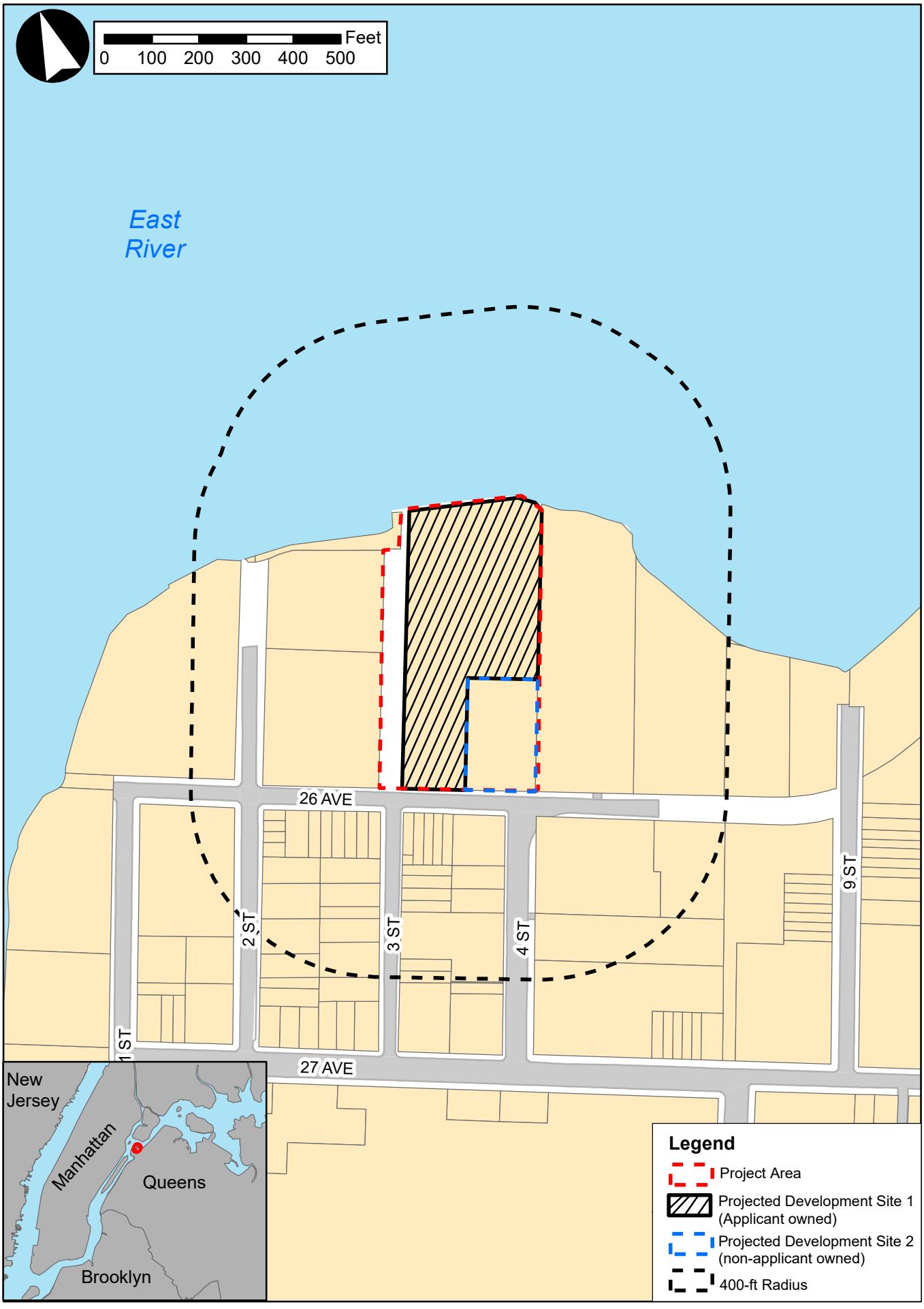
A. INTRODUCTION

This chapter describes the transportation characteristics and potential impacts associated with the Proposed Actions, a zoning map amendment, a zoning text amendment, waterfront special permits, authorization to modify waterfront public access area requirements, authorization for waterfront phased development and a Chairperson's waterfront certification (collectively, the "Proposed Actions"). As described in Chapter 1, "Project Description," the Proposed Actions would facilitate a new mixed-use, predominantly residential, development (the "Proposed Project") on the Applicant-owned Block 911, Lot 1 (the "Projected Development Site 1") in the Astoria neighborhood of Queens Community District 1; the Proposed Actions would also affect the non-Applicant-owned Lot 49 (the "Projected Development Site 2"), which is also expected to be redeveloped as a new mixed-use, predominantly residential building. Together, these lots (Lots 1 and 49) comprise the "Project Area" (refer to **Figure 11-1**). As currently envisaged, the Proposed Project would include up to approximately 1,130,462 gross square feet (gsf) of residential uses (1,400 dwelling units [DUs], of which 350 units would be designated as permanently affordable), approximately 1,887 gsf of local retail uses, approximately 22,638 gsf of community facility space, approximately 525 accessory parking spaces, and approximately 41,363 sf (0.95 acres) of publicly accessible open space. In conjunction with the Proposed Project, the mapped but unbuilt portion of 3rd Street between 26th Avenue and the waterfront, which is privately owned, would be demapped and built to provide public vehicular and pedestrian access to the Proposed Project and the waterfront. The Proposed Project would be accessible via entrances/exits on the north side of 26th Avenue and the east side of 3rd Street fronting Projected Development Site 1. The proposed 0.95-acre publicly accessible open space would include a waterfront esplanade that would run along the entire length of Projected Development Site 1, providing multi-layered active and passive recreation space. The Proposed Project would be comprised of three towers located along the waterfront north of 26th Avenue. The towers will range in height from 23-stories (238-feet-tall) on the southern portion of Projected Development Site 1 to a maximum of 34-stories (350-feet-tall) on the waterfront.[1] Parking for the Proposed Project would be above-grade and accessed via 3rd Street and 26th Avenue. Additionally, the approximately 34,853-sf Lot 49, Projected Development Site 2, would be redeveloped with 219,296 gsf mixed-use building containing 265 DUs (of which, 66 would be affordable), approximately 15,000 gsf of commercial retail use and 115 required accessory parking spaces. As described in more detail in **Chapter 1, "Project Description"**, the incremental (net) change that would result from the Proposed Actions is a net incremental increase of 1,665 DUs, 16,887 gsf of local retail space, 22,638 gsf of community facility space, 41,363 sf of waterfront open space, 544 accessory parking spaces within the Project Area, as well as a 201,362-gsf net decrease of warehouse space. The With-Action development will include a shuttle service for residents at Projected Development Site 1 during the AM and PM commuter peak periods. The proposed shuttle service will have two bus stops, one located at the dead-end of the 3rd Street (on the Development Site 1) and another

[1] It should be noted that, while the illustrative building heights of the Proposed Project described in the Draft Scope of Work range between 230 feet and 350 feet in height, the proposed height, setback, and tower size waivers established in the proposed waterfront special permit would permit maximum building height envelopes for the three towers that would range between 238 feet and 350 feet in height. As such, the maximum permitted building height envelopes will be used for CEQR analysis purposes throughout this document, unless otherwise noted.

Figure 11-1
Project Location



located at the northwest corner of 30th Avenue and 31st Street (near the 30th Avenue subway station). The Applicant would commit to the provision of the shuttle service through the Restrictive Declaration.

This chapter describes in detail the existing transportation conditions in proximity to the Project Area. Future conditions in the year 2031 without the Proposed Actions (the No-Action condition) are then determined, including additional transportation-system demand and any changes expected by the year 2031. The increase in travel demand resulting from the Proposed Actions is then projected and added to the No-Action condition to develop the 2031 future with the Proposed Actions (the With-Action condition). Significant adverse impacts from action-generated trips are then identified and described in detail. **Chapter 18, "Mitigation"** discusses practicable measures to address these impacts.

B. PRINCIPAL CONCLUSIONS

Traffic

The Proposed Actions are expected to result in net incremental increases of approximately 361, 259, 375, and 333 vehicle trips in the weekday AM, midday, PM, and Saturday peak hours, respectively. Traffic conditions were evaluated for the weekday 8 to 9 AM, 1 to 2 PM, and 4:45 to 5:45 PM and Saturday 2 to 3 PM peak hours at 26 intersections in the traffic study area where additional traffic resulting from the Proposed Actions would be most heavily concentrated with 50 or more trips. The traffic impact analysis indicates that during the AM peak hour, a total of 32 lane groups at 18 intersections are expected to be significantly adversely impacted. A total of 14 lane groups at 10 intersections are expected to be significantly adversely impacted in the weekday midday peak hour. During the weekday PM peak hour, a total of 30 lane groups at 17 intersections are expected to be significantly adversely impacted. A total of 20 lane groups at 12 intersections are expected to be significantly adversely impacted in the Saturday midday peak hour. In all, a total of 41 lane groups would be significantly adversely impacted at 20 intersections (13 signalized and seven unsignalized) during one or more analyzed peak hours. **Chapter 18, "Mitigation,"** discusses potential measures to mitigate these significant adverse traffic impacts.

Transit

Subway

The analysis of subway conditions focuses on the 30th Avenue (N/W) New York City Transit (NYCT) subway station in proximity to the Project Area and the N/W subway route, where incremental demand from the Proposed Actions would exceed the 200-trip *City Environmental Quality Review* (CEQR) *Technical Manual* analysis threshold in AM and PM commuter peak hours.

<u>Subway Station</u>

In the future with the Proposed Actions at the 30th Avenue station, the M3-S3 street stairs at the northwest corner of 31st Street and 30th Avenue is projected to operate at level of service (LOS) E with a v/c ratio of 1.45 in the PM peak hour, and the threshold on this stairs would exceed *CEQR Technical Manual* impact criteria and would be considered significantly adversely impacted. The P1-P2 platform stairs leading to the Manhattan-bound trains at the 30th Avenue station is projected to operate at LOS E with a v/c ratio of 1.48 in the AM peak hour, and these stairs would be considered significantly adversely impacted by action-generated demand in the AM peak hour. The P3-P4 platform staircase from the

Astoria-Ditmars-bound trains at the 30th Avenue station is projected to operate at LOS E with a v/c ratio of 1.46 in the PM peak hour, and would exceed *CEQR Technical Manual* impact criteria, and both would be considered significantly adversely impacted by action-generated demand in the PM peak hour. All other analyzed stairs, and the analyzed fare arrays at the 30th Avenue station are projected to operate at acceptable levels during the AM and PM peak hour in the With-Action condition and would not be significantly adversely impacted by the Proposed Actions based on *CEQR Technical Manual* criteria. **Chapter 18, "Mitigation**," discusses potential measures to mitigate these significant adverse traffic impacts.

