed Actions would generate a net increment of approximately 240 and 263 new subway trips during the weekday AM and PM peak commute hours. In the future with the Proposed Actions, those stairs and fare arrays that would be used by project generated demand are expected to operate at an acceptable level of service (LOS) A in both the AM and PM peak hours and would therefore not be significantly adversely impacted by the Proposed Actions based on CEQR Technical Manual criteria. Pedestrian elements were evaluated at a total of six pedestrian elements (three sidewalks, one crosswalk and two corner areas) where new trips generated by the Proposed Actions are expected to exceed the 200-trip/hour CEQR Technical Manual analysis threshold. In the future with the Proposed Actions, all analyzed pedestrian elements would continue to operate at an acceptable LOS C or better in all four analyzed peak hours, and there would be no significant adverse pedestrian impacts based on CEQR Technical Manual impact criteria.

Construction

A detailed analysis related to Construction is included in the EAS. Construction of the three Applicant-owned Development Sites and one non-Applicant owned Projected Development Site would adhere to the applicable laws, regulations, and building codes that govern construction in New York City. As detailed in the construction assessment in the EAS, the proposed actions would not result in significant adverse construction impacts in the key technical areas of historic and cultural resources, hazardous materials, transportation, air quality, and noise. The applicant will enter a Restrictive Declaration requiring the implementation of project components related to the environment that would preclude any potential impacts to air quality or noise related to construction activities, including emission control measures, use of specified lower noise equipment and a construction noise barrier. With these measures in place, the proposed actions would not result in construction-period significant adverse impacts and no further analysis is warranted.

Hazardous Materials, Air Quality, and Noise

An (E) designation (E-623) related to hazardous materials, air quality, and noise would be established as part of the approval of the proposed actions. Refer to "Determination of Significance Appendix: (E) designation" for the applicable (E) designation requirements. This (E) Designation will supersede the prior (E) Designations mapped on portions of Projected Development Sites 1 and 3 as a result of the Astoria Rezoning in 2010 (E-245). The hazardous materials, air quality, and noise analyses conclude that with the (E) designation in place, the proposed actions would not result in a significant adverse impact related to hazardous materials, air quality, or noise.

No other significant effects upon the environment that would require the preparation of a Draft Environmental Impact Statement are foreseeable. This Negative Declaration has been prepared in accordance with Article 8 of the New York State Environmental Conservation Law (SEQRA). Should you have any questions pertaining to this Negative Declaration, you may contact Stephanie Shellooe at +1 212-720-3328.

TITLE Deputy Director, Environmental Assessment and Review Division	LEAD AGENCY Department of City Planning on behalf of the City Planning Commission 120 Broadway, 31st Fl. New York, NY 10271 | 212.720.3328
NAME Stephanie Shellooe	DATE June 18, 2021
SIGNATURE	
TITLE Chair, City Planning Commission	
NAME Marisa Lago	DATE June 21, 2021
SIGNATURE	

Project Name: 31st Street and Hoyt Ave. Rezoning
CEQR # 21DCP117Q
SEQRA Classification: Unlisted

Determination of Significance Appendix

The Proposed Action(s) were determined to have the potential to result in changes to development on the following site(s):

Development Site	Borough	Block and Lot
Projected Development Site 1	Queens	Block 837, Lots 9 and 16
Projected Development Site 2	Queens	Block 837, Lot 27
Projected Development Site 3	Queens	Block 835, Lot 3
Projected Development Site 4	Queens	Block 837, Lots 38, 39, 41, 42, 43, 44, 45, 46 and 47

(E) Designation Requirements

To ensure that the proposed actions would not result in significant adverse impacts related to hazardous materials, air quality, and noise an (E) designation (**E-623**) would be established as part of approval of the proposed actions on **Projected Development Sites 1, 2, 3 and 4** as described below. (E) Designations were mapped on portions of Projected Development Sites 1 and 3 as a result of the Astoria Rezoning in 2010 (E-245). This (E) Designation (E-623) will supersede the prior (E) Designation.

Development Site	Hazardous Materials	Air Quality	Noise
Projected Development Site 1	X	X	X
Projected Development Site 2	X	X	X
Projected Development Site 3	X	X	X
Projected Development Site 4	X	X	X

Hazardous Materials

The (E) designation requirements applicable to **Projected Development Sites 1, 2 3 and 4** for hazardous materials would apply as follows:

Task 1-Sampling Protocol

The applicant submits to OER, for review and approval, a Phase I of the site along with a soil, groundwater and soil vapor testing protocol, including a description of methods and a site map with all sampling locations clearly and precisely represented. If site sampling is necessary, no sampling should begin until written approval of a protocol is received from OER. The number and location of samples should be selected to adequately characterize the site, specific sources of suspected contamination (i.e., petroleum based contamination and non-petroleum based contamination), and the remainder of the site's condition. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of sampling data. Guidelines and criteria for selecting sampling locations and collecting samples are provided by OER upon request.

Task 2-Remediation Determination and Protocol

A written report with findings and a summary of the data must he submitted to OER after completion of the testing phase and laboratory analysis for review and approval. After receiving such results, a determination is

made by OER if the results indicate that remediation is necessary. If OER determines that no remediation is necessary, written notice shall be given by OER.

If remediation is indicated from test results, a proposed remediation plan must be submitted to OER for review and approval. The applicant must complete such remediation as determined necessary by OER. The applicant should then provide proper documentation that the work has been satisfactorily completed.

A construction-related health and safety plan should be submitted to OER and would be implemented during excavation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil, groundwater and/or soil vapor. This plan would be submitted to OER prior to implementation.

Air Quality

The (E) designation requirements for air quality would apply as follows:

Block 837, Lots 9 and 16 (Projected Development Site 1): *Any new residential, community facility, or commercial development on the above-referenced property must ensure that the HVAC stack is located at the building's highest level or at least 118 feet above the grade, that the stack is located at least 90 feet from the northern lot line facing 24th Road to avoid any potential significant adverse air quality impacts.*

Block 837, Lot 27 (Projected Development Site 2): *Any new residential, community facility, or commercial development on the above-referenced property must ensure that the HVAC stack is located at the building's highest level or at least 148 feet above the grade to avoid any potential significant adverse air quality impacts.*

Block 835, Lot 3 (Projected Development Site 3): *Any new residential, community facility, or commercial development or enlargement on the above-referenced property must ensure that the HVAC stack is located at the building's highest level or at least 132 feet above the grade, that the stack is located at least 7550 feet from the southern lot line facing 24th Avenue to avoid any potential significant adverse air quality impacts.*

Block 837, Lots 38, 39, 41, 42, 43, 44, 45, 46, and 47 (Projected Development Site 4): *Any new residential, community facility, or commercial development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s) and must be fitted with low NOx (30 ppm) burners, ensure that the stack is located at the building's highest level at a minimum of 138 feet above the grade, and that the stack is located at least 1120 feet from the southern lot line facing 24th Road to avoid any potential significant adverse air quality impacts.*

Noise

The (E) designation requirements for noise would apply as follows:

Queens Block 837; Lots 9, 16 (Projected Development Site 1*): To ensure an acceptable interior noise environment, future residential/commercial office/community facility uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office uses. To achieve up to 42 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

***Queens Block 837; Lot 27 (Projected Development Site 2**): To ensure an acceptable interior noise environment, future residential/commercial office/community facility uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.*

***Queens Block 835; Lot 3 (Projected Development Site 3):** To ensure an acceptable interior noise environment, future residential/commercial office/community facility uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office uses. To achieve up to 40 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.*

***Queens Block 837; Lots 38, 39, 41, 42, 43, 44, 45, 46, 47 (Projected Development Site 4):** To ensure an acceptable interior noise environment, future residential uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential uses. To achieve up to 40 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.*

I. INTRODUCTION

MDM Development Group LLC, 2441 Astoria Associates, 31 Neptune LLC (the "Applicants") are seeking discretionary actions in order to facilitate the redevelopment of three Applicant-controlled Development Sites in the Astoria neighborhood of Queens Community District (CD) 1 (see **Figure A-1**). The discretionary actions include: (i) a zoning map amendment to rezone a portion of two blocks from C4-3 and R5B to C4-5X and C4-4; and, (ii) a zoning text amendment to ZR Appendix F to designate the rezoning area a Mandatory Inclusionary Housing (MIH) area (the "Proposed Actions"). The development over the three Applicant-controlled Development Sites would total approximately 300,342 gsf of residential uses, 34,047 gsf of commercial uses, and 28,988 gsf of community facility uses. The three Applicant-controlled Development Sites would include a total of 295 dwelling units (DUs) of which 74-89 DUs would be affordable.

As shown in **Figure A-1**, the proposed rezoning area (the "Project Area") consists of the western portions of Queens Blocks 835 and 837. In total, the proposed rezoning area comprises approximately 82,869 square feet (sf) of lot area bounded by 31st Street to the west, Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north.

This attachment provides a summary and description of the Proposed Actions, including proposed rezoning area location, existing conditions of the proposed rezoning area, project purpose and need, project description, reasonable worst-cast development scenario (RWCDS) under No-Action and With-Action conditions, and the governmental approvals required.

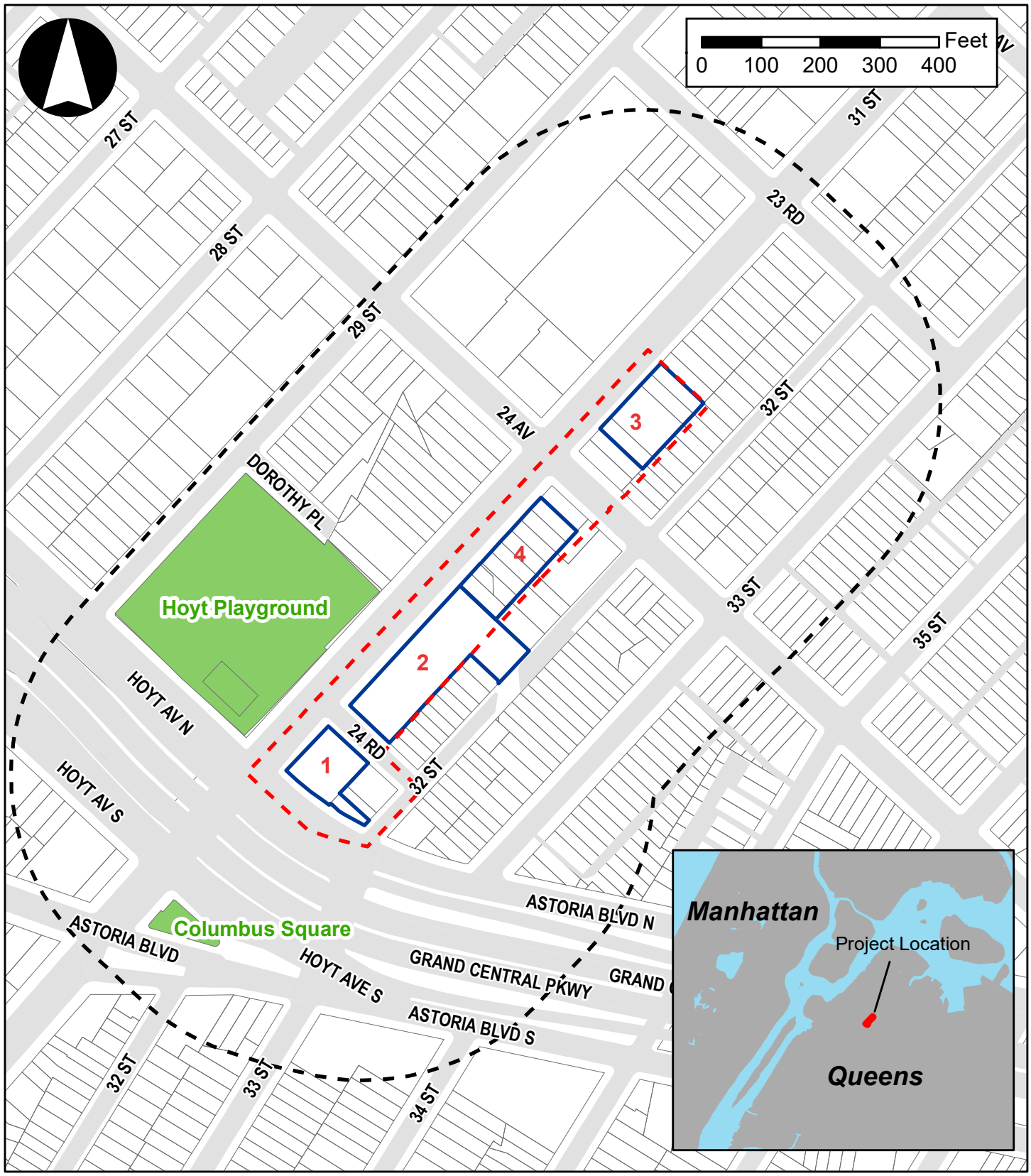
II. BACKGROUND AND EXISTING CONDITIONS

Background

The Project Area was initially mapped with an R5 zoning district in 1961, but was changed to the current C4-3 district in the Astoria Rezoning (C 100199 ZMQ, effective May 25, 2010). The Astoria Rezoning, initiated by DCP, rezoned all or portions of 238 blocks. It was intended to protect neighborhood character from out-of-scale development, more closely reflect established development patterns, direct opportunities for moderate residential and commercial growth to locations along wide streets and transit resources, and provide incentives for the production of affordable housing with an associated text amendment establishing the IH Program in R7A and equivalent districts.

Existing Conditions

As shown in **Table A-1** below, the Applicant-owned Development Sites are considered Projected Development Sites 1-3. Projected Development Site 1 consists of Block 837, Lots 9 and 16. It is approximately 10,000 sf and is improved with a one-story commercial building occupied by the Neptune Diner and a surface parking lot. Projected Development Site 2 consists of Block 837, Lot 27. It is approximately 29,638 sf and is improved with a one-story commercial building occupied by a Staples retail



Legend

Rezoning Area | 400-Foot Radius | 1 Projected Development Sites | Open Space

store and a surface parking lot. Projected Development Site 3 consists of Block 835, Lot 3. It is approximately 13,501 sf and is vacant (see **Figure A-2** for Existing Condition site photos).

There is one other site within the proposed rezoning area not under the control of the Applicants that would be considered a Projected Development Site. As shown in **Table A-1**, Projected Development Site 4 consists of Block 837, Lots 38, 39, 41-47. It is approximately 16,494 sf and is improved with six 2- to 4-story residential buildings containing a total of 22 DUs and 2,000 gsf of commercial uses.

TABLE A-1:
Projected Development Sites – Existing Conditions

	Address	Block	Lot	Lot Size SF	Projected Site Lot Size SF	Existing Zoning	Land Use	Building GSF	Built FAR
Projected Development Site 1	31-05 31st Street	837	9	8,700	10,000	C4-3/R5B	Restaurant	3,280	0.37
	32nd Street	837	16	1,300					
Projected Development Site 2	24-29 31st Street	837	27	29,638	29,638	C4-3/R5B	Retail	26,280	0.88
Projected Development Site 3					13,501	C4-3	Vacant	0	0
	23-83 31st Street	835	3	1					
		8							
Projected Development Site 4	24-17 31st Street	837	38	2,000	16,494	C4-3	Residential	3,100	1.55
	31st Street	837	39	1,243			Parking Lot	0	0
	31st Street	837	41	1,251			Parking Lot	0	0
	31st Street	837	42	2,000			Parking Lot	0	0
	24-11 31st Street	837	43	2,000			Residential	3,012	1.51
	24-09 31st Street	837	44	2,000			Residential	1,430	0.72
	24-07 31st Street	837	45	2,000			Residential	4,184	2.10
	24-05 31st Street	837	46	2,000			Residential	2,460	1.23
	24-03 31st Street	837	47	2,000			Res./Comm.	4,725	2.36
TOTAL				**69,633**	**69,633**				

Notes: The Applicant-owned Development Sites are highlighted.

The rezoning area also includes Block 835, Lots 1 & 2; and Block 837, Lots 47 & 48 and parts of Lots 27, 49, 7501, 54, 55, and 58. These lots are not considered projected development sites.

Block 835, Lot 1 is a 2,250 square foot corner lot. It is improved with a two-story, 4,336 square foot mixed commercial and residential building with three dwelling units. Block 835, Lot 2 is a 2,250 square foot interior lot. It is improved with a three-story, 3,330 square foot residential building with three dwelling units.

Block 837, Lot 48 is a 2,000 square foot corner lot. It is improved with a four-story, 7,500 square foot mixed commercial and residential building with seven dwelling units. The proposed rezoning area also includes an approximately 10 foot strip at the rear of Block 837, Lots 49, 7501, 54, 55, and 58 which totals approximately 2,250 sf of lot area.



1. Looking northwest towards Projected Development Site 1 from Astoria Blvd N and 32nd St



2. Looking southwest towards Projected Development Site 1 from 31st St and 24th Rd



3. Looking northeast under elevated subway tracks along 31st St from Projected Development Site 1



4. Looking northwest towards Projected Development Sites 1 and 2 from 24th Rd and 32nd St



5. Looking northwest towards Projected Development Site 2 from 32nd St



6. Looking southwest towards Projected Development Site 2 from 31st St



7. Looking northeast towards Projected Development Site 2 along 31st St



8. Looking northwest towards Projected Development Sites 2 from 31st St and 24th Rd



9. Looking southeast towards Projected Development Site 3 from 31st St



10. Looking northeast towards Projected Development Site 3 from 31st St



11. Looking southeast towards lots adjacent to Projected Development Site 3 from 31st St



12. Looking northeast towards Projected Development Sites 3 from 31st St and 24th Ave



13. Looking northeast towards Projected Development Site 4 from 31st St



14. Looking southeast towards Projected Development Site 4 from 31st St

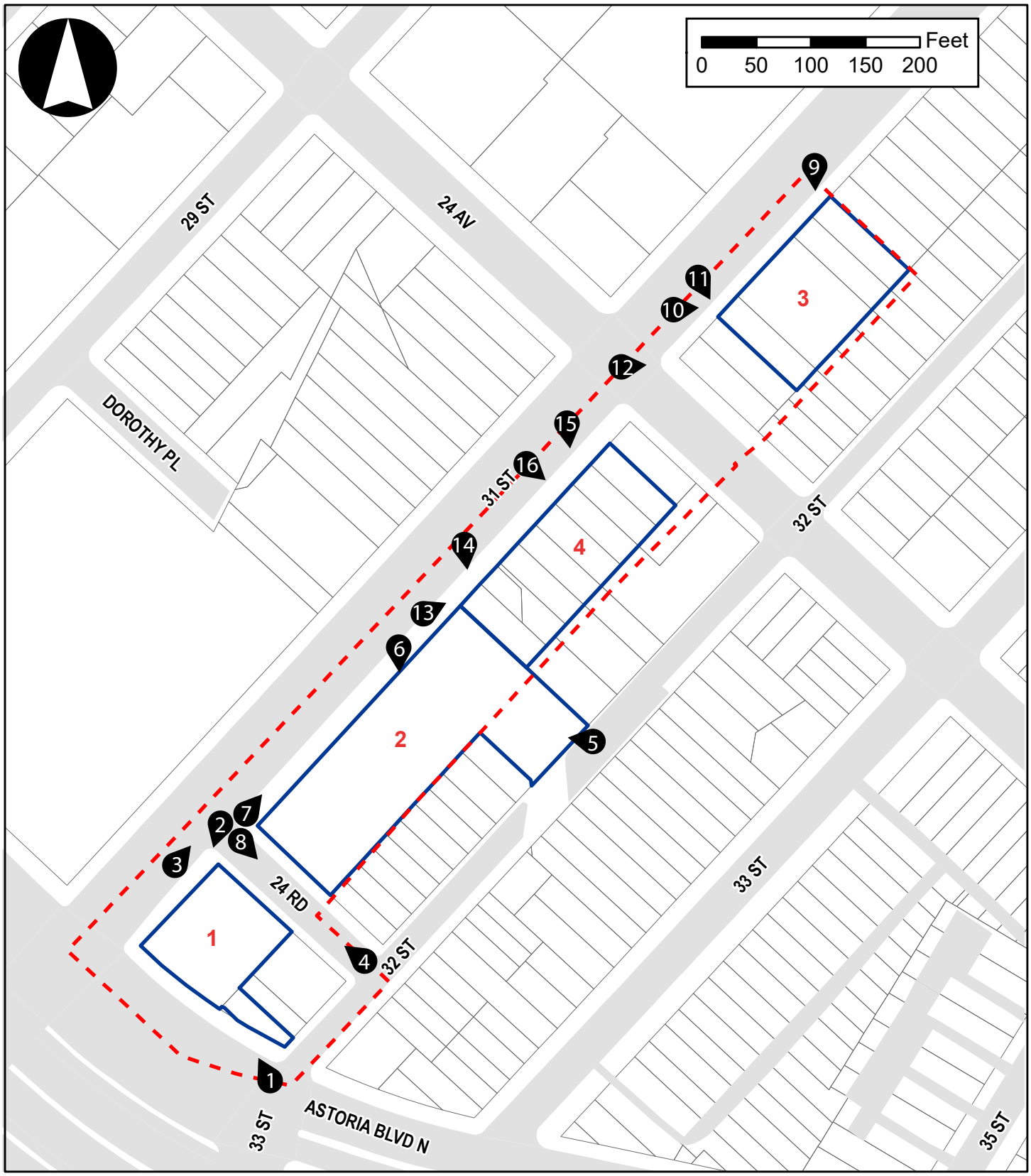


15. Looking southeast towards Projected Development Site 4 from 31st St



16. Looking east towards Projected Development Sites 4 from 31st St

Figure A-2e
Site Photo Map



Legend

Rezoning Area | 400-Foot Radius | 1 Projected Development Sites | 1 Photo Location

Surrounding Area and Context

Existing land uses within the surrounding area consist of one- and two-family and multi-family residences, mixed-use and commercial buildings, a school (PS 85), and limited industrial and vacant land. The prevailing built form in the area varies by use. Residential and mixed-use buildings range from two- to six stories in height, commercial buildings range from one- to eight-stories, and industrial buildings are typically low-rise one-story warehouses. 31st Street is a 100-foot wide street with two-way traffic running north and south. Elevated subway tracks serving the N and Q lines run along 31st Street. Astoria Boulevard/Hoyt Avenue North is a 105-foot wide street.

The approach to the RFK Bridge and Astoria Boulevard/Hoyt Avenue North are located directly south. 24th Avenue is an 80-ft. wide street with two-way traffic running east and west. 24th Road is a 50-ft. wide street with two-way traffic running east and west. The site is well served by public transit. There are subway stations for the N/Q lines at Astoria Boulevard, directly south of the Project Area and Ditmars Blvd. to the north. Bus service on the M60-SBS (Morningside Heights/LaGuardia Airport) and Q19 (Flushing/Astoria) lines is available at Astoria Blvd., and the Q69 (Long Island City/ Jackson Heights) is available at Ditmars Boulevard. Hoyt Playground is located across 31st Street to the west of the Project Area. It is a 2.20-acre neighborhood park that provides opportunities for active and passive recreation. The surrounding area is within the Transit Zone, where reduced parking requirements apply to developments that provide income-restricted housing units.

III. DESCRIPTION OF THE PROPOSED ACTIONS

The Applicants are seeking several discretionary actions including: (i) a zoning map amendment to rezone a portion of two blocks from C4-3 and R5B to C4-5X and C4-4; and, (ii) a zoning text amendment to ZR Appendix F to designate the rezoning area a Mandatory Inclusionary Housing (MIH) area from the New York City Planning Commission (CPC).

Proposed Zoning Map Amendment

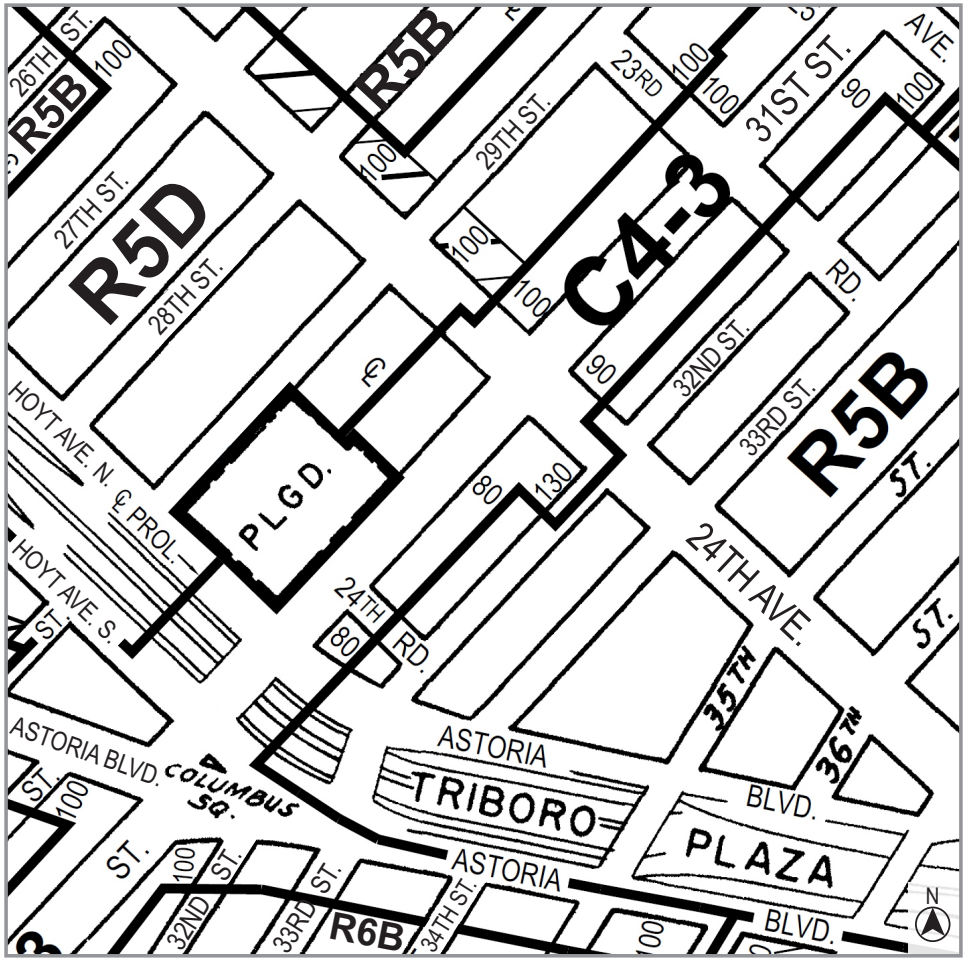
As shown in **Figure A-3**, the zoning map amendment would rezone the Project Area from C4-3 and R5B zoning districts to C4-5X and C4-4 zoning districts. The proposed rezoning area comprises approximately 82,869 sf of lot area bounded by bounded by 31st Street to the west, Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north. The majority of the Project Area is within a C4-3 zoning district, with a portion within the adjacent R5B zoning district to the east. The portion of the Project Area within the R5B zoning district is the eastern portion of Block 837 between Astoria Boulevard and 24th Road and an approximately 10-foot strip at the center of the northernmost portion of Block 837.

The proposed C4-5X zoning district is bounded by a line 200 feet north of and parallel to 24th Road to the north, Astoria Boulevard North to the south, 31st Street to the west, and 32nd Street and a line 90 feet from and parallel to 31st Street to the east. The proposed C4-4 zoning district is bounded by a line 200 feet north of and parallel to 24th Avenue to the north, a line 200 feet north of and parallel to 24th Road to the south, 31st Street to the west, and a line 90 feet from and parallel to 31st Street to the east.

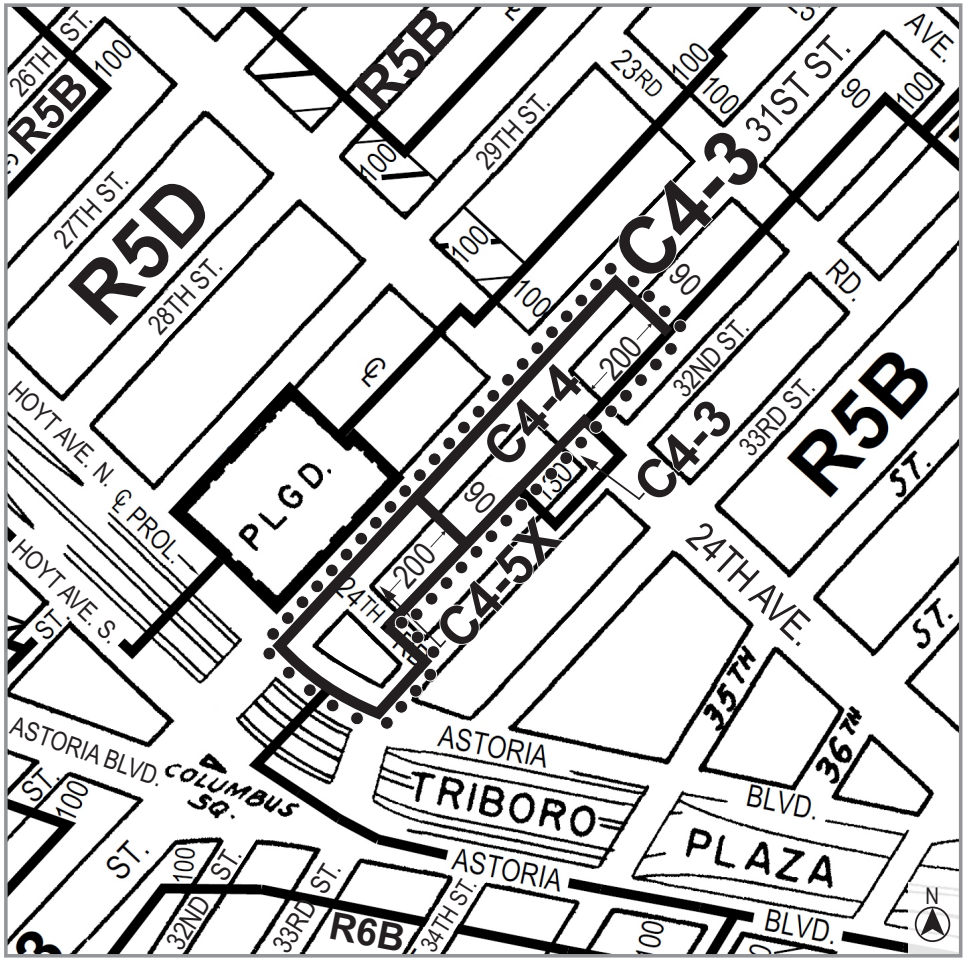
The proposed C4-5X district is a mid-density contextual district. It is an R7X residential district equivalent that allows residential (Use Group 1 and 2), community facility (Use Group 3 and 4), and commercial (Use Groups 5, 6, 8, 9, 10 and 12) uses. The proposed C4-5X zoning district would allow for a maximum FAR of 6.0 for residential uses with MIH, 4.0 for commercial uses, and 5.0 for community facility uses. The

Figure A-3

Existing and Proposed Zoning Map



Existing Zoning Map (9a)



Proposed Zoning Map (9a) - Area being rezoned is outlined with dotted lines

Rezoning from C4-3 to C4-5X
Rezoning from C4-3 to C4-4

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

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

maximum building height is 145 feet above a base height of between 60 and 105 feet. Height is limited to 65 feet within 25 feet of the zoning district boundary with an R5 zoning district. Off street accessory parking for residential uses is required for 50 percent of the non-income restricted units. Parking varies for commercial uses but is generally required at one space per 1,000 square feet of floor area.

The proposed C4-4 zoning district is an R7-2 residential district equivalent that allows residential (Use Group 1 and 2), community facility (Use Group 3 and 4), and commercial (Use Groups 5, 6, 8, 9, 10 and 12) uses. The maximum permitted FAR is 4.6 FAR for residential uses (5.01 with AIRS), 3.4 for commercial uses, and 6.5 FAR for community facility uses. For certain Quality Housing buildings within 150 feet of an elevated rail line, the proposed C4-4 zoning district permits a maximum base height of 75 feet and a maximum building height of 135 feet. Height is limited to 55 feet within 25 feet of the zoning district boundary with an R5 zoning district. Off street accessory parking for residential uses is required for 50 percent of the non-income restricted units. Parking varies for commercial uses but is generally required at one space per 1,000 square feet of floor area.

Proposed Zoning Text Amendment

The Applicants are proposing to map the Project Area as a Mandatory Inclusionary Housing (MIH) Area (Options 1 or 2) by creating a new map for Queens Community District 1 in Appendix F of the New York City Zoning Resolution. An MIH Area requires affordable housing to be provided equivalent to either 25 percent (60% of Area Median Income, or AMI) or 30 percent (80% AMI) of the residential floor area developed. The MIH Area sets a new maximum permitted residential FAR which supersedes the FAR permitted by the underlying zoning district. With both the designation of the Project Area as an MIH Area and its rezoning to C4-5X and C4-4, the maximum permitted residential FAR within the Project Area would be 6.0 and 4.6 (5.01 with AIRS), respectively. The Applicants are proposing to map MIH Option 1, which would result in a total of 74 affordable DUs over the three Applicant-controlled Projected Development Sites. While the Applicants are proposing to map MIH Option 1, because the final MIH Option will be chosen by the City Council through the ULURP process, the EAS assumes a range of affordable DUs as part of the RWCDS. As such, the mapping of the Project Area as a MIH Area would result in either 97 (25%) or 116 (30%) affordable DUs within the Project Area.

IV. PURPOSE AND NEED FOR PROPOSED ACTIONS

The Proposed Actions are intended to provide opportunities for new residential and commercial development. The Applicants intend for the Proposed Actions to create opportunities for new housing development, including affordable housing, on underutilized land where a strong demand for housing exists.

The proposed zoning map amendment to rezone the Applicant-controlled Projected Development Sites from C4-3 and R5B to C4-5X and C4-4, combined with the proposed text amendment to make the rezoning area a mandatory inclusionary housing area, would increase the permitted residential FAR. The majority of the rezoning area is currently within an existing C4-3 zoning district. The proposed C4-5X zoning district, combined with a Mandatory Inclusionary Housing designation, would allow a maximum 6.0 FAR for residential uses, 5.0 FAR for community facility uses, and 4.0 FAR for commercial uses. The proposed C4-4 zoning district, combined with the Mandatory Inclusionary Housing designation would allow a maximum 4.6 FAR for residential uses (5.01 FAR for AIRS), 6.5 FAR for community facility uses, and 2.0 for commercial uses.

The proposed zoning text amendment, which would designate the proposed rezoning area as a MIH Area, would require the Applicants to construct affordable DUs on the Projected Development Sites in order to take advantage of the additional FAR provided through the MIH Program. As such, the proposed zoning map and text amendment would create additional zoning capacity in a transit accessible area to support new housing creation and also increase the number of affordable housing units available in New York City. The creation of new housing supply at various income levels is also expected to help alleviate the upward pressure on housing prices, and contribute to housing affordability in the surrounding neighborhood and larger City. The MIH program would promote and retain neighborhood economic diversity in the area and create new housing units, including affordable units, in close proximity to public transit, and local bus routes traveling on 31st Street, Hoyt Avenue, and Astoria Boulevard in the vicinity of the Projected Development Sites.

V. DESCRIPTION OF THE PROPOSED PROJECT

As discussed above, the Applicants are seeking discretionary actions in order to facilitate the three Applicant-controlled Development Sites in the Astoria neighborhood of Queens CD 1.

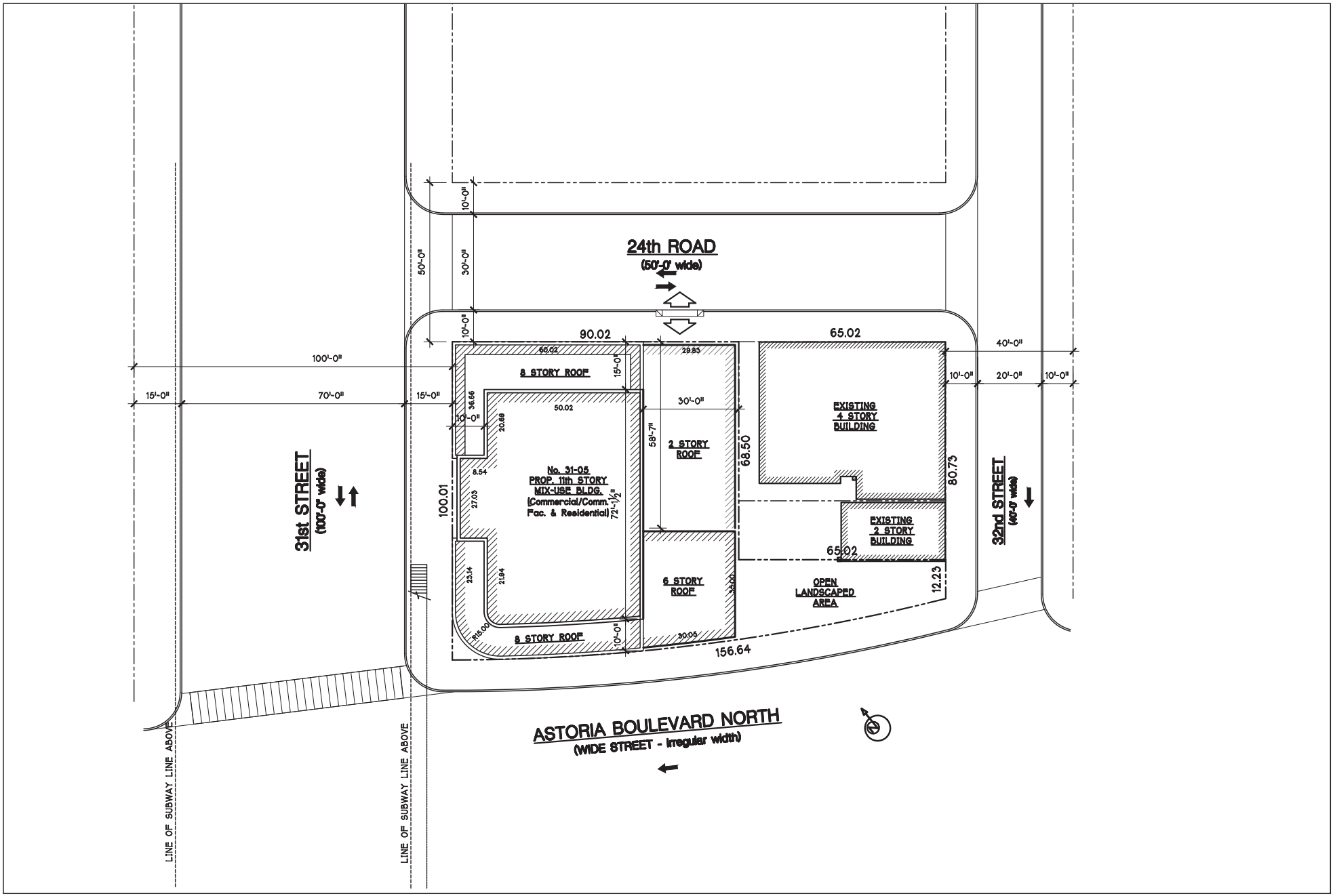
The proposed 11-story, 63,252 gsf building on Projected Development Site 1 would be zoned C4-5X. The proposed building would contain 11,322 gsf of commercial uses, 3,216 gsf of community facility for a daycare, and 48,714 gsf of residential uses with 51 DUs (13-15 affordable DUs) and 6 parking spaces (see **Figure A-4**).

The proposed 14-story, 189,128 gsf building on Projected Development Site 2 would be zoned C4-5X, C4-3, and R5B. The proposed building would contain 15,178 gsf of commercial uses, 4,160 gsf of community facility for a senior center, and 169,790 gsf of residential uses with 161 DUs (40-48 affordable DUs), and 61 parking spaces (see **Figure A-5**).

The proposed 12-story, 110,997 gsf building on Projected Development Site 3 would be zoned C4-4. The proposed building would contain 7,547 gsf of commercial floor uses, 21,614 gsf of community facility area for a youth center, and 81,838 gsf of residential uses with 83 DUs (21-25 affordable DUs) and 19 parking spaces (see **Figure A-6**).

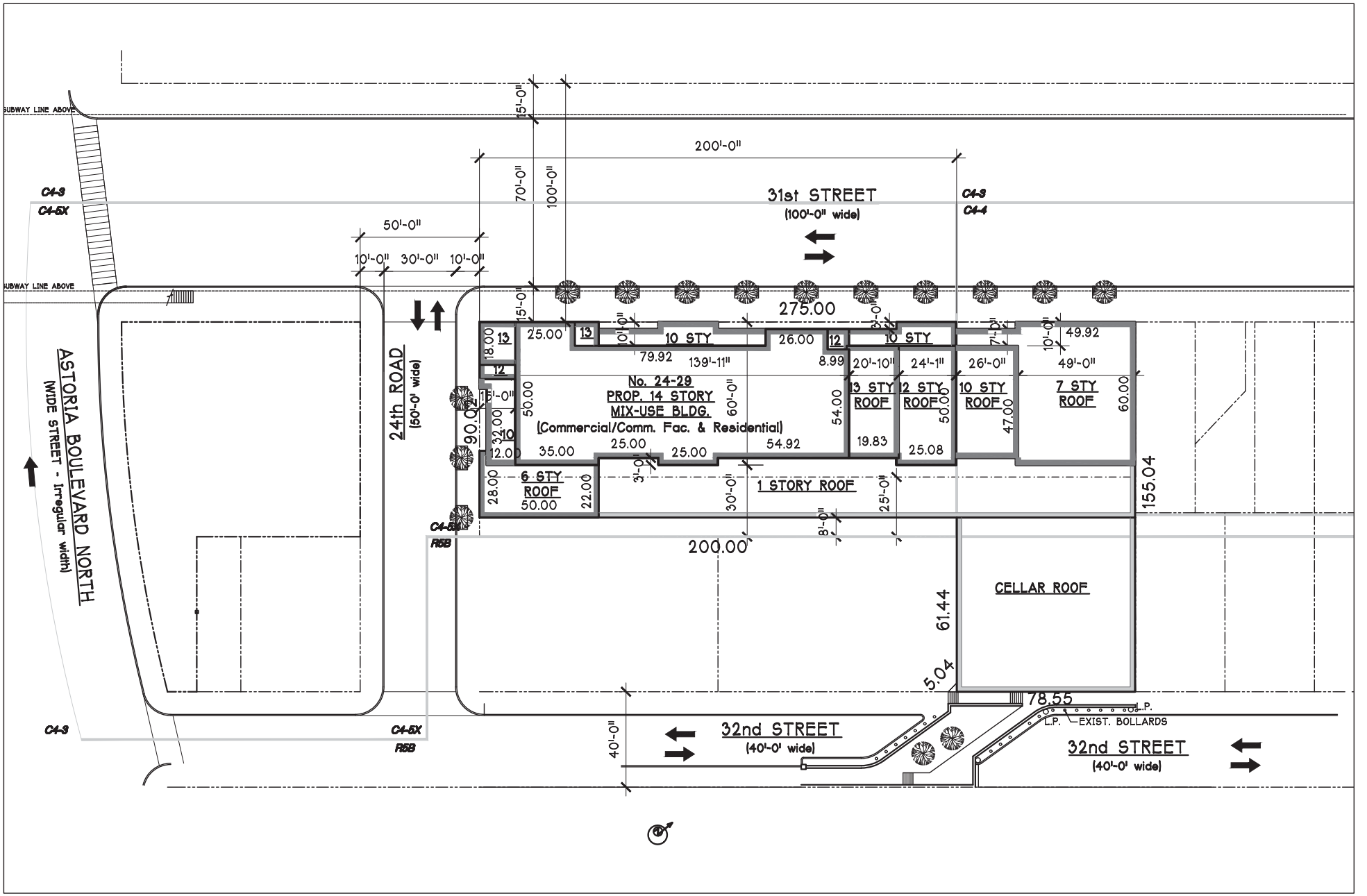
As detailed in **Table A-2** below, the Applicant-owned Projected Development Sites would be redeveloped with a total of approximately 300,342 gsf residential development, consisting of 295 DUs, of which 74-89 would be affordable units, 34,047 gsf of commercial uses (retail and office), and 28,988 gsf of community facility uses. It is anticipated that 86 accessory parking spaces would be provided on the Applicant Projected Development Sites.

Site Plan - Projected Development Site 1



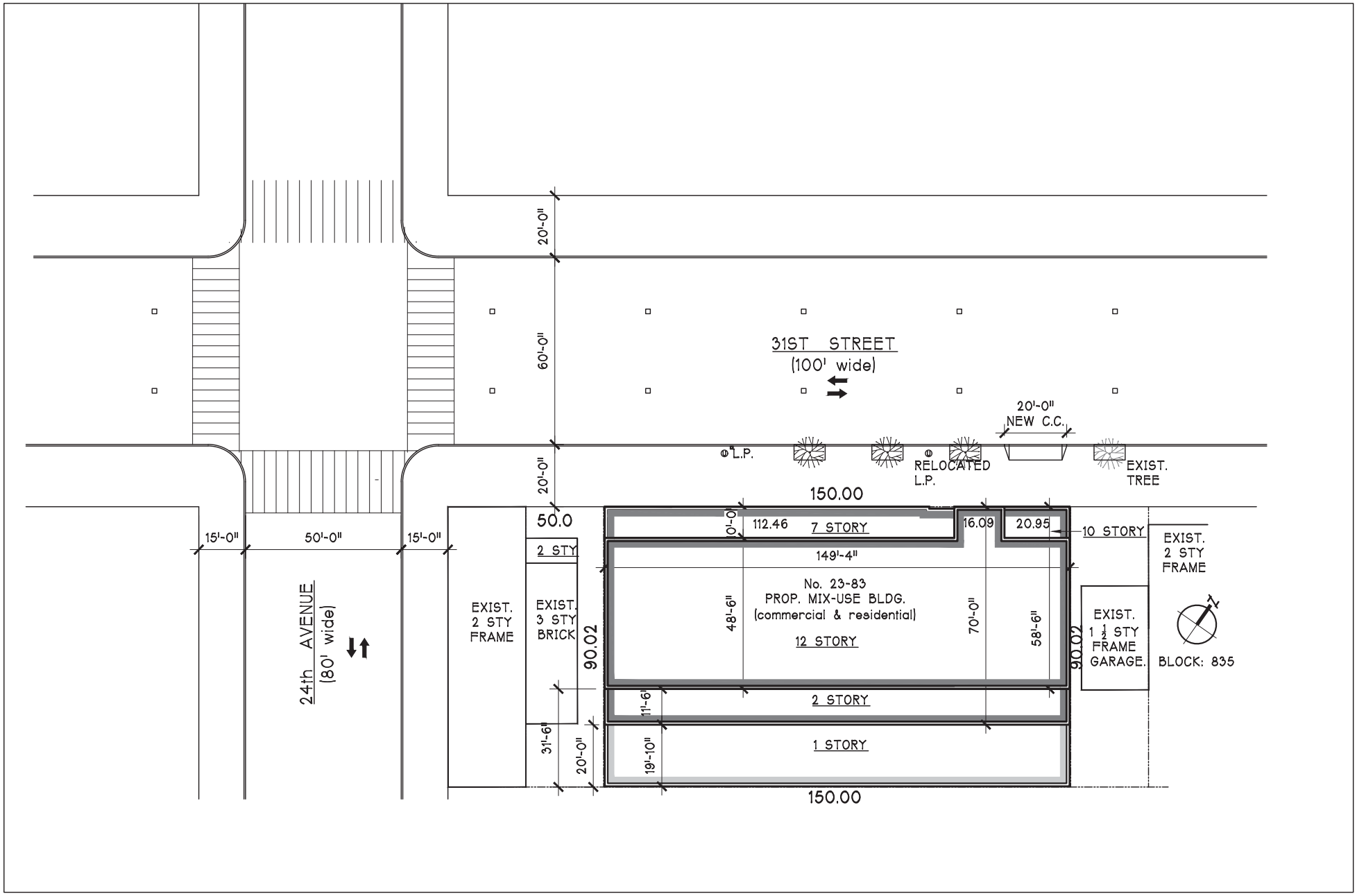
For Illustrative Purposes Only - Not to Scale

Site Plan - Projected Development Site 2



For Illustrative Purposes Only - Not to Scale

Site Plan - Projected Development Site 3



For Illustrative Purposes Only - Not to Scale

TABLE A-2:
Applicant Proposed Development

Site #	Lot Area (sf)	Proposed Zoning	Proposed FAR	Residential		Commercial SF	Community Facility SF	Total Building SF (excl. parking)	Parking Spaces	Building Height
				SF	DUs					
Applicant Projected Development Sites										
1	10,000	C4-5X	6.0 R/C/CF	46,394 zsf (48,714 gsf)	51 (13-15 affordable)	10,783 zsf (11,322 gsf)	3,063 zsf 3,216 (gsf)	60,240 zsf (63,252 gsf)	6	115'
2	29,638	C4-5X/C4-4/R5B	6.0 R/C/CF	161,705 zsf (169,790 gsf)	161 (40-48 affordable)	14,455 zsf (15,178 gsf)	3,962 zsf (4,160 gsf)	180,122 zsf (189,128 gsf)	61	145'
3	13,501	C4-4	5.9R/C/CF	59,518 zsf 81,838gsf)	83 (21-25 affordable)	7,170 zsf (7,547 gsf)	13,009 zsf (21,612 gsf)	79,697zsf (110,997 gsf)	19	129'
	Total Development on Applicant Projected Development Sites:			**267,617 zsf (300,342 gsf)**	**295 (74-89 affordable)**	**32,408 zsf (34,047 gsf)**	**20,034 zsf (28,988 gsf)**	**320,059 zsf (363,377 gsf)**	**86**	-

VI. ANALYSIS FRAMEWORK AND RWCDS

Identification of Development Sites

According to the 2020 *CEQR Technical Manual*, the following factors, commonly referred to as "soft site criteria," are generally considered when evaluating whether some amount of development would likely be constructed by the Build Year as a result of Proposed Action:

- The uses and bulk allowed: Lots located in areas where changes in use would be permitted and/or contain buildings built to substantially less than the maximum allowable floor area ratio (FAR) under the existing zoning are considered "soft" enough such that there would likely be sufficient incentive to develop in the future, depending on other factors specific to the area (e.g., the amount and type of recent as-of-right development in the area, recent real estate trends, site specific conditions that make development difficult, and issues relating to site control or site assemblage that may affect redevelopment potential); and
- Size of the development site: Lots must be large enough to be considered "soft." Generally, lots with a small lot size are not considered likely to be redeveloped, even if they are currently built to substantially less than the maximum allowable FAR. A small lot is often defined for this purpose as 5,000 sf or less, but the lot size criteria is dependent on neighborhood-specific trends, and common development sizes in the study area should be examined prior to establishing this criteria.

However, the following uses and types of buildings that meet the soft site criteria are typically excluded from development scenarios because they are unlikely to be redeveloped as a result of Proposed Action:

- Full block and newly constructed buildings with utility uses, as these uses are often difficult to relocate;
- Lots where construction is actively occurring, or has recently been completed, as well as lots with recent alterations that would have required substantial capital investment, unless recently constructed or altered lots were built to less than or equal to half of the maximum allowable FAR under the proposed zoning;

- Lots whose location or irregular shape would preclude or greatly limit future as-of-right development. Generally, development on irregular lots does not produce marketable floor space;
- Long-standing institutional uses with no known development plans; or
- Multi-unit buildings (existing individual buildings with six or more residential units, and assemblages of buildings with a total of 10 or more residential units, are unlikely to be redeveloped because of the required relocation of tenants in rent-stabilized units).

Build Year

It is anticipated that the Proposed Actions would be certified into ULURP in early 2021. Assuming the completion of the ULURP process by mid-to-late 2021 after an approximately 7-month period, and a period of 7 years for construction of all Projected Development Sites, completion and occupation of all sites is expected in early 2028.

The Build Year reflects a reasonable estimate of the time needed for the Applicants to demolish the existing structures on the Projected Development Sites and construct the proposed development. As discussed in detail in **"Attachment M, Construction,"** construction on Projected Development Sites 1-3 would occur over a total of approximately 76-months (19-quarters), with an anticipated start date in the fourth quarter of 2021. It is anticipated that Projected Development Site 3 would begin construction first, followed shortly by Projected Development Sites 1 and 2. Construction of Projected Development Site 3 would occur over approximately 29 months, including nineteen months for excavation/foundation and superstructure/exterior, and nine months for interior fit-out. Construction of Projected Development Sites 1 & 2 would occur over 31 months, including 21 months for demolition/excavation/foundation and superstructure/exterior, and nine months for interior fit outs. Because Projected Development Site 4 is not under the control of the Applicants, and there are no current plans for development, it is assumed that construction would begin at this site in the third quarter of 2025 and would over a total of 31 months.

Definition of Projected and Potential Development Sites

To produce a reasonable, conservative estimate of future growth, identified development sites are typically divided into two categories: projected development sites and potential development sites. Projected development sites are considered more likely to be developed within the analysis period for the Proposed Actions (i.e. by 2028), while potential sites are considered less likely to be developed over the same period.

As shown below in **Table A-2** above, the Applicant-owned Projected Development Sites are considered Projected Development Sites 1-3, as in the future with the Proposed Actions the Applicants intends to develop the sites with mixed-use buildings, as detailed above. As shown in **Table A-3** below and discussed below in the "Future with the Proposed Actions" section, one other Projected Development Site has been identified in the proposed rezoning area. This property is not owned or controlled by the Applicants.

There is one other site within the proposed rezoning area not under the control of the Applicants that would be considered a Projected Development Site. Projected Development Site 4 consists of Block 837, Lots 38, 39, 41-47. It is approximately 16,494 sf and is improved with six 2- to 4-story residential buildings containing a total of 22 DUs and 2,000 gsf of commercial uses. The total built existing FAR for Projected Development Site 4 is 1.02. As such, this site would accommodate a building with less than 50 percent of the maximum allowable FAR of 4.6 in the future with the Proposed Actions, making it a possible site for redevelopment. Therefore, this site has been included as a projected development site in the RWCDS.

There are several lots within in the proposed rezoning area that are not considered projected or potential Development Sites. Block 835 Lots 1 and 2 and Block 837, Lots 13, 15, and 48 do not meet the soft site criteria as defined by the *CEQR Technical Manual*. Block 835, Lot 1 would not be considered a development site as the lot size does not meet the minimum lot size criteria for projected or potential development sites. Block 835, Lot 2 currently filed plans at the New York City Department of Buildings (DOB) for a proposed expansion of the existing building. Therefore, this site would not be considered a projected development site. Block 837, Lots 13 and 15 which are currently zoned R5B and will be rezoned to C4-5X, are small lots and contain low-rise residential buildings. These lots would not be considered development sites as the lot sizes do not meet the minimum lot size criteria for projected or potential development sites. Block 837, Lot 48 contains rent stabilized DUs and would therefore not be considered a projected development site. The Project Area also includes an approximately 10 foot strip at the rear of Block 837, Lots 49, 50, 54, 55, and therefore, these lots would not be considered projected development sites.

Therefore, the Applicant-owned Projected Development Sites (Sites 1-3) and Projected Development Site 4 represent the RWCDS for analysis purposes.

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

In the future without the Proposed Actions (the No-Action condition), the existing conditions within the Project Area would remain the same.

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

In the future with the Proposed Actions (the With-Action condition), the proposed zoning map amendment and zoning text amendment would be implemented in the proposed rezoning area. As such, the proposed rezoning area would be remapped as C4-5X and C4-4 zoning districts. Under With-Action conditions, the proposed C4-5X zoning district would allow for a maximum FAR of 6.0 for residential uses with MIH, 4.0 for commercial uses, and 5.0 for community facility uses. The maximum building height is 145 feet above a base height of between 60 and 105 feet. The proposed C4-4 zoning district would allow for a maximum FAR is 4.6 FAR for residential uses (5.01 with AIRS), 3.4 for commercial uses, and 6.5 FAR for community facility uses. For certain Quality Housing buildings within 150 feet of an elevated rail line, the proposed C4-4 zoning district permits a maximum base height of 75 feet and a maximum building height of 135 feet.

In the future with the Proposed Actions, the Applicant-owned Projected Development Sites would be redeveloped in accordance with the proposed C4-5X and C4-4 zoning districts and MIH Area. As detailed above in the "Description of the Proposed Project," the Applicants intend to redevelop Projected Development Sites 1-3 up to the proposed maximum FAR. Because this would maximize the floor area allowable on the Projected Development Sites, the proposed development is the RWCDS With-Action condition for Projected Development Sites 1-3.

TABLE A-3:
With-Action Scenario – Projected Development Sites on Blocks 835 and 837

Site #	Lot Area (sf)	Proposed Zoning	Proposed FAR	Residential		Commercial SF	Community Facility SF	Total Building SF (excl. parking)	Parking Spaces	Building Height
				SF	DUs					
Projected Development Sites										
1	10,000	C4-5X	6.0 R/C/CF	46,394 zsf (48,714 gsf)	51 (13-15 affordable)	10,783 zsf (11,322 gsf)	3,063 zsf 3,216 (gsf)	60,240 zsf (63,252 gsf)	6	115'
2	29,638	C4-5X/C4-4/R5B	6.0 R/C/CF	161,705 zsf (169,790 gsf)	161 (40-48 affordable)	14,455 zsf (15,178 gsf)	3,962 zsf (4,160 gsf)	180,122 zsf (189,128 gsf)	61	145'
3	13,501	C4-4	5.9 R/C/CF	59,518 zsf (81,838 gsf)	83 (21-25 affordable)	7,170 zsf (7,547 gsf)	13,009 zsf (21,612 gsf)	79,697 zsf (110,997 gsf)	19	129'
4	16,494	C4-4	4.6 R/C	61,945 zsf (764,945 gsf)	94 (24-28 affordable)	14,020 zsf (14,721 gsf)	-	75,872 zsf (79,666 gsf)	37	135'
	Total Development on all Projected Development Sites:			**329,470 zsf (365,287 gsf)**	**389 (97-116 affordable)**	**46,428 zsf (48,768 gsf)**	**20,034 zsf (28,988 gsf)**	**395,931zsf (443,043 gsf)**	**123**	**-**

Notes: The Applicant-owned Projected Development Sites are highlighted.

As discussed above and below, under the With-Action condition, the three Applicant-owned Development Sites would be redeveloped with a total of approximately 300,342 gsf of residential uses, 34,047 gsf of commercial uses, and 28,988 gsf of community facility uses. The three Applicant-controlled Development Sites would include a total of 295 dwelling units (DUs) of which 74-89 DUs would be affordable.

The proposed 11-story, 63,252 gsf building on Projected Development Site 1 would be zoned C4-5X. The proposed building would contain 11,322 gsf of commercial uses, 3,216 gsf of community facility for a daycare, and 48,714 gsf of residential uses with 51 DUs (13-15 affordable DUs) and 6 parking spaces. The average DU size would be 955 gsf.

The proposed 14-story, 189,128 gsf building on Projected Development Site 2 would be zoned C4-5X, C4-3, and R5B. The proposed building would contain 15,178 gsf of commercial uses, 4,160 gsf of community facility for a senior center, and 169,790 gsf of residential uses with 161 DUs (40-48 affordable DUs), and 61 parking spaces. The average DU size would be 1,054 gsf.

The proposed 12-story, 110,997 gsf building on Projected Development Site 3 would be zoned C4-4. The proposed building would contain 7,547 gsf of commercial floor uses, 21,614 gsf of community facility area for a youth center, and 81,838 gsf of residential uses with 83 DUs (21-25 affordable DUs) and 19 parking spaces. The average DU size would be 986 gsf.

It is also expected that one additional site within the proposed rezoning area could be redeveloped in the future with the Proposed Actions, in accordance with the proposed C4-4 zoning district. The proposed 13-story (135-feet tall), 79,666 gsf building on Development Site 4 would be zoned C4-4. The proposed building is assumed to contain 14,721 gsf of ground floor local retail uses and 64,945 gsf of residential uses with 94 DUs (24-28 affordable DUs) and 37 parking spaces. The average DU size would be approximately 700 gsf. The accessory parking garage would be located on the cellar level of the building with access to the garage from 31st Street.

As shown in **Table A-3**, the With-Action development would result in approximately 365,287 gsf of residential space, 48,768 gsf of commercial space, and approximately 28,988 gsf of community facility space within the Project Area. The Proposed Actions would result in 389 DUs on the Projected

Development Sites, of which 97-116 would be affordable units. It should be noted that as Projected Development Sites 1-3 have three separate applicants with three individual proposals for development, the average DU size for each development varies. As there are no development plans for Projected Development Site 4, an average DU size of 700 gsf was used for conservative analysis purposes.

Project Increment

As presented in **Table A-4**, compared to the No-Action conditions, the Proposed Actions would result in an increase of 367 DUs, an increase of 2,162 gsf of office uses, an increase of 14,596 gsf of local retail uses, and 28,988 gsf of community facility uses. It should be noted that for conservative CEQR analysis purposes, the community facility is assumed to be medical office uses. In terms of population, the Proposed Actions are expected to result in the incremental increase of 855 residents and the incremental increase of 134 employees, as compared to the 2028 No-Action conditions.

Table A-4:
Comparison of 2028 No-Action and With-Action Conditions

	No-Action	With-Action	Increment
Land Use			
Residential DUs	16,911 gsf 22	365,287 gsf 389	+348,376 +367
Office	2,000 gsf	4,612	+2,612 gsf
Local Retail	29,560 gsf	44,156 gsf	+14,596 gsf
Community Facility	0	28,988 sf	+28,988 gsf
Population[1]			
Residents	51	906	+855
Workers	99	233	+134

Notes:
[1] Population estimates based on the following assumptions: 2.33 residents/unit (average persons per household for Queens CD 1, 2014-2018 ACS); three employees/1,000 sf of retail & community facility; four employees/1,000 sf of office.

VII. REQUIRED APPROVALS

The proposed zoning map amendment and zoning text amendment are discretionary public actions that are subject to both the Uniform Land Use Review Procedure (ULURP) and CEQR. ULURP is a process that allows public review of Proposed Action at four levels: the Community Board; the Borough President; the City Planning Commission; and if applicable, the City Council. The procedure mandates time limits for each stage to ensure a maximum review period of seven months. Through CEQR, agencies review discretionary actions for the purpose of identifying the effects those actions may have on the environment.

I. INTRODUCTION

This Environmental Assessment Statement ("EAS") has been prepared in accordance with the guidelines and methodologies presented in the 2020 *City Environmental Quality Review ("CEQR") Technical Manual*. For each technical area, thresholds are defined, which if met or exceeded, require that a detailed technical analysis be undertaken. Using these guidelines, preliminary screening assessments were conducted for the proposed action to determine whether detailed analysis of any technical area may be appropriate. Part II of the EAS Form identifies those technical areas that warrant additional assessment. For those technical areas that warranted a "Yes" answer in Part II of the EAS Form, including Land Use, Zoning, and Public Policy; Socioeconomic Conditions; Community Facilities; Open Space; Shadows; Urban Design and Visual Resources; Hazardous Materials; Transportation; Air Quality; Noise; Construction; and Neighborhood Character supplemental screening assessments are provided in this attachment. The remaining technical areas detailed in the *CEQR Technical Manual* were not deemed to require supplemental screening because they do not trigger initial CEQR thresholds and/or are unlikely to result in significant adverse impacts. These areas screened out from any further assessment include: Historic Resources; Natural Resources; Water and Sewer Infrastructure; Solid Waste and Sanitation Services; Energy; Greenhouse Gas Emissions; and Public Health.

The supplemental screening assessments contained herein identified that detailed analyses are required in the areas of Land Use, Zoning, and Public Policy, Socioeconomic Conditions, Community Facilities, Open Space, Shadows, Urban Design and Visual Resources, Hazardous Materials, Transportation, Air Quality, Noise, and Construction. These analyses are provided in Attachments C, D, E, F, G, H, I, J, K, L, and M, respectively, and are summarized in this attachment. **Table B-1** presents a summary of analysis screening information for the Proposed Actions.

As discussed in detail in **Attachment A, "Project Description"**, In the future with the Proposed Actions, the Applicants propose to construct three new mixed-use buildings that would total approximately 300,342 gsf of residential uses, 34,047 gsf of commercial uses, and 28,988 gsf of community facility uses. The three Applicant-controlled Development Sites would include a total of 295 dwelling units (DUs) of which 74-89 DUs would be affordable.

It is also expected that one additional site within the proposed rezoning area would be redeveloped in the future with the Proposed Actions. This development site that is not under the control of the Applicants would be developed with a 79,666 gsf building that would include 14,721 gsf of ground floor local retail uses and 64,945 gsf of residential uses with 94 DUs (24-28 affordable DUs). The building would be 13-stories tall (135-feet).

Compared to the No-Action conditions, the Proposed Actions would result in a net increase of: 367 DUs, 2,162 gsf of office uses, of 14,596 gsf of local retail uses, 2,612 gsf of office use, and 28,988 gsf of community facility uses. It should be noted that for conservative CEQR analysis purposes, the community facility is assumed to be medical office uses. In terms of population, the Proposed Actions are expected to result in the incremental increase of 855 residents and the incremental increase of 134 employees, as compared to the 2028 No-Action conditions.

Table B-1: Summary of CEQR Technical Areas Screening

CEQR TECHNICAL AREA	SCREENED OUT PER EAS FORM	SCREENED OUT PER SUPPLEMENTAL SCREENING	ANALYSIS REQUIRED
Land Use, Zoning, & Public Policy			X
Socioeconomic Conditions			X
Community Facilities and Services			X
Open Space			X
Shadows			X
Historic & Cultural Resources		X	
Urban Design & Visual Resources			X
Natural Resources	X		
Hazardous Materials			X
Water and Sewer Infrastructure	X		
Solid Waste & Sanitation Services	X		
Energy	X		
Transportation - Traffic & Parking - Transit - Pedestrians			 X X X
Air Quality - Mobile Sources - Stationary Sources			 X X
Greenhouse Gas Emissions	X		
Noise			X
Public Health	X		
Neighborhood Character		X	
Construction			X

II. SUPPLEMENTAL SCREENING AND SUMMARY OF DETAILED ANALYSES

Land Use, Zoning, and Public Policy

According to the 2020 *CEQR Technical Manual*, a detailed assessment of land use, zoning and public policy is appropriate if an action would result in a significant change in land use or would substantially affect regulations or policies governing land use. Zoning and public policy analyses are typically performed in conjunction with a land use analysis when an action would change the zoning on the site or result in the loss of a particular use. Land use analyses are required when an action would substantially affect land use regulation.

The Proposed Actions includes a zoning map amendment and a zoning text amendment. A detailed land use, zoning, and public policy assessment is provided in **Attachment C, "Land Use, Zoning, and Public Policy."** As discussed therein, no significant adverse land use, zoning, or public policy impacts are expected in the future with the Proposed Actions.

Socioeconomic Conditions

Socioeconomic impacts may occur when an action directly or indirectly changes population, housing stock, or economic activities in an area. In some cases, these changes may be substantial, but not significantly adverse. In other cases, these changes may be beneficial to some groups and adverse to others. The purpose of a socioeconomic assessment is to disclose potentially adverse changes that would be created by an action and identify whether they rise to the level of significance. According to the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if an action may be reasonably expected to create socioeconomic changes in the area affected by the action that would not be expected to occur in the absence of the action(s). The *CEQR Technical Manual* states that a residential development of 200 new dwelling units or less or a commercial development of 200,000 sf or less typically does not cause significant socioeconomic impacts.

As indicated on the EAS Form, the Proposed Actions would not result in substantial direct displacement of any residential populations, businesses, or employee, nor would it significantly change existing or future land use beyond the rezoning area or adversely affect economic conditions of a specific industry.

According to the *CEQR Technical Manual*, direct residential displacement is the involuntary displacement of residents from sites direct affected by a proposed action(s). Direct residential displacement is not considered a significant socioeconomic impact in and of itself, but only in those cases where 500 residents or more residents are directly displaced. A proposed project that exceeds the 500-person threshold for residential displacement requires a preliminary assessment.

Pursuant to *CEQR Technical Manual* guidance, a preliminary assessment of direct residential displacement is not warranted as the Proposed Actions and RWCDS would not result in the direct loss of 500 residents. Therefore, the direct residential displacement resulting for the Proposed Actions is not likely to change the socioeconomic character of the neighborhood, and would not result in significant adverse socioeconomic impacts.

Residential uses have been identified at one projected development site. **Table B-2** lists the projected development site where direct residential displacement could occur due to the Proposed Actions. As shown in **Table B-2**, Projected Development Site 4 contains 22 dwelling units (DUs) in six low-rise buildings, including three- and four-family walkup multiunit residential buildings and mixed-use residential and commercial buildings.

TABLE B-2: Housing Units Subject to Potential Direct Displacement as a result of the Proposed Actions

Projected Development Site	Block/Lot	Existing Zoning	Address	Dwelling units under Existing Conditions	Description of Housing
4	837/38	C4-3	24-17 31st Street	4	4-family walkup
	837/43		24-11 31st Street	3	3-family walkup
	837/44		24-09 31st Street	3	3-family walkup
	837/45		24-07 31st Street	4	Mixed-use
	837/46		24-05 31st Street	3	3-family walkup
	837/47		24-03 31st Street	5	Mixed-use

It is assumed for RWCDS analysis purposes that these 22 DUs would remain in place under the No-Action conditions and that under With-Action conditions that these units would be demolished and replaced with new development on Site 4. Therefore, the redevelopment of Site 4 under the Proposed Actions could

directly displace an estimated 51 residents.[1] With a ½-mile study area population of 45,489 residents, based on 2014-2018 Five- Year ACS estimates, residents subject to potential direct displacement under the Proposed Actions would account for roughly 0.11 percent of the total study area population, well below the five percent threshold for potential significant adverse impacts described in the *CEQR Technical Manual.* Pursuant to *CEQR Technical Manual* guidance, no further analysis of direct residential displacement is warranted.

Direct business (and institutional) displacement is defined by the *CEQR Technical Manual* as the involuntary displacement of businesses from a site or sites directly affected by a proposed action(s). Three of the four Projected Development Sites contain existing commercial businesses, which are estimated to employ more than 100 employees, that could be directly displaced as a result of the Proposed Actions. Therefore, a preliminary assessment of direct business displacement is warranted and provided in **"Attachment D, Socioeconomic Conditions."** As discussed in **Attachment D**, the Proposed Actions would not result in significant adverse direct business impacts.

The Proposed Actions would not facilitate new development that is markedly different from existing uses, development and activities within the neighborhood. The Proposed Actions would introduce approximately 389 DUS, 48,768 gsf of commercial space, and 28,988 gsf of community facility space, which would be consistent with and complement existing uses in an area where a growing demand for housing and commercial and community services exists. Compared to No-Action conditions, the Proposed Actions would result in the incremental addition of 367 DUs, 17,208 gsf of commercial space, and 28,988 gsf of community facility space. As such, the Proposed Actions and associated RWCDS exceed the 200-unit *CEQR Technical Manual* threshold, and warrant a preliminary assessment of potential indirect residential displacement, which is provided in **Attachment D, "Socioeconomic Conditions."** As discussed in **Attachment D**, the Proposed Actions would not result in significant adverse socioeconomic impacts.

The Proposed Actions and associated RWCDS would also introduce a net increase of approximately 17,208 gsf of commercial uses, and 28,988 gsf of community facility uses, which would not exceed the 200,000 gsf *CEQR Technical Manual* threshold. Therefore, an assessment of potential indirect business displacement is not warranted. In addition, the Proposed Actions would not result in any effects on any specific industries, such as introducing a new concentration of a specific industry, affecting an area where a specific industry is concentrated, or indirectly substantially reduce employment in or impair the economic viability of a specific industry. Therefore, no further assessment is warranted.

Community Facilities

Potential direct or indirect effects of a proposed action can trigger the need for analysis of community facilities. Direct effects occur if a project would "physically alter a community facility, whether by displacement or other physical change." Indirect effects occur if a project would add population to an area, which may potentially affect service delivery. While no community facilities would be directly displaced by the Proposed Actions, the Proposed Actions could result the net increment of 367 dwelling units, of which 97-116 would be considered affordable. As discussed in **Attachment A, "Project Description,"** in accordance with the City's MIH policy, the Applicants will choose either MIH Option 1 or 2, which would require 25 or 30 percent of the residential floor area be designated as affordable housing units for residents with incomes averaging between 60 and 80 percent of AMI and none of the units

[1] Assuming 100 percent occupancy and based on Queens Community District 1's average household size of 2.33 persons according to the 2014-2018 ACS.

exceeding 130 percent of AMI. This would result in either 97 or 116 affordable DUs within the Project Area. As Options 1 and 2 require that at least 25 or 30 percent of the residential floor area be reserved for residents with incomes averaging 60 to 80 percent of AMI, some of these MIH units would be affordable to households earning more than 60 to 80 percent of AMI. Therefore, for conservative CEQR child care analysis purposes, 20 percent of the overall residential floor area of the RWCDS is assumed to be set aside for "affordable" residential units, which refers to the amount residential units that would accommodate households earning 60 to 80 percent (or below) of AMI. Therefore, 78 affordable DUs will be analyzed for the CEQR child care analysis.

The *CEQR Technical Manual* provides density thresholds, which are used to make an initial determination of whether detailed studies are necessary to determine potential indirect impacts. These density thresholds are summarized in **Table B-3**.

TABLE B-3: Preliminary Screening Analysis Criteria for Community Facilities

Community Facility	Threshold for Detailed Analysis	Minimum Number of Residential Units in Queens that Trigger Detailed Analyses
Public Elementary/Intermediate Schools	50 or more elementary/intermediate school students	124
Public High Schools	150 or more high school students	2,492
Libraries	More than five percent increase in ratio of residential units to libraries in the borough	622
Health Care Facilities (outpatient)	Introduction of sizeable new neighborhood	N/A
Child Care Centers (publicly funded)	More than 20 eligible children under age six based on number of low- to moderate-income units	139
Fire Protection	Introduction of sizeable new neighborhood	N/A
Police Protection	Introduction of sizeable new neighborhood	N/A

Source: *CEQR Technical Manual*

Public Schools

As the Proposed Actions would result in the incremental development of more than 124 DUs, it is expected to generate more than 50 elementary and intermediate school students per *CEQR Technical Manual* criteria, and a detailed assessment of the potential impacts of the proposed actions on public schools is provided in **Attachment E, "Community Facilities."** As the Proposed Actions would not exceed the threshold for a detailed high school analysis, the public school analysis is focused solely on public elementary and intermediate schools. As presented in **Attachment E**, the Proposed Actions would not result in significant adverse impacts on community facilities. The 367 DUs would be expected to generate 40 elementary school students and 15 intermediate school students in Sub-district 4 of Community School District (CSD) 30. As discussed in **Attachment E**, the Proposed Actions would not result in a significant adverse impact to public elementary or intermediate schools.

Publicly Funded Child Care Facilities

As the Proposed Actions would result in the incremental development of 73 affordable DUs, it would not generate more than 20 children eligible for publicly funded child care per *CEQR Technical Manual* criteria. Therefore, a detailed analysis of child care is not warranted and the Proposed Actions would not result in a significant adverse impact to publicly funded child care facilities.

Libraries, Health Care Facilities, and Fire and Police Protection

As the Proposed Actions would not result in the introduction of a sizeable new neighborhood and would not result in a more than five percent increase in the ratio of residential units to libraries in Queens (i.e., would result in the development of fewer than 622 DU analyses of fire and police protection, health care facilities, and libraries are not warranted, and significant adverse impacts are not anticipated in these technical areas

Open Space

Based on the 2020 *CEQR Technical Manual*, an open space assessment is typically warranted if an action would directly affect an open space, or if it would increase the population by more than 200 residents or 500 workers (these thresholds apply to areas that fall in areas that have been designated as neither "well-served" nor "under-served").

The Proposed Actions would result in the net increase of 855 new residents and 134 employees. As the Proposed Actions would result in an increase in residents above the 2020 *CEQR Technical Manual* threshold, a residential open space analysis is provided in **Attachment F, "Open Space".** As discussed in detail in the attachment, no impacts to open space are anticipated as a result of the Proposed Actions.

Shadows

A shadows assessment considers proposed actions that result in new shadows long enough to reach a publicly accessible open space or historic resource (except within an hour and a half of sunrise or sunset). For proposed actions resulting in structures less than 50 feet high, a shadow assessment is generally not necessary unless the site is adjacent to a park, historic resource, or important natural feature (if the features that make the structure significant depend on sunlight). According to the 2014 *CEQR Technical Manual*, some open spaces contain facilities that are not sunlight-sensitive, and do not require a shadow analysis including paved areas (such as handball or basketball courts) and areas without vegetation.

As detailed in **Attachment A, "Project Description,"** the proposed new buildings would range in heights between 125'-155' high (to the bulkhead). The maximum shadow radius (Tier 1 Assessment) for the proposed buildings would be 538-667 feet. There are two sunlight sensitive resources within the maximum shadow radius. Therefore, a detailed shadows analysis is provided in **Attachment G, "Shadows."** As discussed in detail in the attachment, no significant adverse shadow impacts are anticipated as a result of the Proposed Actions.

Historic and Cultural Resources

A historic resources assessment is required if there is the potential to affect either archaeological or architectural resources. According to *CEQR Technical Manual* guidelines, impacts on historic resources are considered on those sites directly affected by the proposed action and in the area surrounding identified development sites.

The Project Area does not encompass any designed historic resources and there are no designated historic resources within 400-feet of the Project Area. The New York City Landmarks Preservation Commission (LPC) provided an Environmental Review letter related to architecture for the Project Area, dated July 31,

2020, indicating that the tax lots comprising the Project Area have no architectural significance (see **Appendix B**). Accordingly, an architectural resources assessment is not warranted and is not provided.

According to the *CEQR Technical Manual*, archaeological resources are only considered in those areas where new excavation and ground disturbance would occur (i.e. the Project Area). The Proposed Actions would result in additional in-ground disturbance in the Project Area and as such has the potential to affect archaeological resources if present. The LPC Environmental Review letter related to archaeology for the Project Area, dated July 31, 2020, indicating that the tax lots comprising the Project Area have no archaeological significance (see **Appendix B**). Accordingly, an archaeological resources assessment is not warranted.

Urban Design and Visual Resources

An area's urban components and visual resources together define the look and character of the neighborhood. The urban design characteristics of a neighborhood encompass the various components of buildings and streets in the area. These include building bulk, use and type; building arrangement; block form and street pattern; streetscape elements; street hierarchy; and natural features. An area's visual resources are its unique or important public view corridors, vistas, or natural or built features. For the CEQR analysis purposes, this includes only views from public and publicly-accessible locations and does not include private residences or places of business.

An analysis of urban design and visual resources is appropriate if a proposed project would (a) result in buildings that have substantially different height, bulk, form, setbacks, size, scale, use or arrangement than exists in an area; (b) change block form, demap an active street or map a new street, or affect the street hierarchy, street wall, curb cuts, pedestrian activity or streetscape elements; or (c) would result in above-ground development in an area that includes significant visual resources.

The Proposed Actions includes the rezoning from C4-3 and R5B to C4-5X and C4-4 districts, which would result in a development that would differ from what is permitted as-of-right, and as such, an analysis of urban design and visual resources is appropriate. This analysis is provided in **Attachment H, "Urban Design and Visual Resources."** As discussed in **Attachment H**, there would be no significant adverse impacts to these technical areas as a result of the Proposed Actions.

Hazardous Materials

As defined in the 2020 *CEQR Technical Manual*, a hazardous material is any substance that poses a threat to human health or the environment. Substances that can be of concern include, but are not limited to, heavy metals, volatile and semivolatile organic compounds, methane, polychlorinated biphenyls and hazardous wastes (defined as substances that are chemically reactive, ignitable, corrosive, or toxic). According to the 2014 *CEQR Technical Manual*, the potential for significant adverse impacts from hazardous materials can occur when: (a) hazardous materials exist on a site, and (b) an action would increase pathways to their exposure; or (c) an action would introduce new activities or processes using hazardous materials.

As the Proposed Actions would result in the development of residential buildings on sites where there is reason to suspect the presence of hazardous materials, an assessment is provided in **Attachment I, "Hazardous Materials,"** to determine potential hazardous materials concerns within the development site.

Transportation

The objective of a transportation analysis is to determine whether a proposed action may have a potentially significant adverse impact on traffic operations and mobility, public transportation facilities and services, pedestrian elements and flow, safety of all roadway users (pedestrians, bicyclists, and vehicles), on- and off-street parking or goods movement.

The 2020 *CEQR Technical Manual* identifies minimum incremental development densities that potentially require a transportation analysis. Development at less than the development densities shown in Table 16-1 of the 2020 *CEQR Technical Manual* generally result in fewer than 50 peak-hour vehicle trips, 200 peak-hour subway/rail or bus transit riders, and 200 peak-hour pedestrian trips, where significant adverse impacts are considered unlikely. In Zone 2 (which includes the Project Area) the development thresholds include an increment of 200 DUs for residential, 15,000 sf for local retail, and 25,000 sf for community facility. According to the 2020 *CEQR Technical Manual*, if an action would result in development greater than one of the minimum development density thresholds in Table 16-1, a Level 1 (Project Trip Generation) Screening Assessment should be prepared. In most areas of the city, including the Project Area, if the proposed action is projected to result in fewer than 50 peak-hour vehicle trips, 200 peak-hour subway/rail or bus transit riders, or 200 peak-hour pedestrian trips, it is unlikely that further analysis would be necessary. If these trip-generation screening thresholds are exceeded, a Level 2 (Project-generated Trip Assignment) Screening Assessment should be prepared to determine if the proposed action would generate or divert 50 peak-hour vehicle trips through any intersection, 200 peak-hour subway trips through a single station, 50 peak-hour bus trips on a single bus route in the peak direction, or 200 peak-hour pedestrian trips through a single pedestrian element. If any of these Level 2 screening thresholds are met or exceeded, detailed analysis for the respective mode is required.

As discussed in **Attachment J, "Transportation**," the Proposed Actions would exceed the Level 2 screening thresholds for traffic, transit (subway), and pedestrians, and as such, a detailed analysis is provided in **Attachment J**. As discussed in **Attachment J**, the Proposed Actions would not result in any significant transportation adverse impacts.

Air Quality

According to the guidelines provided in the 2020 *CEQR Technical Manual*, air quality analyses are conducted in order to assess the effect of an action on ambient air quality (i.e., the quality of the surrounding air), or effects on the project because of ambient air quality. Air quality can be affected by "mobile sources," pollutants produced by motor vehicles, and by pollutants produced by fixed facilities, i.e., "stationary sources." As per the 2020 *CEQR Technical Manual*, an air quality assessment should be carried out for actions that can result in either significant adverse mobile source or stationary source air quality impacts. According to the *CEQR Technical Manual* a detailed assessment of mobile air quality is warranted when projects that would result in placement of operable windows (i.e., windows that may be opened and closed by the tenant), balconies, air intakes, or intake vents are located generally within 200 feet of an atypical (e.g., not at-grade) source of vehicular pollutants, such as a highway or bridge with a total of more than two lanes. Projected Development Site 1 is located approximately 100 feet from the Brooklyn-Queens Expressway (I-278), which is considered an atypical source of vehicular pollutants (e.g., not at-grade). Therefore, a detailed mobile source air quality analysis is warranted and provided in **Attachment K, "Air Quality"**.

Stationary source impacts could occur with actions that create new stationary sources or pollutants, such as emission stacks for industrial plants, hospitals, or other large institutional uses, or a building's boiler stacks used for heating/hot water, ventilation, and air conditioning ("HVAC") systems, that can affect surrounding uses. Impacts from boiler emissions associated with a development are a function of fuel type, stack height, minimum distance of the stack on the source building to the closest building of similar or greater height, building use, and the square footage size of the source building. In addition, stationary source impacts can occur when new uses are added near existing or planned emissions stacks, or when new structures are added near such stacks and those structures change the dispersion of emissions from the stacks so that they affect surrounding uses.

The Proposed Actions were analyzed for potential stationary source impacts, which is provided in **Attachment K**. As discussed in detail **Attachment K**, the stationary source air quality analysis determined that all Projected Development Sites would require an (E) designation that specifies natural gas as the type of fuel oil for the HVAC systems. As discussed therein, no significant adverse stationary air quality impacts are expected in the future with the Proposed Actions.

Noise

The Proposed Actions would result in residential, commercial, and community facility uses on the Projected Development Sites. Consistent with the 2020 *CEQR Technical Manual*, existing noise levels should be measured and compared to the Noise Exposure Guidelines for these types of uses presented in Table 19-2 of the Manual. In addition, according to the *CEQR Technical Manual,* a noise analysis is warranted if a project site is located within 1,500 feet of existing rail activity with a direct line of sight to that rail facility. The Projected Development Sites are located adjacent to an elevated subway line which runs along 31st Street. As such, a noise analysis has been prepared and is provided in **Attachment L, "Noise."** As discussed in detail **Attachment L**, the noise analysis determined that the Projected Development Sites would require an (E) designation that would specify the required noise attenuation measures for the facades of the proposed buildings. As discussed in **Attachment L**, the Proposed Actions would not result in any significant adverse noise impacts.

The Proposed Actions would not generate sufficient traffic to result in a significant noise impact (i.e., doubling of Noise PCEs). Therefore, consistent with the guidelines of the 2020 *CEQR Technical Manual*, an assessment of mobile noise impacts is not provided in this EAS.

Construction

Construction impacts, although temporary, can include disruptive and noticeable effects of a project. Determination of their significance and need for mitigation is generally based on the duration and magnitude of the impacts. Construction impacts are usually important when construction activity could affect traffic conditions, archaeological resources, the integrity of historic resources, community noise patterns, and air quality conditions. In addition, because soils are disturbed during construction, any action proposed for a site that has been found to have the potential to contain hazardous materials should also consider the possible construction impacts that could result from contamination.

The Proposed Actions and associated RWCDS would result in the construction of multiple buildings on the two-block project area, which is expected to occur over a period of approximately 24 months (two years). In addition, Projected Development Site 1 is located along a major thoroughfare (Astoria Boulevard North) and is adjacent to an entrance for the N/W elevated subway at the Astoria Boulevard station. Further, Projected Development Site 3 is located across 31st Street from PS 85Q. As such, an assessment of

construction-period impacts is warranted and provided in **Attachment M, "Construction"**. As discussed in **Attachment M**, no significant adverse impacts related to construction are expected as a result of the Proposed Actions.

Neighborhood Character

A supplemental screening analysis is necessary to determine if a detailed neighborhood character analysis is warranted in accordance with *CEQR Technical Manual* methodology, because the Proposed Actions required analyses of land use, zoning, and public policy, socioeconomic conditions, open space, urban design and visual resources, shadows, transportation, and noise.

The Proposed Actions would not adversely affect any component of the surrounding area's neighborhood character. The Proposed Actions would facilitate mixed-use development that would introduce housing (including affordable housing), local retail, and community facility uses. As such, the proposed land uses would be consistent with the existing land uses within the surrounding area and would not alter the character of the neighborhood.

It is expected that the average household income of the residential development facilitated by the Proposed Actions would have similar average incomes of the existing population and no significant adverse indirect residential displacement impacts are anticipated.

The Proposed Actions would also not result in the potential for significant adverse neighborhood character impacts as a result of its effects in the areas of open space, urban design and visual resources, and shadows. The Proposed Actions would not directly alter any open space resources, and the area would continue to be adequately served by open space in the future with the Proposed Actions. While the Proposed Actions would result in incremental shadow coverage on portions of two sunlight-sensitive resources – The Bohemian Hall and Park and Hoyt Playground - the extent and duration of the incremental shadows on these resources would not (1) significantly reduce or completely eliminate direct sunlight exposure on any of the two resource's sunlight-sensitive features; and would not (2) significantly alter the public's utilization or enjoyment of the two resource's facilities or threaten the viability of vegetation or other sunlight-sensitive features within these two resources.

The proposed additional height and bulk on the Projected Development Sites would not result in any significant adverse impacts to urban design and visual resources, but rather, is expected to enhance the pedestrian experience in the vicinity of the Projected Development Sites with the introduction of ground-floor retail and community facility uses.

Lastly, the Proposed Actions would increase traffic and noise levels in proximity to the Project Area. However, the Project Area and surrounding neighborhood is already characterized by its location in Astoria and the increased traffic and noise levels would not constitute a significant adverse impact on neighborhood character.

I. INTRODUCTION

Under *City Environmental Quality Review* (CEQR) *Technical Manual* guidelines, a land use analysis evaluates the uses and development trends in the area that may be affected by a proposed action, and determines whether that proposed action is compatible with those conditions or may affect them. Similarly, the analysis considers the action's compliance with, and effect on, the area's zoning and other applicable public policies. The Proposed Actions involve: (i) a zoning map amendment to rezone a portion of two blocks from C4-3 to C4-5X and C4-4; and, (ii) a zoning text amendment to ZR Appendix F to designate the rezoning area a Mandatory Inclusionary Housing (MIH) area. The development over the three Applicant-controlled Development Sites (Projected Development Sites 1-3) would total approximately 300,342 gsf of residential uses, 34,047 gsf of commercial uses, and 28,988 gsf of community facility uses. The three Applicant-controlled Development Sites would include a total of 295 dwelling units (DUs) of which 74-89 DUs would be affordable.

It is also expected that one additional site within the proposed rezoning area would be redeveloped in the future with the Proposed Actions, in accordance with the proposed C4-4 zoning district. The proposed 13-story (135-feet tall), 79,666 gsf building on Development Site 4 would be zoned C4-4. The proposed building is assumed to contain 14,721 gsf of ground floor local retail uses and 64,945 gsf of residential uses with 94 DUs (24-28 affordable DUs).

The Proposed Actions are intended to provide opportunities for new residential and commercial development. The Applicants intend for the Proposed Actions to create opportunities for new housing development, including affordable housing, on underutilized land where a strong demand for housing exists.

Under CEQR guidelines, a preliminary land use assessment, which includes a basic description of existing and future land uses and zoning, should be provided for all projects that would affect land use or would change the zoning on a site, regardless of the project's anticipated effects. CEQR also requires a detailed assessment of land use conditions if a detailed assessment has been deemed appropriate for other technical areas, or in generic or area-wide zoning map amendments. Therefore, this chapter includes a detailed analysis that involves a thorough description of existing land uses and zoning within the rezoning area and the broader study area. Following the guidelines of the *CEQR Technical Manual,* the detailed analysis describes existing and anticipated future conditions to a level necessary to understand the relationship of the Proposed Actions to such conditions, assesses the nature of any changes to these conditions that would be created by the Proposed Actions, and identifies those changes, if any, that could be significant or adverse. The detailed assessment discusses existing and future conditions with and without the Proposed Actions in the 2028 analysis year for a primary study area (coterminous with the rezoning area), and a secondary (400-feet) study area surrounding the rezoning area.

II. PRINCIPAL CONCLUSIONS

No significant adverse impacts on land use, zoning, or public policy, as defined by the guidelines for determining impact significance set forth in the *CEQR Technical Manual*, are anticipated in the future with the Proposed Actions in the primary or secondary study areas. The Proposed Actions would not directly displace any land uses so as to adversely affect surrounding land uses, nor would it generate land uses that would be incompatible with land uses, zoning, or public policies in the secondary study area. The Proposed Actions would not create land uses or structures that would be incompatible with the underlying zoning, nor would it cause a substantial number of existing structures to become non- conforming. The Proposed Actions would not result in land uses that conflict with public policies applicable to the primary or secondary study areas.

The Proposed Actions would result in an overall increase in residential and commercial use throughout the primary study area, when compared to conditions in the future without the Proposed Actions. The proposed zoning map amendment would allow new residential and commercial development at a scale and density that is compatible with the existing zoning designations in the surrounding areas. The proposed zoning map and text amendments would create additional zoning capacity in a transit-accessible area to support the creation of new housing and increase the number of affordable housing units available in New York City. While the proposed C4-5X and C4-4 districts would permit development at a density greater than permitted under the existing or No-Action condition, the proposed rezoning area's location along 31st Street and Astoria Boulevard North, with excellent public transit service provided at the Astoria Boulevard subway station, is well-suited for additional development. In addition, the proposed zoning districts would activate the streets and allow a consistent streetwall, retail continuity, and serve local residents. The proposed rezoning would provide opportunities for new affordable and market rate residential development on the Projected Development Sites and would be consistent with the goals outlined in PlaNYC, as well as Housing New York, the Mayor's ten-year affordable housing strategy.

As such, the Proposed Actions would not result in significant adverse impacts to zoning. Lastly, the Proposed Actions would not result in land uses that conflict with public policies applicable to the primary or secondary study areas.

III. METHODOLOGY

The purpose of this chapter is to examine the effects of the Proposed Actions and determine whether or not it would result in any significant adverse impacts on land use, zoning, or public policy. The analysis methodology is based on the guidelines of the *CEQR Technical Manual* and examines the Proposed Action's consistency with land use patterns and development trends, zoning regulations, and other applicable public policies.

According to the *CEQR Technical Manual*, a detailed assessment of land use, zoning, and public policy may be appropriate when needed to sufficiently inform other technical reviews and determine whether changes in land use could affect conditions analyzed in those technical areas. Therefore, this chapter includes a detailed analysis that involves a thorough description of existing land uses within the directly affected area and the broader study area. Following the guidelines of the *CEQR Technical Manual*, the detailed analysis describes existing and anticipated future conditions to a level necessary to understand the relationship of the Proposed Actions to such conditions, assesses the nature of any changes on these conditions that would be created by the Proposed Actions, and identifies those changes, if any, that could be significant or adverse.

Existing land uses were identified through review of a combination of sources including field surveys and secondary sources such as the 2010 *Astoria Rezoning Environmental Assessment Statement* (EAS), as well as the City's Primary Land Use Tax Lot Output (PLUTO™) data files for 2020, and websites such as New York City Department of City Plannings's Zoning and Land Use (ZoLa) Map (https://zola.planning.nyc.gov/) and NYCityMap (http://gis.nyc.gov/doitt/nycitymap/). New York City Zoning Maps and the Zoning Resolution of the City of New York were consulted to describe existing zoning districts in the study areas and provided the basis for the zoning evaluation of the future No-Action and future With-Action conditions. Relevant public policy documents, recognized by the New York City Department of City Planning (DCP) and other City agencies, were utilized to describe existing public policies pertaining to the study areas.

Analysis Year

The analysis year is the Proposed Action's anticipated completion date of 2028. Therefore, the future No-Action condition accounts for land use and development projects, initiatives, and proposals that are expected to be completed by 2028.

Study Area Definition

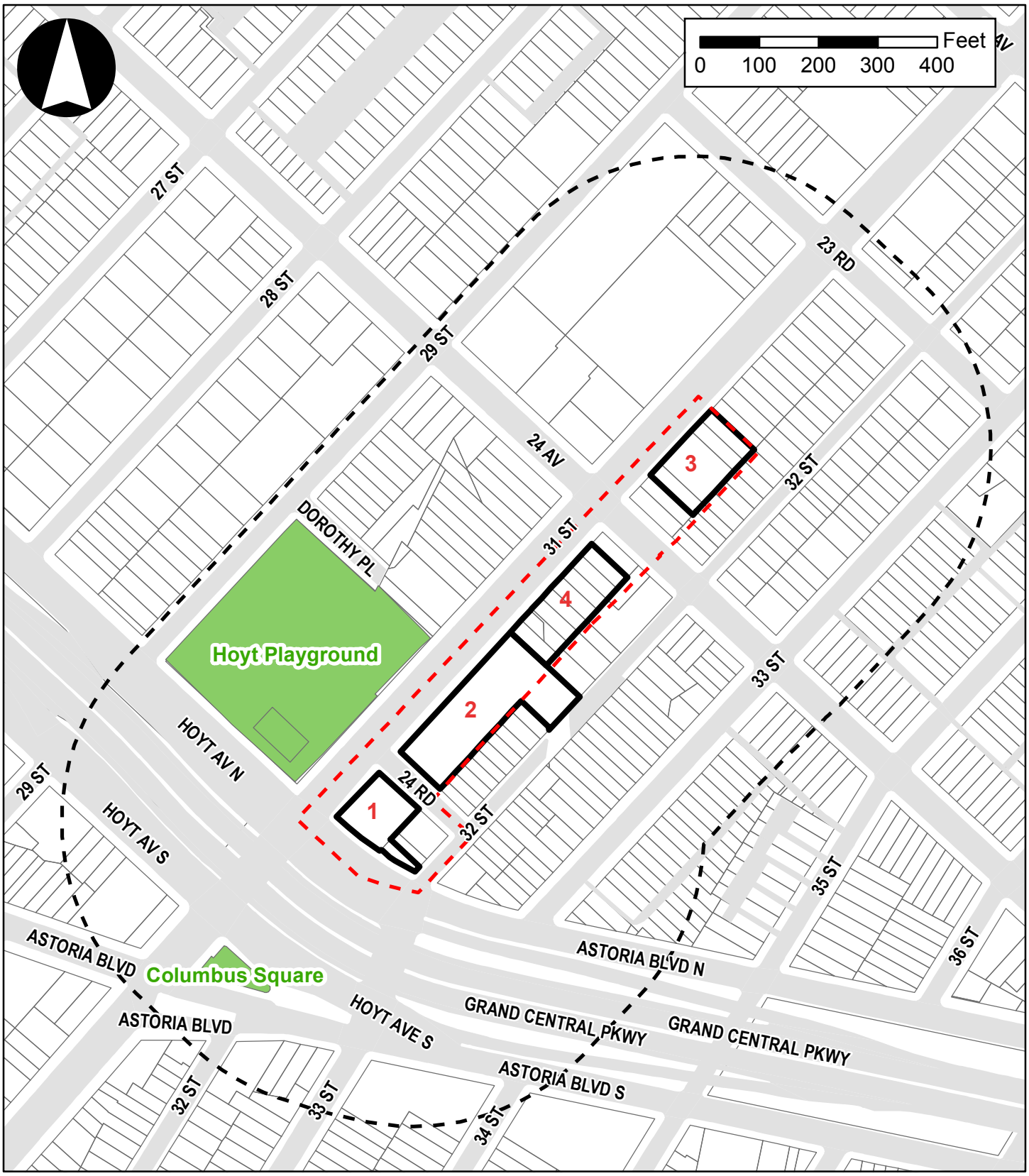
According to the *CEQR Technical Manual*, the appropriate study area for land use, zoning, and public policy is related to the type and size of the proposed project, as well as the location and context of the area that could be affected by the project. Study area radii vary according to these factors, with suggested study areas ranging from 400 feet for a small project to 0.5 miles for a very large project. In accordance with CEQR guidelines, land use, zoning, and public policy are addressed and analyzed for two geographical areas: (1) the rezoning area and the project site (also referred to as the primary study area); and (2) a secondary study area. The secondary study area extends an approximate 400-feet from the boundary of the rezoning area and encompasses areas that have the potential to experience indirect impacts as a result of the Proposed Actions. The rezoning area encompasses four projected development sites. Projected Development Site 1 (Block 837, Lots 9 and 16), Projected Development Site 2 (Block 837, Lot 27), and Projected Development Site 3 (Block 835, Lot 3) are under control of the Applicant. Projected Development Site 4 (Block 837, Lots 38, 39, 41-47) is not under control of the Applicants. Both the primary and secondary study areas have been established in accordance with *CEQR Technical Manual* guidance and can be seen in **Figure C-1, "Land Use Study Area."**

IV. DEVELOPMENT HISTORY

Astoria is a neighborhood in northwestern Queens that is located along the East River roughly from 36th Avenue to 20th Avenue and as far east as the Brooklyn-Queens Expressway and La Guardia Airport. In 1870, Astoria, Hunter's Point, Steinway, and Ravenswood consolidated to form Long Island City. In 1898, Long Island City became incorporated as part of New York City.

In the late 19th and early 20th centuries, much industrial and residential development occurred in the area, spurred by the opening of the Queensboro Bridge in 1909, the Hell Gate Bridge in 1916, and construction of the Astoria elevated subway line, which opened on 31st Street in 1917. The East River waterfront, extending from Long Island City to Astoria, experienced continued development of industrial uses, while residential development continued in inland areas. Later transportation projects further increased connectivity with the rest of the City, such as the extension of subway service on Steinway Street and Broadway in 1933 and construction of the Triborough Bridge in 1936.

Figure C-1
Land Use Study Area



Legend

Primary Study Area (Rezoning Area)

Secondary Study Area

1 Projected Development Sites

Beginning in the 1970s, industrial use in Queens began to decline as a result of the overall decline of the manufacturing sector throughout the country. Today, areas historically occupied by industrial uses that have become vacant or underutilized are being redeveloped with residential and commercial uses. In 2010, the City adopted the Astoria Rezoning Project, which spanned across portions of 238 blocks of the neighborhood, as a response to accelerated construction of new residential buildings in the area. The purpose of the rezoning was to: (1) preserve the existing scale and character of the area while allowing for a modest increase in residential and commercial density in appropriate limited locations; and (2) incentivize the development of affordable housing.

V. PRELIMINARY ASSESSMENT

Land Use and Zoning

A preliminary assessment, which includes a basic description of existing and future land uses and zoning, should be provided for all projects that would affect land use or would change the zoning on a site, regardless of the project's anticipated effects. In addition, under CEQR guidelines, if a detailed assessment is required in the technical analyses of socioeconomic conditions, neighborhood character, traffic and transportation, air quality, noise, infrastructure, or hazardous materials, a detailed land use assessment is appropriate. Furthermore, for some projects, such as generic or area-wide zoning map amendments, more detailed land use and zoning information is necessary to sufficiently inform other technical reviews and determine whether changes in land use could affect conditions analyzed in those technical areas. This EAS provides detailed assessments of socioeconomic conditions, transportation, air quality, noise, hazardous materials; therefore a detailed assessment of land use and zoning is warranted and is provided below. As a detailed assessment is warranted for the Proposed Actions, the information that would typically be included in a preliminary assessment (e.g., physical setting, present land use, zoning information, etc.) has been incorporated into the detailed assessment below. As discussed in the detailed assessment, the Proposed Actions are not expected to adversely affect land use or zoning.

Public Policy

According to the *CEQR Technical Manual*, a project that would be located within areas governed by public policies controlling land use, or that has the potential to substantially affect land use regulation or policy controlling land use, requires an analysis of public policy. A preliminary assessment of public policy should identify and describe any public policies, including formal plans or published reports, which pertain to the study area. If the proposed action could potentially alter or conflict with identified policies, a detailed assessment should be conducted; otherwise, no further analysis of public policy is necessary.

Besides zoning, the other public policies applicable to portions of the primary and secondary study areas are OneNYC and Housing New York. The proposed rezoning area and surrounding area are not part of an urban renewal area, nor is there any designed in-place industrial parks within the area.

Primary Study Area

OneNYC (previously PlaNYC)

In April 2015, Mayor Bill de Blasio released *OneNYC*, a comprehensive plan for a sustainable and resilient city for all New Yorkers that speaks to the profound social, economic, and environmental challenges faced.

OneNYC is the update to the sustainability plan for the City started under the Bloomberg administration, previously known as PlaNYC 2030: A Greener, Greater New York. Growth, sustainability, and resiliency remain at the core of *OneNYC*, but with the poverty rate remaining high and income inequality continuing to grow, the de Blasio administration added equity as a guiding principle throughout the plan. In addition to the focuses of population growth; aging infrastructure; and global climate change, *OneNYC* brings new attention to ensuring the voices of all New Yorkers are heard and to cooperating and coordinating with regional counterparts. Since the 2011 and 2013 updates of PlaNYC, the City has made considerable progress towards reaching original goals and completing initiatives. *OneNYC* includes updates on the progress towards the 2011 sustainability initiatives and 2013 resiliency initiatives and also sets additional goals and outlines new initiatives under the organization of four visions: growth, equity, resiliency, and sustainability.

Goals of the plan are to make New York City:

- A Growing, Thriving City: This will be achieved by fostering industry expansion and cultivation, promoting job growth, creating and preserving affordable housing, supporting the development of vibrant neighborhoods, increasing investment in job training, expanding high-speed wireless networks, and investing in infrastructure.
- A Just and Equitable City: This will be achieved by raising the minimum wage, expanding early childhood education, improving health outcomes, making streets safer, and improving access to government services.
- A Sustainable City: This will be achieved by reducing greenhouse gas emissions, diverting organics from landfills to attain Zero Waste, remediating contaminated land, and improving access to parks.
- A Resilient City: This will be achieved by making buildings more energy efficient, making infrastructure more adaptable and resilient, and strengthening coastal defenses.

Assessment

The Proposed Actions would support OneNYC initiatives by constructing new multi-family housing, as well as commercial and community facility uses, on underbuilt land that is in close proximity to public transit, promoting transit use as well as walkability in the secondary study area. Therefore, the Proposed Actions would not conflict with this public policy.

Housing New York 2.0

In 2014, the de Blasio administration released Housing New York: A Five-Borough, Ten-Year Plan Housing Plan (Housing New York), a plan to build or preserve 200,000 affordable residential units by 2024. To achieve this goal, the plan aimed to double New York City Department of Housing Preservation and Development (HPD)'s capital budget, target vacant and underused land for new development, protect tenants in rent-regulated apartments, streamline rules and processes to unlock new development opportunities, contain costs, and accelerate affordable construction. The plan detailed the key policies and programs for implementation, including developing affordable housing on underused public and private sites. In 2017, the

de Blasio administration released Housing New York 2.0, which builds on the foundation laid through Housing New York and extends the plan to accelerate the creation and preservation of 200,000 affordable homes two years ahead of schedule, by 2022, and reach a new goal of 300,000 affordable homes by 2026.

Assessment

The Proposed Actions include a zoning text amendment that would establish the Mandatory Inclusionary Housing Program within the rezoning area. Approximately 97-116 of the new housing units that would be developed as a result of the Proposed Action's RWCDS would be developed as affordable housing, which would be developed as indicated in the MIH zoning text. The Proposed Actions would also facilitate the development of 48,768gsf of retail/office and 28,988 gsf of community facility space. While the Proposed Actions will foster diverse, livable neighborhoods and provide new affordable housing, the Proposed Actions will be consistent with the broad goals laid out by this plan.

Secondary Study Area

There are currently no public policies that are applicable to the study area other than OneNYC and Housing New York.

Conclusion

The Proposed Actions would not result in any significant adverse public policy impacts. The Proposed Actions would result in residential and mixed-use development that would support several of OneNYC's major initiatives and, in part, Housing New York's affordable housing goals. The Proposed Actions would result in the creation of up to approximately 97-116 units of affordable housing pursuant to the Mandatory Inclusionary Housing Program, would introduce new local retail space, office space, and community facility space. Therefore, the land use changes anticipated as a result of the Proposed Actions are expected to be consistent with the known public policies in the study area, as described above, and a detailed analysis is not warranted.

VI. DETAILED ASSESSMENT

Existing Conditions

Land Use

The land use study area consists of both a primary study area, which is coterminous with the boundaries of the rezoning area, where the land use effects of the Proposed Actions are direct, and a secondary study area consisting of properties within an approximate 400-foot radius of the boundaries of the rezoning area, which extends east to 33rd Street, south to Astoria Boulevard South, west to 29th Street and north to 23rd Street. These study areas and their associated land uses are shown in **Figure C-2**.

Study Area Land Uses



Legend

- Rezoning Area
- 400-Foot Radius
- 1 Projected Development Sites
- One- and Two-Family Buildings
- Multi-family Walkup Buildings
- Multi-family Elevatory Buildings
- Mixed Commercial/Residential
- Commercial/Office Buildings
- Industrial/Manufacturing
- Transportation/Utility
- Public Facilities & Institutions
- Open Space
- Parking Facilities
- Vacant Land

Existing Land Uses in the Primary Study Area

Projected Development Sites

Projected Development Site 1 consists of Block 837, Lots 9 and 16. It is approximately 10,000 sf and is improved with a one-story commercial building occupied by the Neptune Diner and a surface parking lot.

Projected Development Site 2 consists of Block 837, Lot 27. It is approximately 29,638 sf and is improved with a one-story commercial building occupied by a Staples retail store and a surface parking lot.

Projected Development Site 3 consists of Block 835, Lot 3. It is approximately 13,501 sf and is vacant.

Projected Development Site 4 consists of Block 837, Lots 38, 39, 41-47. It is approximately 16,494 sf and is improved with six 2- to 4-story residential buildings containing a total of 22 DUs and 2,000 gsf of commercial uses.

Other Lots within the Primary Study Area

There are several lots within the Primary Study Area that are not considered part of a Projected Development Site.

Block 837, Lot 13 is a 3,251 square foot corner lot. It is improved with a four-story, 11,800 square foot residential building with 16 dwelling units. Block 837, Lot 15 is a 1,235 square foot corner lot. It is improved with a two-story, 1,152 square foot residential building with two dwelling units. Block 837, Lot 48 is a 2,000 square foot corner lot. It is improved with a four-story, 7,500 square foot mixed commercial and residential building with seven dwelling units. The Project Area also includes an approximately 10 feet strip at the rear of Block 837, Lots 49, 50, 54, 55, and 58.

Block 835, Lot 1 is a 2,250 square foot corner lot. It is improved with a two-story, 4,336 square foot mixed commercial and residential building with three dwelling units. Block 835, Lot 2 is a 2,250 square foot interior lot. It is improved with a three-story, 3,330 square foot residential building with three dwelling units.

Existing Land Uses in the Secondary Study Area

Table C-1 summarizes the existing generalized land uses within the secondary study area by tax lots and land area. Overall, as reflected in the table and in **Figure C-2**, the land use study area contains a general mix of uses, with the predominant land uses being residential, mixed residential and commercial, and vacant land/buildings. Residential and mixed-use properties (residential buildings with commercial and/or community facility uses on the lower floors) collectively occupy approximately 53.5 percent of the total land area. Of the lots with residential use only, the majority (approximately 42.4 percent) are developed as one- and two-family buildings, while approximately 33.8 percent of residential-only lots are multi-family walkup buildings. Multi-family elevator buildings only comprise approximately 0.4 percent of the secondary study area tax lots and cover about 0.3 percent of the total land area. Open Spaces occupy approximately 1.1 percent of the lots, while occupying 16.4 percent of the land area. The most prevalent non-residential uses include vacant land, which comprises approximately 4.8 percent of the tax lots and 15.5 percent of the land area; open space, which comprises less than one percent of the tax lots, but covers 14 percent of the total land area; and vacant land, which comprises approximately nine percent of the lots and 12.5 percent of the

land area and is typically used for vehicle and open storage. The remainder of the quarter-mile study area lots consist of other uses, including (in descending order) commercial/office, parking, public facilities and institutions, and transportation/utility.

Table C-1: Land Uses within a Quarter Mile of the Rezoning Area

Use	Lots	Percent of Total Lots (%)	Lot Area sq ft	Percent of Total Land Area (%)	Building Area sq ft	Percent of Total Building Area (%)
Residential	206	76.6%	434,906	44.2%	542,423	57.4%
One & Two Family	114	42.4%	220,012	22.4%	189,986	20.1%
Multi-Family Walkup	91	33.8%	212,512	21.6%	340,841	36.0%
Multi-Family Elevator Buildings	1	0.4%	2,742	0.3%	11,596	1.2%
Mixed Residential & Commercial	26	9.7%	91,172	9.3%	251,184	26.6%
Commercial & Office	8	3.0%	78,269	8.0%	49,617	5.2%
Industrial & Manufacturing	0	0.0%	0	0.0%	0	0.0%
Transportation & Utility	3	1.1%	8,362	0.8%	459	0.0%
Public Facilities & Institutions	3	1.1%	78,269	8.0%	101,750	10.8%
Open Space	3	1.1%	160,933	16.4%	150	0.0%
Parking Facilities	7	2.6%	8,690	0.9%	0	0.0%
Vacant Land	13	4.8%	123,194	12.5%	0	0.0%
All Others or No Data	0	0.0%	0	0.0%	0	0.0%
Total	***269***	***100.0%***	***983,851***	***100.0%***	***945,583***	***100%***

Source: 2019 PLUTO Data

The secondary study area features a typical street grid pattern with larger blocks.

Uses located on Blocks 835 and 837, include two- and three-story one- and two-family residential buildings, three- and four-story mixed residential and commercial buildings, a larger six-story residential multi-family elevator building with 65 units, and several vacant lots and street level parking facilities. Block 837 also contains a one-story commercial building housing a Staples and an accompanying parking lot (Projected Development Site 2).

The predominant land uses to the north of the rezoning area are residential, mixed commercial and residential, commercial uses, and vacant lots. The residential uses include a mix of walk-up one- and two-family residential buildings and multi-family walkups. There are many residential buildings with ground floor local retail uses. Further north there are several commercial buildings, including a natural foods supermarket with an accompanying parking lot and Agora Plaza, a small shopping mall.

The predominant land use to the east of the rezoning area is residential. The residential building types include a mix of one- and two-family residential detached and semi-detached homes and multi-family walkups.

To the southeast of the rezoning area, along Astoria Boulevard South on the southern side of Interstate 278, uses include a mix of walk-up residential buildings, ground floor local retail uses, commercial uses, and an institutional use. The institutional use in this area includes the New York Police Department 114th Precinct, located at 34-16 Astoria Boulevard South.

The southern portion of the study area is predominantly mixed-use commercial and residential. The residential uses are primarily multi-family elevator buildings with ground floor local retail uses. Also located to the south of the project site is Columbus Square, an open space use that encompasses 0.1 acres.

The western portion of the study area is primarily characterized by residential, open space, and public facility uses. Directly to the west of the project site is Hoyt Playground, a 2.20 acre public park. The institutional use in the area is immediately northwest of the study area. Public School 85 Q offers Pre-Kindergarten to 5th Grade education for over 450 students. There is also PS85Q Playground, a public playground part of the Schoolyard to Playground initiative to transform public school schoolyards to publicly accessible playgrounds.

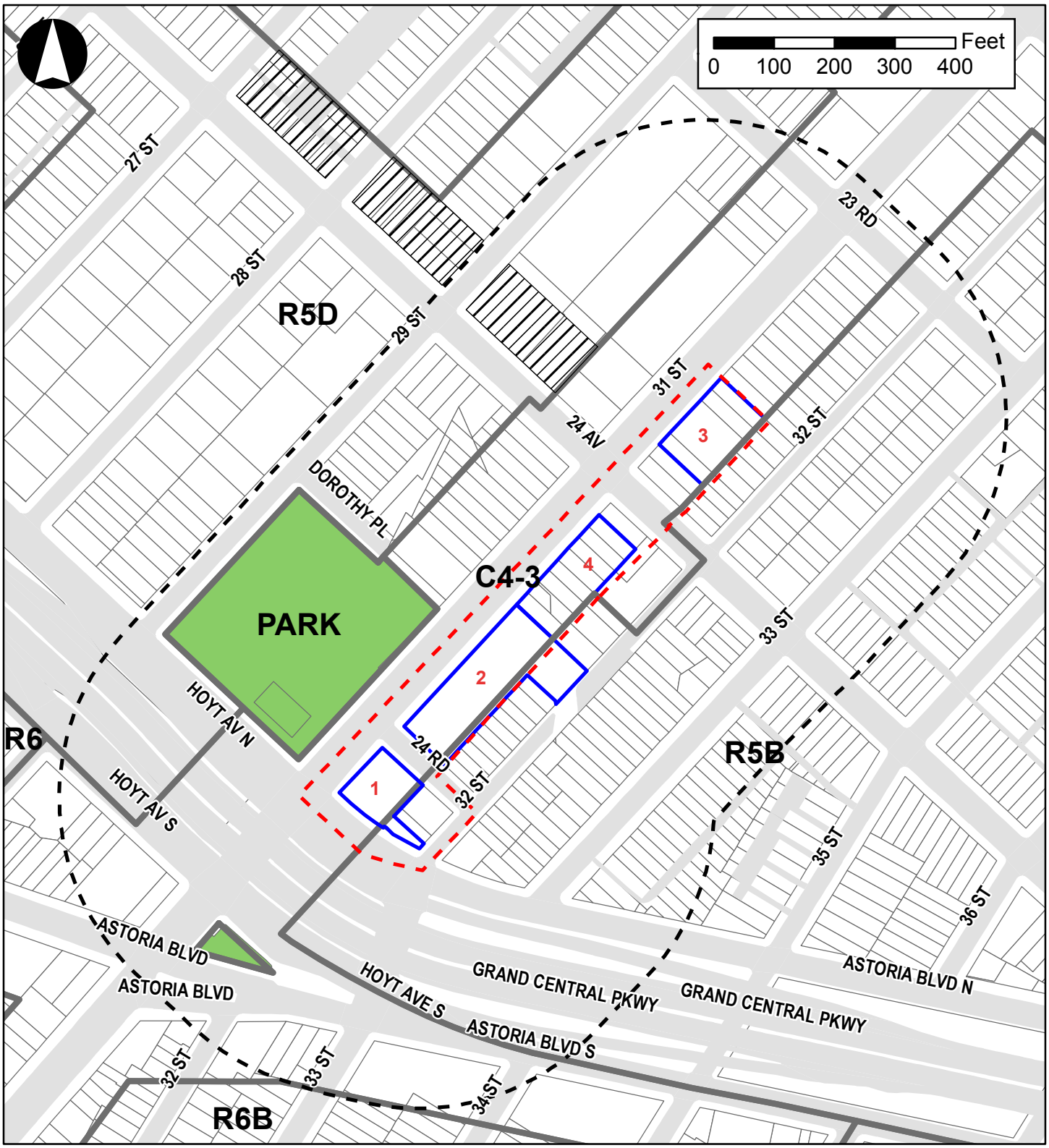
Zoning

The assessment of zoning uses the same study areas used for land use: the primary study area, consisting of the proposed rezoning area; and the secondary study area, an area within roughly a 400-foot radius of the rezoning area boundary.

Existing Zoning in the Primary Study Area

The primary study area was originally zoned R5 in 1961 with the first zoning map. It remained an R5 district until 1964 when Block 837 was rezoned with a C1-2 overlay. It encompassed the entirety of the block from Hoyt Avenue North to 24th Road between 31st and 32nd Streets and roughly 240 feet north from 24th Road along 31st Street and at a depth of 100 feet east from 31st Street. It remained this way until 2010 when the entire area was rezoned under the Astoria Rezoning in 2010. The 31st Street corridor was rezoned C4-3 at a depth of roughly 80 feet at the narrowest point to 130 feet along 24th Avenue. The rest of Blocks 835 and 837 were rezoned R5B.

The primary study area is zoned C4-3 and R5B (see **Figure C-3**). A C4-3 zoning district is mapped along 31st Street within the surrounding area. C4 districts are general commercial districts typically mapped in regional centers located outside of central business districts where uses serve a larger region than neighborhood shopping areas. C4 districts generally allow residential (Use Group 1 and 2), community facility (Use Group 3 and 4), and commercial (Use Group 5, 6, 8, 9, 10, and 12) uses. No semi-industrial or manufacturing uses are permitted. Developments in C4-3 districts can be constructed pursuant to height factor or Quality Housing regulations. C4-3 has an R6 residential district equivalent and allows a maximum residential floor area ratio ("FAR") of 3.0 for Quality Housing buildings on a wide street or 2.43 FAR under height factor regulations, maximum community facility FAR of 3.0, and maximum commercial FAR of 3.4. The maximum height is 75 feet (7-stories) for Quality Housing buildings with a qualifying ground floor, while height is governed by a sky exposure plane above 60 feet in height factor buildings (approximately 13 stories). In C4-3 districts, off-street accessory parking is required for 50 percent of Quality Housing dwelling units. Accessory



Legend

- Primary Study Area (Rezoning Area)
- 400-Foot Radius
- 1 Projected Development Sites
- Zoning District Boundary
- C1-3 Overlay

parking for commercial uses varies by use but is generally required at a rate of 1 space per 400 square feet of floor area.

R5B districts are mapped generally in the eastern portion of the Surrounding Area beyond 100 feet of 31st Avenue. R5B is a medium-density contextual residential district that generally allows residential (Use Group 1 and 2) and community facility (Use Group 3 and 4) uses. No commercial, semi-industrial or manufacturing uses are permitted. R5B districts have a FAR of 1.35. The maximum street wall height is 30 feet with maximum height of 33 feet. The front yard must be at least five feet deep and it must be at least as deep as one adjacent front yard and no deeper than the other, but it need not exceed a depth of 20 feet. Attached rowhouses do not require side yards. However, there must be at least eight feet between the end buildings in a row and buildings on adjacent zoning lots. Where off-street parking is required, on-site spaces must be provided for two-thirds of the dwelling units. Parking can be waived when only one space is required.

Existing Zoning in the Secondary Study Area

The study area contains mostly residential zoning designations. As shown in **Figure C-3** and listed in **Table C-2**, zoning classifications within a 400-foot radius of the project site include R5D on the western portion and R5B on the eastern portion of the secondary study area. There is a C1-3 commercial overlay on Block 842 in the R5D zoning district.

In 1961, the secondary study area was originally zoned R5 and R6 with C1-2 commercial overlays immediately to the west of the Proposed Rezoning Area along 24th Avenue between 31st Street and 29th Street and southwestern most parts of the study area along Astoria Boulevard. There was also a C2-2 overlay along 23rd Road in the northern most portion of the secondary study area. In 1967, the area to the southeast of the proposed rezoning area was rezoned to include a C2-2 commercial overlay along Astoria Boulevard between 34th and 35th Streets. Southwest of the proposed rezoning area was again rezoned C2-2 in 1969 along Astoria Boulevard between 33rd and 34th Streets. A portion of 24th Avenue between 31st and 29th Streets west of the proposed rezoning area was rezoned to include a C1-2 overlay in 1997. No other rezoning occurred until 2010 when the entire area was rezoned under the Astoria Rezoning. The 31st Street corridor was rezoned C4-3 while areas north, west, and east of the proposed rezoning area were rezoned R5B. Areas south were rezoned R6B.

The Astoria Rezoning, a major rezoning approved in 2010, rezoned 238 blocks of the Astoria neighborhood, an area bounded by 20th Avenue on the north, Steinway Street on the east, Broadway on the south, and Vernon Boulevard, 8th Street, 14th Street, and the East River on the west. It was intended to protect neighborhood character from out-of-scale development, more closely reflect established development patterns, direct opportunities for moderate residential and commercial growth to locations along wide streets and transit resources, and provide incentives for the production of affordable housing with an associated text amendment establishing the IH Program in R7A and equivalent districts.

Table C-2: Secondary Study Area Existing Zoning Districts

District	Definition/General Use	Maximum FAR
R5D	Contextual district, which encourages residential growth along major corridors. These districts serve as a transition between lower-density districts and moderate-density districts.	R: 2.0; CF: 2.0; C: 2.0 as overlay
C1-3 Overlay	C1 commercial overlays mapped in residential districts. They permit local retail and service establishments. Regulations limit commercial use to one or two floors.	R: Same as underlying R zone C: 1.0 in R1- R5 Districts 2.0 in R6 – R10 Districts CF: Same as underlying R zone M: Not permitted

Notes: CF: community facility, R: residential, C: commercial, M: manufacturing
Source: New York City Zoning Resolution

Future without the Proposed Actions (No-Action Condition)

Land Use

Primary Study Area

In the future without the Proposed Actions, it is assumed existing conditions within the Primary Study Area would remain the same.

Secondary Study Area

In the 2028 future without the Proposed Actions, the secondary study area is expected to experience an ongoing trend toward the development of new residential space in. In total, approximately 20 new housing units and approximately 1,261 gsf of retail uses are anticipated in the 400-foot secondary study area by the Proposed Action's 2028 Build Year (see **Table C-3** and **Figure C-4**).

Table C-3: Development Projects in the Future without the Proposed Actions

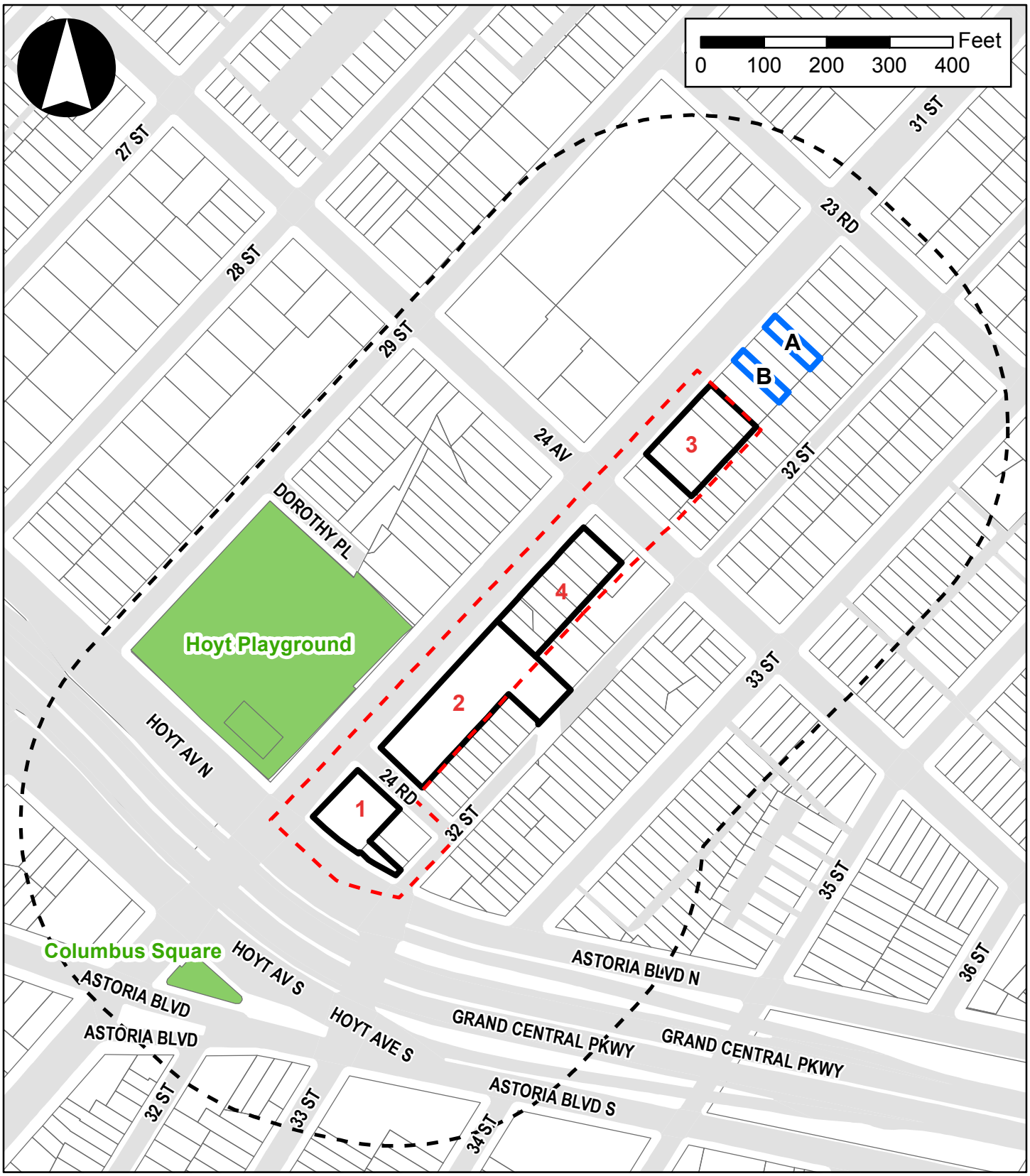
Map No.	Address	Development Proposal	Build Year	Estimated Residents
Primary Study Area				
A	23-61 31st Street	10 residential units; 326 sf of ground floor retail	-	23
B	23-71 31st Street	10 residential units; 935 sf of ground floor retail	-	23

Notes:
[1]Assumes an average household size of 2.33.

Zoning

Primary Study Area

There are no anticipated zoning changes that would have a significant effect on conditions in the primary study area in the future without the Proposed Actions.



Legend

- A — Study Area No-Action Development (Refer to Table C-3)
- Secondary Study Area
- Primary Study Area (Rezoning Area)
- 1 — Projected Development Sites

Secondary Study Area

No zoning changes affecting the secondary study area are expected by the Proposed Action's 2028 Build Year.

Future with the Proposed Actions (With-Action Condition)

This section describes the land use, zoning, and public policy conditions that would result from the Proposed Actions by 2028 and evaluates the potential for the Proposed Actions to result in significant adverse impacts.

Land Use

Per CEQR methodology, although changes in land use could lead to impacts in other technical areas, significant adverse land use impacts are extraordinarily rare in the absence of an impact in another technical area. Also, according to the *CEQR Technical Manual*, many land use changes may be significant, but not adverse.

In the future with the Proposed Actions, the primary study area is expected to be redeveloped with residential, retail/office, and community facility uses, with a greater amount of development than would occur under 2028 No-Action conditions.

Primary Study Area

Under 2028 With-Action conditions in the primary study area, the total With-Action scenario would result in 436 DUs (of which 110-131 would be affordable), 56,242 gsf of commercial uses, and 28,988 gsf of community facility uses.

The proposed 11-story, 63,252 gsf building on Projected Development Site 1 would be zoned C4-5X. The proposed building would contain 11,322 gsf of commercial uses, 3,216 gsf of community facility for a daycare, and 48,714 gsf of residential uses with 51 DUs (13-15 affordable DUs) and 6 parking spaces.

The proposed 13-story, 189,128 gsf building on Projected Development Site 2 would be zoned C4-5X, C4-3, and R5B. The proposed building would contain 15,178 gsf of commercial uses, 4,160 gsf of community facility for a senior center, and 169,790 gsf of residential uses with 161 DUs (40-48 affordable DUs), and 61 parking spaces.

The proposed 12-story, 110,997 gsf building on Projected Development Site 3 would be zoned C4-4. The proposed building would contain 7,547 gsf of commercial floor uses, 21,614 gsf of community facility area for a youth center, and 81,838 gsf of residential uses with 83 DUs (21-25 affordable DUs) and 19 parking spaces.

It is also expected that one additional site within the proposed rezoning area would be redeveloped in the future with the Proposed Actions, in accordance with the proposed C4-4 zoning district. The proposed 13-story (135-feet tall), 79,666 gsf building on Projected Development Site 4 would be zoned C4-4. The proposed building is assumed to contain 14,721 gsf of ground floor local retail uses and 64,945 gsf of residential uses with 94 DUs (24-28 affordable DUs) and 37 parking spaces. The accessory parking garage would be located on the cellar level of the building with access to the garage from 31st Street.

In accordance with the City's MIH policy, under the Proposed Actions, the Applicant will choose either MIH Option 1 or 2, which would require 25 or 30 percent of the residential floor area be designated as affordable housing units for residents with incomes averaging between 60 and 80 percent of AMI and none of the units exceeding 130 percent of AMI. This would result in either 97 or 116 affordable DUs within the primary study area.

The incremental development that would occur within the rezoning area under the Proposed Actions are shown in **Table C-4**. As shown in the following tables, the total RWCDS for analysis would result in a net increment of 389 DUs (of which 97-116 would be affordable), 14,596 gsf of retail uses, 2,612 gsf of office uses, and 28,988 gsf of community facility uses.

Table C-4: Incremental Development within the Rezoning Area

	No-Action	With-Action	Increment
Land Use			
Residential DUs	16,911 gsf 22	365,287gsf 389	+348,376 +367
Office	2,000 gsf	4,612	+2,612 gsf
Local Retail	29,560 gsf	44,156 gsf	+14,596 gsf
Community Facility	0	28,988 sf	+28,988 gsf
Population[1]			
Residents	51	906	+855
Workers	99	233	+134

Notes:

[1] Population estimates based on the following assumptions: 2.33 residents/unit (average persons per household for Queens CD 1, 2014=2018 ACS); three retail employees/1,000 sf of retail; four employees/1,000 sf of community facility and office.

Assessment

The Proposed Action's incremental land use changes would be consistent with development trends expected to occur under 2028 No-Action conditions. The incremental residential units generated by the Proposed Actions would provide a mix of affordable housing and market rate units. The Proposed Actions would result in changes to land use within the primary study area by introducing residential, commercial, and community facility uses that would be permitted at a greater density than would be allowed in the No-Action condition. The proposed residential uses would be consistent with uses already present in the surrounding area, as the secondary study area is largely defined by residential and mixed commercial/residential uses as well as community facility uses.

Secondary Study Area

Assessment

The Proposed Actions are not expected to generate significant adverse land use impacts in the secondary study area. The new development generated by the Proposed Actions would be at a density and building scale compatible with other developments in the area. New development in the secondary study area is expected by 2028 and is expected to continue after 2028 with or without the Proposed Actions.

Overall, the Proposed Actions would not adversely affect existing land use patterns and trends. Many of the changes associated with the Proposed Actions would be considered beneficial, including redeveloping vacant land and providing affordable housing in an area experiencing substantial new residential growth.

Accordingly, the Proposed Actions would not result in significant adverse land use impacts.

Zoning

In the future with the Proposed Actions, the existing zoning in the primary study area (rezoning area) would change. The proposed zoning changes as a result of the Proposed Actions are shown in **Figure C-5**, described in detail below, and summarized in **Table C-5**.

Table C-5: Summary of Proposed Zoning Districts and Regulations

District	Maximum FAR	Streetwall (Min. base height/ Max. base Height	Maximum Building Height
Proposed C4-5X (R7X equivalent)	Residential: 6.0 FAR with Mandatory Inclusionary Housing Community Facility: 5.0 Commercial: 4.0	60 feet min. 105 feet max.	145 feet
Proposed C4-4 (R7-2 equivalent)	Residential: 5.01 FAR with Affordable Independent Residences for Seniors Community Facility: 6.5 Commercial: 3.4	60 feet min. 75 feet max.	135 feet

Proposed Zoning Map Changes

Assessment

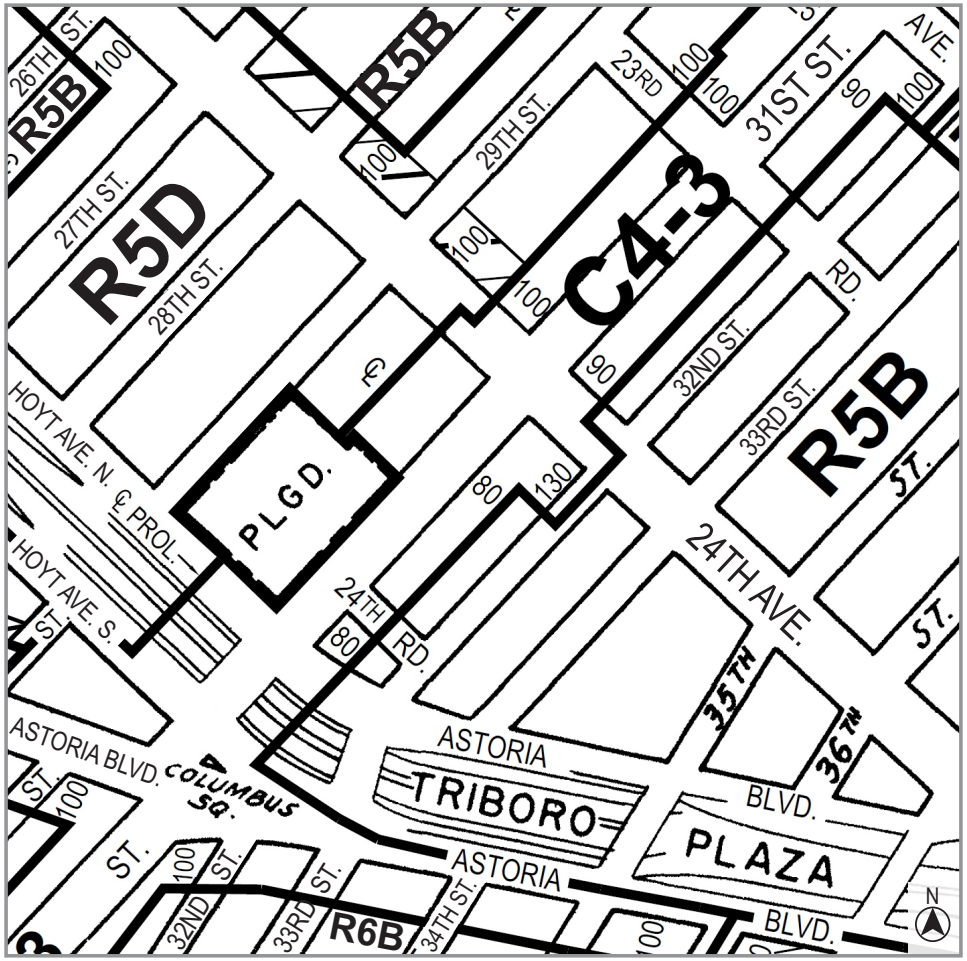
As shown in **Figure C-5**, the Proposed Actions would result in a zoning map amendment to the primary study area. The proposed zoning map amendment to rezone the Applicant-controlled development sites (Projected Development Site 1, 2 and 3) from C4-3 to C4-5X and C4-4, combined with the proposed text amendment to make the rezoning area a mandatory inclusionary housing area, would increase the permitted residential FAR. The rezoning area is currently within an existing C4-3 zoning district.

The proposed C4-5X district is a mid-density contextual district. It is an R7X residential district equivalent that allows residential (Use Group 1 and 2), community facility (Use Group 3 and 4), and commercial (Use Groups 5, 6, 8, 9, 10 and 12) uses. The proposed C4-5X zoning district would allow for a maximum FAR of 6.0 for residential uses with MIH, 4.0 for commercial uses, and 5.0 for community facility uses. The maximum building height is 145 feet above a base height of between 60 and 105 feet. Height is limited to 65 feet within 25 feet of the zoning district boundary with an R5 zoning district. Off street accessory parking for residential uses is required for 50 percent of the non-income restricted units. Parking varies for commercial uses but is generally required at one space per 1,000 square feet of floor area.

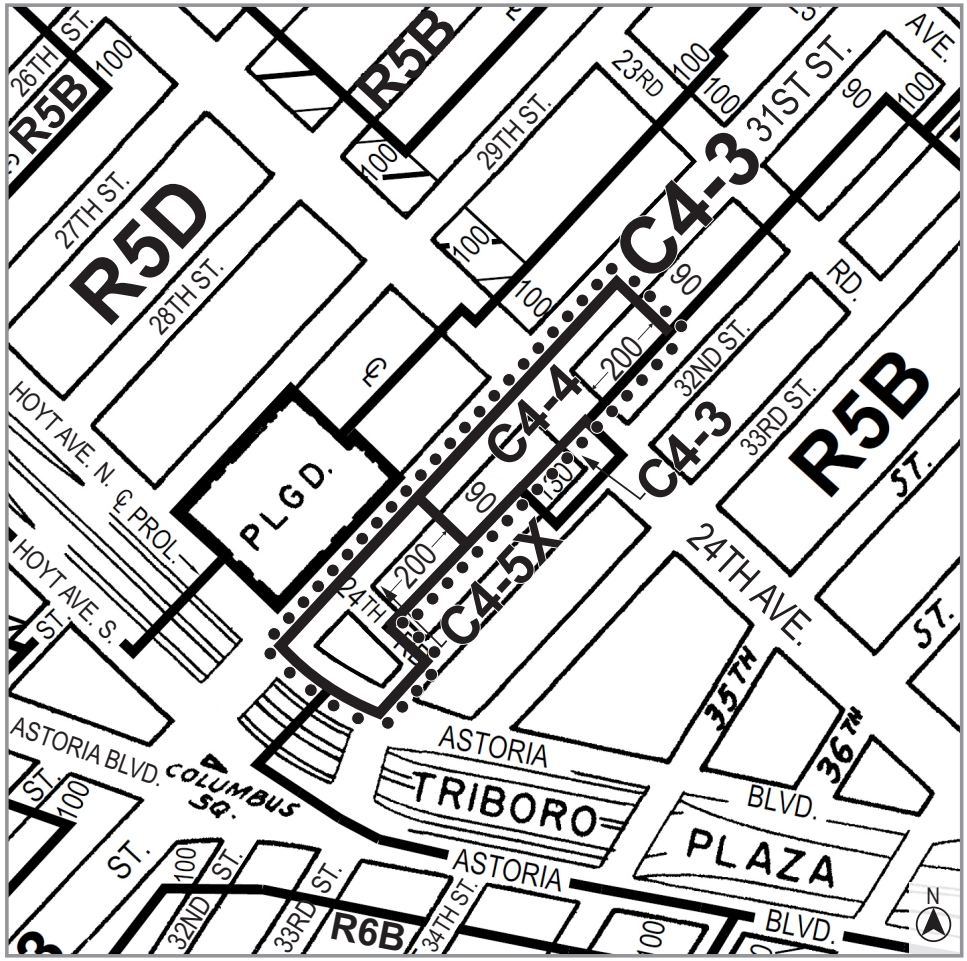
The proposed C4-4 zoning district is an R7-2 residential district equivalent that allows residential (Use Group 1 and 2), community facility (Use Group 3 and 4), and commercial (Use Groups 5, 6, 8, 9, 10 and 12) uses. Semi-industrial and manufacturing uses are not permitted in C4-4 districts. The maximum permitted FAR is 4.6 FAR for residential uses (5.01 with AIRS), 3.4 for commercial uses, and 6.5 FAR for community facility uses. For certain Quality Housing buildings within 150 feet of an elevated rail line, the proposed C4-4 zoning district permits a maximum base height of 75 feet and a maximum building height of 135 feet. Height is limited to 55 feet within 25 feet of the zoning district boundary with an R5 zoning district. Off street accessory

Figure C-5

Existing and Proposed Zoning Map



Existing Zoning Map (9a)



Proposed Zoning Map (9a) - Area being rezoned is outlined with dotted lines

Rezoning from C4-3 to C4-5X
Rezoning from C4-3 to C4-4

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

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

parking for residential uses is required for 50 percent of the non-income restricted units. Parking varies for commercial uses but is generally required at one space per 1,000 square feet of floor area.

The proposed C4-5X and C4-4 zoning districts are consistent with City policy to position higher density developments near transit along wide streets that can support such development. The proposed C4-5X zoning district is appropriate because it is located immediately adjacent to the Astoria Boulevard Station and at the intersection of two wide streets, Astoria Boulevard and 31st Street. The proposed C4-4 zoning district, at a lower density than the C4-5X district, is appropriate due to its location within a short walk to the Astoria Boulevard Station and location along wide 31st Street. Moreover, the rezoning area is within the Transit Zone, which is recognized as an area well-served by public transportation with low automobile ownership rates. In addition to subway service available on the N/W lines at the Astoria Boulevard Station, bus service is available on the M60-SBS and Q19 lines at Astoria Boulevard and the Q69 line at Ditmars Boulevard to the north.

Similarly, the increase in building maximum height resulting from the zoning change – to 14-stories within the C4-5X district and 13-stories within the C4-4 district – is appropriate as it is comparable to the 13-stories that would be permitted for as-of-right height factor development under the current C4-3 (R6 equivalent) zoning. This increase in height can be accommodated along Astoria Boulevard North and 31st Street within the rezoning area.

The proposed C4-5X and C4-4 zoning districts would spur development to activate and invigorate this section of 31st Street enabling it to connect local Queens residents with jobs, retail, and services. The proposed C4-5X and C4-4 zoning districts have the potential to improve the street life, walkability, and safety of the 31st Street corridor, which is dominated by the elevated subway tracks, by promoting new active ground floor uses. Despite the current C4-3 zoning, there is very little local ground floor retail on 31st Street on the blocks north of the Astoria Boulevard station to serve residents or visitors. Development facilitated by the proposed zoning map amendment would help stitch the areas surrounding 31st Street together by improving the streetscape and pedestrian experience.

Proposed Zoning Text Amendment

Assessment

Collectively, the proposed zoning text amendment would help to facilitate the proposed developments. These actions would only affect the primary study area and therefore a conceptual analysis of these changes is not required as no other sites would be affected.

The Applicants are proposing to map the proposed rezoning area as a Mandatory Inclusionary Housing (MIH) Area (Options 1 or 2) by creating a new map for Queens Community District 1 in Appendix F of the New York City Zoning Resolution. The MIH program requires the provision of permanently income-restricted housing within new residential developments, enlargements, and conversions from non-residential to residential use within mapped MIH Areas. The proposed zoning text amendment would establish an MIH Area contiguous with the rezoning area requiring the proposed development to comply with the requirements of the MIH Program. MIH Option 1 requires 25 percent of the residential floor area to be provided as housing affordable to households at an average of 60 percent of AMI, with no unit targeted at a level exceeding 130 percent of AMI. MIH Option 2 requires 30 percent of the residential floor area to be provided as housing affordable to households at an average of 80 percent AMI, with no unit targeted at a level exceeding 130 percent of AMI.

The creation of the MIH Area would result in the creation of approximately 97-116 affordable DUs within the rezoning area.

The Proposed Actions are consistent with City policy to position higher density developments near transit along wide streets that can support such development and with Housing New York: A Five-Borough, Ten-Year Plan. Overall, the Proposed Actions would help revitalize this portion of 31st Street by facilitating the development of a significant amount of transit-oriented housing, including approximately 97-116 units of permanently income-restricted housing at low-income levels, along with new local retail, office, and community facility space near the recently renovated Astoria Boulevard subway station.

I. INTRODUCTION

This attachment assesses whether the Proposed Actions would result in significant adverse impacts to the socioeconomic character of the area within and surrounding portions of two blocks in Astoria generally bounded by 23rd Road to the north, 32nd Street to the east, Astoria Boulevard North to the south, and 31st Street to the west in Queens Community District (CD) 1. As described in the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, the socioeconomic character of an area includes its population, housing, and economic activities. Socioeconomic changes may occur when a project directly or indirectly changes any of these elements. Although some socioeconomic changes may not result in impacts under CEQR, they are disclosed if they would affect land use patterns, low-income populations, the availability of goods and services, or economic investment in a way that changes the socioeconomic character of the area. In some cases, these changes may be substantial, but not adverse. The objective of a CEQR analysis is to disclose whether any changes created by the action would have a significant adverse impact compared to what would happen in the future without the Proposed Actions.

The Proposed Actions and associated reasonable worse case development scenario (RWCDS) would result in a net increase of 367 dwelling units (DUs), approximately 17,208 gross square feet (gsf) of commercial use, and 28,988 gsf of community facility use on four projected development sites by 2028 as compared to the No-Action conditions. As presented in **Attachment B, "Supplemental Screening,"** the Proposed Actions would not exceed the thresholds warranting preliminary analysis of direct residential displacement, indirect business displacement, or adverse effects on specific industries. As the Proposed Actions would exceed the *CEQR Technical Manual* threshold warranting a preliminary direct business displacement and indirect residential displacement analyses, preliminary assessments are provided herein.

II. PRINCIPAL CONCLUSIONS

A preliminary assessment finds that the Proposed Actions and associated RWCDS would not result in significant adverse impacts due to direct business displacement. The direct displacement of the businesses identified in the RWCDS would not adversely affect socioeconomic conditions of the study area as defined by the *CEQR Technical Manual*. The four commercial businesses and estimated 120 jobs that could potentially be directly displaced as a result of the Proposed Actions do not provide products or services essential to the local economy that would no longer be available in the trade area due to the difficulty of either relocating or establishing a new, comparable business, nor are there any publicly adopted plans that call for the preservation of such businesses in this area of Astoria.

With respect to potential indirect residential displacement, a preliminary assessment finds that the average income of the project-generated population is expected to be comparable to the current average in the ½-mile study area as well as the future population, given existing trends of household incomes in the area. The permanently affordable housing added by the Proposed Actions pursuant to the Mandatory Inclusionary Housing (MIH) program would help to maintain a more diverse demographic composition within the study area than would otherwise exist. Therefore, the Proposed Actions would not introduce a

new concentration of higher-income residents that could alter rental market conditions in the study area, and there would be no significant adverse impacts due to indirect residential displacement.

III. METHODOLOGY

Under CEQR, the socioeconomic character of an area is defined by its population, housing, and economic activities. The assessment of socioeconomic conditions usually distinguishes between the socioeconomic conditions of an area's residents and businesses. However, a proposed action(s) can affect either or both segments in similar ways: it may directly displace residents or businesses; or it may alter one or more of the underlying forces that shape socioeconomic conditions in an area and thus may cause indirect displacement of residents or businesses. The objective of the CEQR analysis is to disclose whether any changes created by the proposed action(s) would have a significant impact compared with what would happen in the future without the proposed action(s) (i.e., the "No-Action Condition").

Direct displacement is defined as the involuntary displacement of residents, businesses, or institutions from the actual site of (or sites directly affected by) a proposed project or action. Examples include the proposed redevelopment of a currently occupied site for new uses or structures, or a proposed easement or right-of-way that would take a portion of a parcel and thus render it unfit for its current use. Since the occupants of a site are usually known, the disclosure of direct displacement focuses on specific businesses and employment and an identifiable number of residents and workers.

Indirect or secondary displacement is defined as the involuntary displacement of residents, businesses, or employees in an area adjacent to, or close to, a project or development site that results from changes in socioeconomic conditions created by a proposed project or action. Examples include rising residential rents in an area that result from a new concentration of higher-income housing introduced by a project, which ultimately could make existing housing unaffordable to lower income residents; a similar turnover of industrial to higher-rent commercial tenancies induced by the introduction of a successful office project in an area; or the flight from a neighborhood that can occur if a proposed project or action creates conditions that break down the community (such as a highway dividing the area). Unlike direct displacement, the exact occupants to be indirectly displaced are not known. Therefore, an assessment of indirect displacement usually identifies the size and type of groups of residents, businesses, or employees potentially affected.

Even if projects do not directly or indirectly displace businesses, they may affect the operation and viability of a major industry or commercial operation in the City. An example would be new regulations that prohibit or restrict the use of certain processes that are critical to certain industries. In these cases, the CEQR review may involve the assessment of the economic impact of the project on the specific industry in question.

ANALYSIS FORMAT

Following *CEQR Technical Manual* guidance, the socioeconomic analysis of potential direct business displacement and indirect residential displacement begins with a preliminary assessment. The purpose of the preliminary assessment is to learn enough about the effects of the Proposed Actions to either rule out the possibility of significant adverse impacts, or determine that a more detailed analysis is warranted. A detailed analysis, when required, is framed in the context of existing conditions and evaluations of the

future without the Proposed Actions and the future with the Proposed Actions by the project build year of 2028.

For the analyses of direct business displacement and indirect residential displacement presented below, the *CEQR Technical Manual*'s preliminary assessment was sufficient to conclude that the Proposed Actions would not result in any significant adverse socioeconomic impacts.

STUDY AREA DEFINITION

A socioeconomic study area is the area within which the Proposed Actions have the greatest potential to directly or indirectly affect population, housing, and economic activities. A study area typically encompasses a project or development site and adjacent areas within an approximately 400-foot, ¼-mile, or ½-mile radius, depending upon the project size and area characteristics. According to the *CEQR Technical Manual*, the larger ½-mile study area is appropriate for projects that would potentially increase the ¼-mile area population by more than five percent. In the future with the Proposed Actions, the RWCDS would increase the ¼-mile population (10,058 as of 2020[1]) by an estimated 855 people[2] (approximately 8.5 percent), warranted a larger ½-mile study area.

As socioeconomic analyses depend on demographic data, it is appropriate to adjust the study area boundary to conform to the census tract delineation that most closely approximates the desired radius (in this case, a ½-mile radius surrounding the boundary of the proposed rezoning area). For this analysis, the 14 census tracts that comprise the socioeconomic study area are shown in **Figure D-1,** and include Queens's census tracts 63, 65.01, 65.02, 69, 71, 95, 97, 101, 113, 115, 117, 119, 125, and 143. The ½-mile socioeconomic study area is located in northwest Queens in Astoria, and is roughly bounded by 21st Avenue and Ditmars Boulevard to the northeast, 31st and 30th Avenues to the southwest, 45th and 44th Street to the southeast, and 19th and 21st Street to the northwest.

DATA SOURCES

Information used in the analysis of indirect residential displacement (including population, housing, rents, incomes) were obtained from U.S. Census Bureau's 2010 Census, 2006-2010 and 2014-2018 Five-Year American Community Surveys (ACS). The New York City Department of City Planning's (DCP) Population FactFinder online mapping application tool was used to determine the statistic reliability of single-variable census data presented for the study area, the borough of Queens, and New York City.[3] The average household size for Queens Community District (CD) 1 is used to estimate the future population resulting from anticipated No-Build projects in the study area. Data on the study area were compared to Queens and New York City.

The assessment of direct business displacement considered business and employment trends in the study area. Employment data for the study area, Queens and New York City was based on the U.S. Census

[1] 2020 population estimate provided by the New York City Department of City Planning.

[2] Estimate of incremental residential population resulting from the Proposed Actions assumes 2.33 persons per dwelling unit, which is based on the average household size for Queens Community District 1 according to the 2014-2018 American Community Survey (ACS) via DCP Population Factfinder.

[3] The reliability of data is based on the margin of error (MOE). MOEs describe the precision of an estimate within a 90-percent confidence interval and provide an idea of how much variability (i.e., sampling error) is associated with the estimate where the larger MOE relative to the size of the estimate, the less reliable the data. The MOE is partially dependent on the sample size because the large sample sizes result in a greater amount of information that more closely approximates the population.

Bureau's Longitudinal Employer-Household Dynamics (LEHD) for 2018, compiled at the census-tract level by PHA using On the Map, an online mapping application. Employment estimates for potentially displaced tenants located in the rezoning area are based on information from the applicant and industry employment density ratios commonly used for CEQR analyses, as well as secondary sources such as manta.com.[4]

Land use and parcel data were collected from the City's Primary Land Use Tax Lot Output (PLUTO™) data files, online Geographic Information Systems (GIS) databases, including the New York City Open Accessible Space Information System (http://wwww.oasisnyc.net) and NYCityMap (http://gis.nyc.gov/doitt/nycitymap/). Study area market-rate asking rents were researched using real estate market reports (MNS) and online real estate listing sites, including Trulia and Streeteasy.com.

IV. PRELIMINARY ASSESSMENT OF DIRECT BUSINESS DISPLACEMENT

Direct business (and institutional) displacement is defined by the *CEQR Technical Manual* as the involuntary displacement of businesses from a site or sites directly affected by a proposed action(s). In the case of direct business displacement, the impacted businesses and workers are usually known and the disclosure of direct displacement thus focuses on specific businesses and a known number of workers. As stated in the *CEQR Technical Manual,* direct displacement by itself, in most cases, would not constitute a significant adverse socioeconomic impact. The changes resulting from direct business displacement may be substantial, but not adverse; in fact, they may even be beneficial. Direct business displacement may not harm the socioeconomic character of the study area in a more significant manner than the traditional market forces of dynamic urban environments like Queens and other neighborhoods in New York City.

According to the *CEQR Technical Manual*, if a project would directly displace more than 100 employees, a preliminary assessment of direct business displacement is appropriate. The Proposed Actions include a zoning map amendment and text amendment. The preliminary assessment addressed the following CEQR criteria to determine the potential for significant adverse impacts: (1) would the businesses to be directly displaced provide products or services essential to the economy that would no longer be available to local residents or businesses; and (2) whether adopted public plans call for the preservation of such businesses in the area in which they are located (i.e., as in the case of a designated Industrial Business Zone [IBZ]).

As shown in **Table D-1**, as of 2018 (the most recent data available), there were an estimated 9,619 private sector employees within an approximate ½-mile radius of the rezoning area. These employees represented less than two percent of Queen's total employment and less than 0.25 percent of the employment in all of New York City. Within the ½-mile study area, the accommodation and food services sector accounted for approximately 23 percent; the largest percentage for a single sector in the area with a total of 2,247 jobs. The study area's share of jobs in this sector was significant, and considerably larger than the industry's share in the borough (8.8 percent) and the City as a whole (9.3 percent). Health care and social assistance and retail trade sectors were next two largest sectors in the study area and represented approximately 16 and 14 percent, respectively. All other industry sectors represented less than 10 percent of employment in the study area, with the exception of construction which represented approximately 12 percent of total employment.

[4] www.manta.com – Manta is an online resource for company profile data and provides current site specific data regarding employment.

TABLE D-1: 2018 Private Employment in the Study Area, Queens, and New York City

NAICS Industry Sector	Study Area		Queens		New York City	
Agriculture, Forestry, Fishing and Hunting	0	0.0%	30	0.0%	392	0.0%
Mining, Quarrying, and Oil and Gas Extraction	0	0.0%	8	0.0%	47	0.0%
Utilities	0	0.0%	2,920	0.5%	17,831	0.5%
Construction	1,156	12.0%	55,156	9.3%	155,758	4.0%
Manufacturing	164	1.7%	19,701	3.3%	69,968	1.8%
Wholesale Trade	112	1.2%	23,156	3.9%	145,569	3.7%
Retail Trade	1,382	14.4%	67,989	11.5%	353,993	9.0%
Transportation and Warehousing	61	0.6%	72,985	12.3%	126,893	3.2%
Information	79	0.8%	10,629	1.8%	232,108	5.9%
Finance and Insurance	430	4.5%	12,934	2.2%	325,975	8.3%
Real Estate and Rental and Leasing	301	3.1%	16,367	2.8%	134,267	3.4%
Professional, Scientific, and Technical Services	735	7.6%	18,982	3.2%	418,526	10.6%
Management of Companies and Enterprises	20	0.2%	3,062	0.5%	76,217	1.9%
Administration & Support, Waste Management and Remediation	407	4.2%	37,555	6.3%	269,897	6.9%
Educational Services	252	2.6%	17,942	3.0%	206,811	5.3%
Health Care and Social Assistance	1,530	15.9%	146,795	24.8%	753,256	19.2%
Arts, Entertainment, and Recreation	142	1.5%	7,131	1.2%	97,002	2.5%
Accommodation and Food Services	2,247	23.4%	51,985	8.8%	367,026	9.3%
Other Services (excluding Public Administration)	601	6.2%	27,021	4.6%	180,283	4.6%
Public Administration	0	0.0%	1	0.0%	2	0.0%
Total Private Employment	**9,619**	**100%**	**592,349**	**100%**	**3,931,821**	**100%**

Notes: The boundary of the ½-mile study area was modified to match the boundary of census tracts that most closely define an area within the ½-mile (i.e., at least 50 percent within the ½-mile area around the proposed rezoning area).
Source: Employment data obtained from the U.S. Census Bureau, OnTheMap Application and LEHD Origin-Designation Employment Statistics

Under the Proposed Actions and associated RWCDS, the potential for direct business displacement has been identified at three of the four projected development sites. As shown in **Table D-2**, there are four active private businesses located on three of the projected development sites. The remaining development site (Site 3) is vacant. The four private commercial businesses include a food service establishment (Block 837, 9 and 16), a retail establishment (Block 837, Lots 27), and two other service establishments (Block 837, Lots 45 and 47). It is assumed for RWCDS analysis purposes that these businesses would remain in place under No-Action conditions and that under With-Action conditions they would be directly displaced with the redevelopment of the sites.

TABLE D-2: Private Businesses Subject to Potential Direct Business Displacement as a result of the Proposed Actions

Site	Block/Lot	Existing Zoning	Address	Name	Type & Economic Sector
1	837/9 &16	C4-3/R5B	31-05 31st Street	Neptune Diner	Diner (Food Service)
2	837/27	C4-3	24-29 31st Street	Staples	Paper Products Store (Retail)
4	837/45	C4-3	24-07 31st Street	Aravella Simotas Campaign Office	Political Organization (Other Service)
4	837/47	C4-3	24-31 31st Street	Kalymnos Society of NY Inc.	Business/Professional Service (Other Service)

CEQR PRELIMINARY ASSESSMENT CRITERIA

As part of the CEQR preliminary assessment, the following threshold indicators (bulleted in *italics* below) are considered to determine the potential for significant adverse impacts.

- *Would the businesses to be directly displaced provide products or services essential to the local economy that would no longer be available in its "trade area" to local residents or businesses due to the difficulty of either relocating the businesses or establishing new, comparable businesses?*

As shown in **Table D-3**, an estimated 120 employees in four businesses/institutions could be directly displaced by the Proposed Actions. As discussed above, these four businesses are represented by three industry sectors, food service sector, retail trade sector, and other services sector. Each of the affected industry sectors is discussed below.

TABLE D-3: Estimates of Potential Direct Displacement of Private Businesses and Employment

Business Type/NAICS Industry Sector	Number of Firms	Estimated Employees
Food Service	1	33
Retail Trade	1	79
Other Service	2	8
Total	4	120

Notes: Based on standard employment density ratios commonly used for CEQR analysis, as well as secondary sources such as manta.com.

Food Services Sector

With the Proposed Actions, one food service establishment, a sit-down restaurant, employing and estimated 33 workers, could be directly displaced. This firm occupies approximately 3,280 gsf of commercial space at Projected Development Site 1. The directly displaced food service employees represent less than two percent of this sector's employment in the study area, and therefore the potential employment loss within this sector would not be substantial. The directly displaced business is also not uniquely dependent on its current location, and could be relocated within the study area. There is currently more than 1.6 million square feet of retail space within the study area. The direct displacement of this food services sector business would not constitute a significant adverse socioeconomic impact.

Retail Trade Sector

A single retail business, employing 79 workers, could be directly displaced from Projected Development Site 2. A national retail store that sells office supplies, paper and other miscellaneous products, the

business likely serves a larger regional population than just the immediately surrounding area. It does not provide product or services that are unique to the rezoning area, with similar products and services being available at other locations within the surrounding area and in Queens. The directly displaced retail employees represent about five percent of this sector's employment in the study area, and the potential employment loss within this sector would not be substantial. The directly displaced business is also not uniquely dependent on its current location, and could be relocated within the study area. There is currently more than 1.6 million square feet of retail space within the study area. The direct displacement of this retail sector business would not constitute a significant adverse socioeconomic impact.

Other Services Sector

The other services (except Public Administration) sector comprises establishments engaged in services not specifically provided for elsewhere in the NAICS classification system, and includes a range of businesses and organizations, such as: barber shops and beauty salons; religious organizations; automotive-related services; and laundry services. As shown in **Table D-3**, two businesses in the other services sector could be directly displaced from Projected Development Site 4, accounting for an estimated eight workers. The two business establishments include a political organization's local office and a professional business association/organization. These establishments generally serve the local resident population. The directly displaced other service employees represent less than two percent of this sector's employment in the study area. The potential employment loss within this sector would not be substantial. The directly displaced business is also not uniquely dependent on its current location, and could be relocated within the study area. There is currently more than 890,000 sf of office space within the study area. The direct displacement of the two other service businesses would not constitute a significant adverse socioeconomic impact.

In summary, the four potentially directly displaced businesses 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 study area or larger trade 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.

- *Is the category of businesses or institutions that may be directly displaced the subject of other regulations or publicly adopted plans to preserve, enhance, or otherwise protect it?*

The proposed zoning districts would facilitate the development of mixed-use buildings with active ground floors along 31st Street corridor that promote retail continuity and a consistent streetscape in a transit-rich location. The four businesses that could be potentially directly displaced by the Proposed Actions are not subject to existing public policy initiatives to preserve or protect them. The directly affected area is not part of a designated Industrial Business Zone (IBZ), locations identified to support the growth of industrial businesses.

The businesses that could potentially be directly displaced as a result of the Proposed Actions do not provide products or services essential to the local economy that would no longer be available in the trade area due to the difficulty of either relocating or establishing a new, comparable business, nor are there any publicly adopted plans that call for the preservation of such businesses in this area of Astoria. Therefore, the Proposed Actions would not result in significant adverse socioeconomic impacts with respect to direct business displacement. The proposed zoning change would map C4-5X and C4-4 zoning

districts, which would continue to permit commercial development. The proposed C4-5X district would allow for a maximum of 4.0 FAR for commercial uses, and the proposed C4-4 district would allow up to 2.0 FAR for commercial uses. As compared to the No-Action condition, the Proposed Actions and associated RWCDS would result in an increase of 17,208 gsf of commercial and 28,988 gsf of community facility space.

V. INDIRECT RESIDENTIAL DISPLACEMENT

As described in the *CEQR Technical Manual*, indirect residential displacement usually results from substantial new development that is markedly different from existing uses and activity in an area, which can lead to increased property values in the area. Increased property values can lead to increased rents in non-regulated rental housing units, which can make it difficult for some existing residents to afford to stay in their homes.

Pursuant to *CEQR Technical Manual* guidance, the indirect residential displacement assessment aims to determine whether the Proposed Actions and associated RWCDS would either introduce a trend or accelerate an existing trend of changing real estate market conditions that may have the potential to displace a vulnerable residential population and substantially change the socioeconomic character of the neighborhood. To quantify the reasonably anticipated effects of the Proposed Actions, the vulnerable population is defined in the *CEQR Technical Manual* to include renters living in privately held units unprotected by rent control, rent stabilization, or other government regulations restricting rents, and whose incomes or poverty status indicate that they may not support substantial rent increases. Residents who are homeowners, or whom are renters living in rent regulated[5] or subsidized housing units would not be vulnerable to rent pressures according to *CEQR Technical Manual* guidance.

This preliminary assessment follows the step-by-step preliminary assessment guidance described in Section 322.1 of the 2014 *CEQR Technical Manual*. As described below and in keeping with *CEQR Technical Manual* guidance, Step 1 of the preliminary assessment was sufficient to determine that the Proposed Actions and associated RWCDS would not result in significant adverse impacts due to indirect residential displacement.

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

The ½-mile study area is in northwest Queens, and is within the largely residential neighborhood of Astoria. As shown in **Figure D-1**, the ½-mile study area generally extends from the East River to 49th Street, between 36th Avenue to 20th Avenue. It is bordered by the adjacent neighborhoods of Long Island City, Sunnyside, and Woodside. Astoria is largely characterized by a mix of older multiunit apartment buildings. Most of the housing stock is low-rise (i.e., four-stories or less), pre-war multiunit buildings, but there are also detached single family and two-family homes, as well as modern luxury condominium developments. Larger multiunit apartment buildings with six- to eight-stories or more generally are clustered near 31st to 21st Streets.

[5] Rent regulated housing includes both rent controlled and rent stabilized apartments that are protected from steep rent increases and offer tenants greater legal protections than those residing in market-rate housing.

Household income characteristics for the study area population are described using the average (or mean) and median household incomes. The median household income represents the mid-point of all household incomes in a study area, and the mean household income is calculated by dividing aggregate income by the total number of households in a study area. The presence of higher income households raises the area's mean income, sometimes substantially higher than the median (or mid-point) of household incomes in a study area.

As shown in **Table D-4**, household incomes in the study area are higher than the larger borough and comparable to the greater city. According to 2014-2018 Five-Year ACS estimates, the mean annual household income of residents living in the study area is approximately $94,282, which is an increase as compared to 2006-2010 when the mean household income was an estimated $76,556 (see **Table D-4**).[6]

TABLE D-4: **Household Income Characteristics in the ½-Mile Study Area, Queens, and New York City[1,2]**

	Median Household Income			Mean Household Income		
	2006-2010 ACS	**2014-2018 ACS**	**Percent Change**	**2006-2010 ACS**	**2014-2018 ACS**	**Percent Change**
½-Mile Study Area	$62,704	$77,447	Increase	$76,556	$94,282	Increase
Queens	$64,416	$65,534	Increase	$81,025	$85,332	5.3%
New York City	$58,109	$60,762	4.6%	$89,899	$97,647	8.6%

Sources: Bureau of the Census, 2014-2018 Five-Year ACS Estimates, as reported on DCP's Population Factfinder (https://popfactfinder.planning.nyc.gov/profile/44098/demographic in July 2020)

Notes: [1] The statistical reliability of the data included in this table has been vetted using DCP's NYC Population FactFinder. For the study area, only the directionality of change over time was statistically reliable and therefore reported for both median and mean household income.

[2] All dollar figures have been adjusted to 2020 dollars.

As shown in **Table D-4**, the mean annual household income of the study area exceeds the mean annual household income in Queens ($85,332) and is less than the annual mean household income in New York City. ($97,647). Trends in the household income indicate that the mean household income is increasing. As shown in **Table D-4**, the average household income in Queens has increased by more than five percent since 2006-2010, and the average annual household income in New York City increased by almost nine percent during the same time.

In terms of median household income, study area households have a higher median household income compared to Queens and New York City (see **Table D-4**). According to 2014-2018 Five Year ACS data, the median household income for the study area is an estimated $77,447,[7] as compared to $65,534 for Queens and $60,762 for New York City households, respectively. Consistent with trends in mean household income, median household income levels have also increased in the study area, borough and greater city. As shown in **Table D-4**, between the 2006-2010 and the 2014-2018 Five Year ACS, the median household income in New York City increased by almost five percent, respectively.

Mean household income levels in all three geographic areas are higher than median household income levels indicating the presence of higher income households in the respective areas. **Table D-5** illustrates the distribution of household incomes within the study area, Queens and in New York City. As shown in **Table D-5**, the household income distribution for the study area is consistent with that of the larger borough. Nearly 38 percent of households in the study area earned $100,000 or more, and approximately

[6] Based on the MOE for the mean household income of the study area according to the 2014-2018 Five-Year ACS (an MOE of $4,297), the average household income could range from $89,985 to $98,579.

[7] Based on the MOE for the median household income of the study area according to the 2014-2018 Five-Year ACS (an MOE of $5,762), the average household income could range from $71,685 to $83,209.

32 percent of households earned less than $50,000. In comparison, nearly 31 percent of Queens' households have annual household incomes that is equal or greater than $100,000 and approximately 39 percent of households earned less than $50,000.

TABLE D-5: Household Income Distribution, 2014-2018[1]

	Total Households	Households Earning Less than $25,000		Households Earning $25,000 to $49,999		Households Earning $50,000 to $99,999		Households Earning $100,000 to $199,999		Households Earning $200,000 or more	
		#	%	#	%	#	%	#	%	#	%
½-Mile Study Area	19,928	3,092	15.5%	3,245	16.3%	6,033	30.3%	6,094	30.6%	1,464	7.3%
Queens	779,234	146,572	18.8%	157,717	20.2%	235,530	30.2%	188,403	24.2%	51,012	6.5%
New York City	3,154,103	772,160	24.5%	590,856	18.7%	807,932	25.6%	662,176	21.0%	320,979	10.2%

Source: Bureau of the Census, 2014-2018 Five-Year ACS Estimates, as reported on DCP's Population Factfinder (https://popfactfinder.planning.nyc.gov/profile/44098/demographic)
Notes: [1] The statistical reliability of the data included in this table has been vetted using DCP's NYC Population FactFinder.

Although ACS estimates do not provide specific rent information according to regulation status or unit size, these data can provide a general picture about the rate at which housing costs are changing in a neighborhood. According to 2014-2018 Five-Year ACS estimates, the median gross rent in the study area was an estimated $1,752 per month in 2014-2018, as compared to $1,503 per month in 2006-2010 (see **Table D-6**). The median gross rent in the study area is higher than the larger borough ($1,520) and the City as whole ($1,396). As shown in **Table D-6**, in terms of existing residential rents and trends, residential rents have increased in the study area, Queens, and the City since 2006-2010. The gap between how much households are earning and how much households are paying for housing is growing in the study area, as household income levels are largely rising at slower rates as compared to rent increases. Households throughout the City are struggling to adjust to higher rents.

TABLE D-6: Median Gross Rent (2006-2010, 204-2018 ACS)[1,2]

	2006-2010	2014-2018	Percent Change
½-mile study area	$1,503	$1,752	16.5%
Queens	$1,364	$1,520	11.5%
New York City	$1,237	$1,396	12.9%

Source: Bureau of the Census, 2006-2010 and 2014-2018 Five-Year ACS Estimates, as reported on DCP's Population Factfinder (https://popfactfinder.planning.nyc.gov/profile/44098/demographic)
Notes: [1] The statistical reliability of the data included in this table has been vetted using DCP's NYC Population FactFinder.
[2] All dollar figures have been adjusted to 2020 dollars.

In 2015, the Furman Center identified Astoria as one of New York City's most rapidly gentrifying neighborhoods with rapid changes in housing cost and affordability.[8] Gentrifying neighborhoods were defined as places that were low-income in 1990 and experienced steep rent increases above the median sub-borough area (SBA) growth between 1990 and 2010 through 2014 where the largest decrease in affordability was seen in the City. According to the 2015 *State of New York City's Neighborhoods,* average rent in Astoria increased by nearly 28 percent between 1990 and 2010 through 2014.

U.S. Census and ACS data do not provide specific rent information according to regulation status or unit size, but instead paint a general picture about the rate at which housing costs are changing in a neighborhood. Current apartment listing are therefore used (below) to provide a fuller understanding of

[8] Furman Center, *The State of New York City's Housing and Neighborhoods*, 2015.

where the market is today. **Table D-7** summarizes online listings for apartments for the study area. The average asking rents presented in the table were calculated based on market-rate rental units available in July 2020, and are generally higher than the data presented in the 2014-2018 Five Year ACS estimates.

TABLE D-7: Average Asking Rents in Astoria in July 2020

	Studio	One-Bedroom	Two-Bedroom	Three-Bedroom
½-Mile Study Area	$1,882	$2,086	$2,399	$3,029

Notes: Median monthly asking rents are based on real estate listings of 138 DUs located within the study area. Of the 138 DUs, nine are studios, 53 are one-bedrooms, 49 are two-bedrooms, and 27 are three bedrooms.
Source: Streeteasy (http://streeteasy.com) accessed in July 2020.

Future Without the Proposed Actions (No-Action Condition)

In absence of the Proposed Actions, it is expected that the Projected Development Sites would not be redeveloped, and the existing conditions would remain. Within the ½-mile study area, numerous background development projects are anticipated to be built by 2028. These projects are anticipated to introduce a considerable amount of residential uses, as well as commercial, retail, and community facility uses, further increasing the density and mixed-use character of the study area. According to data provided by the New York City Department of City Planning, approximately 681 residential units are anticipated to be added to the ½-mile study area by 2028 in the absence of the Proposed Actions.

As indicated in **Table D-4**, there is an existing trend of increasing household incomes in the study area. There is also a concurrent trend of increasing rents (see **Tables D-6 and D-7**). Given the trend toward increased household incomes and increased rents in the study area, maintenance of the mixed-income demographic as it currently exists in the study area would depend in large part on the introduction and preservation of affordable housing.

Future with the Proposed Actions (With-Action Condition)

In the future with the Proposed Actions, proposed rezoning area would be mapped as a MIH Area, which would set mandatory affordable housing requirements pursuant to the MIH program and require a share of new housing be permanently affordable. Under the Proposed Actions, the production of affordable housing would be a condition of any residential development in the proposed rezoning area and is expected to help preserve affordable housing in the area. There would be no expiration to the affordability requirement of housing units created through MIH, making these units a permanent reservoir of affordable housing in the area, a key policy to meet the city's *Housing New York* goal of fostering diverse livable communities.

The amount of affordable housing units produced and resulting range of affordability presented would ultimately depend on the extent to which MIH Option is utilized and selected through the ULURP process. HPD, as a supporting and regulatory agency, would at a later date establish levels of affordability for the proposed development in coordination with the applicants. The affordability requirements would be defined and ensured through regulatory agreements with HPD.

Given that MIH has a variety of possible income tiers for affordable housing, for purposes of conservative CEQR analysis, the socioeconomic analysis assumes that approximately 30 percent of the overall residential floor area at each of the projected development sites would be set aside as "affordable" residential units. Based on this assumption, the Proposed Actions would introduce up to 273 market-rate

housing units (net 267 DUs), and 116 units occupied by families/residents earning an average of 80 percent of AMI.

The levels of affordability would be based on percentages of AMI defined by the U.S. Department of Housing and Urban Development (HUD) for the region (New York, NY HUD Metro Fair Market Area [FMA]); the 2020 income limits by family size for the New York City region are presented in **Table D-8**. These levels will change over time and their future levels cannot conclusively be established at this time.

TABLE D-8: 2020 New York City Area AMI

Family Size	30% of AMI	40% of AMI	50% of AMI	60% of AMI	80% of AMI	100% of AMI	130% of AMI
1	$23,880	$31,840	$39,800	$47,760	$63,680	$79,600	$103,480
2	$27,300	$36,400	$45,500	$54,600	$72,800	$91,000	$118,300
3	$30,720	$40,960	$51,200	$61,440	$81,920	$102,400	$133,120
4	$34,110	$45,480	$56,850	$68,220	$90,960	$113,700	$147,810

Source: NYCHPD, https://www1.nyc.gov/site/hpd/services-and-information/area-median-income.page

To estimate the average household income of residents introduced by the Proposed Actions, the incomes of future residents in both the market-rate and affordable units at the development sites have been projected. Housing is considered affordable if it costs about one-third or less. HUD defines families who pay more than 30 percent of their income for housing as rent-burdened. Assuming the 30 percent threshold is conservative for this analysis as it would result in a higher assumed income for the Proposed Actions' market-rate tenants.

As shown in **Table D-8**, according to HUD, three-person families in the New York City region would be eligible for the affordable housing units in the proposed rezoning if they were earning $81,920 annually, which is 80 percent of AMI.[9] Since the study area's average household size is 2.33 persons per household, it is assumed that the average income of a family living in an affordable unit would be $81,920.

For the market-rate units, research into current market-rate asking rents in the study area (summarized in **Table D-9**) and the assumption that incoming market-rate renters would be spending approximately 30 percent of their household income on rent[10] have been used to estimate the expected income level of future market-rate tenants.

TABLE D-9: Estimated Income for the Proposed Market-Rate Units

Unit Type	Number of Apartments Listed	Average Rent	Estimated Average Monthly Income	Estimated Average Yearly Income
Studio	9	$1,882	$6,270	$75,300
One- Bedroom	53	$2,086	$6,950	$83,500
Two Bedroom	49	$2,399	$8,000	$95,900
Three-Bedroom	27	$3.029	$10,000	$121,200
	Average	$2,370	$7,890	$94,700

Notes:
[1] Represents the number of apartments listed and the average monthly rent based on July 2020 market listings in the ½-mile study area.
[2] Average household incomes were imputed using HUD's 30 percent guideline and were rounded to nearest hundredth.

[9] https://www1.nyc.gov/site/hpd/services-and-information/area-median-income.page
[10] The Department of Housing and Urban Development (HUD) defines families who pay more than 30 percent of their income for housing as cost burdened.

[3] The proposed market-rate unit's weighted average incomes were calculated assuming a similar mix of unit types as currently exists in the study area based on recent rental listings.
Source: Street Easy, http://streeteasy.com/, accessed in July 2020

Assuming that the incoming market-rate renters would be spending approximately 30 percent of their income on rent, a person renting a market-rate unit as a result of the Proposed Actions is expected to have an income between approximately $75,300 and $121,200, depending on the unit type (see **Table D-9**). Assuming that the mix of unit types would be similar to the current distribution within the study area, a household renting a market-rate unit that would be available as a result of the Proposed Actions would have a weighted average income of approximately $94,700.

As noted above, the Proposed Actions and associated RWCDS would result in 389 DUs (net increment of 367 DUs), of which it is assumed that roughly 97 would be affordable to families making 60 percent of AMI, and 292 would be market rate. For conservative socioeconomic analysis purposes, it is assumed that Option 2 would be selected for the MIHA which would require that 30% of the residential floor area be affordable to families making 80 percent of AMI. This would result in 116 DUs be affordable to families making 80 percent of AMI. The average income of a household in an affordable unit would be $81,920 annually, and the average income of a household in a market-rate unit would be $94,700, which is roughly equivalent to the study area's current mean household income of $94,282 (see **Table D-9** above). In the aggregate, the weighted average household income of the project-generated population would be approximately $91,900, which is slightly less than the study area's current mean household income by approximately $2,900. The projected incomes are also anticipated to be consistent with that of the future study area population.

Based on the *Step 1 Analysis*, the Proposed Actions' generated population would be expected to have incomes that are similar or lower than the existing and future study area populations. The Proposed Actions are not expected to introduce a new concentration of higher-income housing that could substantially alter rental market conditions in the study area. According to *CEQR Technical Manual* guidance, Steps 2 and 3 of the indirect residential displacement analysis are not warranted. Therefore, based on *CEQR Technical Manual* guidance, the Proposed Actions are not expected to result in significant adverse impacts due to indirect residential displacement.

I. INTRODUCTION

The *City Environmental Quality Review* (CEQR) *Technical Manual* defines community facilities as public or publicly-funded facilities including schools, libraries, day care centers, health care facilities, and fire and police protection services. This attachment examines the potential effects of the Proposed Actions by 2028 on the capacity and provision of services by those community facilities.

A project can affect community facility services when it physically displaces or alters a community facility (direct effect) or causes a change in population that may affect the services delivered by a community facility (indirect effect), which could happen if a facility is already over utilized, or if a project is large enough to create a demand that could not be met by the existing facility/facilities. The CEQR analysis examines potential impacts on existing facilities and generally focuses in detail on those services that the City is obligated to provide to any member of the community. This analysis is not a needs assessment for new or additional services. Service providers like schools or libraries conduct their own needs assessments on a continuing basis.

As described in **Attachment A, "Project Description,"** compared to the No-Action condition, the Proposed Actions would result in the incremental development of 367 dwelling units (DUs). No community facilities are located on the Projected Development Sites under existing conditions. Accordingly, as there would be no direct effects to existing community facilities resulting from the Proposed Actions, this analysis concentrates on the potential for indirect effects.

The analysis of community facilities has been conducted in accordance with the guidelines established in the *CEQR Technical Manual*. The demand for community services generally stems from the introduction of new residents to an area. In general, size, income characteristics, and the age distribution of a new population are factors that could affect the delivery of services. The *CEQR Technical Manual* provides guidelines or thresholds that can be used to make an initial determination of whether a detailed study is necessary to determine potential impacts.

As discussed in **Attachment B, "Supplemental Screening,"** the With-Action scenario exceeds the *CEQR Technical Manual* analysis thresholds in the area of public elementary and intermediate schools. Therefore, a detailed analysis of this community facility is provided below. The population anticipated to be introduced as a result of the Proposed Actions would not exceed the *CEQR Technical Manual* thresholds requiring detailed analysis of other community facilities, including high schools, child care facilities, libraries, health care facilities, and fire and police protection services.