Subway Line Haul

The Project Area is served N/W subway route on the BMT Astoria Line. The peak direction of travel is typically Manhattan-bound (southbound) in the AM peak hour and Astoria-Ditmars-bound (northbound) in the PM peak hour. In the With-Action condition, southbound N/W trains are expected to be operating over capacity in the AM peak hour, and would experience an average incremental increase of 3.46 persons/car during this period, less than the five persons/car *CEQR Technical Manual* impact threshold, and would therefore not be considered significantly adversely impacted. The northbound N/W trains are expected to be operating below capacity with average incremental increase of 3.21 persons/car during the PM peak hour and would therefore also not be significant adversely impacted by the Proposed Actions in the PM hour.

Bus

The Project Area is served by the Q18, Q19, Q102, and Q103 operated by the MTA Bus Company. The Proposed Actions would generate a net total of approximately 92 AM bus trips and 106 PM bus trips, and a portion of the 796 AM and 886 PM subway trips on these routes. A preliminary screening assessment concluded that new demand from the Proposed Actions would exceed the 50-trip per direction *CEQR Technical Manual* analysis threshold in the AM and/or PM peak hour along the Q18, Q19, and the Q103 routes.

Based on projected levels of bus service in the No-Action condition, the Proposed Actions would result in a passenger capacity shortfall of 16 on the eastbound Q18, twelve on the northbound Q103, and 46 on the southbound Q103 buses in the AM peak hour. The Proposed Actions would also result in a passenger capacity shortfall of 63 on the northbound Q103 and 45 on the southbound Q103 buses in the PM peak hour. Therefore, based on *CEQR Technical Manual* impact criteria, the eastbound Q18, northbound Q103 and southbound Q103 buses would be significantly adversely impacted in the AM peak hour, as well as the northbound Q103 and southbound Q103 buses in the PM peak hour. The significant adverse impact to these buses could be fully mitigated by the addition of one or two buses in each direction during the AM and PM peak hours. As further discussed in **Chapter 18, "Mitigation,"** the general policy of the MTA is to provide additional bus service where demand warrants, taking into account financial and operational constraints.

Pedestrians

The Proposed Actions would generate a net increment of 281 walk-only trips during the weekday AM peak hour, 588 in the midday peak hour, 474 in the PM peak hour, and 533 during the Saturday peak hour. New pedestrian trips to sidewalks, corner, and crosswalks in the vicinity of the Project Area would total 751, 1,101, 1,007, and 1,468 (including persons to/from bus, subway, ferry and "walk only"; in and out

combined) during the weekday AM, midday, PM, and Saturday midday peak hours, respectively. Peak hour pedestrian conditions were evaluated at a total of 19 representative pedestrian elements where new trips generated by the Projected Development are expected to be most concentrated. These elements—eleven sidewalks, five corner areas, and three crosswalks—are primarily located in the vicinity of the Project Area and along corridors connecting the site to area subway station entrances and bus stops. Two sidewalks, three crosswalks, and one corner would be significantly adversely impacted by the Proposed Actions in one or more analysis peak hours. The impacted sidewalks are the west sidewalk of 4th Street between 26th Avenue and 27th Avenue, and the north sidewalk of 27th Avenue between 3rd Street and 4th Street, which would be impacted in the Saturday and weekday midday peak hours, respectively. The impacted corner is the northeast corner of 27th Avenue and 4th Street, which would be impacted in the weekday midday peak hour. The impacted crosswalks are the north, east, and west crosswalks at 27th Avenue and 4th Street, which would be impacted in the weekday midday and Saturday peak hours. Potential measures to mitigate these significant adverse pedestrian impacts are discussed in **Chapter 18, "Mitigation."**

Street User Safety

Under the Vision Zero Queens Pedestrian Safety Action Plan and the Boroughs Pedestrian Safety Action Plan Update released in 2019, much of the Project Area is located outside a designated Priority Area where safety issues were found to occur systematically at an area-wide level. 21st Street is currently identified as a Priority Corridor.

Crash data for intersections in the pedestrian study area were obtained from the New York City Department of Transportation (DOT) for the three-year period between January 1, 2016, and December 31, 2018 (the most recent three-year period for which data are available). During this period, a total of 182 reportable and non-reportable crashes, 522 pedestrian/bicyclist-related injury crashes and no fatalities occurred at intersections in the traffic and pedestrian study area.

Under *CEQR Technical Manual* guidance, high crash locations are defined as those with 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurring in any consecutive 12 months of the most recent three-year period for which data are available. No intersections located within the traffic and pedestrian study areas were identified as high accident locations by the New York City Department of Transportation (NYCDOT). However, it likely that pedestrians en route to and from Proposed Development Site 1 would choose to cross 26th Avenue at this more proximate location where a crosswalk is not present (there are no existing crosswalks on 26th Avenue). This would result in a pedestrian safety concern. It should be noted that an intersection, like 26th Avenue and 3rd Street, where incremental pedestrian trips are expected to traverse uncontrolled intersections, that does not warrant new control as mitigation measure, are considered pedestrian safety concerns. **Chapter 18, "Mitigation"** addresses potential measures to address these safety concerns.

Parking

The parking analyses document changes in the parking supply and utilization in within a ¼-mile and ½-mile of the Project Area under both No-Action and With-Action conditions. Under the With-Action conditions, it is assumed that a total of 640 parking spaces would be provided on the Project Area. The total anticipated project-generated overnight parking demand of approximately 699 vehicles would exceed on-site supply by 59 vehicles and the surplus demand would have to be accommodated in the parking study area surrounding the Project Area. During the overnight period, this excess demand would

further exacerbate the No-Action parking deficit from 280 spaces under the No-Action conditions to 348 spaces within the ¼-mile radius of the Project Area, and from 499 spaces under the No-Action conditions to 567 spaces within the ½-mile radius of the Project Area. This shortfall would not be considered significant given the availability of alternative modes of transportation (including local bus routes and a proposed shuttle bus to N/W trains and the nearby ferry landing) and the magnitude of the shortfall (approximately one percent of ½-mile study area's capacity). The Projected Development is expected to result in a parking shortfall per *CEQR Technical Manual* guidance.

C. PRELIMINARY ANALYSIS METHODOLOGY

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) forecast 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 or line, 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, parking, and vehicular and pedestrian safety.

D. 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. These estimates were then compared to the *CEQR Technical Manual* analysis thresholds to determine if a Level 2 screening and/or quantified operational analyses would 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 Proposed Actions. A detailed travel demand forecast is then provided for the Proposed Actions.

Transportation Planning Factors

The transportation planning factors used to forecast travel demand for the Projected Development's land uses are summarized in **Table 11-1**. The trip generation rates, temporal distributions, modal splits, vehicle occupancies, and truck trip factors for each of the land uses were primarily based on those cited in the 2020 *CEQR Technical Manual*, 2014-2018 American Community Survey (ACS) Journey-to-Work data, 2012-2016 AASHTO CTPP Reverse Journey-to-Work data, factors developed for recent environmental reviews, New York City Department of Transportation (NYDOT) survey data and guidance. 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). Additional details on the

transportation planning factors used for the travel demand forecast are presented in the *Transportation Planning Factors Memorandum*.

Residential

The forecast of travel demand for residential portion of the RWCDS used a weekday trip generation rate of 8.075 person trips per DU, a Saturday trip generation rate of 9.6 person trips per DU and temporal distributions of 10 percent, 5 percent, 11 percent and 8 percent for the weekday AM, midday, PM and Saturday peak hours, respectively, as per the *CEQR Technical Manual*.

The residential vehicle occupancy of 1.08 and modal splits were based on 2014-2018 American Community Survey (ACS) Journey-to-Work data for Queens Census Tracts 83, 87 and 91. It should be noted that, as Tracts 83, 87 and 91 are generally low density and the census data for these tracts do not reflect recent trends towards lower auto ownership in high density residential districts. As such, the residential mode choice has been adjusted to reflect characteristics of high density residential developments in western Queens similar to the Proposed Project. Furthermore, a shuttle to/from the 30th Avenue subway station (N and W trains) is included as part of the Proposed Project and the new Astoria ferry landing is located within walking distance of the Project Area (approximately a quarter mile south). In addition, as part of the Proposed Project, the Applicant is exploring on-site car and bike share options – both of which are expected to reduce auto share. Additionally, all 1,400 proposed DUs of Project Development Site 1 would be rental units (which typically have lower auto ownership per household than owner-occupied units) and approximately 25 percent would be affordable. Based on these factors, it is estimated that the mode choice will be 19.8 percent, 0.7 percent, 59.5 percent, 6.0 percent, 4.0 percent and 10.0 percent for autos, taxis, subway, bus, ferry and walk/bike/other, respectively. The in/out split was based NYCDOT citywide residential survey data and the taxi occupancy rate was based on data from the *East New York Rezoning FEIS* (2016). Truck trip generation rates and temporal distribution were also based on *CEQR Technical Manual* guidance.

Local Retail

The forecast of travel demand for the proposed retail use used a weekday trip generation rate of 205 person trips per 1,000 gsf, a Saturday trip generation rate of 240 person trips per 1,000 gsf and temporal distributions of 3 percent, 19 percent, 10 percent and 10 percent for the weekday AM, midday, PM and Saturday peak hours, respectively, as per the *CEQR Technical Manual*. The retail modal splits for the weekday AM, midday and PM peak hours – estimated to be 11.0 percent, 0.0 percent, 4.0 percent, 3.0 percent and 82.0 percent mode shares for private auto, taxi/drop-off, subway, bus and walk-only modes, respectively – were based on local retail data provided by the NYCDOT, as were the Saturday mode split (8.0 percent, 0.0 percent, 7.0 percent, 4.0 percent and 81.0 percent for the same modes, respectively) and the vehicle occupancy of 1.40 for private autos and taxis. Local retail in/out splits were based on data from the *East New York Rezoning FEIS* (2016). Truck trip generation for the proposed residential use was based on *CEQR Technical Manual* guidance.

Community Facility

The forecast of travel demand for community facility (medical office assumed) used a weekday trip generation rate based on the following equation: 141.77 + 66.626 x gsf (in thousands), and a Saturday trip generation rate of 39.0 trips per 1,000 gsf, respectively. Medical office temporal distributions of 11.0 percent, 13.0 percent, 9.0 percent and 17.0 percent were used for the weekday AM, midday, PM and

Saturday peak hours, respectively. Modal splits of 62.0 percent, 7.0 percent, 1.0 percent, 6.0 percent, 0.0 percent and 24.0 percent for auto, taxi, subway, bus, ferry and walk/bike/other, respectively. Trip generation, temporal distribution and mode split, as well as directional in/out splits and vehicle occupancy, were provided by the NYCDOT. Rates from the *East New York Rezoning FEIS* (2016) were used to estimate truck trip generation and temporal distributions.

Warehouse

As detailed above, under the No-Action scenario, the existing warehouse on Lot 49 (Projected Development Site 2) would be reoccupied with warehouse uses. Additionally, in the future without the Proposed Actions, Lot 1 (Projected Development Site 1) would be redeveloped with an as-of-right warehouse use. **Table 11-1** also details the transportation planning factors for the net decrease in 201,362 gsf of these warehouse uses that would occur within the Project Area as a result of the Proposed Actions. Per NYCDOT guidance, the *ITE Trip Generation Manual, 10th Edition*, Land Use Code 150 (Warehousing) was used to determine the trip generation rates, temporal distributions, in/out splits, truck trip generation rates and truck temporal distribution tin order to forecast the decrease in warehouse travel demand. Furthermore, the person trip and truck trip generation rates were adjusted based on NYCDOT trip generation survey data. The modal splits was based on 2012-2016 AASHTO CTPP Reverse Journey-to-Work data and the vehicle occupancy rates were based on data from the *East New York Rezoning FEIS* (2016).

Open Space

Based on the *CEQR Technical Manual*, the travel demand forecast for the publically accessible open space to be provided by the Proposed Project used weekday and Saturday trip generation rates of 44 and 62 per 1,000 gsf, respectively, and temporal distributions of 3 percent, 5 percent, 6 percent and 6 percent for the weekday AM, midday, PM and Saturday peak periods, respectively. Modal split, in/out split, and vehicle occupancy were based on data from the *Domino Sugar Rezoning FEIS* (2010). Truck trip generation rates and temporal distribution were based on the *Hunter's Point South Rezoning and Related Actions FEIS* (2008).

Trip Generation

The net incremental change in person and vehicle trips expected to result from the Proposed Actions by the 2031 analysis year was derived based on the land uses described above and the transportation planning factors shown in **Table 11-1**. **Table 11-2** shows an estimate of the net incremental change in peak hour person trips and vehicle trips (versus the No-Action condition) that would occur in 2031 with implementation of the Proposed Actions.

As shown in **Table 11-2**, the Proposed Actions would generate a net increase of approximately 1,614 person trips (in + out combined) in the weekday AM peak hour, 1,432 in the weekday midday, 1,946 in the weekday PM peak hour, and 1,876 in the Saturday peak hour. Peak hour vehicle trips (including auto, bus, truck, and taxi trips) would increase by a net total of approximately 361, 259, 375, and 333 (in + out combined) in the weekday AM, midday, and PM and Saturday peak hours, respectively.

Peak hour subway trips would increase by a net total of 796, 416, 886 and 782 during these periods, respectively, while bus trips would increase by approximately 92, 71, 106 and 102, respectively. Trips made entirely on foot (walk-only trips) would increase by 281, 588, 474 and 533 during the weekday AM, midday, and PM and Saturday peak hours, respectively.

Since these numbers of peak hour trips would exceed the *CEQR Technical Manual* analysis thresholds for vehicular traffic, transit, and pedestrians, a Level 2 screening assessment was undertaken to identify specific locations where additional detailed analyses may be warranted.

TABLE 11-1
Transportation Planning Factors

Land Use:	Community Facility*		Residential		Local Retail		Warehouse		Open Space	
Size/Units:	22,638 gsf		1,665 DUs		16,887 gsf		-201,362 gsf		41,363 gsf	
Trip Generation:	(1)		(3)		(3)		(7)(8)		(3)	
Weekday	(See note)		8.075		205.0		2.36		44.0	
Saturday	39.0		9.6		240.0		0.2		62.0	
	per 1,000 gsf		per DU		per 1,000 gsf		per 1,000 gsf		per acre	
Temporal Distribution:	(1)		(3)		(3)		(7)		(3)	
AM	11.0%		10.0%		3.0%		10.0%		3.0%	
MD	13.0%		5.0%		19.0%		9.0%		5.0%	
PM	9.0%		11.0%		10.0%		11.0%		6.0%	
SAT	17.0%		8.0%		10.0%		33.0%		6.0%	
	(1)		(4)		(6)		(10)		(11)	
Modal Splits:	All Periods		All Periods		AM/MD/PM	SAT	All Periods		All Periods	
Auto	62.0%		19.8%		11.0%	8.0%	46.9%		5.0%	
Taxi	7.0%		0.7%		0.0%	0.0%	1.5%		5.0%	
Subway/Shuttle	1.0%		59.5%		4.0%	7.0%	28.4%		5.0%	
Bus	6.0%		6.0%		3.0%	4.0%	5.5%		5.0%	
Ferry	0.0%		4.0%		0.0%	0.0%	0.0%		0.0%	
Walk/Bike/Other	24.0%		10.0%		82.0%	81.0%	17.7%		80.0%	
	100.0%		100.0%		100.0%	100.0%	100.0%		100.0%	
	(1)		(5)		(2)		(7)		(11)	
In/Out Splits:	In	Out	In	Out	In	Out	In	Out	In	Out
AM	62.0%	38.0%	24%	76%	50%	50%	77%	23%	50%	50%
MD	47.0%	53.0%	50%	50%	50%	50%	53%	47%	50%	50%
PM	35.0%	65.0%	61%	39%	50%	50%	27%	73%	50%	50%
SAT	49.0%	51.0%	45%	55%	55%	45%	64%	36%	50%	50%
Vehicle Occupancy:	(1)		(4)(2)		(6)		(2)		(11)	
	All Periods		All Periods		All Periods		All Periods		All Periods	
Auto	1.50		1.08		1.40		1.30		2.00	
Taxi	1.50		1.30		1.40		1.30		2.00	
Truck Trip Generation:	(2)		(3)		(3)		(7)(8)(9)		(12)	
Weekday	0.29		0.06		0.35		0.91		0.02	
Saturday	0.29		0.02		0.04		0.08		0.02	
	per 1,000 sf		per DU		per 1,000 sf		per 1,000 sf		per acre	
Truck Temporal Distribution:	(2)		(3)		(3)		(7)		(12)	
AM	3.0%		12.0%		8.0%		9.9%		6.0%	
MD	11.0%		9.0%		11.0%		8.0%		6.0%	
PM	1.0%		2.0%		2.0%		7.0%		1.0%	
SAT	0.0%		9.0%		11.0%		28.0%		6.0%	
Truck In/Out Split:	In	Out	In	Out	In	Out	In	Out	In	Out
AM	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	67.0%	33.0%	50.0%	50.0%
MD	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	57.0%	43.0%	50.0%	50.0%
PM	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	60.0%	40.0%	50.0%	50.0%
SAT	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	42.0%	58.0%	50.0%	50.0%

Notes :

(1) Based on NYCDOT medical office trip generation & mode choice data. Weekday est. daily trip = 141.77 + 66.626 x gross SF (in thousands)
(2) Based on data from *East New York Rezoning FEIS* (2016)
(3) Based on 2020 *City Environmental Quality Review (CEQR) Technical Manual*
(4) 2014-2018 ACS Journey-to-Work data for Queens Census Tracts 83, 87 & 91 adjusted for characteristics of the project
(5) Based on NYCDOT citywide residential survey data
(6) Based on NYCDOT Local Retail Mode Choice Surveys
(7) Based on data from *ITE Trip Generation Manual, 10th Edition,* Land Use Code 150 (Warehousing)
(8) Included 1.51 adjustment factor per NYCDOT Trip Generation Survey
(9) Adjusted per the ratio between weekday and Saturday based on information from the *ITE Generation Handbook, 10th Edition*
(10) Based on 2012-2016 AASHTO CTPP Reverse Journey-to-Work data for Queens Census Tracts 83, 87 & 91
(11) Based on data from the *Domino Sugar Rezoning* (2010)
(12) Based on data from the *Hunter's Point South Rezoning and Related Actions FEIS* (2008)

* Assumes medical office use

TABLE 11-2
Travel Demand Forecast (Net Incremental Trips)