II. PRINCIPAL CONCLUSIONS

The Proposed Actions would not result in significant adverse impacts on community facilities. The 367 net DUs generated under the With-Action scenario are expected to generate 40 elementary school students and 15 intermediate school students in Sub-district 4 of Community School District (CSD) 30. Elementary schools in CSD 30, Sub-district 4 would operate over capacity in the future with the Proposed Actions (231 percent utilization rate), as under No-Action conditions. As the Proposed Actions would generate 40 elementary school students and would result in an increase of only 1.33 percentage points over the No-Action condition, no significant adverse impacts on elementary schools would result, per the criteria of the *CEQR Technical Manual*. Additionally, intermediate schools in CSD 30, Sub-district 4 would operate over capacity in the future with the Proposed Actions (246 percent utilization rate), as under No-Action conditions. As the Proposed Actions would generate 15 intermediate school students and would result in an increase of only 0.93 percentage points over the No-Action condition, no significant adverse impacts to intermediate schools would occur, per the criteria of the *CEQR Technical Manual*.

III. INDIRECT EFFECTS ON PUBLIC SCHOOLS

Methodology

According to the guidelines presented in the *CEQR Technical Manual*, a schools analysis focuses on potential impacts on public schools operated by the New York City Department of Education (DOE). Therefore, private and parochial schools within the study area are not included in the analysis of schools presented in this attachment.

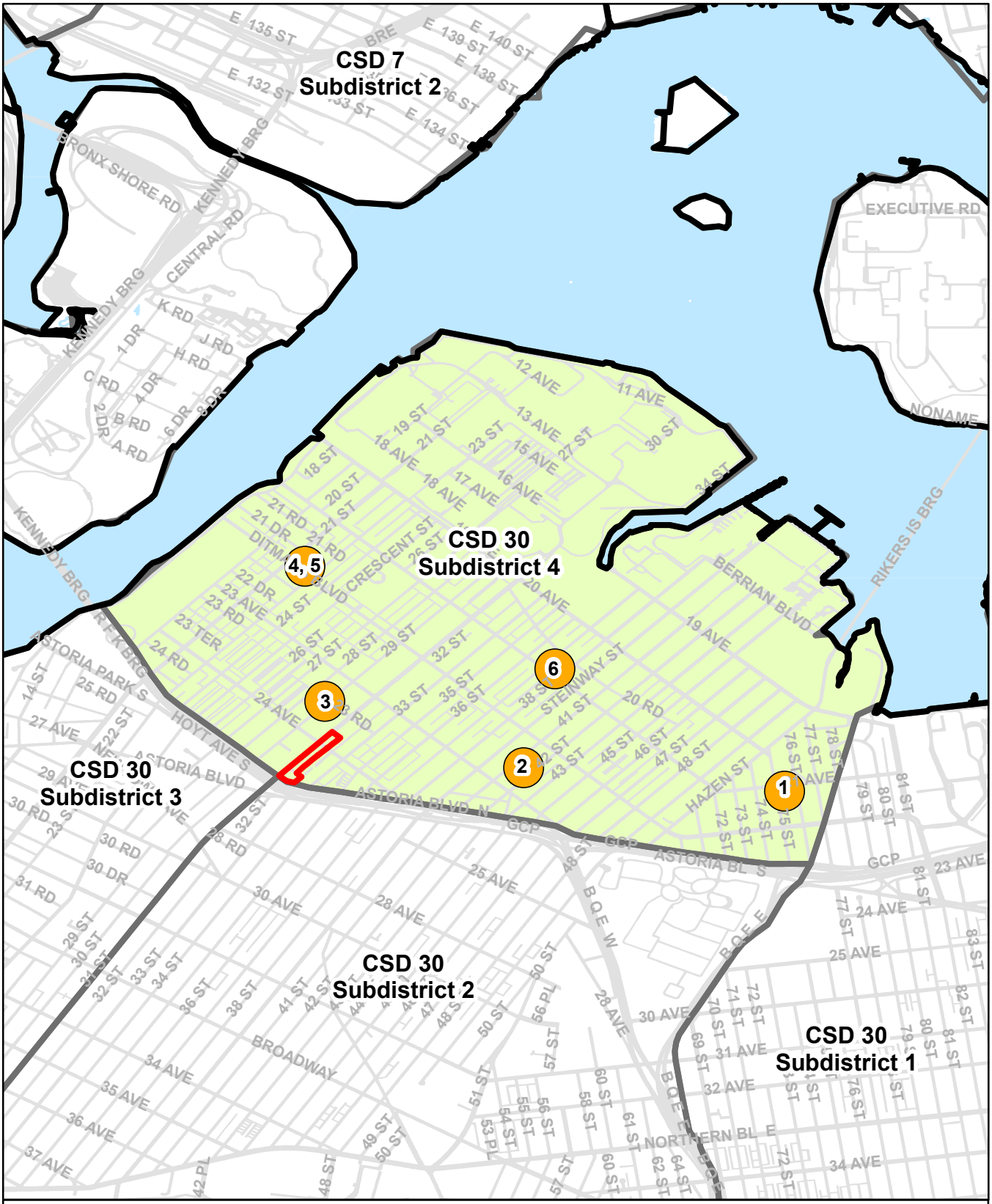
Based on the CEQR multipliers, the Proposed Actions would result in the incremental development of 367 DUs which would generate approximately 40 elementary school students and 15 intermediate school student, which exceeds the threshold of 50 students for a detailed analysis.

Pursuant to *CEQR Technical Manual* guidelines, this analysis assesses the potential effects of the proposed project on elementary and intermediate schools located within the study area, defined as Sub-district 4 of Community School District (CSD) 30 (see **Figure E-1**). Children residing in the Project Area would most likely attend the elementary and intermediate schools in this study area. The following schools analysis presents the most recent capacity, enrollment, and utilization rates for elementary and intermediate schools in the study area.

A schools analysis presents the most recent capacity, enrollment, and utilization rates for elementary, intermediate, and high schools in the respective study areas. Future conditions for the No-Action Condition are forecast based on enrollment projections and proposed development projects.[1] The future utilization rate for school facilities is calculated by adding the estimated enrollment from proposed residential developments in the school's study area to DOE's projected enrollment, and comparing that number with projected school capacity. In addition, any new school projects identified in the DOE 2020-2024 Five-Year Capital Plan (and/or subsequent amendments) are included if construction has begun. According to the *CEQR Technical Manual*, some schools may be included in the analysis if they are in the

[1] School Construction Authority, "Projected New Housing Starts for the 2020-2024 Capital Plan."

Figure E-1
Study Area Schools



DOE Five-Year Capital Plan but are not yet under construction if the lead agency, in consultation with the SCA, concurs that it is appropriate.

To determine With-Action school utilization rates, the net elementary and intermediate school population anticipated to be generated by the Proposed Actions was added to CSD 30, Sub-district 4. The effect of the new students on the capacity of schools within the respective study areas was then evaluated. According to the *CEQR Technical Manual*, a significant adverse impact may occur if a proposed action would result in (i) 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 (ii) an increase of 5 percentage points or more in the collective utilization rate between the No-Action and With-Action conditions.

Existing Conditions

Elementary Schools

As described above, elementary schools in New York City are located in geographically defined school districts. As shown in **Figure E-1**, the Project Area is located within the boundaries of CSD 30, Sub-district 4. Analyzed schools located in CSD 30, Sub-district 4 serving elementary students can generally be defined by one of two categories: elementary or K-8 schools. Public elementary schools (P.S.) serve pre-kindergarten or kindergarten through 5th grades and K-8 schools serve pre-kindergarten or kindergarten through 8th grades. For analysis purposes, the elementary and the P.S. component of K-8 schools have been combined.

As shown in **Figure E-1** and **Table E-1**, there are four public schools located within Sub-district 4 of CSD 30 that serve elementary students, including one elementary schools serving both elementary and intermediate levels.

Table E-1 provides the existing capacity, enrollment, and utilization figures for elementary schools within Sub-district 4 of CSD 30 during the 2018-2019 academic year. As shown in **Table E-1**, the four schools within CSD 30, Sub-district 4 that serve elementary levels had a target capacity of 2,344 seats and enrollment of 2,536 students, for a utilization of approximately 108 percent and a shortfall of 192 seats.

Intermediate Schools

Analyzed schools located in CSD 30, Sub-district 4 serving intermediate students can generally be defined by one of three categories: intermediate, secondary, and K-8 schools. Intermediate schools (IS) serve 6th through 8th grades; secondary schools serve 6th through 12th grades; and K-8 schools serve pre-kindergarten or kindergarten through 8th grades. For analysis purposes, the intermediate and IS components of K-8 schools and secondary schools have been combined.

Table E-1 shows the existing capacity, enrollment, and utilization figures for intermediate schools within CSD 30, Sub-district 4. As shown in **Table E-1**, in the 2018-2019 academic year there were two public schools within the study area that served intermediate students, including one school serving both elementary and intermediate levels.

Table E-1: 2018-2019 Public Elementary and Intermediate School Enrollment, Capacity, and Utilization in CSD 30, Sub-district 4

Map No.[1]	Name	Address	Enrollment	Target Capacity	Available Seats	Utilization (%)
Elementary Schools						
1	**P.S. 002 Alfred Zimberg**	75-10 21st Avenue	564	505	-59	112
2	**P.S. 084 Steinway**	22-45 41st Street	285	412	127	69
3	**P.S. 085 Judge Charles Vallone**	23-70 31st Street	464	475	11	98
4	**P.S. 122 Mamie Fay**	21-21 Ditmars Blvd.	1,051	952	-99	110
Total Elementary Schools in Sub-district 4 of CSD 30			**2,536**	**2,344**	**-192**	**108**
Intermediate Schools						
5	**P.S. 122 Mamie Fay**	21-21 Ditmars Blvd.	316	286	-30	111
6	**I.S. 141 The Steinway**	37-11 21st Avenue	1,180	1,323	143	89
Total Intermediate Schools in Sub-district 4 of CSD 30			**1,496**	**1,609**	**113**	**93**

Notes:
[1] Map numbers correspond to **Figure E-1**.
Source: New York City Department of Education, Enrollment-Capacity-Utilization Report, 2018-2019 School Year.

As shown in **Table E-1**, CSD 30, Sub-district 4 had a target capacity of 1,609 intermediate school seats in the 2018-2019 academic year and an enrollment of 1,496 students, for a total utilization of approximately 93 percent and 113 available seats.

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

In the 2028 future without the Proposed Actions, future utilization of public elementary and intermediate schools serving the study area would be affected by changes in enrollment mainly due to: (1) aging of the existing student body and new arrivals born in the area or moving to it; and (2) changes in capacity, or number of available seats, in the schools as a result of planned construction of new schools or building additions.

Capacity Changes

As outlined in the *CEQR Technical Manual*, No-Action school capacity changes considered in a community facilities analysis include information on proposed and adopted "Significant Changes in School Utilization" and the DOE's Five Year Capital Plan.

As discussed in the DOE's Five Year Capital Plan, the capacity at P.S. 2 would increase to 685 elementary school seats from the existing 505 seats by 2028 in the future without the Proposed Actions. In addition, an annex to P.S. 85 would be constructed by 2028 that would add an additional 476 elementary school seats to the study area. Therefore, there would be an additional 656 elementary school seats added to the study area by 2028. No other elementary school or intermediate school capacity changes are anticipated within CSD 30, Sub-district 4 by 2028 in the future without the Proposed Actions.

Enrollment Changes

Estimates of future enrollment are derived from the latest available DOE enrollment projection data for CSD 30, Sub-district 4 for 2028 (Projected 2019-2028). In the 2028 future without the Proposed Actions, DOE projections show that demand for public elementary schools in CSD 30, Sub-district 4 is expected to increase by approximately 22 percent (to 13,451) and intermediate enrollment is forecasted to decrease by approximately 14 percent (to 6,385). The enrollment projections focus on natural growth of the City's student population and other population increases and do not account for new residential developments planned for the area (i.e., No-Action projects).

New residential development is also planned in the study area by the analysis year of 2028. Using numbers derived from the DOE's Projected New Housing Starts for Sub-district 4 of CSD 30, approximately 34 new elementary school students and 12 new intermediate school students are expected to be added to the study area by the 2028 analysis year. As such, 2028 projected elementary and intermediate school enrollment in the future without the Proposed Action would increase to 6,875 and 3,940, respectively.

Elementary Schools

As discussed above, in the 2028 future without the Proposed Actions, CSD 30, Sub-district 4 elementary school enrollment is expected to increase to 6,785. Based on these changes, elementary schools in Sub-district 4 of CSD 30 are expected to remain operating above capacity (approximately 229 percent utilization), with a shortfall of 3,875 seats (see **Table E-2**).

Table E-2: 2028 No-Action Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization in CSD 28, Sub-district 2

	2028 Projected Enrollment[1]	Students Generated from Development in No-Action[2]	Total Projected Enrollment in No-Action	Projected Capacity	Seats Available	Utilization (%)
Elementary Schools	6,841	34	6,875	3,000	-3,875	229
Intermediate Schools	3,928	12	3,940	1,609	-2,331	245

Notes:

[1] DOE Enrollment Projections (Projected 2019-2028).

[2] DOE Projected New Housing Starts (2018-2027)

Intermediate Schools

As shown in **Table E-2**, with no changes to CSD 30, Sub-district 4 intermediate school capacity anticipated in the 2028 future without the Proposed Actions and intermediate school enrollment expected to increase to 3,928, the utilization rate for intermediate schools in CSD 30, Sub-district 4 is expected to increase to approximately 245 percent, with a shortfall of 2,331 seats.

The Future with the Proposed Actions (With-Action Conditions)

As described in **Attachment A, "Project Description,"** the Proposed Actions would facilitate the construction of approximately 367 DUs (net) by 2028. Based on *CEQR Technical Manual* student

generation rates, the estimated school age population generated by approximately 367 residential units would include 40 elementary school students and 15 intermediate school students.

Elementary Schools

In the future with the Proposed Actions, elementary schools in Sub-district 4 of CSD 30 would continue to operate above capacity as under No-Action conditions. As shown in **Table E-3**, the addition of 40 elementary school students generated by the Proposed Actions would increase the utilization by approximately 1.33 percentage points to 231 percent. The Proposed Actions would somewhat exacerbate the projected 2028 overcrowded conditions in elementary schools in Sub-district 4 of CSD 30. However, the *CEQR Technical Manual* states that if the impact assessment finds that if a proposed action would cause an increase in utilization of less than five percent in a sub-district, no significant impact would occur. As the Proposed Actions would generate 40 elementary school students and would result in an increase of only 1.33 percentage points over the No-Action condition, no significant adverse impacts on elementary schools would result, per the criteria of the *CEQR Technical Manual*.

Table E-3: 2028 With-Action Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization for CSD 30, Sub-district 4

	2028 No-Action Total Projected Enrollment	New Students Generated by Proposed Actions	Total Future With-Action Projected Enrollment	Projected Capacity	Seats Available	Utilization (%)	Increase in Utilization (%) from No-Action condition
Elementary Schools	6,875	40	6,915	3,000	-3,915	231	+1.33
Intermediate Schools	3,940	15	3,955	1,609	-2,346	246	+0.93

Intermediate Schools

As shown in **Table E-3**, the addition of 15 intermediate school students to CSD 30, Sub-district 4 would increase intermediate school enrollment to 3,955 in the With-Action condition. As under No-Action conditions, CSD 30, Sub-district 4 intermediate schools would operate above capacity, with the Proposed Action expected to increase the study area intermediate school utilization by 0.93 percentage points to 246 percent. There would be a shortfall of 2,346 seats in the future with the Proposed Actions.

As the *CEQR Technical Manual* states that if the impact assessment finds that if a Proposed Actions would cause an increase in utilization of less than five percent in a sub-district, no significant impact would occur. As the Proposed Actions would generate 15 intermediate school students and would result in an increase of only 0.93 percentage points over the No-Action condition, no significant adverse impacts to intermediate schools would occur, per the criteria of the *CEQR Technical Manual*.

I. INTRODUCTION

An open space assessment may be necessary if a proposed action could potentially have a direct or indirect effect on open space resources in the project area. A direct effect would "physically change, diminish, or eliminate an open space or reduce its utilization or aesthetic value." An indirect effect may occur when the population generated by a proposed development would be sufficient to noticeably diminish the ability of an area's open space to serve the existing or future population. According to the guidance established in the *City Environmental Quality Review* (CEQR) *Technical Manual,* a project that would add fewer than 200 residents or 500 employees, or a similar number of other users, is typically not considered to have indirect effects on open space.

Although the Proposed Actions would not have a direct effect on existing open space resources in the Project Area, development resulting from the Proposed Actions is expected to result in an incremental increase of up to 367 dwelling units over the 2028 No-Action condition. This would result in an increase of 855 residents[1], which exceeds the *CEQR Technical Manual* threshold for a detailed open space analysis. A quantitative assessment was conducted to determine whether the Proposed Actions would significantly reduce the amount of open space available for the area's residential population. While, the RWCDS is also expected to introduce a net increment of 134 employees to the Project Area, based on standard planning assumptions, this is below the *CEQR Technical Manual* threshold for analysis based on employee numbers. Therefore, the analysis of indirect open space impacts focuses exclusively on the open space needs of the area residential population.

II. PRINCIPAL CONCLUSIONS

The Proposed Actions would not result in significant adverse open space impacts. While the residential open space study area would continue to have a shortfall of open space in the future with the Proposed Actions, the demand for open space generated by the RWCDS would not significantly exacerbate the No-Action deficiency, and the population added as a result of the Proposed Actions are not expected to noticeably affect utilization of the area's open spaces. Most of the study area open space resources are only moderately utilized and are in good condition, and could therefore handle additional demand. Therefore, while the Proposed Actions would result in a decrease of approximately 1.8 percent in open space ratios in the future, given the level of decrease anticipated, the existing moderate utilization of many of the study area's open spaces, and the availability of additional open spaces conservatively not included in the quantitative analysis, the Proposed Actions would not result in a significant adverse impact on open space. In addition, the Proposed Actions would not have a direct effect on any study area open spaces due to construction or operation.

[1] Based on the average household size of 2.33 persons per dwelling unit in Queens CD1.

III. METHODOLOGY

The analysis of open space resources has been conducted in accordance with the guidance established in the *CEQR Technical Manual*. Using CEQR methodology, the adequacy of open space in the study area is assessed quantitatively using a ratio of usable open space acreage to the study area population, referred to as the open space ratio. This quantitative measure is then used to assess the changes in the adequacy of open space resources in the future, both without and with the Proposed Actions. In addition, qualitative factors are considered in making an assessment of the Proposed Actions' effects on open space resources.

In accordance with the guidance established in the *CEQR Technical Manual,* the open space study area is generally defined by a reasonable walking distance that users would travel to reach local open space and recreational resources. That distance is typically a half-mile radius for residential projects and a quarter-mile radius for commercial projects with a worker population. Because the worker population generated by the Proposed Actions falls well below the threshold of 500 additional employees, a half-mile radius is the appropriate study area boundary.

Open Space Study Area

Pursuant to *CEQR Technical Manual* guidance, the residential open space study area includes all census tracts that have at least 50 percent of their area located within a half mile of the project site and all open spaces within it that are publicly accessible. As described above, residents typically walk up to a half mile for recreational spaces.

There are four Projected Development Sites within the Project Area. As shown in **Figure F-1**, the ½-mile open space study area includes the following census tracts in their entirety: census tracts 63, 65.01, 65.02, 69, 71, 95, 97, 101, 113, 115, 117, 119, 125, and 143. The open space study area extends approximately to 21st Avenue and Ditmars Boulevard to the north; to 38th, 44th, 45th, and Steinway Streets to the east; to 28th, 30th, and 31st Avenues to the south; and to 21st and 19th Streets to the west. As shown in **Figure F-1**, the Project Area is located within Census Tract 125.

Analysis Framework

Direct Effects Analysis

According to the *CEQR Technical Manual*, a proposed action would have a direct effect on an open space if it causes the physical loss of public open space because of encroachment onto the space or displacement of the space; changes the use of an open space so that it no longer serves the same user population; limits public access to an open space; or causes increased noise or air pollutant emissions, odors, or shadows that would affect its usefulness, whether on a permanent or temporary basis. As (1) there are no publicly-accessible open space resources within the Project Area, and (2) the Proposed Actions would not result in significant adverse shadow, air quality, noise, or construction impacts on area open space resources, the Proposed Actions would not have any direct effects on open space resources and no further analysis is warranted.

Indirect Effects Analysis

Indirect effects occur to an area's open spaces when a proposed action would add enough population, either workers or residents, to noticeably diminish the ability of an area's open space to serve the existing or future population. The *CEQR Technical Manual* methodology suggests conducting an initial

quantitative assessment to determine whether more detailed analyses are appropriate, but also recognizes that for projects that introduce a large population in an area that is underserved by open space, it may be clear that a full detailed analysis should be conducted. The study area is not located within an underserved or well-served area as determined by the *CEQR Technical Manual*.

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

- Characteristics of the residential users. To determine the number of residents in the study area, 2014-2018 American Community Survey (ACS) data have been compiled for census tracts comprising the open space study area.
- An inventory of all publicly accessible passive and active recreational facilities in the open space study area.
- An assessment of the quantitative ratio of open space in the study area by computing the ratio of open space acreage to the population in the study area and comparing this open space ratio with certain guidance.
    - As a planning goal, a ratio of 2.5 acres per 1,000 residents represents an area well-served by open spaces and is consequently used by the City as an optimal benchmark for residential populations in large-scale plans and proposals. Ideally, this would be comprised of a balance of 80 percent active open space (2.0 acres per 1,000 residents) and 20 percent passive open space (0.5 acres per 1,000 residents).
    - Local open space ratios vary widely, and the median ratio at the citywide community district level is 1.5 acres of open space per 1,000 residents.
- An evaluation of qualitative factors affecting open space use.
- A final determination of the adequacy of open space in the residential open space study area.

Impact Assessment

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

The quantitative assessment considers how a project would change the open space ratios in the study area. The *CEQR Technical Manual* indicates that a significant adverse impact may result if a project would reduce the open space ratio by more than five percent in areas that are currently below the City's median community district open space ratio of 1.5 acres per 1,000 residents, or where there would be a direct displacement or alteration of existing open space within the study area that has a significant adverse effect on existing users. In areas that are underserved by open space (as identified in the *CEQR Technical Manual*), a reduction as small as one percent may be considered significant, depending on the area of the City. Furthermore, in areas that are well-served by open space, a greater change in the open space ratio may be tolerated. As noted above, the project site is not located in an area that is either underserved or well-served by open space, as identified in the *CEQR Technical Manual*.

The qualitative assessment supplements the quantitative assessment and considers nearby destination resources, the connectivity of open space, the effects of new open space provided by the project, a comparison of projected open space ratios with established City guidance, and open spaces created by the proposed project not available to the general public. It is recognized that the City's planning goals are not feasible for many areas of the City, and they are not considered impact thresholds on their own. Rather, these are benchmarks indicating how well an area is served by open space.

IV. PRELIMINARY ASSESSMENT

According to the *CEQR Technical Manual*, an initial quantitative open space assessment may be useful to determine if a detailed open space analysis is necessary, or whether the open space assessment can be targeted to a particular user group. This initial assessment calculates an open space ratio by relating the existing residential and nonresidential populations to the total open space in the study area. It then compares that ratio with the open space ratio in the future with the proposed actions. If there is a decrease in the open space ratio that would approach or exceed five percent, or if the study area exhibits a low open space ratio from the onset (indicating a shortfall of open spaces), a detailed analysis is warranted. The detailed analysis examines passive and active open space resources available to both residents and nonresidents (e.g., daily workers and visitors) within study areas delineated in accordance with the *CEQR Technical Manual*.

Pursuant to the guidance of the *CEQR Technical Manual*, a preliminary open space assessment was conducted. As the study area exhibits a low open space ratio (i.e., below the Citywide Community District median of 1.5 acres per 1,000 residents and the City's optimal planning goal of 2.5 acres per 1,000 residents) under existing and future conditions, a detailed open space analysis is warranted and is provided below.

V. DETAILED ANALYSIS

Existing Conditions

Demographic Characteristics of the Study Area

To determine the residential population served by existing open space resources, 2014-2018 ACS data were compiled for the census tracts comprising the ½-mile study area. With an inventory of available open space resources and the number of potential users, open space ratios were calculated and compared with the existing citywide median ratio and the City's planning goals. As mentioned above and shown in **Figure F-1**, the open space study area is comprised of thirteen census tracts. As shown in **Table F-1** below, 2014-2018 ACS indicate that the study area has a total residential population of approximately 45,489.

Within a given area, the age distribution of a population affects the way open spaces are used and the need for various types of recreational facilities. Typically, children four years old or younger use traditional playgrounds that have play equipment for toddlers and preschool children. Children ages five through nine typically use traditional playgrounds, as well as grassy and hard-surfaced open spaces, which are important for activities such as ball playing, running, and skipping rope. Children ages ten through 14 use playground equipment, court spaces, little league fields, and ball fields. Teenagers' and young adults' needs tend toward court game facilities such as basketball and field sports. Adults between the ages of 20 and 64 continue to use court game facilities and fields for sports,

as well as more individualized recreation such as rollerblading, biking, and jogging, requiring bike paths, promenades, and vehicle-free roadways. Adults also gather with families for picnicking, ad hoc active sports such as Frisbee®, and recreational activities in which all ages can participate. Senior citizens engage in active recreation such as tennis, gardening, and swimming, as well as recreational activities that require passive facilities.

Therefore, the residential population of the study area was also broken down by age group. As shown in **Table F-1**, people between the ages of 20 and 64 make up the majority (approximately 76 percent) of the residential population. Children and teenagers (0 to 19 years old) account for approximately 12.5 percent of the entire residential population, and persons 65 years and over account for approximately 11.5 percent of the residential study area population. Compared to Queens and New York City as a whole, the study area residential population includes a larger percentage of people between the ages of 20 and 64, and a smaller percentage of children/teenagers and persons 65 years and over.

The median population age for individual census tracts within the residential study area ranges from a high of 38.7 years (census tract 125) to a low of 30.8 years (census tract 63).

Table F-1: Residential Population and Age Distribution in the ½-Mile Study Area

Census Tracts	Residential Population												
	Total Population	Age Distribution											Median Age
		Under 5		5 - 9		10 - 14		15 - 19		20 - 64		65+	
		#	%	#	%	#	%	#	%	#	%	#	%	
63	5,185	286	5.52%	116	2.24%	55	1.06%	77	1.49%	4184	80.69%	467	9.01%	**30.8**
65.01	3,422	159	4.65%	19	0.56%	47	1.37%	117	3.42%	2810	82.12%	270	7.89%	**32.4**
65.02	3,587	97	2.70%	65	1.81%	99	2.76%	145	4.04%	2871	80.04%	310	8.64%	**32.6**
69	3,627	177	4.88%	149	4.11%	41	1.13%	106	2.92%	2464	67.93%	690	19.02%	**36**
71	3,288	71	2.16%	25	0.76%	57	1.73%	51	1.55%	2641	80.32%	443	13.47%	**33.4**
95	2,386	147	6.16%	191	8.01%	78	3.27%	62	2.60%	1579	66.18%	329	13.79%	**33.9**
97	3,718	359	9.66%	172	4.63%	78	2.10%	15	0.40%	2734	73.53%	360	9.68%	**33.2**
101	2,461	126	5.12%	123	5.00%	49	1.99%	83	3.37%	1773	72.04%	307	12.47%	**34.9**
113	4,453	150	3.37%	219	4.92%	134	3.01%	126	2.83%	3345	75.12%	479	10.76%	**34.8**
115	2,513	143	5.69%	42	1.67%	48	1.91%	46	1.83%	1901	75.65%	333	13.25%	**33.7**
117	3,774	188	4.98%	76	2.01%	97	2.57%	94	2.49%	2876	76.21%	443	11.74%	**33.6**
119	1,428	41	2.87%	33	2.31%	41	2.87%	26	1.82%	1115	78.08%	172	12.04%	**34.3**
125	1,777	77	4.33%	22	1.24%	44	2.48%	73	4.11%	1392	78.33%	169	9.51%	**38.7**
143	3,870	88	2.27%	146	3.77%	130	3.36%	173	4.47%	2968	76.69%	365	9.43%	**34.6**
Total	**45,489**	**2,109**	**4.64%**	**1,398**	**3.07%**	**998**	**2.19%**	**1,194**	**2.62%**	**34,653**	**76.18%**	**5,137**	**11.29%**	

Source: 2014-2018 American Community Survey (ACS) 5-Year Sample

Based on this data, the peak hours of open space demand would be expected to be concentrated during weekends and the early morning and late afternoon to evening hours during the week, as it could be assumed that most residents aged 20 to 64 would work or attend school on weekdays.

Inventory of Publicly Accessible Open Space

According to the *CEQR Technical Manual*, open space may be public or private and may be used for active or passive recreational purposes. Pursuant to the *CEQR Technical Manual*, public open space is defined as facilities open to the public at designated hours on a regular basis and is assessed for impacts under CEQR guidance, whereas private open space is not accessible to the general public on a regular basis, and is therefore only considered qualitatively. Field surveys and secondary sources were used to determine the number, availability, and condition of publicly accessible open space resources in the study area.

An open space is determined to be active or passive by the uses that the design of the space allows. Active open space is the part of a facility used for active play such as sports or exercise and may include playground equipment, playing fields and courts, swimming pools, skating rinks, golf courses, and multi-purpose play areas (open lawns and paved areas for active recreation such as running games, informal ball-playing, skipping rope, etc.). Passive open space is used for sitting, strolling, and relaxation, and typically contains benches, walkways, and picnicking areas.

Within the defined study area, all publicly accessible open spaces were inventoried and identified by their location, size, owner, type, utilization, equipment, hours, and condition. The information used for this analysis was gathered through field inventories conducted in July 2020[2], New York City Department of Parks and Recreation's (DPR's) website, and other secondary sources of information.

The condition of each open space facility was categorized as "Excellent," "Good," "Fair," or "Poor." A facility was considered in excellent condition if the area was clean and attractive and if all equipment was present and in good repair. A good facility had minor problems such as litter or older but operative equipment. A fair or poor facility was one that was poorly maintained, had broken or missing equipment or lack of security, or other factors that would diminish the facility's attractiveness. Determinations were made subjectively, based on a visual assessment of the facilities.

Likewise, judgments as to the intensity of use of the facilities were qualitative, based on an observed degree of activity or utilization on a weekday afternoon, which is considered the weekday peak utilization period according to the *CEQR Technical Manual*. If a facility seemed to be at or near capacity (i.e. the majority of benches or equipment was in use), then utilization was considered heavy. If the facility or equipment was in use but could accommodate additional users, utilization was considered moderate. If a playground or sitting area had few people, usage was considered light. **Table F-2**, "Inventory of Existing Open Space and Recreational Facilities in Study Area," identifies the address, ownership, hours, and acreage of active and passive open spaces in the study area, as well as their condition and utilization. **Figure F-2** maps their location in the study area.

In addition to the open space resources included in the quantitative analysis pursuant to *CEQR Technical Manual* methodology, four resources (denoted by the letters A, B, C, and D in **Table F-2** and **Figure F-2**) fall within the study area but are excluded from the quantitative analysis due to restricted accessibility at this time.

[2] It should be noted that the field inventories were collected during the COVID-19 health crisis and may not reflect typical utilization conditions.

Open Space Resources

As shown in **Table F-2**, 7.615 acres of open space are included in the quantitative analysis, of which approximately 5.72 acres (75 percent) are active open space and 1.89 acres (25 percent) are passive open space. Most of the open spaces in the study area are neighborhood playgrounds or seating areas that occupy less than two acres with the largest 2.2 acres. The playgrounds generally feature play equipment, benches, and drinking fountains, and the seating areas typically offer green spaces and benches. There are five primarily active recreational playgrounds within the open space study area: Hoyt Playground, Triborough Bridge Playground B, Athens Square, Ditmars Playground, and Triborough Playground C which, combined, constitute the majority of the open space available for recreation in the study area.

The Hoyt Playground encompasses 2.2 acres of active recreational uses and is bounded by 29th Street to the west, Hoyt Avenue North to the south, and 31st Street to the east. It is located directly across the street from Projected Development Sites 1 and 2 along 31st Street. This playground honors Edwin Hoyt, a prominent dry-goods businessman who lived and worked in Astoria in the 1800s. On the day of his death in 1874, all dry-goods businesses kept their doors closed out of respect. Hoyt Playground features a playground, handball and basketball courts, spray showers, and seating areas.

Triborough Bridge Playground B encompasses 1.29 acres with both active and passive recreational uses, and is generally bounded by Hoyt Avenue North to the north, 21st Street to the west, Hoyt Avenue South to the south, and 23rd Street to the east. The park sits entirely underneath the Triborough Bridge for which the park is named. It is roughly 0.4 miles away by walking from the Proposed Rezoning Area. The Triborough Bridge (officially the Robert F. Kennedy Bridge) connects the boroughs of Queens, Manhattan, and the Bronx. The bridge was completed in 1936, but in May 1937, the New York City Department of Parks and Recreation acquired six lots with the intention of creating parks underneath the bridge. Triborough Bridge Playground B features a playground, basketball courts, spray showers, fitness equipment, seating areas, and bathrooms. In 2018, a $40,000 project to renovate the basketball courts was completed.

Athens Square encompasses 0.93 acres with both active and passive recreational uses, and is generally bounded by 30th Street to the east and 30th Avenue to the south. It is roughly 0.5 miles away by walking from the Proposed Rezoning Area. The park is named for the modern capital of Greece and the center of ancient Greek civilization. The park also pays homage to the significant Greek-American population in Astoria. Renovations in the 1990s were made in effort to evoke feelings of Greece to the park. Statues of ancient Greeks and Doric columns adorn the open-air amphitheater. Athens Square also features a playground, basketball courts, chess tables, seating areas, and bathrooms.

Table F-2: Inventory of Existing Open Space and Recreational Facilities in the Study Area

Map No.[1]	Name	Location	Owner/ Agency	Features	User Groups	Hours of Access	Total Acres	Active Acres	Active %	Passive Acres	Passive %	Condition	Utilization
Open Space Resources included in Quantitative Analysis													
1	Hoyt Playground	Hoyt Ave. North btwn. 29th St. and 31st St.	DPR	Handball Courts, Playground, Basketball Courts, Spray Shower, Seating Areas	Children, Adults, Seniors	6am – 9pm	2.2	2.2	100	0	0	Very Good	Moderate
2	Ditmars Playground	Steinway St. btwn. 23rd Ave. and Ditmars Blvd.	DPR	Handball Courts, Playgrounds, Basketball Courts, Spray Showers, Seating Areas, Bocce Courts, Bathrooms	Children, Adults, Seniors	6am – 9pm	0.92	0.74	80	0.18	20	Very Good	High
3	Athens Square	30th Ave. btwn. 29th St. and 30th St.	DPR	Playgrounds, Basketball Courts, Seating Areas, Bathrooms, Chess Tables	Children, Adults, Seniors	6am – 9pm	0.93	0.65	70	0.28	30	Excellent	High
4	Triborough Bridge Playground C	Hoyt Ave. btwn. 23rd St. and 24th St.	DPR	Basketball Courts, Dog Run	Children, Adults, Seniors	6am – 9pm	0.46	0.46	100	0	0	Very Good	Moderate
5	Triborough Bridge Playground B	Hoyt Ave. btwn. 21st St. and 23rd St.	DPR	Playgrounds, Basketball Courts, Spray Showers, Bathrooms, Fitness Equipment	Children, Adults, Seniors	6am – 9pm	1.29	1.16	90	0.13	10	Very Good	Moderate
6	Sitting Area	Hoyt Ave. btwn. 19th St. and 21st St.	DPR	Seating Areas	Adults, Seniors	24hrs	1.16	0.0	0	1.16	100	Poor	Low
7	Seven Oaks	Astoria Blvd. btwn. 37th St. and 24th Ave.	DOT	Seating Areas	Adults, Seniors	24hrs	0.085	0.0	0	0.085	100	Fair	Low
8	PS 85 Q	29th St. btwn. 23rd Rd. and 24th Ave	DOE	Basketball Courts, Playground, Seating Area, Turf Field	Children, Adults	After school hours, weekends, holidays	0.57	0.51	90	0.06	10	Very Good	Moderate
Total Included in Quantitative Analysis							7.615	5.72	75%	1.89	25%		
Open Space Resources not included in Quantitative Analysis[2]													
A	Chappetto Square	Hoty Ave. btwn. 21st St. and 23rd St.	DPR	Basketball Courts, Seating Areas, Chess Tables	Children, Adults, Seniors	Closed	1.23	1.23	100	0.0	0		
B	Columbus Square	Astoria Blvd., Hoyt Ave. South btwn. 31st St. and 32nd St.	DPR	Seating Areas	Adults, Seniors	Closed	0.1	0.0	0	0.1	100		
C	Triborough Bridge Playground D	Hoyt Ave. btwn. 24th St. and Crescent St.	DPR	Handball Courts	Children, Adults, Seniors	Closed	0.46	0.46	100	0.0	0		
D[3]	Triborough Bridge Playground E	Hoyt Ave. btwn Crescent St. and 26th St.	DPR	-	-	-	-	-	-	-	-		
Total Excluded from Quantitative Analysis							1.79	1.69	94%	0.1	6%		

Source: NYC Zola, DPR, July 2020 field visits. **Notes:** DPR = New York City Department of Parks and Recreation; DOE = New York City Department of Education [1] Refer to **Figure F-2**. [2] These open space resources are currently closed due to construction [3] Triborough Bridge Playground E is currently used by the FDNY EMS Station 49 until a permanent location is acquired; the playground is still owned and operated by DPR

Ditmars Playground encompasses 0.92 acres with both active and passive recreational uses, and is generally bounded by Steinway Street between 23rd Avenue to the south and Ditmars Boulevard to the north. It is roughly 0.6 miles by walking away from the Proposed Rezoning Area. Ditmars Playground is named in honor of Abram Ditmars, first mayor of Long Island City. Mayor Ditmars was elected to two terms and served from 1870-1876 after the villages of Astoria, Ravenswood, Blissville, Bowery Bay, Hunters Point, Dutch Kills, and Steinway consolidated to form Long Island City. Ditmars Playground features a playground, bocce courts, handball courts, spray showers, basketball courts, seating areas, and a bathroom.

Triborough Playground C encompasses 0.46 acres of active recreational uses, and is generally bounded by Hoyt Avenue North to the north, 23rd Street to the west, Hoyt Avenue South to the south, and 24th Street to the east. The park sits entirely underneath the Triborough Bridge for which the park is named. It is roughly 0.4 miles away by walking from the Proposed Rezoning Area. The Triborough Bridge (officially the Robert F. Kennedy Bridge) connects the boroughs of Queens, Manhattan, and the Bronx. The bridge was completed in 1936, but in May 1937, the New York City Department of Parks and Recreation acquired six lots with the intention of creating parks underneath the bridge. Triborough Bridge Playground C features basketball courts and a dog-friendly area. In 2019, a $1 million renovation project on the basketball courts and dog run was completed.

In addition to these five predominantly active open space resources, there are three public playgrounds, plazas, squares, or triangles located within the open space study area, that contain a combined 1.79 acres of open space. These spaces constitute important open space resources for neighborhood residents, as they provide passive and active recreational opportunities for residents as well as the local employee population.

As noted in **Table F-2**, none of the eight open space resources included in the quantitative indirect open space impact assessment are in poor condition. In terms of utilization, all of the study are open space resources exhibit light to moderate utilization.

Three open spaces are currently under construction and are excluded from the analysis due to its limited accessibility to the general public. Chappetto Square encompasses 1.23 acres of active recreational uses, is currently closed due to an on-going renovation project. It is expected to be completed by summer 2020. Columbus Square is currently closed as the Metropolitan Transportation Authority (MTA) completes upgrades to the Astoria Boulevard station along the N/W subway line. Triborough Bridge Playground D is currently closed due to construction. It is expected to be completed by summer 2020. There is also one open space that will remain closed for the foreseeable future. Triborough Bridge Playground E is currently used by the Fire Department of New York Emergency Medical Service (FDNY EMS) Station 49 as a temporary stationhouse until a permanent one can be procured. It is unknown when Triborough Bridge Playground E will reopen for public use.

Existing Open Space Adequacy

The following analysis of the adequacy of existing open space resources within the study area takes into consideration the ratios of active, passive, and total open space resources per 1,000 residents. As an optimal planning goal, the City tries to achieve an overall residential open space ratio of 2.5 acres per 1,000 residents (80 percent [2 acres] active and 20 percent [0.5 acres] passive) for large-scale plans and proposals. Although a typical population mix may call for such a goal, it is often not feasible for many areas of the City (especially higher density areas). Therefore, the City does not consider these ratios as open space policy for every neighborhood. Rather, the ratios serve as benchmarks that represent how well an area is served by open space.

In calculating the open space ratio per 1,000 user population for the study area, all of the resources listed in the "Open Space Resources Included in the Quantitative Analysis" section of **Table F-2** were included; Resources A, B, C, and D were not included in the calculations pursuant to *CEQR Technical Manual* guidance as they have restricted accessibility at this time due to construction. **Table F-3** shows that, with an existing study area residential population of approximately 45,489 people, the existing total open space ratio in the study area is approximately 0.167 acres of open space per 1,000 residents; the study area has 0.126 acres of active open space per 1,000 residents and 0.042 acres of passive open space per 1,000 residents. As indicated in **Table F-3**, the existing total and passive residential open space ratios are below the City's open space planning goals of 2.5 acres per 1,000 residents and the 1.5 acres per 1,000 residents Citywide Community District Median.

Table F-3: Adequacy of Open Space Resource in the Study Area – Existing Conditions

Existing Population	Open Space Acreage			Open Space per 1,000 Residents			City Open Space Planning Goals		
	Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
45,489	7.615	1.894	5.721	0.167	0.042	0.126	2.50	0.50	2.0

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

Project Area

In the absence of the Proposed Actions in 2028, it is expected that the Projected Development sites located within the Project Area would not be redeveloped, and the existing conditions would remain.

Study Area Population

As presented below in **Table F-4**, several new residential developments are currently planned and expected to be completed within the ½-mile open space study area in the future without the Proposed Actions by 2028, which would increase the residential population within the study area. It should be noted that these No-Action developments are located outside of the land use study area discussed in **Attachment C, "Land Use, Zoning, and Public Policy,"** and were, therefore, not included in the land use analysis. The residential components of these No-Action developments have been added to the existing conditions residential population. **Table F-4** shows that these No-Action developments are expected to increase the ½-mile study area population by approximately 923 residents by 2028 to a total of 46,412 residents.

Open Space Resources

As discussed above, there are three open space resources currently under construction anticipated to be completed in the 2028 No-Action condition. Chappetto Square, Columbus Square, and Triborough Bridge Playground D are all expected to reopen. As such, as under existing conditions, open space in the ½-mile open space study area would increase to a total 9.405 acres, comprised of 1.99 (21 percent) acres of passive open space and 7.14 (79 percent) acres of active open space.

Open Space Adequacy

Table F-5, below, presents the No-Action open space ratios for the ½-mile study area, based on the anticipated population and open space resources increases outlined above. As indicated in **Table F-5**, as under existing conditions, the total, passive, and active open space ratios would be less than the City' open space planning goals of 2.5 acres of open space per 1,000 residents (including 0.5 acres of passive open space and two acres of active open space). However, the total open space ratio is expected to increase to 0.203 acres per 1,000 residents in the No-Action condition, with No-Action passive and active open space ratios of 0.043 and 0.160 acres per 1,000 residents, respectively.

Table F-4: 2028 No-Action Study Area Residential Development

No-Action Development	Program	Residents[1]
The Rowan (21-21 31st Street)	Mixed-use development with 46 DUs and 11,834 gsf of commercial space	107
23-11 31st Street	Mixed-use development with 10 DUs and 930 gsf of commercial space	23
23-61 31st Street	Mixed-use development with 10 DUs and 326 gsf of commercial space	23
23-71 31st Street	Mixed-use development with 10 DUs and 935 gsf of commercial space	23
25-79 31st Street	Mixed-use development with 23 DUs and 4,429 gsf of community facility space	54
30-41 31st Street	Mixed-use development with 9 DUs, 600 gsf of commercial space, and 1,160 gsf of community facility space	21
30-67 31st Street	Mixed-use development with 10 DUs and 1,956 gsf of community facility space	23
30-79 31st Street	Mixed-use development with 9 DUs, 796 gsf of commercial space, and 804 gsf of community facility space	21
30-75 32nd Street	Residential development with 7 DUs	16
31-25 Newtown Avenue	Mixed-use development with 20 DUs and 213 gsf of commercial space	47
29-28 Newtown Avenue	Residential development with 9 DUs	21
27-21 27th Street	Residential development with 8 DUs	19
27-15 27th Street	Residential development with 10 DUs	23
25-82 43rd Street	Residential development with 8 DUs	19
25-53 38th Street	Residential development with 21 DUs	49

25-15 36th Street	Residential development with 7 DUs	16
25-40 36th Street	Residential development with 10 DUs	23
25-74 34th Street	Residential development with 17 DUs	40
29-19 Newtown Avenue	Residential development with 44 DUs	103
25-30 22nd Street	Residential development with 3 DUs	7
25-32 22nd Street	Residential development with 3 DUs	7
23-52 38th Street	Residential development with 2 DUs	5
22-19 33rd Street	Residential development with 7 DUs	16
26-24 30th Street	Residential development with 8 DUs	19
25-63 36th Street	Residential development with 7 DUs	16
30-43 31st Street	Mixed-use development with 17 DUs, 3,745 gsf of commercial space, and 2,903 gsf of community facility space	40
22-02 Astoria Boulevard	Mixed-use development with 16 DUs and 940 gsf of commercial space	37
31-85 31st Street	Mixed-use development with 17 DUs, 1,607 gsf of commercial space, and 1,317 gsf of community facility space	40
31-17 28th Avenue	Residential development with 16 DUs	37
27-05 27th Street	Residential development with 10 DUs	23
30-90 Steinway Street	Mixed-use development with 5 DUs and 812 gsf of commercial space	12
25-61 37th Street	Residential development with 7 DUs	16
Total No-Action Study Area Population Increment		*946*
Existing Study Area Residential Population		*45,489*
Total No-Action Study Area Residential Population		***46,434***

Notes:

[1] Residential population for projects within the open space study area based on average household size of census tracts included in the open space study area of 2.33 persons per DU in Queens CD 1.

Sources: New York City Department of Buildings (DOB) Buildings Information System (BIS), YIMBY

Table F-5: Adequacy of Open Space Resource in the Study Area – No-Action Conditions

No-Action Population	Open Space Acreage			Open Space per 1,000 Residents			City Open Space Planning Goals		
	Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
46,434	9.405	1.99	7.41	0.203	0.043	0.160	2.50	0.50	2.0

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

This section describes the open space conditions that would result from the reasonable worst-case development scenario (RWCDS) associated with the Proposed Actions by 2028. It evaluates the potential for the Proposed Actions to result in significant adverse impacts to open space resources directly and indirectly based on a comparison of the No-Action conditions (described above) to the With-Action conditions.

Project Site Population

As described in Attachment A, "Project Description," in the future with the Proposed Actions it is estimated that 367 DUs (net) would be developed within the Project Area. Using the average household size of households in of 2.33 persons per DU in Queens CD 1, the Proposed Actions are expected to introduce a net increase of approximately 855 residents and would therefore increase the study area's population to a total of 47,289 residents in the 2028 With-Action condition.

Direct Effects Analysis

The Proposed Actions would not have a direct effect on any study area open spaces. Construction and operation of the proposed development would not cause the physical loss of public open space because of encroachment or displacement of the space; would not change the use of an open space so that it no longer serves the same user population; and would not limit public access to an open space. In addition, as discussed in other chapters of this EAS, the Proposed Actions would not significantly affect the usefulness or utilization of any study area open spaces due to increased noise or air pollutant emissions, odors, or shadows.

Indirect Effects Analysis

Table F-6 compares the No-Action and With-Action open space ratios per 1,000 residents. As presented in **Table F-6**, in the With-Action condition, as under existing and No-Action conditions, the open space ratios in the ½-mile study area would be less than the City's open space planning goals of 2.5 acres of open space per 1,0000 residents, including 0.5 acres of passive open space and 2.0 acres of active open space. However, the Proposed Actions would not result in an appreciable decrease in the study area open space ratios. In the future with the Proposed Actions, the total open space ratio is expected to decrease by 0.004 acres (1.8 percent) from 0.203 to 0.199 acres of open space per 1,000 residents (as compared to the No-Action condition). The passive open space ratio is expected to decrease by 0.001 acres (approximately 1.8 percent) from 0.043 acres to 0.042 acres per 1,000 residents, and the active open space ratio is expected to decrease by 0.004 acres (approximately 1.8 percent) from 0.160 acres to 0.157 acres per 1,000 residents, as compared to the No-Action condition.

Table F-6: Adequacy of Open Space Resource in the Study Area – No-Action vs. With-Action Conditions

		Open Space Acreage			Open Space per 1,000 Residents (acres)			City Open Space Planning Goals		
	Population	Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
No-Action Condition	46,434	9.405	1.99	7.41	0.203	0.043	0.160	2.50	0.50	2.0
With-Action Condition	47,289				0.199	0.042	0.157			
Incremental Change	+ 855				-0.004 (-1.8%)	-0.001 (-1.8%)	-0.003 (-1.8%)			

Assessment

While the study area would continue to have a shortfall of open space, the demand for open space generated by the Proposed Actions would not significantly exacerbate the No-Action deficiency, with an approximately 1.8 percent decrease in the study area's total open space ratio, the equivalent of 0.004 fewer acres of open space per 1,000 residents. The population added as a result of the Proposed Actions is not expected to noticeably affect utilization of the area's open spaces. In addition, the decrease in the open space ratio is partially ameliorated by several factors. First, most of the study area open space resources are only lightly utilized and are in good condition, and could therefore handle additional demand. The population generated by the Proposed Actions is not expected to have any special characteristics, such as a disproportionately older or younger population, that would place heavy demands on facilities that cater to specific user groups; the residents in the future with the Proposed Actions are expected to exhibit similar characteristics to the current residents of the study area and the breakdown of the population is expected to remain the same. Finally, the open space study area includes several open space resources that were not discussed quantitatively (refer to **Table F-2**). The open space study area contains an additional 1.79 acres of open spaces that are accessible for residents of the study area. These open spaces are expected to reopen to the public by the 2028 With-Action conditions.

Additionally, the proximity of Astoria Park, which is located adjacent to the western boundary of the study area, would be a factor in alleviating the half-mile study area's open space deficiency. Astoria Park, a 59.96-acre community park, includes a variety of active and passive uses and is widely known for its approximately 330-foot long swimming pool, one of the largest and most popular swimming facilities in the city. Astoria Park also contains tennis and bocce courts, multiple trails for running and biking, a skate park, tennis courts, running tracks, spray showers, fitness equipment, playgrounds, multipurpose open spaces for both active and passive uses, and a designated off-leash area for dogs. The park also has a panoramic view of Manhattan due to its location along the East River.

The southernmost portion of Wards Island Park falls just outside of the study area boundary and is accessible from the Project Area via a pedestrian/bike path along the Robert F. Kennedy Bridge located at Hoyt Avenue North and 27th Street. Wards Island Park contains 176.58 acres of predominantly active open space uses. The southernmost portion of the park includes playgrounds and baseball and soccer fields. While the park is located outside of the area typically considered a reasonable walking distance for a range of users due to the location of the pedestrian bridge entrance to the east of the Project Area, due to the multiple recreation opportunities provided at Wards Island Park, it is a popular resource for organized events and recreation leagues in the surrounding area

These large, destination parks located in close proximity to the study area would help in alleviating the half-mile study area's open space deficiency.

While the Proposed Actions would result in an incremental decrease in open space ratios in the future, given the level of decrease anticipated, the existing low utilization of many of the study area's open spaces, and the availability of additional open spaces conservatively not included in the quantitative analysis, the Proposed Actions would not result in a significant adverse impact on open space.

I. INTRODUCTION

This attachment assesses the potential for the Proposed Actions to result in incremental shadows long enough to reach any nearby publicly accessible open spaces or other sunlight-sensitive resources. According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, a shadows assessment is required if a proposed action would result in structures (or additions to existing structures) of 50 feet or greater in height, or those that would be located adjacent to, or across the street from, a sunlight-sensitive resource. As discussed in **Attachment A, "Project Description,"** the Proposed Actions would facilitate the development of three buildings greater than 50 feet in height on the three Applicant-controlled Projected Development Sites, as well as the development of one new building greater than 50 feet in height on one Projected Development Site not owned or controlled by the Applicants. All four of the Projected Development Sites are located adjacent to a sunlight-sensitive open space resource (Hoyt Playground), as well as a sunlight-sensitive S/NR-listed historic resource (Bohemian Hall and Park). The tallest of the four new buildings would reach a rooftop height of 145-feet and a rooftop with bulkhead height of 155-feet (Projected Development Site 2). As such, a detailed shadows analysis was prepared in accordance with *CEQR Technical Manual* guidance to determine the potential for the Proposed Actions to result in significant adverse impacts on sunlight-sensitive resources.

II. PRINCIPAL CONCLUSIONS

The Proposed Actions would result in incremental shadow coverage (i.e. additional, or new, shadow coverage) on portions of one sunlight-sensitive open space resource, Hoyt Playground, as well as on portions of one sunlight-sensitive S/NR-listed historic resource, Bohemian Hall and Park. The extent and duration of the incremental shadows on these sunlight-sensitive resources would not (1) significantly reduce or completely eliminate direct sunlight exposure on any of the two resource's sunlight-sensitive features; and would not (2) significantly alter the public's utilization or enjoyment of the two resource's facilities or threaten the viability of vegetation or other sunlight-sensitive features within these two resources. Therefore, incremental shadows from Projected Development Sites 1 and 2, as well as Projected Development Site 4, on Hoyt Playground and Bohemian Hall and Park would not be considered a significant adverse impact, in accordance with *CEQR Technical Manual* methodology.

III. METHODOLOGY

According to the *CEQR Technical Manual*, the longest shadow a structure will cast in New York City, except for periods close to dawn or dusk, is 4.3 times its height. For actions or projects resulting in structures less than 50 feet tall, a shadow assessment is generally not necessary, unless the site is adjacent to a park, historic resource, or important natural feature (if the feature that makes the structure significant depends on sunlight).

First, a preliminary screening assessment must be conducted to ascertain whether shadows resulting from an action or project could reach any sunlight-sensitive resource at any time of year. The *CEQR Technical*

Manual defines sunlight-sensitive resources as those resources that depend on sunlight or for which direct sunlight is necessary to maintain the resource's usability or architectural integrity. The following are considered to be sunlight-sensitive resources[1]:

- *Public open space* (e.g., parks, playgrounds, plazas, schoolyards, greenways, and landscaped medians with seating). Planted areas within unused portions of roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources. The use of an open space establishes its sensitivity to shadows. This sensitivity is assessed for both (1) warm-weather dependent features, such as wading pools and sandboxes, or vegetation that could be affected by loss of sunlight during the growing season (i.e., March through October); and (2) features, such as benches, that could be affected by a loss of winter sunlight. Open space uses that rely on sunlight include: Passive uses, such as sitting or sunning areas; active uses, such as playfields or paved courts; and such activities as gardening, or children's wading pools and sprinklers. Where lawns are actively used, the turf requires extensive sunlight. Vegetation requiring direct sunlight includes the tree canopy, flowering plants, and plots in community gardens. Generally, four to six hours a day of sunlight, particularly in the growing season, is a minimum requirement.

- *Features of historic architectural resources that depend on sunlight for their enjoyment by the public.* Only the sunlight-sensitive features are considered, as opposed to the entire architectural resource. Sunlight-sensitive features include the following: design elements that are part of a recognized architectural style that depends on the contrast between light and dark (e.g., deep recesses or voids, such as open galleries, arcades, recessed balconies, deep window reveals, and prominent rustication); elaborate, highly carved ornamentation; stained glass windows; exterior building materials and color that depend on direct sunlight for visual character (e.g., the polychromy [multicolored] features found on Victorian Gothic Revival or Art Deco facades); historic landscapes, such as scenic landmarks, including vegetation recognized as an historic feature of the landscape; and structural features for which the effect of direct sunlight is described as playing a significant role in the structure's importance as an historic landmark.

- *Natural resources where the introduction of shadows could alter the resource's condition or microclimate.* Such resources could include surface water bodies, wetlands, or designated resources, such as coastal fish and wildlife habitats.

The preliminary shadow screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the site representing the longest shadow that could be cast by the proposed building. If there are sunlight-sensitive resources within the radius, the analysis proceeds to the second tier, which reduces the area that could be affected by action-generated shadows by accounting for a specific range of angles that can never receive shade in New York City due to the path of the sun in the northern hemisphere. If the second tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a third tier of screening analysis further refines the area that could be reached by new shadows by looking at specific representative days of the year and determining the maximum extent of shadow coverage over the course of each representative day.

If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental

[1] According to the 2014 *CEQR Technical Manual*, city streets, sidewalks, and private open spaces (such as private residential front and back yards, stoops, and vacant lots) are not considered to be sunlight-sensitive resources.

shadow – or the additional, or new, shadow that a building or other built structure resulting from a proposed action would cast on a sunlight-sensitive resource during the year – resulting from a proposed action. Incremental shadows are determined by establishing a baseline condition (the No-Action condition) and comparing it to the future condition resulting from the proposed action (the With-Action condition), thus illustrating the shadows cast by existing or future buildings and distinguishing the additional (incremental) shadows cast by a proposed project. In accordance with *CEQR Technical Manual* guidance, shadows on sunlight-sensitive resources of concern were modeled for four representative days of the year. For the New York City area, the months of interest for an open space resource encompass the growing season (i.e., March through October) and one month between November and February representing a cold-weather month (usually December). Representative days for the growing season are generally the March 21 vernal equinox (or the September 21 autumnal equinox, which is approximately the same), the June 21 summer solstice, and a spring or summer day halfway between the summer solstice and equinoxes, such as May 6 or August 6 (which are approximately the same). For the cold weather months, the December 21 winter solstice is included to demonstrate conditions when open space users rely most heavily on available sunlight warmth. As these months and days are representative of the full range of possible shadows, they are also used for assessing shadows on sunlight-sensitive resources.

The *CEQR Technical Manual* defines the temporal limits of a shadow analysis period to fall from an hour and a half after sunrise to an hour and a half before sunset.

The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text. As described in the *CEQR Technical Manual*, an incremental shadow is generally not considered significant when its duration is no longer than ten minutes at any time of year and the resource continues to receive substantial direct sunlight. A significant shadow impact generally occurs when an incremental shadow of ten minutes or longer falls on a sunlight-sensitive resource and results in one of the following:

- *Vegetation:* A substantial reduction in sunlight available to sunlight-sensitive features of the resource to less than the minimum time necessary for their survival (when there would be sufficient sunlight in the future without the project) or a reduction in direct sunlight exposure where the sensitive features of the resource are already subject to substandard sunlight (i.e., less than the minimum time necessary for their survival).

- *Historic and cultural resources:* A substantial reduction in sunlight available for the enjoyment or appreciation of the sunlight-sensitive features of an historic or cultural resource.

- *Open space utilization:* A substantial reduction in the usability of open space as a result of increased shadow, including information regarding anticipated new users and the open space's utilization rates throughout the affected time periods.

- *For any sunlight-sensitive feature of a resource:* Complete elimination of all direct sunlight on the sunlight-sensitive feature(s) of the resource, when the complete elimination results in substantial effects on the survival, enjoyment, or, in the case of open space or natural resources, the use of the resource.

In general, a significant adverse shadow impact occurs when the incremental shadow added by a proposed action falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight exposure, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources.

IV. PRELIMINARY SCREENING

Tier 1 Screening Assessment

According to the *CEQR Technical Manual*, the longest shadow that a structure will cast in New York City, except for periods close to dawn or dusk, is 4.3 times its height. As discussed in **Attachment A, "Project Description,"** the Proposed Actions would facilitate the development of four new buildings greater than 50 feet in height located adjacent to a sunlight-sensitive open space resource (Hoyt Playground), as well as a sunlight-sensitive S/NR-listed historic resource (Bohemian Hall and Park). The tallest building would reach a rooftop height of 145-feet and a rooftop with bulkhead height of 155-feet (Projected Development Site 2). Initially, the maximum shadow radius for each of the four Projected Development Sites was determined using the maximum building height (including the rooftop bulkhead) of each of the four new buildings. Finally, the four individual radii were combined into a single radius surrounding all four Projected Development Sites.

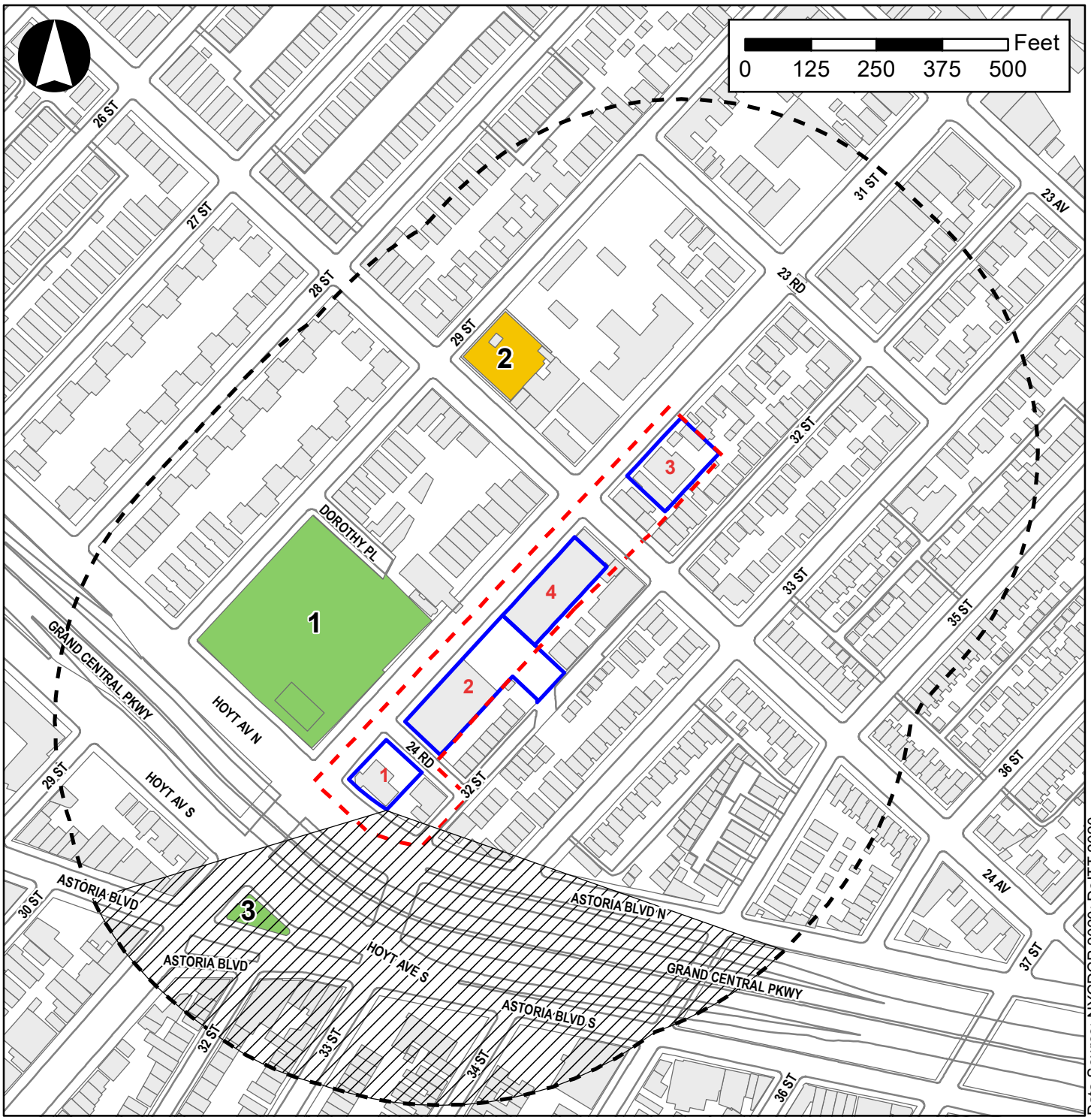
Base maps were prepared (refer to **Figure G-1**) for the four Projected Development Sites, which identify all potentially sunlight-sensitive resources within the combined maximum shadow radius for all four Projected Development Sites. As shown in the figure, within the longest shadow study area, three potentially sunlight-sensitive resources were identified.[2] Therefore, further screening was warranted to determine whether these resources could be affected by action-generated shadows.

Tier 2 Screening Assessment

Due to the path of the sun across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given site. In New York City, this area lies between -108 and +108 degrees from true north. The purpose of the Tier 2 screening is to determine whether the sunlight-sensitive resources identified in the Tier 1 screening are located within portions of the longest shadow study area that can receive shade from the Projected Development Sites.

Figure G-1 provides a base map illustrating the results of the Tier 1 and Tier 2 screening assessments (i.e., the portion of the longest shadow study area lying within -108 degrees from the true north and +108 degrees from true north as measured from the southernmost corner of Projected Development Site 1). As shown in **Figure G-1**, two resources were identified as a sunlight-sensitive resources that warranted further assessment. **Table G-1** identifies the sunlight-sensitive resources that warranted further assessment.

[2] Within the longest shadow study area, there is one S/NR-listed historic resource: Bohemian Hall and Park, located at 29-01 and 29-19 24th Avenue (Block 842, Lots 1 and 6). It was determined that the park component of this listed historic resource contains sunlight-sensitive features and will be included in the analysis, while the buildings and other built structures do not contain any sunlight-sensitive features or rely on sunlight for their historic significance, and therefore, no further analysis of Bohemian Hall and Park's buildings or built structures is warranted. In addition, there is one S/NR-eligible historic resource: P.S. 85, located at 23-70 31st Street (Block 842, Lot 31). However, it was determined that this eligible historic resource does not contain any sunlight-sensitive features or rely on sunlight for its historic significance, and therefore, no further analysis of P.S. 85 is warranted.



Legend

- Rezoning Area
- Projected Development Sites
- Tier I: Longest Shadow Study Area
- Tier II: Area That Cannot Be Shaded
- 1 Sunlight Sensitive Open Space Resources
- 2 S/NR-Listed Sunlight Sensitive Historic Resource
- Building Footprints

Table G-1: Sunlight-Sensitive Resources Warranting Further Analysis Based on Tier 1 and 2 Screening

Map No.[1]	Sunlight-Sensitive Resources
1	Hoyt Playground
2	Bohemian Hall and Park

Note:
[1] Resources keyed to Figure G-1.

Tier 3 Screening Assessment

According to the *CEQR Technical Manual*, a Tier 3 screening assessment should be performed to determine if, in the absence of intervening buildings, shadows resulting from a proposed action can reach a sunlight-sensitive resource, thereby warranting a detailed shadow analysis. The Tier 3 screening assessment is used to determine if shadows resulting from a proposed action can reach a sunlight-sensitive resource at any time between an hour and a half after sunrise and an hour and a half before sunset on representative analysis days.

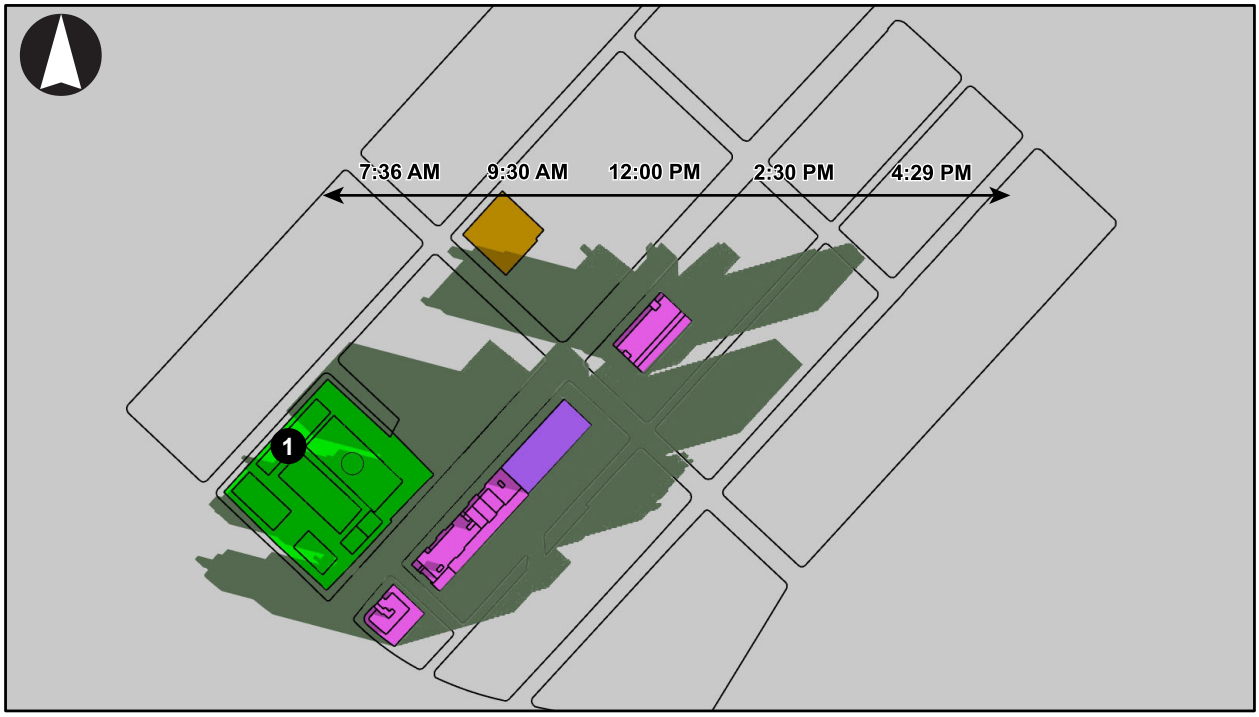
As action-generated shadows could reach two sunlight-sensitive resources, a Tier 3 assessment was performed using three dimensional (3D) computer mapping software. The 3D model was used to calculate and display action-generated shadows on individual representative analysis days. The model contained 3D representations of the elements in the base map used in the preceding assessments and a 3D model of the Projected Development Sites. At this stage of the assessment, surrounding buildings within the longest shadow study area were not included in the model so that it may be determined whether action-generated shadows would reach the sunlight-sensitive resources identified.

As illustrated in **Figures G-2a** and **G-2b**, and presented in **Table G-2**, based on the Tier 3 screening assessment, the potential for new incremental shadows to be cast on Hoyt Playground (Map No. 1) on the March 21/September 21, May6/August 6, June 21, and December 21 analysis days could not be ruled out. In addition, as also illustrated in **Figures G-2a** and **G-2b**, and presented in **Table G-2**, based on the Tier 3 screening assessment, the potential for new incremental shadows to be cast on Bohemian Hall and Park (Map No. 2) on the March 21/September 21 and December 21 analysis days could not be ruled out. Therefore, a detailed shadows analysis is warranted for these two sunlight-sensitive resources.

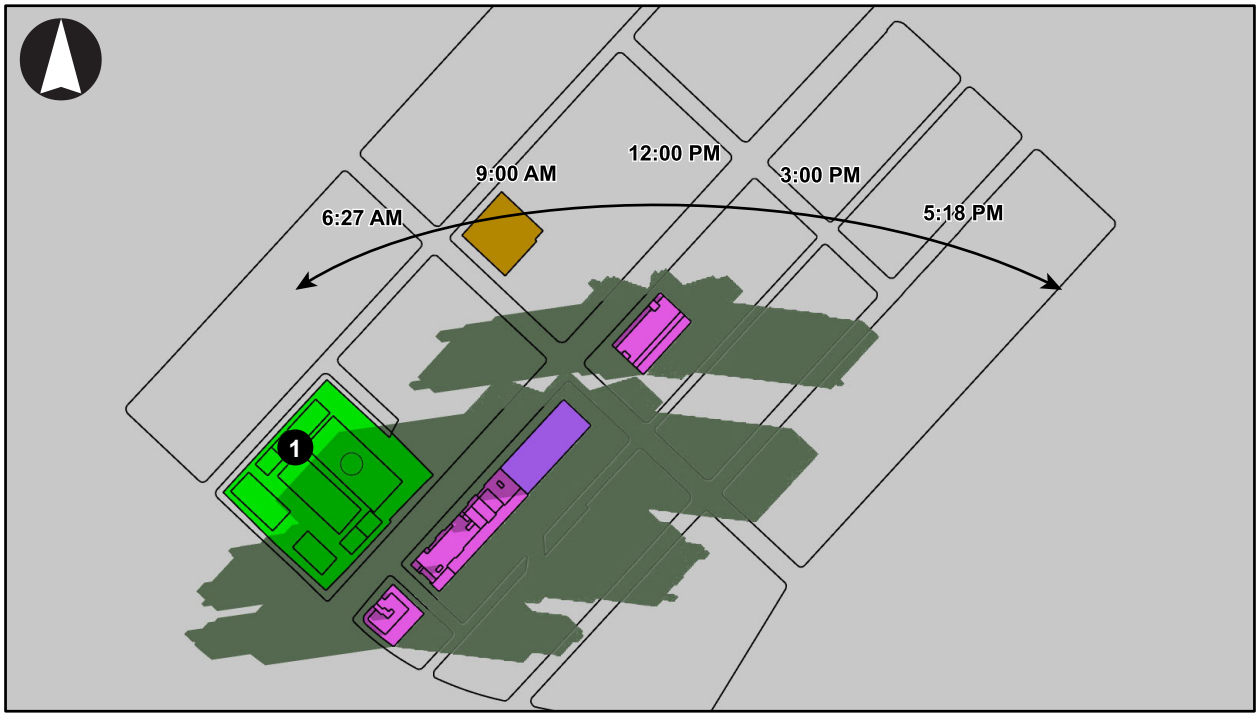
Table G-2: Sunlight-Sensitive Resource Warranting Further Analysis Based on Tier 3 Screening

Map No.[1]	Name	March 21/Sept. 21 7:36AM - 4:29PM	May 6/August 6 6:27AM - 5:18PM	June 21 5:57AM - 6:01PM	December 21 8:51AM - 2:53PM	Number of Analysis Days
1	Hoyt Playground	YES	YES	YES	YES	4
2	Bohemian Hall and Park	YES	NO	NO	YES	2

Note:
[1] Resources keyed to Figure G-1.



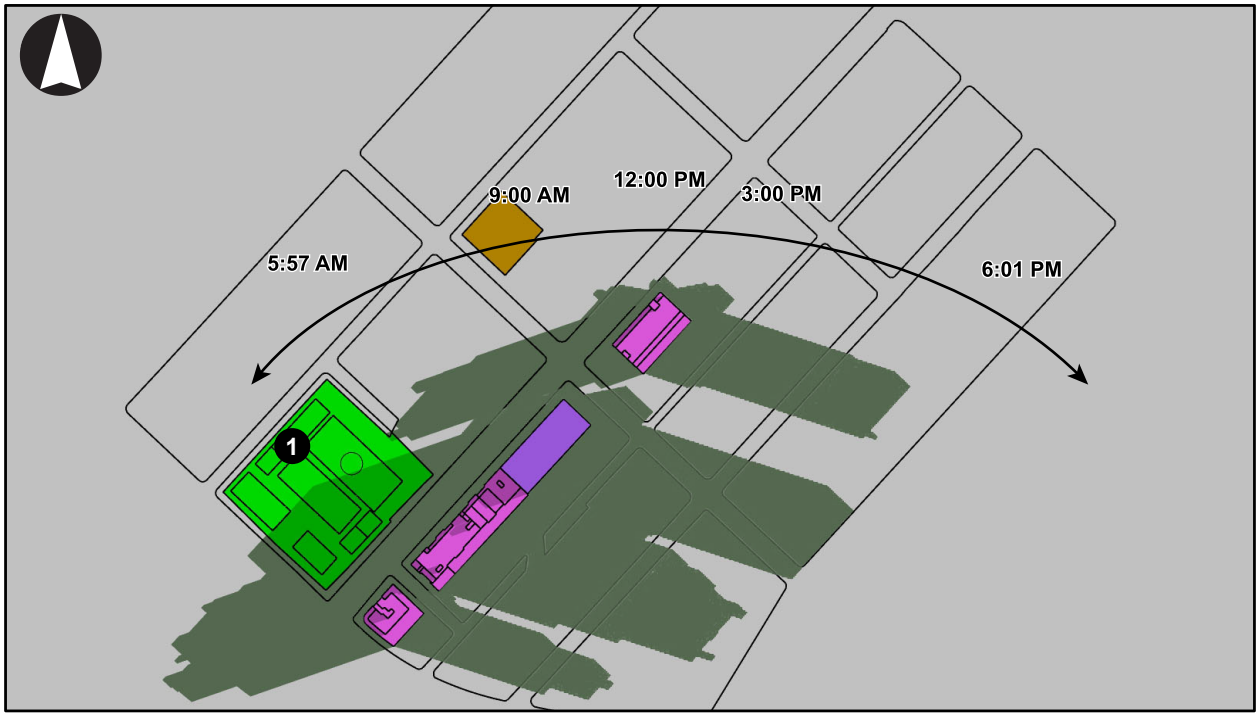
MARCH 21/SEPTEMBER 21



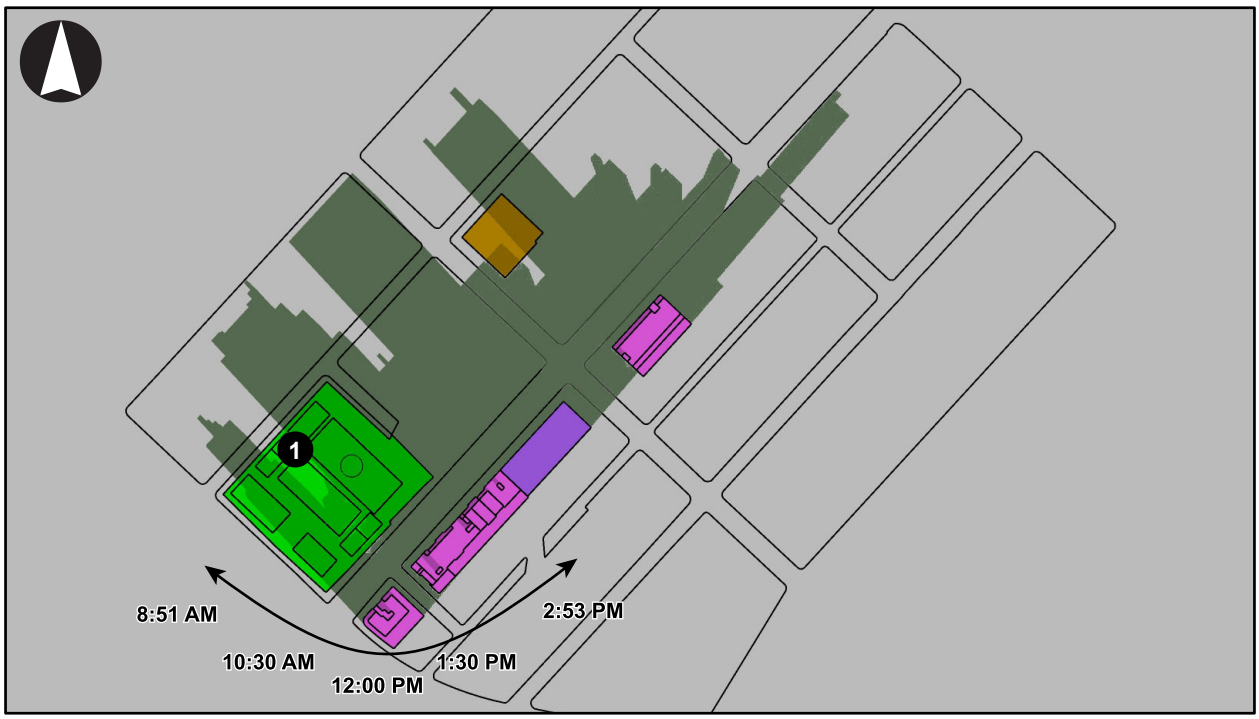
MAY 6/AUGUST 6

Proposed Project
Non-Applicant Projected Development Site 4
Open Space Resource
S/NR-Listed Resource
Incremental Shadow

Note: Resources keyed to Table G-1



JUNE 21



DECEMBER 21

Proposed Project
Non-Applicant Projected Development Site 4
Open Space Resource
S/NR-Listed Resource
Incremental Shadow

Note: Resources keyed to Table G-1

V. DETAILED ANALYSIS OF SHADOW IMPACTS

Resources Potentially Affected by Action-Generated Shadows

Hoyt Playground

Hoyt Playground is an approximately 2.20-acre public playground owned by MTA Bridges and Tunnels and operated by NYC Parks. The playground is located directly to the northwest of Development Site 1, directly to the west of Development Site 2, and directly to the southwest of Development Site 4, across 31st Street (Block 840, Lot 200).

As illustrated in **Figure G-7**, provided at the end of this attachment, Hoyt Playground features: one soccer field, located in the center of the open space, two full-sized basketball courts and one single basketball hoop, located along the open space's Hoyt Avenue North frontage, four handball courts, two located along the open space's 29th Street frontage and two located along the open space's 31st Street frontage, two playgrounds, one located near the southeastern corner of 29th Street and Dorothy Place and one located along the open space's 31st Street frontage, one swing set located along the open space's 29th Street frontage, a circular area containing spray showers located near Dorothy Place, and multiple areas of bench seating located throughout the open space, as well as premier landscaping and numerous trees. Hoyt Playground is open to the public daily from 6AM to 9PM.

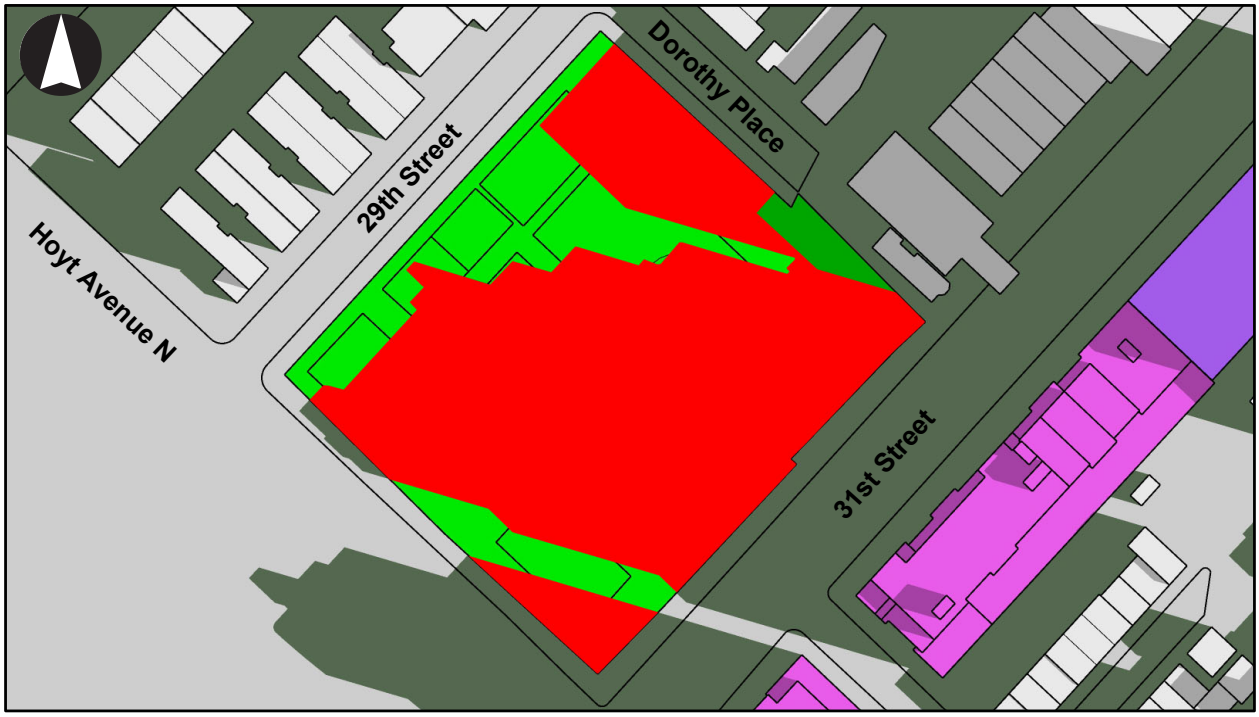
Bohemian Hall and Park

Bohemian Hall and Park is a privately owned S/NR-Listed historic resource located at 29-01 and 29-19 24th Avenue (Block 842, Lots 1 and 6). The historic resource is located to the north of Development Sites 1, 2, and 4, and to the west of Development Site 3. In its current form, Bohemian Hall and Park contains two contributing buildings (the Hall building and the bar building), as well as one contributing site (the beer garden with its surrounding rock-faced concrete block wall). The Hall building and bar building contain frontage on 24th Avenue and are located on Lot 6, while the beer garden occupies Lot 1, which is a corner lot containing frontage on both 24th Avenue and 29th Street. The park component of Bohemian Hall and Park – the beer garden – contains sunlight-sensitive features, including numerous picnic tables and benches, as well as mature trees, which form a canopy over the northern, western, and eastern portions of the beer garden. Bohemian Hall and Park is a privately owned business and, therefore, is open only to members of the paying general public.

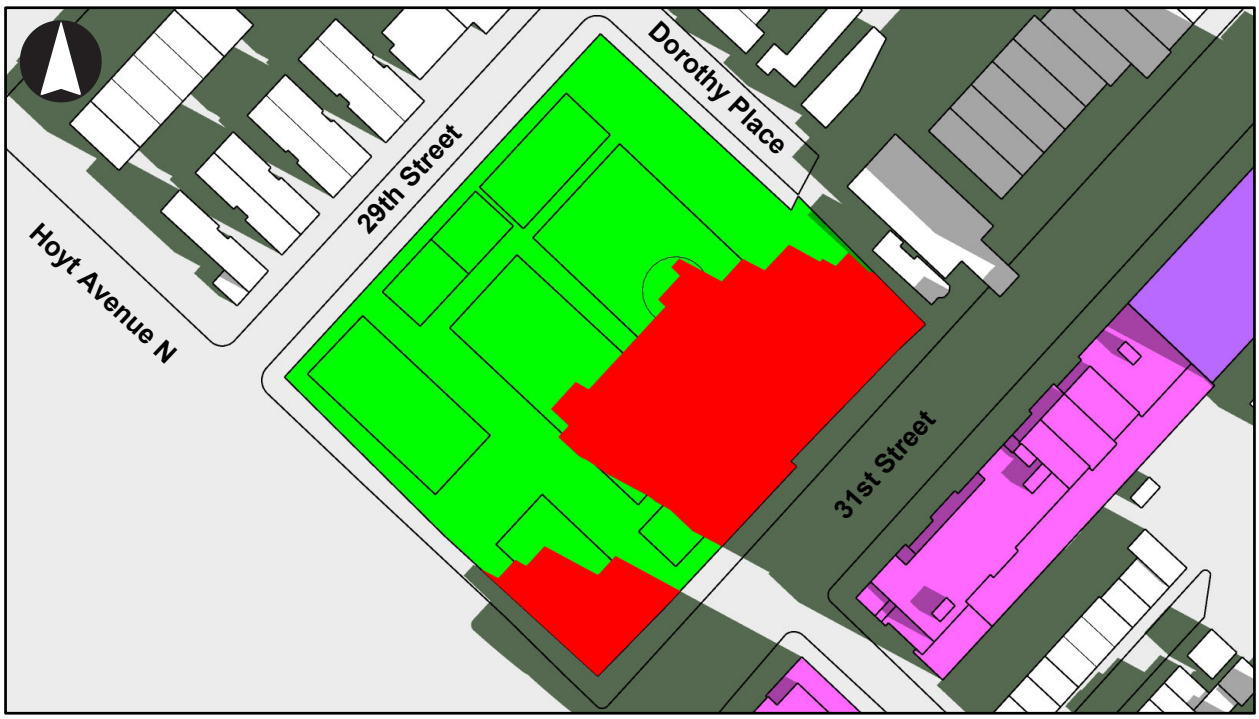
Detailed Shadows Analysis

Per *CEQR Technical Manual* guidance, shadow analyses were performed for the sunlight-sensitive resources identified above on four representative days of the year: March 21/September 21 (the equinoxes); May 6 (the midpoint between the summer solstice and the equinoxes, and equivalent to August 6); June 21 (the summer solstice and the longest day of the year); and December 21 (the winter solstice and shortest day of the year). These four representative days indicate the range of shadows over the course of the year. As noted previously, *CEQR Technical Manual* guidance defines the temporal limits of a shadow analysis period to fall from an hour and a half after sunrise to an hour and a half before sunset. The results of the shadow analyses show the incremental difference in shadow impact between the No-Action and With-Action conditions, the results of which are summarized in **Table G-3**, located on the subsequent page.