Land Use:		Community Facility		Residential		Local Retail*		Warehouse		Open Space		Total	
Size/Units:		22,638	gsf	1,665	DUs	16,887	gsf	-201,362	gsf	41,363	gsf		
Peak Hour Person Trips:													
	AM	182		1,346		78		-48		56		1,614	
	MD	216		674		494		-44		92		1,432	
	PM	150		1,480		260		-54		110		1,946	
	SAT	152		1,280		304		-14		154		1,876	
Person Trips:													
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	**Auto**	70	43	64	202	5	4	-18	-5	1	1	122	245
	Taxi	8	5	2	7	0	0	0	0	1	1	11	13
	Subway	1	1	192	611	1	1	-10	-3	1	1	185	611
	Bus	7	4	19	61	1	1	-2	-1	1	1	26	66
	Ferry	0	0	13	41	0	0	0	0	0	0	13	41
	Walk/Other	26	17	32	102	33	32	-7	-2	24	24	108	173
	Total	112	70	322	1,024	40	38	-37	-11	28	28	465	1,149
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	**Auto**	63	72	67	67	27	27	-10	-9	2	2	149	159
	Taxi	7	8	2	2	0	0	0	0	2	2	11	12
	Subway	1	1	202	202	10	10	-8	-6	2	2	207	209
	Bus	6	7	20	20	8	8	-1	-1	2	2	35	36
	Ferry	0	0	13	13	0	0	0	0	0	0	13	13
	Walk/Other	24	27	33	33	203	201	-5	-4	38	38	293	295
	Total	101	115	337	337	248	246	-24	-20	46	46	708	724
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	**Auto**	33	58	178	114	15	15	-7	-19	3	3	222	171
	Taxi	4	7	7	5	0	0	0	-1	3	3	14	14
	Subway	1	1	537	344	6	6	-4	-11	3	3	543	343
	Bus	3	6	54	34	3	3	-1	-2	3	3	62	44
	Ferry	0	0	36	23	0	0	0	0	0	0	36	23
	Walk/Other	13	24	90	58	105	107	-2	-7	43	43	249	225
	Total	54	96	902	578	129	131	-14	-40	55	55	1,126	820
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
SAT	**Auto**	47	47	114	139	18	15	-6	-2	4	4	177	203
	Taxi	5	5	5	5	0	0	0	0	4	4	14	14
	Subway	1	1	343	420	7	6	-3	-1	4	4	352	430
	Bus	4	5	34	42	5	4	0	0	4	4	47	55
	Ferry	0	0	23	28	0	0	0	0	0	0	23	28
	Walk/Other	18	19	57	70	136	113	-1	-1	61	61	271	262
	Total	75	77	576	704	166	138	-10	-4	77	77	884	992
Vehicle Trips :													
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	**Auto (Total)**	47	29	59	187	4	3	-14	-4	0	0	96	215
	Taxi	5	3	2	6	0	0	0	0	0	0	7	9
	Taxi Balanced	7	7	8	8	0	0	0	0	0	0	15	15
	Shuttle	0	0	13	13	0	0	0	0	0	0	13	13
	Truck	0	0	6	6	0	0	-12	-6	0	0	-6	0
	Total	54	36	73	201	4	3	-26	-10	0	0	118	243
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	**Auto (Total)**	42	48	62	62	19	19	-8	-7	0	0	115	122
	Taxi	5	5	2	2	0	0	0	0	0	0	7	7
	Taxi Balanced	9	9	4	4	0	0	0	0	0	0	13	13
	Shuttle	0	0	0	0	0	0	0	0	0	0	0	0
	Truck	0	0	5	5	0	0	-8	-6	0	0	-3	-1
	Total	51	57	71	71	19	19	-16	-13	0	0	125	134
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	**Auto (Total)**	22	39	165	106	10	10	-6	-14	0	0	191	141
	Taxi	3	5	6	4	0	0	0	-1	0	0	9	8
	Taxi Balanced	7	7	9	9	0	0	0	0	0	0	16	16
	Shuttle	0	0	11	11	0	0	0	0	0	0	11	11
	Truck	0	0	1	1	0	0	-8	-5	0	0	-7	-4
	Total	29	46	175	116	10	10	-14	-19	0	0	211	164
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
SAT	**Auto (Total)**	31	31	106	128	12	10	-5	-2	0	0	144	167
	Taxi	3	3	4	4	0	0	0	0	0	0	7	7
	Taxi Balanced	5	5	7	7	0	0	0	0	0	0	12	12
	Shuttle	0	0	0	0	0	0	0	0	0	0	0	0
	Truck	0	0	1	1	0	0	-2	-2	0	0	-1	-1
	Total	36	36	114	136	12	10	-7	-4	0	0	155	178

***assumes 25% linked trip credit on a weekday.**

E. 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. Additional details on the screening assessment are presented in the Transportation Planning Factors Memorandum.

Vehicular Traffic

Based upon the projected development associated with the Proposed Actions, there would be 361, 259, 375 and 333 additional vehicle trips during the weekday AM, midday, and PM and Saturday peak hours, respectively. These traffic volumes would exceed the *CEQR Technical Manual* threshold of 50 vehicles during the peak hours for Level 1 screening and, therefore, a Level 2 screening was performed to help identify intersections for detailed analysis.

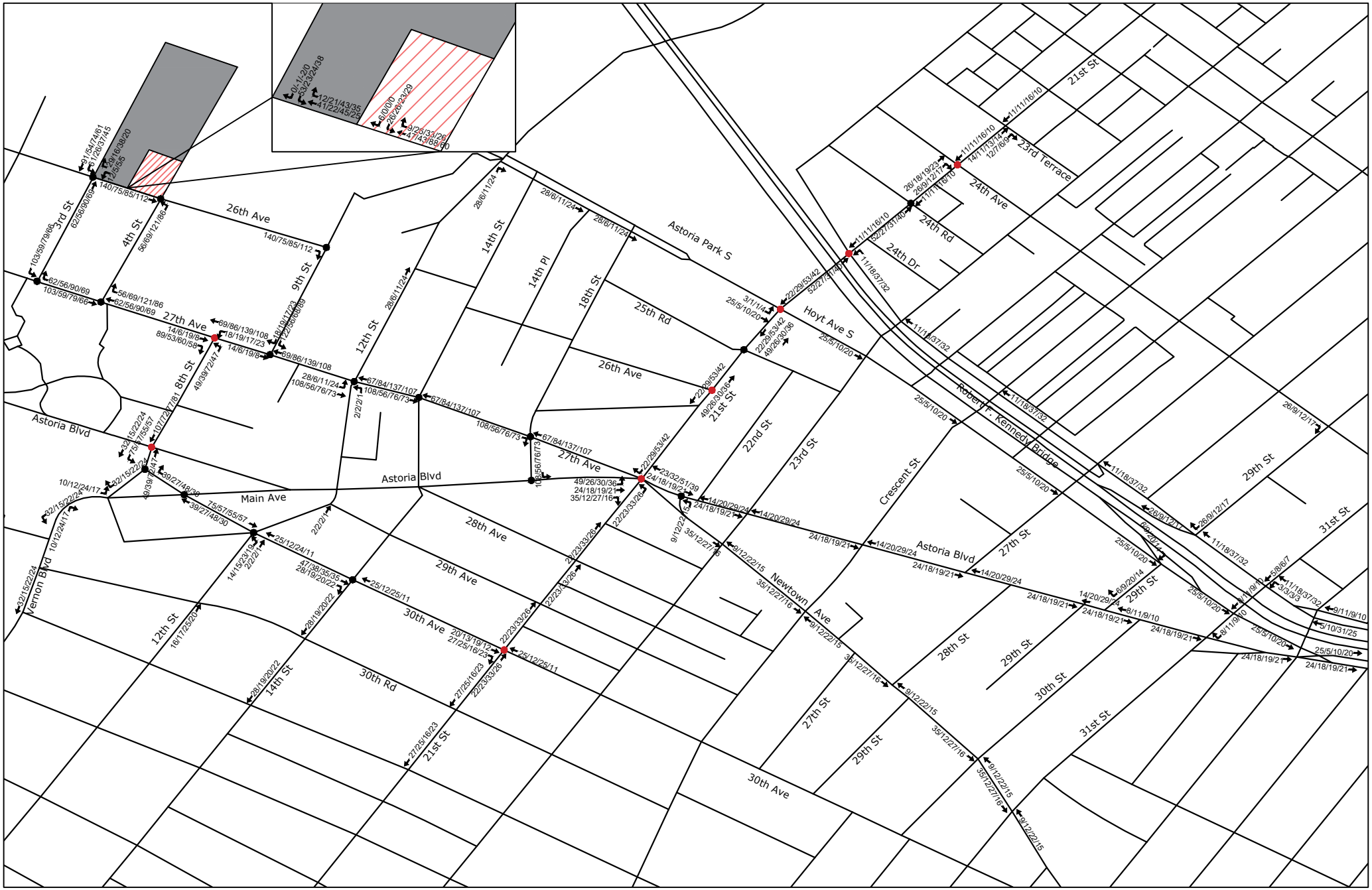
The *CEQR Technical Manual* Level 2 screening threshold for detailed analysis is also 50 vehicles, but this threshold applies to individual intersections during the peak hours (rather than total trips generated). Peak hour project increment traffic volumes were first assigned to the Project Area street network to identify the intersections that would potentially exceed the 50-trip threshold during one or more periods. **Figure 11-2** show the assignment of incremental peak hour vehicle trips. **Figure 11-2** also shows the locations of the 26 intersections (eight signalized and eighteen unsignalized) that were selected for detailed analysis.

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 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 or subway analysis would be warranted. **Figure 11-3** shows transit access in the Astoria neighborhood.

It should be noted that because of the distance between the Project Area and this station, a shuttle service is planned between the 30th Avenue Station and the Project Area. It is anticipated that the shuttle service would carry a maximum of approximately 40 passengers per bus and would operate between the Project Area and the 30th Avenue subway station during the AM and PM weekday peak periods. Based on the subway demand generated by Projected Development Site 1's residential spaces, it is anticipated that three 40-passenger buses would make approximately 13 roundtrips per hour during the AM peak hour and 11 roundtrips per hour during the PM peak hour. The planned shuttle bus stop at the Project Area would be located at the dead-end turnaround, on the 3rd Street frontage. The drop-off/pick-up location at the subway is proposed along the north side of 30th Avenue at 31st Street at an existing NYCT bus stop. It should be noted that prior to building occupancy, final details of the shuttle service, including location of shuttle stops and the shuttle route, shall be subject to coordination with the New York City Department of Transportation (NYCDOT).

Incremental Vehicle Assignment & Analysis Locations



← 4/1/4/4 - AM/MD/PM/SAT Vehicular Volumes

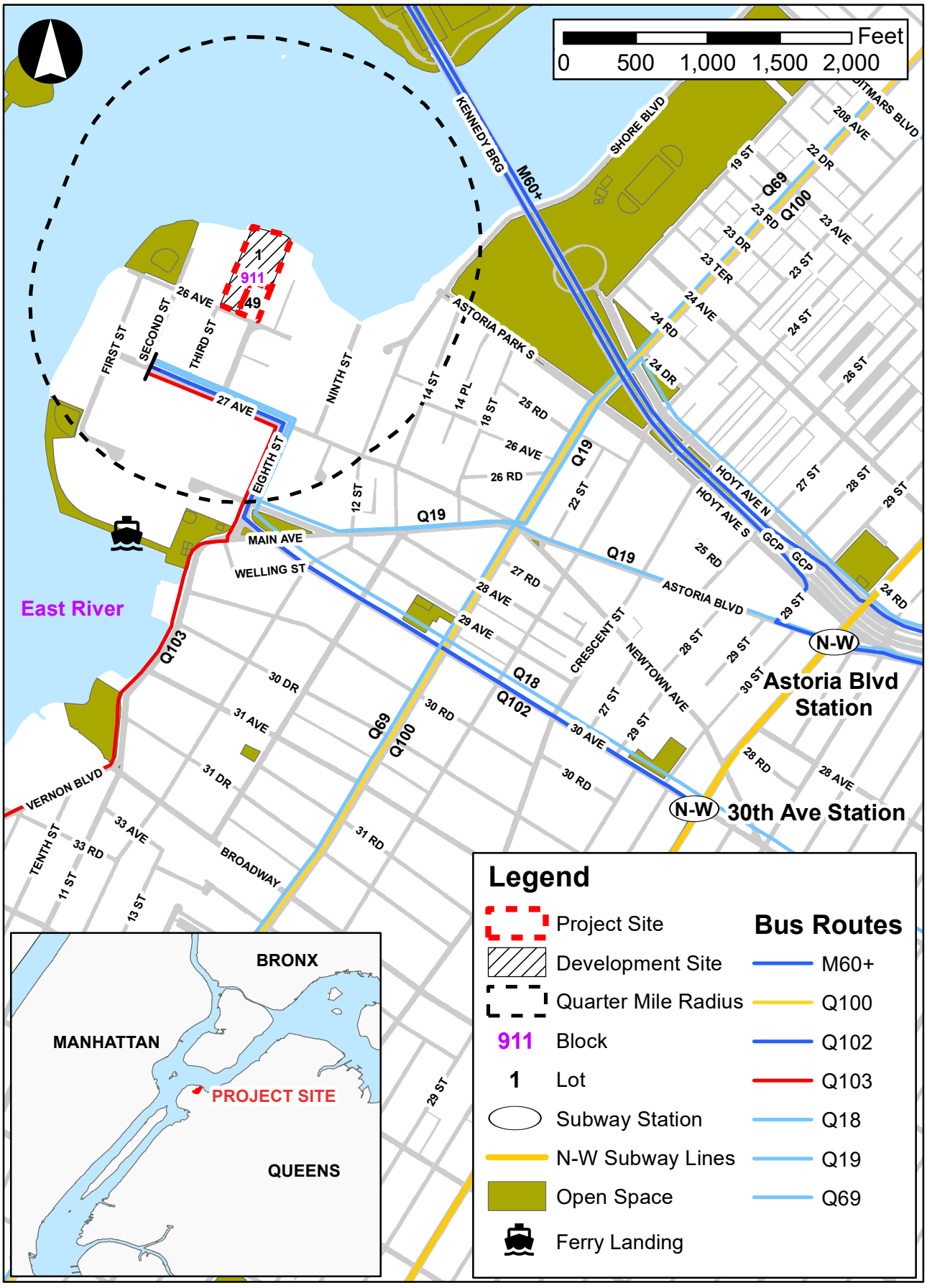
● Existing Signalized Analysis Intersection

● Existing Unsignalized Analysis Intersection

Projected Development Site 1

Projected Development Site 2

Figure 11-3
Transit Map



Subway

Subway Stations

A total of three NYCT subway stations, located in proximity to the Project Area, are expected to be used by project-generated demand. Two of these stations, the 30th Avenue Station and the Astoria Boulevard Station, are located approximately a mile away (shown in **Figure 11-3)** from the Project Area and are served by N and W trains. The third station, 21st Street Queensbridge, is located approximately 1.6 miles from the Project Area (accessible via the Q103 bus) and is served by the F train. As shown in **Table 11-2** the Proposed Actions would generate a net total of 796, 416, 886 and 782 total subway trips during the weekday AM, midday, PM and Saturday peak hours, respectively. Although the Proposed Actions are projected to result in more than 200 peak hour subway trips in the weekday midday and Saturday peak periods, these trips would be off-peak when the subway system typically has ample capacity. As such, these off-peak periods are not analyzed in this EIS, as no impacts are expected to exceed those which might occur in the weekday AM and PM periods.

Per NYCT direction, these incremental trips were assigned 70% to 30th Avenue, 15% to Astoria Boulevard, and 15% to 21st Street Queensbridge. The 30th Avenue station, served by the N and W trains on the BMT Astoria Line, would be the closest facility to the Project Area and would be the assumed destination for the majority of the subway and shuttle trips during the commuter (weekday AM and PM) peak hours. Therefore, as 30th Avenue would likely exceed the CEQR thresholds, the analysis the 30th Avenue station would be warranted. Although residential subway trips to/from Projected Development Site 1 (about 80% of all subway demand) could utilize the 30th Avenue Station via the shuttle service during the AM and PM peak hours, 70% of all subways trips are assumed would utilize the 30th Avenue station while 15% would use the Astoria Boulevard and the remaining 15% would use 21st Street Queensbridge station via the local MTA buses.

As shown in **Table 11-3**, the 30th Avenue subway station, with an expected increase of 557 AM and 620 PM peak hour trips, would exceed the *CEQR Technical Manual* analysis threshold of 200 new trips in any one peak hour. A detailed analysis of key circulation elements (e.g., street stairs and fare arrays) is therefore warranted for 30th Avenue subway station. Key circulation elements at this station, including the northwest, southwest and southeast stairs, all platform stairs, and fare array, that are expected to be used by concentrations of new demand from the Proposed Actions will be analyzed.

Subway Line Haul

The Project Area is primarily served by N /W subway route at Astoria Boulevard and 30th Avenue stations. As shown above, the Proposed Actions would generate approximately 158 incoming and 519 outgoing new subway trips in the weekday AM peak hour, and 462 incoming and 292 outgoing new subway trips in the weekday PM peak hour through the N/W subway route. As such, an analysis of weekday AM and PM line haul conditions on the BMT Astoria Line (N and W trains) will also be provided.

TABLE 11-3
Project Generated Incremental Peak Hour Subway Assignments by Station

Subway Station	AM Peak Hour Trips			PM Peak Hour Trips		
	Into Project	Out Of Project	Total	Into Project	Out Of Project	Total
Project Summary						
Peak Hour Project Increment Trips	465	1,149	1,614	1,126	820	1,946
Peak Hour Project Increment Subway Trips	185	611	796	543	343	886
Subway Station Summary						
30th Avenue	129	428	557	380	240	620
Astoria Boulevard	28	91	119	82	52	134
21st Street Queensbridge	28	92	120	81	51	132

*Assumes those not expected to use shuttle (excludes 70% residents of Site 1) would use Q18/Q102 to 30th Avenue (70%), Q19 to Astoria Boulevard (15%) and Q103 to 21st Street Queensbridge (15%).

Bus

As shown in **Figure 11-3**, the Project Area is served by a total of four local bus routes operated by Metropolitan Transit Authority (MTA) Bus Company including the Q18, Q19, Q102, and Q103 – which provide service within one quarter-mile of the Project Area. Additionally, all four routes terminate/begin approximately one block south of the Project Area and both the Q18 and Q102 routes service the 30th Avenue subway station. These factors, as well as the distance of individual bus stops from the Project Area, were taken into consideration for the assignment of project-generated bus trips.

As shown in **Table 11-2**, peak hour bus trips would increase by a net total of 92 and 106 during the weekday AM and PM commuter peak periods, respectively. Additional trips are expected to use nearby local bus routes to the nearest subway stations (subway-to-bus trips). **Table 11-4** shows the incremental trips generated by the projected development sites expected to utilize NYCT/MTA bus routes during the weekday AM and PM commuter peak periods. These incremental trips, including bus trips and subway trips expected to utilize proximate bus line to the nearest subway station, are distributed between the Q18, Q19, Q102, and Q103 MTA bus routes. As shown in **Table 11-4**, three routes are expected to experience 50 or more new trips in one or both peak hours and are therefore analyzed in the EIS – the Q18, Q19 and Q103 operated by MTA.

Pedestrians

Under *CEQR Technical Manual* criteria, 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 11-2**, the Proposed Actions are expected to generate approximately 281 walk-only trips in the weekday AM peak hour, 588 in the midday peak hour, 474 in the PM peak hour, and 533 in the Saturday peak hour. New pedestrian trips would therefore total 751, 1,101, 1,007, and 1,468 (bus, subway and "walk only"; in and out combined) in the weekday AM, midday, PM, and Saturday midday peak hours, respectively. These totals include all walk-only trips, Projected Development Site 2 pedestrians en route to and from nearest subway, Projected Development Site 1 pedestrians en route to and from nearest subway during the non-commuter peak hours, and all pedestrians en route to and from nearby bus stops or ferry landings.

TABLE 11-4
Project Generated Incremental Peak Hour Bus Trips by Route

Line	Direction	AM					PM				
		Bus		Subway-to-bus		Total	Bus		Subway-to-bus		Total
		In	Out	In	Out		In	Out	In	Out	
Q18	EB	0	35	0	34	***69***	0	23	0	19	42
	WB	14	0	8	0	22	33	0	32	0	***65***
Q19	EB	0	13	0	91	***104***	0	9	0	52	***61***
	WB	5	0	28	0	33	12	0	82	0	***94***
Q102	NB	4	0	8	0	12	10	0	32	0	42
	SB	0	11	0	35	46	0	7	0	19	26
Q103	NB	3	0	28	0	31	7	0	81	0	***88***
	SB	0	7	0	92	***99***	0	5	0	51	***56***
Total		26	26	66	72	252	416	62	44	227	141

Note: ***Bold*** denotes greater than 50 incremental trips per direction

For the pedestrian trip assignment for the Proposed Actions, the walk-only trips were distributed evenly around the network, subway trips are assigned to the shuttle or the nearest local bus stops, and bus trips were assigned to bus routes based on the ridership at each on each bus route. As shown in **Figure 11-4**, substantial pedestrian trips are likely to be present along 26th and 27th Avenues, as well as along 3rd, 4th, and 8th Streets, street adjacent or near to the Project Area. Therefore, as shown in **Figure 11-5**, a total of 19 pedestrian elements, including eleven sidewalks, five corner areas, and three crosswalks are expected to exceed the *CEQR Technical Manual* analysis threshold of 200 new peak hour pedestrian trips on any single element. These elements are listed below.

It should be noted that several crosswalks and corner areas along 26th and 27th Avenues are expected an increase of more than 200 new pedestrian trips but will not be included in the pedestrian analysis pursuant to *CEQR Technical Manual* methodology, as the applicable intersections are all unsignalized.