Incremental Shadows on March 21st - Hoyt Playground



7:45 AM



8:45 AM

Proposed Project

Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

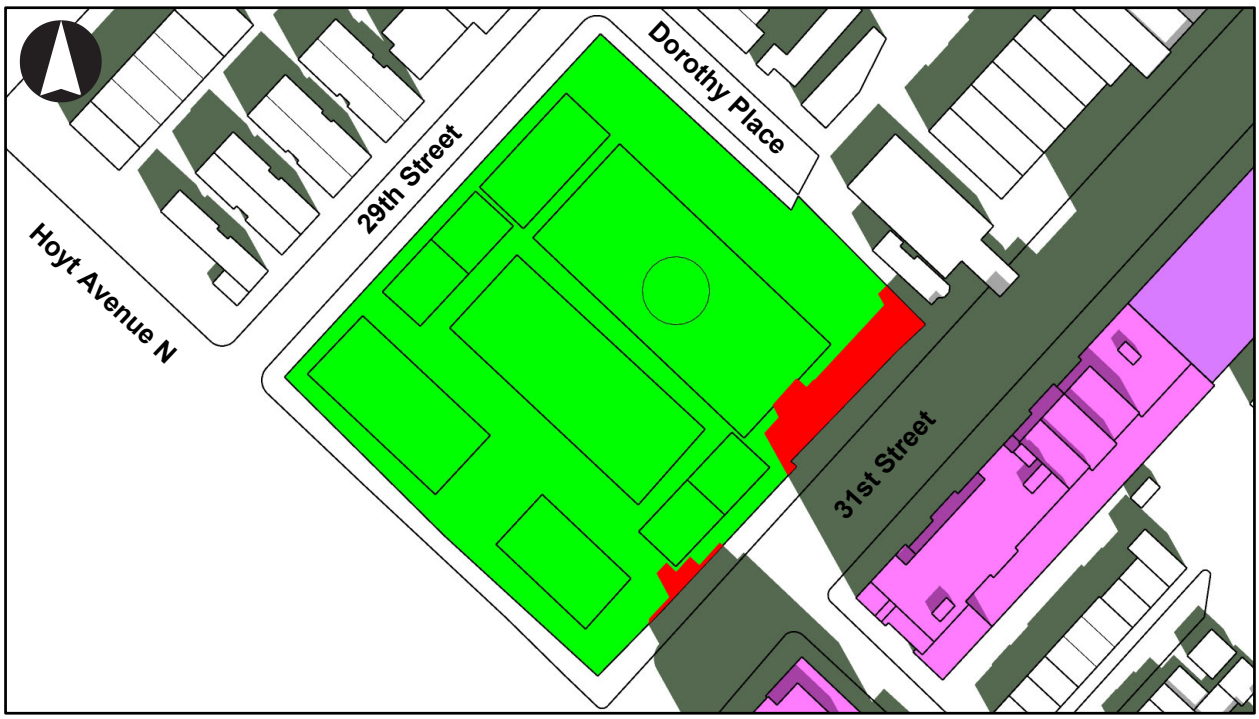
Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

Incremental Shadows on March 21st - Hoyt Playground



9:45 AM



10:45 AM

Proposed Project

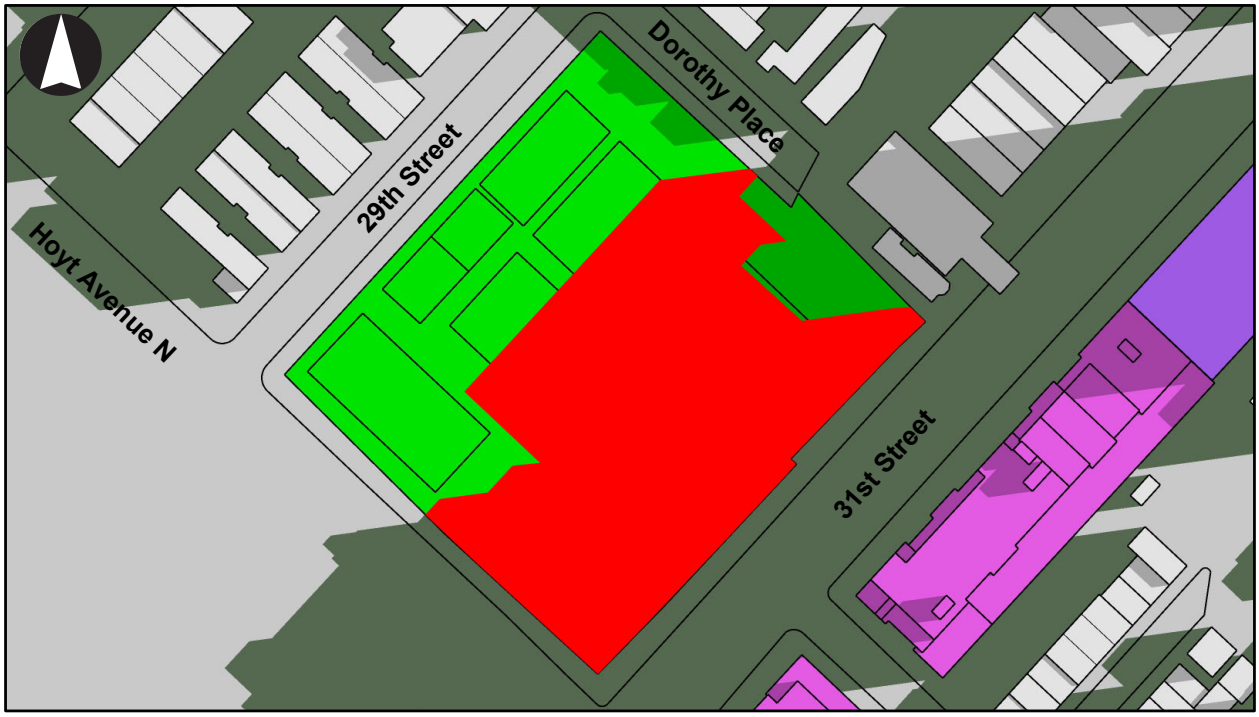
Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

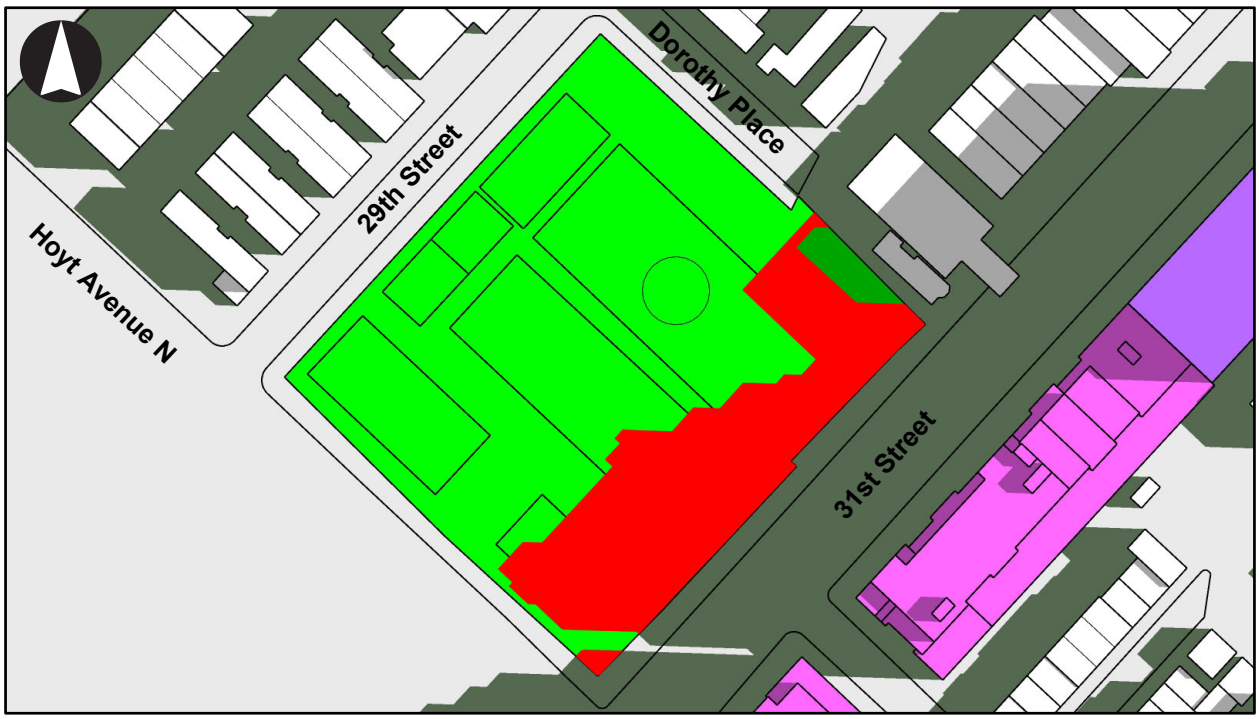
Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

Incremental Shadows on May 6th - Hoyt Playground



6:30 AM



7:30 AM

Proposed Project

Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

Incremental Shadows on May 6th - Hoyt Playground



8:30 AM



9:30 AM

Proposed Project

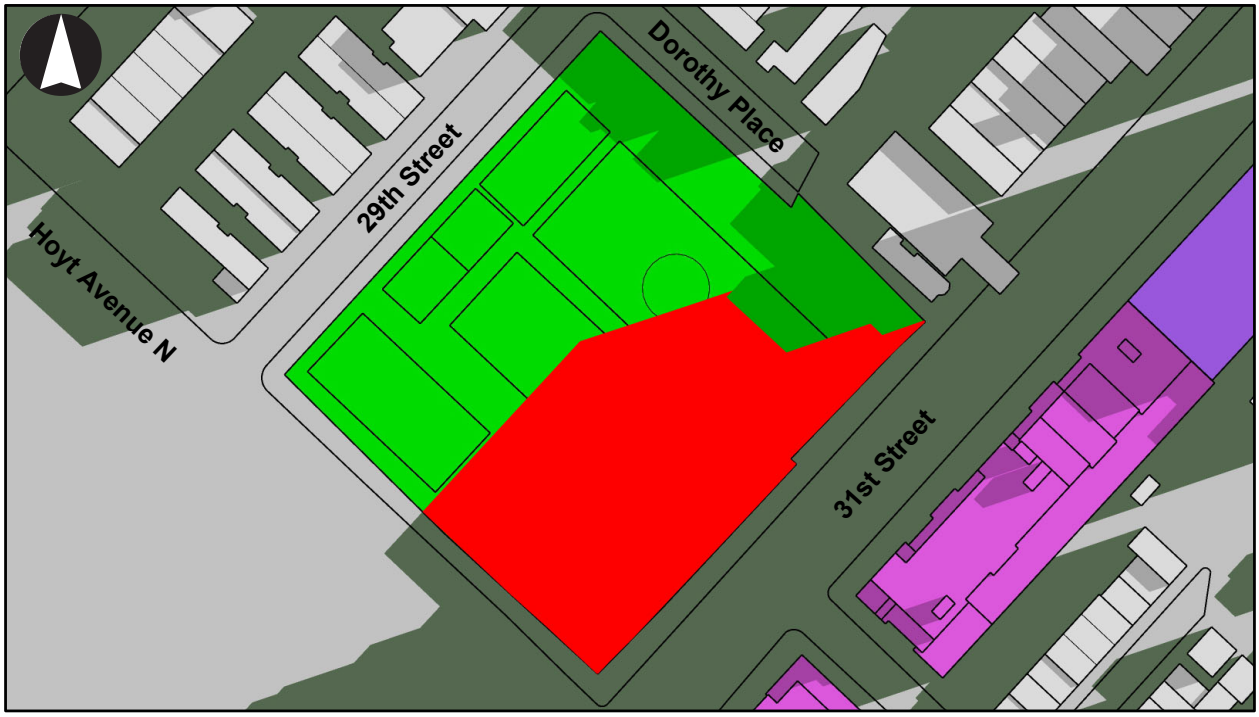
Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

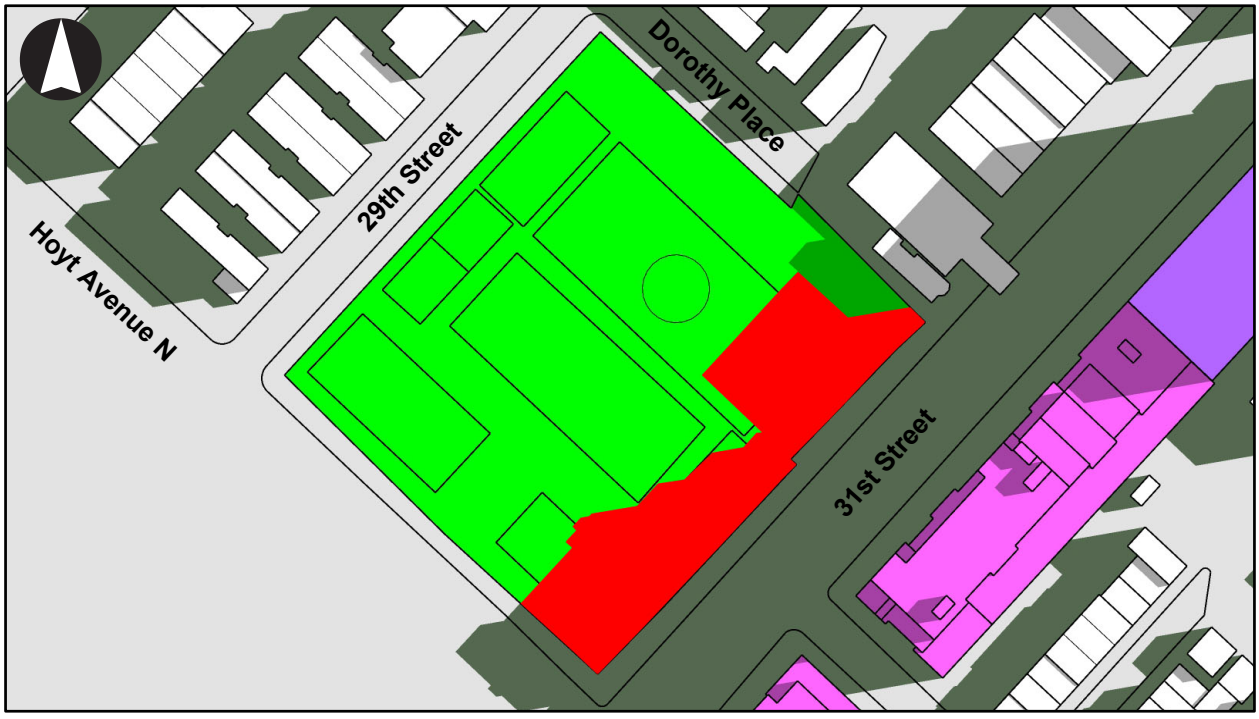
Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

Incremental Shadows on June 21st - Hoyt Playground



6:00 AM



7:00 AM

Proposed Project

Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

Incremental Shadows on June 21st - Hoyt Playground



8:00 AM



9:00 AM

Proposed Project

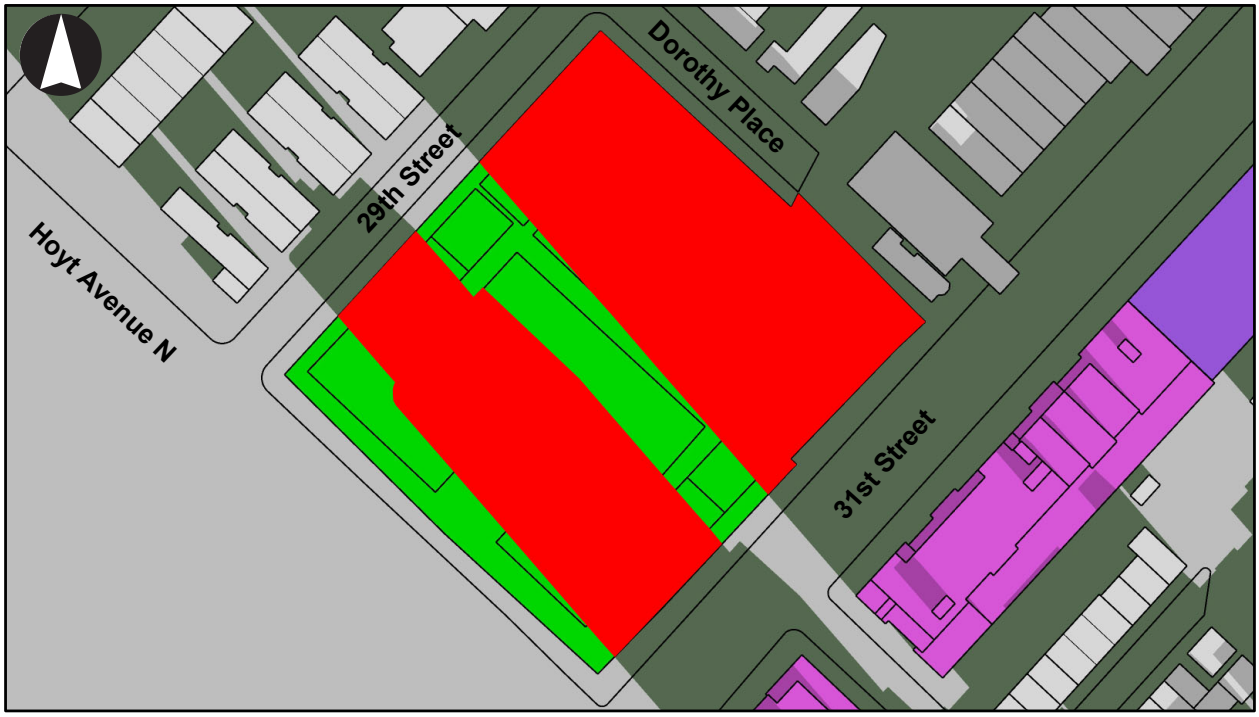
Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

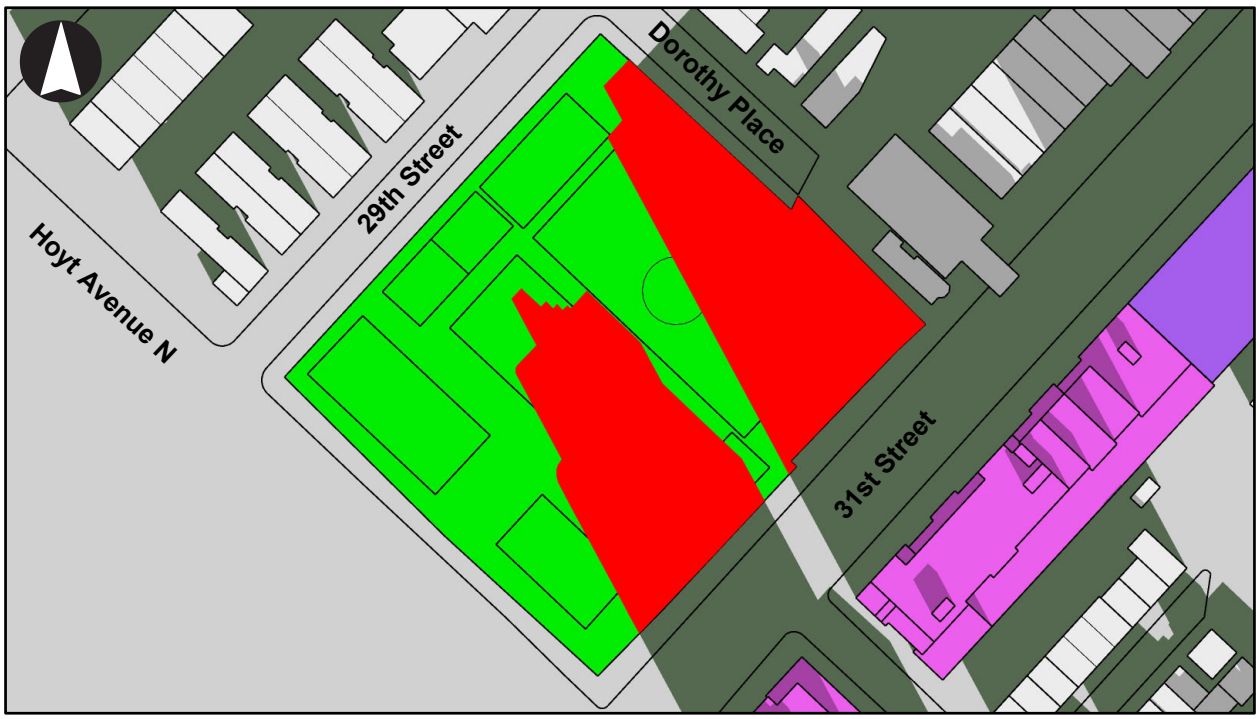
Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

Incremental Shadows on December 21st - Hoyt Playground



9:00 AM



10:00 AM

Proposed Project

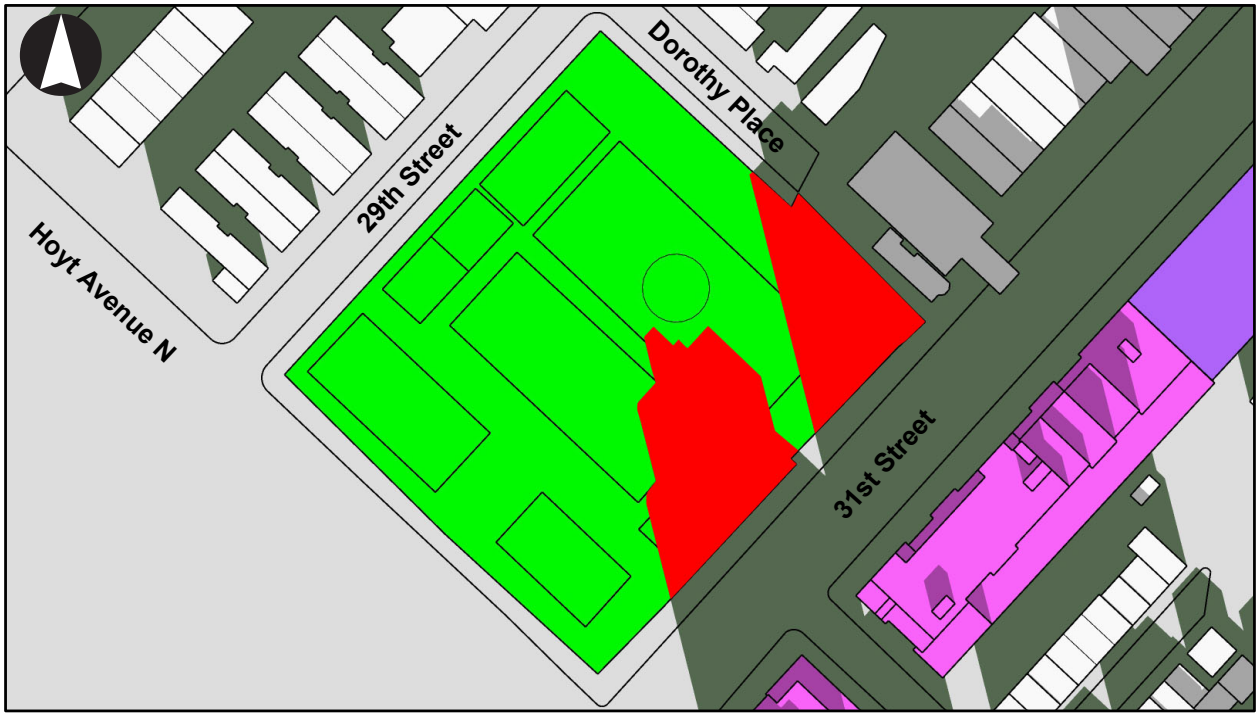
Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

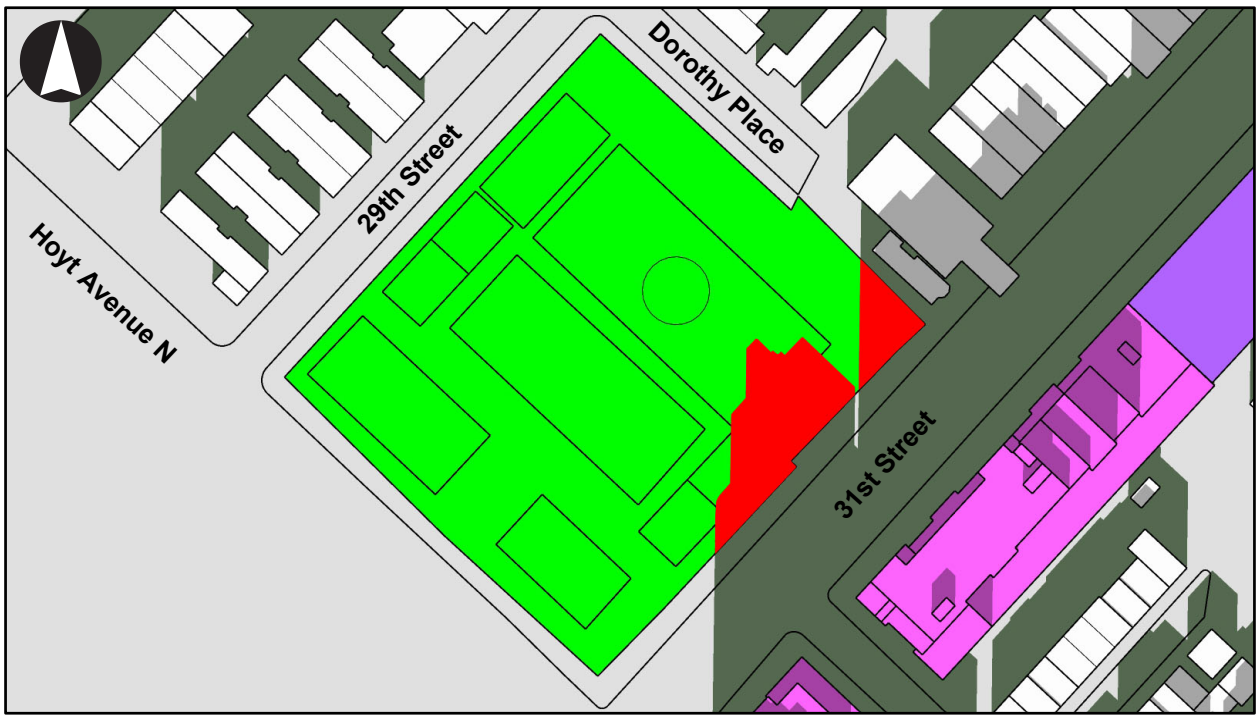
Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

Incremental Shadows on December 21st - Hoyt Playground



11:00 AM



12:00 PM

Proposed Project

Area of Open Space in Direct Sunlight

Area of Open Space in New Shadow

Non-Applicant Potential Development Sites

Area of Open Space in Existing Shadow

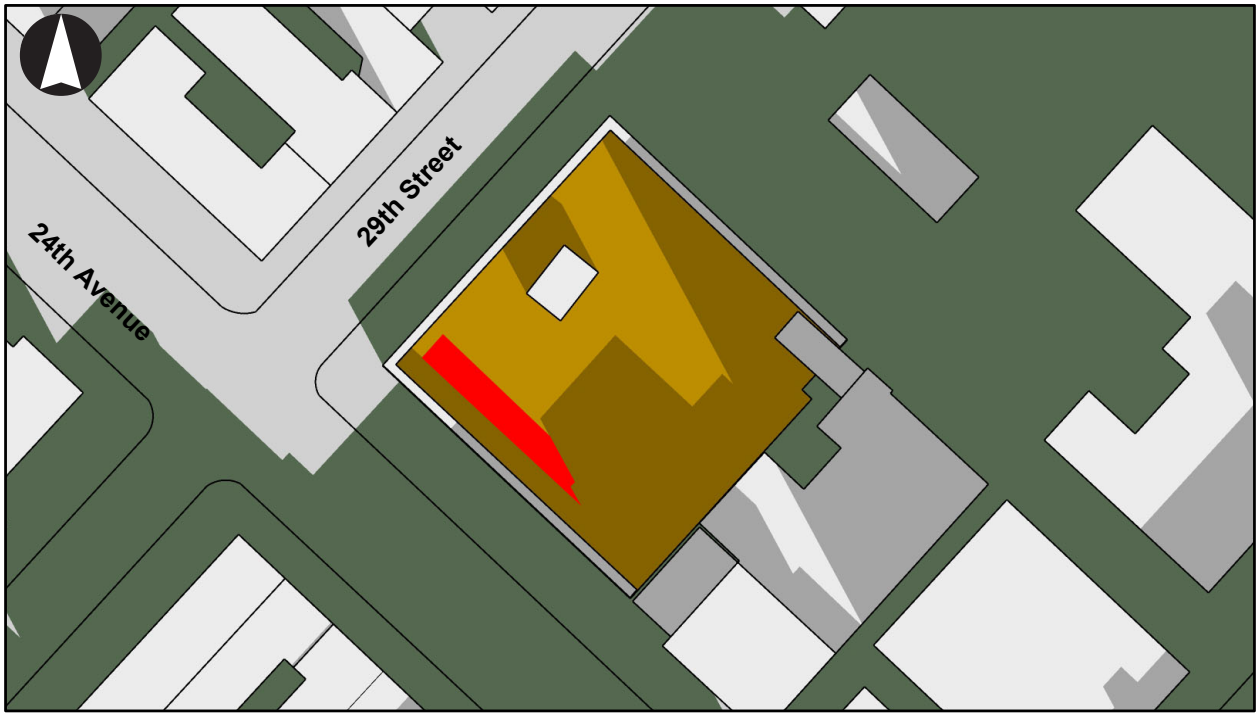
Incremental Shadows on December 21st - Hoyt Playground



1:00 PM

- Proposed Project
- Area of Open Space in Direct Sunlight
- Area of Open Space in New Shadow
- Non-Applicant Potential Development Sites
- Area of Open Space in Existing Shadow

Incremental Shadows on December 21st - Bohemian Hall and Park



10:00 AM



10:30 AM

Area of S/NR-Listed Historic Resource in Direct Sunlight

Area of S/NR-Listed Historic Resource in Existing Shadow

Area of S/NR-Listed Historic Resource in New Shadow

Table G-3: Duration of Shadows on Sunlight-Sensitive Resource (Increment Compared to No-Action Condition)

Sunlight-Sensitive Resource	Analysis Day	March 21/Sept. 21	May 6/August 6	June 21	December 21
		7:36AM – 4:29PM	6:27AM – 5:18PM	5:57AM – 6:01PM	8:51AM – 2:53PM
Hoyt Playground	Shadow enter-exit time	7:36AM – 11:46AM	6:27AM – 10:14AM	5:57AM – 9:34AM	8:51AM – 1:39PM
	Incremental shadow duration	4 hours 10 minutes	3 hours 47 minutes	3 hours 37 minutes	4 hours 48 minutes
Bohemian Hall and Park	Shadow enter-exit time	N/A	N/A	N/A	9:48AM – 10:51AM
	Incremental shadow duration	N/A	N/A	N/A	1 hour three minutes

Notes:
[A] All times are Eastern Standard Time; Daylight Saving Time was not accounted for per *CEQR Technical Manual* guidance.
[B] Table indicates the entry and exit times and total duration of incremental shadow coverage for the sunlight-sensitive resources.

As indicated in **Table G-3**, incremental action-generated shadows would reach portions of two sunlight-sensitive resources identified in the Tier 3 assessment: Hoyt Playground and Bohemian Hall and Park. At Hoyt Playground, increases in shadow coverage would occur on the March 21/September 21, May6/August 6, June 21, and December 21 representative analysis days. **Figures G-3a** and **G-3b, Figures G-4a** and **G-4b**, **Figures G-5a** and **G-5b**, and **Figures G-6a** through **G-6c**, provided at the end of this attachment, show representative shadow views for Hoyt Playground on each of the representative analysis days on which incremental shadows would occur: March 21/September 21, May6/August 6, June 21, and December 21. At Bohemian Hall and Park, increases in shadow coverage would occur on the December 21 representative analysis day; it was determined that no increases in shadow coverage would occur at Bohemian Hall and Park on the March 21/September 21 representative analysis day. **Figure G-7**, provided at the end of this attachment, shows representative shadow views for Bohemian Hall and Park on the December 21 representative analysis day.

It should be noted that, per *CEQR Technical Manual* guidance, all times reported herein are Eastern Standard Time and do not reflect adjustments for Daylight Saving Time that is in effect from mid-March to early November. As such, the times reported in this attachment for March 21/September 21, May 6/August 6, and June 21 need to have one hour added to reflect Daylight Saving Time.

March 21/September 21

Hoyt Playground

On March 21/September 21, the time period for shadows analysis begins at 7:36AM and continues until 4:29PM. March is considered the beginning of the growing season in New York City, and September 21, which has the same shadow patterns as March 21, is also within the growing season. On the March 21/September 21 analysis day, incremental shadows from Projected Development Sites 1 and 2, as well as Projected Development Site 4, would reach portions of Hoyt Playground.

Projected Development Sites 1 and 2 and Projected Development Site 4 would cast incremental shadows on Hoyt Playground beginning at 7:36AM and continuing until 11:46AM, for a duration of approximately four hours and 10 minutes. After 11:46AM, the open space would not experience any incremental shadow

coverage as a result of the development on Projected Development Sites 1 and 2 and Projected Development Site 4. As illustrated in **Figures G-3a** and **G-3b**, incremental shadows would be cast on the majority of the open space during the early morning hours before 9:00AM. Incremental shadows would enter the open space from the west before moving in an easterly direction across the park towards 31st Street. By 8:45AM, the extent of incremental shadow coverage would decrease significantly, and a majority of the open space would receive direct sunlight. The areas of Hoyt Playground that would experience incremental shadow coverage feature a soccer field, basketball and handball courts, playgrounds, a swing set, spray showers, and bench seating, as well as premier landscaping and trees.

May 6/August 6

Hoyt Playground

On May 6/August 6 (the midpoint between the equinoxes and solstices), the time period for shadows analysis begins at 6:27AM and continues until 5:18PM. On this analysis day, incremental shadows from Projected Development Sites 1 and 2, as well as Projected Development Site 4, would reach portions of Hoyt Playground.

Projected Development Sites 1 and 2, as well as Projected Development Site 4, would cast incremental shadows on portions of Hoyt Playground beginning at 6:27AM and continuing until 10:14AM, for a duration of approximately three hours and 47 minutes. After 10:14AM, the open space would not experience any incremental shadow coverage from Projected Development Sites 1 and 2 and Projected Development Site 4. As illustrated in **Figures G-4a** and **G-4b**, incremental shadows would be cast on the majority of the open space during the early morning hours before 8:00AM. Incremental shadows would enter the open space from the west before moving in an easterly direction across the park towards 31st Street. By 7:30AM, incremental shadow coverage would decrease significantly, and a majority of the open space would continue to receive direct sunlight. The areas of Hoyt Playground that would experience incremental shadow coverage feature a soccer field, basketball and handball courts, playgrounds, spray showers, and bench seating, as well as premier landscaping and trees.

June 21

Hoyt Playground

On June 21, the time period for shadows analysis begins at 5:57AM and continues until 6:01PM. On the summer solstice, which is the day of the year with the longest period of daylight, the sun is most directly overhead and generally shadows are shortest and move across the widest angular range from west to east. On the June 21 analysis day, incremental shadows from Projected Development Sites 1 and 2, as well as Projected Development Site 4, would reach portions of Hoyt Playground.

Projected Development Sites 1 and 2 and Projected Development Site 4 would cast incremental shadows on Hoyt Playground beginning at 5:57AM and continuing until 9:34AM, for a duration of approximately three hours and 37 minutes. After 9:34AM, the open space would not experience any incremental shadow coverage from Projected Development Sites 1 and 2 and Projected Development Site 4. As illustrated in **Figures G-5a** and **G-5b**, incremental shadows would be cast on the open space during the early morning hours before 7:00AM. Incremental shadows would enter the open space from the west before moving in an easterly direction across the park towards 31st Street. By 7:00AM, incremental shadow coverage would

decrease significantly, and a majority of the open space would continue to receive direct sunlight. The areas of Hoyt Playground that would experience incremental shadow coverage feature a soccer field, basketball and handball courts, playgrounds, spray showers, and bench seating, as well as premier landscaping and trees.

December 21

On December 21, the time period for shadows analysis begins at 8:51AM and continues until 2:53PM. On the winter solstice, which is the day of the year with the shortest period of daylight, the sun is low in the sky and shadows are at their longest extent but move rapidly. On the December 21 analysis day, incremental shadows from Projected Development Sites 1 and 2 would reach portions of Hoyt Playground, while incremental shadows from Projected Development Site 4 would reach portions of Bohemian Hall and Park.

Hoyt Playground

Projected Development Sites 1 and 2 would cast incremental shadows on Hoyt Playground beginning at 8:51AM and continuing until 1:39PM, for a duration of approximately four hours and 48 minutes. After 1:39PM, the open space would not experience any incremental shadow coverage from Projected Development Sites 1 and 2. As illustrated in **Figures G-6a** through **G-6c**, incremental shadows would be cast on the majority of the open space during the early morning hours before 11:00AM. Incremental shadows would enter the open space from the west before moving in an easterly direction across the park towards 31st Street. By 11:00AM, incremental shadow coverage would decrease significantly, and a majority of the open space would continue to receive direct sunlight. The areas of Hoyt Playground that would experience incremental shadow coverage feature a soccer field, basketball and handball courts, playgrounds, a swing set, spray showers, and bench seating, as well as premier landscaping and trees.

Bohemian Hall and Park

Projected Development Site 4 would cast incremental shadows on Bohemian Hall and Park beginning at 9:48AM and continuing until 10:51AM, for a duration of approximately one hour and three minutes. After 10:51AM, the park component of the historic resource would not experience any incremental shadow coverage from Projected Development Site 4. As illustrated in **Figure G-7**, incremental shadows would be cast on a small western portion of the park component during the mid-morning hours before 11:00AM. Incremental shadows would enter the park component from the west before moving in an easterly direction across the park component. By 10:30AM, incremental shadow coverage would decrease significantly, and a majority of the park component of the historic resource would continue to receive direct sunlight. The areas of the park component that would experience incremental shadow coverage feature picnic tables and benches, as well as mature trees.

Assessment

A shadow impact occurs when the incremental shadow from a proposed project falls on a sunlight-sensitive resource or feature and reduces its direct sunlight exposure. Determining whether this impact is significant or not depends on the extent and duration of the incremental shadow and the specific context in which the impact occurs.

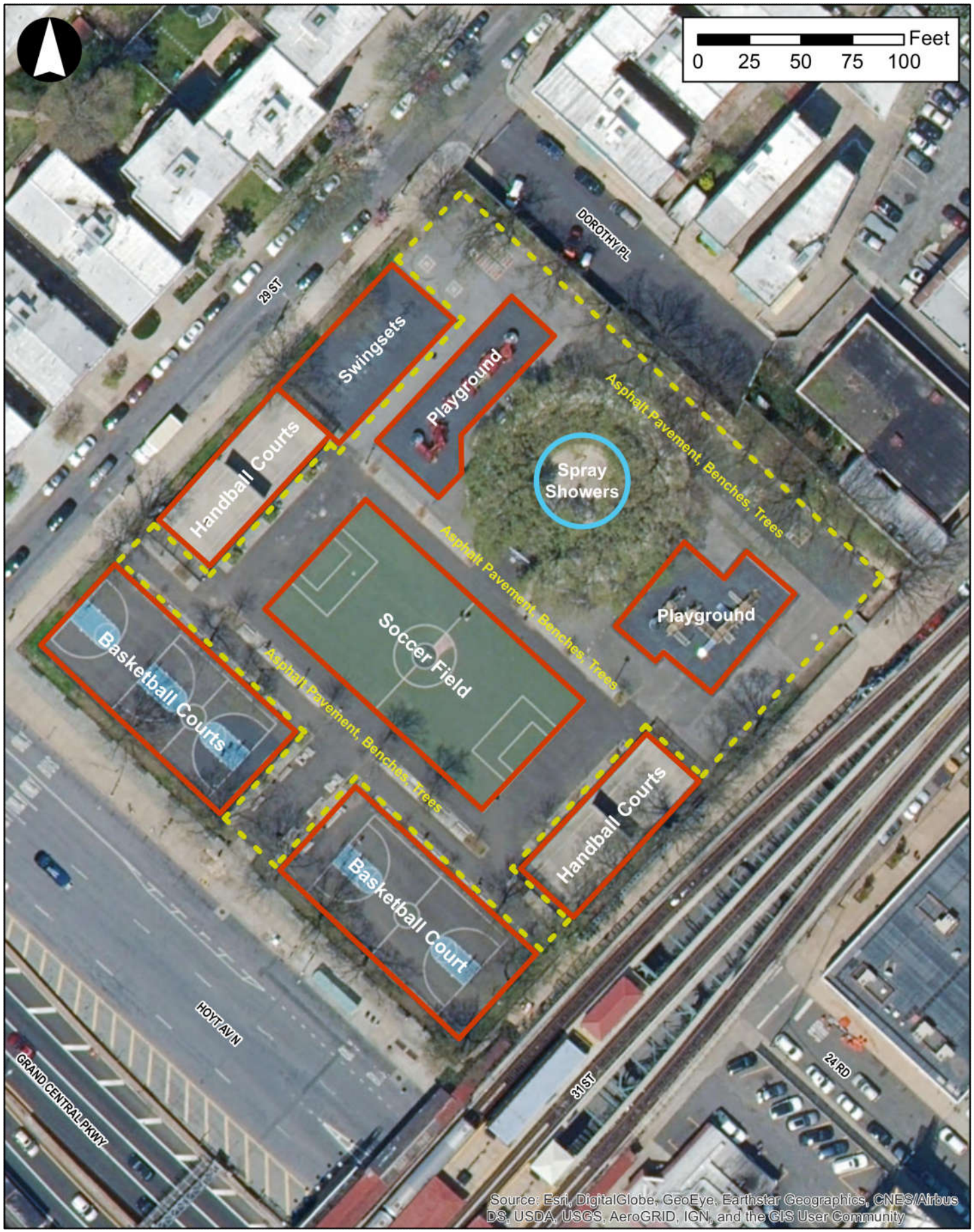
For open space resources, the uses and features of the space indicate its sensitivity to shadows. Shadows occurring during the cold-weather months of interest generally do not affect the growing season of outdoor vegetation; however, their effects on other uses and activities should be assessed. Therefore, this sensitivity is assessed for both (1) warm-weather-dependent features like wading pools and sand boxes, or vegetation that could be affected by a loss of sunlight during the growing season; and (2) features, such as benches, that could be affected by a loss of winter sunlight. Uses that rely on sunlight include: passive uses, such as sitting or sunning; active uses, such as playfields or paved courts; and such activities as gardening, or children's wading pools and spray showers. Where lawns are actively used, the turf requires extensive sunlight. Vegetation requiring direct sunlight includes the tree canopy, flowering plants, and plots in community gardens. Generally, four to six hours a day of sunlight, particularly in the growing season, is often a minimum requirement. Consequently, the assessment of an open space's sensitivity to increased shadow coverage focuses on identifying the existing conditions of its facilities, plantings, and uses, and the sunlight requirements for each.

Hoyt Playground

Projected Development Sites 1 and 2 and Projected Development Site 4 would cast incremental shadows on portions of Hoyt Playground on each of the four representative analysis days. Incremental shadow duration would range from three hours and 37 minutes on June 21 to four hours and 48 minutes on December 21, and would be limited to the early morning hours generally before 11:00AM. Incremental shadow coverage would not be cast on any single area of the open space for an extended period of time, as shadows move from west to east throughout the day, allowing the open space's sunlight-sensitive features to receive adequate direct sunlight (at least four to six hours) throughout the analysis day.

As illustrated in **Figure G-8**, incremental shadow coverage would affect the open space's passive uses (demarked with a dashed yellow line), including bench seating located throughout the open space. However, bench seating located in the open space's northern and western portions would receive direct sunlight throughout the morning and early afternoon time periods when the bench seating in the eastern and southern portions of the open space would be cast in shadow. As also shown in **Figure G-8**, incremental shadow coverage would affect the open space's active uses (demarked with a solid red-orange line), including a soccer field, basketball and handball courts, playgrounds, and spray showers located throughout the open space. However, many of the active uses present in the open space's eastern portion are also present in the open space's western portion; basketball and handball courts and playgrounds are featured in both the eastern and western portions of the open space. Therefore, the basketball and handball courts and playgrounds in the western portion of the open space would continue to receive direct sunlight throughout the morning and early afternoon time periods when basketball and handball courts and playgrounds in the eastern portion of the open space would be cast in shadow. Therefore, incremental shadow coverage is not expected to have a significant effect on the utilization or enjoyment of Hoyt Playground. Therefore, as the extent and duration of the incremental shadows would: (1) not significantly reduce or completely eliminate direct sunlight exposure on any of the sunlight-sensitive features found within the open space resource; and (2) would not significantly alter the public's use of the open space resource or threaten the viability of vegetation or other sunlight-sensitive features, incremental shadows from Projected Development Sites 1 and 2 and Projected Development Site 4 on Hoyt Playground would not be considered a significant adverse impact, in accordance with *CEQR Technical Manual* guidance.

Figure G-8
Hoyt Playground: Aerial View



Bohemian Hall and Park

Projected Development Site 4 would cast incremental shadows on portions of Bohemian Hall and Park on one of the four representative analysis days: December 21. Incremental shadow duration would occur for approximately 1 hour and three minutes on December 21, and would generally be limited to the mid-morning hours before 11:00AM. Incremental shadow coverage would generally be limited to a small western portion of the park component and would not be cast on any single area of the park component for an extended period of time, as shadows move from west to east throughout the day, allowing the park component's sunlight-sensitive features to receive adequate direct sunlight (at least four to six hours) throughout the analysis day. Furthermore, the mature trees located in the area of the park component that would experience incremental shadow coverage would not be affected, as the incremental shadow coverage would occur during winter, outside of the growing season (March to September as defined by the *CEQR Technical Manual*). Therefore, as the extent and duration of the incremental shadows would: (1) not significantly reduce or completely eliminate direct sunlight exposure on any of the sunlight-sensitive features found within the S/NR-listed historic resource; and (2) would not significantly alter the public's use of the S/NR-listed historic resource or threaten the viability of vegetation or other sunlight-sensitive features, incremental shadows from Projected Development Site 4 on Bohemian Hall and Park would not be considered a significant adverse impact, in accordance with *CEQR Technical Manual* guidance.

A. INTRODUCTION

The *City Environmental Quality Review* (CEQR) *Technical Manual* states that the urban design components and visual resources determine the "look" of a neighborhood—its physical appearance, including the street pattern, the size and shape of buildings, their arrangement on blocks, streetscape features, natural resources, and noteworthy views that may give an area a distinctive character. Pursuant to CEQR methodology, actions that would allow a project to potentially obstruct view corridors, compete with icons in the skyline, or make substantial alterations to the streetscape of a neighborhood by noticeably changing the scale of buildings may warrant a detailed urban design and visual resources analysis. Since the Proposed Actions would facilitate the construction of buildings that would be notably different in bulk, type, and use from the urban design of the project site and the surrounding area, a detailed urban design and visual resources analysis was prepared.

This attachment considers the potential for the Proposed Actions to affect the urban design characteristics and visual resources of the study areas. As described in **Attachment A**, **"Project Description,"** the Proposed Actions would rezone four Development Sites in the Astoria neighborhood of Queens Community District (CD) 1 (see **Figure H-1**). The Development Sites include Projected Development Site 1 (Block 837, Lots 9 and 16), Projected Development Site 2 (Block 837, Lot 27), Projected Development Site 3 (Block 835, Lot 3), and Projected Development Site 4 (Block 837, Lots 38, 39, and 41-47). Together, these lots comprise approximately 69,633 sf (the "Project Area"). The technical analysis presented below follows the guidance of the *CEQR Technical Manual* and addresses each of the above-listed characteristics for existing conditions, the future without the Proposed Actions (the No-Action condition), and the future with the Proposed Actions (With-Action condition) for a 2028 Build Year.

B. PRINCIPAL CONCLUSIONS

Urban Design

The proposed zoning map changes would replace the existing C4-3 and R5B zoning districts within the proposed rezoning area with C4-5X and C4-4 zoning districts. Development facilitated by the Proposed Actions would not result in significant adverse impacts on urban design as defined by the guidance for determining impact significance set forth in the *CEQR Technical Manual*. While the proposed structures would be a departure from the existing conditions, the design would be consistent with anticipated future development in the surrounding area and improve the streetscape.

Visual Resources

The Proposed Actions would not result in significant adverse impacts to visual resources. View corridors to significant visual resources that are currently visible would remain.

C. METHODOLOGY

In accordance with the *CEQR Technical Manual,* this analysis considers the effects of the proposed project on the following elements that collectively form an area's urban design:

- *Street Pattern and Streetscape*—the arrangement and orientation of streets define location, flow of activity, and street views, and create blocks on which buildings and open spaces are arranged. Other elements including sidewalks, plantings, street lights, curb cuts, and street furniture also contribute to an area's streetscape.
- *Buildings*—building size, shape, pedestrian and vehicular entrances, lot coverage and orientation to the street are important urban design components that define the appearance of the built environment.
- *Open Space*—open space includes public and private areas that do not include structures, including parks and other landscaped areas, cemeteries, and parking lots.
- *Natural features*—natural features include vegetation and geologic and aquatic features that are natural to the area.
- *View Corridors and Visual Resources*—visual resources include significant natural or built features, including important view corridors, public parks, landmark structures or districts, or otherwise distinct buildings.

In general, an assessment of urban design is needed when a project may have effects on one or more of the elements that contribute to the pedestrian experience, described above. As the Proposed Actions and subsequent development on the Projected Development Sites could result in physical changes to the Project Area beyond the bulk and form currently permitted as of right, it has the potential to result in development that could alter the arrangement, appearance, and functionality of the built environment and, therefore, change the experience of a pedestrian in the Project Area. The following urban design analysis follows the guidelines of the *CEQR Technical Manual.*

Study Area

The urban design study area consists of both a primary study area, which is coterminous with the boundaries of the rezoning area, where the urban design effects of the Proposed Actions are direct, and a secondary study area (refer to **Figure H-1**, **"Urban Design Study Area"**). For the purpose of this assessment, the primary study area is generally bounded by 31st Street to the west, Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street to the east and a line 200 feet from and parallel to 24th Avenue to the north. The secondary study area extends approximate 400-feet from the boundary of the Project Area and encompasses areas that have the potential to experience indirect impacts as a result of the Proposed Actions. It is generally bounded at its outer limits by 29th Street to the east, Astoria Boulevard to the south, mid-block between 33rd and 35th Street to the east, and 23rd Road to the north. Both the primary and secondary study areas have been established in accordance with *CEQR Technical Manual* guidance.

The analysis of urban design and visual resources is based on field visits, photography, and computer imaging of the Project Area and surrounding study area.

D. PRELIMINARY ASSESSMENT

Under CEQR, a preliminary assessment of urban design is appropriate when there is the potential for a pedestrian to observe from the street level a physical alteration beyond that allowed by existing zoning, including the following: (1) projects that permit the modification of yard, height, and setback requirements; and (2) projects that result in an increase in built floor area beyond what would be allowed as-of-right or in the future without the Proposed Actions. CEQR stipulates a detailed analysis for projects that would result in substantial alterations to the streetscape of the neighborhood by noticeably changing the scale of buildings. As the Proposed Actions falls within this category, a detailed analysis of urban design has been conducted and is provided below.

E. DETAILED ANALYSIS

Existing Conditions

Primary Study Area (Rezoning Area/Project Area)

The Project Area was initially mapped with a R5 zoning district in 1961, but was changed to the current C4-3 district in the Astoria Rezoning (C 100199 ZMQ, effective May 25, 2010). The Astoria Rezoning, initiated by DCP, rezoned all or portions of 238 blocks. It was intended to protect neighborhood character from out-of-scale development, more closely reflect established development patterns, direct opportunities for moderate residential and commercial growth to locations along wide streets and transit resources, and provide incentives for the production of affordable housing with an associated text amendment establishing the IH Program in R7A and equivalent districts. The primary study area is zoned C4-3 and R5B, and contains predominantly low-density (see **Figure H-2**, **"Study Area Built Density"**) uses including low-density residential uses, commercial uses, and vacant uses, (see **Figure C-2**, **"Study Area Land Uses"** in **Attachment C**, **"Land Use, Zoning, & Public Policy"**). The proposed zoning map changes would replace the existing C4-3 and R5B zoning districts within the project site with a C4-5X and C4-4 zoning districts and designate the rezoning area a Mandatory Inclusionary Housing (MIH) area.

The primary study area includes four projected development sites. Projected Development Site 1 (Block 837, Lots 9 and 16), Projected Development Site 2 (Block 837, Lot 27), and Projected Development Site 3 (Block 835, Lot 3) are under control of the Applicants. Projected Development Site 4 (Block 837, Lots 38, 39, and 41-47) is not under control of the Applicant.

Figure H-3 shows birds eye views of the Project Area, **Figure H-2** shows the existing building density in terms of floor area ratios (FAR) for both the primary and secondary study areas, while **Figure H-4** shows the existing building heights. All figures are referenced throughout the following sections. **Figures H-5a** and **H-5b** provide key maps for the photos of existing conditions in **Figures H-6a** through **H-11**, which are discussed in detail below.

Urban Design

Street Pattern and Streetscape

The primary study area comprises approximately 82,869 sf of lot area bounded by bounded by 31st Street to the west, Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north.

31st Street is a 100-foot wide street that runs in a north-south direction. 31st Street has one lane of travel in each direction. Parking is permitted on both sides of the street. Elevated subway tracks serving the N and W lines run along 31st Street. An entrance to the Astoria Boulevard subway station is directly adjacent to Development Site 1 within the primary study area.

32nd Street is a 40-foot narrow street that runs in a north-south direction. Between 24th Avenue and 24th Road, 32nd Street dead-ends due to a change in road elevation. Each segment of 32nd Street is 40-feet wide and runs two ways with parking permitted on both sides.

23rd Road is a 75-foot wide street that runs in an east-west direction. 23rd Road has one lane of travel in each direction and parking is permitted on both sides of the street.

Hoyt Avenue South/Astoria Boulevard North is a 105-foot wide street that runs in a west direction. Hoyt Avenue/Astoria Boulevard has seven lanes west bound and allows parking on the north side of the street. The approach to the RFK Bridge and Astoria Boulevard South/Hoyt Avenue South are located directly to the south.

Two streets transect the primary study area, 24th Avenue and 24th Road. 24th Road is a 50-foot narrow street. 24th Road is two ways and parking is permitted on both sides. 24th Avenue is a 80-foot wide street. 24th Avenue is two ways and parking is permitted on both sides.

Streetscape elements are minimal and are limited to fencing, standard street signs, cobra head lampposts, utility wires, fire hydrants and fire call boxes, and telephone poles. The elevated subway traverses the entirety of 31st Street through the primary study area.

Buildings

As described in **Attachment A**, **"Project Description,"** the Projected Development Sites have a combined 69,633 sf lot area. All buildings within the primary study area have an FAR up to 4.0. None has an FAR above 3.75.

Projected Development Site 1 consists of Block 837, Lots 9 and 16. It is approximately 10,000 sf and is improved with a one-story commercial building occupied by the Neptune Diner and a surface parking lot. There is one curb cut on 31st Street.

Projected Development Site 2 consists of Block 837, Lot 27. It is approximately 29,638 sf and is improved with a one-story commercial building occupied by a Staples retail store and a surface parking lot. There is one curb cut on 31st Street.

Projected Development Site 3 consists of Block 835, Lot 3. It is approximately 13,501 sf and is vacant.

Projected Development Site 4 consists of Block 837, Lots 38, 39, 41-47. It is approximately 16,494 sf and is improved with six 2- to 4-story residential buildings containing a total of 22 DUs and 2,000 gsf of commercial uses.

The rezoning area also includes Block 835, Lots 1 & 2; and Block 837, Lots 47 & 48 and parts of Lots 27, 49, 7501, 54, 55, and 58. These lots are not considered projected development sites.

Block 835, Lot 1 is a 2,250 square foot corner lot. It is improved with a two-story, 4,336 square foot mixed commercial and residential building with three dwelling units. Block 835, Lot 2 is a 2,250 square foot interior lot. It is improved with a three-story, 3,330 square foot residential building with three dwelling units.

Block 837, Lot 48 is a 2,000 square foot corner lot. It is improved with a four-story, 7,500 square foot mixed commercial and residential building with seven dwelling units. The proposed rezoning area also includes an approximately 10 foot strip at the rear of Block 837, Lots 49, 7501, 54, 55, and 58 which totals approximately 2,250 sf of lot area.

Natural Features and Open Space

There are no natural features within the primary study area and the topography of the area is general flat. There are no publicly accessible open space resources within the primary study area and open space is limited to the front and backyard of private residences.

Visual Resources

No visual resources are located within the primary study area.

Secondary Study Area

Urban Design

Street Pattern and Streetscape

The street plan in the secondary study area is composed of primarily rectilinear blocks with a street grid system with wide avenues running east west and narrow cross streets running north south. The secondary study area is bound by 23rd Street to the north, 33rd Street to the east, Astoria Boulevard South / Hoyt Avenue South, and 29th Street to the west.

29th Street is a 60-foot narrow street that runs in a southern direction. 29th Street has one lane of travel and parking is permitted on both sides of the streets. 33rd Street is a 60-foot narrow street that runs in a southern direction. 33rd Street has one lane of travel and parking is permitted on both sides of the streets. Hoyt Avenue South is a 78-foot wide street that runs in an eastern direction. Hoyt Avenue South has five lanes east bound and parking is permitted on the southern side of the street. Astoria Boulevard South is an 80-foot wide street that runs in an east-west directions. Between 29th Street and 31st Street Astoria Boulevard has one lane in each direction and parking is permitted on both sides. Between 31st Street and 33rd Street, Astoria Boulevard South is 90-feet wide and merges with 32nd Street. This portion of Astoria Boulevard South has three east bound lanes and parking is permitted both sides. As discussed above, 23rd Street is a 75-foot wide street with permitted parking on both sides.

Along 31st Street is the elevated subway tracks for the N/W subway line. This subway line connects Astoria, Queens and Brooklyn by way of Manhattan. Renovations are underway to add elevators and station enhancements. The Astoria Boulevard station is entirely within the secondary study area with entrances on Hoyt Avenue North and South.

The streetscape elements of the study area typically include wide sidewalks lined with street trees that have small tree pits without guards, standard street signs, cobra head lampposts, fire hydrants and fire call boxes, and telephone poles. Most of the study area streets are lined with parallel-parked cars (refer to the photos in **Figures H-6a** through **H-6d**).

Buildings

Table C-1 in **Attachment C**, **"Land Use, Zoning, and Public Policy,"** summarizes the existing generalized land uses within the land use study area by tax lots and land area. The secondary study area contains primarily low-density development (see **Figure H-2**, **"Study Area Built Density"**) and a general mix of uses, with the predominant land uses being residential, commercial and mixed-uses.

The eastern portion of the secondary study area is zoned R5B. It is predominantly characterized by residential uses. The residential building types include a mix of one- and two-family residential detached and semi-detached homes and multi-family walkups (see **Figure H-4, "Study Area Building Heights"**).

The western portion of the secondary study area is zoned C4-3 and R5D. It is predominantly characterized by residential buildings, institution buildings, and commercial buildings. The residential buildings are a mixed of multi-family and one and two family buildings.

Institutional uses in the secondary study area include Public School 85 Queens (PS85Q). PS85Q is a Pre-K to 5 elementary school that offers Pre-K for All, general education, special education and gifted and talented classes. The school also has an accompanying schoolyard, which is a part of the PlaNYC Schoolyard to Playground program, which renovate and upgrade schoolyards to public playgrounds (see photo 23 in **Figure H-10**).

Natural Features and Open Space

The secondary study area includes two open spaces and no natural features. Hoyt Playground is located across 31st Street to the west of the Rezoning Area. It is a 2.20-acre neighborhood park that provides opportunities for active and passive recreation. The Hoyt Playground encompasses 2.2 acres of active recreational uses. It is located directly across the street from Projected Development Sites 1 and 2 along 31st Street. Hoyt Playground features a playground, handball and basketball courts, spray showers, and seating areas (see photos 21 and 22 in **Figure H-10**). Columbus Square is located across Astoria Boulevard to the south of the primary study area. It is a 0.10 acre park that has benches and decorative plantings (see photo 24 in **Figure H-10**).

View Corridors and Visual Resources

The secondary study area includes a substantial number of visual resources including landmark structures and open spaces. The landmark structures that can be viewed from within the study area include the Hell Gate span of the RFK Bridge (formerly the Triborough Bridge; National Historic Civil Engineering Landmark). The suspension and steel arch bridge can be seen from 24th Avenue; 32nd Street; and Hoyt Avenue South. The view is clearest at the intersection of 29th Street and 24th Avenue, Hoyt Avenue South between 29th and 31st Streets, and the dead end street along 32nd Street from 24th Avenue. In addition, the elevated approach to Hell Gate (East River Arch) Bridge can be seen looking north from 29th, 31st, 32nd, and 33rd Streets. However, many of the public view corridors along 31st Street are impeded due to the elevated N/W subway tracks.to the south of the Rezoning Area terminate at 26th Avenue and are obstructed by fences and industrial buildings along the avenue (see photos 27 and 28 in **Figure H-11**).

P.S. 85, located at 23-70 31st Street is a S/NR eligible building (see photo 25 in **Figure H-11**). Built in 1906, the four-story brick and stone building displays numerous characteristics associated with the Renaissance Revival including the symmetrical center entrance façade, the use of smooth and rusticated ashlar, window bays separated by brick and stone pilasters, keystones over window openings, a stone beltcourse at the lintel level of the fourth-story windows. The main entrance to the school features paneled stone pilasters and a classical entablature with dentils. The school also displays features associated with early twentieth century education reforms such as the groups of large double-hung windows for light and ventilation, central ventilation and heating systems, and modern lavatory facilities.

Bohemian Hall and Park, located at 29-19 24th Avenue is a S/NR listed building (see photo 26 in **Figure H-11**). Bohemian Hall and Park consists of two building (the Hall and the bar building) and the adjacent beer garden. Built in 1911, the Hall served as a public assembly building for the neighborhood. The Hall design is a simple Neo-Classical Revival style, brick with limestone trim. A three-bay organization includes pairs of one-over-one double-hung aluminum replacement windows, separated by aluminum spandrels and topped by brick and limestone flat-arch lintels. The bar building was an addition to the Hall in 1914. It is a simple one-story beige, brick building. A 10-foot tall rusticated concrete wall surrounds three sides of the beer garden while the fourth side is bounded by the bar and hall buildings.

Future without the Proposed Actions (No-Action Condition)

Primary Study Area (Rezoning Area/Project Area)

As discussed in **Attachment A**, **"Project Description,"** in the future without the Proposed Actions, the primary study area would not be rezoned and the existing uses would remain.

Urban Design

Street Pattern and Streetscape

Under the No-Action condition, there would be no improvements to the streetscape of street patterns in the primary study area.

Buildings

Under the No-Action condition, it is assumed that existing conditions would remain and no development would occur within the primary study area.

Natural Features and Open Space

Under the 2028 No-Action condition, no new public open spaces will be developed and there would be no changes to natural features.

View Corridors and Visual Resources

Under the 2028 No-Action condition, there would be no changes to any view corridors or visual resources.

Secondary Study Area

As described in **Attachment C**, **"Land Use, Zoning, and Public Policy,"** several sites may be developed by 2028 within secondary study area. They are not expected to have a significant impact on the secondary study area.

Street Pattern and Streetscape

No changes to the street pattern and streetscape are expected by the 2028 build year.

Buildings

As described in **Attachment C**, **"Land Use, Zoning, and Public Policy,"** there would be two new developments constructed in the secondary study area in the future without the Proposed Actions. 23-61 31st Street will be a six-story mixed-use development with 6,700 gsf of residential space (10 DUs) and 326 gsf of commercial space. 23-71 31st Street will be a six-story mixed-use development with 6,700 gsf of residential space (10 DUs) and 935 gsf of commercial space.

Natural Features and Open Space

Under the No-Action condition, there would be no changes to open space or natural features.

Future with the Proposed Actions (With-Action Condition)

This section describes the effects of the Proposed Actions on the urban design and visual resource conditions in the area by 2028 and evaluates the potential for the Proposed Actions to result in significant adverse impacts. The site plan, massing, and illustrative renderings of the proposed project are presented in **Figures H-12a** through **H-14d**, respectively. **Figures H-14a** through **H-14d** include illustrative views of the project site from the primary and secondary study areas under both No-Action and With-Action conditions.

Primary Study Area (Rezoning Area/Project Area)

By 2028, it is anticipated that the Proposed Actions would be in place, and that, as a result, all of the Projected Development Sites would be developed. Development on the Projected Development Sites pursuant to the Proposed Actions would affect the area's urban design, specifically the streetscape and building bulk, use, and type, as described below.

Urban Design

Street Pattern and Streetscape

Four new curb cuts are proposed at the Projected Development Sites. A new curb cut from 24th Road would provide access to six enclosed parking spaces in the cellar of Projected Development Site 1. A new curb cut from 31st Street would provide access to 52 enclosed parking spaces in the cellar and nine enclosed spaces on the first floor at the rear of Projected Development Site 2. A new curb cut from 31st Street would provide access to 19 enclosed parking spaces on the second floor at Projected Development Site 3. A new curb cut from 31st Street would provide access to 37 parking spaces provided at Projected Development Site 4.

The primary study area's street pattern and streetscape would improve in the With-Action condition. The streetscape surrounding the Project Area would be enhanced through plantings and sidewalk improvements as well as the reactivation of the pedestrian realm along these corridors through continuous ground floor retail.

Buildings

The proposed 11-story, 63,252 gsf building on Development Site 1 would contain 11,322 gsf of commercial uses, 3,216 gsf of community facility for a daycare, and 48,714 gsf of residential uses with 51 DUs and 6 parking spaces. The proposed development would have a building height of 115 feet above a base height of 87 feet. The proposed local retail uses would be located on the ground floor of the building. The second floor of the building would include 4,612 gsf of office uses and 3,216 gsf of community facility uses (daycare). The proposed residential uses would be located on floors 3 through 11. The accessory-parking garage would be located on the cellar level of the proposed building with access to the garage from 24th Road.

The proposed 14-story, 189,128 gsf building on Development Site 2 would contain 15,178 gsf of commercial uses, 4,160 gsf of community facility for a senior center, and 169,790 gsf of residential uses with 161 DUs and 61 parking spaces. The proposed development would have a building height of 145 feet above a base height of 85 feet. The proposed local retail and community facility uses would be located on the ground floor of the building. The proposed residential uses would be located on floors 2 through 12. The accessory-parking garage would be located on the cellar level of the proposed building with access to the garage from 31st Street.

The proposed 12-story, 110,997 gsf building on Projected Development Site 3 would be zoned C4-4. The proposed building would contain 7,547 gsf of commercial floor uses, 21,614 gsf of community facility area for a youth center, and 81,838 gsf of residential uses with 83 DUs (21-25 affordable DUs) and 19 parking spaces. The proposed development would have a building height of 129 feet above a base height of 74 feet. The proposed local retail use would be located on the ground floor. The proposed community facility

use would be located on the cellar level, ground floor, and third floor of the proposed building. The proposed residential uses would be located on floors 4 through 12. The accessory parking garage would be located on the second floor of the building with access to the garage from 31st Street.

The proposed 13-story (135-feet tall), 79,666 gsf building on Development Site 4 would contain 14,721 gsf of ground floor local retail uses and 64,945 gsf of residential uses with 94 DUs and 37 parking spaces. The accessory parking garage would be located on the cellar level of the building with access to the garage from 31st Street.

Natural Features and Open Space

The Proposed Actions are not expected to affect open space or natural features.

View Corridors and Visual Resources

In the future with the Proposed Actions, there would be no changes to any view corridors or visual resources.

Secondary Study Area

Urban Design

Street Pattern and Streetscape

The With-Action development on the Projected Development Sites would be consistent with the street pattern and streetscape found throughout the secondary study area. Streetscape improvements and ground floor retail along the public corridors would enhance the pedestrian realm, making the surrounding area more active and inviting.

Buildings

While differing in bulk and form from many of the buildings found throughout the secondary study area today, the proposed With-Action development would be supported the wide streets and elevated rail.

Natural Features and Open Space

The With-Action development is not expected to affect the open space or natural features within the secondary study area.

Visual Resources and View Corridors

Pedestrian-level views from within the secondary study area from where the Projected Development Sites would be visible would not change substantially compared to the future without the Proposed Actions. In the future with the Proposed Actions, these views would include a dense development consisting of buildings significantly taller than the surrounding urban fabric. However, prominent views from within the study area of visual resources including the RFK Bridge and elevated approach to the Hell Gate Bridge would not be obstructed.

Publicly accessible views of P.S. 85 and Bohemian Hall and Park would remain unobstructed from both the primary study area and from within the secondary study area. Overall, the Proposed Actions would not have any significant adverse impacts on visual resources in the secondary study area.

Assessment

Primary Study Area (Rezoning Area/Project Area)

The Proposed Actions would facilitate the development of new residential, commercial, and community facility space, adding to the existing corridor of residential, commercial, and institutional uses in the primary study area.

With maximum heights ranging from 115 to 145 feet tall and ranging from approximately 63,252 to 189,128 gsf in size, the height and bulk of the four proposed buildings would be substantially taller than the vacant sites, existing one- and two-story buildings, and existing commercial buildings on the Projected Development Sites. The increased scale, both in terms of bulk and height would be a notable change from the pedestrian's perspective to the appearance and character of the Projected Development Sites compared to the No-Action condition. The proposed C4-5X and C4-4 zoning districts, allowing for the increase in building heights, are consistent with City policy to position higher density developments near transit along wide streets that can support such development. The proposed districts are appropriate because of the close proximity of the primary study area to public transportation and its location along wide streets. This increase in height can be accommodated along Astoria Boulevard North and 31st Street within the primary study area

Compared to the future without the Proposed Actions, in the future with the Proposed Actions the visual appearance and thus the pedestrian experience of the project site would change considerably; however, this change would not meet the *CEQR Technical Manual* threshold for a significant adverse urban design impact in that it would not alter the arrangement, appearance, or functionality of the Projected Development Sites such that the alteration would negatively affect a pedestrian's experience of the area. The pedestrian experience of the area would include new buildings with active ground floor uses, including retail, daycare, senior center, and youth center. The Proposed Actions would spur development to activate and invigorate this section of 31st Street enabling it to connect local Queens residents with jobs, retail, and services. It is the Applicants' opinion that the Proposed Actions would result in an improved streetscape consistent with the primary study area.

The development on of the Projected Development Sites would not block any significant visual resources from pedestrian vantage points. As such, these changes are not anticipated to be significantly adverse, as no view of significant visual resources would be obstructed. Therefore, the Proposed Actions would not have any significant adverse impacts on visual resources.

Overall, the Proposed Actions would not result in any negative effects on the urban design characteristics of the primary study area and therefore would result in no significant adverse urban design and visual resources impacts within the primary study area.

Secondary Study Area

It is the Applicants' opinion that the Proposed Actions would result in an improved streetscape consistent with the surrounding secondary study area. The Proposed Actions would also align with a number of local and citywide goals, including the construction of new residential, commercial, and community facility space near transit facilities. The proposed heights of the Projected Development Sites would be supported by wide streets in the secondary study area.

Overall, the Proposed Actions would facilitate the redevelopment of the Projected Development Sites with new, more active land uses that would be consistent with uses in the secondary study area. In addition, the development on of the Projected Development Sites would not block any significant visual resources from pedestrian vantage points. As such, these changes are not anticipated to be significantly adverse as no view of significant visual resources would be obstructed. Therefore, the Proposed Actions would not have any significant adverse impacts on visual resources.

I. INTRODUCTION

As defined in the *CEQR Technical Manual*, a hazardous material is any substance that poses a threat to human health or the environment. Substances that can be of concern include, but are not limited to, heavy metals, volatile and semivolatile organic compounds, methane, polychlorinated biphenyls and hazardous wastes (defined as substances that are chemically reactive, ignitable, corrosive, or toxic). According to the *CEQR Technical Manual*, the potential for significant adverse impacts from hazardous materials can occur when: (a) hazardous materials exist on a site, and (b) an action would increase pathways to their exposure; or (c) an action would introduce new activities or processes using hazardous materials.

Phase I Environmental Site Assessments (ESAs) were conducted for the Applicants' Development Sites. This assessment was undertaken to determine whether additional investigations are necessary and whether an (E) designation should be placed on the Projected Development Sites under the Proposed Actions to avoid the potential for impacts pertaining to hazardous materials.

II. PRINCIPAL CONCLUSIONS

The proposed zoning map actions will include an (E) Designation Projected Development Sites 2 and 4. Therefore the Proposed Actions are not expected to result in significant adverse impacts for hazardous materials.

With the requirements of the (E) Designation on these Projected Development Sites, it is expected that there would be no impact from the potential presence of contaminated materials. The implementation of the preventative and remedial measures outlined below would reduce or avoid the potential that significant adverse hazardous materials impacts would result from potential construction in the rezoning area resulting from the Proposed Actions. Following such construction, there would be no potential for significant adverse impacts.

As discussed below, (E) Designations were mapped on portions of Projected Development Sites 1 and 3 as a result of the Astoria Rezoning in 2010 (E-245). The (E) Designation requires a Phase I ESA and Phase II Testing Protocol for hazardous materials for these sites. However, a new (E) Designation will be established to supersede the prior (E) Designation.

With the requirements of the (E) Designation on Projected Development Sites 1, 2, 3, and 4 (E-623), it is expected that there would be no impact from the potential presence of contaminated materials. The implementation of the preventative and remedial measures outlined below would reduce or avoid the potential that significant adverse hazardous materials impacts would result from potential construction in the rezoning area resulting from the Proposed Actions. Following such construction, there would be no potential for significant adverse impacts.

III. METHODOLOGY

As per Chapter 24 of Title 15 of the Rules of the City of New York, reviews of the regulatory database and/or Sanborn maps and city directories were used to determine past uses of the property and enable an assessment of whether a development site should receive an (E) Designation.

Chapter 24 of Title 15 of the Rules of the City of New York specifies the process for determining if an (E) Designation should be placed on a specific site. Section 24-04 describes the preliminary screening process, which includes reviewing historical documentation for past or current uses that may have affected or be affecting a projected or potential development site or an adjacent site. 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 types of facilities, activities or conditions which would lead to a site receiving an (E) Designation.

Phase I ESAs were conducted for the Projected Development Sites using the following parameters:

- *Historical Land Use* – The land use history was evaluated using available historical Sanborn fire insurance maps. Sanborn Maps from the years 1906 through 2007 were obtained and reviewed for the Development Site, as well as the adjacent and surrounding areas.

- *Regulatory Agency List Review* – A review of the federal and state hazardous materials databases, maintained by the United States Environmental Protection Agency (US EPA) and New York State Department of Environmental Conservation (NYSDEC), respectively, was performed. This review identified the sites where storage, handling, emission, and /or spill cleanup of hazardous or toxic materials have been performed in order to determine whether they may have impacted the Development Site.

IV. EXISTING CONDITIONS

Phase I ESAs were prepared for Projected Development Site 1 (Block 837 Lots 9 & 16) in July 2020, for Projected Development Site 2 (Block 837, Lot 27) in March 2021, and for Projected Development Site 3 (Block 835 Lots 3) in February 2017. A Phase II Remedial Investigation Report (RIR) was also prepared for Projected Development Site 3 in April 2020.

Projected Development Site 1

An (E) Designation was mapped on Block 837, Lot 9 as a result of the Astoria Rezoning in 2010 (E-245). The (E) Designation requires a Phase I ESA and Phase II Testing Protocol be prepared for the subject property. As mentioned above, a Phase I ESA was prepared for Projected Development Site 1 in July 2020 by Middleton Environmental Inc. Projected Development Site 1 is currently occupied by a diner and associated parking lot. The Phase I ESA prepared for Projected Development Site 1 did not identify any recognized environmental conditions (REC) based on the current usage of the subject property or surrounding properties. A REC is the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property of into the ground, groundwater, or surface water of the property. The Phase I ESA concluded that no further testing is warranted on Projected Development Site 1.

Projected Development Site 2

A Phase I ESA for Projected Development Site 2 was prepared in March 2021 by J.C. Broderick & Associates. There are no existing (E) Designations mapped on this site. The site is currently occupied by a Staples office supply store and associated parking lot. The Phase I ESA for Block 837, Lot 27 did not identify ant RECs or historic recognized environmental conditions (HRECs). A HREC is an environmental condition which in the past would have been considered a REC currently. In addition, no de minimis conditions were noted for Projected Development Site 2. A de minimis condition is one that generally does not present a material risk of harm to public health or the environment and that generally would not be subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Projected Development Site 3

As mentioned above, Projected Development Site 3 is comprised of Block 835, Lot 3. An (E) Designation was placed on the site as a result of the Astoria Rezoning in 2010 (E-245). The (E) Designation requires a Phase I ESA and Phase II Testing Protocol be prepared for the subject property. Projected Development Site 3 is currently vacant. As mentioned above, a Phase I ESA was prepared for Projected Development Site 3 in February 2017 by VE Science Inc. The Phase I ESA recommended a thorough sub-surface investigation of the site prior to new construction. Therefore, a RIR was prepared by GEI Consultants, Inc., P.C. in April 2020 (NYC OER Project Number: 20TMP0370Q, 20EHAZ081Q).

The RIR found that no VOCs, SVOCs, or PCBs were detected above the New York State Department of Environmental Conservation (NYSDEC) New York Codes, Rules and Regulations (6 NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs) in the samples collected for analysis. No compounds exceeded the Restricted Residential Use Soil Cleanup Objectives (RRUSCOs). Metals were found in soil borings in concentrations that are above the UUSCOs but below the RRUSCOs. The RIR also found that concentrations of certain pesticides found in the soil borings were also above the UUSCOs but below the RRUSCOs. According to the RIR, the soil chemistry detected are commonly found in soil, groundwater, and soil vapor throughout New York City and not indicative of a spill or release.

According to the RIR, the detections observed in the soil vapor samples collected during the investigation do not indicate an on-site source of contamination contributing to soil vapor concentrations. Therefore, the observed soil vapor concentrations are not likely to cause a vapor instruction condition into any future building on Projected Development Site 3.

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

In the future without the Proposed Actions, the Projected Development Sites would not be rezoned and the existing uses would remain.

VI. THE FUTURE WITH THE PROPOSED ACTIONS (WITH-ACTION CONDTION)

In the future with the Proposed Actions, the rezoning would convert the area to a C4-5X and C4-4 zoning district from the existing C4-3 and R5B zoning. The New York City Department of Environmental Protection (DEP) has reeviewed the Phase I ESAs and determined further investigation is required on Projected Development Sites 1, 2, & 4. Therefore, testing would be performed after the approval of the Proposed Actions as these Projected Development Sites currently contains active uses (a diner, residential uses, and commercial uses). Therefore, the Proposed Actions would include assigning a hazardous materials (E) Designation on Block 837, Lot 27 and Block 837, Lots 38, 39, 41-47. The (E) Designation that would be assigned to these lots would require that further investigation be performed to determine the presence and nature of contaminants of concern and the proper remedial and/or health and safety measures that would be employed during construction.

While Projected Development Site 1 already has an (E) Designation assigned to Block 837, Lot 9, a new (E) Designation for hazardous materials would be required for this site. If DEP determines that further investigation of Projected Development Site 1 is required, a Phase II Environmental Site Investigation (ESI) Work Plan will be prepared and submitted to DEP for review and approval.

A Phase I ESA and RIR were prepared for Projected Development Site 3. These reports will be transmitted to DEP for review and approval. If DEP determines that no further soil or groundwater testing or remediation is necessary, written notice shall be given by DEP that the site may be developed as proposed. If remediation is necessary, the Applicant is responsible to perform any and all remediation and construction activities in accordance with a Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP), as approved by DEP. After completion of remediation, if required, the Applicant shall provide a Site Closure report in accordance with DEP requirements to serve as proof that remediation is complete. Although this site already has an (E) Designation assigned to it, a new (E) Designation for hazardous materials would be required.

By assigning (E) Designations on Projected Development Sites 1, 2, 3, and 4, the potential for an adverse impact to human health and the environment resulting from the Proposed Actions 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, with OER providing the regulatory oversight of the environmental investigation and remediation during the process. Building permits are not issued by the New York City Department of Buildings (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 text of the hazardous materials (E) Designation (E-623) for Projected Development Site 1 (Block 837, Lots 9 & 16), Projected Development Site 2 (Block 837, Lot 27), Projected Development Site 3 (Block 835, Lot 3), and Projected Development Site 4 (Block 837, Lots 38, 39, 41-47) would be as follows:

Task 1: Sampling Protocol

Prior to construction, the applicant must submit to the New York City Mayor's Office of Environmental Remediation (OER), for review and approval, a Phase II Investigation protocol, including a description of methods and a site map with all sampling locations clearly and precisely represented.

No sampling should begin until written approval of a protocol is received by 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 the sampling data. Guidelines and criteria for selecting sampling locations and collecting samples are provided by OER upon request.

Task 2: Remediation Determination and Protocol

A written report with findings and a summary of the data must 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 for the test results, a proposed remedial action plan (RAP) must be submitted by 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 (CHASP) would be implemented during excavation 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.

With these measures in place, the Proposed Actions would not result in any significant adverse impacts related to hazardous materials.

I. INTRODUCTION

This attachment describes the transportation characteristics and potential impacts associated with the Proposed Actions, which involve zoning map and text amendments to facilitate the redevelopment of three Applicant-controlled Development Sites located on the western portions of Queens Blocks 835 and 837 in the Astoria neighborhood of Queens Community District 1. As shown in **Figure J-1** the proposed rezoning area (the "Project Area") is generally bounded by 31st Street to the west, Hoyt Avenue North/Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north. The intent of the Proposed Actions is to provide opportunities for new residential and commercial development. The Applicants intend for the Proposed Actions to create opportunities for new housing development, including affordable housing, on underutilize d land where a strong demand for housing exists.

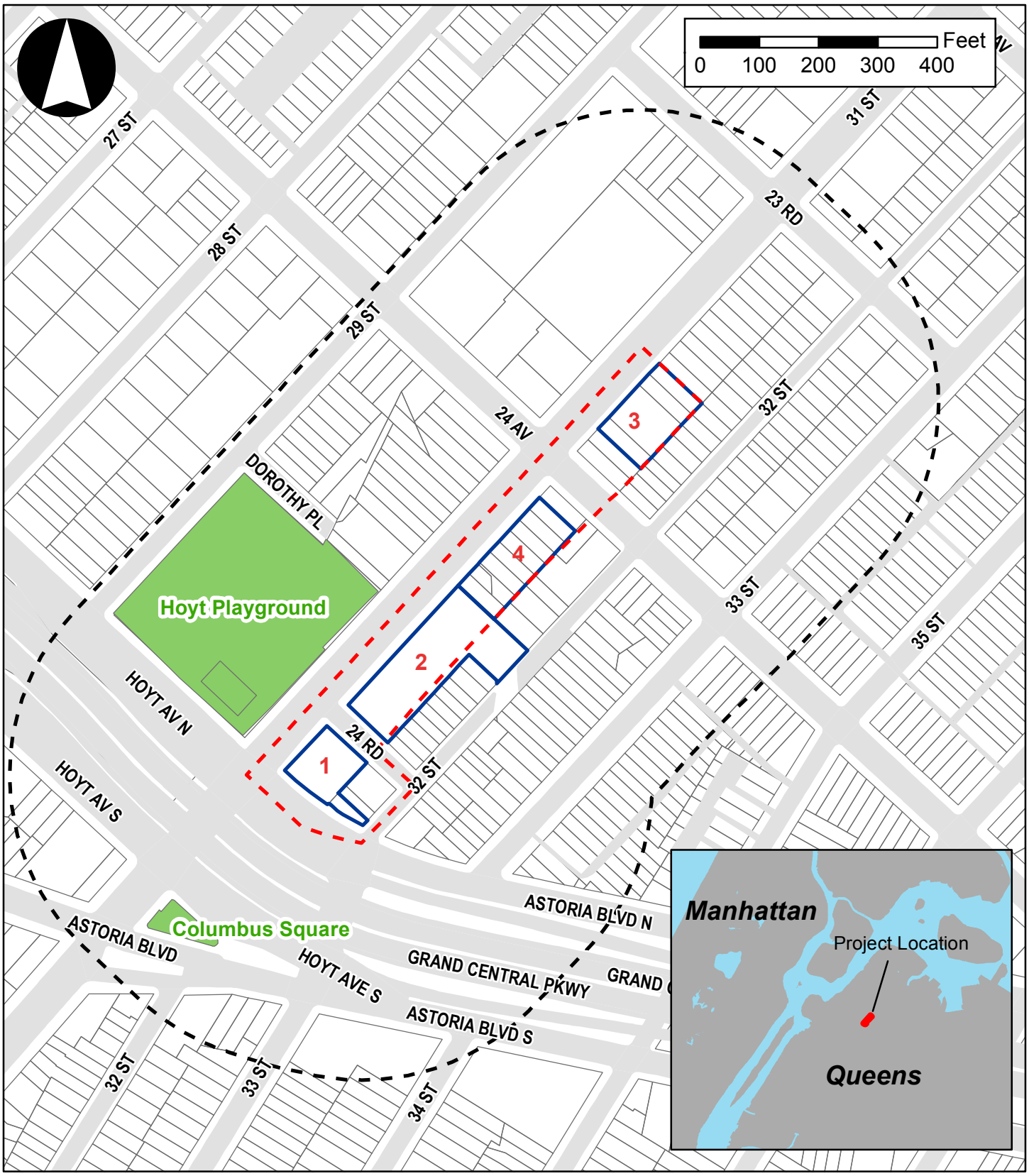
In order to assess the potential effects of the Proposed Actions, a reasonable worst case development scenario (RWCDS) for both "future without the proposed actions" (No-Action) and "future with the proposed actions" (With-Action) conditions is analyzed for an analysis year of 2028. As shown in **Figure J-1**, the RWCDS identified four projected development sites: the three Applicant-controlled sites on Blocks 835 and 837 (Projected Development Sites 1-3), and a fourth site not under the control of the Applicant on Block 837 (Projected Development Site 4).

Under the RWCDS, development on the three Applicant-controlled Development Sites would total approximately 295 dwelling units (DUs), 34,047 gross square feet (gsf) of commercial uses and 28,988 gsf of community facility uses. Projected Development Site 4 would include a total of approximately 94 DUs and 14,721 gsf of commercial uses. **Table J-1** below shows the total anticipated No-Action and With-Action land uses on the four projected development sites in 2028 under the RWCDS. As shown in **Table J-1**, in the No-Action condition it is assumed that the existing conditions within the Project Area would remain unchanged, with approximately 22 DUs, 26,280 gsf of local retail uses, 2,000 gsf of office uses and 3,280 gsf of restaurant uses on the projected development sites. Under the With-Action condition, there would be a net incremental increase of approximately 367 DUs, 28,988 gsf of community facility uses (assumed to be medical office space), 17,876 gsf of local retail space, and 2,612 gsf of office, and a net decrease of approximately 3,280 gsf of restaurant space. A total of 123 accessory parking spaces would also be provided in the With-Action condition compared to 58 in the No-Action.

Table J-1
2028 RWCDS No-Action and With-Action Land Uses

Use	No-Action	With-Action	Increment
Residential	22 DUs	389 DUs	**+367 DUs**
Community Facility – Medical Office	0 gsf	28,988 gsf	**+28,988 gsf**
Commercial – Local Retail	26,280 gsf	44,156 gsf	**+17,876 gsf**
Commercial – Office	2,000 gsf	4,612 gsf	**+2,612 gsf**
Commercial – Restaurant	3,280 gsf	0 gsf	**-3,280 gsf**
Parking	58 spaces	123 spaces	**+65 spaces**

Figure J-1
Project Location



Legend

Rezoning Area | 400-Foot Radius | 1 Projected Development Sites | Open Space | Roadbed

This attachment describes in detail the existing transportation conditions in proximity to the Project Area. Future conditions in the year 2028 without the Proposed Actions (the No-Action condition) are then determined, including additional transportation-system demand and any changes expected by the year 2028. The increase in travel demand resulting from the Proposed Actions is then projected and added to the No-Action condition to develop the 2028 future with the Proposed Actions (the With-Action condition). Significant adverse impacts from action-generated trips are then identified and described in detail. As well as possible transportation improvements to mitigate any potential adverse impact.

II. PRINCIPAL CONCLUSIONS

Traffic

Traffic conditions were evaluated for the weekday 8:00-9:00 AM, 12:30-1:30 PM (midday) and 4:00-5:00 PM peak hours, and the Saturday 2:00-3:00 PM peak hour, at three intersections (two signalized and one unsignalized) in the traffic study area where additional traffic resulting from the Proposed Actions would exceed the 50-trips/hour *City Environmental Quality Review* (CEQR) *Technical Manual* analysis threshold. Incremental vehicle trips generated by the Proposed Actions would have the potential to result in significant adverse traffic impacts to one lane group at the intersection of Astoria Boulevard North/Hoyt Avenue North and 31st Street in the weekday AM only, based on *CEQR Technical Manual* impact criteria. However, traffic improvement measures consisting of a minor signal timing change of one second in the weekday AM peak hour are proposed in conjunction with the Proposed Actions. With incorporation of this recommended improvement measure, the Proposed Actions would not result in significant adverse traffic impacts in any peak hour based on *CEQR Technical Manual* criteria.

Transit

Subway

SUBWAY STATIONS

The Proposed Actions would generate a net increment of approximately 240 and 263 new subway trips during the weekday AM and PM peak commute hours. The analysis of subway station conditions focuses on New York City Transit's Astoria Blvd (N/W) station as incremental demand from the Proposed Actions would exceed the 200-trips/hour *CEQR Technical Manual* analysis threshold at this station in both peak hours. In the future with the Proposed Actions, those stairs and fare arrays that would be used by project-generated demand are expected to operate at an acceptable level of service (LOS) A in both the AM and PM peak hours and would therefore not be significantly adversely impacted by the Proposed Actions based on *CEQR Technical Manual* criteria.

SUBWAY LINE HAUL

The Proposed Actions are expected to generate 240 incremental subway trips in the weekday AM peak hour (63 inbound and 177 outbound), and 263 trips in the PM (159 inbound and 104 outbound). As these trips would be distributed between two subway routes—the N and the W operating on the Astoria Line—the number of incremental trips in the peak direction on either of these routes is not expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold. Therefore, a detailed analysis of subway line haul conditions under the Proposed Actions is not warranted and not included in this EAS.

Bus

The Proposed Actions are expected to generate 66 incremental trips by bus in the weekday AM peak hour and 62 incremental trips by bus in the PM peak hour. Two routes operate within ¼-mile of the Development Site (the Q19 operated by MTA Bus Company and the M60-SBS operated by New York City Transit), and the number of incremental trips in one direction on any one of these routes would not exceed the 50-trip *CEQR Technical Manual* analysis threshold. Therefore, the Proposed Actions are not expected to result in significant adverse impacts to local bus service.

Pedestrians

The Proposed Actions' RWCDS is expected to generate approximately 152 incremental walk-only trips in the weekday AM peak hour, 520 in the midday peak hour, 307 in the PM peak hour and 319 in the Saturday peak hour. Persons walking to and from subway station entrances and bus stops would add approximately 306, 227, 325 and 306 incremental pedestrian trips to sidewalks and crosswalks in the vicinity of the Development Site during the weekday AM, midday, PM and Saturday peak hours, respectively. Pedestrian conditions during the weekday 7:45-8:45 AM, 12:30-1:30 PM (midday) and 5-6 PM peak hours, and the 12:30-1:30 Saturday peak hour, were evaluated at a total of six pedestrian elements (three sidewalks, one crosswalk and two corner areas) where new trips generated by the Proposed Actions are expected to exceed the 200-trip/hour *CEQR Technical Manual* analysis threshold. These elements are primarily located in the immediate proximity of the Development Sites along the 31st Street corridor which connects the Development Site the nearby subway station and bus stops. In the future with the Proposed Actions, all analyzed pedestrian elements would continue to operate at an acceptable LOS C or better in all four analyzed peak hours, and there would be no significant adverse pedestrian impacts based on *CEQR Technical Manual* impact criteria.

Vehicular and Pedestrian Safety

The *Vision Zero Queens Pedestrian Safety Action Plan*, released in 2015, and the updated *Vision Zero Borough Pedestrian Safety Action Plan*, issued in 2019, identified no Priority Corridors, Priority Intersections or Priority Areas within the traffic or pedestrian study areas. The Project Area is, however, located within the Astoria Senior Pedestrian Focus Area.

Crash data for intersections in the traffic and pedestrian study areas were obtained from the New York City Department of Transportation for the three-year reporting period between January 1, 2015, and December 31, 2017 (the most recent period for which data were available for all locations). The data quantify the total number of crashes as well as the total number of crashes involving injuries to pedestrians or bicyclists. During the three-year reporting period, a total of 87 crashes and 9 pedestrian/bicyclist-related injury crashes occurred at analyzed study area intersections. None of these crashes involved fatalities.