Sidewalk

1. Third Street between 26th Avenue and the waterfront (east sidewalk)
2. 26th Avenue between Third and Fourth Streets (north sidewalk)
3. 26th Avenue between Third and Fourth Streets (south sidewalk)
4. 26th Avenue between Fourth and Eighth Streets (south sidewalk)
5. Third Street between 27th and 26th Avenues (east sidewalk)
6. Fourth Street between 27th and 26th Avenues (west sidewalk)
7. Fourth Street between 27th and 26th Avenues (east sidewalk)
8. 27th Avenue between Third and Fourth Streets (north sidewalk)
9. 30th Avenue between 30th and 31st Streets (north sidewalk)
10. 31st Street between 30th and Newtown Avenues (west sidewalk)
11. 27th Avenue between Fourth and Eighth Streets (south sidewalk)

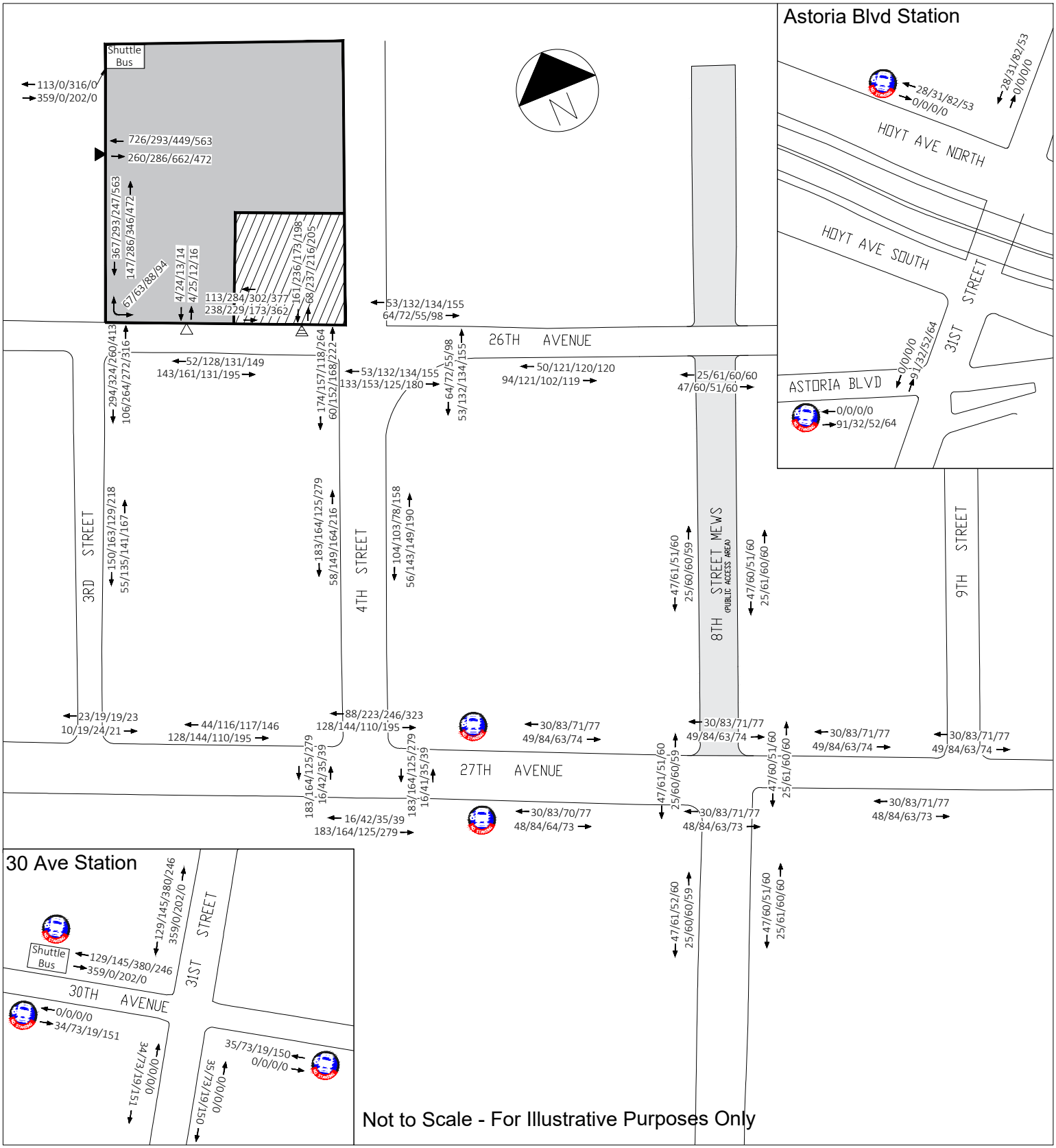
Corner

1. Fourth Street and 27th Avenue (northeast corner)
2. Fourth Street and 27th Avenue (northwest corner)
3. Eighth Street and 27th Avenue (southeast corner)
4. Eighth Street and 27th Avenue (southwest corner)
5. 31st Street and 30th Avenue (northwest corner)

Crosswalk

1. Fourth Street and 27th Avenue (north crosswalk)
2. Fourth Street and 27th Avenue (east crosswalk)

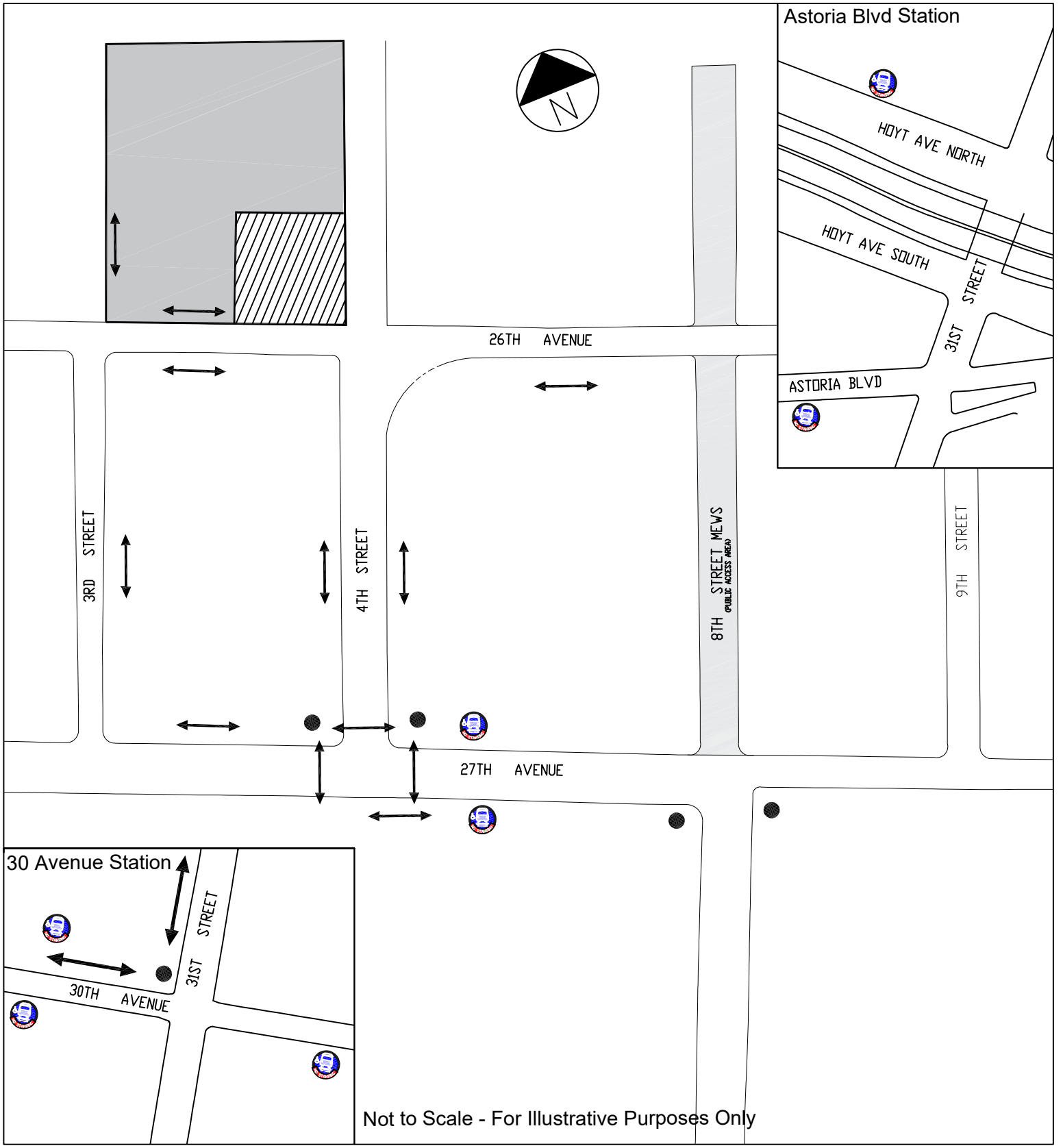
Pedestrian Assignment



Legend

- Projected Development Site 1
- Projected Development Site 2
- 4/1/4/4 - AM/MD/PM/SAT Pedestrian Volumes
- MTA Bus Stop
- Site 1 Retail Entrance
- Site 1 Residential Entrance
- Site 2 Entrance

Pedestrian Analysis Locations



Legend

- Projected Development Site 1
- Projected Development Site 2
- Pedestrian Analysis - Sidewalk
- Pedestrian Analysis - Corner
- MTA Bus Stop

3. Fourth Street and 27th Avenue (west crosswalk)

Parking

Parking demand from commercial (non-restaurant) and community facility uses typically peaks in the midday period and declines during the afternoon and evening. By contrast, residential demand typically peaks in the overnight period. A parking demand forecast (see **Tables 11- 5 and 11-6**) was prepared to determine if the proposed 525 spaces of on-site accessory parking on Projected Development Site 1 would be sufficient to accommodate all of the projected demand under the Proposed Actions' RWCDS. In addition, a parking demand forecast (see **Tables 11- 7 and 11-8**) was prepared to determine if the required 115 spaces of on-site accessory parking on Projected Development Site 2 would be sufficient to accommodate all of the projected demand under the Proposed Actions' RWCDS. As shown in the below tables, the expected overnight parking demand, which is critical for the primarily residential Proposed Development, is approximately 588 vehicles on Projected Development Site 1 and 111 vehicles Projected Development Site 2. As the overnight parking demand associated with Projected Development Site 1 would not be fully accommodated in the on-site garage, a detailed parking analysis is provided in this EIS. However, as the proposed supply is sufficient during other peak periods, no other peak periods are studied in this EIS. A detailed existing on-street and off-street parking inventories within a ¼-mile and ½-mile radius of the Project Area are provided in this EIS to document the existing supply and demand during the weekday overnight period, and changes in the parking supply and utilization under both the No-Action and With-Action conditions are forecasted.