According to the 2014 *CEQR Technical Manual*, a high crash location is one where there were 48 or more reportable and non-reportable crashes or five or more pedestrian/bicyclist-related crashes in any consecutive 12 months within the most recent three-year period for which data are available. Based on these criteria, no analyzed intersections are classified as high crash locations.

Parking

Parking demand generated by the Proposed Actions would total approximately 101 spaces in the weekday midday, would peak at 129 spaces during the 5 PM to 6 PM period, and would total approximately 147 spaces overnight. Approximately a total of 123 on-site accessory parking spaces would be provided on the Development Sites. This on-site capacity would be sufficient to accommodate much of the projected demand; however, during the peak overnight period, it is estimated that up to 24 autos would need to be accommodated in nearby off-street public parking facilities or on-street. Based on *CEQR Technical Manual* guidance, this projected shortfall of up to 24 spaces of on-site parking capacity would not constitute a significant adverse parking impact.

III. PRELIMINARY ANALYSIS METHODOLOGY

The *City Environmental Quality Review* (CEQR) *Technical Manual* describes a two-level screening procedure for the preparation of a "preliminary analysis" to determine if quantified operational analyses of transportation conditions are warranted. As discussed in the following sections, the preliminary analysis begins with a trip generation (Level 1) analysis to estimate the numbers of person and vehicle trips attributable to the proposed action. According to the *CEQR Technical Manual*, if the proposed action is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (a Level 2 analysis) are to be performed to estimate the incremental trips that would be incurred at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the proposed action would generate 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a sidewalk, corner area or crosswalk, then further quantified operational analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, vehicular and pedestrian safety, and parking.

IV. LEVEL 1 SCREENING ASSESSMENT

A Level 1 trip generation screening assessment was conducted to estimate the numbers of person and vehicle trips by mode expected to be generated by the Proposed Actions during the weekday AM, midday, and PM, and Saturday peak hours for the RWCDS. These estimates were then compared to the *CEQR Technical Manual* analysis thresholds to determine if a Level 2 screening and/or quantified operational analyses may be warranted. The travel demand assumptions used for the assessment are described in the following sections along with a summary of the travel demand that would be generated by the RWCDS. A detailed travel demand forecast is then provided for the RWCDS.

Background

As shown in **Table J-1**, compared to the No-Action condition, the Proposed Actions would result in a net incremental increase of 367 DUs, 28,988 gsf of community facility (medical office) space, 17,876 gsf of local retail space, and 2,612 gsf of office space. There would also be a net incremental decrease of 3,280 gsf of restaurant space. Approximately 123 accessory off-street parking spaces would be provided on-site under the Proposed Actions compared to 58 in the No-Action condition.

Transportation Planning Factors

The trip generation rates, temporal and directional distributions, modal splits, vehicle occupancies and truck trip factors used to forecast travel demand for residential, local retail, office, community facility, and restaurant land uses are summarized in **Table J-2**. They were based on factors cited in the 2014 *City Environmental Quality Review* (CEQR) Technical Manual, American Association of State Highway Transportation Officials (AASHTO) Census Transportation Planning Products (CTPP) reverse journey-to-work five-year data, data from *ITE Trip Generation* Manual, 10th Edition, New York City Department of Transportation (DOT) survey data, and factors developed for recent environmental reviews. Factors are shown for the weekday AM and PM peak hours (typical peak periods for commuter travel demand) and the weekday midday and Saturday peak hours (typical peak periods for retail demand). To reflect the mixed-use nature of the projected development, it was assumed for the purposes of the travel demand forecast that 25 percent of all local retail trips on weekdays would be linked to the proposed residential, office and community facility uses on the site, consistent with *CEQR Technical Manual* guidance.

Travel Demand Forecast

The net incremental change in person and vehicle trips expected to result from the Proposed Actions by the 2028 analysis year was derived based on the net change in land uses shown in **Table J-1** and the transportation planning factors shown in **Table J-2**. **Table J-3** shows estimates of the net incremental change in peak hour person trips and vehicle trips (versus the No-Action condition) that would occur in 2028 with implementation of the Proposed Actions. As shown in **Table J-3**, under the RWCDS, the Proposed Actions would generate a net increase of approximately 577 person trips (in + out combined) in the weekday AM peak hour, 894 in the weekday midday, 765 in the weekday PM and 739 in the Saturday peak hour. Peak hour vehicle trips (including auto, taxi and truck trips) would increase by a net total of approximately 108, 115, 116 and 93 (in + out combined) during these same peak hours, respectively. Peak hour subway trips would increase by a net total of approximately 240, 149, 263 and 233 trips during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively, while peak hour trips by bus would increase by approximately 66, 78, 62 and 73, respectively. Lastly, trips made entirely on foot (walk-only trips) would increase by 152, 520, 307 and 319, during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively.

TRAFFIC

Based on *CEQR Technical Manual* guidelines, a quantified traffic analysis is typically required if a proposed action would result in 50 or more vehicle trip ends in a peak hour at one or more intersections. As shown in **Table J-3**, under the RWCDS, the net number of incremental vehicle trips—108, 115, 116 and 93 in the weekday AM, midday and PM, and Saturday peak hours, respectively—would exceed the 50-trip threshold in all peak periods, and a Level 2 screening analysis is therefore warranted for these periods to determine which intersections would require quantified analysis.

TABLE J-2
Transportation Planning Factors

Land Use:	Residential	Local Retail	Medical Office	Restaurant	Office
Size/Units:	367 DU	17,876 gsf	28,988 gsf	-3,280 gsf	2,612 gsf
Person Trip Generation:	(1)	(1)	(7)	(8)	(1)
Weekday	8.075	205.0	(See Note 7)	179.5	18.0
Saturday	9.6	240.0	39.0	195.9	3.9
	per DU	per 1,000 gsf	per 1,000 gsf	per 1,000 gsf	per 1,000 gsf
Temporal Distribution:	(1)	(1)	(7)	(8)	(1)
AM	10.0%	3.0%	11.0%	6.0%	12.0%
MD	5.0%	19.0%	13.0%	9.0%	15.0%
PM	11.0%	10.0%	9.0%	5.0%	14.0%
SAT	8.0%	10.0%	17.0%	9.0%	17.0%
Modal Splits:	(2) All Periods	(6) AM/MD/PM	(6) SAT	(6) All Periods	(9) All Periods	(6) AM/PM/SAT	(6) MD
Auto	16.6%	11.0%	8.0%	23.0%	30.0%	27.0%	2.0%
Taxi	0.4%	0.0%	1.0%	7.0%	5.0%	1.0%	1.0%
Subway	70.4%	3.0%	4.0%	14.0%	15.0%	53.0%	7.0%
Bus	3.5%	2.0%	7.0%	26.0%	15.0%	5.0%	7.0%
Walk/Other	9.1%	84.0%	80.0%	30.0%	35.0%	14.0%	83.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
In/Out Splits:	(4) In / Out	(6) In / Out	(7) In / Out	(10) In / Out	(5,13) In / Out
AM	20% / 80%	50% / 50%	62% / 38%	50% / 50%	96% / 4%
MD	50% / 50%	50% / 50%	47% / 53%	50% / 50%	39% / 61%
PM	65% / 35%	50% / 50%	35% / 65%	67% / 33%	5% / 95%
SAT	50% / 50%	50% / 50%	49% / 51%	50% / 50%	60% / 40%
Vehicle Occupancy:	(2,4) AM/PM	(12) MD/SAT	(6)	(6)	(10)	(3,13)
Auto	1.10	1.54	1.40	1.58	2.20	1.17
Taxi	1.40	1.40	1.40	1.58	2.30	1.42
Truck Trip Generation:	(1)	(1)	(9)	(10)	(1)
Weekday	0.06	0.35	0.29	3.60	0.32
Saturday	0.02	0.04	0.29	3.60	0.01
	per DU	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf
Temporal Distribution	(1)	(1)	(9)	(10)	(1)
AM	12.0%	8.0%	3.0%	0.0%	10.0%
MD	9.0%	11.0%	11.0%	6.0%	11.0%
PM	2.0%	2.0%	1.0%	1.0%	2.0%
SAT	9.0%	11.0%	0.0%	0.0%	11.0%
	In / Out	In / Out	In / Out	In / Out	In / Out
AM/MD/PM/SAT	50.0% / 50.0%	50.0% / 50.0%	50.0% / 50.0%	50.0% / 50.0%	50.0% / 50.0%

Notes :

(1) Source: 2014 *City Environmental Quality Review (CEQR) Technical Manual.*

(2) Based on ACS journey-to-work 5-Year (2014-2018) data for Queens tracts 65.01, 65.02, 69, 71, 95, 97, 137, 141, 143, 115, 117 and 125.

(3) Based on AASHTO CTPP reverse journey-to-work 5-Year data (2012-2016) for Queens tracts 65.01, 65.02,69,71,95, 97, 137,141,143,115,117,125.

(4) Based on data from the 2014 *Astoria Cove FEIS.*

(5) Based on data from the 2009 *Broadway Triangle FEIS* .

(6) Based on data provided by NYCDOT and NYCDCP

(7) Based on NYCDOT medical office trip generation and mode choice data. Weekday daily trip estimate based on following equation: 141.77 + 66.626 x gross SF (in thousands).

(8) Based on data from *ITE Trip Generation Manual, 10th Edition* , Land Use Code 932 (High-Turnover Restaurant). Person trip rate = ITE Trip Rate x 1.52/0.95.

(9) Based on data from the 2015 *East New York Rezoning Proposal FEIS* .

(10) Based on data from the 2015 *Vanderbilt Corridor and One Vanderbilt FEIS* .

(11) Based on data from the 2010 *Astoria Rezoning EAS.*

(12) Midday and Saturday auto occupancy determined by applying a multiplier (1.4) to the AM/PM rate.

(13) Based on data from the 2008 *Dutch Kills Rezoning and Related Actions FEIS.*

TABLE J-3
RWCDS Travel Demand Forecast

Land Use:		Residential		Local Retail		Medical Office		Restaurant		Office		Total	
Size/Units:		367 DU		17,876 gsf		28,988 gsf		-3,280 gsf		2,612 gsf			
Peak Hour Person Trips:													
	AM	296		82		228		-35		6		577	
	MD	149		522		270		-53		6		894	
	PM	326		275		187		-29		6		765	
	SAT	282		321		192		-58		2		739	
Person Trips:													
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	**Auto**	10	39	5	5	33	20	-5	-5	2	0	45	59
	Taxi	0	1	0	0	10	6	-1	-1	0	0	9	6
	Subway	42	167	1	1	20	12	-3	-3	3	0	63	177
	Bus	2	8	1	1	37	23	-3	-3	0	0	37	29
	Walk/Other	5	22	34	34	42	26	-6	-6	1	0	76	76
	Total	59	237	41	41	142	87	-18	-18	6	0	230	347
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	**Auto**	12	12	29	29	29	33	-8	-8	0	0	62	66
	Taxi	0	0	0	0	9	10	-1	-1	0	0	8	9
	Subway	52	52	8	8	18	20	-5	-4	0	0	73	76
	Bus	3	3	5	5	33	37	-4	-4	0	0	37	41
	Walk/Other	7	7	219	219	38	43	-9	-9	2	3	257	263
	Total	74	74	261	261	127	143	-27	-26	2	3	437	455
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	**Auto**	35	19	15	15	15	28	-6	-3	0	2	59	61
	Taxi	1	0	0	0	5	9	-1	0	0	0	5	9
	Subway	149	80	4	4	9	18	-3	-1	0	3	159	104
	Bus	7	4	3	3	17	32	-3	-1	0	0	24	38
	Walk/Other	19	10	116	116	20	36	-7	-4	0	1	148	159
	Total	211	113	138	138	66	123	-20	-9	0	6	395	371
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
SAT	**Auto**	23	23	13	13	22	23	-9	-9	0	0	49	50
	Taxi	1	1	2	2	7	7	0	-1	0	0	10	9
	Subway	100	100	6	6	13	14	-3	-4	1	0	117	116
	Bus	5	5	11	11	24	25	-4	-4	0	0	36	37
	Walk/Other	13	13	128	128	28	29	-10	-10	0	0	159	160
	Total	142	142	160	160	94	98	-26	-28	1	0	371	372
Vehicle Trips :													
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	**Auto**	9	35	4	4	21	13	-2	-2	2	0	34	50
	Taxi (Balanced)	1	1	0	0	10	10	0	0	0	0	11	11
	Truck	1	1	0	0	0	0	0	0	0	0	1	1
	Total	11	37	4	4	31	23	-2	-2	2	0	46	62
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	**Auto**	8	8	21	21	18	21	-4	-4	0	0	43	46
	Taxi (Balanced)	0	0	0	0	12	12	0	0	0	0	12	12
	Truck	1	1	0	0	0	0	0	0	0	0	1	1
	Total	9	9	21	21	30	33	-4	-4	0	0	56	59
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	**Auto**	32	17	11	11	9	18	-3	-1	0	2	49	47
	Taxi (Balanced)	1	1	0	0	9	9	0	0	0	0	10	10
	Truck	0	0	0	0	0	0	0	0	0	0	0	0
	Total	33	18	11	11	18	27	-3	-1	0	2	59	57
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
SAT	**Auto**	15	15	9	9	14	15	-4	-4	0	0	34	35
	Taxi (Balanced)	2	2	2	2	8	8	0	0	0	0	12	12
	Truck	0	0	0	0	0	0	0	0	0	0	0	0
	Total	17	17	11	11	22	23	-4	-4	0	0	46	47

Notes : 25% linked-trip credit applied to retail uses.

TRANSIT

According to the general thresholds used by the Metropolitan Transportation Authority and specified in the *CEQR Technical Manual*, detailed transit analyses are generally not required if a proposed action is projected to result in fewer than 200 peak hour rail or bus transit riders. If a proposed action would result in 50 or more bus passengers being assigned to a single bus line (in one direction), or if it would result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed bus and/or subway analysis would be warranted. Transit analyses typically focus on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the subway and bus systems is usually highest.

As shown in **Table J-3**, the Proposed Actions are expected to generate approximately 240 and 263 new subway trips in the weekday AM and PM peak hours. As these numbers of trips would exceed the 200-trip *CEQR Technical Manual* analysis threshold, a Level 2 screening analysis is warranted to determine which subway stations and routes would require quantified analysis. As also shown in **Table J-3** the Proposed Actions are expected to generate 66 new trips by bus in the weekday AM peak hour and 62 new trips by bus in the PM. Given that a total of two bus routes operate within ¼-mile of the Development Site (the Q19 operated by MTA Bus Company and the M60-SBS operated by New York City Transit), the number of incremental trips in one direction on any one of these routes is not expected to exceed the 50-trip *CEQR Technical Manual* analysis threshold. Therefore, a detailed analysis of bus conditions under the Proposed Actions is not warranted and not included in this EAS.

PEDESTRIANS

According to *CEQR Technical Manual* guidelines, a quantified analysis of pedestrian conditions is typically required if a proposed action would result in 200 or more peak hour pedestrian trips at any pedestrian element (sidewalk, corner area or crosswalk). As shown in **Table J-3**, the Proposed Actions' RWCDS would generate an incremental demand of approximately 458, 747, 632 and 625 total pedestrian trips (including walk-only trips and pedestrians en route to and from nearby subway stations and bus stops) in the weekday AM, midday and PM, and Saturday peak hours, respectively. As the numbers of trips in all of these periods would exceed the 200-trip threshold, a Level 2 screening analysis is warranted to determine which if any pedestrian elements would require quantified analysis.

V. LEVEL 2 SCREENING ASSESSMENT

A Level 2 screening assessment involves the assignment of project-generated trips to the study area street network, pedestrian elements, and transit facilities, and the identification of specific locations where the incremental increase in demand may potentially exceed *CEQR Technical Manual* analysis thresholds and therefore require a quantitative analysis.

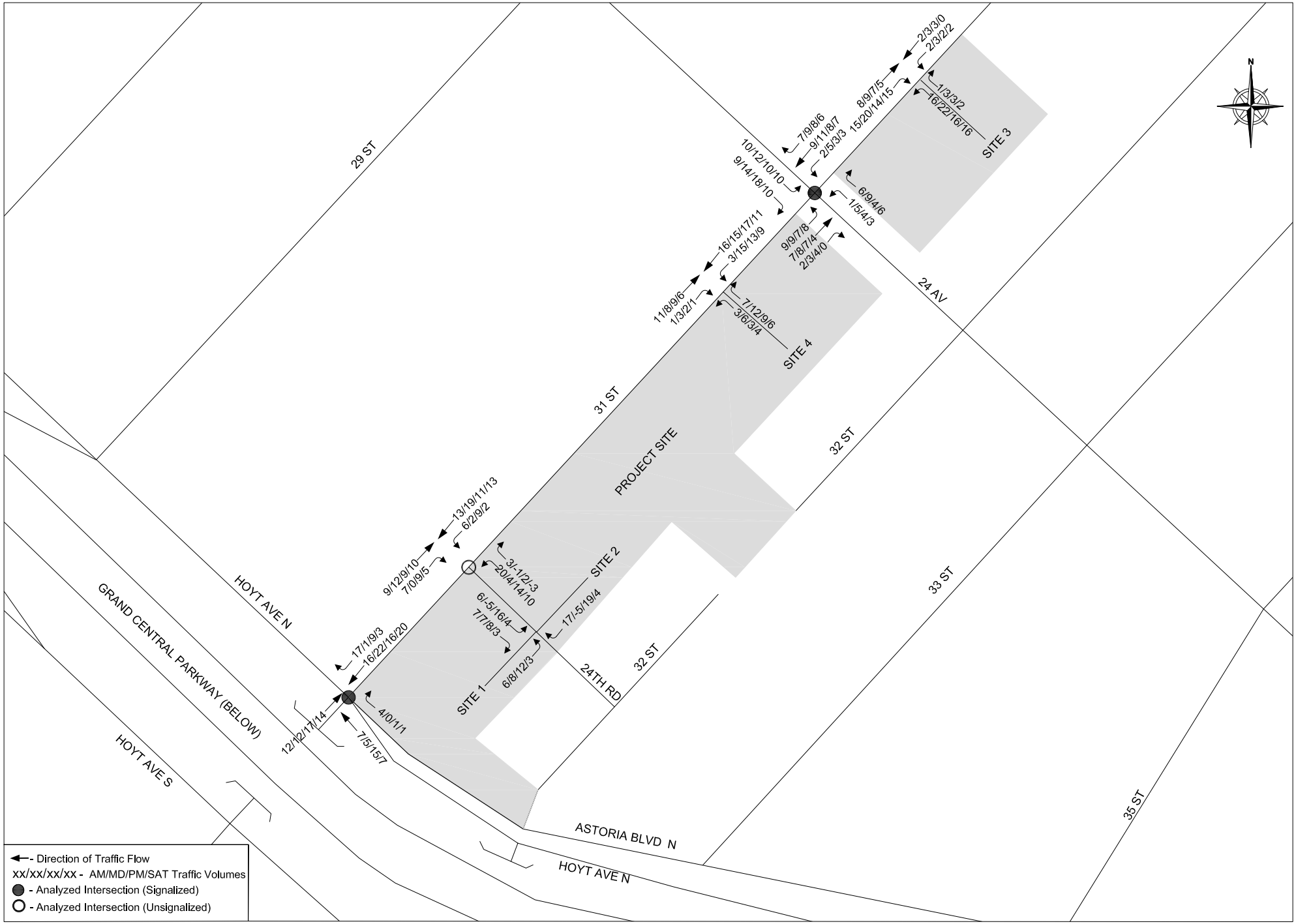
Vehicular Traffic

Based upon the projected development associated with the Proposed Actions, there would be approximately 108, 115, 116 and 93 additional vehicle trips during the weekday AM, midday, PM and Saturday peak hours, respectively. These traffic volumes would exceed the *CEQR Technical Manual* Level 1 screening threshold of 50 vehicles during each peak hour and, therefore, a Level 2 screening was performed to help identify intersections for detailed analysis.

The *CEQR Technical Manual* Level 2 screening threshold for detailed analysis is also 50 vehicles, but this threshold applies to individual intersections during the peak hours (rather than total trips generated). Peak hour project increment traffic volumes were first assigned to the Project Area street network to identify the intersections that would potentially exceed the 50-trip threshold during one or more periods. The assignments of auto and taxi trips to the street network in proximity to the Project Area were based on the anticipated origins and destinations of vehicle trips associated with the different land uses projected under the RWCDS (i.e., residential/office/medical office/local retail and restaurant). The origins/destinations used for the assignment of residential trips were based on 2012-2016 AASHTO CTPP journey-to-work data for Queens Census Tracts 65.01, 65.02, 69, 71, 95, 97, 115, 117, 125, 137, 141, and 143. The origins/destinations used for the assignment of office trips were based on AASHTO CTTP reverse journey-to-work data for office uses. Origins/destinations for medical office, local retail and restaurant uses, which generate mostly local trips, were based on population density in proximity to the Project Area and surrounding neighborhoods within a one-mile radius. (Additional data on the distributions of auto and taxi trips by land use are presented in the TPF/TDF *Technical Memorandum* included in **Appendix A**.) Based on the origin/destination data, auto and taxi trips were first assigned to various portals on the periphery of Astoria, and from there via the most direct route to the Development Sites. As the Proposed Actions' RWCDS includes on-site accessory parking, auto trips were assigned directly to the proposed parking garage entrances on 31st Street and on 24th Road. (Although some drivers will likely park on-street in the area or in off-street public parking facilities, assigning all trips to the Development Sites can be considered a conservative approach with respect to the traffic impact analysis as it concentrates project traffic at intersections in proximity to the site rather than dispersing it to outlying streets.) Taxis were generally assigned to the building frontages on 31st Street. Trucks were assigned to DOT-designated truck routes—i.e., Hoyt Avenue and Astoria Boulevard (both Through Truck Routes) as well as 21st Street (a Local Truck Route) —and then to the most direct paths to and from the Development Sites. Given the nature of the development (primarily residential and local retail), it is assumed that all truck deliveries will happen curbside.

The assignment of net incremental peak hour vehicle trips at intersections in proximity to the Development Sites is shown in **Figure J-2.** As shown in **Figure J-2**, three intersections along 31st Street were selected for detailed analysis as they would exceed the 50-trip threshold in one or more peak hours. These include the signalized intersections at 24th Avenue and at Astoria Boulevard North, and the unsignalized intersection at 24th Road.

Incremental Peak Hour Traffic Volumes



Transit

Subway Stations

As shown previously in **Table J-5**, the Proposed Actions are expected to generate a net total of approximately 240 and 263 incremental subway trips in the weekday AM and PM peak hours, respectively. These trips are expected to be concentrated at the Astoria Boulevard subway station which is located on an elevated structure above 31st Street at the south end of the Project Area (see **Figure J-3**). This station is served by New York City Transit (NYCT) N and W trains operating on the Astoria Line from a terminus at Ditmas Boulevard in Astoria to Manhattan and Brooklyn. As new subway demand from the Proposed Actions would likely exceed the 200-trip *CEQR Technical Manual* analysis threshold in the AM and PM periods at the Astoria Blvd (N,W) station, this station was selected for detailed analysis. Key circulation elements (e.g., stairs and fare arrays) expected to be used by concentrations of new demand from the Proposed Actions are analyzed.

Subway Line Haul

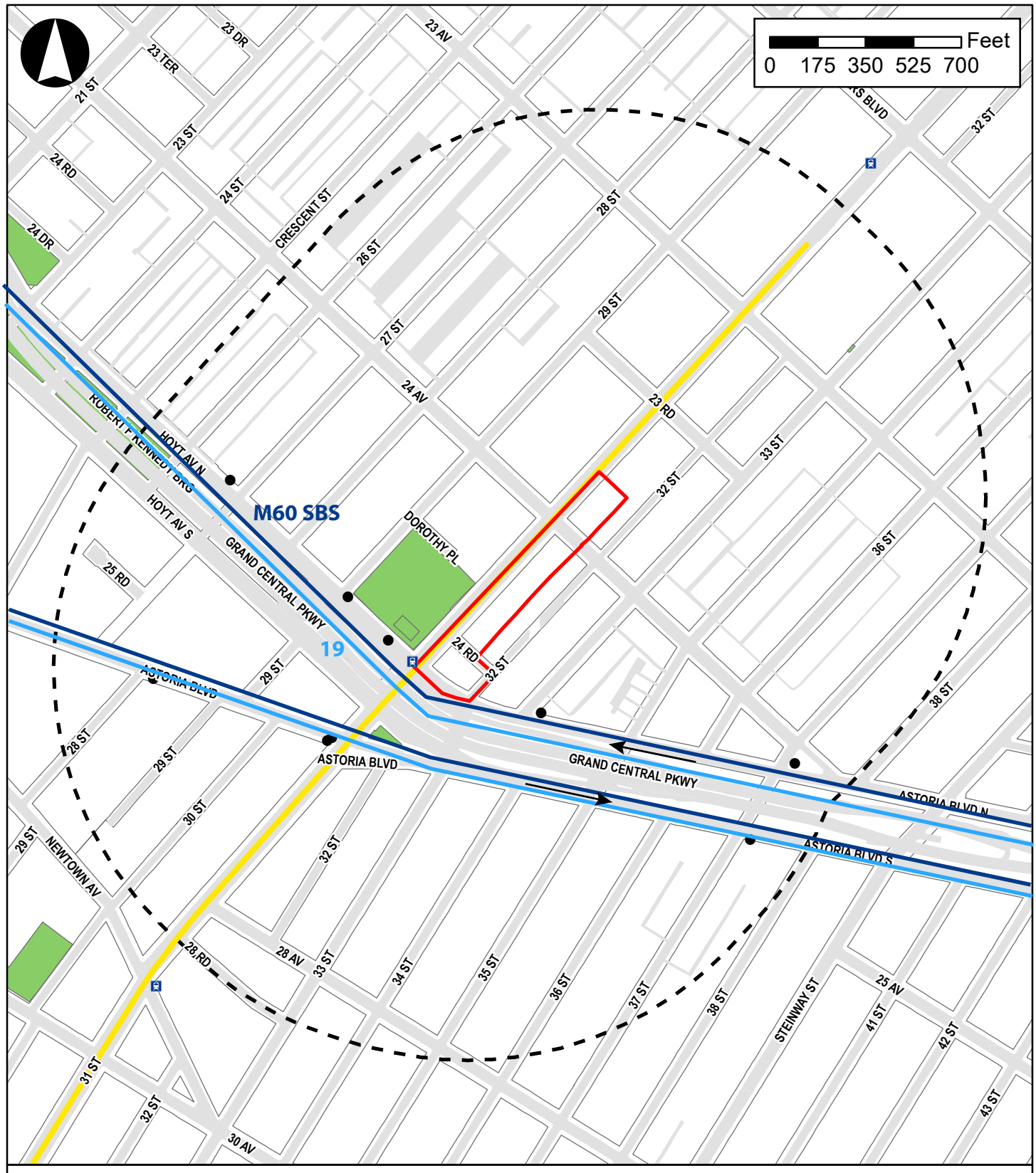
As discussed above, the Proposed Actions are expected to generate 240 incremental subway trips in the weekday AM peak hour (63 inbound and 177 outbound), and 263 trips in the PM (159 inbound and 104 outbound). As these trips would be distributed between two subway routes—the N and the W operating on the Astoria Line—the number of incremental trips in the peak direction on either of these routes is not expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold. Therefore, significant adverse impacts to subway line haul conditions on these trains are not anticipated, and a detailed analysis of subway line haul conditions under the Proposed Actions is not warranted and not included in this EAS.

Pedestrians

Under *CEQR Technical Manual* guidance, detailed pedestrian analyses are generally warranted if a proposed action is projected to result in 200 or more peak hour pedestrians at any sidewalk, corner area or crosswalk. As shown in **Table J-3**, the Proposed Actions' RWCDS is expected to generate approximately 152 incremental walk-only trips in the weekday AM peak hour, 520 in the midday peak hour, 307 in the PM peak hour, and 319 in the Saturday peak hour. Persons walking to and from subway station entrances and bus stops would add approximately 306, 227, 325 and 306 incremental pedestrian trips to sidewalks and crosswalks in the vicinity of the Development Sites during the weekday AM, midday, PM, and Saturday peak hours, respectively. In the weekday AM and PM peak hours, incremental pedestrian trips would be most concentrated on the sidewalks and crosswalks adjacent to the Development Sites that provide access to and from the Astoria Boulevard subway station to the south as well as nearby bus stops. In the weekday midday and Saturday periods, pedestrian trips would tend to be more dispersed, as people travel throughout the area for lunch, shopping and/or errands.

Given the numbers of incremental pedestrian trips that would be generated, a detailed analysis of pedestrian conditions under the Proposed Actions is warranted. The analysis of pedestrian conditions focuses on the weekday AM, midday and PM peak hours and the Saturday peak hour. Based on pedestrian count data collected in proximity to the Project Area, the weekday 7:45-8:45 AM, 12:30-1:30 PM (midday) and 5-6 PM peak hours, and the Saturday 12:30-1:30 PM peak hour, have been selected for analysis.

Based on an assignment of incremental peak hour pedestrian trips, a total of six pedestrian elements (three sidewalks, one crosswalk and two corner areas) are expected to experience an increase of 200 or more trips in one or more peak hours and have therefore been selected for analysis. As shown in **Figure**



Data Source: NYCDCP 2019; DoITT 2019

Legend

- Rezoning Area
- Quarter Mile Radius
- Open Space
- Subway Stations
- N-W Trains
- Bus Stops

J-4, these elements are primarily located in the immediate proximity of the Development Site and along the 31st Street corridor which connects the Development Sites to the nearby subway station and bus routes.

Parking

Parking demand from retail, office and community facility uses typically peaks in the midday period and declines during the afternoon and evening, while parking demand from residential uses typically peaks in the overnight period. A parking demand forecast is provided to document the ability of the proposed 123 spaces of on-site accessory parking to accommodate the projected demand under the Proposed Actions, and assess the potential for significant adverse impacts to on-street and off-street parking.

VI. TRANSPORTATION ANALYSES METHODOLOGIES

Traffic

Analysis Methodology

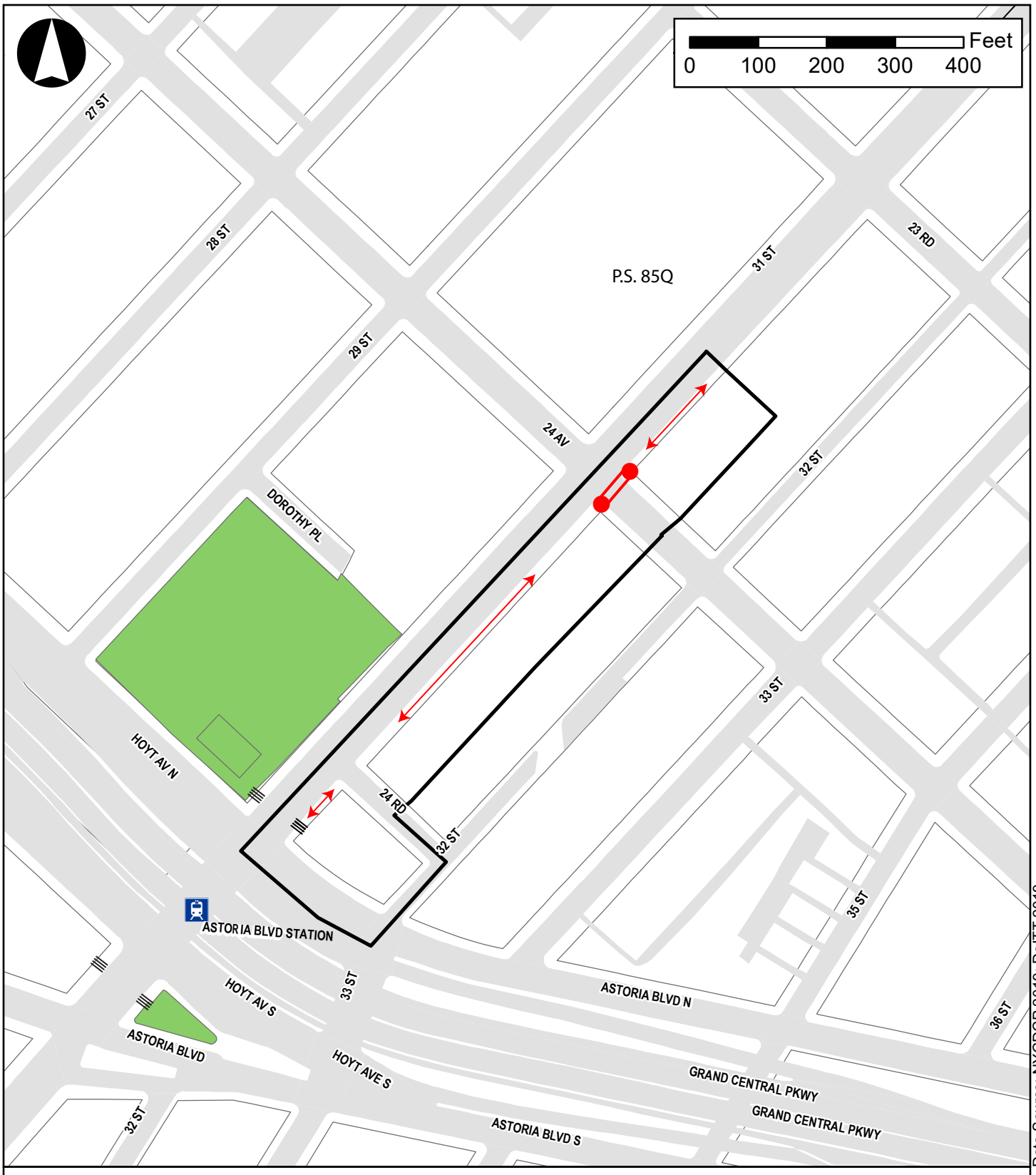
The traffic analysis examines conditions in the weekday AM, midday, PM and Saturday peak hours when the increased travel demand attributable to the Proposed Actions is expected to be the greatest. The 8:30-9:30 AM, 12:30-1:30 PM (midday) and 4-5 PM peak hours, and the Saturday 2-3 peak hour, were selected for analysis based on existing traffic volumes in the study area as reflected in automatic traffic recorder (ATR) count data.

The capacity analyses at intersections were based on the methodology presented in the Highway Capacity Manual (HCM) and utilize HCS+ Version 5.5 software. Traffic data required for these analyses include the hourly volumes on each approach, turning movements, the percentage of trucks and buses, and pedestrian volumes at crosswalks. Field inventories are also necessary to document the physical layout and street widths, lane markings, curbside parking regulations, and other relevant characteristics needed for the analysis.

The HCM methodology produces a volume-to-capacity (v/c) ratio for each signalized intersection approach. The v/c ratio represents the ratio of traffic volume on an approach to the approach's carrying capacity. A v/c ratio of less than 0.90 is generally considered indicative of non-congested conditions in dense urban areas; when higher than this value, the ratio reflects increasing congestion. At a v/c ratio between 0.95 and 1.0, near-capacity conditions are reached and delays can become substantial. Ratios of greater than 1.0 indicate saturated conditions with queuing. The HCM methodology also expresses the quality of traffic flow in terms of level of service (LOS), which is based on the amount of delay that a driver typically experiences at an intersection. Levels of service range from A, representing minimal delay (ten seconds or less per vehicle), to F, which represents long delays (greater than 80 seconds per vehicle).

For unsignalized intersections, the HCM methodology generally assumes that traffic on major streets is not affected by traffic flows on minor streets. Left turns from a major street are assumed to be affected by the opposing, or oncoming, traffic flow on that major street. Traffic on minor streets is affected by all conflicting movements. Similar to signalized intersections, the HCM methodology expresses the quality of traffic flow at unsignalized intersections in terms of LOS based on the amount of delay that a driver experiences. Level of service definitions used to characterize traffic flows at unsignalized intersections differ somewhat from those used for signalized intersections, primarily because drivers anticipate

Figure J-4
Analyzed Pedestrian Elements



Data Source: NYCDCP 2019; DoITT 2019

different levels of performance from the two different kinds of intersections. For unsignalized intersections, LOS ranges from A, representing minimal delay (ten seconds or less per vehicle, as it is for signalized intersections), to F, which represents long delays (greater than 50 seconds per vehicle, compared to greater than 80 seconds per vehicle for signalized intersections).

Table J-4 shows the LOS/delay relationship for signalized and unsignalized intersections using the HCM methodology. Levels of service A, B and C generally represent highly favorable to fair levels of traffic flow. At LOS D, the influence of congestion becomes noticeable. LOS E reflects heavy delay, and LOS F is considered to be unacceptable to most drivers. In these traffic impact analyses, a signalized lane grouping operating at LOS E or F or a v/c ratio of 0.90 or more is identified as congested. For unsignalized intersections, a movement with LOS E or F is also identified as congested.

TABLE J-4
Intersection Level of Service Criteria

LOS	Average Delay per Vehicle (seconds)	
	Signalized Intersections	**Unsignalized Intersections**
A	Less than 10.1	Less than 10.1
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	Greater than 80.0	Greater than 50.0

Source: *2000 Highway Capacity Manual*

Significant Impact Criteria

The identification of significant adverse traffic impacts at analyzed intersections is based on criteria presented in the *CEQR Technical Manual*. If a lane group in the With-Action condition would be LOS A, B, or C, or marginally acceptable LOS D (i.e., delay less than or equal to 45.0 seconds/vehicle for signalized intersections and 30.0 seconds/vehicle for unsignalized intersections), the impact is not considered significant. If the lane-group LOS would deteriorate from LOS A, B, or C in the No-Action condition to worse than mid-LOS D or to LOS E or F in the With-Action condition, a significant traffic impact is identified. For a lane group that would operate at LOS D in the No-Action condition, an increase in delay of 5.0 or more seconds in the With-Action condition is considered a significant impact if the With-Action delay would exceed mid-LOS D. For a lane group that would operate at LOS E in the No-Action condition, a projected With-Action increase in delay of 4.0 or more seconds is considered a significant impact. For a lane group that would operate at LOS F in the No-Action condition, a projected With-Action increase in delay of 3.0 or more seconds is considered a significant impact.

The same criteria apply to signalized and unsignalized intersections. However, for traffic on a minor street at an unsignalized intersection to result in a significant impact, 90 passenger car equivalents (PCEs) must be projected in the future With-Action condition in any peak hour.

Transit

Analysis Methodology

SUBWAY STATIONS

To determine existing conditions at analyzed subway station elements, subway ridership data were collected at the Astoria Boulevard (N/W) subway station in April 2021. Data collected prior to the Covide-19 pandemic were used in consultation with NYCT to adjust the 2021 count data to reflect pre-pandemic conditions.

The methodology for assessing subway station pedestrian circulation elements (stairs, escalators, and passageways) and fare control elements (low turnstiles, high entry/exit turnstiles [HEETs], and high exit turnstiles [HXTs]) compares existing and projected pedestrian volumes with the element's design capacity to yield a v/c ratio. All analyses reflect pedestrian flow volumes over a 15-minute interval during each peak hour. Based on existing pedestrian volumes at the Astoria Boulevard (N/W) station, the peak hours selected for the analysis of subway station conditions are 7:30-8:30 AM and 5:00-6:00 PM. (As noted previously, transit analyses typically focus on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the subway and bus systems is usually highest.)

Under *CEQR Technical Manual* guidance, the capacity of a stairway or passageway is determined based on four factors: the NYCT guideline capacity, the effective width, and surging and counter-flow factors, if applicable. NYCT guideline capacity is ten passengers per foot-width per minute (pfm) for stairs and 15 pfm for passageways. The effective width of a stair or passageway is the actual width adjusted to reflect pedestrian avoidance of sidewalls and for center handrails, if present. A surging factor is applied to existing pedestrian volumes to reflect conditions where pedestrian flows tend to be concentrated (or surged) during shorter periods within the 15-minute analysis interval. This factor, which is based on the size of the station and the proximity of the pedestrian element to the station platforms, can reduce the calculated capacity by up to 25 percent. Lastly, a friction (or counter-flow) factor reducing calculated capacity by ten percent is applied where opposing pedestrian flows use the same stair or passageway. (No friction factor is applied if the flow is all or predominantly in one direction.)

By contrast with stairways and passageways, under *CEQR Technical Manual* guidance the capacity of an escalator or turnstile is determined based on only two factors: the NYCT guideline capacity for a 15-minute interval and a surging factor of up to 25 percent. **Table J-5** shows the *CEQR Technical Manual* LOS criteria for all subway station elements. As shown in **Table J-5**, six levels of service are defined with letters A through F. LOS A is representative of free flow conditions without pedestrian conflicts, and LOS F depicts severe congestion and queuing.

Significant Impact Criteria

SUBWAY STATIONS

The *CEQR Technical Manual* identifies a significant impact for stairways and passageways in terms of the minimum width increment threshold (WIT) based on the minimum amount of additional capacity that would be required to restore conditions to either their No-Action v/c ratio or to a v/c ratio of 1.00 (LOS C/D), whichever is greater. Stairways that are substantially degraded in LOS or that experience the formation of extensive queues are classified as significantly impacted. Significant adverse stairway or passageway impacts are typically considered to have occurred once the thresholds shown in **Table J-6** are reached or exceeded.

TABLE J-5
Level of Service Criteria for Subway Station Elements

LOS	Description	V/C Ratio
A	Free Flow	0.00 to 0.45
B	Fluid Flow	0.45 to 0.70
C	Fluid, somewhat restricted	0.70 to 1.00
D	Crowded, walking speed restricted	1.00 to 1.33
E	Congested, some shuffling and queuing	1.33 to 1.67
F	Severely congested, queued	> 1.67

Source: 2014 *CEQR Technical Manual*

TABLE J-6
Significant Impact Thresholds for Stairways and Passageways

With-Action V/C Ratio	WIT for Significant Impact (inches)	
	Stairway	Passageway
1.00-1.09	8	13
1.10-1.19	7	11.5
1.20-1.29	6	10
1.30-1.39	5	8.5
1.40-1.49	4	6
1.50-1.59	3	4.5
≥1.6	2	3

Source: 2014 *CEQR Technical Manual*

For turnstiles, escalators, and high-wheel exit gates, the *CEQR Technical Manual* defines a significant impact as an increase from a No-Action v/c ratio of below 1.00 to a v/c ratio of 1.00 or greater. Where a facility is already at a v/c ratio of 1.00 or greater, a 0.01 change in v/c ratio is also considered significant.

Pedestrians

Analysis Methodology

Data on peak period pedestrian flow volumes were collected along analyzed sidewalks, corner areas, and crosswalks in the vicinity of the Project Area in January and February 2020. Peak hours were determined by comparing rolling hourly averages, and the highest 15-minute volumes within the selected peak hours were used for analysis. Based on existing peak pedestrian volumes along major corridors in the study area, the peak hours selected for analysis include the weekday 7:45-8:45 AM, 12:30-1:30 PM (midday) and 5-6 PM periods, and the Saturday 12:30-1:30 PM period.

Peak 15-minute pedestrian flow conditions during the weekday AM, midday and PM peak hours and Saturday peak hours are analyzed using the *Highway Capacity Manual 2010* methodology and procedures outlined in the *CEQR Technical Manual*. Using this methodology, the congestion level of pedestrian

facilities is determined by considering pedestrian volume, measuring the sidewalk or crosswalk width, determining the available pedestrian capacity, and developing a ratio of volume flows to capacity conditions. The resulting ratio is then compared with LOS standards for pedestrian flow, which define a qualitative relationship at a certain pedestrian traffic concentration level. The evaluation of street crosswalks and corners is more complicated as these spaces cannot be treated as corridors due to the time incurred waiting for traffic lights. To effectively evaluate these facilities a "time-space" analysis methodology is employed, which takes into consideration the traffic light cycle at intersections.

LOS standards are based on the average area available per pedestrian during the analysis period, typically expressed as a 15-minute peak period. LOS grades from A to F are assigned, with LOS A representative of free flow conditions without pedestrian conflicts and LOS F depicting significant capacity limitations and inconvenience. **Table J-7** defines the LOS criteria for pedestrian crosswalk/corner area and sidewalk conditions, as based on the *Highway Capacity Manual* methodology

TABLE J-7
Pedestrian Crosswalk/Corner Area and Sidewalk Levels of Service Descriptions

LOS	Crosswalk/Corner	Crosswalk/Corner Area Criteria (sf/ped)	Non-Platoon Sidewalk Criteria (sf/ped)	Platoon Sidewalk Criteria (sf/ped)
A	(Unrestricted)	> 60	> 60	> 530
B	(Slightly Restricted)	> 40 to 60	> 40 to 60	> 90 to 530
C	(Restricted but fluid)	> 24 to 40	> 24 to 40	> 40 to 90
D	(Restricted, necessary to continuously alter walking stride and direction)	> 15 to 24	> 15 to 24	> 23 to 40
E	(Severely restricted)	> 8 to 15	> 8 to 15	> 11 to 23
F	(Forward progress only by shuffling; no reverse movement possible)	≤ 8	≤ 8	≤ 11

Notes:
Based on average conditions for 15 minutes
sf/ped – square feet of area per pedestrian
Source: 2014 *CEQR Technical Manual*

The analysis of sidewalk conditions includes a "platoon" factor in the calculation of pedestrian flow to more accurately estimate the dynamics of walking. "Platooning" is the tendency of pedestrians to move in bunched groups or "platoons" once they cross a street where cross traffic required them to wait. Platooning generally results in an LOS one level poorer than that determined for average flow rates.

Significant Impact Criteria

SIDEWALKS

Given the Development Sites' close proximity to the Astoria Boulevard subway station which generates relatively high levels of pedestrian demand, the *CEQR Technical Manual* impact criteria for a central business district (CBD) location are used to identify significant adverse impacts due to the Proposed Actions. These criteria define a significant adverse sidewalk impact to have occurred under platoon conditions if the average pedestrian space under the No-Action condition is greater than 39.2 square

feet/pedestrian (sf/ped), and the average pedestrian space under the With-Action condition is 31.5 sf/ped or less (LOS D or worse). If the average pedestrian space under the With-Action condition is greater than 31.5 sf/ped (LOS C or better), the impact should not be considered significant. If the No-Action pedestrian space is between 6.4 and 39.2 sf/ped, a reduction in pedestrian space under the With-Action condition should be considered significant based on **Table J-8**, which shows a sliding-scale that identifies what decrease in pedestrian space is considered a significant impact for a given pedestrian space value in the No-Action condition. If the reduction in pedestrian space is less than the value in **Table J-8**, the impact is not considered significant. If the average pedestrian space under the No-Action condition is less than 6.4 sf/ped, then a reduction in pedestrian space greater than or equal to 0.3 sf/ped, under the With-Action condition, should be considered significant.

CORNER AREAS AND CROSSWALKS

For CBD areas, *CEQR Technical Manual* criteria define a significant adverse corner area or crosswalk impact to have occurred if the average pedestrian space under the No-Action condition is greater than 21.5 sf/ped and, under the With-Action condition, the average pedestrian space decreases to 19.5 sf/ped or less (LOS D or worse). If the pedestrian space under the With-Action condition is greater than 19.5 sf/ped (LOS C or better), the impact should not be considered significant. If the average pedestrian space under the No-Action condition is between 5.1 and 21.5 sf/ped, a decrease in pedestrian space under the With-Action condition should be considered significant based on **Table J-9** which shows a sliding-scale that identifies what decrease in pedestrian space is considered a significant impact for a given amount of pedestrian space in the No-Action condition. If the decrease in pedestrian space is less than the value in **Table J-9**, the impact is not considered significant. If the average pedestrian space under the No-Action condition is less than 5.1 sf/ped, then a decrease in pedestrian space greater than or equal to 0.2 sf/ped should be considered significant.

Vehicular and Pedestrian Safety Evaluation

Under *CEQR Technical Manual* guidance, an evaluation of vehicular and pedestrian safety is needed for locations within the traffic and pedestrian study areas that have been identified as high crash locations. These are defined as locations with 48 or more total reportable and non-reportable crashes or where five or more pedestrian/bicyclist injury crashes have occurred in any consecutive 12 months of the most recent three-year period for which data are available. For these locations, crash trends would be identified to determine whether projected vehicular and pedestrian traffic would further impact safety, or whether existing unsafe conditions could adversely impact the flow of the projected new trips. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic and pedestrian volumes, crash types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety should be identified and coordinated with NYCDOT.

TABLE J-8
Significant Impact Criteria for Sidewalks with Platooned Flow in a CBD Location

No Action Condition Pedestrian Flow (sf/ped)			With Action Condition Pedestrian Flow Increment to be Considered a Significant Impact (sf/ped)
> 39.2			With Action Condition < 31.5
38.7	to	39.2	Reduction ≥ 3.8
37.8	to	38.6	Reduction ≥ 3.7
36.8	to	37.7	Reduction ≥ 3.6
35.9	to	36.7	Reduction ≥ 3.5
34.9	to	35.8	Reduction ≥ 3.4
34.0	to	34.8	Reduction ≥ 3.3
33.0	to	33.9	Reduction ≥ 3.2
32.1	to	32.9	Reduction ≥ 3.1
31.1	to	32.0	Reduction ≥ 3.0
30.2	to	31.0	Reduction ≥ 2.9
29.2	to	30.1	Reduction ≥ 2.8
28.3	to	29.1	Reduction ≥ 2.7
27.3	to	28.2	Reduction ≥ 2.6
26.4	to	27.2	Reduction ≥ 2.5
25.4	to	26.3	Reduction ≥ 2.4
24.5	to	25.3	Reduction ≥ 2.3
23.5	to	24.4	Reduction ≥ 2.2
22.6	to	23.4	Reduction ≥ 2.1
21.6	to	22.5	Reduction ≥ 2.0
20.7	to	21.5	Reduction ≥ 1.9
19.7	to	20.6	Reduction ≥ 1.8
18.8	to	19.6	Reduction ≥ 1.7
17.8	to	18.7	Reduction ≥ 1.6
16.9	to	17.7	Reduction ≥ 1.5
15.9	to	16.8	Reduction ≥ 1.4
15.0	to	15.8	Reduction ≥ 1.3
14.0	to	14.9	Reduction ≥ 1.2
13.1	to	13.9	Reduction ≥ 1.1
12.1	to	13.0	Reduction ≥ 1.0
11.2	to	12.0	Reduction ≥ 0.9
10.2	to	11.1	Reduction ≥ 0.8
9.3	to	10.1	Reduction ≥ 0.7
8.3	to	9.2	Reduction ≥ 0.6
7.4	to	8.2	Reduction ≥ 0.5
6.4	to	7.3	Reduction ≥ 0.4
<6.4			Reduction ≥ 0.3

Source: 2014 *CEQR Technical Manual*

TABLE J-9
Significant Impact Criteria for Corners and Crosswalks in a CBD Location

No Action Condition Pedestrian Space (sf/ped)			With Action Condition Pedestrian Space Reduction to be Considered a Significant Impact (sf/ped)
> 21.5			With Action Condition < 19.5
21.3	to	22.1	Reduction ≥ 2.1
20.4	to	21.2	Reduction ≥ 2.0
19.5	to	20.3	Reduction ≥ 1.9
18.6	to	19.4	Reduction ≥ 1.8
17.7	to	18.5	Reduction ≥ 1.7
16.8	to	17.6	Reduction ≥ 1.6
15.9	to	16.7	Reduction ≥ 1.5
15.0	to	15.8	Reduction ≥ 1.4
14.1	to	14.9	Reduction ≥ 1.3
13.2	to	14.0	Reduction ≥ 1.2
12.3	to	13.1	Reduction ≥ 1.1
11.4	to	12.2	Reduction ≥ 1.0
10.5	to	11.3	Reduction ≥ 0.9
9.6	to	10.4	Reduction ≥ 0.8
8.7	to	9.5	Reduction ≥ 0.7
7.8	to	8.6	Reduction ≥ 0.6
6.9	to	7.7	Reduction ≥ 0.5
6.0	to	6.8	Reduction ≥ 0.4
5.1	to	5.9	Reduction ≥ 0.3
< 5.1			Reduction ≥ 0.2
Source: 2014 *CEQR Technical Manual*			

Parking

Analysis Methodology

The parking analysis identifies the supply of on-street and off-street public parking near a proposed project and determines the extent to which the supply is utilized in existing conditions and in the future without and with a proposed action. The analysis considers anticipated changes in the study area's parking supply and demand, and compares project-generated parking demand with future parking availability to determine if a parking shortfall is likely to result. The displacement of existing parking capacity attributable to the proposed action or project is also considered. Typically, the analysis encompasses the parking facilities—public parking lots and garages and on-street curbside spaces—that vehicular traffic destined to the project site or area would likely utilize. According to the *CEQR Technical Manual*, a ¼-mile radius around a project site is generally assumed as the distance that someone driving to the site would be willing to walk.

A parking demand forecast for the Proposed Actions' RWCDS is provided to document the projected demand at the proposed 123-spaces of on-site accessory parking and whether any demand would need to be accommodated on-street or at nearby off-street public parking facilities.

Significant Shortfall Criteria

Should a proposed action generate the need for more parking than it provides, a shortfall of spaces may be considered significant. The availability of off-street and on-street parking spaces within a convenient walking distance (about a ¼-mile), as well as the availability of alternative modes of transportation, are considered in making this determination.

Under *CEQR Technical Manual* guidance, different criteria for determining significance are applied based on whether or not a proposed project is located in residential or commercial areas designated as Parking Zones 1 and 2 as shown in Map 16-2, "CEQR Parking Zones, May 2010," in the 2014 *CEQR Technical Manual*. As the Project Area is located within Zone 2 as shown in Map 16-2, the inability of the Proposed Actions or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant due to the magnitude of available alternative modes of transportation.

VII. TRAFFIC

Existing Conditions

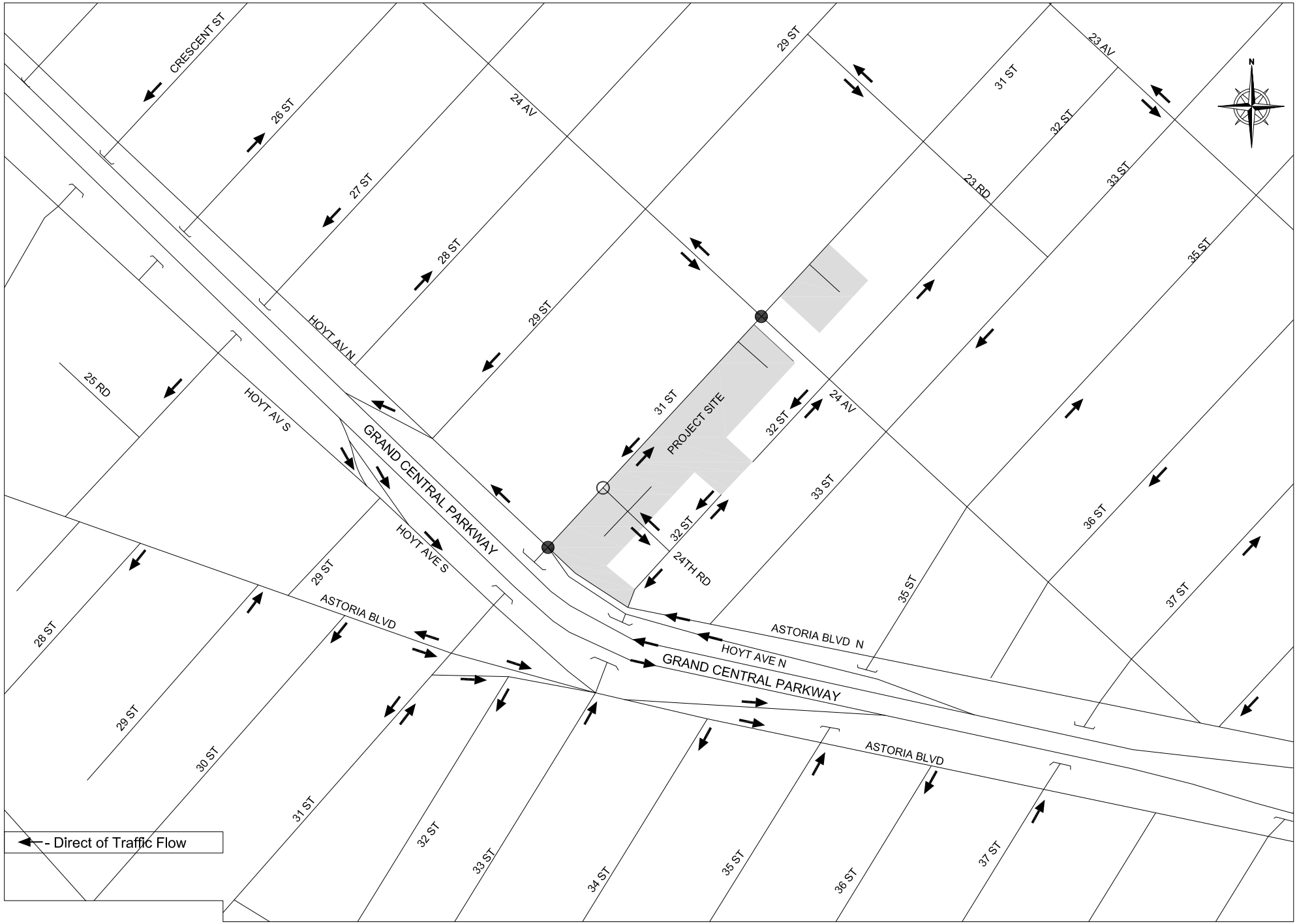
Study Area Street Network

As shown in **Figure J-5**, the street network in proximity to the Project Area is typically comprised of a regular grid pattern with the exception of the Grand Central Parkway and its service roads, which interrupt the street grid to the south. Most intersections in proximity to the Project Area along 31st Street are signalized. However, there are unsignalized intersections in the lower density residential area within proximity to the Project Area.

The Project Area is generally bounded by 31st Street to the west, Hoyt Avenue North/Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north. Additionally, 24th Road traverses the Project Area in the east-west direction parallel and to the north of Astoria Boulevard North. The street along the main frontage of all four Development Sites, **31st Street**, is a northbound/southbound two-way minor arterial that typically operates with one moving lane in each direction and parking along both curbs. **24th Avenue** is an eastbound/westbound two-way major collector that typically operates with one moving lane in each direction and parking along both curbs. **32nd Street** is a discontinuous street with two dead-ends midway between Astoria Boulevard North and 24th Avenue due to a large elevation change between Astoria Boulevard North to the south (where the street is a southbound one-way) and 24th Avenue to the north (where the street is northbound one-way). Parking is only permitted along the east curb of this narrow street. **24th Road** is a short two-way street connecting 31st Street and 32nd Street, with parking permitted along the south curb. This cross street would be fronted by two of the four Development Sites. **23rd Road**, located to the north of the Project Area, is a two-way, east-west street with parking along both curbs that connects 29th Street and 33rd Street.

Hoyt Avenue North/Astoria Boulevard North is the principal arterial in close proximity to the Development Sites. The two eastbound and westbound roads are separated by the Grand Central Parkway (I-278). Hoyt

Figure J-5
Direction of Traffic Flow



Avenue North/Astoria Boulevard North operates in the westbound direction with multiple lanes and parking along the north curb. This arterial provides access to/from the Grand Central Parkway and the Robert F. Kennedy Bridge. A stripped median with delineators separates the westbound approaches of Hoyt Avenue and Astoria Boulevard near 31st Street. West of 31st Street, the curb lane operates as a bus-only lane where the Q19 and M60-SBS buses operate along Hoyt Avenue/Astoria Boulevard. It should be noted that left-turns are prohibited at Hoyt Avenue North and 31st Street. Also, no left turns are permitted 7:00am-9:00am and 4:00pm-7:00pm, Monday through Friday, at the intersection of 31st Street (northbound) and Hoyt Avenue North. Hoyt Avenue/Astoria Boulevard is a DOT-designated Through Truck Route.

BUS ROUTES

As shown in **Figure J-3**, two bus routes operate along Astoria Boulevard/Hoyt Avenue just south of the Project Area. These include the Q19, which connects Astoria with Jackson Heights and Flushing, and the M60-SBS which connects Manhattan to LaGuardia Airport via the Robert F. Kennedy Bridge.

TRUCK ROUTES

The City has established local and through truck routes to manage the flow of trucks and improve the quality of neighborhoods. The City defines a truck as "a vehicle which is designed for transportation of property, which has either of the following characteristics: two axles and six tires or three or more axles." Trucks must generally travel on local truck routes to reach the intersection nearest their destinations. In the vicinity of the Project Area, local truck routes have been designated along 21st Street and portions of Astoria Boulevard. Through trucks are defined as having neither an origin nor a destination within the Borough of Queens. There are two designated through truck routes in proximity to the Project Area—Astoria Boulevard North/Hoyt Avenue North and 24th Avenue. It should be noted that Grand Central Parkway does permit trucks, but only to traverse the Robert F. Kennedy Bridge.

Traffic Conditions

To establish the Existing conditions traffic network, an extensive traffic data collection program—including ATR counts, turning movement counts and vehicle classification counts, was undertaken in January and February 2020. Physical inventory data needed for operational analysis—e.g., the number of traffic lanes, lane widths, pavement markings, turn prohibitions, bus stops, and typical parking regulations—were also collected in January 2020. Signal timing plans for signalized intersections within the study area were obtained from NYCDOT. **Figure J-6** shows existing traffic volumes during weekday AM, midday and PM peak hours, and the Saturday peak hour.

Intersection Capacity Analysis

Existing v/c ratios, delays, and LOS for individual lane groups at analyzed intersections are shown in **Table J-10**. A lane group is considered congested in **Table J-10** if it operates at LOS E or F and/or with a v/c ratio of 0.90 or above. A v/c ratio of 1.00 or above reflects capacity conditions. As shown in **Table J-10**, no analyzed intersection currently experiences congested in any analyzed peak hour.

Existing Peak Hour Traffic Volumes

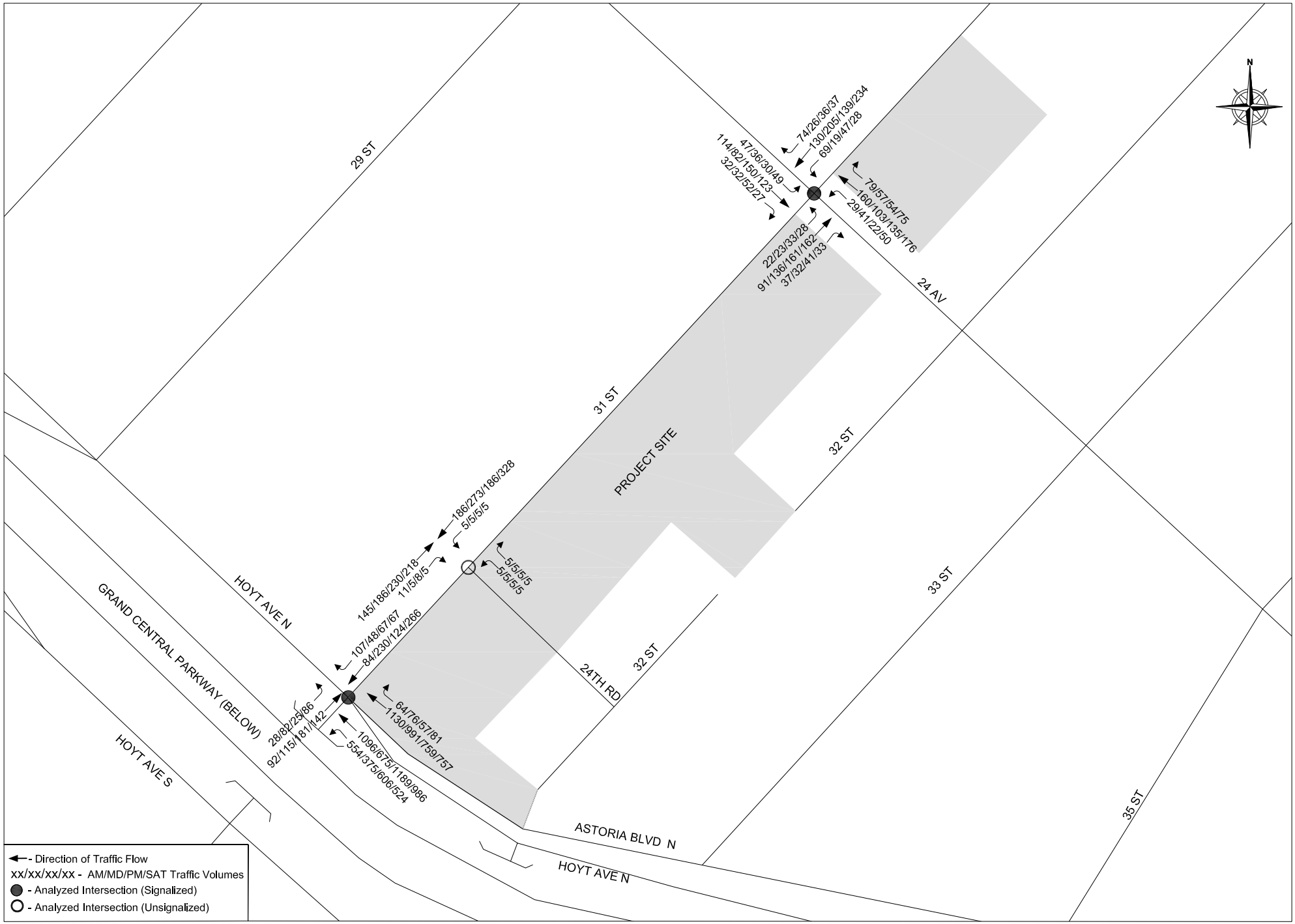


TABLE J-10
Existing Conditions Intersection Level of Service Analysis

Intersection	Lane Group	AM Peak Hour V/C Ratio	AM Peak Hour Delay (sec.)	AM Peak Hour LOS	Midday Peak Hour V/C Ratio	Midday Peak Hour Delay (sec.)	Midday Peak Hour LOS	PM Peak Hour V/C Ratio	PM Peak Hour Delay (sec.)	PM Peak Hour LOS	Sat Peak Hour V/C Ratio	Sat Peak Hour Delay (sec.)	Sat Peak Hour LOS
24th Avenue (EB/WB) @	EB-LTR	0.47	15.1	B	0.34	13.0	B	0.46	14.7	B	0.51	15.8	B
31st Street (NB/SB)	WB-LTR	0.60	17.6	B	0.46	14.8	B	0.44	14.2	B	0.65	19.3	B
	NB-LTR	0.37	14.9	B	0.46	16.1	B	0.58	18.8	B	0.53	17.6	B
(Signalized)	SB-LTR	0.79	29.4	C	0.57	18.2	B	0.55	18.5	B	0.69	22.3	C
24th Road (Westbound) @	WB-LR	0.02	11.1	B	0.02	12.4	B	0.03	12.7	B	0.03	14.1	B
31st Street (NB/SB)	SB-L	0.00	7.9	A	0.01	8.1	A	0.01	8.5	A	0.01	8.5	A
(Unsignalized)													
Astoria Blvd North	WB-T (Astoria)	0.73	16.9	B	0.77	20.4	C	0.46	10.8	B	0.55	15.2	B
Hoyt Avenue North (Westbound)	WB-R (Astoria)	0.10	8.1	A	0.17	11.4	B	0.10	7.8	A	0.17	11.5	B
31st Street (NB/SB)	WB-L (Hoyt)	0.34	9.9	A	0.34	12.6	B	0.36	9.7	A	0.46	14.1	B
(Signalized)	WB-T (Hoyt)	0.66	14.6	B	0.51	14.7	B	0.69	14.8	B	0.71	18.4	B
	NB-LT	0.25	35.5	D				0.38	38.3	D			
	NB-DefL				0.66	42.9	D				0.70	48.7	D
	NB-T				0.26	21.7	C				0.31	22.5	C
	SB-TR	0.72	52.9	D	0.59	28.1	C	0.61	46.0	D	0.70	31.5	C

Notes:
EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, DfL-Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume to capacity ratio
LOS - level of service
* - Denotes a congested movement (LOS E or F, or V/C ratio greater than or equal to 0.9)

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

Future No-Action Traffic Growth

Between 2020 and 2028, it is expected that transportation demands in the vicinity of the Project Area will increase primarily due to long-term background growth and new development unrelated to the Proposed Actions. The future No-Action traffic volumes therefore reflect annual background growth rates of 0.5 percent per year for the 2020 through 2025 period and 0.25 percent per year for 2026 to 2028. These background growth rates, recommended in the *CEQR Technical Manual* for projects in Queens (outside of the Long Island City area), are applied to account for smaller projects and as-of-right developments and general increases in travel demand not attributable to specific development projects. Three large scale development projects in the area which would add additional traffic to analyzed intersections were identified. These in include P.S. 85 school addition, Hallets Point and Astoria Cove. Traffic volumes resulting from these project were add to the No-Action. **Figure J-7** shows total No-Action traffic volumes during the analyzed peak hours.

Intersection Capacity Analysis

The weekday AM, midday and PM and Saturday peak hour v/c ratios, delays and LOS for lane groups at analyzed intersections under No-Action conditions are shown in **Table J-11**. As shown in **Table J-11**, no lane group at any analyzed intersection would experience congestion in any peak hour in the No-Action condition.

Figure J-7

No-Action Peak Hour Traffic Volumes

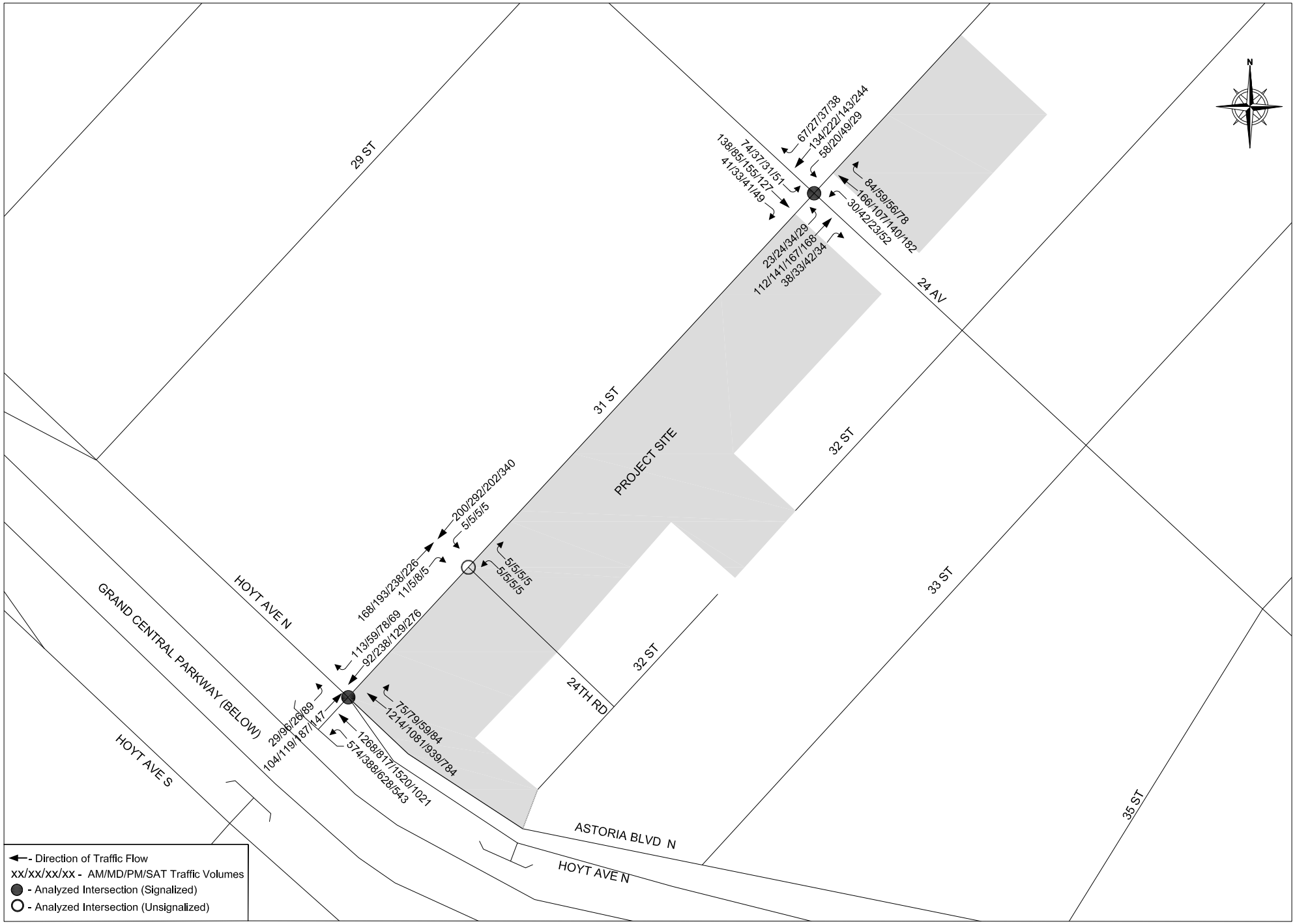


TABLE J-11
No-Action Intersection Level of Service Analysis

Intersection	Lane Group	AM Peak Hour						Midday Peak Hour					
		Existing			No-Action			Existing			No-Action		
		V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS
24th Avenue (EB/WB) @	EB-LTR	0.47	15.1	B	0.64	19.5	B	0.34	13.0	B	0.35	13.2	B
31st Street Street (NB/SB)	WB-LTR	0.60	17.6	B	0.63	18.6	B	0.46	14.8	B	0.48	15.1	B
	NB-LTR	0.37	14.9	B	0.43	15.7	B	0.46	16.1	B	0.47	16.4	B
(Signalized)	SB-LTR	0.79	29.4	C	0.74	26.0	C	0.57	18.2	B	0.61	19.3	B
24th Road (Westbound) @	WB-LR	0.02	11.1	B	0.02	11.5	B	0.02	12.4	B	0.02	12.6	B
31st Street Street (NB/SB)	SB-L	0.00	7.9	A	0.01	8.0	A	0.01	8.1	A	0.01	8.2	A
(Unsignalized)													
Astoria Blvd North	WB-T (Astoria)	0.73	16.9	B	0.79	17.7	B	0.77	20.4	C	0.84	23.5	C
Hoyt Avenue North (Westbound)	WB-R (Astoria)	0.10	8.1	A	0.12	8.1	A	0.17	11.4	B	0.18	11.5	B
31st Street Street (NB/SB)	WB-L (Hoyt)	0.34	9.9	A	0.35	10.0	A	0.34	12.6	B	0.35	12.7	B
	WB-T (Hoyt)	0.66	14.6	B	0.76	17.4	B	0.51	14.7	B	0.62	16.4	B
(Signalized)	NB-LT	0.25	35.5	D	0.26	35.7	D						
	NB-DefL							0.66	42.9	D	0.56	33.3	C
	NB-T							0.26	21.7	C	0.27	21.9	C
	SB-TR	0.72	52.9	D				0.59	28.1	C			
	SB-T				0.26	36.1	D				0.46	24.9	C
	SB-R				0.66	53.9	D				0.22	21.8	C

Intersection	Lane Group	PM Peak Hour						Sat Peak Hour					
		Existing			No-Action			Existing			No-Action		
		V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS
24th Avenue (EB/WB) @	EB-LTR	0.46	14.7	B	0.48	14.9	B	0.51	15.8	B	0.53	16.3	B
31st Street Street (NB/SB)	WB-LTR	0.44	14.2	B	0.45	14.5	B	0.65	19.3	B	0.68	20.2	C
	NB-LTR	0.58	18.8	B	0.60	19.4	B	0.53	17.6	B	0.55	18.1	B
(Signalized)	SB-LTR	0.55	18.5	B	0.60	19.7	B	0.69	22.3	C	0.72	23.3	C
24th Road (Westbound) @	WB-LR	0.03	12.7	B	0.03	12.9	B	0.03	14.1	B	0.03	14.4	B
31st Street Street (NB/SB)	SB-L	0.01	8.5	A	0.01	8.5	A	0.01	8.5	A	0.01	8.6	A
(Unsignalized)													
Astoria Blvd North	WB-T (Astoria)	0.46	10.8	B	0.57	11.1	B	0.55	15.2	B	0.57	15.6	B
Hoyt Avenue North (Westbound)	WB-R (Astoria)	0.10	7.8	A	0.11	7.8	A	0.17	11.5	B	0.18	11.6	B
31st Street Street (NB/SB)	WB-L (Hoyt)	0.36	9.7	A	0.37	9.8	A	0.46	14.1	B	0.48	14.3	B
	WB-T (Hoyt)	0.69	14.8	B	0.88	22.7	C	0.71	18.4	B	0.73	19.0	B
(Signalized)	NB-LT	0.38	38.3	D	0.38	38.1	D						
	NB-DefL							0.70	48.7	D	0.55	33.9	C
	NB-T							0.31	22.5	C	0.32	22.6	C
	SB-TR	0.61	46.0	D				0.70	31.5	C			
	SB-T				0.34	38.2	D				0.53	26.2	C
	SB-R				0.40	41.7	D				0.24	22.0	C

Notes:
EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, DfL-Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume to capacity ratio
LOS - level of service
***** - Denotes a congested movement (LOS E or F, or V/C ratio greater than or equal to 0.9)

The Future with the Proposed Actions (With-Action Conditions)

Future With-Action Traffic Growth

As shown in **Table J-3**, based on projected development associated with the Proposed Actions, there would be a net total of approximately 108, 115, 116 and 93 additional vehicle trips (auto, taxi and truck) during the weekday AM, Midday, PM and Saturday peak hours, respectively. The assignments of auto and taxi trips to the street network in proximity to the Project Area were based on the anticipated origins and destinations of vehicle trips associated with the different land uses projected under the RWCDS—i.e., residential, community facility, retail/restaurant and office. (Additional data on the distribution of auto and taxi trips are provided in *The Astoria 31st Street Rezoning Transportation Planning Factors and Travel Demand Forecast Technical Memorandum* included in **Appendix A**.) Based on the origin/destination data, auto and taxi trips were first assigned to various portals on the periphery of Astoria and from there via the most direct route to the Development Sites. As the Proposed Actions' RWCDS includes on-site accessory parking, auto trips were assigned directly to the proposed parking garage entrances on 24th Road and 31st Street. (Although some drivers may park on-street or in other nearby off-street public parking garages in the area, assigning all trips to on-site parking can be considered a conservative approach with respect to the traffic impact analysis as it concentrates project traffic at analyzed intersections in proximity to the Project Area rather than dispersing it to outlying streets.)

Taxis were generally assigned to the building frontages on 31st Street. Trucks were assigned to DOT-designated truck routes—i.e., Astoria Boulevard/Hoyt Avenue (both Through Truck Routes)—and then to the most direct paths to and from the Development Sites.

Figure J-2 shows the assignment of incremental vehicle trips (auto, taxi and truck) generated during the analyzed peak hours under the Proposed Actions, and **Figure J-8** shows the total peak hour traffic volumes in the 2028 future with the Proposed Actions. The volumes shown are the combination of the net incremental traffic generated by the Proposed Actions and the No-Action volumes.

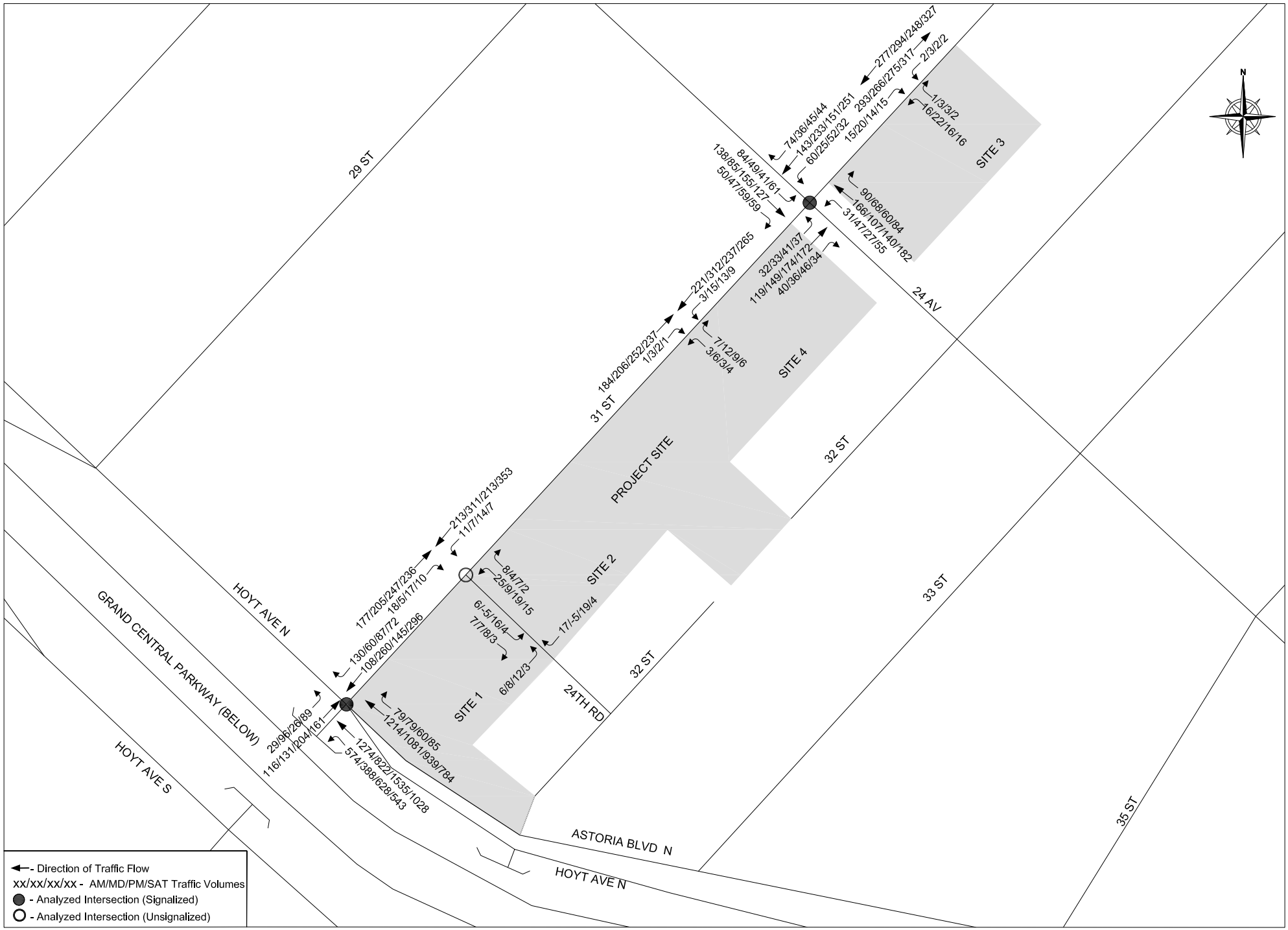
No physical changes to the study area street network are planned in conjunction with the Proposed Actions. However, to better accommodate new project-generated vehicular demand, traffic improvement measures are proposed in conjunction with the Proposed Actions at the intersection of Astoria Boulevard North/Hoyt Avenue North at 31st Street. **Table J-12** shows the proposed improvement measures, which would consist of a minor signal timing change of one seconds in the weekday AM peak hour.

TABLE J-12
Proposed Traffic Improvement Measures

Intersection	Peak Hour	Phase	No-Action Signal Timing (Seconds) (1)				Proposed Signal Timing (Seconds) (1)				Proposed Improvement Measures
			AM	MD	PM	Sat	AM	MD	PM	Sat	
Astoria Blvd North Hoyt Avenue North (Westbound) 31st Street Street (NB/SB)	ALL	WB NB/SB	83 37	53 37	84 36	53 37	82 38	53 37	84 36	53 37	-Transfer 1s of green time from WB to NB/SB in AM.

Notes:
(1) Signal timings shown indicate green plus yellow (including all red) for each phase.

2028 With-Action Peak Hour Traffic Volumes



With-Action Intersection Capacity Analysis

Table J-13 shows the With-Action peak hour v/c ratios, delays, and levels of service by lane group at each analyzed intersection both with and without the proposed traffic improvement measures, and compares them to the No-Action condition. As shown in **Table J-13**, based on the *CEQR Technical Manual* impact criteria discussed in Section F, "Transportation Analyses Methodologies," incremental vehicle trips generated by the Proposed Actions would have the potential to result in significant adverse traffic impacts to one lane group in each of the weekday AM and midday peak hours and the Saturday peak hour at the intersection of Astoria Boulevard North/Hoyt Avenue North at 31st Street. These would include the southbound 31st Street approach which would operate at LOS E in the weekday AM peak hour compared to LOS D in the No-Action, and the northbound left-turn on 31st Street in the weekday midday and Saturday peak hours which would operate at LOS D and LOS E, respectively, during these peak hours versus LOS D during each period in the No-Action. However, as shown in **Table J-13**, with incorporation of the recommended improvement measures, the Proposed Actions would not result in any significant adverse traffic impacts in any analyzed peak hour based on *CEQR Technical Manual* impact criteria.

TABLE J-13
With-Action Intersection Level of Service Analysis

		AM Peak Hour								
		No-Action			With-Action			With-Action w/Improvements		
Intersection	Lane Group	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS
24th Avenue (EB/WB) @	EB-LTR	0.64	19.5	B	0.70	22.2	C	0.70	22.2	C
31st Street Street (NB/SB)	WB-LTR	0.63	18.6	B	0.64	18.8	B	0.64	18.8	B
(Signalized)	NB-LTR	0.43	15.7	B	0.51	17.6	B	0.51	17.6	B
	SB-LTR	0.74	26.0	C	0.82	32.2	C	0.82	32.2	C
24th Road (Westbound) @	WB-LR	0.02	11.5	B	0.21	28.5	D	0.21	28.5	D
31st Street Street (NB/SB)	SB-L	0.01	8.0	A	0.02	11.8	B	0.02	11.8	B
(Unsignalized)										
Astoria Blvd North	WB-T (Astoria)	0.79	17.7	B	0.79	18.8	B	0.80	19.8	B
Hoyt Avenue North (Westbound)	WB-R (Astoria)	0.12	8.1	A	0.13	8.4	A	0.13	8.8	A
31st Street Street (NB/SB)	WB-L (Hoyt)	0.35	10.0	A	0.35	10.0	A	0.35	10.5	B
	WB-T (Hoyt)	0.76	17.4	B	0.76	17.6	B	0.77	18.4	B
	NB-LT	0.26	35.7	D	0.28	36.1	D	0.28	35.2	D
	NB-DefL									
	NB-T									
	SB-TR									
	SB-T	0.26	36.1	D	0.30	36.9	D	0.29	36.0	D
	SB-R	0.66	53.9	D	0.75	62.2	E **	0.73	58.3	E

TABLE J-13 (continued)
With-Action Intersection Level of Service Analysis

Intersection	Lane Group	Midday Peak Hour								
		No-Action			With-Action			With-Action w/Improvements		
		V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS
24th Avenue (EB/WB) @	EB-LTR	0.35	13.2	B	0.44	14.6	B	0.44	14.6	B
31st Street Street (NB/SB)	WB-LTR	0.48	15.1	B	0.53	16.3	B	0.53	16.3	B
(Signalized)	NB-LTR	0.47	16.4	B	0.56	18.4	B	0.56	18.4	B
	SB-LTR	0.61	19.3	B	0.68	21.9	C	0.68	21.9	C
24th Road (Westbound) @	WB-LR	0.02	12.6	B	0.09	29.1	D	0.09	29.1	D
31st Street Street (NB/SB)	SB-L	0.01	8.2	A	0.02	12.0	B	0.02	12.0	B
(Unsignalized)										
Astoria Blvd North	WB-T (Astoria)	0.84	23.5	C	0.84	23.5	C	0.84	23.5	C
Hoyt Avenue North (Westbound)	WB-R (Astoria)	0.18	11.5	B	0.19	11.7	B	0.19	11.7	B
31st Street Street (NB/SB)	WB-L (Hoyt)	0.35	12.7	B	0.35	12.7	B	0.35	12.7	B
	WB-T (Hoyt)	0.62	16.4	B	0.62	16.5	B	0.62	16.5	B
	NB-LT									
	NB-DefL	0.56	33.3	C	0.60	36.3	D	0.60	36.3	D
	NB-T	0.27	21.9	C	0.30	22.3	C	0.30	22.3	C
	SB-TR									
	SB-T	0.46	24.9	C	0.51	25.7	C	0.51	25.7	C
	SB-R	0.22	21.8	C	0.23	21.9	C	0.23	21.9	C

Intersection	Lane Group	PM Peak Hour								
		No-Action			With-Action			With-Action w/Improvements		
		V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS
24th Avenue (EB/WB) @		0.48	14.9	B	0.56	16.8	B	0.56	16.8	B
31st Street Street (NB/SB)		0.45	14.5	B	0.48	15.1	B	0.48	15.1	B
(Signalized)		0.60	19.4	B	0.68	22.6	C	0.68	22.6	C
		0.60	19.7	B	0.67	22.6	C	0.67	22.6	C
24th Road (Westbound) @		0.03	12.9	B	0.25	42.7	E	0.25	42.7	E
31st Street Street (NB/SB)		0.00	0.0	A	0.00	0.0	A	0.00	0.0	A
31st Street Street (NB/SB)		0.01	8.5	A	0.04	14.6	B	0.04	14.6	B
(Unsignalized)										
Astoria Blvd North	WB-T (Astoria)	0.57	11.1	B	0.57	12.4	B	0.57	12.4	B
Hoyt Avenue North (Westbound)	WB-R (Astoria)	0.11	7.8	A	0.11	7.9	A	0.11	7.9	A
31st Street Street (NB/SB)	WB-L (Hoyt)	0.37	9.8	A	0.37	9.8	A	0.37	9.8	A
	WB-T (Hoyt)	0.88	22.7	C	0.89	23.4	C	0.89	23.4	C
	NB-LT	0.38	38.1	D	0.41	38.6	D	0.41	38.6	D
	NB-DefL									
	NB-T									
	SB-TR									
	SB-T	0.34	38.2	D	0.38	39.0	D	0.38	39.0	D
	SB-R	0.40	41.7	D	0.45	43.4	D	0.45	43.4	D

TABLE J-13 (continued)
With-Action Intersection Level of Service Analysis

Intersection	Lane Group	Saturday Peak Hour								
		No-Action			With-Action			With-Action w/Improvements		
		V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS
24th Avenue (EB/WB) @		0.53	16.3	B	0.60	18.1	B	0.60	18.1	B
31st Street Street (NB/SB)		0.68	20.2	C	0.72	22.0	C	0.72	22.0	C
(Signalized)		0.55	18.1	B	0.61	20.0	B	0.61	20.0	B
		0.72	23.3	C	0.77	26.4	C	0.77	26.4	C
24th Road (Westbound) @		0.03	14.4	B	0.20	49.2	E	0.20	49.2	E
31st Street Street (NB/SB)		0.00	0.0	A	0.00	0.0	A	0.00	0.0	A
31st Street Street (NB/SB)		0.01	8.6	A	0.02	14.4	B	0.02	14.4	B
(Unsignalized)										
Astoria Blvd North	WB-T (Astoria)	0.57	15.6	B	0.57	15.6	B	0.57	15.6	B
Hoyt Avenue North (Westbound)	WB-R (Astoria)	0.18	11.6	B	0.19	11.7	B	0.19	11.7	B
31st Street Street (NB/SB)	WB-L (Hoyt)	0.48	14.3	B	0.48	14.3	B	0.48	14.3	B
	WB-T (Hoyt)	0.73	19.0	B	0.74	19.2	B	0.74	19.2	B
	NB-LT									
	NB-DefL	0.55	33.9	C	0.59	36.5	D	0.59	36.5	D
	NB-T	0.32	22.6	C	0.35	23.1	C	0.35	23.1	C
	SB-TR									
	SB-T	0.53	26.2	C	0.57	27.1	C	0.57	27.1	C
	SB-R	0.24	22.0	C	0.25	22.2	C	0.25	22.2	C

Notes:
EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, DfL-Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume to capacity ratio
LOS - level of service
** - Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

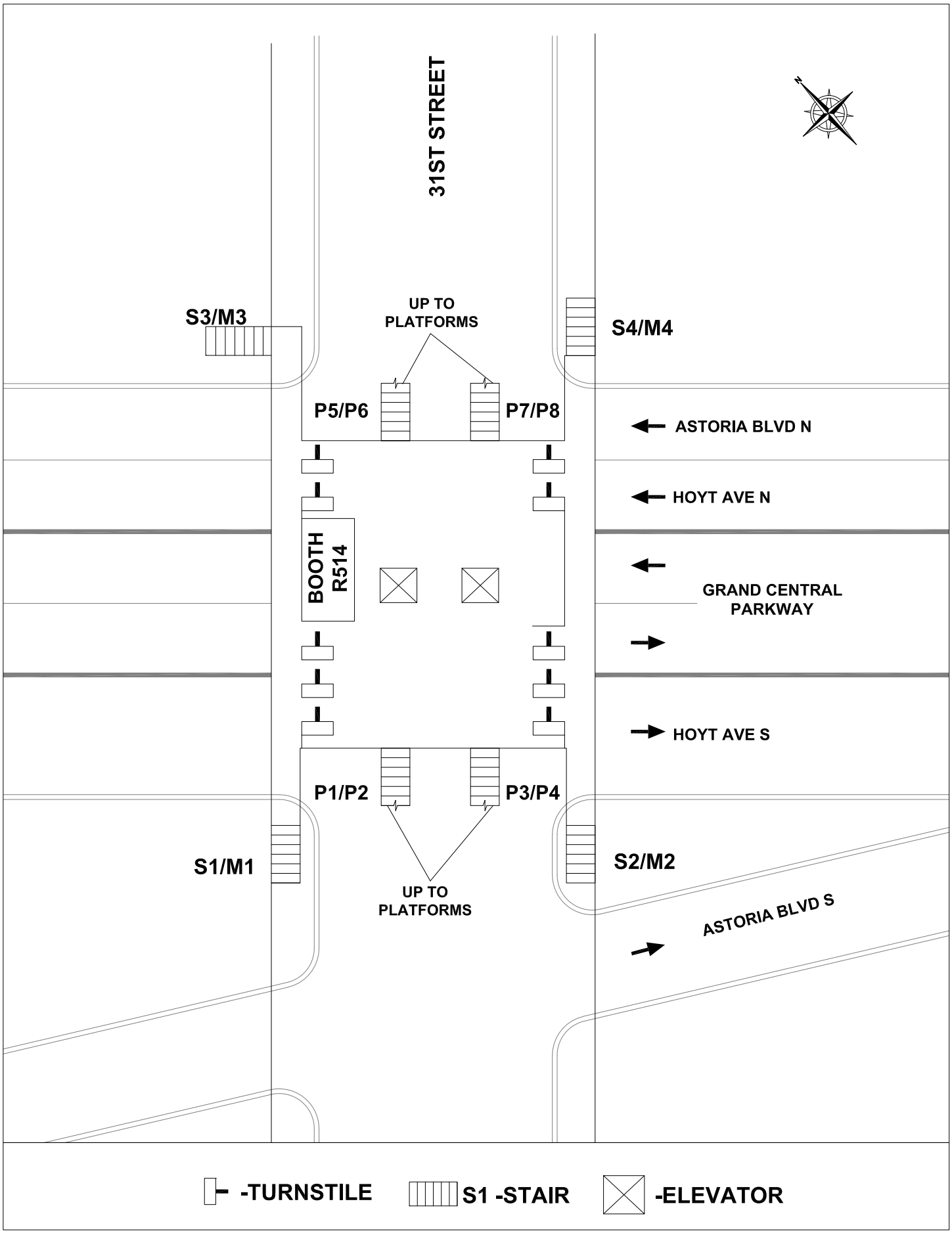
VIII. TRANSIT

Existing Conditions

As discussed above in Section E, "Level 2 Screening Assessment," and shown in **Table J-3**, the Proposed Actions are expected to exceed the 200-trip *CEQR Technical Manual* threshold for a subway station analysis in both the weekday AM and PM peak hours at the Astoria Boulevard Station served by the N and W trains operating between Queens, Manhattan and Brooklyn. The Astoria Boulevard station is located on an elevated structure above 31st Street between Astoria Boulevard North/Hoyt Avenue North and Astoria Boulevard South/Hoyt Avenue South. The station consists of a mezzanine level above which are three tracks served by two island platforms. (The center track is not currently used in revenue service.) As shown in **Figure J-9**, four stairs provide access between the street and mezzanine level—S3/M3 and S4/M4 at the northwest and northeast corners of the intersection of Astoria Boulevard North/Hoyt Avenue North at 31st Street, respectively, and stairs S1/M1 and S2/M2 at the southwest and southeast corners of Hoyt Avenue South and 31st Street. The two stairs on the west side of 31st Street (S1/M1 and S3/M3) provide access to a 24-hour fare booth and a fare array with five low turnstiles. The two stairs on the east side of 31st Street (S2/M2 and S4/M4) provide access to a separate fare array which also consists of five low turnstiles. Four additional stairs within the paid zone (P1/P2, P3/P4, P5/P6 and P7/P8) provide access to each of the two island platforms.

Figure J-9

Astoria Blvd Subway Station Mezzanine Level



Based on the location of this station relative to the Development Sites, it is anticipated that new project-generated subway trips would utilize stair S4/M4 along with the adjacent fare array (R514) on the east side of 31st Street and platform stairs P1/P2 and P5/P6 (Manhattan-bound), and P3/P4 and P7/P8 (Ditmars-bound). As shown in **Tables J-14 and J-15**, all stairs and the analyzed fare array currently operate at an uncongested LOS C or better in both the AM and PM peak hours.

TABLE J-14
Existing Conditions Subway Station Stair Analysis

Peak Hour	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
				Up	Down	Up	Down			
AM	S4/M4	5.00	4.00	291	85	1.00	0.80	0.90	0.23	A
PM		5.00	4.00	66	448	1.00	0.80	0.90	0.36	A
AM	P1/P2	7.00	6.00	1,753	27	1.00	0.75	1.00	0.62	B
PM		7.00	6.00	377	22	1.00	0.75	0.90	0.16	A
AM	P3/P4	7.00	6.00	43	278	1.00	0.75	0.90	0.16	A
PM		7.00	6.00	10	1,996	1.00	0.75	1.00	0.93	C
AM	P5/P6	7.00	6.00	901	10	1.00	0.75	1.00	0.32	A
PM		7.00	6.00	102	22	1.00	0.75	0.90	0.05	A
AM	P7/P8	7.00	6.00	16	73	1.00	0.75	0.90	0.04	A
PM		7.00	6.00	6	1,046	1.00	0.75	1.00	0.49	B

Notes:
Methodology based on CEQR Technical Manual guidance.

TABLE J-15
Existing Conditions Subway Station Fare Array Analysis

Peak Hour	Fare Array	Control Elements			Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
		Turnstile	HEET	HXT	System Entries	System Exits	System Entries	System Exits			
AM	R514 North East	2	0	0	340	56	1.00	0.80	0.90	0.16	A
PM		2	0	0	44	512	1.00	0.80	0.90	0.19	A
AM	R514 South East	3	0	0	825	77	1.00	0.80	0.90	0.24	A
PM		3	0	0	162	820	1.00	0.80	0.90	0.23	A

Notes:
Methodology based on CEQR Technical Manual guidance.

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

Between 2021 and 2028, it is expected that subway demand in the vicinity of the Project Area will increase due to long-term background growth and new development unrelated to the Proposed Actions. The Future No-Action subway volumes reflect annual background growth rates of 0.5 percent per year for the first five years and 0.25 percent per year for every year thereafter. These background growth rates, recommended in the *CEQR Technical Manual* for projects in Queens outside of the Long Island City area, are applied to account for smaller projects and as-of-right developments and general increases in travel

demand not attributable to specific development projects. (No large development projects that would add appreciable numbers of new subway trips at the Astoria Boulevard station were identified in proximity to the Project Area.)

As shown in **Tables J-16 and J-17**, it is expected that in the future No-Action condition, the analyzed stairs and fare array at the Astoria Boulevard subway station will continue to operate at an uncongested LOS C or better in both the AM and PM peak hours.

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

As shown in **Table J-3**, the Proposed Actions are expected to generate a net total of 240 and 263 new subway trips in the weekday AM and PM peak hours, respectively. Based on existing travel patterns and the proximity of subway stations to the Project Site, it is anticipated that all of these trips would utilize the Astoria Boulevard (N, W) subway station. **Tables J-18 and J-19** show conditions at the analyzed stairs and fare array at this subway station in the future with the Proposed Actions. As shown in **Tables J-18 and J-19**, under With-Action conditions, the analyzed stairs and fare array would all operate at an uncongested LOS C or better in during the AM peak hour. During the PM peak hour, one stair (P3/P4) would operate over capacity at LOS D and a v/c ratio of 1.01. However, this stair would not be considered significantly adversely impacted based on the *CEQR Technical Manual* impact criteria described above in Section VI, "Transportation Analyses Methodologies." All other analyzed station elements would operate at an uncongested LOS C or better during the PM peak hour. The Proposed Actions would therefore not result in significant adverse subway station impacts based on *CEQR Technical Manual* impact criteria.

TABLE J-16
No-Action Subway Station Stair Analysis

Peak Hour	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
				Up	Down	Up	Down			
AM	S4/M4	5.00	4.00	300	88	1.00	0.80	0.90	0.24	A
PM		5.00	4.00	68	462	1.00	0.80	0.90	0.37	A
AM	P1/P2	7.00	6.00	1,806	28	1.00	0.75	1.00	0.64	B
PM		7.00	6.00	388	23	1.00	0.75	0.90	0.16	A
AM	P3/P4	7.00	6.00	44	286	1.00	0.75	0.90	0.16	A
PM		7.00	6.00	10	2,057	1.00	0.75	1.00	0.96	C
AM	P5/P6	7.00	6.00	928	10	1.00	0.75	1.00	0.33	A
PM		7.00	6.00	105	23	1.00	0.75	0.90	0.05	A
AM	P7/P8	7.00	6.00	16	75	1.00	0.75	0.90	0.04	A
PM		7.00	6.00	6	1,078	1.00	0.75	1.00	0.50	B

Notes:
Methodology based on CEQR Technical Manual guidance.

TABLE J-17
No-Action Subway Station Fare Array Analysis

Peak Hour	Fare Array	Control Elements			Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
		Turnstile	HEET	HXT	System Entries	System Exits	System Entries	System Exits			
AM	R514 North East	2	0	0	350	58	1.00	0.8	0.90	0.16	A
PM		2	0	0	45	528	1.00	0.8	0.90	0.20	A
AM	R514 South East	3	0	0	850	79	1.00	0.8	0.90	0.25	A
PM		3	0	0	167	845	1.00	0.8	0.90	0.24	A

Notes:
Methodology based on CEQR Technical Manual guidance.

TABLE J-18
With-Action Stair Analysis at Analyzed Subway Stations

Peak Hour	Stair	Total Width (ft.)	Effective Width (ft.)	Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS	WIT*	Impact Threshold*
				Up	Down	Up	Down	Up	Down					
AM	S4/M4	5.00	4.00	177	63	477	151	1.00	0.80	0.90	0.39	A	- - -	- - -
PM		5.00	4.00	104	159	172	621	1.00	0.80	0.90	0.55	B	- - -	- - -
AM	P1/P2	7.00	6.00	119	0	1,925	28	1.00	0.75	1.00	0.68	B	- - -	- - -
PM		7.00	6.00	70	0	458	23	1.00	0.75	1.00	0.17	A	- - -	- - -
AM	P3/P4	7.00	6.00	0	42	44	328	1.00	0.75	0.90	0.19	A	- - -	- - -
PM		7.00	6.00	0	107	10	2,164	1.00	0.75	1.00	1.01	D	0.38	8.00
AM	P5/P6	7.00	6.00	58	0	986	10	1.00	0.75	1.00	0.35	A	- - -	- - -
PM		7.00	6.00	34	0	139	23	1.00	0.75	0.90	0.07	A	- - -	- - -
AM	P7/P8	7.00	6.00	0	21	16	96	1.00	0.75	0.90	0.06	A	- - -	- - -
PM		7.00	6.00	0	52	6	1,130	1.00	0.75	1.00	0.53	B	- - -	- - -

Notes:
Methodology based on CEQR Technical Manual guidance.
* WIT and Impact Threshold measured in inches.

TABLE J-19
With-Action Fare Array Analysis at Analyzed Subway Stations

Peak Hour	Fare Array	Control Elements			Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
		Turnstile	HEET	HXT	System Entries	System Exits	System Entries	System Exits	System Entries	System Exits			
AM	R514 North East	2	0	0	177	42	527	100	1.00	0.8	0.90	0.25	A
PM		2	0	0	104	107	149	635	1.00	0.8	0.90	0.28	A
AM	R514 South East	3	0	0	0	21	850	100	1.00	0.8	0.90	0.26	A
PM		3	0	0	0	52	167	897	1.00	0.8	0.90	0.25	A

Notes:
Methodology based on CEQR Technical Manual guidance.

IX. PEDESTRIANS

Existing Conditions

The pedestrian study area is generally characterized by low to moderate pedestrian flows in proximity to the Project Site, with greater demand along the commercial corridor of 31st Street which provides access to the Astoria Boulevard subway station. As discussed previously in Section E, "Level 2 Screening Assessment," the analysis of pedestrian conditions focuses on a total of six pedestrian elements where new trips generated by projected developments are expected to exceed 200 trips in one or more peak hours. As shown in **Figure J-4**, these elements—three sidewalks, one crosswalk and two corner areas—are primarily located in the immediate proximity of the Projected Development Sites and along the 31st Street corridor that connects the sites to the nearby subway station and to bus routes.

Sidewalks

The highest existing pedestrian flows on analyzed sidewalks are generally found along 31st Street (up to 115 persons/hour). Analyzed sidewalks on 31st Street typically range from 15 feet in width (near 24th Avenue) to 20 feet in width (near Astoria Boulevard N). Features typically present along study area sidewalks that can reduce the effective width available for pedestrian flow include street furniture such as fire hydrants, curbside signage, and traffic signal and lamp posts, as well as larger installations such as subway stairs.

Table J-20 shows the existing peak hour pedestrian volumes, average pedestrian space (in sf/ped), and platoon-adjusted LOS at the three analyzed sidewalks along 31st Street. As shown in **Table J-20**, all analyzed sidewalks currently operate at an uncongested LOS A in all peak hours.

TABLE J-20
Existing Sidewalk Conditions

No.	Location		Effective Width (ft.)	Peak Hour Volumes				Average Pedestrian Space (ft^2/ped)				Platoon-Adjusted LOS			
				AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
S1	31st Street bet 23rd Road & 24th Ave	East	6.7	50	88	76	115	1,570.7	1,025.0	823.8	738.2	A	A	A	A
S2	31st Street bet 24th Ave & 24th Road	East	8.5	58	68	61	95	1,601.7	1,603.8	1,456.7	1,162.1	A	A	A	A
S3	31st Street bet 24 Road & Astoria Blvd North	East	5.5	40	36	66	63	1,546.3	1,210.0	1,042.7	995.6	A	A	A	A

Crosswalks

Intersections in the vicinity of the Project Area are a mix of signalized and stop controlled, and the signalized intersections generally include pedestrian signals. **Table J-21** shows the peak hour volumes, average pedestrian space (in sf/ped), and LOS at the one analyzed crosswalk on 24th Avenue at 31st Street. As shown in **Table J-21**, this crosswalk currently operates at an uncongested LOS A in all peak hours.

Corner Areas

Table J-22 shows the peak hour volumes, average pedestrian space (in sf/ped) and levels of service at the two analyzed corner areas at the 31st Street/24th Avenue intersection. As shown in **Table J-22**, both analyzed corner areas currently operate at an uncongested LOS A in all peak hours.

TABLE J-21
Existing Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Volumes				Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
31st Street & 24th Ave	X1	East	75	85	90	85	227.0	339.0	359.1	402.9	A	A	A	A

TABLE J-22
Existing Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT
31st Street & 24th Ave	C1	NE	294.5	757.5	660.9	618.0	A	A	A	A
	C2	SE	370.1	476.8	457.7	482.2	A	A	A	A

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

Between 2020 and 2028, it is expected that pedestrian demand in the vicinity of the Project Area will increase due to long-term background growth and new development unrelated to the Proposed Actions. The Future No-Action pedestrian volumes reflect annual background growth rates of 0.5 percent per year for the first five years and 0.25 percent per year for every year thereafter. These background growth rates, recommended in the *CEQR Technical Manual* for projects in Queens outside of the Long Island City area, are applied to account for smaller projects and as-of-right developments, and general increases in travel demand not attributable to specific development projects (no large development projects that would add appreciable numbers of new trips to analyzed pedestrian elements were identified in proximity to the Project Area). No changes to the study area pedestrian network are anticipated to occur during 2020 to 2028 period.

Sidewalks

Table J-23 shows the No-Action peak hour pedestrian volumes, average pedestrian space, and platoon-adjusted LOS at analyzed sidewalks. As shown in **Table J-23**, all analyzed sidewalks are expected to operate at an uncongested LOS A in all peak hours in the future without the Proposed Actions.

TABLE J-23
No-Action Sidewalk Conditions

No.	Location		Effective Width (ft.)	Peak Hour Volumes				Average Pedestrian Space (ft^2/ped)				Platoon-Adjusted LOS			
				AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
S1	31st Street bet 23rd Road & 24th Ave	East	6.7	52	91	78	119	1,510.2	991.3	802.7	713.4	A	A	A	A
S2	31st Street bet 24th Ave & 24th Road	East	8.5	60	70	63	99	1,548.3	1,557.9	1,410.5	1,115.2	A	A	A	A
S3	31st Street bet 24 Road & Astoria Blvd North	East	5.5	42	37	68	65	1,472.7	1,177.3	1,012.1	965.0	A	A	A	A

Crosswalks

Table J-24 shows the peak hour volumes, average pedestrian space, and LOS at the analyzed crosswalk in the No-Action condition. As shown in **Table J-24**, this crosswalk is expected to operate at an uncongested LOS A in all peak hours in the future without the Proposed Actions.

TABLE J-24
No-Action Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Volumes				Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
31st Street & 24th Ave	X1	East	75	85	90	85	227.0	339.0	359.1	402.9	A	A	A	A

Corner Areas

Table J-25 shows the peak hour volumes, average pedestrian space, and LOS at the two analyzed corner areas in the No-Action condition. As shown in **Table J-25**, both analyzed corner areas are expected to continue to operate at an uncongested LOS A in all peak hours in the future without the Proposed Actions.

TABLE J-25
No-Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT
31st Street & 24th Ave	C1	NE	297.1	759.4	638.6	597.4	A	A	A	A
	C2	SE	367.8	454.2	441.6	464.5	A	A	A	A

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

The Proposed Actions would generate new pedestrian demand on the analyzed sidewalks, crosswalk, and corner areas by 2028. This new demand would include trips made solely by walking, as well as pedestrian trips en route to and from subway station entrances and bus stops. Pedestrian trips generated by the Proposed Actions are expected to be most concentrated in proximity to the Projected Development Sites and along the 31st Street corridor connecting the sites to area transit services.

As shown in **Table J-3**, the Proposed Actions are expected to generate a net total of approximately 152 walk-only trips in the weekday AM peak hour, 520 in the midday, 307 in the PM peak hour and 319 in the Saturday peak hour. Persons en route to and from the subway station entrance and bus stops would add approximately 306, 227, 325 and 306 additional pedestrian trips to sidewalks, crosswalks and corner areas during the weekday AM, midday and PM, and Saturday peak hours, respectively. These pedestrian volumes were added to the projected No-Action volumes to generate the With-Action pedestrian volumes for analysis.

Anticipated conditions at the analyzed sidewalks, crosswalk and corner areas in the future with the Proposed Actions are shown in **Tables J-26 through J-28**. As discussed below, all analyzed pedestrian elements would continue to operate at acceptable levels of service in all analyzed peak hours in the With-Action condition, and no significant adverse impacts are expected to result from the Proposed Actions.

Sidewalks

Table J-26 shows the incremental change in peak hour pedestrian volumes attributable to the Proposed Actions and the total With-Action pedestrian volumes, average pedestrian space, and platoon-adjusted LOS at analyzed sidewalks. As shown in **Table J-26**, in the With-Action condition all analyzed sidewalks would continue to operate at an uncongested LOS B in all peak hours. Therefore, the Proposed Actions would not result in any significant adverse sidewalk impacts based on the *CEQR Technical Manual* impact criteria discussed above in Section F, "Transportation Analyses Methodologies."

TABLE J-26
With-Action Sidewalk Conditions

No.	Location		Effective Width (ft.)	Project Increment				Peak Hour Volumes				Average Pedestrian Space (ft^2/ped)				Platoon-Adjusted LOS			
				AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
S1	31st Street bet 23rd Road & 24th Ave	East	6.7	163	249	195	203	215	340	273	322	365.1	264.1	229.1	289.9	B	B	B	B
S2	31st Street bet 24th Ave & 24th Road	East	8.5	284	280	324	312	344	350	387	411	269.9	311.4	306.0	288.1	B	B	B	B
S3	31st Street bet 24 Road & Astoria Blvd North	East	5.5	80	180	119	129	122	217	187	194	509.9	200.5	367.9	323.2	B	B	B	B

Crosswalks

Table J-27 shows the incremental change in peak hour pedestrian volumes attributable to the Proposed Actions and the total With-Action pedestrian volumes, average pedestrian space, and LOS at the analyzed crosswalk on 24th Avenue at 31st Street. As shown in **Table J-27**, in the With-Action condition this crosswalk would continue to operate at an uncongested LOS A in all peak hours. Therefore, the Proposed Actions would not result in any significant adverse crosswalk impacts based on the *CEQR Technical Manual* impact criteria discussed above in Section F, "Transportation Analyses Methodologies."

TABLE J-27
With-Action Crosswalk Conditions

Intersection	Crosswalk		Project Increment				Peak Hour Volumes				Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
31st Street & 24th Ave	X1	East	133	174	153	156	210	262	246	244	123.7	108.3	130.5	138.4	A	A	A	A

Corner Areas

Table J-28 shows the total With-Action pedestrian volumes, average pedestrian space, and LOS at the two analyzed corner areas at the 31st Street/24th Avenue intersection. As shown in **Table J-28**, in the With-Action condition both of these corner areas would continue to operate at an uncongested LOS A in all peak hours. Therefore, the Proposed Actions would not result in any significant adverse corner area

impacts based on the *CEQR Technical Manual* impact criteria discussed above in Section F, "Transportation Analyses Methodologies."

TABLE J-28
With-Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT
31st Street & 24th Ave	C1	NE	175.3	231.3	264.2	230.2	A	A	A	A
	C2	SE	182.9	164.7	201.4	201.8	A	A	A	A

X. VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

Recent NYCDOT Initiatives

Vision Zero Queens Pedestrian Safety Action Plan

The City's Vision Zero initiative seeks to eliminate all deaths from traffic crashes regardless of whether on foot, bicycle, or inside a motor vehicle. In an effort to drive these fatalities down, NYCDOT and the New York City Police Department (NYPD) developed a set of five plans (issued in 2015) each of which analyzes the unique conditions of one New York City borough and recommends actions to address the borough's specific challenges to pedestrian safety. These plans pinpoint the conditions and characteristics of pedestrian fatalities and severe injuries; they also identify priority corridors, intersections, and areas that disproportionately account for pedestrian fatalities and severe injuries, prioritizing them for safety interventions. The plans outline a series of recommended actions comprised of engineering, enforcement, and education measures that intend to alter the physical and behavioral conditions on City streets that lead to pedestrian fatality and injury.

An updated *Vision Zero Borough Pedestrian Safety Action Plan* was issued in 2019. No Priority Corridors, Priority Intersections or Priority Areas were identified in proximity to the Project Area. Actions recommended in the updated *Vision Zero Borough Pedestrian Safety Action Plan* to enhance pedestrian safety are summarized below.

NEW ACTIONS FOR 2019

- Add exclusive pedestrian crossing time (LPIs) at every feasible intersection on all new Priority Corridors by the end of 2019
- Modify signal timing to reduce speeding on all feasible new Priority Corridors by the end on 2019
- Launch Integrated Data-Driven Speed Reducer Program (speed humps & speed cushions)
- Track Vision Zero Violations at the Priority Corridors, Intersections, and Areas
- Launch a High Visibility Enforcement Program on Priority Corridors
- Launch a targeted Corridor Outreach Program
- Launch a Driveway Safety program to address issues with vehicles crossing sidewalks
- Conduct a comprehensive study of senior pedestrian injuries

- Collaborate with the Business Integrity Commission to improve the safety of commercial waste fleets

CONTINUING ACTIONS (FROM THE 2015 VISION ZERO QUEENS PEDESTRAIN ACTION PLAN)

- Implement at least 50 Vision Zero safety engineering improvements annually on the updated Priority Corridors, Intersections, and Areas citywide
- Significantly expand exclusive pedestrian crossing tume on all Queens Priority Corridors by end of 2017
- Add exclusive pedestrian crossing time to all feasible Queens Priority Corridors by the end of 2017
- Modify signal timing to reduce off-peak speeding on all feasible Queens Priority Intersection by the end of 2017
- Install expanded speed limit signage on all new Priority Corridors in 2015
- Drive community input and engagement at Queens Priority Corridors, Intersections, and Areas.
- Install additional lighting under elevated trains and at other key transit stops
- Coordinate with MTA to ensure bus operations contribute to a safe pedestrian environment
- Expand a bicycle network in Queens that improves safety for all road users
- Proactively design for pedestrian safety in high-growth areas in Queens including locations in the *Housing New York* plan

Safe Street for Seniors - Astoria

NYCDOT has designated 41 locations throughout the city as *Senior Pedestrian Focus Areas* as part of its Safe Street for Seniors initiative. This program studies crash data, conducts outreach, and develops and implements mitigation measures to improve the safety of seniors and other pedestrians, as well as all road users in New York City. In June of 2013, NYCDOT issued a study under this program which identified parts of Astoria, including the Project Area, as a Senior Pedestrian Focus Area (SPFA). In that study, pedestrian safety enhancement measures were recommended at several intersection in the SPFA, although none within the traffic and pedestrian study areas for the Proposed Actions.

Study Area High Crash Locations

Crash data for intersections in the traffic and pedestrian study areas were obtained from NYCDOT for the three-year period between January 1, 2015 and December 31, 2017 (the most recent three-year period for which data are available). The data quantify the total number of crashes as well as the total number of crashes involving injuries to pedestrians or bicyclists. During the three-year reporting period, a total of 87 crashes and nine pedestrian/bicyclist-related injury crashes occurred at analyzed study area intersections. None of these crashes involved fatalities. **Table J-29** provides a summary of crashes by intersection during the 2015 to 2017 period, as well as a breakdown of pedestrian and bicycle crashes by year and location.

According to the 2014 *CEQR Technical Manual*, a high crash location is one where there were 48 or more reportable and non-reportable crashes or five or more pedestrian/bicyclist-related crashes in any

consecutive 12 months within the most recent three-year period for which data are available. As shown in **Table J-29**, based on these criteria, no analyzed intersections are classified as high crash locations.

TABLE J-29
Summary of Motor Vehicle Crash Data 2015-2017

Intersection		Pedestrain Injury Crashes			Bicycle Injury Crashes			Total Pedestrain/ Bicycle Injury Crashes			Total Crashes Including Motor Vehicle Only		
		2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
31st Street	24th Avenue	0	0	0	0	0	0	0	0	0	0	3	1
	24th Road	0	0	0	0	0	0	0	0	0	1	0	2
	Astoria Blvd N/ Hoyt Ave N	1	0	3	3	0	2	4	0	5	25	22	42

School Crossings

Public School (P.S.) 85Q, the Judge Charles J. Vallone School, is located on the west side of 31st Street across from the north end of the Project Area. Some students and accompanying parents/guardians likely utilize crosswalks at the two signalized intersections flanking the school at 24th Avenue and at 23rd Road. Both of these intersections, which are equipped with pedestrian signals and high visibility crosswalks, are expected to see increased vehicular traffic due to incremental demand from the Proposed Actions. As shown in **Figure J-8**, the Proposed Actions are expected to add from 62 to 85 vehicle trips at 24th Avenue in each of the analyzed weekday peak hours[1]. The increase in the number of turning vehicles that would potentially conflict with pedestrians in the crosswalks at this intersection would be lower—totaling 22 or fewer at any one crosswalk in each peak hour. The incremental increase in vehicle trips at 23rd Road would total from nine to 18 additional peak hour trips through the intersection, of which no more than six per hour would be turning vehicles that would potentially conflict with pedestrians on the west crosswalk on 23rd Road. (Other crosswalks at this intersection are expected to see few, if any, additional turning vehicles due to the Proposed Actions.) At both 24th Avenue and 23rd Road, the incremental increase in turning vehicles due to the Proposed Actions would equate to an average of less than 0.5 additional vehicle per signal cycle at any one crosswalk in any peak hour. This relatively small increase in traffic is not expected to appreciably increase the potential for vehicle/pedestrian conflicts at the crosswalks used by students and accompanying parents/guardians en route to and from P.S. 85Q. It was observed in the field that was a school crossing guard stationed on the north side of the intersection of 24th Avenue and 31st Street during the AM peak hour.

XI. PARKING

Table J-30 shows a forecast of the total hourly weekday parking demand that would be generated at the Projected Development Sites under the Proposed Actions. The parking forecast was derived from the forecast of daily auto trips from the proposed uses. Parking demand from the local retail, office and community facility uses included in the RWCDS would typically peak in the midday period and decline during the afternoon and evening, while parking demand from the residential component would peak in the overnight period. As shown in **Table J-30**, midday (12 PM to 1 PM) parking demand generated by the Proposed Development's residential component would total approximately 75 spaces, and would peak at

[1] As the early-morning arrival and mid-afternoon dismissal periods for the school would not directly coincide with the peak periods for project-generated traffic, the incremental increase in traffic volumes during the school peak periods would likely be somewhat less than during the peak periods for project-generated traffic.

approximately 147 spaces in the overnight period. Parking demand from the community facility (medical office) use would peak at approximately 21 spaces during the 10 AM to 12 PM period, while the proposed local retail and office uses would each generate a peak parking demand of fewer than ten spaces in any one hour over the course of the day. Overall, parking demand would total approximately 106 spaces in the midday and would peak at 147 spaces during the overnight period.

As shown in **Table J-1**, the Proposed Development would include a total of 123 on-site accessory parking spaces in a below-grade parking facilities (compared with 58 spaces under the No-Action RWCDS). This on-site capacity would be sufficient to accommodate the majority (83 percent) of the projected demand; however, during the peak overnight period, it is estimated that approximately 24 autos would need to be accommodated in nearby off-street public parking facilities or on-street.

Should a proposed action generate the need for more parking than it provides, a shortfall of spaces may be considered significant. The availability of off-street and on-street parking spaces within a convenient walking distance (about a ¼-mile), as well as the availability of alternative modes of transportation, are considered in making this determination.

Under *CEQR Technical Manual* guidance, different criteria for determining significance are applied based on whether or not a proposed project is located in residential or commercial areas designated as Parking Zones 1 and 2 as shown in Map 16-2, "CEQR Parking Zones, May 2010," in the 2014 *CEQR Technical Manual*. As the Development Site is located within Zone 2 as shown in Map 16-2, the inability of the Proposed Actions or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant due to the magnitude of available alternative modes of transportation. Therefore, based on *CEQR Technical Manual* guidance, the projected shortfall of up to 24 spaces of on-site parking capacity during the overnight period under the Proposed Actions would not result in significant adverse parking impacts.

TABLE J-30
Total Weekday Hourly Parking Accumulation for the Proposed Development

	Local Retail			Office			Residential 0.4 spaces/D.U. (2)			Medical Office			Total		
	In	Out	Accum	In	Out	Accum	In	Out	Accum	In	Out	Accum	In	Out	Accum
12-1 AM	0	0	0	0	0	0	0	0	147	0	0	0	0	0	147
1-2	0	0	0	0	0	0	0	0	147	0	0	0	0	0	147
2-3	0	0	0	0	0	0	0	0	147	0	0	0	0	0	147
3-4	0	0	0	0	0	0	0	0	147	0	0	0	0	0	147
4-5	0	0	0	0	0	0	0	0	147	0	0	0	0	0	147
5-6	0	0	0	0	0	0	2	5	145	0	0	0	2	5	145
6-7	0	0	0	0	0	0	2	15	132	0	0	0	2	15	132
7-8	2	1	1	0	0	0	2	22	113	0	0	0	4	23	114
8-9	4	4	1	2	0	2	9	35	87	21	13	9	36	51	99
9-10	6	4	3	1	0	3	4	13	78	11	1	19	22	18	102
10-11	7	4	7	0	0	3	9	11	76	15	12	21	30	27	106
11-12	7	6	9	0	0	3	8	8	75	13	13	21	28	27	108
12-1 PM	21	21	9	0	0	3	8	8	75	18	21	18	47	49	106
1-2	8	9	8	0	0	3	6	7	74	9	9	18	23	25	104
2-3	9	9	8	0	0	3	9	6	77	13	15	16	31	30	105
3-4	9	9	8	0	0	3	15	4	88	14	12	18	38	25	118
4-5	9	10	6	0	1	2	27	10	105	13	17	14	48	38	128
5-6	11	11	6	0	2	0	32	17	120	9	18	5	52	47	133
6-7	7	9	5	0	0	0	22	9	133	5	10	0	34	28	139
7-8	4	6	3	0	0	0	15	9	139	0	0	0	19	15	143
8-9	3	5	1	0	0	0	15	8	146	0	0	0	18	13	148
9-10	1	2	0	0	0	0	10	7	148	0	0	0	11	10	149
10-11	0	0	0	0	0	0	7	10	146	0	0	0	7	10	147
11-12	0	0	0	0	0	0	7	7	147	0	0	0	7	7	147
Total	108	108		3	3		210	210		141	141		462	462	

Note (1) - Pattern data from East New York Rezoning FEIS
Note (2) - Auto OwnerShip is based on data from Queens cencus tracts 65.01,65.02, 69, 71, 95, 97, 137, 141, 143, 115, 117, 125

I. INTRODUCTION

Analysis Framework

Ambient air quality, or the quality of the surrounding air, may be affected by air pollutants produced by motor vehicles, referred to as "mobile sources"; by fixed facilities, usually referenced as "stationary sources"; or by a combination of both. Under CEQR, an air quality assessment determines both a proposed project's effects on ambient air quality as well as the effects of ambient air quality on the project. The analysis followed the *New York City Environmental Quality Review 2020 Technical Manual*.

Air Pollutants and Applicable Standards and Guidelines

Criteria Pollutants - National Air Quality Standards

The EPA has identified six pollutants, known as criteria pollutants, which are of concern nationwide. As required by the Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for the criteria pollutants by EPA, and New York State has adopted the NAAQS as the State ambient air quality standards. The NAAQS primary standards are designed to protect public health with adequate margin of safety. The NAAQS secondary standards are designed to protect the public welfare from adverse effects, including those related to effects on soils, water, vegetation, visibility, and other aspects.

Background concentrations are not directly accounted for in the dispersion modeling. The background concentrations are added to the modeled concentrations to predict the cumulative concentrations. These background concentrations include pollutants that originated from distance sources. The New York State Department of Environmental Conservation (NYSDEC) measures air pollutants at more than 50 sites across the state using continuous and/or manual instrumentation. These sites are a mix of federally-mandated and supplemental monitoring networks. Based on the *CEQR Technical Manual,* the nearest federally-mandated background concentration monitoring site, for each pollutant independently, is considered a representative site. The NAAQS and background concentrations of the pollutants that detailed analyses were conducted for are presented in **Table K-1**.

Table K-1: NAAQS and Background Concentration Published in the NYSDEC 2019 Report

Pollutant	Averaging Period	National and State Standards	Background Concentration	Monitoring Station
$PM_{2.5}$	24-Hour	35 µg/m^3	18.3 µg/m^3	JHS 45
	Annual	12 µg/m^3	7.5 µg/m^3	
PM_{10}	24-Hour	150 µg/m^3	33 µg/m^3	IS 52
NO_2	1-Hour	188 µg/m^3	110.5 µg/m^3	
	Annual	100 µg/m^3	31.8 µg/m^3	
SO_2	1-Hour	196 µg/m^3	14.6 µg/m^3	
	Annual	80 µg/m^3	1.1 µg/m^3	
CO	1-Hour	35 ppm	1.87 ppm	CCNY
	8-Hour	9 ppm	1.30 ppm	
Source: Background concentrations NYSDEC Ambient Air Quality Report for 2019				

1. 6 CRR-NY 257-2.3 for annual SO_2 standard: "During any 12 consecutive months, the annual average of the 24-hour average concentrations shall not exceed 0.03 ppm.

NO_2 NAAQS

The 1-hour NO_2 NAAQS was promulgated in the United States in February 2010. The 1-hour standard is based on a percentile rank from the annual distribution of daily maximum 1-hour values, averaged across the number of years processed. The 1-hour NO_2 modeled design value is based on the 98th percentile, or 8th highest, of the daily maximum 1-hour values across the year. For typical multi-year modeling analysis based on 5 years of National Weather Service (NWS) meteorological data, the modeled design value is the 5-year average of the 8th highest values for NO_2.

Nitrogen oxide (NOx) emissions from combustion consist predominantly of nitric oxide (NO) at the source. The NOx in these emissions are then gradually converted to NO_2. For determining compliance with the 1-hour standard, the EPA has developed a three-tiered modeling approach: Tier 1, the most conservative approach, assumes a full (100%) conversion of NOx to NO_2; Tier 2 applies an ambient NOx/NO_2 ratio to the NOx estimated concentrations; and Tier 3, which is the most precise approach, employs AERMOD's Plume Volume Molar Ratio Method (PVMRM) or Ozone Limiting Method (OLM) modules. The PVMRM and OLM accounts for the chemical transformation of NO emitted from the stack to NO_2 within the source plume using hourly ozone background concentrations. In AERMOD's Tier 3 approach, the model generates 8th highest daily maximum 1-hour NO_2 concentrations or total 1-hour NO_2 concentrations if hourly NO_2 background concentrations are added within the model.

<u>NYC Guidelines</u>

The City's *de minimis* criteria are used to determine the significance of the incremental increase in CO and $PM_{2.5}$ concentrations that would result as a consequence of the proposed project. The CO criteria set the minimum change in 8-hour average CO concentration that constitutes a significant environmental impact. Significant increase of CO concentrations in New York City are:

- An increase of 0.5 parts per million (ppm) or more in the maximum 8-hour average CO concentration at a location where the predicted No-Action 8-hour concentration is equal to 8 ppm or between 8 ppm and 9 ppm; or

- An increase of more than half the difference between baseline (i.e., No-Action) concentrations and the 8-hour standard, when No-Action concentrations are below 8 ppm.

The following criteria are used for determination of significant adverse $PM_{2.5}$ incremental impacts for projects subject to CEQR:

- Predicted 24-hour maximum $PM_{2.5}$ concentration increase of more than half the difference between the 24-hour background concentration and the 24-hour standard; or
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or for mobile sources, at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.3 $\mu g/m^3$ at any receptor location for stationary sources.

Noncriteria Pollutants

The NYSDEC Department of Air Resources established short-term (one-hour) and annual concentrations standards for certain noncriteria pollutants. The standards are acceptable ambient levels for these pollutants, which are based on human exposure. The New York State standards for noncriteria pollutants are published in the DAR-1 guidance document (latest version dated August 10, 2016). DAR-1 presents Annual and Short-Term Guideline Concentrations (AGCs and SGCs, respectively) for contaminants that range in toxicity from high to low. The AGCs and SGCs are annual and 1-hour guideline concentrations, respectively, for potentially toxic or carcinogenic air contaminants. In addition, NYSDEC also regulates pollutants that produce discomfort due to odors, where significant discomfort is evaluated on quantity, characteristic, or duration.

MOBILE SOURCE

Introduction

According to the *CEQR Technical Manual,* projects may result in significant mobile source air quality impacts when they increase or cause a redistribution of traffic, create any other mobile sources of pollutants (e.g., diesel trains, helicopters, boats), or add new uses near mobile sources (e.g., roadways, garages, parking lots). Detailed analyses are required to predict whether a proposed action could potentially result in significant adverse air quality impact if certain threshold criterions are met or exceeded. Proposed actions that do not meet or exceed the threshold criterions (screen out) are not expected to result in mobile source impacts.

Screening Analysis

Project-Generated Traffic

Screening analyses for the project's peak hour auto traffic and peak hour heavy-duty diesel vehicle (HDDVs) traffic were conducted. Per the *CEQR Technical Manual*, a detailed analysis for carbon monoxide (CO) is required if a proposed project generates peak hour auto traffic or diversion of existing peak hour traffic would result in an increment of 170 auto trips (in this area of the city). A detailed analysis for particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$) is required if the generate peak hour HDDVs traffic or its equivalent in vehicular emissions, depending on the type of road, would be met or exceeded.

According to the transportation analysis for this project, the Proposed Actions would generate a total of 108 (46 inbound and 62 outbound), 115 (56 inbound and 59 outbound), 116 (59 inbound and 57 outbound) and 93 (46 inbound and 47 outbound) net vehicle trip ends during the Weekday AM, Midday, PM, and Saturday Midday peak hours, respectively. These peak-hours project generated traffic would not exceed the threshold of 170 vehicular trips (condition outlined in Sections 210 of Chapter 17 of *the CEQR Technical Manual*). Therefore, no CO detailed analysis is required.

The $PM_{2.5}$ equivalent truck calculation in vehicular emission screen depends on the type of road. 31st Street is a minor arterial roadway, 24th Avenue is a major collector roadway, and 24th Road is a local street.[1] The *CEQR Technical Manual* threshold criterions for these roadways are 23 HDDVs for arterial roadways, 20 HDDVs for collector roadways, and 12 HDDVs for local streets (paved roads with less than 5,000 vehicle per day). The trip assignment analysis provided the project-generated traffic on each roadway, and the total number of trucks during each peak-hour period. The HDDVs screen does not apply to passenger cars; however, the HDDVs screen assumed that all autos (passenger cars and passenger trucks combined) are LDGT1 class vehicles, based on guidance from the New York City Department of City Planning (DCP). The worst-case HDDVs or its equivalent in vehicular emissions would result in a maximum of 18 equivalent trucks traveling on 24th Road, which is a paved road (12 HDDVs threshold). **Table K-2** shows the worst-case results of the *CEQR Technical Manual* Equivalent Truck Calculation for each peak-hour period.

Table K-2: *CEQR Technical Manual* Equivalent Truck Calculations

Roadway	Roadway Classification (Threshold HDDVs screen)	Peak-Hour Period	Truck Per Hour	Auto Per Hour	Equivalent Truck	Pass / Fail
24th Road	Paved (12)	AM	2	34	18	Fail
24th Avenue	Collector (20)	MD	2	42	10	Pass
24th Road	Paved (12)	PM	0	34	16	Fail
24th Avenue	Collector (20)	Sat MD	0	34	7	Pass

As seen in **Table K-2**, the Proposed Actions $PM_{2.5}$ equivalent truck calculation in vehicular emission exceed the HDDVs screening threshold criterion on 24th Road during the AM and PM peak-hour periods. Therefore, a detailed analysis for this roadway is required.

Parking Garage

Based on CEQR guidelines, the incremental capacity of parking facilities are evaluated with a threshold capacity to determine whether a detailed analysis is required. The threshold increment, per the DCP, is an increment of 85 off-street parking spaces. A detailed analysis is required if the threshold is met or exceeded. Projected Development Site 2 would include 61 accessory parking spaces, which is the largest number of parking spaces proposed of all the Projected Development Sites. Therefore, a detailed parking garage air quality analysis is not required.

Existing Mobile Sources of Pollutants

According to the *CEQR Technical Manual*, projects that would result in new sensitive uses within 200 feet of an atypical roadway or near other major mobile sources of pollutant may result in significant adverse

[1]https://gis3.dot.ny.gov/html5viewer/?viewer=FC

mobile source air quality impacts. Projected Development Site 1 is located approximately 120 feet north of the Brooklyn Queens Expressway (BQE) I-278. Therefore, a detailed analysis for this Projected Development Site is required and provided below.

Atypical Roadway Detailed Analysis

Methodology and Databases

Mobile source impacts are a function of vehicular related emissions and the pollutants' dispersion. Emissions of vehicular mechanical components (exhaust, crank case, break ware, and tire wear) were generated with the latest EPA's Mobile Vehicle Emission Simulator 2014. Fugitive road dust emissions were added to estimate total particulate matter emissions. The pollutants' concentrations at sensitive receptors were modeled with the EPA's CAL3QHCR Gaussian dispersion model.

The BQE I-278 northbound travelling lane is located approximately 120 feet south of Projected Development Site 1. At that location, the highway is 21 feet below the Projected Development Site 1.[2] Elevation points at the highway, approximately 1,000 feet in each direction from the Projected Development Site 1, were used to calculate the highway's gradient(s).

Hourly traffic counts and classifications were obtained from the New York State Department of Transportation (NYSDOT) for station 050915 for the BQE I-278. The BQE I-278 traffic data report included the average weekly count and classification and annual average counts. The *CEQR Technical Manual* annual background growth rates of 0.50% was used to account for the general background traffic growth in the area. Vehicle's speeds were obtained from UBER Movement for periods of the weekday.[3] The vehicle speed used in the analysis accounted for the 40 mile per hour speed limit on the segment of the highway next to the development. The peak hour period was determined as the northbound and southbound combined maximum traffic count. Traffic conditions on the BQE I-278, compiled for the analysis, are shown in **Table K-3**.

Table K-3: BQE I-278 Traffic Conditions

	Northbound		Southbound	
	Volume (veh/hr)	**Speed (mph)**	**Volume (veh/hr)**	**Speed (mph)**
Peak Hour (1)	4161	37	4547	40
AADT (2)	3762, 3478, 3543, 2463, 1060	37, 40, 39, 40, 40	2984, 3112, 3934, 2774, 997	40, 27, 21, 40, 40

1. PM Peak Hour Period of 9:00-10:00
2. AM, MD, PM, evening, early morning, respectively

The peak-hour traffic was applied for the 24-hour $PM_{2.5}$ and CO. Average emission of the annual $PM_{2.5}$ was calculated as the weighted average emission per period of the day.

Emission Factors

The EPA's MOVES2014b emission factor algorithm was used to compile the CO, PM_{10}, and $PM_{2.5}$ emission factors. MOVES can be used to calculate emission rates of criteria air pollutants, greenhouse gas emissions, and some hazardous air pollutants for both on-road motor vehicles and non-road equipment. MOVES models calculate emissions at the national, county, and project level by use of databases and by

[2]https://data.cityofnewyork.us/Transportation/Elevation-points/szwg-xci6;
https://data.cityofnewyork.us/Housing-Development/Building-Footprints/nqwf-w8eh
[3] https://movement.uber.com/?lang=en-US

specifying the characteristics (Run Specification) of the scenario that is modeled. For project level analyses, MOVES require the use of site-specific input data of traffic volume and speed, vehicle types, fuel parameters, age distribution, and meteorology conditions, rather than the use of national default data. The MOVES model was run for primary total CO, $PM_{2.5}$, and PM_{10} and primary $PM_{2.5}$ species running and crankcase exhaust, with primary $PM_{2.5}$ and PM_{10} brake and tire wear emissions.

The NYSDEC county database (MOVES input file for the borough of Queens) was used to further characterize vehicles types and engine technologies. MOVES inputs of inspection/maintenance, fuel data (fuel properties, distribution, and engine technology), age distribution, and meteorology, were all obtained from the NYSDEC for the borough of Queens. The links' gradients were accounted for in the MOVES model.

Peak hour emission factors were compiled for winter and summer season during the PM peak hour period. The resulting greatest emission factors, for each pollutant independently, were used in the dispersion analyses. Annual particulate emission factors were compiled for the five periods of the day (early morning, AM, Midday, PM, and evening), and the hourly weighted average calculated. Dust generated by vehicles traveling on paved roadways were added to estimate total particulate matter emissions for the short-term analysis (per DEP, annual fugitive dust emission is negligible). A silt loading factor of 0.015 g/m^2 (for expressways) was applied, based on the *CEQR Technical Manual*. In addition, based on DEP guidance, the conservative assumptions of "dry" road condition was used for the short-term calculation (precipitation reduced silt loading).

Gaussian Dispersion

Dispersion analysis of the traffic emissions concentration at Projected Development Site 1 was conducted using the EPA's CAL3QHCR dispersion model version 13196. $PM_{2.5}$ concentrations were predicted with model-ready meteorology data, obtained from the DCP. 1-hour CO and 1-hour PM_{10} concentrations were predicted using the emulate CAL3QHC meteorology data, specifying 10-deg incremental wind vector direction, 1-meter per second wind speed, natural stability, and 285.5 Kelvin, and 1,000-meter mixing height. All models specified settling and deposition velocities of 0-meter per second, 60-minute averaging time, and urban surface roughness of 108-centimeter.

The BQE I-278 was modeled as a depressed type roadway. Links width were determined from satellite imagery and 6-meter were added to each of these links.

Persistence factor of 0.7 was applied to the 1-hour CO concentration to predict the 8-hour CO concentration. Persistence factor of 0.4 was applied to the 1-hour PM_{10} concentration to predict the 24-hour PM_{10} concentration.

Receptors at Projected Development Site 1 were placed around the lot outer perimeter in 10 feet horizontal increments. The receptors were placed at heights of 6-31 feet above grade every 5 feet, and in 10 feet vertical increments above 31 feet to the top of the building.

Atypical Roadway Analysis Results

The predicted concentrations of the 24-hour $PM_{2.5}$ and CO 8-hour were evaluated with the NYC Guideline (*de minimis*); the 24-hour PM_{10}, annual $PM_{2.5}$ and CO 1-hour predicted concentrations were added to the background concentrations, and results evaluated with the NAAQS. **Table K-4** shows the dispersion analysis results.

Table K-4: BQE I-278 Dispersion Analysis Results

Pollutant and Averaging Time	Modeled Concentration	Background Concentration	Evaluated Concentration	Threshold Concentration	Threshold Standard
$PM_{2.5}$ 24-hour Tier 1	0.95 µg/m^3	N.A.	**0.95 µg/m^3**	**8.35 µg/m^3**	*de minimis*
$PM_{2.5}$ Annual	0.11 µg/m^3	7.5	**7.6 µg/m^3**	**12 µg/m^3**	NAAQS
PM_{10} 24-hour	4.4 µg/m^3	33	**37 µg/m^3**	**150 µg/m^3**	NAAQS
CO 1-hour	0.12 ppm	1.87	**1.99 ppm**	**35 ppm**	NAAQS
CO 8-hour	0.08 ppm	N.A.	**0.08 ppm**	**3.85 ppm**	*de minimis*

As seen in **Table K-4**, the 24-hour $PM_{2.5}$ and 8-hour CO concentrations do not exceed the *de minimis,* and the PM_{10}, annual $PM_{2.5}$, and CO 1-hour concentrations are within the NAAQS. Therefore, no significant adverse air quality impacts were predicted at Projected Development Site 1 from the emissions associated with the vehicular traffic on the adjacent highway (BQE I-278).

Project-Generated Detailed Analysis

Methodology and Database

$PM_{2.5}$ detailed analysis was conducted for the intersection of 31st Street and 24th Road using MOVES2014b and CAL3QHCR. The AM peak hour traffic was analyzed as the equivalent truck calculation in vehicular emission is the greatest during that peak-hour period. Traffic count and vehicle classification were obtained from the transportation analysis for this project. The vehicle classification on 31st Street was used for the 24th Road.

Vehicular emissions were compiled with MOVES2014, and fugitive dust emissions were added to the MOVES output to calculate the short-term $PM_{2.5}$ emission factors. The methodology is discussed in the Atypical Roadway Detailed Analysis section above. Dispersion analysis was conducted with the EPA's CAL3QHCR dispersion model version 13196. $PM_{2.5}$ concentrations were predicted with model-ready meteorology data, obtained from the DCP. The meteorology data and other inputs are discussed in the *Atypical Roadway Detailed Analysis* section above.

24th Road and 31st Street were modeled as free flowing, at grade, links. Short-term receptors were placed in the middle of sidewalks around the intersection. Annual receptors were placed 15-meter from the curb side.

Project-Generated Traffic Results

The $PM_{2.5}$ short-term and annual concentrations were evaluated with the NYC Guideline (*de minimis*). **Table K-5** shows the dispersion analysis results.

Table K-5: Project-Generated Traffic Dispersion Analysis Results

Pollutant and Averaging Time	Modeled Concentration	Threshold Concentration	Threshold Standard
$PM_{2.5}$ 24-hour Tier 1	1.19 µg/m^3	**8.35 µg/m^3**	*de minimis*
$PM_{2.5}$ Annual	0.05 µg/m^3 **(1)**	**0.1 µg/m^3**	*de minimis*

Note:
1. The result is of the With-Action traffic. As the result is less than the *de minimis*, analysis of the No-Action was not required.

As seen in **Table K-5**, the $PM_{2.5}$ 24-hour and annual increment concentrations do not exceed the NYC *de minimis*. Therefore, no significant adverse air quality impacts are expected at intersections effected by the project-generated traffic.

HVAC SYSTEMS ANALYSIS

Introduction

Per the *CEQR Technical Manual*, the HVAC analysis considers the potential for emissions from the HVAC system of the proposed project to significantly impact existing land uses (project-on-existing), and the potential of the proposed project to significantly impact each other (project-on-project). Based on CEQR guidelines, a preliminary screening analysis is to be conducted as a first step to predict whether the potential impacts of the heat and hot water system(s) boiler emissions can be significant. The screening analysis determines the threshold of development size below which the action would not result in a significant impact. This CEQR screening procedure is applicable to buildings that are not less than 30 feet from the nearest building of similar or greater height. Otherwise, a detailed dispersion analysis is required.

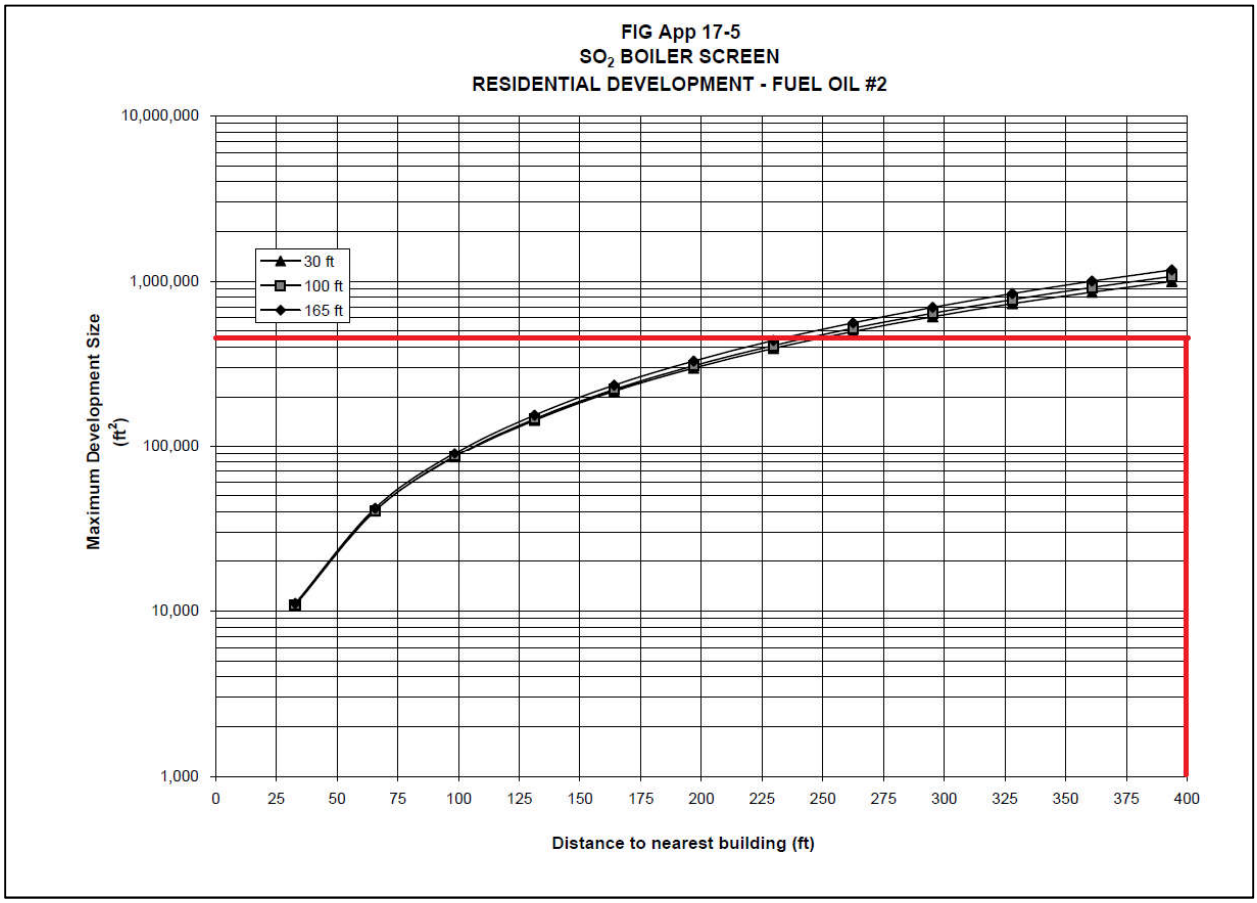
Screening Analysis

The potential for the heat and hot water system(s) to have a significant adverse impact on nearby receptors depends on the type of fuel that would be used by the HVAC system, the height of the stack venting the emissions, the distance to the nearest building of similar or greater height, the building's use, and the square footage of the development that would be served by the system. The *CEQR Technical Manual* provides a screening analysis based on these factors.

If the actual distance between the source building and the affected building is greater than the threshold distance for a building size, then that building passes the screening analysis (and no significant impact is predicted). However, if the actual distance is less than the threshold distance for a building, then there is a potential for a significant impact and a detailed analysis would be required. According to 15 RCNY 2-15, no new boiler or burner installations may use No. 6 or No. 4 fuel oils. Therefore, for CEQR analysis purposes, it is assumed that No. 2 fuel oil, the highest emitting fuel, has been selected. In addition, the screening analysis is only applicable to a single smokestack. However, for purpose of a cumulative analysis, emissions from multiple stacks could be combined in a single stack situated as close as possible to the receiving building. The following screening analyses were conducted:

- Project-on-Existing - the proposed project on existing land uses. The proposed project as a 115-foot tall residential building, containing 443,043 gsf. For CEQR analysis purposes, it is assumed that the building would use fuel oil No. 2 for HVAC. A distance of 400 feet, the *CEQR Technical Manual* maximum distance, was used in the analysis as no existing building 115-foot or taller is located within 400 feet of any Projected Development Site. The CEQR nomograph depicted on Figure 17-5 of the *CEQR Technical Manual Appendices* was used for the screening analysis. This nomograph is for Oil No. 2 fueled boiler serving a residential development. **Figure K-1** (using Figure 17-5 of the *CEQR Technical Manual Appendices*) shows the screening analysis.

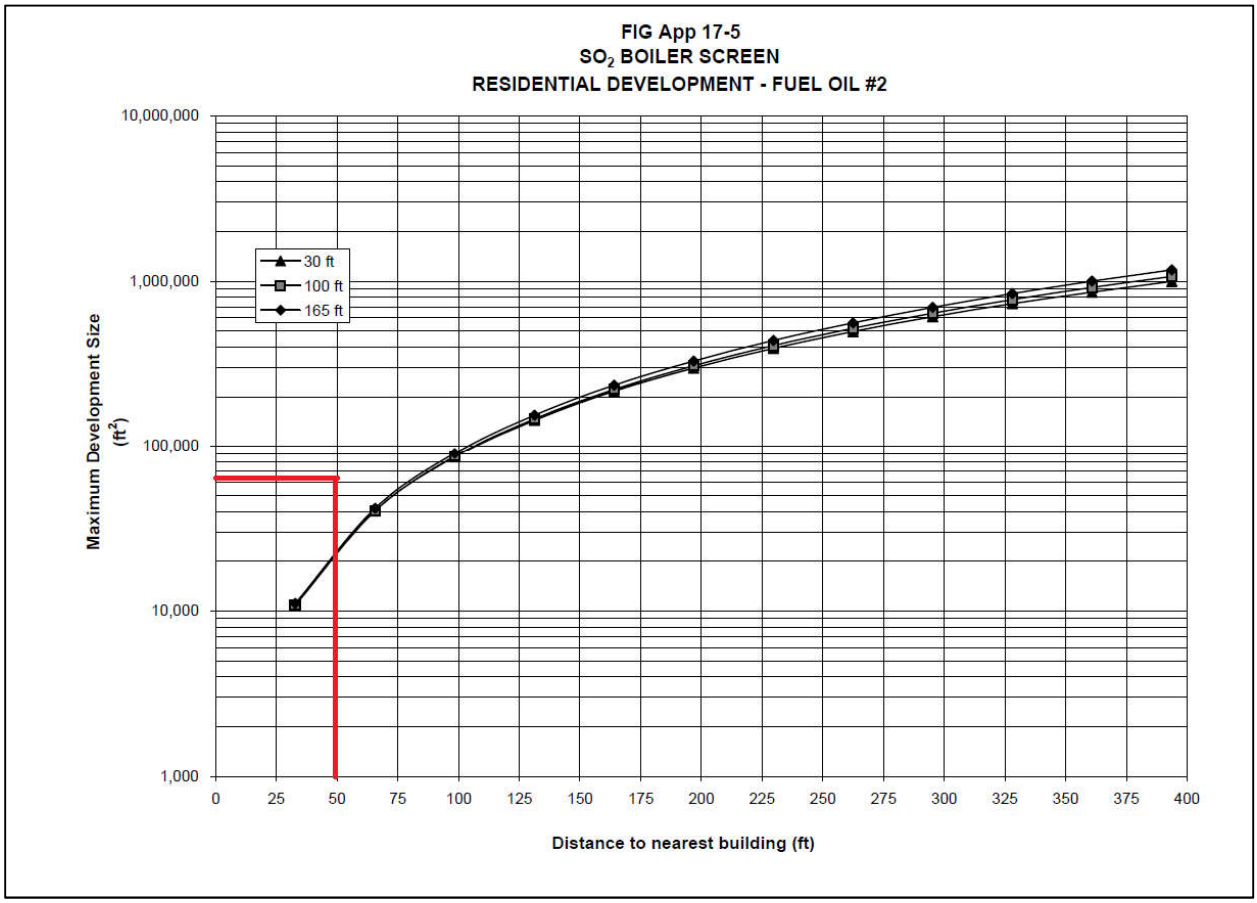
Figure K-1: The Proposed Project on Existing Land Uses – HVAC Screen



As seen in **Figure K-1** (using Figure 17-5 of the *CEQR Technical Manual Appendices*), the line corresponding to the proposed project combined gsf floor area is below the curve. Therefore, the proposed project passed the screening analysis on existing land uses.

- Project-on-Project - Projected Development Site 1 on Projected Development Site 2. Projected Development Site 1, a 115-foot tall residential building, containing 63,252 gsf. Oil No. 2 would be the type of fuel used in the building's HVAC system. A distance of 50 feet, the distance between the Projected Development Sites 1 and 2, was used in the screening analysis. The CEQR nomograph depicted on Figure 17-**5** of the *CEQR Technical Manual Appendices* was used for the screening analysis. This nomograph is for a fuel Oil No. 2 boiler serving a residential development. **Figure K-2** below (using Figure 17-5 of the *CEQR Technical Manual Appendices*) shows the screening analysis.

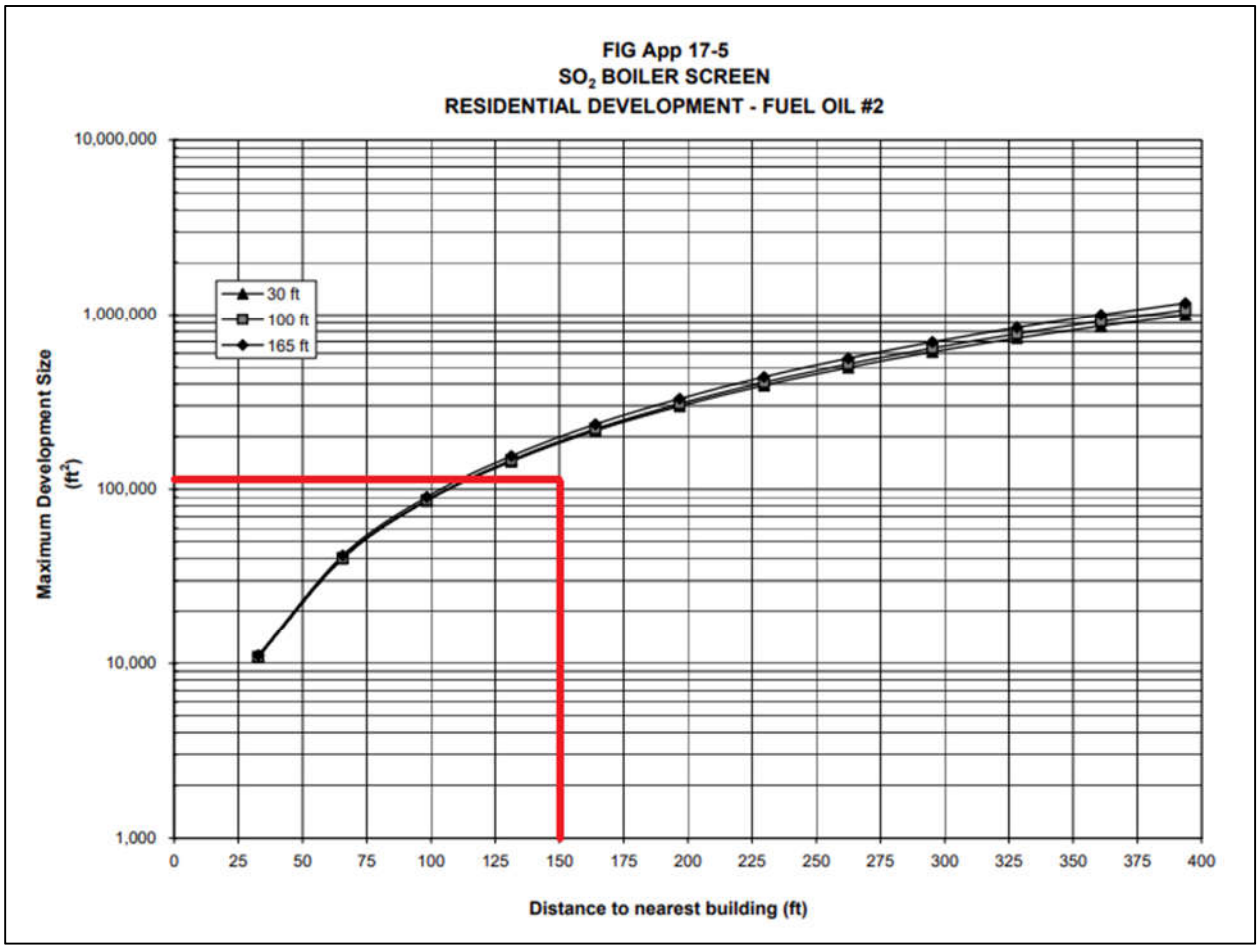
Figure K-2: Projected Development Site 1 on Projected Development Site 2 – HVAC Screen



As seen in **Figure K-2** (using Figure 17-5 of the *CEQR Technical Manual Appendices*), the line corresponding to the Projected Development Site 1 RWCDS floor area is above the curve. Therefore, a detailed analysis was required for Projected Development Site 1 potential impact on Projected Development Site 2.

- Project-on-Project - Projected Development Site 3 on Projected Development Site 4. Projected Development Site 3, a 129-foot-tall residential building, containing 110,997 gsf. For CEQR analysis purposes, it is assumed that the building would use fuel oil No. 2 for HVAC. A distance of 150 feet, the distance between the Projected Development Sites 3 and 4, was used in the screening analysis. The CEQR nomograph depicted on Figure 17-5 of the *CEQR Technical Manual Appendices* was used for the screening analysis. This nomograph is for a fuel Oil No. 2 boiler serving a residential development. **Figure K-3** below (using Figure 17-5 of the *CEQR Technical Manual Appendices*) shows the screening analysis.

Figure K-3: Projected Development Site 3 on Projected Development Site 4 – HVAC Screen



As seen in **Figure K-3** (using Figure 17-5 of the *CEQR Technical Manual Appendices*), the line corresponding to the Projected Development Site 3 RWCDS floor area is below the curve. Therefore, the Projected Development Site 3 passes the screening analysis potential impact on Projected Development Site 4 (no detail analysis is required).

- Project-on-Project – Projected Development Site 4 on Projected Development Site 2. Because Projected Development Site 4 abuts Projected Development Site 2, a detailed analysis is required (the HVAC screen is only applicable to buildings that are at least 30 feet from each other).

Detailed Analysis

Methodology

A stationary source modeling was conducted to evaluate the potential impacts associated with the boilers stacks emissions on Projected Development Site 2 (cumulative (all development sites' stacks) impact concentrations.) The EPA's AERMOD modeling system[4] version 19191 was used to predict pollutants' concentrations. The AERMOD model incorporates air dispersion based on planetary boundary layer

[4] AMS/EPA Regulatory Model (AERMOD) User's Guide. EPA-454/B-19-027, August 2019.

turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The analysis was conducted assuming stack tip downwash and elimination of calms. The Building Profile Input Program (BPIP) was run with the downwash effect enabled.

All analyses were conducted using the latest five consecutive years of meteorological data (2015-2019), obtained from the NYSDEC, Division of Air Resources, BAQAR, Impact Assessment and Meteorology Section. Surface data used in the analysis is from LGA Airport, upper air data is from Brookhaven station, New York. The meteorological data was processed using the latest versions of AERMINUTE, AERSURFACE and AERMET. These meteorological data provided hour-by-hour wind speeds and directions, stability states, and temperature inversion elevations over the 5-year period.

The pollutants of concern of oil No. 2 fueled boilers are $PM_{2.5}$, NO_2, and SO_2. The pollutants of concern of natural gas fueled boilers are $PM_{2.5}$ and NO_2. The energy intensities of the developments boilers were calculated based on energy consumption rate, obtained from the *CEQR Technical Manual Appendices*, corresponding to residential use in the buildings. The boilers for Projected Development Site 4 were modeled as Low NOx, natural gas fueled boilers (these restrictions are specified in the E-Designation language below). Pollutants emission rates were calculated based on emission factors obtained from the EPA's AP-42 manual for external combustion sources[5], and the boilers' energy intensities. All fuel was assumed to be consumed during the 100-day (or 2,400 hour) heating season, based on the *CEQR Technical Manual*. **Table K-6** shows the boilers' energy intensities and pollutants emission rates.

Table K-6: RWCDS HVAC Systems Short-term and Annual Emission Rates

Site ID	Development Site RWCDS Floor Area (gsf)	Boiler's Energy Intensity (MMBtu); Fuel Used	Pollutant	Short-term Emission Rate (g/s)	Annual Emission Rate (g/s)
Projected Development Site 1	63,252	1.6; Oil No. 2	NO_2	2.87E-02	7.86E-03
			$PM_{2.5}$	3.06E-03	8.37E-04
			SO_2	3.06E-04	8.37E-05
Projected Development Site 3	110,997	2.8; Oil No. 2	NO_2	5.03E-02	1.38E-02
			$PM_{2.5}$	5.36E-03	1.47E-03
			SO_2	5.36E-04	1.47E-04
Projected Development Site 4	79,667	2.0; Natural gas, Low NOx	NO_2	1.24E-02	3.39E-03
			$PM_{2.5}$	1.88E-03	5.15E-04

The boilers stack diameters were estimated based on values obtained from the DEP "CA Permit" database for the corresponding boiler sizes (i.e., rated heat input or million Btu per hour).[6] All the stacks exit temperatures were assumed to be 426°K, which is appropriate for boilers. The fuels dry volume of combustion components per unit of heat content was used to calculate the stacks exit velocities. The boilers stacks were placed 3 feet above the roofs and as close as possible to the receiving building(s); hence, a stack set back distance was specified if exceedance of a threshold concentration standard was predicted.

All the Development Sites were modeled as a building that cover their entire lot(s) area (the façade located on the outer lot lines) and rise to their RWCDS heights. Buildings in the surrounding area were accounted

[5] EPA. *Compilation of Air Pollutant Emission Factors AP-42 Fifth Edition, Vol. 1:* Chapter 1: External Combustion Sources, https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf. July 1998.
[6] DEP "CA Permit" database obtained from the New York City Department of City Planning, February 2020.

for in the downwash effect on plumes dispersions (BPIP). The USGS National Elevation Dataset (NED) 1/3 arc-second resolution (GeoTIFF dataset), the terrain data set recommended by the US EPA for use in the United States for regulatory purposes, was used to process buildings base elevations. The base elevations of receptors and stacks were set to their buildings base elevations. Receptors on the receiving building(s) were placed on all façades and on all floor levels.

The 1-hour NO_2 concentration was modeled with a Tier 2 approach, the Ambient Ratio Method 2 (ARM2), which assumes ambient equilibrium between NO and NO_2. The national default minimum and maximum ambient ratios of 0.5 and 0.9, respectively, were applied in the analysis.

Results of Dispersion Analyses

Each pollutant averaging time was modeled twice; with building wake effect enabled/disabled. The predicted concentrations are the highest concentration of these. The NO_2 and SO_2 modeled concentrations were added to the background concentrations. The $PM_{2.5}$ modeled concentrations were evaluated with the NYC Guidelines threshold, *de minimis*, for stationary sources. The HVAC dispersions analysis results are shown in **Table K-7**.

Table K-7: HVAC Dispersion Analysis Results – Concentrations At projected Development Site 2

Pollutant and Averaging Time	Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Evaluated Concentration ($\mu g/m^3$)	Threshold Concentration ($\mu g/m^3$)	Threshold Standard
1-hour NO_2	71.50 (1)	110.54	182	188	NAAQS
Annual NO_2	1.12	31.8	33	100	NAAQS
24-hour $PM_{2.5}$	4.03	18.3	4.0	8.35	*de minimis*
Annual $PM_{2.5}$	0.14	7.5	0.14	0.3	*de minimis*
1-hour SO_2	0.9	14.6	15	196	NAAQS
Annual SO_2	0.01	1.1	1	80	NAAQS

Notes:
1. Concentration evaluated with a Tier 2 approach.

The concentrations shown in **Table K-7** were predicted with certain restrictions to ensure that no significant adverse air quality impact(s) would occur. The restrictions for the Proposed Actions are specified in the Air Quality E-Designations language. The E-Designation language related to the heating and hot water systems is as follows:

(E) Designation

Block 837, Lots 9 and 16 (Projected Development Site 1): Any new residential, community facility, or commercial development on the above-referenced property must ensure that the HVAC stack is located at the building's highest level or at least 118 feet above the grade, that the stack is located at least 90 feet from the northern lot line facing 24th Road to avoid any potential significant adverse air quality impacts.

Block 837, Lot 27 (Projected Development Site 2): Any new residential, community facility, or commercial development on the above-referenced property must ensure that the HVAC stack is located

at the building's highest level or at least 148 feet above the grade to avoid any potential significant adverse air quality impacts.

Block 835, Lots 3, 4, 7, and 8 (Projected Development Site 3): Any new residential, community facility, or commercial development on the above-referenced property must ensure that the HVAC stack is located at the building's highest level or at least 132 feet above the grade, that the stack is located at least 50 feet from the southern lot line facing 24th Avenue to avoid any potential significant adverse air quality impacts.

Block 837, Lots 38, 39, 41, 42, 43, 44, 45, 46, and 47 (Projected Development Site 4): Any new residential or commercial development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, air conditioning (HVAC), and hot water system(s) and must be fitted with low NOx (30 ppm) burners, ensure that the stack is located at the building's highest level at a minimum of 138 feet above the grade, and that the stack is located at least 120 feet from the southern lot line facing 24th Road to avoid any potential significant adverse air quality impacts.

EXISTING STATIONARY SOURCES

Industrial Source

Search for Emission Sources

Per the *CEQR Technical Manual*, projects that would result in new uses (particularly schools, hospitals, parks, and residences) within 400 feet of manufacturing processing facilities, may result in potentially significant adverse impacts related to stationary sources. The analysis first determines if there are any existing manufacturing uses (in the 400 feet study area) with exhaust stacks, vents, or other emission sources that may have the potential to adversely affect the uses introduced by the project. An air dispersion analysis is then conducted for existing industrial sources located in the study area; else no analysis is required.

No manufacturing uses emission sources that may have the potential to adversely affect the uses introduced by the Proposed Actions were identified in the DEP online Clean Air Tracking System (CATS) database and the NYSDEC online database.[7]

A fieldwork observation took place on August 25th, 2020 to identify any other likely air toxics emitter, based on the facilities manufacturing processing activities. The study area encompasses all or part of Blocks 834, 835, 836, 837, 838, 840, 842, 620, and 631. The study area is characterized by a mixture of uses, including low and medium-density residential uses, low density commercial uses, parks, a playground, and a public school. No industrial uses were identified during the field observation, and no potential sources of toxic air emissions were identified in the study area. As such, no analysis is warranted.

Major and Large Source

Per the *CEQR Technical Manual*, projects that would introduce new uses near major sources, large sources, or odor producing facilities may result in potentially significant adverse air quality impacts. The study area considers major sources, large sources, and odor producing facilities within 1,000 feet of the Project Are. Major emission sources are identified as those sources located at Title V facilities; large emission sources are identified as sources located at facilities which require an Air State Facility permit. Solid waste or medical waste incinerators, asphalt and concrete plants, power generating plants, large

[7] NYSDEC, DECInfo Locator, https://gisservices.dec.ny.gov/gis/dil/, July 2019.

boilers of large public facilities for example, and large industrial facilities are typical type of sources requiring these permits. Odor producing facilities are operations that have the potential to cause discomfort, such as: solid waste management facilities, water pollution control plants (i.e., sewage treatment plants), and incinerators.

No existing large combustion source(s), such as power plants, cogeneration facilities, etc., located within 1,000 feet of the Project Area, was identified in the database.[8] The nearest source is the Astoria Gas Turbine Power facility, which is located approximately 3,500 feet north of the Project Area. In addition, no odor producing facility was identified in the 1,000-foot study area. As such, no analysis is warranted.

CONCLUSION

No significant adverse mobile or stationary source air quality impacts were predicted in the analysis. The increase in traffic volumes associated with the Proposed Actions would not result in any significant adverse air quality impacts. Existing stationary sources would not result in any significant adverse air quality impacts. The Proposed Actions would not create a new stationary air quality source that would adversely affect the surrounding area. Under the Proposed Actions, an (E) Designation (E-623) is proposed to avoid adverse air quality impacts on existing land uses with respect to heating systems sources.

Based on the assessment, there is no reason to believe that the conditions associated with the Proposed Actions would result in any significant adverse air quality impacts.

[8] New York City Department of City Planning, "Air Quality: Light Industrial, NYS DEC Large, and Major Source," https://www.ceqr.app/data/air-quality, August 2020; and, DECInfo Locator, https://gisservices.dec.ny.gov/gis/dil/, July 2019.

I. INTRODUCTION

This attachment assesses the potential for the Proposed Actions to result in significant adverse noise impacts. The noise analysis for the Proposed Actions was carried out in compliance with 2020 *CEQR Technical Manual* guidance and consists of two parts:

1. A screening analysis to determine whether traffic changes resulting from the Proposed Actions would have the potential to result in significant noise impacts on existing sensitive receptors, and;
2. An analysis to determine the level of building attenuation necessary to ensure that the proposed developments' interior noise levels satisfy applicable interior noise criteria.

This attachment does not include an analysis of mechanical equipment because such mechanical equipment would be designed to meet all applicable noise regulations (i.e., Subchapter 5, Section 24-227 of the New York City Noise Control Code and the New York City Department of Buildings Code) and, therefore, would not result in significant adverse noise impacts.

II. PRINCIPAL CONCLUSIONS

The increased traffic volumes generated by the Proposed Actions would not result in significant adverse noise impacts as the relative increases in noise levels would fall well below the applicable *CEQR Technical Manual* significant adverse impact threshold (3.0 dBA).

Based on the calculated With-Action L_{10} noise levels, window/wall attenuations would be required for future residential/community facility uses at the Projected Development Sites through an (E) Designation which would be established as part of approval of the Proposed Actions.

With implementation of the attenuation levels outlined in Section IX below and described in **Table L-12**, the Proposed Actions and subsequent developments would provide sufficient attenuation to achieve the *CEQR Technical Manual* interior noise level guidance. Therefore, the Proposed Actions would not result in any significant adverse impacts related to noise attenuation.

III. NOISE FUNDAMENTALS

Quantitative information on the effects of airborne noise on people is well documented. If sufficiently loud, noise may adversely affect people in several ways. For example, noise may interfere with human activities such as sleep, speech communication, and tasks requiring concentration or coordination. It may also cause annoyance, hearing damage, and other physiological problems. Although it is possible to study these effects on people on an average or statistical basis, it must be remembered that all the stated effects of noise on people vary greatly with the individual. Several noise scales and rating methods are used to quantify the effects of noise on people. These scales and methods consider factors such as loudness, duration, time of occurrence, and changes in noise level with time.

"A"-Weighted Sound Level (dBA)

Table L-1
Common Noise Levels

Sound Source	(dBA)
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	80–90
Busy city street, loud shout	80
Busy traffic intersection	70–80
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas, or residential areas close to industry	50–60
Background noise in an office	50
Suburban areas with medium-density transportation	40–50
Public library	40
Soft whisper at 5 meters	30
Threshold of hearing	0

Note: A ten dBA increase in level appears to double the loudness, and a ten dBA decrease halves the apparent loudness.
Sources: *2020 CEQR Technical Manual* / Cowan, James P. *Handbook of Environmental Acoustics,* Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

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 L-1** above, 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.

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. As shown in **Table L-2** below, 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.

Table L-2
Average Ability to Perceive Changes in Noise Levels

Change (dBA)	Human Perception of Sound
2-3	Barely perceptible
5	Readily noticeable
10	A doubling or halving of the loudness of sound
20	A dramatic change
40	Difference between a faintly audible sound and a very loud sound

Source: Bolt Beranek and Neuman, Inc., Fundamentals and Abatement of Highway Traffic Noise, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.

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 one, ten, 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 this analysis, the maximum one-hour equivalent sound level (i.e., L_{eq}) has been selected as the noise descriptor to be used in this noise impact evaluation. L_{eq} 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 guidance 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.

IV. NOISE STANDARDS AND CRITERIA

New York City Noise Code

The New York City Noise Control Code, amended in December 2005, contains prohibitions regarding unreasonable noise and specific noise standards, including plainly audible criteria for specific noise sources. In addition, the amended code specifies that no sound source operating in connection with any commercial or business enterprise may exceed the decibel levels in the designated octave bands at specified receiving properties. The NYC Department of Environmental Protection (DEP) has set external noise exposure standards based on L_{10} noise levels. These standards are shown on the following page in **Table L-3**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

Table L-3
Noise Exposure Guidance for Use in City Environmental Impact Review

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
1. Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- Ldn ≤ 60 dBA ----------						
2. Hospital, Nursing Home		$L_{10} \leq 55$ dBA		55 < $L_{10} \leq$ 65 dBA	---------- 60 < Ldn ≤ 65 dBA ----------	65 < $L_{10} \leq$ 80 dBA	(1) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn	L_{10} > 80 dBA	---------- Ldn ≤ 75 dBA ----------
3. Residence, residential hotel or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		65 < $L_{10} \leq$ 70 dBA		70 < $L_{10} \leq$ 80 dBA		L_{10} > 80 dBA	
	10 PM to 7 AM	$L_{10} \leq 55$ dBA		55 < $L_{10} \leq$ 70 dBA		70 < $L_{10} \leq$ 80 dBA		L_{10} > 80 dBA	
4. School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, out-patient public health facility		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
5. Commercial or office		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
6. Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more;

[1] Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.

[2] Tracts of land where serenity and quiet are extraordinarily important and serve an important public need and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and old-age homes.

[3] One may use the FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

[4] External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Source: New York City Department of Environmental Protection (adopted policy 1983).

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see Table L-4). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential and community facility uses and 50 dBA or lower for commercial office uses, and are determined based on exterior L10 noise levels.

Table L-4
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level With Proposed Actions	70 < $L_{10} \leq$ 73	73 < $L_{10} \leq$ 76	76 < $L_{10} \leq$ 78	78 < $L_{10} \leq$ 80	80 < L_{10}
Attenuation[A]	(I) 28 dBA	(II) 31 dBA	(III) 33 dBA	(IV) 35 dBA	36 + (L_{10} – 80)[B] dBA

Notes:

[A] The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms would be five dBA less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.

[B] Required attenuation values increase by one dBA increments for L_{10} values greater than 80 dBA.

Source: DEP

V. NOISE PREDICTION METHODOLOGY

Future No-Action and With-Action noise levels were calculated using the Traffic Noise Model (TNM) version 2.5. As stated in the *CEQR Technical Manual*, the proportional modeling technique may be employed for most projects. However, TNM modeling should be used when: (a) conditions result in new or significant changes in roadway or street geometry; (b) roadways currently carry no or very low traffic volumes; (c) ambient noise is the result of multiple sources including traffic; or (d) a detailed analysis of changes due to the traffic component of the total ambient noise levels is necessary. As ambient noise is the result of multiple sources including traffic at the Projected Development Sites, TNM was used for all three receptor locations in order to more accurately calculate any changes in noise levels due to changes in nearby traffic volumes.

Analyses for the Proposed Actions were conducted for three typical time periods: the weekday AM peak hour (8:00 AM to 9:00 AM), the weekday midday peak hour (12:30 PM to 1:30 PM), and the weekday PM peak hour (4 PM to 5 PM). These time periods are the hours when the maximum traffic generation is expected (based on the traffic studies presented in **Attachment J, "Transportation"**) and, therefore, the hours when future conditions with the Proposed Actions are most likely to result in maximum noise impacts for the receptor locations.

To calculate the 2028 No-Action and With-Action Passenger Car Equivalent (PCE) values at the Projected Development Sites, the 2028 No-Action and With-Action traffic assignments presented in Attachment J were converted into PCE values and inputted into the TNM model.

The TNM procedure used for the noise analysis is described further below.

Traffic Noise Modeling (TNM)

As ambient noise volumes are a result of multiple sources (including traffic, train, and play area noise) at the Projected Development Sites, and as future noise levels would largely be influenced by changes in traffic volumes at and within the vicinity of the Projected Development Sites, future noise levels were calculated using TNM to more accurately forecast noise at the receptor locations.

TNM is a computerized model developed for the FHWA that calculates the noise contribution of each roadway segment to a given noise receptor. The noise from each vehicle type is determined as a function of the reference energy-mean emission level, corrected for vehicle volume, speed, roadway grade, roadway segment length, and source-receptor distance. Further considerations in modeling the propagation path include identifying the shielding provided by rows of buildings, analyzing the effects of different ground types, identifying source and receptor elevations, and analyzing the effects of any intervening noise barriers. The less refined proportional modeling technique could not account for the noise contributions from adjacent roadways, and thus, over-predicts the project-generated traffic noise levels by attributing all noise due to traffic and traffic changes to the immediately adjacent street. As such, TNM provides more accurate results than proportional modeling for the three receptor locations.

The existing, No-Action, and With-Action TNM noise levels were logarithmically added to the measured existing noise levels to predict future 2028 No-Action and With-Action noise levels and to account for the cumulative effects of both background (train and/or play area) noise and noise attributable to vehicular traffic within the vicinity of the Proposed Development Sites.

Play Area Noise

While people are not usually thought of as stationary noise, children in playgrounds or spectators at outdoor sporting events or concerts can introduce additional sources of noise within communities. According to the *CEQR Technical Manual*, noise generated by children in playgrounds or people using parks is considered a stationary source of noise. As a publicly accessible play area, Hoyt Playground, is located directly to the west of Projected Development Sites 1 & 2 (across 31st Street), a play area noise analysis is warranted to determine the need for additional attenuation requirements for the Projected Developments' building facades with frontages facing the existing playground. Hoyt Playground encompasses 2.2 acres of active recreational uses and is bounded by 29th Street to the west, Hoyt Avenue North to the south, and 31st Street to the east. Hoyt Playground features a playground, handball and basketball courts, spray showers, and seating areas.

Potential noise impacts for the Proposed Actions due to the use of the existing play area were determined using methodology based on the measurements and procedures outlined in a study entitled, "Development of Noise Assessment Method for School Playground Noise" (2006).[1] To predict potential noise impacts at a given distance from a play area boundary, the study suggests a 4.5 dBA reduction in L_{eq} noise levels per doubling of distance at a distance between 40 and 300 feet, with initial reductions of 4.8 dBA at 20 feet, 6.8 dBA at 30 feet, and 9.1 dBA at 40 feet. Noise levels can be estimated with the following equation at sensitive receptor with a direct line of sight to the play area between 40 to 300 feet:

$$Lp1 = Lp2 - 15*\log(d/10)$$

Where:

Lp1 = the predicted noise level at a specific distance.

Lp2 = the maximum L_{eq} at the boundary of the school play area.

d = the distance from the play area boundary to the sensitive receptor in feet.

In certain situations these values may overstate play area noise levels.

Projected Development Sites 1 and 2 would have the greatest potential for noise level impacts due to noise from the existing play area. Specifically, the western façades of Projected Development Sites 1 and 2.