TABLE 11-5: With-Action Weekday Parking Accumulation Forecast – Projected Development Site 1

With-Action												
	Local Retail*			Residential **			Community Facility			Total Parking Accumulation		
Time	In	Out	Accu.	In	Out	Accu.	In	Out	Accu.	In	Out	Accu.
12-1 AM	0	0	0	4	4	588	0	0	0	4	4	**588**
1-2	0	0	0	4	4	588	0	0	0	4	4	**588**
2-3	0	0	0	4	4	588	0	0	0	4	4	**588**
3-4	0	0	0	4	4	588	0	0	0	4	4	**588**
4-5	0	0	0	4	4	588	0	0	0	4	4	**588**
5-6	0	0	0	7	21	574	0	0	0	7	21	574
6-7	0	0	0	18	62	530	0	0	0	18	62	530
7-8	0	0	0	23	63	490	0	0	0	23	63	490
8-9	1	1	0	50	158	382	47	29	18	98	188	400
9-10	0	0	0	37	57	362	41	20	39	78	77	401
10-11	1	0	1	37	65	334	35	27	47	73	92	382
11-12	2	2	1	39	55	318	35	40	42	76	97	361
12-1 PM	2	2	1	52	52	318	42	47	37	96	101	356
1-2	1	1	1	53	54	317	21	20	38	75	75	356
2-3	1	1	1	55	53	319	28	33	33	84	87	353
3-4	1	1	1	79	48	350	30	25	38	110	74	389
4-5	1	1	1	134	78	406	36	39	35	171	118	442
5-6	1	1	1	139	89	456	22	38	19	162	128	476
6-7	1	1	1	105	52	509	5	24	0	111	77	510
7-8	1	1	1	94	42	561	0	0	0	95	43	562
8-9	0	1	0	56	32	585	0	0	0	56	33	585
9-10	0	0	0	20	21	584	0	0	0	20	21	584
10-11	0	0	0	12	12	584	0	0	0	12	12	584
11-12	0	0	0	11	7	588	0	0	0	11	7	**588**

*25% link trip credit applied to Local Retail use
**Residential overnight accumulation based on ACS 2014-2018 – Renter Occupied Vehicle Ownership for Queens Census Tracts 83, 87 & 91

TABLE 11-6: With-Action Saturday Parking Accumulation Forecast – Projected Development Site 1

With-Action												
	Local Retail*			Residential **			Community Facility			Total Parking Accumulation		
Time	In	Out	Accu.	In	Out	Accu.	In	Out	Accu.	In	Out	Accu.
12-1 AM	0	0	0	12	12	588	0	0	0	12	12	**588**
1-2	0	0	0	12	12	588	0	0	0	12	12	**588**
2-3	0	0	0	6	6	588	0	0	0	6	6	**588**
3-4	0	0	0	2	2	588	0	0	0	2	2	**588**
4-5	0	0	0	2	2	588	0	0	0	2	2	**588**
5-6	0	0	0	2	4	586	0	0	0	2	4	586
6-7	0	0	0	3	8	581	0	0	0	3	8	581
7-8	0	0	0	12	36	557	0	0	0	12	36	557
8-9	0	0	0	36	86	507	16	10	6	52	96	513
9-10	0	0	0	68	91	484	19	12	13	87	103	497
10-11	1	1	0	68	103	449	21	14	20	90	118	469
11-12	1	1	0	86	86	449	18	15	23	105	102	472
12-1 PM	1	1	0	98	98	449	18	15	26	117	114	475
1-2	1	1	0	89	108	430	31	31	26	121	140	456
2-3	1	1	0	96	78	448	21	19	28	118	98	476
3-4	1	1	0	94	70	472	18	19	27	113	90	499
4-5	1	1	0	124	53	543	15	18	24	140	72	567
5-6	1	1	0	110	67	586	5	20	9	116	88	595
6-7	1	1	0	86	86	586	1	10	0	88	97	586
7-8	1	1	0	73	73	586	0	0	0	74	74	586
8-9	1	1	0	49	49	586	0	0	0	50	50	586
9-10	0	0	0	36	36	586	0	0	0	36	36	586
10-11	0	0	0	38	36	588	0	0	0	38	36	**588**
11-12	0	0	0	30	30	588	0	0	0	30	30	**588**

*25% link trip credit applied to Local Retail use
**Residential overnight accumulation based on ACS 2014-2018 – Renter Occupied Vehicle Ownership for Queens Census Tracts 83, 87 & 91

TABLE 11-7: With-Action Weekday Parking Accumulation Forecast – Projected Development Site 2

With-Action									
	Local Retail*			Residential **			Total Parking Accumulation		
Time	In	Out	Accu.	In	Out	Accu.	In	Out	Accu.
12-1 AM	0	0	0	1	1	111	1	1	**111**
1-2	0	0	0	1	1	111	1	1	**111**
2-3	0	0	0	1	1	111	1	1	**111**
3-4	0	0	0	1	1	111	1	1	**111**
4-5	0	0	0	1	1	111	1	1	**111**
5-6	0	0	0	1	4	108	1	4	108
6-7	0	0	0	3	12	99	3	12	99
7-8	0	0	0	4	12	91	4	12	91
8-9	3	3	0	9	30	70	12	33	70
9-10	3	1	2	7	11	66	10	12	68
10-11	7	4	5	7	12	61	14	16	66
11-12	8	7	6	7	10	58	15	17	64
12-1 PM	17	17	6	10	10	58	27	27	64
1-2	8	8	6	10	10	58	18	18	64
2-3	9	6	9	10	10	58	19	16	67
3-4	7	7	9	15	9	64	22	16	73
4-5	7	8	8	25	15	74	32	23	82
5-6	9	9	8	26	17	83	35	26	91
6-7	5	8	5	20	10	93	25	18	98
7-8	4	7	2	18	8	103	22	15	105
8-9	3	5	0	11	6	108	14	11	108
9-10	2	2	0	6	4	110	8	6	110
10-11	0	0	0	2	2	110	2	2	110
11-12	0	0	0	2	1	111	2	1	**111**

*25% link trip credit applied to Local Retail use
**Residential overnight accumulation based on ACS 2014-2018 – Renter Occupied Vehicle Ownership for Queens Census Tracts 83, 87 & 91

TABLE 11-8:
With-Action Saturday Parking Accumulation Forecast – Projected Development Site 2

With-Action									
	Local Retail*			Residential **			Total Parking Accumulation		
Time	In	Out	Accu.	In	Out	Accu.	In	Out	Accu.
12-1 AM	0	0	0	2	2	111	2	2	**111**
1-2	0	0	0	2	2	111	2	2	**111**
2-3	0	0	0	1	1	111	1	1	**111**
3-4	0	0	0	0	0	111	0	0	**111**
4-5	0	0	0	0	0	111	0	0	**111**
5-6	0	0	0	0	1	110	0	1	110
6-7	0	0	0	1	2	109	1	2	109
7-8	1	1	0	2	7	104	3	8	104
8-9	4	4	0	7	16	95	11	20	95
9-10	4	2	2	13	17	91	17	19	93
10-11	9	5	6	13	20	84	22	25	90
11-12	8	8	6	16	16	84	24	24	90
12-1 PM	11	11	6	19	19	84	30	30	90
1-2	12	10	8	17	21	80	29	31	88
2-3	11	9	10	18	15	83	29	24	93
3-4	8	8	10	18	13	88	26	21	98
4-5	9	10	9	23	10	101	32	20	110
5-6	10	11	8	21	13	109	31	24	117
6-7	6	10	4	16	16	109	22	26	113
7-8	6	9	1	14	14	109	20	23	110
8-9	5	6	0	9	9	109	14	15	109
9-10	3	2	1	8	7	110	11	9	**111**
10-11	0	1	0	8	7	111	8	8	**111**
11-12	0	0	0	6	6	111	6	6	**111**

*25% link trip credit applied to Local Retail use
**Residential overnight accumulation based on ACS 2014-2018 – Renter Occupied Vehicle Ownership for Queens Census Tracts 83, 87 & 91

F. TRANSPORTATION ANALYSES METHODOLOGIES

Traffic

Analysis Methodology

The traffic analysis examines conditions in the weekday AM, midday, and PM and Saturday peak hours when the increased travel demand attributable to the Proposed Actions is expected to be the greatest. The peak hours selected for analysis are weekday 8 to 9 AM, 1 to 2 PM, and 4:45 to 5:45 PM and Saturday 2 to 3 PM peak hours. These peak hours were selected based on existing traffic volumes in the study area as reflected in automatic traffic recorder (ATR) count data from April 2021. It should be noted, as a result of reduced volumes in the area due to the COVID-19 Pandemic, some existing data from *Astoria Cove Rezoning FEIS* and *Halletts Point Rezoning FEIS* was utilized to complement and extrapolate additional data collected in the field in 2021.

The capacity analyses at intersections are 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 were also conducted 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 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 11-9 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 11-9
Intersection Level of Service Criteria

	Average Delay per Vehicle (seconds)	
LOS	**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

Subway Station Analysis Methodology

To determine existing conditions at analyzed subway station elements, subway ridership data were obtained for the analyzed 30th Avenue subway station in 2017 from NYCT for the AM and PM commuter peak hours. It should be noted that NYCT advised that the existing 2017 data for the 30th Avenue Station can be conservatively used to reflect 2019 (pre-COVID) conditions as the station has experienced a minor (less than 2%) decrease of ridership. The methodology for assessing subway station pedestrian circulation elements (stairs, escalators, and passageways) and fare control elements (regular 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. (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 11-10** shows the *CEQR Technical Manual* LOS criteria for all subway station elements. As shown in **Table 11-10**, 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.

TABLE 11-10
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: 2020 *CEQR Technical Manual*

Subway Station Significant Impact Criteria

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 11-11** are reached or exceeded.

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.

TABLE 11-11
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: 2020 *CEQR Technical Manual*

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 April/May 2021. It should be noted that the 2021 data was compared to data from the *Astoria Cove Rezoning FEIS* to conservatively extrapolate existing pedestrian volumes during the pandemic. 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 8 to 9 AM, 1 to 2 PM, and 4:45 to 5:45 PM periods, and the 2 to 3 PM period on Saturday. As there is ongoing construction along the south sidewalk of 27th Avenue between 4th Street and 8th Street, the existing volumes from the *Astoria Cove Rezoning FEIS* were conservatively used in the analysis.

Peak 15-minute pedestrian flow conditions during the weekday AM, midday, and PM and Saturday midday 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 11-12** defines the LOS criteria for pedestrian crosswalk/corner area and sidewalk conditions, as based on the *Highway Capacity Manual* methodology.

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.

TABLE 11-12
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: 2020 *CEQR Technical Manual*

Significant Impact Criteria

Sidewalks

As many the analysis elements are not located within a Central Business District (CBD), the *CEQR Technical Manual* impact criteria for a non-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 44.3 square feet/pedestrian (sf/ped), and the average pedestrian space under the With-Action condition is 40.0 sf/ped or less (LOS D or worse). If the average pedestrian space under the With-Action condition is greater than 40.0 sf/ped (LOS C or better), the impact should not be considered significant. If the No-Action pedestrian space is between 6.4 and 44.3 sf/ped, a reduction in pedestrian space under the With-Action condition should be considered significant based on **Table 11-13**, 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 11-13**, 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 non-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 26.6 sf/ped and, under the With-Action condition, the average pedestrian space decreases to 24 sf/ped or less (LOS D or worse). If the pedestrian space under the With-Action condition is greater than 24 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 26.6 sf/ped, a decrease in pedestrian space under the With-Action condition should be considered significant based on **Table 11-14**. This table 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 11-14**, 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.