Table L-5 shows the results of the playground noise assessment at these receptors using the methodology described above for predicting play area-generated noise levels. As indicated in the table, the maximum predicted L_{eq} noise levels along the western façades of Projected Development Sites 1 and 2 due to the existing play area would be 56.5 dBA. The predicted play area noise levels presented in **Table L-5** will be utilized to determine the maximum predicted L_{eq} and L_{10} noise levels at each sensitive receptor by combining the predicted play area noise values with predicted With-Action noise values based on the TNM methodology, further detailed in Section VIII below.

[1] Wu, Weixiong, AKRF Inc. "Development of Noise Assessment Method for School Playground Noise," Inter-Noise 2006, Volume 6.

TABLE L-5
Highest Predicted Noise Levels due to the Existing Play Area Only (in dBA)

Receptor Location		Approximate Distance (feet) to Existing Play Area	Play Area L_{eq} at Receptor (in dBA)
Site	Façade		
Projected Development Site 1	Western	100	56.5
Projected Development Site 2	Western	100	56.5

Notes: Play Area L_{eq} noise levels presented in this table do not factor in background noise levels.

VI. EXISTING NOISE LEVELS

Selection of Noise Receptor Locations

A total of three receptor locations along the Project Area's frontage were selected for evaluation of noise attenuation requirements. These receptors shown in **Table L-6** and **Figure L-1**, represent the nearby sensitive noise receptors with the greatest potential to experience significant noise increases as a result of the Proposed Actions. Sensitive receptors further from the Projected Development Sites would be less likely to experience significant noise increases as a result of the Proposed Actions.

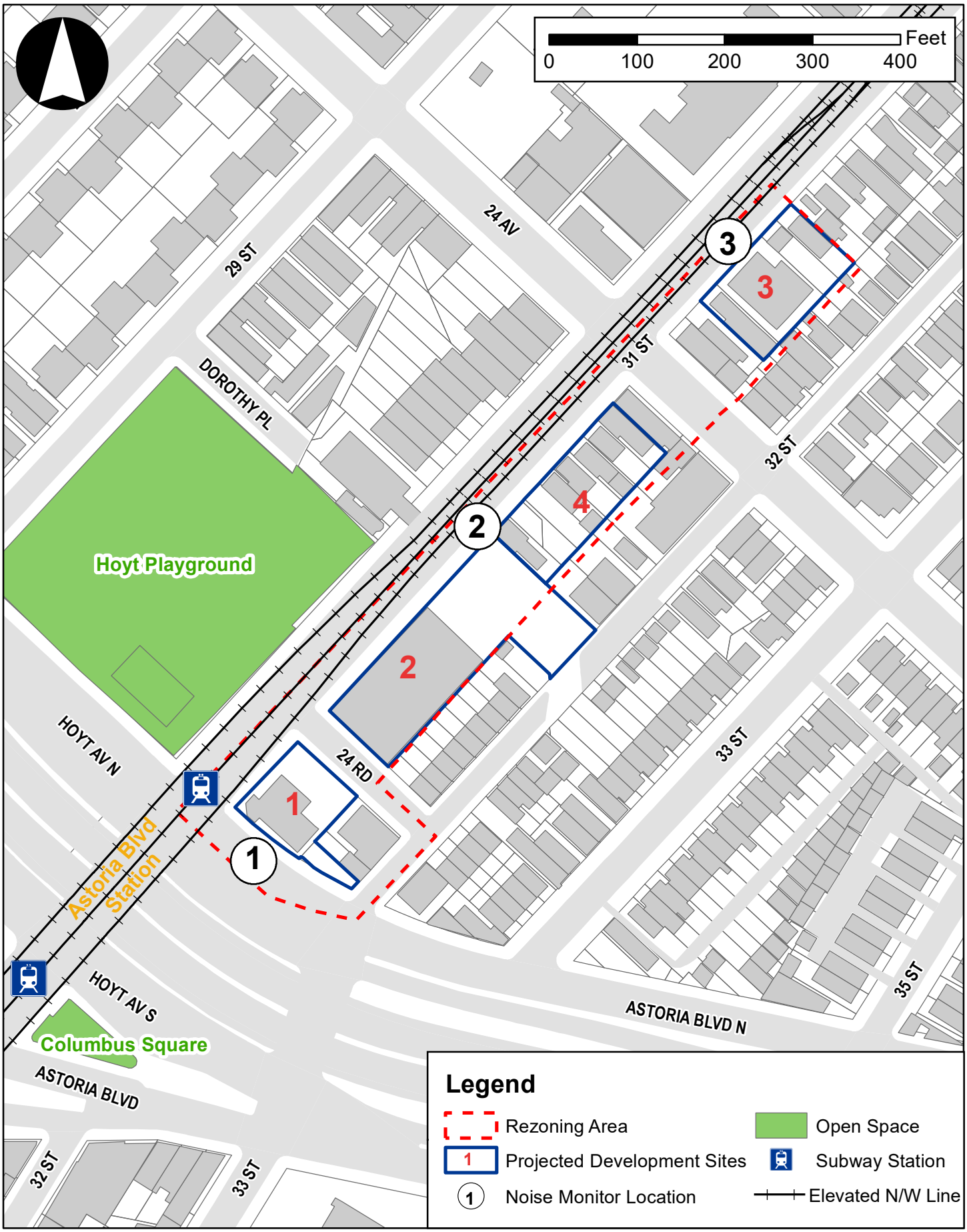
Table L-6: Receptor Locations

Receptor	Receptor Frontages	Receptor Location
1	Astoria Boulevard North between 31st and 32nd Streets (along Projected Development Site 1)	Approximately 90 feet east of 31st Street along Projected Development Site 1's Astoria Boulevard North frontage.
2	31st Street between 24th Road and 24th Avenue (midblock)	Approximately 420 feet north of Astoria Boulevard North along Projected Development Site 1, 2, and 4's 31st Street frontage.
3	31st Street between 24th Avenue and 23rd Road (along Projected Development Site 3)	Approximately 150 feet north of 24th Avenue along Projected Development Site 3's 31st Street frontage.

Noise Monitoring

Given the constraints in performing noise data collection due to the COVID-19 pandemic, and based on the guidance of NYCDCP, this noise analysis utilizes noise data from the approved *Dutch Kills Rezoning and Related Actions EIS (2008)* (ULURP No. N080428ZRQ, C080429ZMQ; CEQR No. 08DCP021Q). The Dutch Kills Rezoning and Related Actions rezoning area was comprised of 70 acres encompassing approximately 40 blocks in the Dutch Kills neighborhood of Queens Community District 1, located approximately 1.2 miles to the south of the Project Area. A number of projected and potential development sites were located along the elevated train line for the N/W subway with the 39th Avenue-Dutch Kills station located at the intersection of 39th Avenue and 31st Street, similar to the N/W elevated train line and Astoria Boulevard station that is located directly adjacent to the Project Area. As described in Chapter 18, "Noise," of the *Dutch Kills Rezoning and Related Actions EIS*, noise monitoring was conducted at ten receptor locations

Figure L-1
Proposed Noise Monitor Locations



(refer to **Figure L-2**):

- Receptor Site 1 – 38th Avenue between 31st Street and 30th Street;
- Receptor Site 2 – 38th Avenue between 30th Street and 29th Street;
- Receptor Site 3 – 38th Avenue between 29th Street and 28th Street;
- Receptor Site 4 – Northern Boulevard between 35th Street and 36th Street;
- Receptor Site 5 – 35th Avenue between Northern Boulevard and 37th Avenue;
- Receptor Site 6 – 37th Avenue between 32nd Street and 31st Street;
- Receptor Site 7 – Crescent Street between 37th Avenue and 38th Avenue;
- Receptor Site 8 – 39th Avenue between Crescent Street and 24th Street;
- Receptor Site 9 – an elevated location on 31st Street between 38th Avenue and 39th Avenue (fronting the elevated N/W line)
- Receptor Site 10 - an elevated location on Northern Boulevard between 40th Road and 40th Avenue (fronting the elevated N/W line)

At each receptor site, existing noise levels were determined by field measurements. At Receptor Sites 1 through 10, 20-minute spot measurements were performed for the following weekday peak periods: AM (7:30AM to 9:30AM), midday (12:00PM-2:00PM), and PM (4:00PM-6:00PM).[2] Noise monitoring was performed on February 1 and March 11, 2008. The weather on both February 1 and March 11 was partly cloudy and in the low-40s °F.

As Receptor Locations 1 through 3 of this project and Receptor Site 9 of the *Dutch Kills Rezoning and Related Actions EIS* each share street frontage along or within close proximity to the elevated N/W subway line, it was determined that Receptor Locations 1 through 3 would utilize data associated with the train noise collected at Receptor Site 9 of the Dutch Kills project. The results of the train noise measurements at Receptor Site 9 as presented in the *Dutch Kills Rezoning and Related Actions EIS* are shown below in **Table L-7**.

Table L-7
Noise Level Measurements from *Dutch Kills Rezoning and Related Actions EIS*: Receptor Site 9 (in dBA)

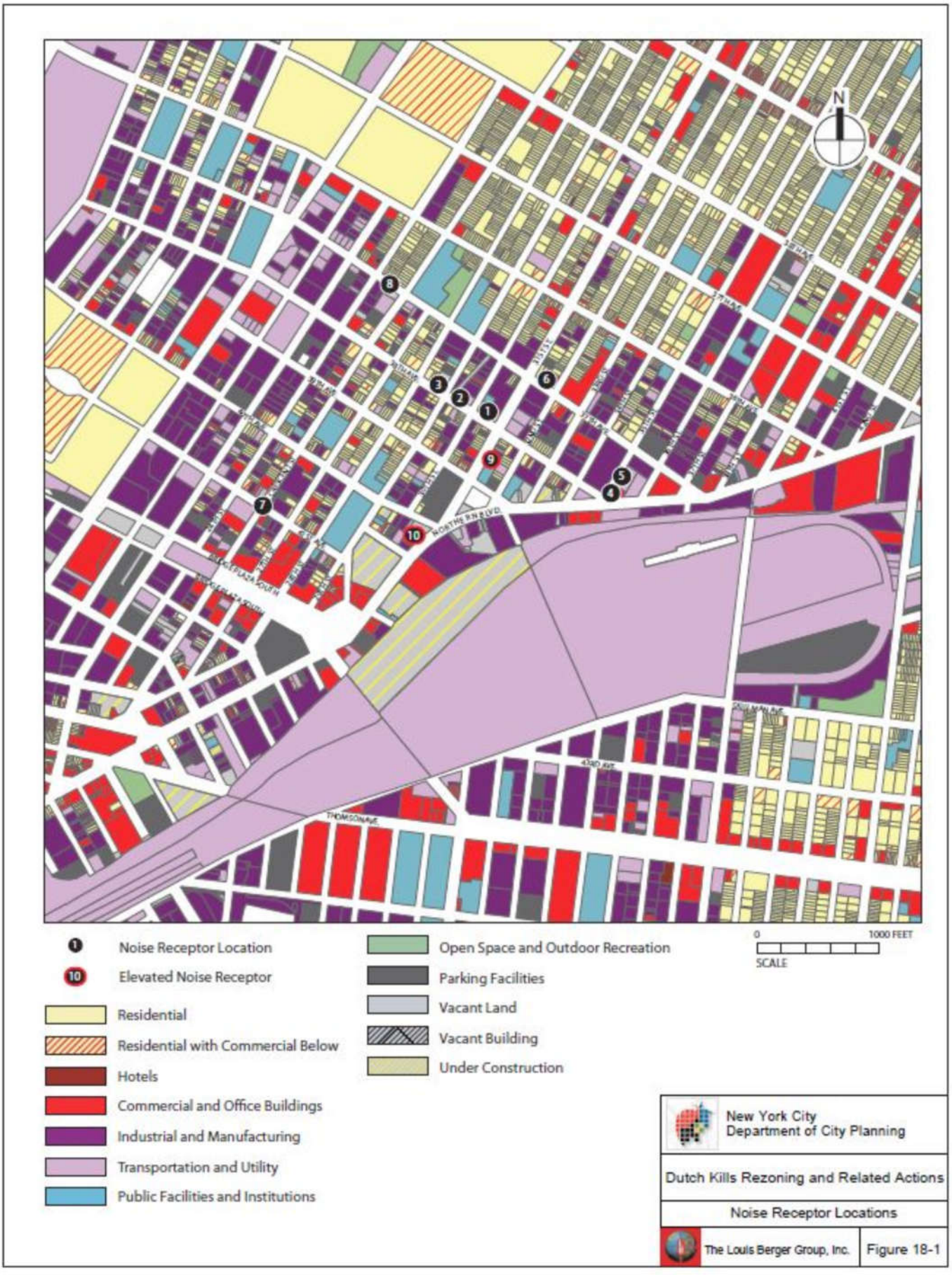
Receptor	Measurement Location	Time	L_{eq}	L_1	L_{10}[1]	L_{50}	L_{90}	CEQR Noise Exposure Category
9	An elevated location on 31st Street between 38th Avenue and 39th Avenue (fronting the elevated N/W line)	AM	78.50	90.20	82.40	67.10	60.80	Clearly Unacceptable
		MD	74.90	87.40	80.60	65.20	58.80	
		PM	80.60	93.20	**83.80**	68.90	60.40	

Notes: Field measurements based on 20-minute and 1-hour noise measurements conducted at Receptor Site 9 found in Chapter 18, "Noise," of the *Dutch Kills Rezoning and Related Actions EIS*.
[1] The highest L_{10} at each receptor location is shown in **bold**.

Additionally, as described above in Section V, "Noise Prediction Methodology," future noise levels from vehicular traffic will be calculated using the TNM modeling technique outlined in Chapter 19, "Noise" of the 2020 *CEQR Technical Manual* in order to predict future noise levels and assess the cumulative effects of both the train and vehicular noise (as well as play area noise, where applicable) at the receptor locations under No-Action and With-Action conditions. It should be noted that traffic data collection, which included vehicle classifications, was conducted in January and February 2020 for the Proposed Actions prior to the

[2] According to Chapter 18, "Noise," of the *Dutch Kills Rezoning and Related Actions EIS*, an additional 1-hour measurement was taken by DCP during the midday peak period on August 26, 2008 for Receptor Site 9

Dutch Kills Rezoning and Related Actions EIS - Noise Monitoring Locations



shutdown due to the COVID-19 pandemic. Using this data, values calculated using this method will be used directly, and as adjustment factors accounting for site-specific differences, to determine future noise levels.

Equipment Used During Noise Monitoring

The instrumentation used for the measurements for the *Dutch Kills Rezoning and Related Actions EIS* was a Brüel & Kjær Type 4189 ½-inch microphone connected to a Brüel & Kjær Model 2260 Type 1 (as defined by the American National Standards Institute) sound level meter. This assembly was mounted at a height of 5 feet above the ground surface on a tripod and at least six feet away from any sound-reflecting surfaces to avoid major interference with source sound level that is being measured. The meter was calibrated before and after readings with a Brüel & Kjær Type 4231 sound-level calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. A windscreen was used during all sound measurements except for calibration. Only traffic- and train-related noise was measured; noise from other sources (e.g., emergency sirens, aircraft flyovers, etc.) was excluded from the measured noise levels. Weather conditions were noted to ensure a true reading as follows: wind speed under 12 mph; relative humidity under 90 percent; and temperature above 14°F and below 122°F (pursuant to ANSI Standard S1.13-2005).

Existing Noise Levels at Noise Receptor Locations

The existing noise levels at the three receptor locations were estimated by logarithmically adding the calculated existing TNM noise values to the existing train noise measurements from the Dutch Kills project (Receptor Site 9). The calculated existing noise levels at each of the receptor locations are shown below in **Table L-8**. As shown in the table, the Project Area is located in an area with relatively high ambient noise levels. Noise levels at the receptor locations varied and reflect the proximity of receptors to major roadways and elevated rail lines and their respective level of vehicular and train activity. Both vehicular traffic and elevated subway noise were the dominant noise sources at Receptor Locations 1, 2, and 3. Vehicular traffic volumes and vehicle class proportions are consistent with the existing traffic conditions presented in Attachment J, "Transportation" and have been converted into hourly PCE values.

As shown in **Table L-8**, noise levels are generally highest during the weekday AM and PM peak periods. The highest L_{10} noise levels were observed during the weekday AM peak period at Receptor Location 1, with 84.64 dBA. In terms of *CEQR Technical Manual* criteria, existing noise levels at Receptor Locations 1, 2, and 3 are each in the "Clearly Unacceptable" CEQR Noise Exposure category.

Table L-8
Existing Noise Level Estimates (in dBA)

Receptor[1]	Measurement Location	Time	L_{eq}[2]	L_{10}[3,4]	CEQR Noise Exposure Category
1	Astoria Boulevard North between 31st and 32nd Streets (along Projected Development Site 1)	AM	79.93	83.83	Clearly Unacceptable
		MD	77.31	83.01	
		PM	81.44	**84.64**	
2	31st Street between 24th Road and 24th Avenue (midblock)	AM	78.61	82.51	Clearly Unacceptable
		MD	75.12	80.82	
		PM	80.67	**83.87**	
3	31st Street between 24th Avenue and 23rd Road (along Projected Development Site 3)	AM	78.64	82.54	Clearly Unacceptable
		MD	75.13	80.83	
		PM	80.66	**83.86**	

Notes:

[1] Refer to **Figure L-1** for noise receptor locations.
[2] Existing L_{eq} noise levels at Receptor Locations 1, 2, and 3 calculated by logarithmically adding the calculated existing TNM noise values to the field measurements from Receptor Site 9 found in Chapter 18, "Noise," of the *Dutch Kills Rezoning and Related Actions EIS.*
[3] For conservative purposes, predicted Existing L_{10} noise levels calculated by combining the predicted Existing L_{eq} and the difference between L_{eq} and L_{10} monitored noise levels presented in **Table L-7**.
[4] The highest L_{10} at each receptor location is shown in **bold**.

VII. THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO-ACTION)

Using the methodologies previously described, No-Action noise levels for the 2028 analysis year were calculated for the three analysis periods for the 2028 analysis year. The projected No-Action values are shown in **Table L-9**, below.

Table L-9
2028 No-Action Condition Noise Levels (in dBA)

Receptor	Location	Time	Existing L_{eq}	No-Action L_{eq}[1]	L_{eq} Change	No-Action L_{10}[2,3]	CEQR Noise Exposure Category
1	Astoria Boulevard North between 31st and 32nd Streets (along Projected Development Site 1)	AM	79.93	81.09	1.16	84.99	Clearly Unacceptable
		MD	77.31	79.00	1.70	84.70	
		PM	81.44	82.28	0.83	**85.48**	
2	31st Street between 24th Road and 24th Avenue (midblock)	AM	78.61	78.72	0.12	82.62	Clearly Unacceptable
		MD	75.12	75.34	0.22	81.04	
		PM	80.67	80.74	0.07	**83.94**	
3	31st Street between 24th Avenue and 23rd Road (along Projected Development Site 3)	AM	78.64	78.79	0.15	82.69	Clearly Unacceptable
		MD	75.13	75.36	0.23	81.06	
		PM	80.66	80.72	0.06	**83.92**	

Notes:

[1] No-Action L_{eq} noise levels at Receptor Locations 1, 2 and 3 calculated by logarithmically adding the calculated No-Action TNM noise values to the field measurements from Receptor Site 9 found in Chapter 18, "Noise," of the *Dutch Kills Rezoning and Related Actions EIS.*
[2] For conservative purposes, predicted No-Action L_{10} noise levels calculated by combining the predicted No-Action L_{eq} and the difference between L_{eq} and L_{10} monitored noise levels presented in **Table L-7**
[3] The highest L_{10} at each receptor location is shown in **bold**.

As presented in **Table L-9**, in the 2028 No-Action condition, the increase in L_{eq} noise levels at the receptor locations would range from 0.06 dBA to 1.70 dBA. According to the *CEQR Technical Manual*, changes of this magnitude would be barely perceptible. In terms of *CEQR Technical Manual* criteria, No-Action noise

levels at each of the receptor locations would remain in the "Clearly Unacceptable" CEQR Noise Exposure category, as under existing conditions.

VIII. THE FUTURE WITH THE PROPOSED ACTIONS (WITH-ACTION)

Noise Impact Identification

Using the methodologies previously described, With-Action noise levels were calculated at the three receptor locations for the 2028 analysis year. The With-Action noise levels for all receptors are shown in **Table L-10**. As presented in **Table L-10**, the increase in L_{eq} noise levels in the With-Action condition (compared to No-Action conditions) for all receptor sites would range from 0.00 to 0.02 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 guidance, future With-Action noise levels at the receptor locations would remain in the "Clearly Unacceptable" CEQR Noise Exposure category, as under No-Action conditions.

Table L-10
2028 With-Action Condition Noise Levels (in dBA)

Receptor	Location	Time	No-Action L_{eq}	With-Action L_{eq}	L_{eq} Change	With-Action L_{10}[1]	CEQR Noise Exposure Category
1	Astoria Boulevard North between 31st and 32nd Streets (along Projected Development Site 1)	AM	81.09	81.11	0.02	85.01	Clearly Unacceptable
		MD	79.00	79.00	0.00	84.70	
		PM	82.28	82.28	0.00	**85.48**	
2	31st Street between 24th Road and 24th Avenue (midblock)	AM	78.72	78.73	0.01	82.63	Clearly Unacceptable
		MD	75.34	75.36	0.02	81.06	
		PM	80.74	80.74	0.00	**83.94**	
3	31st Street between 24th Avenue and 23rd Road (along Projected Development Site 3)	AM	78.79	78.79	0.00	82.69	Clearly Unacceptable
		MD	75.36	75.38	0.02	81.08	
		PM	80.72	80.73	0.00	**83.93**	

Note:

[1] With-Action L_{eq} noise levels at Receptor Locations 1 and 2 calculated by logarithmically adding the calculated With-Action TNM noise values to the field measurements from Receptor Site 9 found in Chapter 18, "Noise," of the *Dutch Kills Rezoning and Related Actions EIS.*

[2] For conservative purposes, predicted With-Action L_{10} noise levels calculated by combining the predicted With-Action L_{eq} and the difference between L_{eq} and L_{10} monitored noise levels presented in **Table L-7**.

[3] The highest L_{10} at each receptor location is shown in **bold**.

Play Area Noise

As a portion of the Project Area is located directly across the street from a playground, this noise assessment will utilize the maximum playground boundary noise level presented in **Table L-5**. Therefore, the referenced noise levels in L_{eq} from the existing playground are assumed to be:

- 56.5 dBA at Projected Development Site 1's western facades;
- 56.5 dBA at Projected Development Site 2's western facades. [3]

[3] Wu, Weixiong, AKRF Inc. "Development of Noise Assessment Method for School Playground Noise," Inter-Noise 2006, Volume 6.

As presented in **Table L-11**, Projected Development Sites 1 and 2 would experience combined L_{eq} play area noise levels of up to 82.29 dBA and 80.76 dBA at each building's western facades, respectively. After calculating the predicted L_{10} noise levels from the existing playground (refer to **Table L-11**), Projected Development Site 1 and 2's western façades fronting the playground would fall in the "Clearly Unacceptable" CEQR Noise Exposure category. With implementation of the attenuation levels outlined below, the proposed development associated with the Proposed Actions would provide sufficient attenuation to achieve *CEQR Technical Manual* interior noise level guidance of 45 dBA for residential/community facility uses.

TABLE L-11
Predicted Noise Levels at Projected Development Sites 1 and 2 due to the Existing Play Area (in dBA)

Sensitive Receptor		Approximate Distance (feet) to Proposed Play Space	Playground L_{eq} at Receptor	Time	Predicted Combined L_{eq} at Receptor	Predicted Combined L_{10} at Receptor[1]
Development Site	Façade					
Projected Development Site 1	Western	100	56.5	AM	81.13	85.03
				MD	79.03	84.73
				PM	82.29	85.49
Projected Development Site 2	Western	100	56.5	AM	78.78	82.65
				MD	75.42	79.32
				PM	80.76	84.66

Notes:
[1] For conservative purposes, predicted L_{10} play area noise levels calculated by combining the predicted playground L_{eq} and the difference between L_{eq} and L_{10} monitored noise levels under existing conditions.

IX. ATTENUATION REQUIREMENTS

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 L10 noise levels.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Typically, a building façade is composed of the wall, windows, and any vents or louvers for HVAC systems in various ratios of area. Since the proposed buildings would most likely be of masonry construction, which typically provides a high level of sound attenuation, the attenuation requirements for HUD or CEQR purposes apply primarily to the windows, but may also represent a composite window/wall attenuation value. Window/wall attenuation can be described in terms of sound transmission class (STC), transmission loss (TL), and outdoor-indoor transmission class (OITC). Although these terms are sometimes used interchangeably, they are unique from each other. Transmission loss refers to how many decibels of sound a façade (wall) or façade accessory (window or door) can stop at a given frequency. The TL for a given construction material varies with the individual frequencies of the noise.

To simplify the noise attenuation properties of a wall, the STC rating was developed. It is a single number that describes the sound isolation performance of a given material for the range of test frequencies between 125 and 4,000 Hz. These frequencies sufficiently cover the range of human speech. Higher STC

values reflect greater efficiencies to block airborne sound. HUD uses the STC when identifying the required sound attenuation for a façade.

The OITC is similar to the STC, except that it is weighted more towards the lower frequencies associated with aircraft, rail, and truck traffic. The OITC classification is defined by the American Society of Testing and Materials (ASTM E1332-90 (Reapproved 2003)) 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. NYCDEP uses the OITC when identifying the required sound attenuation for a façade.

Noise Attenuation Measures

As described above and presented in **Tables L-10** and **L-11**, the predicted With-Action L_{10} noise levels adjacent to the four projected development sites' frontages are expected to range from 83.93 dBA (Receptor Location 3 during the weekday PM peak period) to 85.49 dBA (Receptor Location 1 during the weekday PM peak period). Composite building attenuation requirements for each frontage were calculated based on these maximum With-Action L_{10} noise levels and are presented in **Table L-12** and shown in **Figure L-3.**

Table L-12 shows the minimum window/wall attenuation necessary to meet *CEQR Technical Manual* requirements for internal noise levels at each of the noise measurement locations based on the predicted With-Action L_{10} noise levels discussed above. As presented in **Table L-12** and shown in **Figure L-3**, to satisfy CEQR interior noise level requirements and ensure acceptable interior noise levels for residential/community facility uses, a minimum composite window/wall attenuation rating of 42 dBA would be required for all facades containing residential/community facility uses at Projected Development Site 1, 41 dBA at Projected Development Site 2, and 40 dBA at Projected Development Sites 3, & 4. Future commercial office uses on all frontages of the Projected Development Sites would be required to provide an attenuation rating of 5 dBA less than the residential/community facility requirement.

Table L-12
Required Attenuation at Noise Measurement Locations (CEQR)

Site	Frontage	Associated Receptor Location[1]	Maximum Calculated Total L_{10} Noise Level in dBA	CEQR Minimum Required Attenuation in dBA[2]
Projected Development Site 1 (Block 837; Lots 9 & 16)	Western Frontage (31st Street)	1[3]	85.49	42
	Eastern Frontage (32nd Street)	-	-	
	Northern Frontage (24th Road)	-	-	
	Southern Frontage (Astoria Boulevard N)	1	85.06	
Projected Development Site 2 (Block 837; Lot 27)	Western Frontage (31st Street)	2[3]	84.66	41
	Eastern Frontage (32nd Street)	-	-	
	Northern Frontage (facing 24th Avenue)	-	-	

	Southern Frontage (24th Road)	-	-	
Projected Development Site 3 (Block 835; Lot 3)	Western Frontage (31st Street)	3	83.93	40
	Eastern Frontage (32nd Street)	-	-	
	Northern Frontage (facing 23rd Road)	-	-	
	Southern Frontage (facing 24th Avenue)	-	-	
Projected Development Site 4 (Block 837; Lots 38, 39, 41-47)	Western Frontage (31st Street)	2	83.94	40
	Eastern Frontage (32nd Street)	-	-	
	Northern Frontage (facing 24th Avenue)	-	-	
	Southern Frontage (facing 24th Road)	-	-	

Notes:
[1] Receptor locations shown in Figure L-1; required attenuation levels are shown in Figure L-3.
[2] The above composite window-wall attenuation values are for residential/community facility uses. Commercial office uses would be 5.0 dBA less in each category. All the above categories require a closed window situation and an alternate means of ventilation.
[3] Based on projected noise levels presented in Section VIII of this attachment under "Play Area Noise."

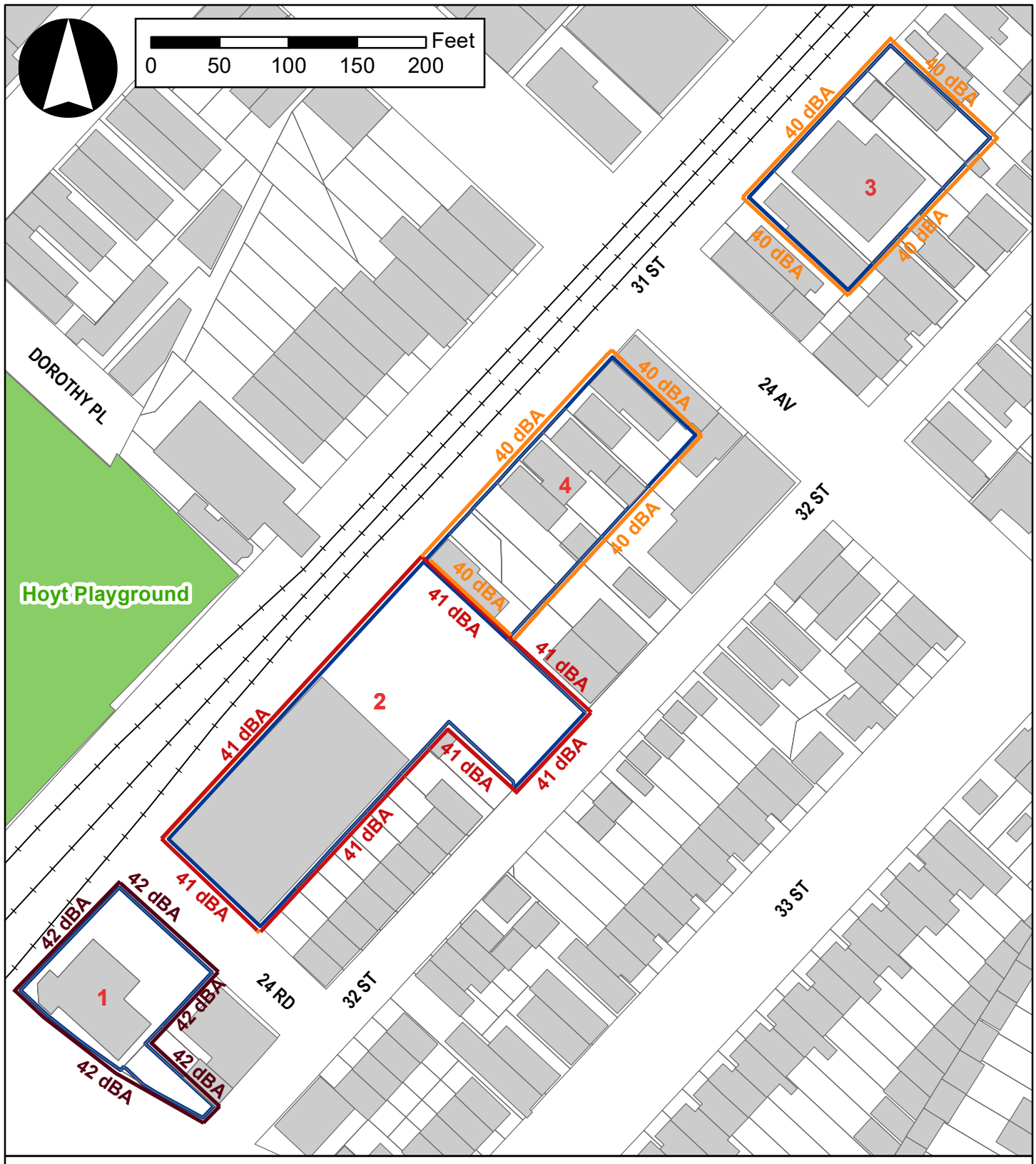
(E) Designation

The composite window/wall noise attenuations described above in **Table L-12** would be required through the assignment of an (E) designation for noise to the Projected Development Sites (Tax Block 837, Lots 9, 16, 27, 38, 39, 41, 42, 43, 44, 45, 46, 47 and Tax Block 835, Lot 3) in conjunction with the proposed zoning map amendment (E-623). With the implementation of this composite window/wall noise attenuation, no significant adverse noise impacts would occur as a result of the Proposed Actions. The text of the (E) designation for window/wall attenuation would be as follows:

Queens Block 837; Lots 9, 16 (*Projected Development Site 1*)

To ensure an acceptable interior noise environment, future residential/commercial office/community facility uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office uses. To achieve up to 42 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Noise Attenuation Requirement



Legend

- 1 Projected Development Sites
- Building Footprints
- Open Space
- Elevated N/W Line

CEQR Window/Wall Attenuation Requirement for Residential and Community Facility Uses

40 dBA — 41 dBA — 42 dBA

* Attenuation requirements for commercial office uses would be 5 dBA less

Queens Block 837; Lot 27 (*Projected Development Site 2*)

To ensure an acceptable interior noise environment, future residential/commercial office/community facility uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Queens Block 835; Lot 3 (*Projected Development Site 3*)

To ensure an acceptable interior noise environment, future residential/commercial office/community facility uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office uses. To achieve up to 40 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Queens Block 837; Lots 38, 39, 41, 42, 43, 44, 45, 46, 47 (*Projected Development Site 4*)

To ensure an acceptable interior noise environment, future residential uses must provide a closed-window condition with a minimum attenuation as shown in Table L-12 of the Astoria 31st Street Rezoning EAS in order to maintain an interior noise level not greater than 45 dBA for residential uses. To achieve up to 40 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. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

With the implementation of the attenuation levels outlined above and described in **Table L-12**, the Proposed Actions would provide sufficient attenuation to achieve *CEQR Technical Manual* interior noise level guidance. Therefore, the Proposed Actions would not result in any significant adverse noise impacts.

X. OTHER NOISE CONCERNS

Mechanical Equipment

It is assumed that building mechanical systems (i.e., heating, ventilation, and air conditioning [HVAC] systems) for all buildings associated with the Proposed Actions 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 Proposed Actions would not result in any significant adverse noise impacts related to building mechanical equipment.

Aircraft Noise

An initial aircraft noise impact screening analysis would be warranted if the new receptor would be located within one mile of an existing flight path, or cause aircraft to fly through existing or new flight paths over or within one mile of a receptor. Since the Project Area is not within one mile of an existing flight path, no initial aircraft noise impact screening analysis is warranted.

I. INTRODUCTION

This chapter describes the preliminary construction plans for the Projected Development Sites and assesses the potential for the Proposed Actions to result in significant adverse construction impacts in accordance with the *City Environmental Quality Review (CEQR) Technical Manual*. Construction impacts, although temporary, can include noticeable and disruptive effects from an action that is associated with construction or could induce construction. Determination of the significance of construction impacts and the need for mitigation are generally based on the duration and magnitude of the impacts. Construction impacts are usually important when construction activity could affect traffic conditions, hazardous materials, archaeological resources, the integrity of historic resources, community noise patterns, and/or air quality conditions.

As described in **Attachment A, "Project Description,"** under the With-Action condition, the three Applicant-owned Development Sites would be redeveloped with a total of approximately 300,342 gsf of residential uses, 34,047 gsf of commercial uses, and 28,988 gsf of community facility uses. The three Applicant-controlled Development Sites would include a total of 295 dwelling units (DUs) of which 74-89 DUs would be affordable.

It is also expected that one additional site within the proposed rezoning area could be redeveloped in the future with the Proposed Actions, in accordance with the proposed C4-4 zoning district. The proposed 13-story (135-feet tall), 79,666 gsf building on Development Site 4 would be zoned C4-4. The proposed building is assumed to contain 14,721 gsf of ground floor local retail uses and 64,945 gsf of residential uses with 94 DUs (24-28 affordable DUs) and 37 parking spaces.

In total, the With-Action development would result in a total of approximately 365,287gsf of residential space, 48,768 gsf of commercial space, and approximately 28,988 gsf of community facility space within the Project Area. The Proposed Actions would result in 389 DUs on the Projected Development Sites, of which 97-116 would be affordable units. The anticipated Build Year for the Proposed Actions is 2028.

In addition to describing the construction plans for the Projected Development Sites, this chapter provides a discussion of the governmental coordination and oversight related to construction, a conceptual construction schedule, activities likely to occur during construction, the types of equipment that are expected to be used, construction logistics (e.g., site access points and potential staging area locations), and construction workers and truck delivery estimates. Based on this information, potential impacts from construction activities are assessed with respect to transportation, air quality, noise and vibration, land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, and hazardous materials.

For each of the various technical areas presented below, appropriate construction analysis years were selected to represent reasonable worst-case conditions relevant to that technical area, which can occur at different times for different analyses. For example, the noisiest part of the construction may not be at the same time as the heaviest construction traffic. Therefore, the analysis periods differ for different

technical analyses. Where appropriate, the analysis accounted for the effects of those components of the project that would be completed and operational during the selected construction analysis years.

II. PRINCIPAL CONCLUSIONS

Transportation

Peak construction conditions during the fourth quarter of 2022 and the first quarter of 2023 were considered for the analysis of potential transportation (traffic, transit, pedestrian, and parking) impacts during construction. Based on an assignment of construction worker autos and construction trucks, no study area intersection is expected to experience 50 or more vehicle trips (in passenger car equivalents) during the 6:00 AM to 7:00 AM and/or 3:00 PM to 4:00 PM construction peak hours. As peak construction traffic would not meet the 50 trips/hour *CEQR Technical Manual* Level 2 screening threshold for a detailed traffic analysis at any intersection, significant adverse traffic impacts are not expected to occur in the construction peak hours during the fourth quarter of 2022 and first quarter of 2023 peak construction periods. Any construction-related lane or street closures would require the approval of the New York City Department of Transportation's Office of Construction Mitigation and Coordination (NYCDOT-OCMC), the entity that ensures critical arteries are not interrupted, especially in peak travel periods.

During the fourth quarter of 2022 and the first quarter of 2023 peak construction periods, transit demand from construction workers on the Projected Development Sites would not meet the 200 trips/hour *CEQR Technical Manual* analysis threshold for a detailed subway analysis, nor the 50 trips/hour/direction analysis threshold for a detailed bus analysis during the AM and PM construction peak hours. Therefore, significant adverse impacts to subway and bus services are not expected to occur during the peak construction periods.

Similarly, during the fourth quarter of 2022 and the first quarter of 2023 peak construction periods, pedestrian demand from construction workers on the Projected Development Sites (both walk-only trips and trips to/from area transit services) would not meet the 200 trips/hour *CEQR Technical Manual* analysis threshold for a detailed pedestrian analysis in either the weekday AM or PM construction peak hours. Significant adverse pedestrian impacts are therefore not expected to occur during the peak construction periods. During construction, where sidewalk closures are required, adequate protection or temporary sidewalks would be provided in accordance with NYCDOT-OCMC requirements.

Incremental parking demand from construction workers during the peak construction periods would total approximately 83 spaces. As it is assumed that there would be no on-site parking until full build-out of the Proposed Developments, it is anticipated that during this period construction workers would park on-street or in the two nearby off-street public parking facilities located in proximity to the Projected Development Sites. Under *CEQR Technical Manual* guidance, the inability of the Proposed Actions or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant due to the magnitude of available alternative modes of transportation. Therefore, should any parking shortfall occur due to incremental demand from construction workers during the fourth quarter of 2022 and first quarter of 2023 peak construction periods, it would not be considered a significant adverse parking impact based on *CEQR Technical Manual* guidance.

Air Quality

The significant for potential adverse air quality impacts was evaluated based on implementations of certain emission reduction measures. The emission reduction measures would include dust suppression measures, vehicle idling restrictions, and use of ultra-low sulfur diesel (ULSD) fuel. In addition, the construction that would occur under the Proposed Actions would utilize newer construction equipment and the use of Diesel Particulate Filters (DPFs) in certain non-road construction equipment. All diesel-powered non-road construction equipment with hp rating of 50 hp or greater would meet at least the Tier 3 emissions standards and the use of Diesel Particulate Filters (DPFs) for any piece of equipment older than Tier 4. In addition, vehicles traveling on site would be required to travel at speed no faster than 5 mile per hour. With the implementation of these emission reduction measures, the quantitative air quality analysis predicted that the carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter ($PM_{2.5}$ and PM_{10}) concentrations would not exceed the National Ambient Air Quality Standards (NAAQS) or the City's *de minimis* criteria. Therefore, the Proposed Actions would not result in any significant adverse construction air quality impacts.

Noise

Construction of the Proposed Developments would be expected to have the potential to result in elevated noise levels at nearby receptors, and noise due to construction would at times be noticeable. However, noise from construction would be intermittent and of limited duration. Noise associated with the construction of the Proposed Developments would not have the potential to rise to the level of a significant adverse noise impact.

Other Technical Areas

Land Use and Neighborhood Character

Construction activities would affect land use within the Project Area but would not alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. These disruptions would be temporary in nature and would have limited effects on land uses within the surrounding area, particularly as most construction activities would take place within the Project Area or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to the sites. Overall, while the construction at the Projected Development Sites would be evident to the local community, the temporary nature of construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

Socioeconomic Conditions

Construction activities could temporarily affect pedestrian and vehicular access. However, lane and/or sidewalk closures would not obstruct entrances to any existing businesses, and businesses are not expected to be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. Overall, construction activities

associated with the Proposed Actions would not result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

Community Facilities

No community facilities would be directly affected by construction activities for an extended duration. The Projected Development Sites will be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care. Construction of the proposed buildings would not block or restrict access to any facilities in the area, and would not materially affect emergency response times significantly. The NYPD and FDNY emergency services and response times would not be materially affected due to the geographic distribution of the police and fire facilities and their respective coverage areas.

Open Space

There are no publicly accessible open spaces within the Project Area and no open space resources would be used for staging or other construction activities. Although construction of the proposed buildings would be expected to have the potential to result in elevated noise levels at nearby receptors, and noise due to construction would at times be noticeable, while Projected Development Sites 1 and 2 are located approximately 50 feet to the east of Hoyt Playground, noise from construction would be intermittent and of limited duration. Therefore, no significant construction impacts to open space are expected.

Historic and Cultural Resources

The Project Area does not possess archaeological significance, and therefore, the Proposed Actions would not have the potential to result in construction period archaeological impacts. The Proposed Actions would not result in any significant adverse impacts to architectural resources on the Projected Development Sites as no historic architectural resources are located on the site. Moreover, no architectural resources are located within 90 feet of the Project Area. Therefore, the Proposed Actions would not result in any significant adverse impacts to historic architectural resources.

Hazardous Materials

A detailed assessment of potential impacts on hazardous materials is described in **Attachment I, "Hazardous Materials."** To reduce the potential for adverse impacts associated with new construction resulting from the Proposed Actions, a hazardous materials (E) designation would be placed on the tax lots comprising Projected Development Sites 2 and 4. The (E) designation requires approval by the New York City Office of Environmental Remediation (OER) prior to obtaining NYC Buildings Department (DOB) permits for any new development entailing soil disturbance. The environmental requirements for the (E) designation also include a mandatory Construction Health and Safety Plan (CHASP), which must be approved by OER.

Adherence to these existing regulations would prevent impacts from construction activities at the Projected Development Sites.

III. GOVERNMENTAL COORDINATION AND OVERSIGHT

The governmental oversight of construction in New York City is extensive and involves a number of city, state, and federal agencies. **Table M-1** shows the main agencies involved in construction oversight and each agency's areas of responsibility. The primary responsibilities lie with New York City agencies. The New York City Department of Buildings (DOB) has the primary responsibility for ensuring that the construction meets the requirements of the New York City Building Code and that buildings are structurally, electrically, and mechanically safe. In addition, DOB enforces safety regulations to protect both construction workers and the public. The areas of responsibility include the enforcement of regulations pertaining to the installation and operation of construction equipment, such as cranes and lifts, sidewalk sheds, and safety netting and scaffolding. The New York City Department of Parks and Recreation (NYC Parks) has oversight on tree protection and tree removal during construction. The New York City Department of Environmental Protection (DEP) enforces the New York City Noise Control Code (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113) and the DEP Notice of Adoption Rules for Citywide Construction Noise Mitigation (also known as Chapter 28), approves Remedial Action Plans (RAPs) and Construction Health and Safety Plans (CHASPs), regulates water disposal into the sewer system, and oversees dust control for construction activities. The New York City Fire Department (FDNY) has primary oversight for compliance with the New York City Fire Code and for the installation of tanks containing flammable materials. The New York City Department of Transportation (NYCDOT) reviews and approves any traffic lane and sidewalk closures. The New York City Landmarks Preservation Commission (LPC) approves studies and testing to prevent loss of archaeological materials and to prevent damage to fragile historic structures.

TABLE M-1
Construction Oversight in New York City

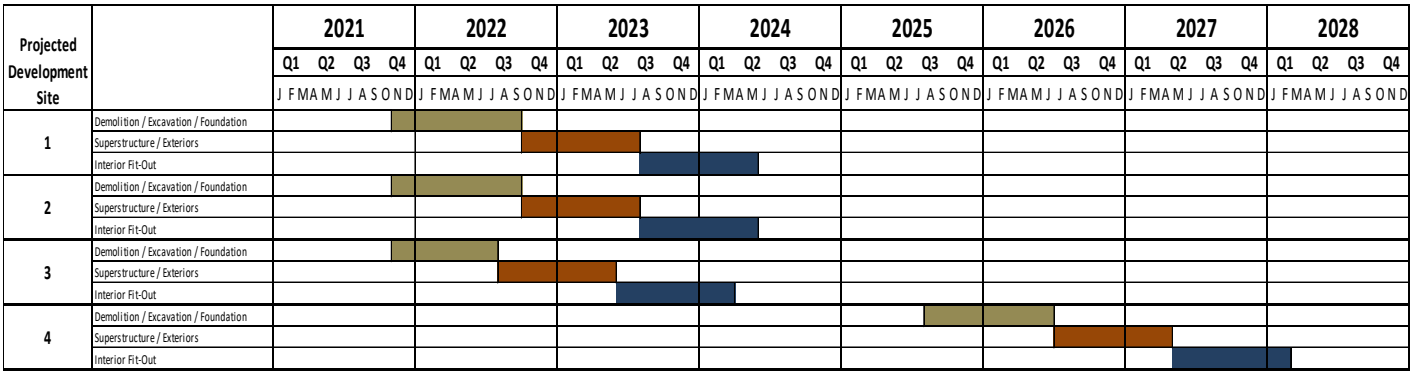
Agency	Area(s) of Responsibility
New York City	
Department of Buildings (DOB)	Primary oversight for Building Code and site safety
Department of Parks & Recreation	Tree protection and removal
Department of Environmental Protection (DEP)	Noise, hazardous materials, dewatering, dust
Fire Department (FDNY)	Compliance with Fire Code, tank operation
Department of Transportation (NYCDOT)	Traffic lane and sidewalk closures
Landmarks Preservation Commission (LPC)	Archaeological and historic architectural protection
New York State	
Department of Labor (DOL)	Asbestos workers
New York City Transit (NYCT)	Bus stop relocation; any subsurface construction within 200 feet of a subway
Department of Environmental Conservation (NYSDEC)	Dewatering, hazardous materials, tanks, Stormwater Pollution Prevention Plan, Industrial SPDES, if any discharge into the Hudson River
United States	
Environmental Protection Agency (EPA)	Air emissions, noise, hazardous materials, toxic substances
Occupational Safety and Health Administration (OSHA)	Worker safety

At the state level, the New York State Department of Environmental Conservation (NYSDEC) regulates discharge of water into rivers and streams, disposal of hazardous materials, and construction, operation, and removal of bulk petroleum and chemical storage tanks. The New York State Department of Labor (NYSDOL) licenses asbestos workers. New York City Transit (NYCT) is in charge of bus stop relocations, and any subsurface construction within 200 feet of a subway. On the federal level, the U.S. Environmental Protection Agency (EPA) has wide ranging authority over environmental matters, including air emissions, noise emission standards, hazardous materials, and the use of poisons. Much of the responsibility is delegated to the state level. The U.S. Occupational Safety and Health Administration (OSHA) sets standards for work site safety and construction equipment.

IV. CONSTRUCTION SCHEDULE

The anticipated construction schedule is shown in **Figure M-1** and described below. The construction schedule reflects the preliminary sequencing of construction events as currently contemplated by the Applicants. As shown in **Figure M-1**, construction on Projected Development Sites 1-3 would occur over a total of approximately 76-months (19-quarters), with an anticipated start date in the fourth quarter of 2021. It is anticipated that Projected Development Site 3 would begin construction first, followed shortly by Projected Development Sites 1 and 2. As shown in **Figure M-1**, construction of Projected Development Site 3 would occur over approximately 29 months, including nineteen months for excavation/foundation and superstructure/exterior, and nine months for interior fit-out. Construction of Projected Development Sites 1 & 2 would occur over 31 months, including 21 months for demolition/excavation/foundation and superstructure/exterior, and nine months for interior fit outs. Because Projected Development Site 4 is not under the control of the Applicants, and there are no current plans for development, it is assumed that construction would begin at this site in the third quarter of 2025 and would over a total of 31 months. As shown in **Figure M-1**, excavation/foundation and superstructure/exterior would occur over 21 months and nine months for interior fit out.

Figure M-1
Anticipated Construction Schedule



V. DESCRIPTION OF CONSTRUCTION ACTIVITIES

General Construction Practices

Hours of Work

Construction of the Proposed Developments would be carried out in accordance with New York City laws and regulations, which allow construction activities between 7:00 AM and 6:00 PM on weekdays, with most workers arriving between 6:00 AM and 7:00 AM. Normally work would end at 3:30 PM, but it can be expected that in order to complete certain critical tasks (e.g., finishing a concrete pour for a floor deck), the workday may occasionally be extended beyond normal work hours. Any extended workdays would generally last until approximately 6:00 PM and would not include all construction workers onsite, but only those involved in the specific task requiring additional work time.

Weekend or night work may also be occasionally required for certain construction activities, such as the erection of the tower crane. Appropriate work permits from DOB would be obtained for any necessary work outside of normal construction and no work outside of normal construction hours would be performed until such permits are obtained. The numbers of workers and pieces of equipment in operation for night or weekend work would typically be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend or night work would be less than that of a normal workday.

Deliveries, Access, and Staging Areas

Access to the Projected Development Sites during construction would be fully controlled. The work areas would be fenced off and limited access points for workers and construction-related trucks would be provided. Construction workers are generally prohibited from parking their vehicles onsite during the construction period. Truck movements would be spread throughout the day and would generally occur between the hours of 6 AM and 3 PM, depending on the stage of construction. Material deliveries to the site would be controlled and scheduled. To aid in adhering to the delivery schedules, as is normal for building construction in New York City, flaggers would be employed at each construction gate. The flaggers could be supplied by the subcontractor on-site at the time or by the construction manager. The flaggers would control trucks entering and exiting the site so that they would not interfere with one another. In addition, they would provide an additional traffic aid as the trucks enter and exit the on-street traffic streams.

The NYCDOT OCMC reviews and approves all maintenance and protection of traffic (MPT) plans which specify any planned sidewalk or lane closures and staging for all construction sites. MPT plans would be developed for any required temporary sidewalk, lane, and/or street closures to ensure the safety of the construction workers and the public passing through the area. Approval of these plans and implementation of the closures would be coordinated with DOT's OCMC. Measures specified in the MPT plans that are anticipated to be implemented would include parking lane closures, safety signs, safety barriers, and construction fencing.

Description of Construction Activities

Construction of large-scale buildings in New York City typically follows a general pattern. The first task is construction startup, which involves the siting of work trailers, installation of temporary power and communication lines, and the erection of site perimeter fencing. If a site has existing structures, the structures are demolished with some of the materials (such as concrete, block, and brick) either recycled or crushed on-site to be reused as fill and the debris taken to a licensed disposal facility. Hazardous materials remediation typically occurs at this point. Excavation of the soils is next along with the construction of the foundations. When the below-grade construction is completed, construction of the superstructure of the new building begins. As the core and floor decks of the building are being erected, installation of the mechanical and electrical internal networks would start. As the building progresses upward, the exterior cladding is placed, and the interior fit out begins. During what is typically considered the busiest time of building construction, the upper core and structure is being built while mechanical/electrical connections, exterior cladding, and interior finishing are progressing on lower floors.

The following provides a description of each of the anticipated construction tasks for the Projected Development Sites.

Construction Startup Tasks

Construction startup work prepares a site for the construction work and would involve the installation of public safety measures, such as fencing, sidewalk sheds, and Jersey barriers. For each proposed building, the construction site would be fenced off, typically with solid fencing to minimize interference between the persons passing by the site and the construction work. Separate gates for workers and for trucks would be installed, and sidewalk sheds and Jersey barriers would be erected. Trailers for the construction engineers and managers would be hauled to the site and installed within the Projected Development Sites. On-site power generation capabilities would also be placed at this time where necessary

Demolition

All of the Projected Development Sites are currently occupied by buildings with the exception of Projected Development Site 3 which is currently vacant. All of the buildings on Projected Development Sites 1, 2, and 4 would be demolished to facilitate construction of the Proposed Developments. Before the commencement of demolition of any structures, the portion of the buildings to be demolished would first be abated of any hazardous materials. A New York City-certified asbestos investigator would inspect the building for asbestos-containing materials (ACM), and if present, those materials would be removed by a DOL-licensed asbestos abatement contractor prior to interior demolition. Asbestos abatement is strictly regulated by DEP, DOL, EPA, and OSHA to protect the health and safety of construction workers and nearby residents, workers, and visitors. Depending on the extent and type of ACMs (if any), these agencies would be notified of the asbestos removal and may inspect the abatement area to ensure that work is being performed in accordance with applicable New York State and New York City regulations. Any activities with the potential to disturb lead-based paint (LBP) would be performed in accordance with the applicable OSHA regulation (including federal OSHA regulation 29 CFR 1926.62—Lead Exposure in Construction). In addition, any suspected polychlorinated biphenyls (PCB)-containing equipment (such as fluorescent light ballasts) would be evaluated prior to disturbance. Unless labeling or test data indicate

the contrary, such equipment would be assumed to contain PCBs, and would be removed and disposed of at properly licensed facilities in accordance with all applicable regulatory requirements.

Prior to demolition, any economically salvageable materials that could be reused would typically be removed. Then the building would be demolished and demolition debris removed from the Projected Development Sites. Hand tools, excavators with hoe ram attachments, loaders, and generators, would be used during this stage of construction. Demolition debris would typically be sorted prior to being disposed at landfills to maximize recycling opportunities.

Excavation and Foundation

The Proposed Developments would require excavation for each of the proposed buildings' foundation. Excavators would be used to excavate soil and the excavated materials would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse on any portion of the Projected Development Sites that need fill. No blasting is anticipated for the construction of the Proposed Developments. This stage of construction would include the construction of the foundation and below-grade elements of the proposed buildings. Piles would be installed with the use of drill rigs. If boulders are encountered during pile installation activities, the obstructions would be removed by a rock hammer. Concrete trucks would be used to pour the foundation and the below-grade structures. Excavation and foundation activities may also involve the use of rebar benders, generators, air compressors, cherry pickers, rock hammers, and saws.

Superstructure and Exterior Façade – Core and Shell Construction

The core is the central part of the building and is the main part of the structural system. It contains the building's beams and columns, as well as elevator shafts, vertical risers for mechanical, electrical, and plumbing systems, electrical and mechanical equipment rooms, and core stairs. The shell is the exterior of the building. Cranes would be brought onto the construction area as needed and would be used to lift structural components, façade elements, and other large materials, and load and place materials into and on the building. Core and shell construction activities would also require the use of generators, concrete trowels, welders, saws, rebar benders, and a variety of small handheld tools. In addition, temporary construction elevators (hoists) would be used for the vertical movement of workers and materials during this stage of construction.

Interior Fit-Out

Interior fit-out activities would typically include the construction of interior partitions, installation of lighting fixtures, and interior finishes (e.g., flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators and lobby finishes. Final cleanup and touchup of the buildings and final building system (e.g., electrical system, fire alarm, plumbing, etc.) testing and inspections would be part of this stage of construction. Equipment used during this stage of construction would include hoists, delivery trucks, and a variety of small handheld tools. In addition, grid power is expected to be available during this stage of construction although generators may be needed for welding operations. Interior fit-out activities would typically be the quietest period of construction in terms of its effect on the public, because most of the construction activities would occur inside the buildings with the façades substantially complete and the proposed buildings.

Number of Construction Workers and Material Deliveries

The number of workers and the number of truck trips associated with material deliveries vary with the scale of the project and the general construction task. **Table M-2**, below, shows the estimated number of workers and deliveries to the Projected Development Sites by calendar quarter for all construction activities, based on the construction schedule provided in **Figure M-1**. As shown below in **Table M-2**, the average number of workers would be approximately 54 per day throughout the construction period and the average number of trucks would be approximately 10 per day. The number of daily workers and construction trucks would peak in the last quarter of 2022 and the first quarter of 2023 at 153 and 22, respectively.

TABLE M-2
Average Number of Daily Workers and Trucks by Quarter

Year	**2021**				**2022**				**2023**				**2024**			
Quarter	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**
Construction Workers	-	-	-	55	55	55	72	153	153	150	129	122	122	122	-	-
Construction Trucks	-	-	-	21	21	21	21	22	22	22	18	16	16	6	-	-
Year	**2025**				**2026**				**2027**				**2028**			
Quarter	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**
Construction Workers	-	-	10	15	15	15	35	35	35	30	27	27	27	-	-	-
Construction Trucks	-	-	3	5	5	5	5	5	5	5	5	5	5	-	-	-

	Project Total	
	Peak	Average
Construction Workers	153	54
Construction Trucks	22	10

VI. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

Similar to many development projects in NYC, construction can cause temporary disruption to the surrounding area throughout the construction period. The following analyses describe potential construction impacts on transportation, air quality, noise and vibration, as well as other technical areas including land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, and hazardous materials.

Transportation

Traffic

Construction activities would generate construction worker auto trips and truck trips. As shown in **Table M-2**, peak construction traffic related to trucks and worker autos is expected to peak at 153 and 22, respectively, in the last quarter (Q4) of 2022 and the first quarter (Q1) of 2023. These represent peak days of work, and many days during the construction period would have fewer construction workers and trucks on-site.

Similar to other construction projects in New York City, most of the construction activity at the Development Site is expected to take place during the typical construction shift of 7:00 AM to 3:30 PM. The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. While construction truck trips would be made throughout the day (with more trips typically made during the early morning), construction workers would typically commute during the hours before and after the work shift. For analysis purposes, each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out"), and each truck trip was assumed to have a passenger car equivalent (PCE) of 2.0, consistent with *CEQR Technical Manual* guidance. For construction workers, the majority (80 percent) of arrival and departure trips are expected to take place during the hour before and after each shift. For construction trucks, deliveries would typically peak during the early morning, with an estimated 25 percent overlapping with construction worker arrival traffic. Based on 2000 Census reverse journey-to-work data for construction workers employed in census tracts in proximity to the Project Area,[1] it is anticipated that construction workers' travel to the Projected Development Sites in Astoria, Queens would be primarily by the auto mode (approximately 63.7 percent by private autos and 1.7 percent by taxis/rideshare services), with smaller numbers using public transportation (20.5 percent) and walking (14.1 percent). It is also estimated that auto occupancy would average approximately 1.17 persons per vehicle. These trip generation assumptions were used as the basis for assessing the potential transportation-related impacts during construction.

Table M-3 shows a forecast of hourly construction worker auto and construction truck trips during the fourth through first quarters (Q4-Q1) of 2022-2023 based on the assumptions described above. As shown in the **Table M-3**, it is estimated that peak construction activities would result in 62 PCEs between 6:00 AM and 7:00 AM during the fourth through first quarters (Q4-Q1) of 2022-2023. For the 3:00 PM to 4:00 PM period, there would be a maximum of 40 PCEs associated with construction activities. As it is anticipated that Projected Development Sites 1, 2, and 3 would be constructed and completed around approximately the same time and fully operational by the second quarter of 2024, there would be no real overlap between operational traffic and construction traffic during the fourth quarter 2022 and first quarter 2023 peak construction periods.

[1] AASHTO CTPP 2000 reverse journey-to-work data for the area encompassed by 2010 Queens Census Tracts 65, 67, 69, 71, 95, 97, 115, 117, 137, 141 & 143.

TABLE M-3
2022(Q4)/2023(Q1) Peak Construction Vehicle Trip Projections (in PCEs)

	Auto/Taxi Trips					Truck Trips					Total Vehicle Trips		
	In		Out			In		Out					
Hour	%	#	%	#	Total	%	#	%	#	Total	In	Out	Total
6-7 AM	80	36	0	2	38	25	12	25	12	24	48	14	62
7-8 AM	20	9	0	1	10	10	5	10	5	10	14	6	20
8-9 AM	0	0	0	0	0	10	5	10	5	10	5	5	10
9-10 AM	0	0	0	0	0	10	4	10	4	8	4	4	8
10-11 AM	0	0	0	0	0	10	4	10	4	8	4	4	8
11 AM-12 PM	0	0	0	0	0	10	4	10	4	8	4	4	8
12-1 PM	0	0	0	0	0	10	4	10	4	8	4	4	8
1-2 PM	0	0	0	0	0	5	2	5	2	4	2	2	4
2-3 PM	0	0	5	2	2	5	2	5	2	4	2	4	6
3-4 PM	0	1	80	35	36	2.5	1	2.5	1	2	2	36	38
4-5 PM	0	1	15	7	8	2.5	1	2.5	1	2	2	8	10
5-6 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Hourly construction worker and truck trips were derived from an estimated quarterly average number of construction worker and truck deliveries per day, with each truck delivery resulting in two daily trips (arrival and departure).

Figure M-2 shows the assignment of construction peak hour vehicle trips to the study area street network. Although construction workers would likely park on-street or in two nearby off-street public parking facilities located in proximity to the Projected Development Sites, all construction worker autos were assigned directly to and from the site, thereby concentrating these trips at analyzed intersections. As shown in **Figure M-2**, no intersection would experience 50 or more PCEs during the 6:00 AM to 7:00 AM and/or 3:00 PM to 4:00 PM construction peak hours. As peak traffic from construction trucks and worker vehicles would not meet the 50 trips/hour *CEQR Technical Manual* Level 2 screening threshold for a detailed traffic analysis at any intersection, significant adverse traffic impacts are not expected to occur in the construction peak hours during fourth quarter of 2022 and first quarter of 2023 peak construction periods.

Curb Lane Closures and Staging

Construction staging would most likely occur on the Projected Development Sites and may extend within portions of sidewalks, curbs and travel lanes of public streets adjacent to the Projected Development Sites. Similar to many other construction projects in New York City, temporary curb lane and sidewalk closures are expected to be required adjacent to the Projected Development Sites, which would have dedicated gates, driveways, or ramps for delivery vehicle access. It is anticipated that construction activity would mostly take place within the Projected Development Site themselves, and perhaps within portions of 24th Road, 31st Street, and 24th Avenue. Any sidewalk or street closures would require the approval of the NYCDOT-OCMC, the entity that ensures critical travel arteries are not interrupted, especially in peak travel periods.

Flag persons are expected to be present at active project site driveways, where needed, to manage the access and movement of trucks to ensure no on-street queuing. Some of the site deliveries may also occur along the perimeter of the construction site within delineated closed-off areas for concrete pour or steel delivery.

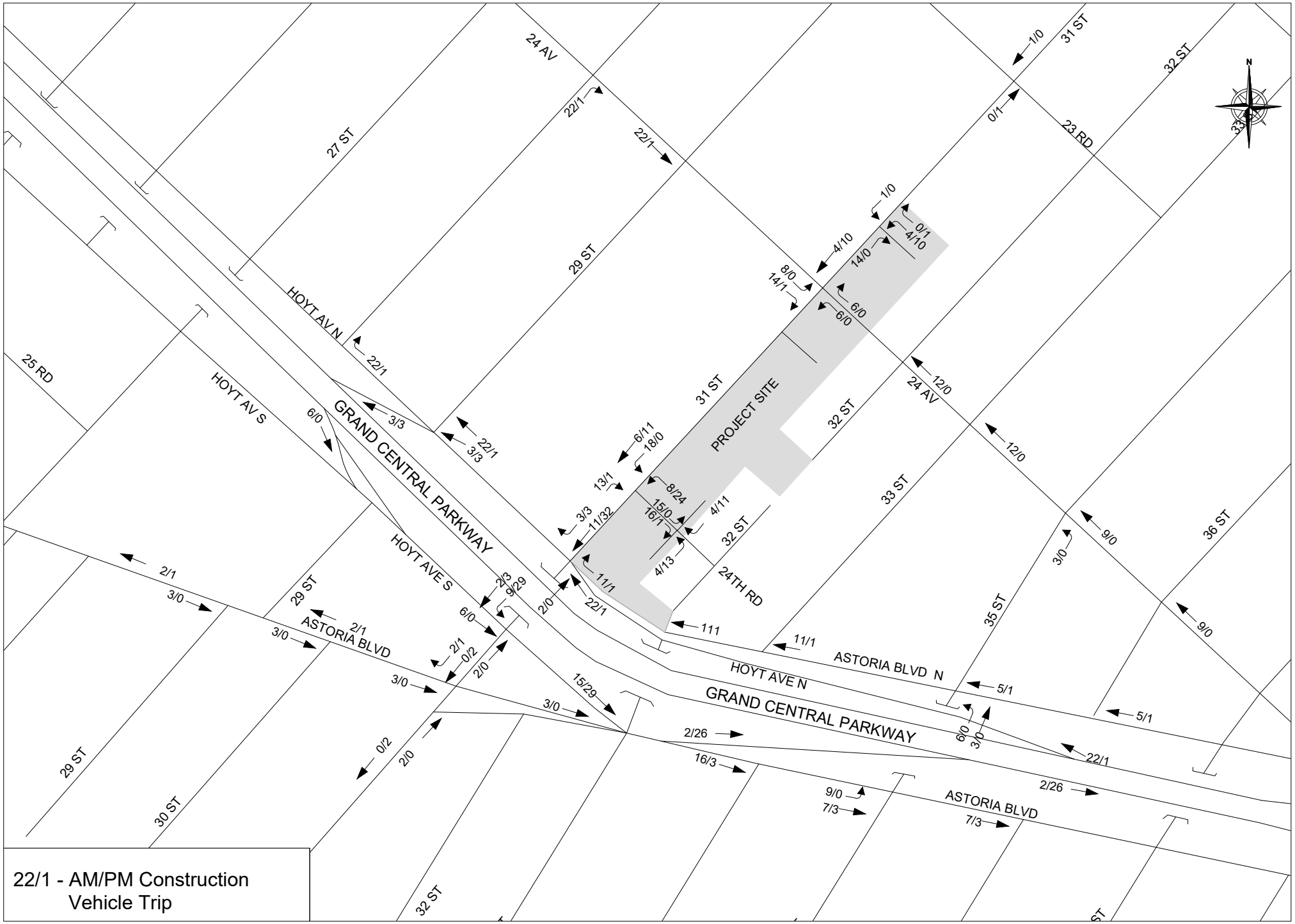


Figure M-2
Weekday AM/PM Construction Trips Assignment

Transit

As discussed above and shown in **Table M-2**, in the fourth quarter of 2022 and first quarter of 2023 peak construction periods, approximately 153 construction workers would travel to and from the Project Area each day. As also discussed above, a total of approximately 20.5 percent of construction workers are expected to travel to and from the Project Area by public transit (subway, bus or ferry) and 14.1 percent by walking. In addition, it is estimated that approximately 80 percent of all construction workers would arrive and depart in the peak hour before and after each shift. Therefore, it is estimated that approximately 31 construction workers would travel to and from the Project Area via public transit each day, and that approximately 25 of these trips would occur in each of the 6:00 AM to 7:00 AM and 3:00 PM to 4:00 PM construction peak hours.

As peak transit demand from construction workers on the Project Area would not meet the 200 trips/hour *CEQR Technical Manual* analysis threshold for a detailed subway analysis, nor the 50 trips/hour/direction analysis threshold for a detailed bus analysis, significant adverse impacts to subway and bus services are not expected to occur in the construction peak hour during fourth quarter of 2022 and first quarter of 2023 peak construction periods.

Pedestrians

As discussed previously, it is anticipated that approximately 153 construction workers would travel to and from the Project Area in the fourth quarter of 2022 and first quarter of 2023 peak construction periods. An estimated 122 of these workers (80 percent) would arrive and depart in the peak hour before and after each shift. Therefore, peak pedestrian demand from construction workers on the Projected Development Sites would not meet the 200 trips/hour *CEQR Technical Manual* analysis threshold for a detailed pedestrian analysis, and significant adverse pedestrian impacts are not expected to occur during the fourth quarter of 2022 and first quarter of 2023 peak construction periods. During construction, where sidewalk closures are required, adequate protection or temporary sidewalks would be provided in accordance with NYCDOT-OCMC requirements.

Parking

Of the estimated 153 construction workers who would travel to the Project Area during the fourth quarter of 2022 and first quarter of 2023 peak construction periods approximately 63.7 percent are expected to travel by private auto. Based on an average auto occupancy of 1.17 persons per auto, the maximum daily parking demand from construction workers would total approximately 83 spaces. As it is assumed that there would be no on-site parking until completion of the Projected Development Sites, it is anticipated that construction workers would park on-street or in the two nearby off-street public parking facilities located in proximity to the Projected Development Sites during this period.

As discussed in Attachment J, "Transportation," under *CEQR Technical Manual* guidance, the inability of the Proposed Actions or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant due to the magnitude of available alternative modes of transportation. Therefore, should any parking shortfall occur due to incremental demand from construction workers during the fourth quarter of 2022 and first quarter of 2023 peak construction periods, it would not be considered a significant adverse parking impact based on *CEQR Technical Manual* guidance.

Air Quality

As is typical with construction projects in New York City, construction of the Projected Development Sites would require use of both non-road construction equipment and on-road vehicles. Non-road construction equipment includes equipment operating on-site such as excavators, cranes and loaders. On-road vehicles include construction delivery trucks, dump trucks, concrete trucks, and construction worker vehicles arriving at and departing from the construction sites as well as operating on-site. Emissions from non-road construction equipment and on-road vehicles have the potential to affect air quality. In addition, emissions from dust-generating construction activities (i.e., truck loading and unloading operations) also have the potential to affect air quality. The *CEQR Technical Manual* lists several factors for consideration in determining whether a quantified on-site and/or off-site construction impact assessment for air quality is appropriate. These factors include the use of emission control measures, the duration and intensity of construction activities, the location of nearby sensitive receptors, and project-generated, construction-related vehicle trips.

The construction air quality assessment presented in this attachment includes a comparison of the magnitude of air emissions from the Projected Development Sites' construction activity based on the preliminary construction schedule for the Projected Development Sites and air emission level estimates for individual construction stages taken from detailed modeling analyses that have previously undergone the City environmental review and approval process. The assessment also took into consideration emissions reduction measures and locations of nearby sensitive receptors.

Criteria Pollutants

As required by the Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for major air pollutants, known as criteria pollutants. In addition to the NAAQS, the New York City's *de minimis* criteria are used to determine the significance of the incremental increases in 8-hour CO concentration and the 24-hour and annual particulate matter with aerodynamic diameter smaller than 2.5 microns ($PM_{2.5}$) concentrations. The NAAQS and *de minimis* are discussed in **Attachment K, "Air Quality."**

The EPA mandates the use of ultra-low sulfur diesel (ULSD) fuel for all highway and non-road diesel engines. As such, the sulfur oxides (SOx) emitted from the Proposed Actions' construction activities would be negligible. Therefore, the pollutants analyzed for the construction period were NO_2, PM_{10}, $PM_{2.5}$, and CO.

Emission Reduction Program

Emission reduction measures concerning dust suppression measures, idling vehicles, and use of clean fuel would be implemented to reduce pollutants emissions. The following emission reduction measures are specified in the New York City Air Pollution Code (New York City Administrative Code and Rules of the City of New York (RCNY)).

- Dust suppression measures would be implemented. Such measures would include, but would not be limited to, wetting of construction material and particulate matter kept on site (e.g. soil or debris piles), wetting where certain construction activities (e.g. drilling and grinding) occur, covering of spoil or loose material during transport and wetting of material prior to loading into trucks, removal of dust

from adjacent streets and sidewalks, and requiring that vehicles entering or existing the site travel at low speed.
- Idling restrictions require that no motor vehicle idle for longer than three minutes, unless the engine is used to operate a loading, unloading or processing device (e.g. concrete mixing and concrete pump trucks).
- Ultra-low sulfur diesel (ULSD) would be used for all diesel fueled nonroad equipment, where the sulfur content in ULSD is 15 parts per million (ppm). The use of USLD is regulated by the U.S. Environmental Protection Agency (EPA) under the diesel fuel regulations. Diesel fuel contained as much as 5,000 ppm of sulfur before the EPA began regulating the sulfur content.

In addition to the required emission reduction measures specified above, the construction activities under the Proposed Actions are expected to implement additional measures. These control measures are mainly aimed at reducing particulates matter emissions during construction (implementing the control measure(s) would also decrease emissions of all the other pollutants). The following commitments to use emission control measures are specified:

- Under the Proposed Actions, all diesel-powered non-road construction equipment with hp rating of 50 hp or greater would meet at least the Tier 3 emissions standards. In addition, all Tier 3 diesel-powered non-road construction equipment with hp rating of 50 hp or greater would utilize diesel particulate filter (DPF). The DPFs would either be installed by the original equipment manufacturer or retrofitted. The retrofitted DPFs would adhere to the specifications in the New York City Air Pollution Code.

- Under the Proposed Actions, dust suppression measures would require that vehicles entering or existing the site travel at speed no faster than 5 mile per hour.

Construction Emissions Estimation

Construction emissions sources include non-road construction equipment, on-road vehicles, and dust-generating construction activities. Non-road construction equipment may include equipment operating on-site (or just adjacent to the site), such as cranes, excavators, loaders, and concrete pumps. On-road vehicles may include trucks (e.g. dump trucks and concrete mixing trucks) traveling on-site as well as on roadways, and worker vehicles traveling mainly on roadways. Construction activities, such as material handling and vehicle travel on-site, generate dust.

Pollutants emission factors emitted by non-road construction equipment were developed with the EPA's NONROAD2008 emission model (NONROAD)[2]. PM emission factors of diesel-powered non-road construction equipment with hp rating of 50 hp or greater were based on Tier 3 engines retrofitted with DPF, to achieve 90 percent removal efficiency. Tier 3 engine emissions factors for the diesel-powered non-road construction equipment with hp rating of 50 hp or greater were with NONROAD and PM emission factors compared with the Tier 3 standards (*CONTROL OF EMISSIONS OF AIR POLLUTION FROM NONROAD DIESEL ENGINES*, *40 CFR Parts 9, 86, and 89*).[3] As such, Tier 3 PM emission caps were used for the concrete pump,

[2] U.S. EPA. (2005). "User Guide for the Final NONROAD2005 Model," *REP. NO.* EPA420-R-05-013, Washington D.C.
[3] *FEDERAL REGISTER.* (1998). 63(No. 205: October 23), 56969, 56970.

pile driver, and wheel loader, and all other equipment were calculated as the average emission factors compiled in NONROAD for model years 2008-2011. All other emission factors of non-road construction equipment (equipment with hp rating less than 50 hp) were aggregated within the NONROAD model.

On-road emission rates were developed with the EPA's Motor Vehicle Emission Simulator (MOVES) version 2014b[4] emission factor algorithm. The MOVES model was discussed in **Attachment K, "Air Quality."** Trucks emissions were calculated for diesel-powered trucks use only. The emissions of the workers vehicles were calculated based on county-based distribution of engine technologies (distribution of private cars/trucks using gasoline, diesel, or biofuels).

PM_{10} and $PM_{2.5}$ fugitive dust emissions generated by travelling vehicles, material handling, and process operations were calculated using the EPA's *AP-42: Compilation of Air Emissions Factors*[5] manual. Predictive emission factors for vehicles traveling on paved road were calculated using equations from EPA's AP-42 Chapter 13.2.1. Predictive emission factors for vehicles traveling on unpaved road were calculated using equations from EPA's AP-42 Chapter 13.2.2. Silt loading factors for paved and unpaved roadways were obtained from the *CEQR Technical Manual*. Predictive emission factors for material handling and loading of trucks were calculated using the equation in the EPA's AP-42 Chapter 13.2.4 manual.

Reasonable worst-case analyses periods were predicted for each pollutant averaging time(s). The calculated emission factors, discussed above, coupled with the construction activity rates were used to calculate the emission rates of pollutants. The monthly emissions of pollutants were used to predict the reasonable worst-case analyses periods.

Construction Activity Assessment

The worst-case emissions were predicted at the Phase 1 period of construction, based on the $PM_{2.5}$ and NOx (nitrogen oxide and nitrogen dioxide combined) monthly emissions. Overall, the Phase 1 of the construction under the Proposed Actions is anticipated to occur from November 2021 to May 2024 (over 31 months). The level of construction activity would vary among the stages of construction and number of trucks entering/existing the site. As only 4 trucks per day are entering/existing Projected Development Site 1, no wheel loader was assigned to this site because the excavator would suffice in handling the workload. The worst-case analyses periods were derived for each pollutant based on the work schedule, equipment to be employed and their usage factors, and equipment emission rates (PM emission rates accounted for fugitive dust emissions). The worst-case periods also accounted for the highest emissions nearest to sensitive receptor locations. The annual based emission rates (per pollutant) were calculated on a 12-month rolling basis. As a conservative measure, the maximum constructed-related emissions of each Projected Development Site were used in the analysis (for the Phase 1 of the construction). The worst-case short-term emissions for all pollutants correspond to the demolition, excavation, and foundation element of the construction.

[4] U.S. EPA (2015) "MOVES2014 Users Guide," *Rep. No*. EPA-420-B-15-095.
[5] U.S. EPA (2020). *Compilation of Air Pollutant Emission Factors AP-42 Fifth Edition, Vol. 1: Stationary Point and Area Sources*.

Dispersion Analysis

Dispersion modeling analyses were conducted for the worst-cases annual and short-term (i.e. 24-hour, 8-hour, and 1-hour) averaging periods. The EPA's AERMOD modeling system[6] version 19191 was used to predict pollutants' concentrations. AERMOD is a regulatory steady-state plume modeling system that includes a wide range of options for modeling air quality impacts of pollution sources. The model is capable of handling multiple sources and type of sources (e.g. point, volume, and area). The AERMOD model incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. All analyses were conducted using the latest five consecutive years of meteorological data (2015-2019), obtained from the New York State Department of Environmental Conservation (NYSDEC), Division of Air Resources, BAQAR, Impact Assessment and Meteorology Section. The AERMOD model and meteorology data were discussed in **Attachment K, "Air Quality."**

Emission sources were modeled as point sources, area sources, and line area sources, based on the sources' characteristics. Emission sources, such as excavators, wheel loader, and on-site trucks were simulated as area sources as these sources move around. Trucks and worker vehicles traveling on 31st Street or 24th Road, where applicable, were modeled as line area sources. The concrete pump truck and idling concrete mixing and delivery trucks were modeled as point sources.

Receptors were placed at sidewalks, at the Hoyt Playground, and on building wall facades at ground-level and higher floor elevations (simulating windows and balconies locations). Receptors for the $PM_{2.5}$ neighborhood scale analysis were placed at ground-level elevation (6 feet above ground level) in a 1-kilometer grid centered on the site. The base elevation was accounted for in the modeling.

The existing conditions are the background concentrations, where the background concentrations are not directly accounted for in the dispersion modeling. The ambient air pollutants concentrations under the Proposed Actions were evaluated by adding the AERMOD predicted concentration to the background concentrations. Background concentrations were obtained from the nearest, federally-mandated, NYSDEC monitoring site, for each pollutant independently.

The potential for significant adverse impact was determined by evaluating each pollutant's increment (modeled) plus background concentration with the NAAQS, and the $PM_{2.5}$ and 8-hour CO concentration increments also with the *de minimis* threshold concentrations. Details on the relevant air quality regulations, standards, and guidance thresholds are presented in **Attachment K, "Air Quality."**

Probable Impacts from the Proposed Actions

The results of the quantitative air quality analysis are presented in this section. The analysis evaluated the potential for significant adverse air quality related to construction activities under the Proposed Actions. The methodology previously described was used to evaluate the potential for significant impact.

[6] U.S. EPA (2009) "AMS/EPA Regulatory Model (AERMOD) User's Guide." *Rep. No.* EPA-454/B-19-027.

Construction emission sources included non-road construction equipment, on-road vehicles, and dust-generating construction activities. Non-road construction equipment included equipment operating on-site. On-road vehicles included trucks traveling on-site as well as on roadways, and worker vehicles traveling on roadways. Dust-generating construction activities included on-site and off-site emission sources.

Pollutants concentrations were predicted at receptor locations near the site(s). The maximum predicted concentrations during the worst-case construction periods are presented in **Table M-4**.

Table M-4:
Worst-case predicted Concentrations of Construction Activities under the Proposed Actions

Pollutant and Averaging Time	Unit	Increment Concentration	Background Concentration (1)	Ambien Air Concentration	NAAQS	*de minimis*
NO_2 Annual	$\mu g/m^3$	36.2	31.8	68	100	N.A.
CO 1-Hour	ppm	4.56(2)	1.87	6.43	35	N.A.
CO 8-Hour	ppm	2.72(3)	1.30	2.72	9	3.85
PM_{10} 24-Hour	$\mu g/m^3$	6.7	33	40	150	N.A.
$PM_{2.5}$ 24-Hour	$\mu g/m^3$	2.17	18.3	20.5	35	8.35(4)
$PM_{2.5}$ Annual Discrete Receptor	$\mu g/m^3$	0.27	7.5	7.8	12	0.3
$PM_{2.5}$ Annual Neighborhood Scale	$\mu g/m^3$	0.01	N.A.	0.01	N.A.	0.1(5)

Note:
1. Background concentration discussed in **Attachment K "Air Quality."**
2. 1-hour CO modeled concentration converted to ppm using 35 ppm = 40,000 $\mu g/m^3$ conversion factor.
3. 8-hour CO modeled concentration converted to ppm using 9 ppm = 10,000 $\mu g/m^3$ conversion factor.
4. The 24-hour $PM_{2.5}$ background concentration of 18.3 $\mu g/m^3$ was used to calculate the *de minimis* design value.
5. Annual $PM_{2.5}$ on a neighborhood scale standard is applicable to *de minimis* only.

As seen in **Table M-4**, the With-Action ambient air (increment plus background concentration) concentrations would not exceed the NAAQS, and the increment concentrations would not exceed the *de minimis* design values. Therefore, no significant adverse air quality impacts are expected from the construction-related sources.

Conclusion

The significant for potential adverse air quality impacts was evaluated based on implementations of certain emission reduction measures. The emission reduction measures would include dust suppression measures, vehicle idling restrictions, and use of ultra-low sulfur diesel (ULSD) fuel. In addition, the construction that would occur under the Proposed Actions would utilize newer construction equipment and the use of Diesel Particulate Filters (DPFs) in certain non-road construction equipment. All diesel-powered non-road construction equipment with hp rating of 50 hp or greater would meet at least the Tier 3 emissions standards and the use of Diesel Particulate Filters (DPFs) for any piece of equipment older than Tier 4. With the implementation of these emission reduction measures, the quantitative air quality analysis predicted that the carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter

($PM_{2.5}$ and PM_{10}) concentrations would not exceed the National Ambient Air Quality Standards (NAAQS) or the City's *de minimis* criteria.

Noise

Potential impacts on community noise levels during construction of the Proposed Development could result from construction equipment operation and construction trucks and worker vehicles traveling to and from the Development Site. Noise levels at a given location are dependent on the type and number of pieces of construction equipment operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating at full power), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels from construction activities would vary widely, depending on the stage of construction and the location of the construction relative to receptor locations as described below. The most noise-intensive construction activities would not occur every day or every hour on those days that they would occur. During hours when the loudest pieces of construction equipment are not in use, receptors would experience lower construction noise levels. Construction noise levels would fluctuate during the construction period at each receptor, with the greatest levels of construction noise occurring for limited periods. The most substantial construction noise sources are expected to be impact equipment such as excavators with hydraulic break rams and paving breakers, as well as the movements of trucks.

Construction noise is regulated by the requirements of the *New York City Noise Control Code* (also known as Chapter 24 of the *Administrative Code of the City of New York*, or Local Law 113) and the DEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation (also known as Chapter 28). These requirements mandate that specific construction equipment and motor vehicles meet specified noise emission standards; that construction activities be limited to weekdays between the hours of 7:00 AM and 6:00 PM; and that construction materials be handled and transported in such a manner as not to create unnecessary noise. For weekend and after hour work, permits would be required, as specified in the *New York City Noise Control Code*. As required under the *New York City Noise Control Code*, a site-specific noise mitigation plan for the Projected Development Sites would be developed and implemented that may include source and path controls.

Construction Noise Analysis Fundamentals

The *CEQR Technical Manual* states that an assessment of construction noise is warranted if a proposed project's construction activities include any of the following:

- Is considered long-term construction (greater than two years);
- Is located near sensitive receptors;
- Involves the construction of multiple buildings where this a potential for on-site receptors on buildings to be completed before the final build-out;
- Generates road traffic (heavy trucks, worker trips).

The construction that would occur as a result of the Proposed Actions is considered long-term construction that would approximately 5 years and 4 months between the four Projected Development Sites (see construction schedule above). The Project Area is located near various sensitive receptors (listed in **Table M-6** below). There are a total of four Projected Development Sites: Projected Development Sites

1, 2, and 3 will be completed simultaneously, while Projected Development Site 4 will begin construction after the completion of Projected Development Sites 1, 2, and 3.

In order to determine the possible increased noise level from the construction equipment operations and movement, all equipment used on site is to be generally calculated by computing the sum of the noise produced by all pieces of equipment operating at the construction site as a worst-case scenario. For each piece of equipment, the noise level at each sensitive receptor is a function of the following:

- The noise emission level of the equipment (see **Table M-6**) (typical reference levels obtained from the *Citywide Construction Noise Mitigation, Chapter 28, 2007*) (some equipment noise levels obtained from in-field monitoring);
- A usage factor, which accounts for the percentage of time the equipment is operating at full power (see **Table M-7** for typical equipment usage factors);
- The distance between the Project Site and the receptor;
- Topography and ground effects; and
- Shielding.

Construction-related traffic noise levels are a function of the following:

- The noise emission levels of each vehicle type (car, light-duty truck, heavy-duty truck, bus, etc.);
- Volume of vehicular traffic produced by construction activities on each road segment;
- Distance between roadway and the receptor;
- Vehicular speed;
- Topography and ground effects; and
- Shielding.

SoundPLAN was used to determine the worst-case equipment location for each site with respect to each receiver. Worst-case receivers (height and location on the facade) were also determined using SoundPLAN. All equipment was then modeled at that worst-case point on each site for each worst-case receiver to determine the sound level due to each piece of equipment. Multiple sites were modeled simultaneously per the construction schedule. The individual equipment contribution was then added in excel to yield the calculated total construction sound level at each receiver, assuming all equipment was operating simultaneously at that worst-case location on each site. **Table M-6** below shows the worst-case point on each site.

Table M-5: Worst-Case Analysis Point Heights

Noise Sensitive Receptor	Height Above Grade
1	35
2	15
3	25
4	25
5	25
6	5
7	15

8	15
9	65
10	30

Table M-6: Noise Emission Reference Levels (A-weighted decibels with RMS "slow" time constant)

Demolition / Excavation / Foundation	**CEQR Typical Lmax @ 50 ft**	**Project Specific Lmax @ 50 feet**		
		dB(A) at 50ft	**Make**	**Model**
Excavator	85	60	Deere	250G
Front End Loader	80	62	JCB	512.56 4
Crane	85	62	Tadano	GR 500
Generator	82	70	Kohler	CH440
Compressor	80	67	Husky	C301H
Concrete Pump	82	74	Putzmeister	56Z
Rebar Bender	80	61	Multiquip	MB25A
Impact Pile Driver	95	64	SilentPile	F401
Superstructure / Exteriors		**dB(A) at 50ft**	**Make**	**Model**
Concrete Trowles	80	69	Allen	436 Pro
Rebar Bender	80	61	Multiquip	MB25A
Concrete Pump	82	74	Putzmeister	56Z
Generator	70	70	Kohler	CH440
Crane	85	62	Tadano	GR 500
Compressor	80	67	Husky	C301H
Interior Fit-Out		**dB(A) at 50ft**	**Make**	**Model**
Forklift	85	60	Toyota	8FG45U
Crane	85	62	Tadano	GR 500
Trucks		**dB(A) at 50ft**	**Make**	**Model**
Dump Trucks Idle	84	56	Mack	GU713
Concrete Mixer Truck	85	56	Mack	GU713

Table M-7: Usage Factors[7]

Source	Usage Factor
Excavator	40%
Front End Loader	40%
Crane	16%
Generator	50%
Compressor	40%
Concrete Pump	20%
Rebar Bender	20%
Pile Driver	20%

[7] These usages factors are for Site I Phase I.

Construction Noise Impact Criteria

The noise impact criteria outlined in the *CEQR Technical Manual* serves as a screening-level threshold for potential construction noise impacts. If the construction of a proposed project does not result in an exceedance at a specific sensitive receptor, that receptor screens out of any further analysis. However, if the construction of a proposed project exceeds the screening-level threshold, further analysis would be warranted. The screening-level noise impact criteria for mobile and on-site construction activities are as follows:

- If the No-Action noise level is less the 60 dB(A) $L_{eq(1)}$, a 5 dB(A) $L_{eq(1)}$ or greater increase would require further action;
- If the No-Action noise level is between 60 dB(A) $L_{eq(1)}$ and 62 dB(A) $L_{eq(1)}$, a resulting $L_{eq(1)}$ of 65 dB(A) or greater would require further action;
- If the No-Action noise level is equal to or greater than 62 dB(A) $L_{eq(1)}$, or if the analysis period is a nighttime period (between 10PM and 7AM). The threshold require consideration would be 3 dB(A) $L_{eq(1)}$.

In addition to the CEQR construction criteria above, determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Also, in addition to the CEQR construction criteria above, determination of significant adverse construction noise impact would be considered based up New York City noise code for non-impulsive noise sources at a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Construction Noise Analysis Methodology

This construction noise analysis consists of the following:

- Identification of sensitive receptors near the Project Area;
- Identification and development of noise reduction measures that would be deployed during construction of the proposed and projected developments;
- Consideration of potential noise impacts from mobile sources (PCE's);
- Analysis of potential noise impacts from the operation of construction equipment during the construction consistent with the impact criteria discussed above. The analysis will first look at the intensity of the noise levels during operation, then look at the possible duration of those noise levels, then make a determination of impact, if any.
    - Duration of the construction noise is based on the planned construction schedule.

Noise Receptor Locations

The Project Area is located within the Astoria neighborhood of Queens and is bounded by 31st Street to the west, Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north. The area surrounding the Project Area is predominantly residential and residential/commercial uses. The sensitive receptors located closest to the Project Area are listed in **Table M-8** and shown in **Figure M-2** below. Setup of sensitive receptor inputs into SoundPlan included placing receptors at all floors of buildings and ground level sensitive receptors such as parks (**Table M-5** above shows worst case heigh at each receptor) exposed to potential construction impacts. From these inputs, individual receptor points 1-10 below were extracted that represented worst case exposure levels at specific heights. The receptor points are labeled in **Figure M-3** below.

Table M-8: Sensitive Noise Receptor Locations

Receptor	Description	Distance to Projected Development Site (closest point)
1	Residential building at the corner of 24th Road and 32nd Street.	0' from Site 1 50' from Site 2
2	Residential buildings along the western portion of 32nd Street	50' from Site 1 0' from Site 2
3	Residential buildings at the intersection of 32nd Street and 24th Avenue	0' from Site 4 0' from Site 2
4	Residential buildings along 24th Avenue between 32nd Street and 31st Street	100' from Site 4 0' from Site 3
5	Residential buildings along the western portion of 32nd Street extending to 31st Street.	0' from Site 3 150' from Site 4
6	Hoyt Playground	85' from Site 1 85' from Site 2 120' from Site 4
7	Residential buildings along 31st Street adjacent to Hoyt Playground	80' from Site 2 80' from Site 4
8	Residential buildings at the intersection of 31st Street and 24th Avenue	85' from Site 3
9	Judge Charles J. Vallone School	85' from Site 3
10	Projected Development Site 2	0' from Site 4

Baseline Noise

For the purpose of the construction noise assessment, noise levels representing the ambient noise in the area of the Noise Sensitive Receptors were taken from the *Dutch Kills Rezoning EIS* (CEQR # 08DCP021Q) Noise Monitoring Location 6. The Leq level of 73.1 was used was used as the baseline level for existing noise in the vicinity of the Project Area as shown in **Table M-9** below

Table M-9: Noise Measurement Results

Location	**Dutch Kills 6**
Time	**AM**
L_{max}	-
L_{10}	70.1
L_{eq}	73.1
L_{50}	64.1
L_{90}	59.2
L_{min}	-

Figure M-3: Sensitive Noise Receptor Locations



Noise Reduction Measures

The construction of the Projected Development Sites would be required to follow the requirements of the New York City Noise Control code (known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113) for construction noise control measures. In addition to the minimum requirements, the Applicants would utilize additional noise control measures to reduce the potential noise effects on the surrounding sensitive noise receptors. Specific noise control measures would be incorporated into a Noise Mitigation Plan required under the New York City Noise Code. The measures to be taken for noise control include source controls and path controls.

Source controls are known as measures that reduce noise at the source. The following source controls will be utilized at the Projected Development Sites during construction:

- Equipment that meets the sound level standards specified in Subchapter 5 of the New York City Noise Control Code would be utilized during the entirety of construction. **Table M-6** above shows the noise levels for the construction equipment that is to be used on-site;
- As electric power is expected to be available throughout the each of the Projected Development Sites, electrically powered equipment such as welders and saws would be used over diesel-powered equipment, where feasible and practicable;
- The construction site would be configured to minimize backup alarm noise where possible. Additionally, trucks would not be allowed to idle more than three minutes at the Projected Development Sites based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the New York City Administrative Code; and
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

Path controls are known as measures that reduce noise between the source and receptor. Examples include placement of equipment, implementation of barriers, etc. The following path controls will be utilized at the Project Site during construction:

- Equipment with high noise emissions, such as cranes and concrete trucks, would be located away from and shielded from sensitive receptor locations when possible;
- Noise barriers that will be constructed of plywood or other materials will surround the entire construction site perimeter. This barrier will provide noise shielding. The barrier would be at least 12 feet tall and include a cantilever towards the construction work to further shield the upper floors of adjacent sensitive noise receptors. Truck deliveries would operate behind these barriers where possible; and
- Path noise control measures such as portable noise barriers and enclosures would be utilized where feasible for certain dominant noise equipment such as generators and compressors.

Mobile Source Construction Noise Analysis

Pursuant to Section 111 of the *CEQR Technical Manual*, mobile sources are those noise sources that move in relation to a noise-sensitive receptor—principally automobiles, buses, trucks, aircraft, and trains. Each has its own distinctive noise character, and, consequently, an associated set of noise assessment descriptors.

For mobile sources, an initial noise assessment may be appropriate if a proposed action would generate additional project-generated vehicular traffic in an area where roadways currently carry no or very low traffic volumes, or where a nearby receptor would potentially be impacted by high ambient noise levels. Receptors are generally the subject of most noise impact analyses. A noise-sensitive location (known as a "receptor") is usually defined as an area where human activity may be adversely affected when noise levels exceed predefined thresholds of acceptability or when noise levels increase by an amount exceeding predefined thresholds of change.

Automobile noise is a function of vehicle speed and engine noise. With changing gears, the noise levels tend to increase in a sawtooth kind of pattern as vehicular speed increases. The interaction of the road surface with the tires generates noise that increases with vehicle speed. At vehicular speeds below 30 miles per hour, the typical automobile noise spectrum is dominated by engine noise. At speeds higher than 30 miles per hour, the automobile noise signature is composed of a combination of lower frequency engine noise and higher frequency tire noise. The engine and tire noise for vehicular speeds above 30 miles per hour are comparable in noise level. Noise generated by buses and heavy trucks is also composed of engine and tire noise, but tire noise tends to dominate the noise signature at vehicular speeds above 30 miles per hour in trucks and buses. Cargo load normally does not significantly affect noise levels because increased load usually results in decreased vehicular speed and the effects cancel each other out. Because individual trucks and buses are noisier than individual automobiles, the concept of noise passenger car equivalents (PCEs) is used.

Pursuant to Section 332.1 of the *CEQR Technical Manual*, the below values can be used to calculate vehicular noise using the following projections:

- Each Automobile or Light Truck: 1 Noise PCE
- Each Medium Truck: 13 Noise PCEs
- Each Bus: 18 Noise PCEs
- Each Heavy Truck: 47 Noise PCEs

To determine if the Proposed Actions would result in an increase to existing noise PCE values by 100 percent or more, a preliminary screening was conducted. This screening assesses the noise PCE values of the vehicles projected to arrive at the construction site during peak arrival and departure hours as determined by the construction traffic forecast, compared to the PCE values of existing background traffic recorded for the Levels of Service (LOS) analysis that was completed for the transportation analysis associated with the Proposed Actions.

Noise PCE Screening Assumptions

The With-Action project generated construction vehicular volumes were referenced to determine the worst-case PCE year and quarter over the period of construction activities (Q4, 2022). In Q4 of 2022, the With-Action AM peak hour is 6-7 AM, the With-Action MD peak hour is 12-1 PM, and the With-Action PM peak hour is 3-4 PM. These AM, MD and PM vehicles were assigned to the local network. The conversion to PCEs conservatively assumes that all of the trucks are heavy trucks. In the 2022, construction would occur at Projected Development Sites 1, 2, and 3 which was taken into consideration in assigning the vehicles to the network. The existing vehicle classifications provided by the level of service analysis were applied to each of the vehicle movements shown in the existing peak hour traffic volumes during the applicable peak hours.

Per the *CEQR Technical Manual*, if existing PCE noise values would not increase by 100 percent or more due to a proposed action, a detailed analysis is not required. A noise PCE screening was conducted for Noise Sensitive Receptors 1 through 9. The Proposed Actions would not result in an increase to existing noise PCE values by greater than 100% at the bounding roadways during the any of the AM, Midday, or PM peak hours. Therefore, a detailed noise PCE analysis is not warranted.

On-Site Construction Noise Analysis

The on-site construction noise analysis determined the intensity of the noise levels generated during construction to assess the potential for adverse impacts on the surrounding noise-sensitive receptors. To determine the anticipate construction noise levels, overall A-weighted sound level data was adjusted based on usage factor (see **Table M-7** above) and converted to sound power (LwA). The calculations to determine the sound pressure levels due to the equipment at the noise-sensitive areas were performed based on ISO Standard 9613-2 using SoundPLAN acoustical modeling software. The acoustical model considered the propagation of sound over distance, the shielding and reflection of sound due to buildings and structures, and the effect of ground absorption and topography. The model was configured to calculate the maximum sound level from each source at each receiver, assuming the equipment was located at the loudest point for each receiver within each area source. The maximum sound level results from each piece of equipment were summed at each receiver to yield the total maximum sound level due to all equipment for each phase of construction. These results were also compared to the NYC code based on an interpolation of the 85 dB(A) at 50 feet limit adjusted for the actual distance between the Projected Development Sites and each receiver – these results show that the construction noise produced by the Projected Development Sites would be compliant with NYC construction code requirements. The results of the On-Site Construction Noise Analysis are listed below by Noise Sensitive Receptor.

Cumulative Mobile Source Traffic and On-Site Construction Noise Evaluation

As discussed above, mobile source noise generated by construction vehicles entering and exiting Projected Development Sites during peak construction activity screens out of detailed PCE analysis and as such activity would not generate significant additional noise over noise generated from existing ambient traffic volumes. A review of **Table M-3**, which identifies the temporal distribution of peak quarter total construction period vehicle trips generated from 6 AM to 6PM, that at most 10 passenger car trips and 5 truck trips (converted from PCE of 10) would be generated at the 7-8 AM period overlapping with on-site

construction. Given that this is 1/3rd the peak hour construction generated traffic between 6-7 AM, which screens out of detailed PCE analysis, this worst-case volume of overlapping construction vehicle trips would not contribute materially as additional noise over and above ambient plus on-site construction noise at any sensitive receptor.

Receptor 1: Residential Buildings at the Corner of 24th Road and 32nd Street

Noise Sensitive Receptor 1 consists of the residential buildings at the corner of 24th Road and 32nd Street. These buildings directly abut (0') Projected Development Site 1 and are 50' to the south of Projected Development Site 2. Based on the Dutch Kills Noise Monitoring Location 6, the existing noise level L_{eq} at Receptor 1 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-11** below.

Table M-11: Receptor 1 - SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/22	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**74**	**74**	**74**	**79**	**79**	**78**	**78**	**64**	**64**	**50**	**50**	**54**	**54**	**40**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**76.6**	**76.6**	**76.6**	**80**	**80**	**79.2**	**79.2**	**73.6**	**73.6**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**
Increment Over Baseline	*3.5*	*3.5*	*3.5*	*6.9*	*6.9*	*6.1*	*6.1*	*0.5*	*0.5*	*0*	*0*	*0*	*0*	*0*

*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Photo M-1** and **M-2** below show Noise Sensitive Receptor 1.

Photo M-1: Receptor 1 - Aerial

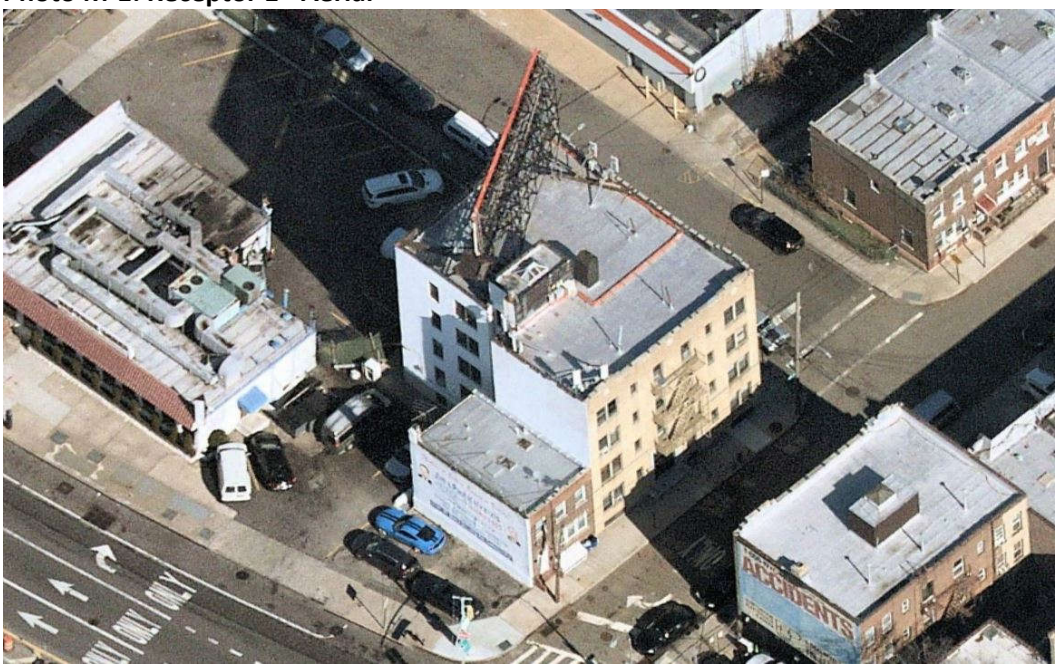


Photo M-2: Receptor 1 - Facade



Receptor 2: Residential Buildings along the Western Portion of 32nd Street

Noise Sensitive Receptor 2 consists of the residential buildings along the western portion of 32nd Street. Receptor 2 abuts (0') Projected Development Site 2 and is 50' from Projected Development Site 1. Based on the Dutch Kills Noise Monitoring Location 6, the existing noise level L_{eq} at Receptor 2 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-12** below.

Table M-12: Receptor 2 - SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/2	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**62**	**62**	**62**	**65**	**65**	**65**	**65**	**52**	**52**	**52**	**52**	**56**	**55**	**42**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**73.4**	**73.4**	**73.4**	**73.7**	**73.7**	**73.7**	**73.7**	**73.1**	**73.1**	**73.1**	**73.1**	**73.2**	**73.2**	**73.1**
Increment Over Baseline	*0.3*	*0.3*	*0.3*	*0.6*	*0.6*	*0.6*	*0.6*	*0*	*0*	*0*	*0*	*0.1*	*0.1*	*0*

*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

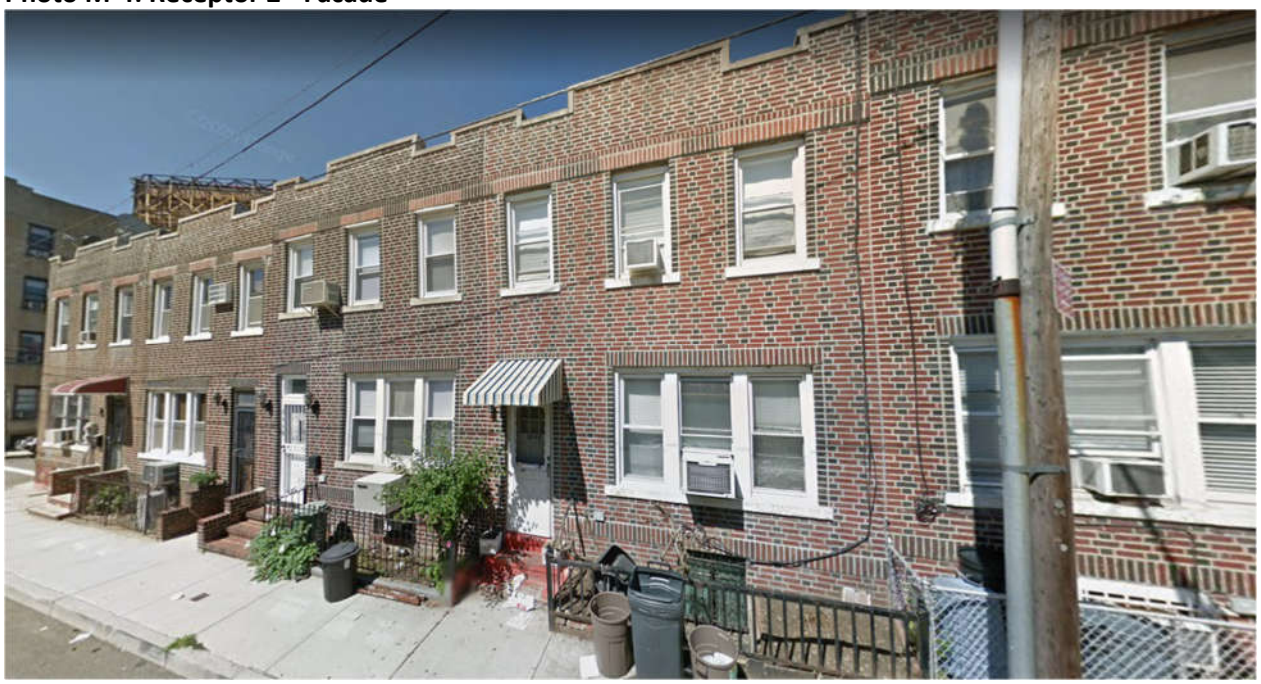
Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Phot M-3** and **M-4** below show Noise Sensitive Receptor 2.

Photo M-3: Receptor 2 - Aerial



Photo M-4: Receptor 2 - Facade



Receptor 3: Residential Buildings at the Intersection of 32nd Street and 24th Avenue

Noise Sensitive Receptor 3 consists of the residential buildings at the intersection of 32nd Street and 24th Avenue. Receptor 3 abuts (0') Projected Development Sites 2 and 4. Based on the Dutch Kills Noise Monitoring Location 6, the existing noise level L_{eq} at Receptor 3 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-13** below.

Table M-13: Receptor 3 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/2	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**58**	**59**	**59**	**62**	**62**	**61**	**61**	**48**	**48**	**68**	**69**	**71**	**71**	**58**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**73.2**	**73.3**	**73.3**	**73.4**	**73.4**	**73.4**	**73.4**	**73.1**	**73.1**	**74.3**	**74.5**	**75.2**	**75.2**	**73.2**
Increment Over Baseline	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0*	*0*	*1.2*	*1.4*	*2.1*	*2.1*	*0.1*

*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Phot M-5** and **M-6** below show Noise Sensitive Receptor 3.

Photo M-5: Receptor 3 - Aerial



Photo M-6: Receptor 3 - Facade



Receptor 4: Residential Buildings along 24th Avenue between 32nd Street and 31st Street

Noise Sensitive Receptor 4 consists of the residential buildings along 24th Avenue between 32nd Street and 31st Street. Receptor 4 abuts (0') Projected Development Site 3 and is located 100' from Projected Development Site 4. Based on the Dutch Kills Noise Monitoring Location 6, the existing noise level L_{eq} at Receptor 4 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-14** below.

Table M-14: Receptor 4 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/22	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**72**	**72**	**72**	**75**	**74**	**74**	**63**	**62**	**42**	**60**	**60**	**66**	**65**	**50**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**75.6**	**75.6**	**75.6**	**77.6**	**76.6**	**76.6**	**73.5**	**73.4**	**73.1**	**73.3**	**73.3**	**73.9**	**73.7**	**73.1**
Increment Over Baseline	*2.5*	*2.5*	*2.5*	*4.5*	*3.5*	*3.5*	*0.4*	*0.3*	*0*	*0.2*	*0.2*	*0.8*	*0.6*	*0*

*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Phot M-7** and **M-8** below show Noise Sensitive Receptor 4.

Photo M-7: Receptor 4 - Aerial



Photo M-8: Receptor 4 - Facade



Receptor 5: Residential Buildings along the Western Portion of 32nd Street Extending to 31st Street

Noise Sensitive Receptor 5 consists of the residential buildings along the western portion of 32nd Street extending to 31st Street. Receptor 5 abuts (0') Projected Development Site 3 and is 100' from Projected Development Site 4. Based on the Dutch Kills Noise Monitoring Location 6, the existing noise level L_{eq} at Receptor 5 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-15** below.

Table M-15: Receptor 5 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/22	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**75**	**75**	**75**	**78**	**78**	**77**	**65**	**65**	**37**	**50**	**51**	**54**	**53**	**41**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**77.2**	**77.2**	**77.2**	**79.2**	**79.2**	**78.5**	**73.7**	**73.7**	**73.1**	**73.1**	**73.1**	**73.2**	**73.2**	**73.1**
Increment Over Baseline	*4.1*	*4.1*	*4.1*	*6.1*	*6.1*	*5.4*	*0.6*	*0.6*	*0*	*0*	*0*	*0.1*	*0.1*	*0*

*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

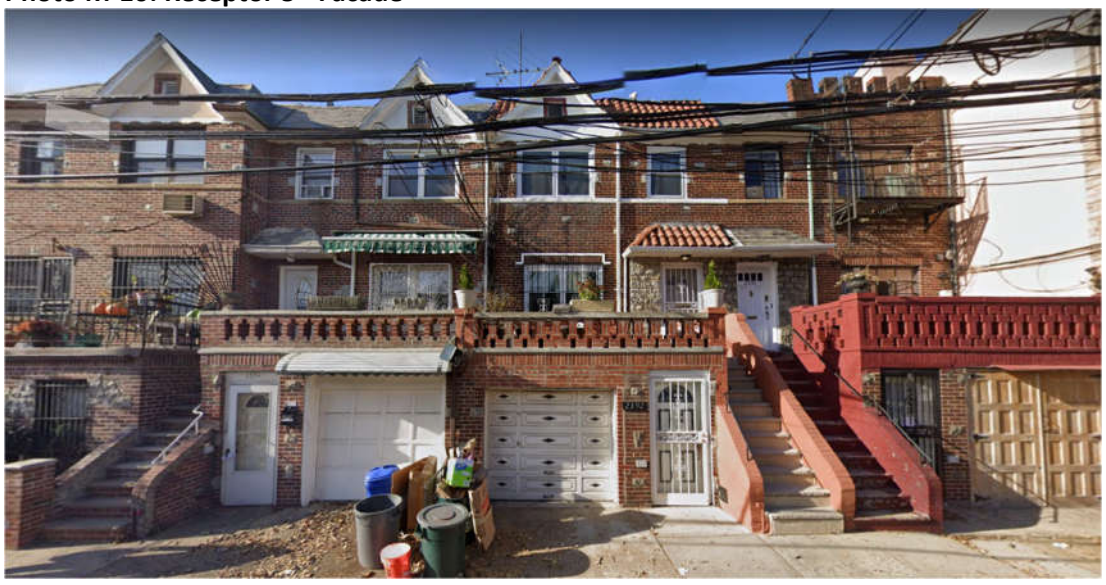
Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Phot M-9** and **M-10** below show Noise Sensitive Receptor 5.

Photo M-9: Receptor 5 - Aerial



Photo M-10: Receptor 5 - Facade



Receptor 6: Hoyt Playground

Noise Sensitive Receptor 6 is Hoyt Playground. Receptor 6 is 85' from Projected Development Site 1, 185' from Projected Development Site 2, and 120' from Projected Development Site 4. Based on the Dutch Kills Noise Monitoring Location 6, the existing noise level L_{eq} at Receptor 6 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-16** below.

Table M-16: Receptor 6 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/2	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**53**	**53**	**54**	**66**	**66**	**66**	**66**	**43**	**43**	**45**	**45**	**53**	**52**	**35**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**73.1**	**73.1**	**73.2**	**73.9**	**73.9**	**73.9**	**73.9**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**
Increment Over Baseline	*0*	*0*	*0.1*	*0.8*	*0.8*	*0.8*	*0.8*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

*Limit is the ambient reading plus 3, according to the *CEQR Technical Manual*
*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Photo M-11** below shows Noise Sensitive Receptor 6.

Photo M-11: Receptor 6



Receptor 7: Residential buildings along 31st Street adjacent to Hoyt Playground

Noise Sensitive Receptor 7 consists of the residential buildings along 31st Street adjacent to Hoyt Playground. Receptor 7 is located 80' from Projected Development Sites 2 and 4. Based on the Dutch Kills Noise Monitoring Location 7, the existing noise level L_{eq} at Receptor 7 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-17** below.

Table M-17: Receptor 7 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/2	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**53**	**53**	**54**	**66**	**66**	**66**	**66**	**43**	**43**	**45**	**45**	**53**	**52**	**35**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**73.1**	**73.1**	**73.2**	**73.9**	**73.9**	**73.9**	**73.9**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**
Increment Over Baseline	*0*	*0*	*0.1*	*0.8*	*0.8*	*0.8*	*0.8*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

*Limit is the ambient reading plus 3, according to the *CEQR Technical Manual*
*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Photo M-12** below shows Noise Sensitive Receptor 7.

Photo M-12: Receptor 7



Receptor 8: Residential buildings at the intersection of 31st Street and 24th Avenue

Noise Sensitive Receptor 8 consists of the residential buildings at the intersection of 31st Street and 24th Avenue. Receptor 8 is located 85' from Projected Development Site 3. Based on the Dutch Kills Noise Monitoring Location 7, the existing noise level L_{eq} at Receptor 8 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-18** below.

Table M-18: Receptor 8 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/2	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**55**	**56**	**67**	**67**	**67**	**67**	**53**	**46**	**37**	**50**	**51**	**57**	**57**	**40**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**73.2**	**73.2**	**74.1**	**74.1**	**74.1**	**74.1**	**73.1**	**73.1**	**73.1**	**73.1**	**73.1**	**73.2**	**73.2**	**73.1**
Increment Over Baseline	*0.1*	*0.1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0.1*	*0.1*	*0*

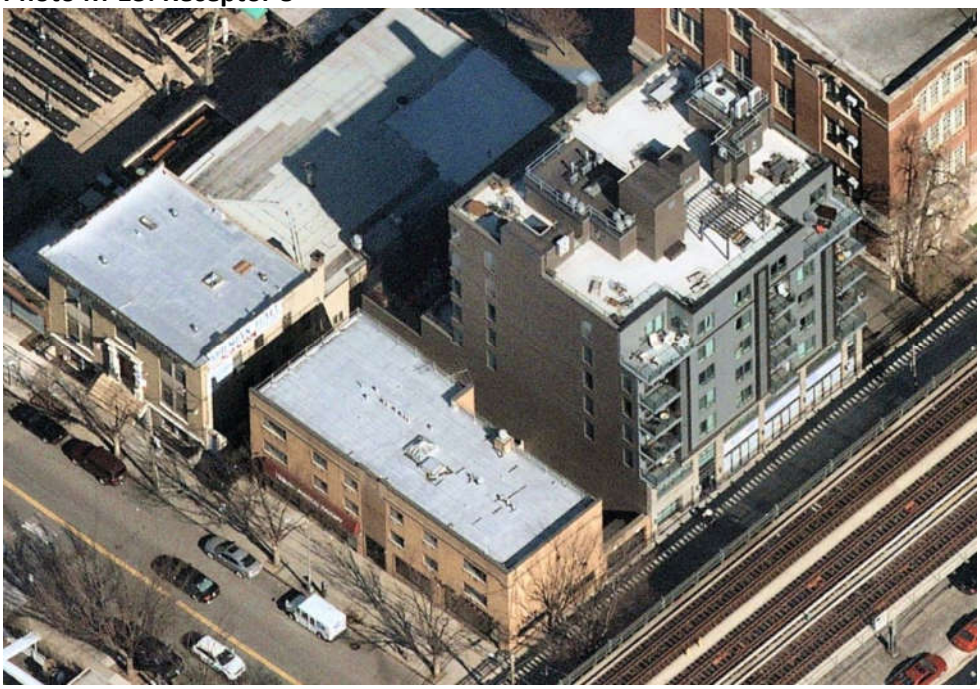
*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Photo M-13** below shows Noise Sensitive Receptor 8.

Photo M-13: Receptor 8



Receptor 9: Judge Charles J. Vallone School

Noise Sensitive Receptor 9 is the Judge Charles J. Vallone School. Receptor 9 is located 85' from Projected Development Site 3. Based on the Dutch Kills Noise Monitoring Location 9, the existing noise level L_{eq} at Receptor 8 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-19** below.

Table M-19: Receptor 9 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/2	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	**63**	**63**	**65**	**67**	**67**	**66**	**54**	**52**	**36**	**51**	**51**	**55**	**55**	**41**
Baseline Noise Level	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
Total Noise Level	**73.5**	**73.5**	**73.6**	**74.1**	**74.1**	**73.9**	**73.2**	**73.1**	**73.1**	**73.1**	**73.1**	**73.2**	**73.2**	**73.1**
Increment Over Baseline	*0.4*	*0.4*	*0.5*	*1*	*1*	*0.8*	*0.1*	*0*	*0*	*0*	*0*	*0.1*	*0.1*	*0*

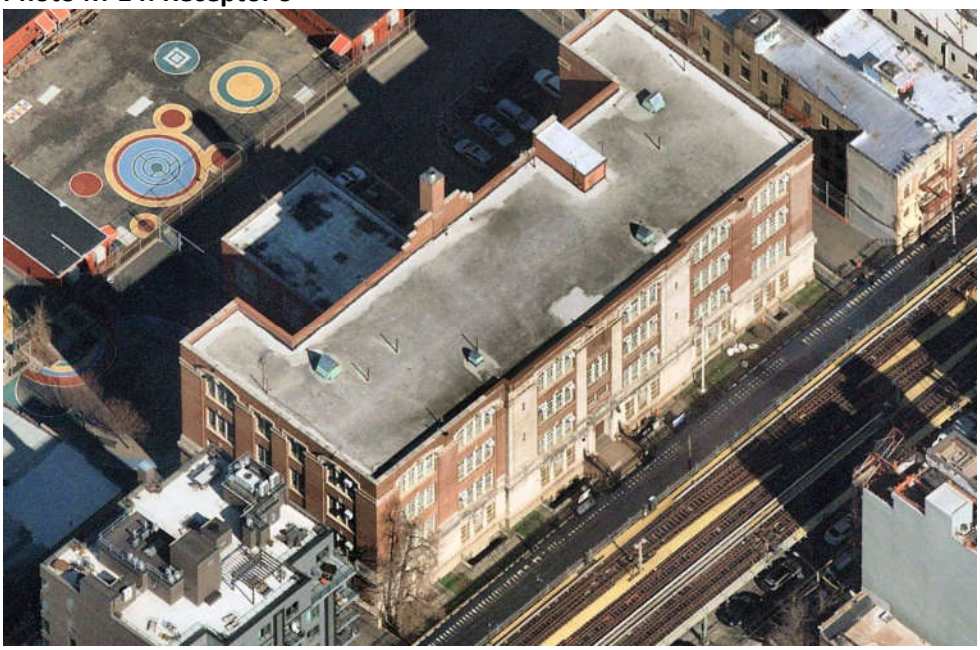
*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

Based on the SoundPLAN Acoustic Model Results, none of the above thresholds are exceeded. Therefore, there is no significant adverse impact expected related to construction noise. **Photo M-14** below shows Noise Sensitive Receptor 9.

Photo M-14: Receptor 9



Receptor 10: Site 2

Noise Sensitive Receptor 10 is the proposed new development on Projected Development Site 2. As Projected Development Site 4 is to be developed after the occupancy of Projected Development Site 2, it is a noise-sensitive receptor. Receptor 10 abuts (0') Projected Development Site 4. Based on the Dutch Kills Noise Monitoring Location 9, the existing noise level L_{eq} at Receptor 10 is 73.1 dB(A). The results of the construction noise analysis are summarized in **Table M-19** below.

Table M-20: Receptor 10 – SoundPLAN Acoustic Model Results

AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time Period	11/21-12/2	1/22-4/22	5/22-6/22	7/22-7/22	8/22-9/22	10/22-5/23	6/23-7/23	8/23-3/24	4/24-5/24	8/25-9/25	10/25-3/26	4/26-6/26	7/26-4/27	5/27-2/28
Total Construction Noise	-	-	-	-	-	-	-	-	-	**71**	**71**	**74**	**74**	**62**
Baseline Noise Level	-	-	-	-	-	-	-	-	-	73.1	73.1	73.1	73.1	73.1
Total Noise Level	-	-	-	-	-	-	-	-	-	**74.2**	**74.2**	**76.6**	**76.6**	**73.4**
Increment Over Baseline	-	-	-	-	-	-	-	-	-	*1.1*	*1.1*	*3.5*	*3.5*	*0.3*

*Numbers represent decibels dB(A)
*AP = Analysis Period

The determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increments of 15 dB(A) or more for a prolonged period of 12 months or more or noise level increment of 20 dB(A) or more for a prolonged period of 3 months or more).

Based on the New York City Noise Code the determination of significant adverse construction noise impact for non-impulsive noise sources is a level of 85 dB(A) at 50 feet or more from the source and an increase of 15 dB(A) over the measured ambient reading for impulsive noise sources.

As none of the above sensitive receptors, subject to a detailed construction analysis exceed CEQR thresholds for potential impact, no significant construction noise impacts are expected.

Other Technical Areas

Land Use and Neighborhood Character

Construction activities would affect land use within the Projected Development Sites but would not alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the Projected Development Sites. These disruptions would be temporary in nature and would have limited effects on land uses within the surrounding area, particularly as most construction activities would take place within the Projected Development Sites or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to the sites. In addition, measures would be implemented to control noise, vibration, emissions, and dust on the construction sites, including the erection of construction fencing. The fencing would reduce potentially undesirable

views of the construction site and buffer noise emitted from construction activities. Overall, while the construction at the Projected Development Sites would be evident to the local community, the temporary nature of construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

Socioeconomic Conditions

Construction activities could temporarily affect pedestrian and vehicular access. However, lane and/or sidewalk closures would not obstruct entrances to any existing businesses, and businesses are not expected to be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. Maintenance and Protection of Traffic (MPT) plans would be developed for any temporary curb-lane and sidewalk narrowing/closures as required by DOT. This work would be coordinated with and approved by DOT's OCMC. Overall, construction activities associated with the Proposed Actions would not result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

Community Facilities

No community facilities would be directly affected by construction activities for an extended duration. The Projected Development Sites will be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care. P.S. 85 - the Judge Charles J. Vallone School is located across 31st Street from Projected Development Site 3, approximately 80 feet away. Access to the school would be maintained throughout the duration of the construction period. Although the construction of the Projected Development Sites would be expected to have the potential to result in elevated noise levels at nearby receptors, and noise due to construction would at times be noticeable, Projected Development Site 3 is located approximately 80 feet from the school, and noise from construction would be intermittent and of limited duration. Construction of the Proposed Developments would not block or restrict access to any facilities in the area, and would not materially affect emergency response times significantly. The NYPD and FDNY emergency services and response times would not be materially affected due to the geographic distribution of the police and fire facilities and their respective coverage areas.

Open Space

There are no publicly accessible open spaces within the Projected Development Sites and no open space resources would be used for staging or other construction activities. Hoyt Playground is located across 31st Street from Projected Development Sites 1 & 2, approximately 50 feet away. Access to this open space resource or any other nearby open space resources would be maintained throughout the duration of the construction period. Although construction of the Projected Development Sites would be expected to have the potential to result in elevated noise levels at nearby receptors, and noise due to construction would at times be noticeable, the Projected Development Sites are located approximately 50 feet from

the nearest existing open space resource, and noise from construction would be intermittent and of limited duration. Therefore, no significant construction impacts to open space are expected.

Historic and Cultural Resources

As described in **Attachment B, "Supplemental Screening,"** the Projected Development Sites do not possess archaeological significance and no further assessment is warranted. Therefore, the Proposed Developments does not have the potential to result in construction period archaeological impacts. The Proposed Actions would not result in any significant adverse impacts to architectural resources on the Projected Development Sites as no historic architectural resources are located on the sites. Moreover, no architectural resources are located within 90 feet of the Projected Development Sites. Therefore, the Proposed Actions would not result in any significant adverse impacts to historic architectural resources.

Hazardous Materials

A detailed assessment of potential impacts on hazardous materials is described in **Attachment I, "Hazardous Materials."** The hazardous materials assessments identified various potential sources of subsurface contamination on, or in close proximity to, the Projected Development Sites. To reduce the potential for adverse impacts associated with new construction resulting from the Proposed Actions, further environmental investigations and remediation will be required. To ensure that these investigations are undertaken, a hazardous materials (E) designation would be placed on the tax lots comprising Projected Development Sites 2 and 4. The (E) designation requires approval by the New York City Office of Environmental Remediation (OER) prior to obtaining NYC Buildings Department (DOB) permits for any new development entailing soil disturbance. The environmental requirements for the (E) designation also include a mandatory Construction Health and Safety Plan (CHASP), which must be approved by OER.

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 the Projected Development Sites.

APPENDIX A

TRANSPORTATION PLANNING FACTORS MEMORANDUM

Philip Habib & Associates

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DRAFT
TECHNICAL MEMORANDUM

TO: New York City Department of City Planning

FROM: Philip Habib & Associates

DATE: October 23, 2020

PROJECT: Astoria 31st Street Rezoning (No. 1986R)

RE: Transportation Planning Factors and Travel Demand Forecast (TPF/TDF) Technical Memorandum

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This memorandum summarizes the transportation planning factors to be used for the analyses of traffic, parking, transit, and pedestrian conditions for the Astoria 31st Street Rezoning project. Estimates of the peak travel demand for the Proposed Actions' reasonable worst-case development scenario (RWCDS) are provided, along with a discussion of trip assignment methodologies and study area definitions.

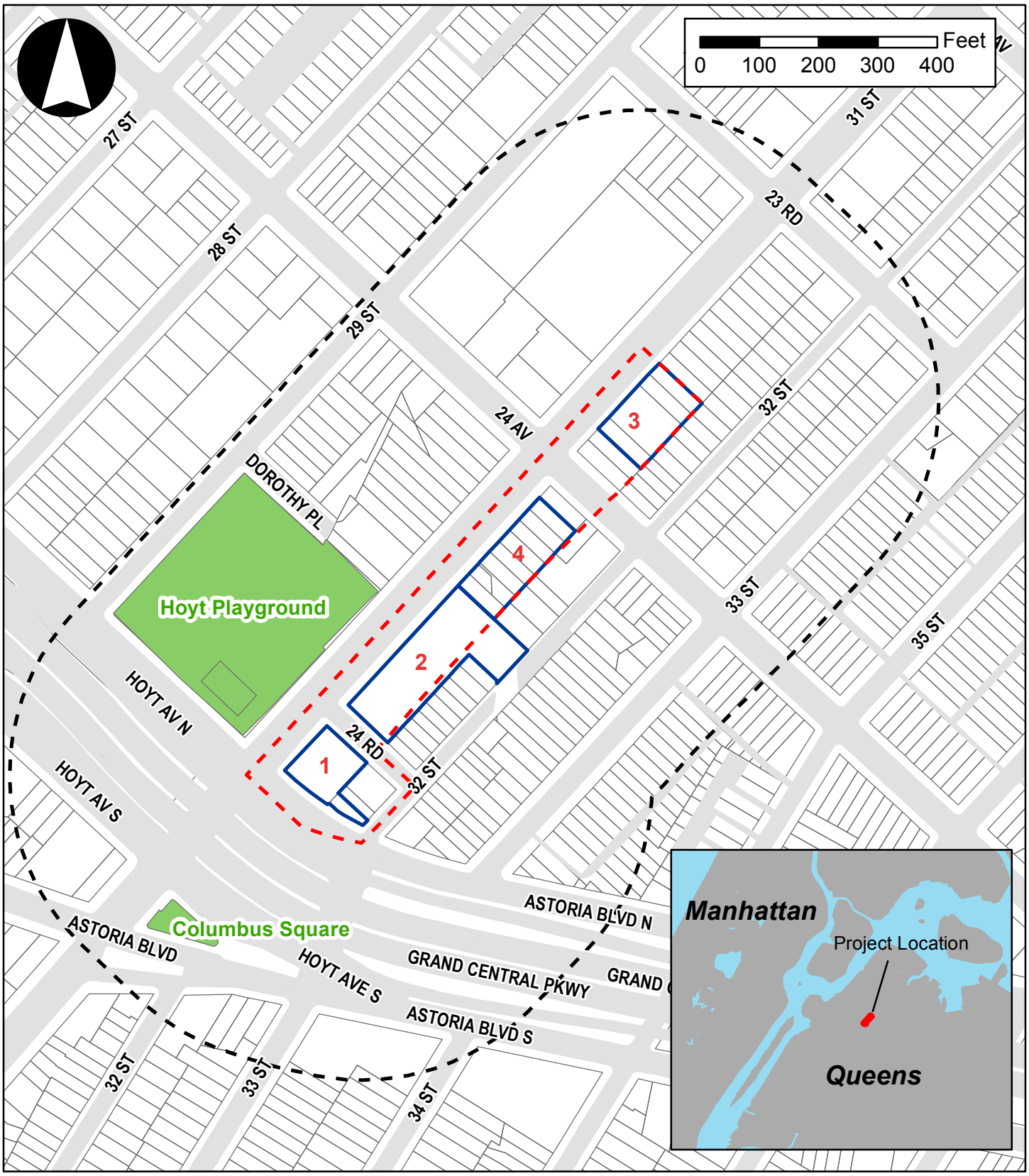
THE PROPOSED ACTIONS

MDM Development Group LLC, 2441 Astoria Associates, 31 Neptune LLC (the "Applicants") are seeking discretionary actions in order to facilitate the redevelopment of three Applicant-controlled Development Sites in the Astoria neighborhood of Queens Community District (CD) 1 (see **Figure 1**). The discretionary actions include: (i) a zoning map amendment to rezone a portion of two blocks from C4-3 and R5B to C4-5X and C4-4; and, (ii) a zoning text amendment to ZR Appendix F to designate the rezoning area a Mandatory Inclusionary Housing (MIH) area (the "Proposed Actions"). As shown in **Figure 1**, the proposed rezoning area (the "Project Area") is generally bounded by 31st Street to the west, Hoyt Avenue North/Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north. The intent of the Proposed Actions is to provide opportunities for new residential and commercial development. The Applicants intend for the Proposed Actions to create opportunities for new housing development, including affordable housing, on underutilized land where a strong demand for housing exists.

REASONABLE WORST CASE DEVELOPMENT SCENARIO (RWCDS)

In order to assess the potential effects of the Proposed Actions, a RWCDS for both "future without the Proposed Actions" (No-Action) and "future with the Proposed Actions" (With-Action) conditions is analyzed

Project Location



Legend

Rezoning Area | 400-Foot Radius | 1 Projected Development Sites | Open Space | Roadbed

for an analysis year of 2028. As shown in **Figure 1**, the RWCDS identified four projected development sites: the three Applicant-controlled sites (Projected Development Sites 1-3), and a fourth site not under the control of the Applicant (Projected Development Site 4).

Under the RWCDS, development on the three Applicant-controlled Development Sites would total approximately 295 dwelling units (DUs), 34,047 gross square feet (gsf) of commercial uses and 28,988 gsf of community facility uses. Projected Development Site 4 would include a total of approximately 94 DUs and 14,721 gsf of commercial uses. **Table 1** below shows the total anticipated No-Action and With-Action land uses on the four projected development sites in 2028 under the RWCDS. As shown in **Table 1**, in the No-Action condition it is assumed that the existing conditions within the Project Area would remain unchanged, with approximately 22 DUs, 26,280 gsf of local retail uses, 2,000 gsf of office uses and 3,280 gsf of restaurant uses on the projected development sites. Under the With-Action condition, there would be a net incremental increase of approximately 367 DUs, 28,988 gsf of community facility uses (assumed to be medical office space), 17,876 gsf of local retail space, and 2,612 gsf of office space, and a net decrease of approximately 3,280 gsf of restaurant space. A total of 123 accessory parking spaces would also be provided in the With-Action condition compared to 58 in the No-Action.

Table 1
2028 RWCDS No-Action and With-Action Land Uses

Use	No-Action	With-Action	Increment
Residential	22 DUs	389 DUs	**+367 DUs**
Community Facility – Medical Office	0 gsf	28,988 gsf	**+28,988 gsf**
Commercial – Local Retail	26,280 gsf	44,156 gsf	**+17,876 gsf**
Commercial – Office	2,000 gsf	4,612 gsf	**+2,612 gsf**
Commercial – Diner/Restaurant	3,280 gsf	0 gsf	**-3,280 gsf**
Parking	58 spaces	123 spaces	**+65 spaces**

TRANSPORTATION PLANNING FACTORS

The trip generation rates, temporal and directional distributions, modal splits, vehicle occupancies and truck trip factors used to forecast travel demand for residential, local retail, office, medical office and restaurant land uses are summarized in **Table 2**. They were developed based on factors cited in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, American Community Survey (ACS) journey-to-work five-year data (2014-2018), American Association of State Highway Transportation Officials (AASHTO) Census Transportation Planning Products (CTPP) reverse journey-to-work five-year data (2012-2016), data from *ITE Trip Generation* Manual, 10th Edition, data provided by the New York City departments of Transportation (DOT) and City Planning (DCP), and factors developed for recent environmental reviews. Factors are shown for the weekday AM and PM peak hours (typical peak periods for commuter travel demand) and the weekday midday and Saturday peak hours (typical peak periods for retail demand).

Residential

Residential person trip rates and temporal distributions reflect data from the *CEQR Technical Manual*, while modal and directional splits and vehicle occupancies were based on ACS journey-to-work data for census tracts encompassing the Project Area (Queens census tracts 65.01, 65.02, 69, 71, 115, 117, 125, 137, 141, and 143), and data from the 2014 *Astoria Cove FEIS*. Truck trip generation rates and temporal distributions reflect those cited in the *CEQR Technical Manual*.

Table 2
Transportation Planning Factors

Land Use:	Residential	Local Retail	Medical Office	Restaurant	Office
Size/Units:	367 DU	17,876 gsf	28,988 gsf	-3,280 gsf	2,612 gsf
Person Trip Generation:	(1)	(1)	(7)	(8)	(1)
Weekday	8.075	205.0	(See Note 7)	179.5	18.0
Saturday	9.6	240.0	39.0	195.9	3.9
	per DU	per 1,000 gsf	per 1,000 gsf	per 1,000 gsf	per 1,000 gsf
Temporal Distribution:	(1)	(1)	(7)	(8)	(1)
AM	10.0%	3.0%	11.0%	6.0%	12.0%
MD	5.0%	19.0%	13.0%	9.0%	15.0%
PM	11.0%	10.0%	9.0%	5.0%	14.0%
SAT	8.0%	10.0%	17.0%	9.0%	17.0%
Modal Splits:	(2) All Periods	(6) AM/MD/PM	(6) SAT	(6) All Periods	(9) All Periods	(6) AM/PM/SAT	(6) MD
Auto	16.6%	11.0%	8.0%	23.0%	30.0%	27.0%	2.0%
Taxi	0.4%	0.0%	1.0%	7.0%	5.0%	1.0%	1.0%
Subway	70.4%	3.0%	4.0%	14.0%	15.0%	53.0%	7.0%
Bus	3.5%	2.0%	7.0%	26.0%	15.0%	5.0%	7.0%
Walk/Other	9.1%	84.0%	80.0%	30.0%	35.0%	14.0%	83.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
In/Out Splits:	(4) In / Out	(6) In / Out	(7) In / Out	(10) In / Out	(5,13) In / Out
AM	20% / 80%	50% / 50%	62% / 38%	50% / 50%	96% / 4%
MD	50% / 50%	50% / 50%	47% / 53%	50% / 50%	39% / 61%
PM	65% / 35%	50% / 50%	35% / 65%	67% / 33%	5% / 95%
SAT	50% / 50%	50% / 50%	49% / 51%	50% / 50%	60% / 40%
Vehicle Occupancy:	(2,4) AM/PM	(12) MD/SAT	(6)	(6)	(10)	(3,13)
Auto	1.10	1.54	1.40	1.58	2.20	1.17
Taxi	1.40	1.40	1.40	1.58	2.30	1.42
Truck Trip Generation:	(1)	(1)	(9)	(10)	(1)
Weekday	0.06	0.35	0.29	3.60	0.32
Saturday	0.02	0.04	0.29	3.60	0.01
	per DU	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf
Temporal Distribution	(1)	(1)	(9)	(10)	(1)
AM	12.0%	8.0%	3.0%	0.0%	10.0%
MD	9.0%	11.0%	11.0%	6.0%	11.0%
PM	2.0%	2.0%	1.0%	1.0%	2.0%
SAT	9.0%	11.0%	0.0%	0.0%	11.0%
	In / Out	In / Out	In / Out	In / Out	In / Out
AM/MD/PM/SAT	50.0% / 50.0%	50.0% / 50.0%	50.0% / 50.0%	50.0% / 50.0%	50.0% / 50.0%

Notes :

(1) Source: 2014 *City Environmental Quality Review (CEQR) Technical Manual.*

(2) Based on ACS journey-to-work 5-Year (2014-2018) data for Queens tracts 65.01, 65.02, 69, 71, 95, 97, 137, 141, 143, 115, 117 and 125.

(3) Based on AASHTO CTPP reverse journey-to-work 5-Year data (2012-2016) for Queens tracts 65.01, 65.02,69,71,95, 97, 137,141,143,115,117,125.

(4) Based on data from the 2014 *Astoria Cove FEIS.*

(5) Based on data from the 2009 *Broadway Triangle FEIS*.

(6) Based on data provided by NYCDOT and NYCDCP

(7) Based on NYCDOT medical office trip generation and mode choice data. Weekday daily trip estimate based on following equation: 141.77 + 66.626 x gross SF (in thousands).

(8) Based on data from *ITE Trip Generation Manual, 10th Edition*, Land Use Code 932 (High-Turnover Restaurant). Person trip rate = ITE Trip Rate x 1.52/0.95.

(9) Based on data from the 2015 *East New York Rezoning Proposal FEIS*.

(10) Based on data from the 2015 *Vanderbilt Corridor and One Vanderbilt FEIS*.

(11) Based on data from the 2010 *Astoria Rezoning EAS.*

(12) Midday and Saturday auto occupancy determined by applying a multiplier (1.4) to the AM/PM rate.

(13) Based on data from the 2008 *Dutch Kills Rezoning and Related Actions FEIS.*

It should be noted that ACS vehicle occupancy data reflect the average vehicle occupancy for personal auto trips to and from work, and do not present the complete picture of average vehicle occupancy for other purposes (e.g., shopping, errands, social and recreational activities, school trips, etc.). In general, vehicle occupancy rates for non-work-related trips have been found to be higher than vehicle occupancy rates for work-related trips. Both national data from USDOT-FHA's *Summary of Travel Trends: 2009 National Household Travel Survey* and regional data from the *Regional Travel-Household Interview Survey* prepared for the New York Metropolitan Transportation Council (NYMTC) and the North Jersey Transportation Planning Authority (NJTPA) indicate that average vehicle occupancy rates for all auto trips are over 1.4 times the average vehicle occupancy rates for auto trips to and from work. (Refer to Table 16 of the USDOT-FHA's 2009 *National Household Travel Survey* and pages 20 and 21 of NYMTC/NJTPA 2000 *Regional Travel – Household Interview Survey* provided in **Appendix A**). As such, the weekday AM/PM peak hour vehicle occupancy rates were adjusted by a factor of 1.4 for the weekday midday and Saturday peak hours to reflect the predominance of non-work-related trips during these periods. While not all weekday AM and PM peak hour trips are work-related, the lower vehicle occupancy rates for trips to and from work were conservatively applied to all trips in these latter peak hours.

Community Facility (Medical Office)

The forecast of travel demand for the community facility use, assumed to be medical office, was based on data provided by DOT and DCP, and the truck trip rates and temporal distribution cited in the 2015 *East New York Rezoning Proposal FEIS*.

Local Retail

The trip generation rates and temporal distributions for the local retail use were based on data from the *CEQR Technical Manual*, and the modal split, directional distributions and vehicle occupancy were based on DOT and DCP data. Truck trip factors were based on data from the *CEQR Technical Manual*. To reflect the mixed-use nature of the Proposed Actions' RWCDS, it was assumed for the purposes of the travel demand forecast that 25 percent of all local retail trips would be linked to other proposed uses on projected development sites, consistent with *CEQR Technical Manual* guidance.

Restaurant

The trip generation rates and temporal distributions for the No-Action restaurant use were based on data from *ITE Trip Generation Manual, 10th Edition*, Land Use Code 932 (High-Turnover Restaurant). The modal split was based on data cited in the *East New York Rezoning Proposal FEIS,* and the directional distribution, vehicle occupancy rates and truck trip factors were based on data cited in the 2015 *Vanderbilt Corridor and One Vanderbilt FEIS.*

Office

The trip generation rates and temporal distributions for the office use were based on data from the *CEQR Technical Manual*, and the modal split was based on DOT and DCP data. The directional distribution and vehicle occupancy rates reflect AASHTO CTPP reverse journey-to-work data, and data from the 2009 *Broadway Triangle FEIS* and the 2008 *Dutch Kills Rezoning and Related Actions FEIS*. Truck trip generation rates and temporal distributions reflect those cited in the *CEQR Technical Manual*.

TRIP GENERATION

The net incremental change in person and vehicle trips expected to result from the Proposed Actions by the 2028 analysis year was derived based on the net change in land uses shown in **Table 1** and the transportation planning factors shown in **Table 2**. As shown in **Table 3**, the Proposed Actions would generate an incremental increase of 577, 894, 765, and 739 person trips (in + out combined) during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. Compared to No-Action conditions, there would be a net increase of 108, 115, 116, and 93 vehicle trips (auto, taxi, and truck combined) during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. Peak hour subway trips would increase by approximately 240, 149, 263, and 233 during these same periods, respectively, while bus trips would increase by approximately 66, 78, 62, and 73, respectively. The Proposed Actions would generate a net total of approximately 152, 520, 307, and 319 walk-only trips during the weekday AM, midday and PM peak hours, and Saturday peak hours, respectively.

LEVEL 1 SCREENING ASSESSMENT

The *CEQR Technical Manual* describes a two-level screening procedure for the preparation of a "preliminary analysis" to determine if quantified operational analyses of transportation conditions are warranted. As discussed in the following sections, the preliminary analysis begins with a trip generation (Level 1) analysis to estimate the numbers of person and vehicle trips attributable to the proposed action. According to the *CEQR Technical Manual*, if a proposed action is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (a Level 2 assessment) are to be performed to estimate the incremental trips that could occur at specific transportation elements and to identify potential locations for further analysis. If the trip assignments show that the proposed action would generate 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a sidewalk, corner area or crosswalk, then further quantified operational analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, vehicular and pedestrian safety, and parking.

Traffic

Based on *CEQR Technical Manual* guidelines, a quantified traffic analysis is typically required if a proposed action would result in 50 or more vehicle trip ends in a peak hour at one or more intersections. As shown in **Table 3**, under the Proposed Actions' RWCDS, the net number of incremental vehicle trips—108, 115, 116 and 93 in the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively—would exceed the 50-trip threshold in all periods, and a Level 2 screening analysis is therefore warranted to determine which if any intersections would require quantified analysis.

Table 3
Travel Demand Forecast

Land Use:		Residential		Local Retail		Medical Office 0		Restaurant		Office		Total	
Size/Units:		367 DU		17,876 gsf		28,988 gsf		-3,280 gsf		2,612 gsf			
Peak Hour Person Trips:													
	AM	296		82		228		-35		6		577	
	MD	149		522		270		-53		6		894	
	PM	326		275		187		-29		6		765	
	SAT	282		321		192		-58		2		739	
Person Trips:													
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	**Auto**	10	39	5	5	33	20	-5	-5	2	0	45	59
	Taxi	0	1	0	0	10	6	-1	-1	0	0	9	6
	Subway	42	167	1	1	20	12	-3	-3	3	0	63	177
	Bus	2	8	1	1	37	23	-3	-3	0	0	37	29
	Walk/Other	5	22	34	34	42	26	-6	-6	1	0	76	76
	Total	59	237	41	41	142	87	-18	-18	6	0	230	347
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	**Auto**	12	12	29	29	29	33	-8	-8	0	0	62	66
	Taxi	0	0	0	0	9	10	-1	-1	0	0	8	9
	Subway	52	52	8	8	18	20	-5	-4	0	0	73	76
	Bus	3	3	5	5	33	37	-4	-4	0	0	37	41
	Walk/Other	7	7	219	219	38	43	-9	-9	2	3	257	263
	Total	74	74	261	261	127	143	-27	-26	2	3	437	455
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	**Auto**	35	19	15	15	15	28	-6	-3	0	2	59	61
	Taxi	1	0	0	0	5	9	-1	0	0	0	5	9
	Subway	149	80	4	4	9	18	-3	-1	0	3	159	104
	Bus	7	4	3	3	17	32	-3	-1	0	0	24	38
	Walk/Other	19	10	116	116	20	36	-7	-4	0	1	148	159
	Total	211	113	138	138	66	123	-20	-9	0	6	395	371
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
SAT	**Auto**	23	23	13	13	22	23	-9	-9	0	0	49	50
	Taxi	1	1	2	2	7	7	0	-1	0	0	10	9
	Subway	100	100	6	6	13	14	-3	-4	1	0	117	116
	Bus	5	5	11	11	24	25	-4	-4	0	0	36	37
	Walk/Other	13	13	128	128	28	29	-10	-10	0	0	159	160
	Total	142	142	160	160	94	98	-26	-28	1	0	371	372
Vehicle Trips :													
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	**Auto**	9	35	4	4	21	13	-2	-2	2	0	34	50
	Taxi (Balanced)	1	1	0	0	10	10	0	0	0	0	11	11
	Truck	1	1	0	0	0	0	0	0	0	0	1	1
	Total	11	37	4	4	31	23	-2	-2	2	0	46	62
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	**Auto**	8	8	21	21	18	21	-4	-4	0	0	43	46
	Taxi (Balanced)	0	0	0	0	12	12	0	0	0	0	12	12
	Truck	1	1	0	0	0	0	0	0	0	0	1	1
	Total	9	9	21	21	30	33	-4	-4	0	0	56	59
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	**Auto**	32	17	11	11	9	18	-3	-1	0	2	49	47
	Taxi (Balanced)	1	1	0	0	9	9	0	0	0	0	10	10
	Truck	0	0	0	0	0	0	0	0	0	0	0	0
	Total	33	18	11	11	18	27	-3	-1	0	2	59	57
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
SAT	**Auto**	15	15	9	9	14	15	-4	-4	0	0	34	35
	Taxi (Balanced)	2	2	2	2	8	8	0	0	0	0	12	12
	Truck	0	0	0	0	0	0	0	0	0	0	0	0
	Total	17	17	11	11	22	23	-4	-4	0	0	46	47

Notes : 25% linked-trip credit applied to retail uses.

Transit

According to the general thresholds used by the Metropolitan Transportation Authority (MTA) and specified in the *CEQR Technical Manual*, detailed transit analyses are generally not required if a proposed action is projected to result in fewer than 200 peak hour rail or bus transit riders. If a proposed action would result in 50 or more bus passengers being assigned to a single bus route in one direction, or if it would result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed bus and/or subway analysis would be warranted. Transit analyses typically focus on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the subway and bus systems is usually highest.

As shown in **Table 3**, the Proposed Actions are expected to generate approximately 240 and 263 incremental subway trips in the weekday AM and PM peak hours. As these numbers of trips would exceed the 200-trip *CEQR Technical Manual* analysis threshold, a Level 2 screening analysis is warranted to determine which subway stations and routes would require quantified analysis. As also shown in **Table 3,** the Proposed Actions are expected to generate 66 and 62 incremental trips by bus in the weekday AM and PM peak hours. These trips would be distributed among up to four bus routes that operate in proximity to the proposed rezoning area—the Q19, Q69 and Q101 operated by MTA Bus Company, and the M60 Select Bus Service operated by New York City Transit (NYCT). It is therefore unlikely that the number of incremental trips in one direction on any one of these routes would exceed the 50-trip *CEQR Technical Manual* analysis threshold. Therefore, a detailed analysis of bus conditions under the Proposed Actions is not warranted.

Pedestrians

According to *CEQR Technical Manual* guidelines, a quantified analysis of pedestrian conditions is typically required if a proposed action would result in 200 or more peak hour pedestrian trips at any pedestrian element (sidewalk, corner area or crosswalk). As shown in **Table 3**, the Proposed Actions' RWCDS would generate an incremental demand of approximately 458, 747, 632 and 625 total pedestrian trips (including walk-only trips and pedestrians en route to/from the subway and bus stops) in the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. As the numbers of trips in each of these periods would exceed the 200-trip threshold, a Level 2 screening analysis is warranted to determine which pedestrian elements would require quantified analysis.

LEVEL 2 SCREENING ASSESSMENT

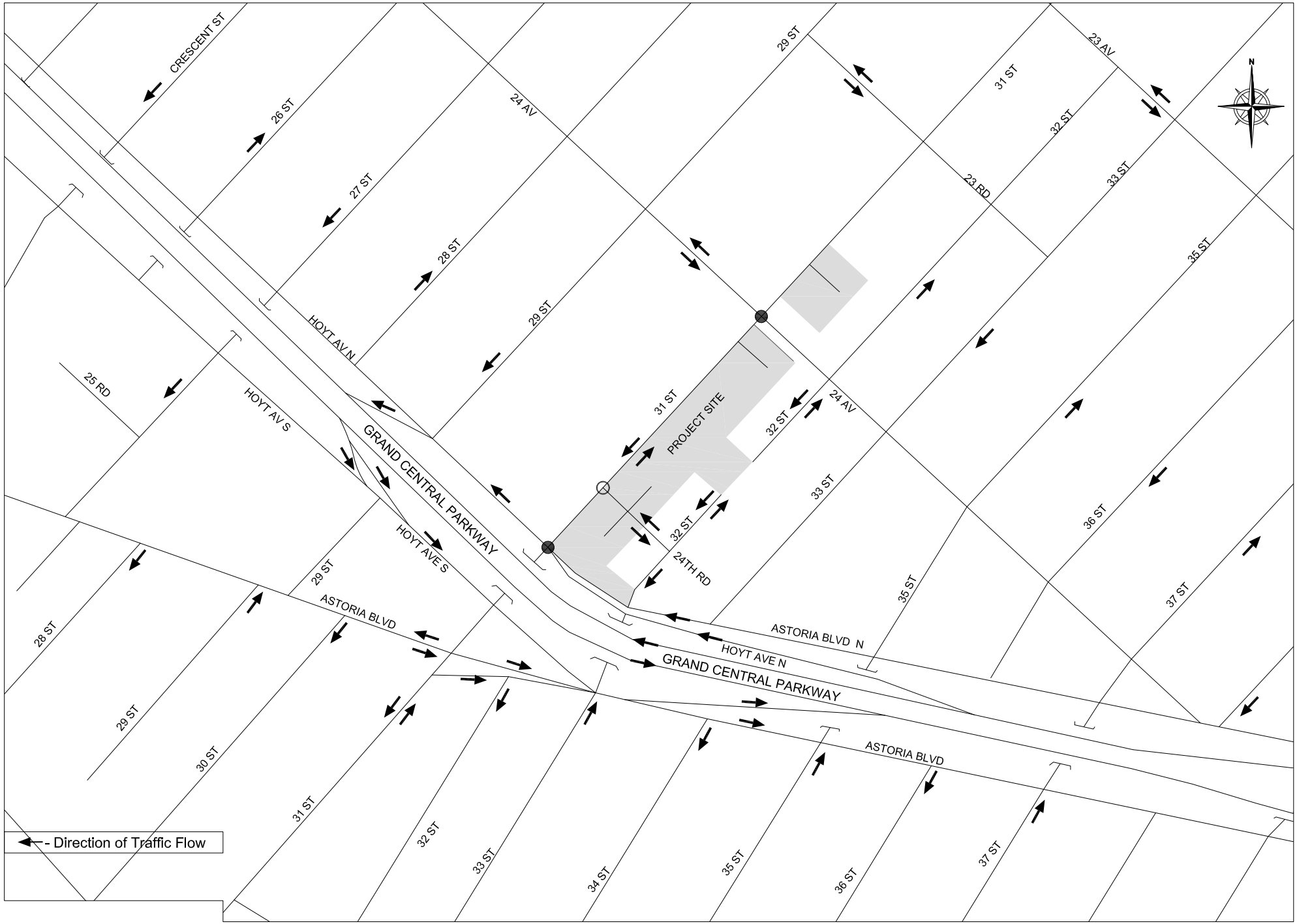
Traffic

Area Street Network

As shown in **Figure 2**, the street network in proximity to the Project Area is typically comprised of a regular grid pattern with the exception of the Grand Central Parkway and its service roads, which interrupt the street grid to the south. Most of the intersections in proximity to the Project Area along 31st Street are signalized. However, there are unsignalized intersections in the lower density residential area within proximity to the Project Area.

The Project Area is generally bounded by 31st Street to the west, Hoyt Avenue North/Astoria Boulevard North to the south, a line generally midway between 31st Street and 32nd Street and a line 200 feet from and parallel to 24th Avenue to the north. Additionally, 24th Road traverses the Project Area in the east-west direction

Figure 2
Street Network



parallel and to the north of Astoria Boulevard North. The street along the main frontage of all four Development Sites, **31st Street**, is a northbound/southbound two-way minor arterial that typically operates with one moving lane in each direction and parking along both curbs. **24th Avenue** is an eastbound/westbound two-way major collector that typically operates with one moving lane in each direction and parking along both curbs. **32nd Street** is a discontinuous street with two dead-ends midway between Astoria Boulevard North and 24th Avenue due to a large elevation change between Astoria Boulevard North to the south (where the street is a southbound one-way) and 24th Avenue to the north (where the street is northbound one-way). Parking is only permitted along the east curb of this narrow street. **24th Road** is a short two-way street connecting 31st Street and 32nd Street, with parking permitted along the south curb. This cross street would be fronted by two of the four Development Sites. **23rd Road**, located to the north of the Project Area, is a two-way, east-west street with parking along both curbs that connects 29th Street and 33rd Street.

Hoyt Avenue North/Astoria Boulevard North is the principal arterial in close proximity to the Development Sites. The two eastbound and westbound roads are separated by the Grand Central Parkway (I-278). Hoyt Avenue North/Astoria Boulevard North operates in the westbound direction with multiple lanes and parking along the north curb. This arterial provides access to/from the Grand Central Parkway and the Robert F. Kennedy Bridge. A stripped median with delineators separates the westbound approaches of Hoyt Avenue and Astoria Boulevard near 31st Street. West of 31st Street, the curb lane operates as a bus-only lane where the Q19 and M60-SBS buses operate along Hoyt Avenue/Astoria Boulevard. It should be noted that left-turns are prohibited at Hoyt Avenue North and 31st Street. Also, no left turns are permitted 7:00am-9:00am and 4:00pm-7:00pm, Monday through Friday, at the intersection of 31st Street (northbound) and Hoyt Avenue North. Hoyt Avenue/Astoria Boulevard is a DOT-designated Through Truck Route.

Traffic Assignment and Analyzed Intersections

As shown in **Table 3** and discussed above, the Proposed Actions' RWCDS is expected to result in a net incremental increase of approximately 108, 115, 116, and 93 in the weekday AM, midday, and PM, and Saturday peak hours, respectively. As these traffic volumes would exceed 50 trips in each peak hour (the *CEQR Technical Manual* Level 1 screening threshold for a detailed analysis), an assignment of net increment traffic volumes was prepared for each period to help identify individual intersections for analysis (a Level 2 screening assessment).

The assignments of auto and taxi trips to the street network in proximity to the Project Area were based on the anticipated origins and destinations of vehicle trips associated with the different land uses projected under the RWCDS (i.e., residential, office, medical office, local retail, and restaurant). The origins/destinations used for the assignment of residential trips were based on 2012-2016 AASHTO CTPP journey-to-work data for Queens Census Tracts 65.01, 65.02, 69, 71, 95, 97, 115, 117, 125, 137, 141, and 143. The origins/destinations used for the assignment of office trips were based on AASHTO CTTP reverse journey-to-work data for office uses. Origins/destinations for medical office, local retail and restaurant uses, which generate mostly local trips, were based on population density in proximity to the Project Area and surrounding neighborhoods within a one-mile radius. **Tables 4 and 5** show the directional distributions of auto and taxi trips by land use based on the origin/destination data. Using these distributions, auto and taxi trips were first assigned to various portals on the periphery of Astoria, and from there via the most direct route to the projected development sites. As the Proposed Actions' RWCDS includes on-site accessory parking, auto trips were assigned directly to the proposed parking garage entrances on 24th Road (Projected Development Sites 1 and 2) and on 31st Street (Projected Development Sites 3 and 4). Although some drivers may park on-street in the area or at nearby off-street public parking facilities, assigning all trips to the

projected development sites can be considered a conservative approach with respect to the traffic impact analysis as it concentrates project traffic at intersections in proximity to the Project Area rather than dispersing it to outlying streets.

Table 4
Directional Distributions of Auto/Taxi Trips for Residential and Office Uses

Land Use	Bronx	Brooklyn	Manhattan	Queens	Staten Island	Long Island	NJ/PA	Upstate	Other Out-of-State
Residential	4.5%	8.3%	13.1%	42.9%	0.0%	18.2%	4.0%	6.0%	3.1%
Office	0.0%	0.7%	0.0%	71.7%	0.0%	23.3%	0.0%	4.4%	0.0%

Table 5
Directional Distributions of Auto/Taxi Trips
for Medical Office, Local Retail and Restaurant Uses

Land Use	North	South	East	West
Medical Office/Local Retail/Restaurant	16.6%	34.3%	19.5%	29.6%

Taxis were generally assigned to the building frontages on 31st Street. Trucks were assigned to DOT-designated truck routes—i.e., Hoyt Avenue (a Through Truck Route)—and then to the most direct paths to and from the projected development sites.

The assignment of net incremental peak hour vehicle trips at intersections in proximity to the Project Area is shown in **Figure 3**. As shown in **Figure 3**, a total of three intersections (two signalized and one unsignalized) were selected for detailed analysis as they would exceed the 50-trip *CEQR Technical Manual* analysis threshold in one or more peak hours. These include the following:

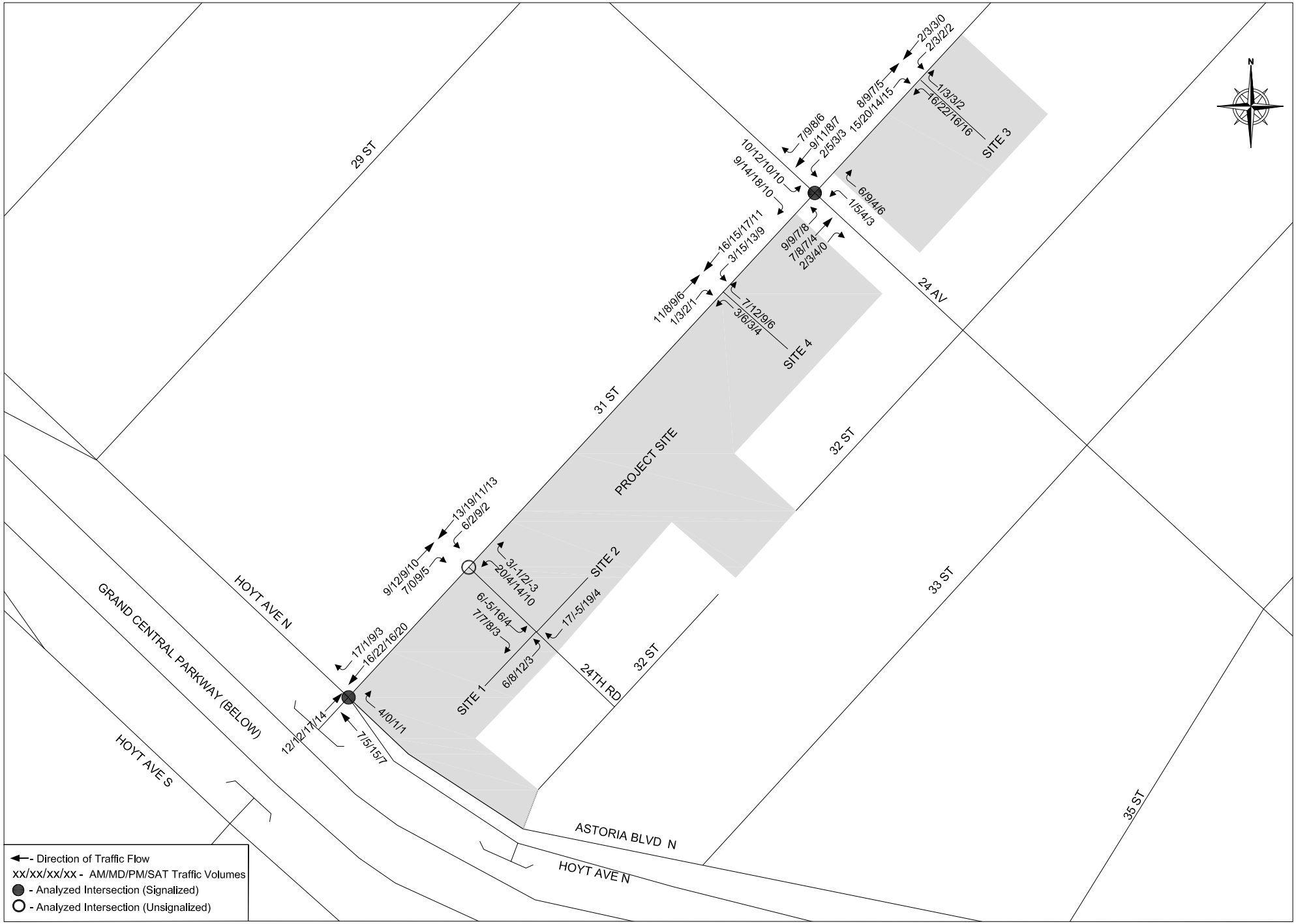
1. Hoyt Avenue North and 31st Street (signalized)
2. 31st Street and 24th Road (unsignalized)
3. 31st Street and 24th Avenue (signalized)

Transit

Subway Stations

According to the general thresholds used by the MTA and cited in the 2014 *CEQR Technical Manual*, if a proposed action would result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed subway analysis would be warranted. As shown in **Table 3**, the Proposed Actions are expected to generate a net total of approximately 240 and 263 incremental subway trips in the weekday AM and PM peak hours, respectively. These trips are expected to use NYCT's Astoria Boulevard subway station which is located on an elevated structure above 31st Street adjacent to the proposed rezoning area (see **Figure 7**). The station is served by N and W trains operating on the Astoria Line between Ditmars Boulevard in Astoria, South Ferry in Manhattan (W trains) and Coney Island, Brooklyn (N trains). As new subway demand from the Proposed Actions would likely exceed the 200-trip *CEQR Technical Manual* analysis threshold in the AM and PM periods at the Astoria Boulevard station, this station was selected for detailed analysis. Key circulation elements (e.g., stairs and fare arrays) expected to be used by concentrations of new demand from the Proposed Actions are analyzed.

Incremental Peak Hour Traffic Volumes



Subway Line Haul

As shown in **Table 3**, the Proposed Actions are expected to generate a net total of approximately 240 incremental subway trips in the weekday AM peak hour (63 inbound and 177 outbound), and 263 trips in the PM (159 inbound and 104 outbound). As these trips would be distributed between two subway routes—the N and the W operating on the Astoria Line—the number of incremental trips in the peak direction on either of these routes is not expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold. Therefore, significant adverse impacts to subway line haul conditions on these trains are not anticipated, and a detailed analysis of subway line haul conditions under the Proposed Actions is not warranted.

Pedestrians

As shown in **Table 3**, the Proposed Actions' RWCDS would generate an incremental demand of approximately 458, 747, 632 and 625 total pedestrian trips (including walk-only trips and pedestrians en route to/from the subway and bus stops) in the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. Given the numbers of incremental pedestrian trips that would be generated, a detailed analysis of pedestrian conditions under the Proposed Actions is warranted.

In the weekday AM and PM peak hours, new pedestrian trips would be most concentrated on sidewalks and crosswalks adjacent to projected development sites, as well as along the 31st Street corridor which connects these sites to entrance stairs at the Astoria Boulevard subway station. In the weekday midday and Saturday periods, pedestrian trips would tend to be more dispersed, as people travel throughout the area for lunch, shopping and/or errands. As shown in **Figure 4**, a total of six pedestrian elements (three sidewalks, one crosswalk and two corner areas) are expected to experience an increase of 200 or more trips in one or more peak hours and have therefore been selected for analysis. Conditions at these elements, which are listed below, will be analyzed for the weekday AM, midday and PM peak hours, and the Saturday peak hour.

Analyzed Sidewalks

- East Sidewalk on 31st Street between 24th Avenue and 23rd Road
- East Sidewalk on 31st Street between 24th Avenue and 24th Road
- East Sidewalk on 31st Street between 24th Road and Hoyt Avenue North

Analyzed Corner Area

- 24th Avenue and 31st Street – northeast, and southeast corners

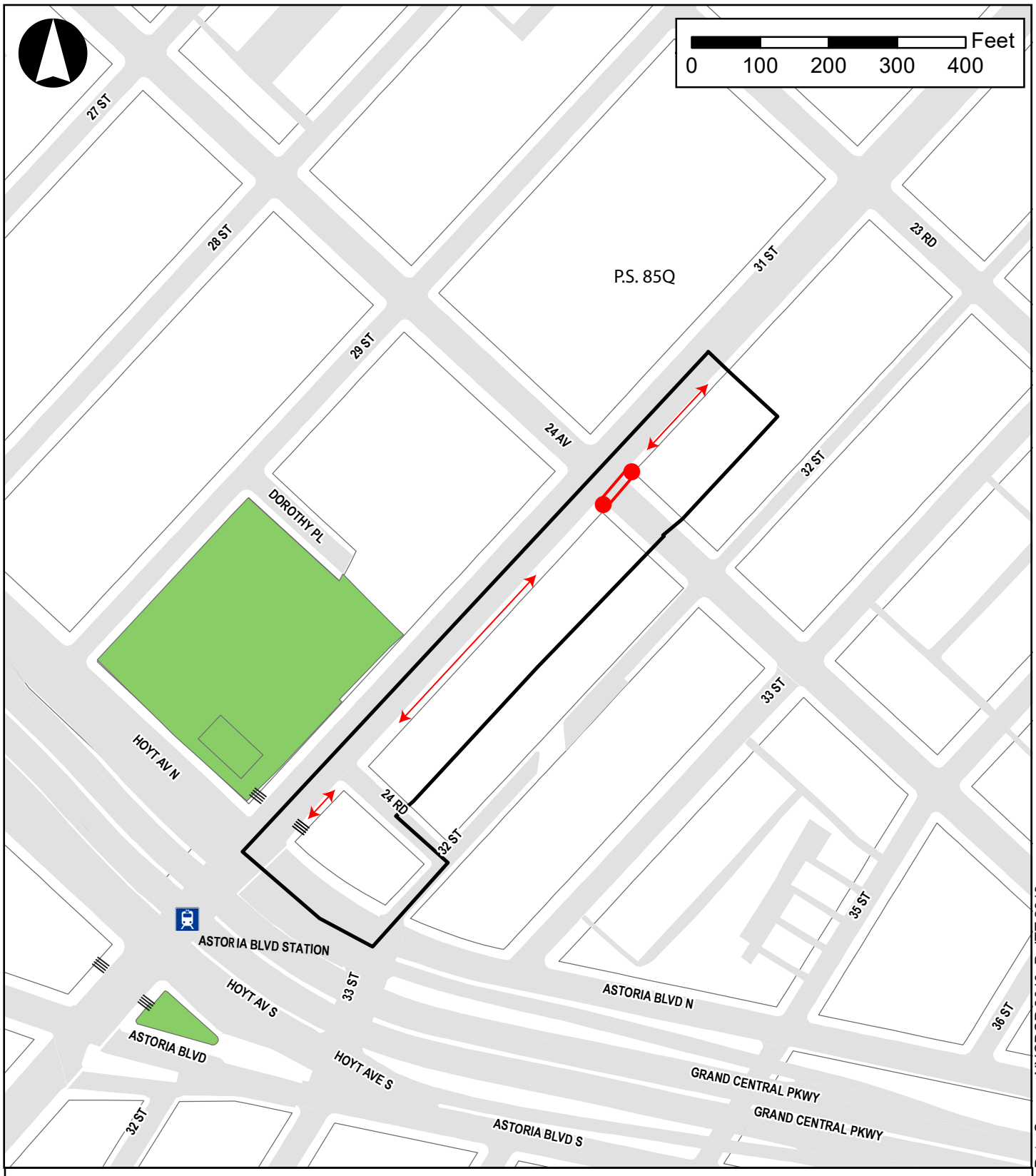
Analyzed Crosswalk

- 24th Avenue and 31st Street – east crosswalk

Vehicular and Pedestrian Safety

Under *CEQR Technical Manual* guidance, an evaluation of vehicular and pedestrian safety is needed for locations within the traffic and pedestrian study areas that have been identified as high crash locations. These are defined as locations with 48 or more total reportable and non-reportable crashes or where five or more pedestrian/bicyclist injury crashes have occurred in any consecutive 12 months of the most recent three-year period for which data are available. For these locations, crash trends will be identified to determine whether projected vehicular and pedestrian traffic would further impact safety, or whether existing unsafe conditions could adversely impact the flow of the projected new trips. The presence of an elementary school (P.S. 85Q) on 31st Street just north of the proposed rezoning area will also be considered in the assessment.

Figure 4
Analyzed Pedestrian Elements



Data Source: NYCDCP 2019; DoITT 2019

Parking

Parking demand from office, retail and medical office uses typically peaks in the midday period and declines during the afternoon and evening, while demand from restaurant uses typically peaks in the evening, and demand from residential uses typically peaks overnight. A parking demand forecast will be prepared to determine if the proposed 123 spaces of on-site accessory parking would be sufficient to accommodate all of the projected demand under the Proposed Actions' RWCDS. If it is determined that the on-site accessory parking supply would be insufficient to accommodate projected peak demand, the potential for the Proposed Actions to result in significant adverse parking impacts will be assessed.

APPENDIX A

REFERENCE MATERIAL

(1) 2009 National Household Travel Study (Table 16)

(2) 2000 Regional Travel Household Interview Survey (pages 20-21)



SUMMARY OF TRAVEL TRENDS

2009 National Household Travel Survey

U.S. Department of Transportation
Federal Highway Administration

The trend of declining vehicle occupancy may have started to reverse, as overall occupancy shows an increase in 2001 and 2009. In 2009, the rise in occupancy was the result of a significant rise in vehicle occupancy for social and recreational travel – changes in occupancy for other purposes were not noteworthy. The calculated occupancy in this table is miles-weighted, using the reported number of people on the trip and the length of the trip together.

Table 16. Average Vehicle Occupancy for Selected Trip Purpose 1977, 1983, 1990, and 1995 NPTS, and 2001 and 2009 NHTS (Person Miles per Vehicle Mile).

Trip Purpose	1977	1983	1990	1995	2001	2009	95% CI
To or From Work	1.3	1.29	1.14	1.14	1.14	1.13	0.01
Shopping	2.1	1.79	1.71	1.74	1.79	1.78	0.05
Other Family/Personal Errands	2	1.81	1.84	1.78	1.83	1.84	0.04
Social and Recreational	2.4	2.12	2.08	2.04	2.03	2.20	0.06
All Purposes	**1.9**	**1.75**	**1.64**	**1.59**	**1.63**	**1.67**	**0.03**

Note:

- All purposes includes other trip purposes not shown, such as trips to school, church, and work-related business.
- "Other Family/Personal Errands" includes personal business and medical/dental. Please see Appendix A - Glossary for definition.
- NPTS is Nationwide Personal Transportation Survey. CI is Confidence Interval.



RT-HIS
Regional Travel - Household Interview Survey

EXECUTIVE SUMMARY
GENERAL FINAL REPORT

Prepared for the New York Metropolitan Transportation Council (NYMTC) and the North Jersey Transportation Planning Authority (NJTPA)

prepared by:
Parsons Brinckerhoff Quade & Douglas, Inc.
in association with
Cambridge Systematics, Inc.
NuStats International

February 2000

EXECUTIVE SUMMARY:
GENERAL FINAL REPORT
for the
RT-HIS: REGIONAL TRAVEL - HOUSEHOLD INTERVIEW SURVEY

Prepared for the
New York Metropolitan Transportation Council
and the
North Jersey Transportation Planning Authority, Inc.

February 2000

NYMTC Transportation Models and Data Initiative: Task 12.6
NJTPA Regional Household Interview Survey: NJTPA Component

PRIME CONSULTANT: PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
ONE PENN PLAZA
NEW YORK, NEW YORK 10119

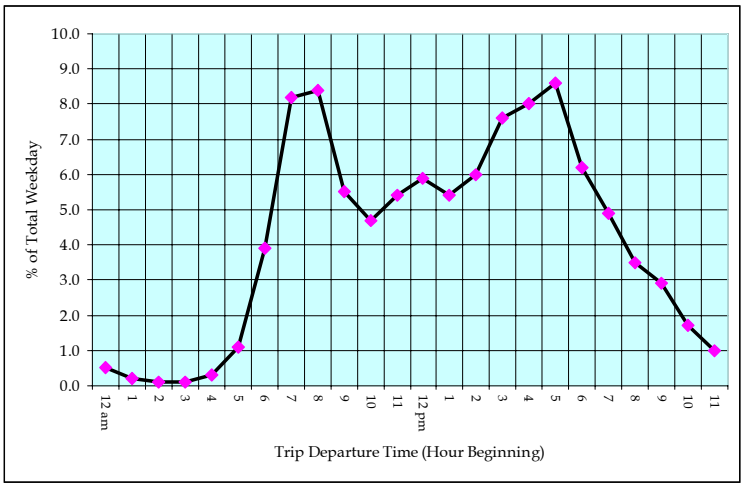
TASK SUPPORT: NUSTATS INTERNATIONAL
3006 Bee Caves Road, Suite A-300
Austin, TX 78746

This study is funded by a matching grant from the Federal Highway Administration, under NYSDOT PIN PT 1923.895, FHWA Grant PL100T (03) and NJDOT Agreement 93-TC-NJI-CO48, FHWA Agreement PL 0850011025, and Federal Transit Administration Grant PL NJ80X01000.

Focus on Auto Trips

- The two peak travel times for auto trips made by area residents peak in the morning between 8 and 9 am, and in the afternoon between 5 and 6 pm.

Diurnal Distribution - Hour of Departing - Auto Weekday Trips

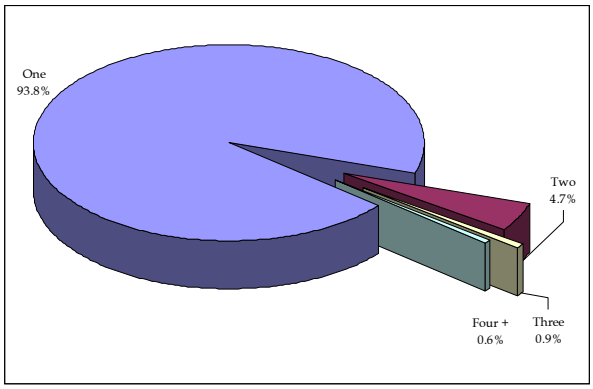


- The average auto vehicle trip is 8.7 miles long, and takes 21.0 minutes to complete at an average travel speed of 23.3 miles per hour.
- Auto trips in New York City are shorter (7.7 miles), but slower (16.4 mph) and take longer in time (27.5 minutes).
- About one-quarter (29.3%) of auto trips in the region are in the 1-3 mile range, about one-fifth (19.0%), in the 5-10 mile range, and one-tenth (9.6%) between 3 and 5 miles in length.
- New York City accounts for about 15% (4.0% Manhattan; 11.1% other NYC) of regional Vehicle Miles of Travel (VMT) by accounted for by area residents' automobiles.
- Trips from Long Island account for about 18% of VMT.
- The three counties of Middlesex, Morris, and Somerset in New Jersey represent about 13% of the total of auto VMT in the region.
- About 21% is associated with relatively long trips – 30 to 60 miles in length.
- Vehicle occupancy rates are reasonably uniform across the region, with most counties fairly close to the regional average of 1.40 persons per car for weekday travel.
- Vehicle occupancy rates are lower than average for trips in the longer trips in the 10 to 60 mile range (1.29 to 1.23). They are highest (1.52) for the very shortest trips under a mile and for the longest trips over 60 miles in length.
- For work travel, vehicle occupancy across the region is close to the average of 1.10.

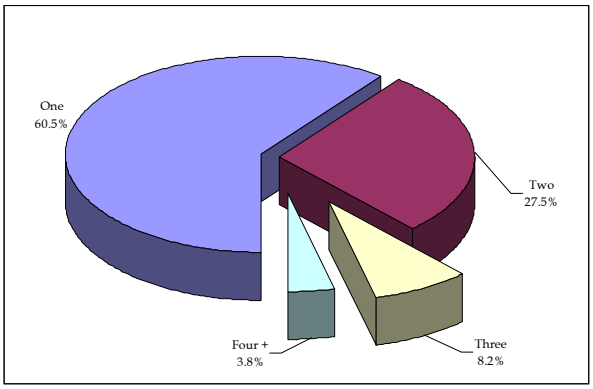
- Similarly, there is not a great deal of variation for non-work travel from the regional average of 1.57 persons per vehicle.
- About three-quarters (72.5%) of weekday auto trips are made as single occupant, or driver only trips; about one in five (19.2%) with a single passenger, and only 8.3% representing "HOV" auto trips with 3 or more occupants.
- Single Occupant Vehicle (SOV) auto trip shares generally increase with trip distance, and are the highest for work travel in the region at 93.7%.

Distribution of Auto Trips – by Number of Occupants

Work Trips



Other (non-Work) Trips



APPENDIX B

NEW YORK CITY LANDMARKS PRESERVATION COMMISSION

ENVIRONMENTAL REVIEW LETTER

Landmarks Preservation Commission

1 Centre Street
9th Floor North
New York, NY 10007

Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

ENVIRONMENTAL REVIEW

Project number: DEPARTMENT OF CITY PLANNING / LA-CEQR-Q
Project: ASTORIA 31 ST. REZONING
Date Received: 7/31/2020

Properties with no Architectural or Archaeological significance:

1) 23-95 31 STREET, BBL: 4008350001
2) 23-93 31 STREET, BBL: 4008350002
3) 23-91 31 STREET, BBL: 4008350003
4) 23-83 31 STREET, BBL: 4008350004
5) 23-79 31 STREET, BBL: 4008350007
6) 23-77 31 STREET, BBL: 4008350008
7) 31-05 31 STREET, BBL: 4008370009
8) 32 STREET, BBL: 4008370016
9) 24-29 31 STREET, BBL: 4008370027
10) 24-17 31 STREET, BBL: 4008370038
11) 31 STREET, BBL: 4008370039
12) 31 STREET, BBL: 4008370041
13) 31 STREET, BBL: 4008370042
14) 24-11 31 STREET, BBL: 4008370043
15) 24-09 31 STREET, BBL: 4008370044
16) 24-07 31 STREET, BBL: 4008370045
17) 24-05 31 STREET, BBL: 4008370046
18) 24-03 31 STREET, BBL: 4008370047
19) 24-01 31 STREET, BBL: 4008370048
20) 31-10 24 AVENUE, BBL: 4008370049

Comments:

S/NR LISTED BOHEMIAN HALL AND PARK, 29-19 24 AVENUE AND S/NR ELIGIBLE P.S. 85, 23-70 31 STREET WITHIN RADIUS.

Gina Santucci 8/7/2020

SIGNATURE DATE
Gina Santucci, Environmental Review Coordinator

File Name: 35089_FSO_DNP_08072020.docx