TABLE 11-13
Significant Impact Criteria for Sidewalks with Platooned Flow in a non-CBD Location

No-Action Condition Pedestrian Flow (sf/ped)	With-Action Condition Pedestrian Flow Increment to be Considered a Significant Impact (sf/ped)
>44.3	With-Action Condition < 40.0
43.5 to 44.3	Reduction ≥ 4.3
42.5 to 43.4	Reduction ≥ 4.2
41.6 to 42.4	Reduction ≥ 4.1
40.6 to 41.5	Reduction ≥ 4.0
39.7 to 40.5	Reduction ≥ 3.9
38.7 to 39.6	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: 2020 *CEQR Technical Manual.*

TABLE 11-14
Significant Impact Criteria for Corners and Crosswalks in a non-CBD Location

No-Action Condition Pedestrian Space (sf/ped)	With-Action Condition Pedestrian Space Reduction to be Considered a Significant Impact (sf/ped)
> 26.6	With-Action Condition < 24.0
25.8 to 26.6	Reduction ≥ 2.6
24.9 to 25.7	Reduction ≥ 2.5
24.0 to 24.8	Reduction ≥ 2.4
23.1 to 23.9	Reduction ≥ 2.3
22.2 to 23.0	Reduction ≥ 2.2
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: 2020 *CEQR Technical Manual.*

Street User Safety

Under *CEQR Technical Manual* guidelines, an evaluation of vehicular and pedestrian safety is needed for locations within traffic and pedestrian study areas that have been identified as high crash locations. These are defined as a Vision Zero intersection or locations along a Vision Zero corridor as identified in the Vision Zero Manhattan Pedestrian Safety Action Plan, or intersections 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 DOT.

Parking

Analysis Methodology

The parking analysis identifies the supply of on-street and off-street public parking near a Project Area 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. If a shortfall of spaces is anticipated in the ¼-mile radius, the ½-mile radius may be included in the analysis. The parking analyses therefore document changes in the parking supply and utilization within a ¼-mile and ½-mile radius of the Project Area under both No-Action and With-Action conditions. A parking demand forecast for the Projected Development is provided to document the projected demand at the proposed 250 spaces on the Project Area and whether any demand would need to be accommodated on-street or at nearby public parking. As noted in Section E, "Level 2 Screening Assessment," the detailed parking analysis focuses solely on the weekday overnight period when project-generated demand is expected to exceed the proposed capacity.

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 the Project Area 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 2020 *CEQR Technical Manual*. As the Project Area is not located within Parking Zone 1 or 2 as shown in Map 16-2, a project's parking shortfall that exceeds the available on- and off-street parking spaces within a ¼-mile of the Project Area may be considered significant. The *CEQR Technical Manual* notes that the lead agency should consider additional factors to determine whether such shortfall is significant, including: the availability and extent of transit in the area; the proximity of the project to such transit; any features of the project that are considered trip reduction or travel demand management (TDM) measures as set forth in Subsection 515 of the *CEQR Technical Manual*; travel modes of customers of area commercial businesses; and patterns of automobile usage by area residents. The sufficiency of parking within a ½-mile of the project site to accommodate the projected shortfall may also be considered.

G. TRAFFIC

Existing Conditions

Study Area Street Network

The street network in the vicinity of the Project Area is an irregular and discontinuous grid system of one-way and two-way streets and avenues along the western edge of Queens. Principal arterials within and in the immediate vicinity of the Project Area include directionally east-west 27th Avenue/Astoria Boulevard, 30th Avenue and Hoyt Avenue and the north-south Vernon Boulevard and 21st Street. The nearest designated truck routes to the Project Area are 21st Street and Astoria Boulevard within half-mile from of the Project Area. The Project Area is also served by the Grand Central Parkway and Interstate 278 to the east.

As shown in **Figure 11-1**, Block 911, where the Project Area is located, is bounded by 3rd Street on the west, 26th Avenue on the south, contiguously adjacent to block 907 on the east, and East River on the north. The approximately 164,392 sf Projected Development Site 1 (Lot 1), located on Block 911, is an irregularly-shaped lot that currently contains a vacant former industrial site. The Project Area would include Lot 49 (approximately 34,853 sf), Projected Development Site 2, which currently contains a vacant 28,750 gsf two-story warehouse building. The Project Area includes approximately 280 feet of frontage along 26th Avenue and approximately 581 feet of frontage along 3rd Street.

The segment of 26th Avenue in proximity to the Project Area is a two-way east-west local road that currently begins immediately west of 1st Street (650' west of the Project Area) and terminates west of 9th Street (400' East of the Project Area). The roadway is approximately 30 feet in width with parking along the north and south curbs. Third Street is a two-way north-south local road that that currently runs from 27th Avenue to 26th Avenue. Third Street, north of 26th Avenue, is a privately-owned mapped street but currently unbuilt and is considered part of Projected Development Site 1. The roadway is approximately 30 feet in width with parking along the east and west curbs. With exception to the 27th Avenue, a major collector road, all other streets in close proximity to the Project Area are local streets. 27th Avenue would be the main distribution roadway between the Project Area (Halletts Cove area) and the remainder of New York City network.

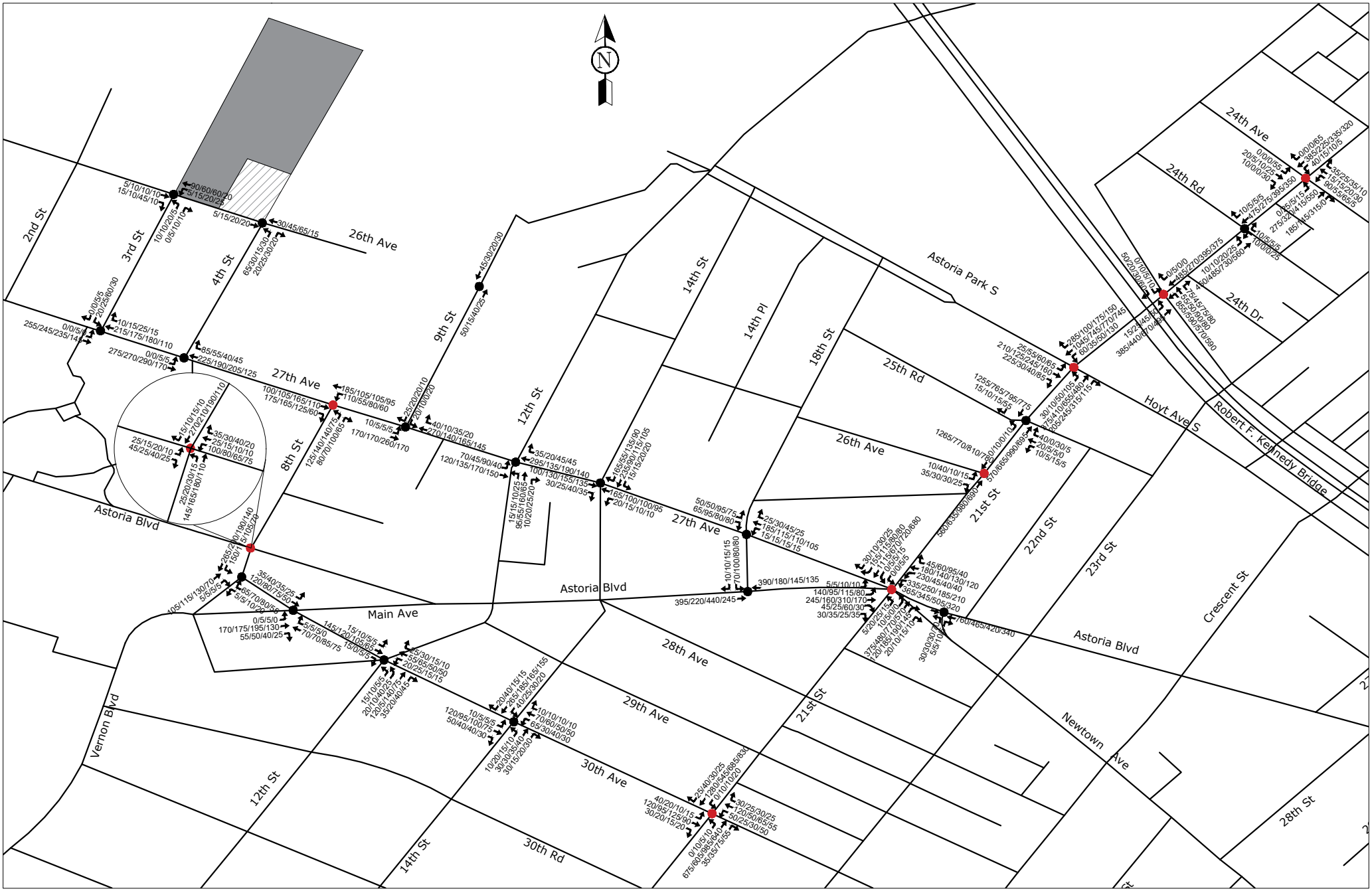
Traffic Conditions

To establish the existing conditions traffic network, a traffic data collection program—including ATR counts, turning movement counts, and vehicle classification counts—was undertaken in June 2021 and paired with existing data from the *Astoria Cove Rezoning FEIS* and *Halletts Point Rezoning FEIS*. It should be noted, as a result of reduced volumes in the area due to the COVID-19 Pandemic, some existing data from *Astoria Cove Rezoning FEIS* and *Halletts Point Rezoning FEIS* was utilized to complement and extrapolate additional data collected in the field in 2021. 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. **Figure 11-6** show the existing traffic volumes during the weekday AM, midday, PM, and Saturday peak hours.

Intersection Capacity Analysis

The volume-to-capacity (v/c) ratios, delays and levels of service for all lane groups at all analyzed intersections in all peak periods under Existing conditions are provided in **Table 11-15**. A lane group is

Existing Traffic Volumes



← 4/1/4/4 - AM/MD/PM/SAT Vehicular Volumes

● Signalized Analysis Intersection

● Unsignalized Analysis Intersection

Projected Development Site 1

Projected Development Site 2

considered congested 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 11-15**, all analyzed lane groups are currently operating at an uncongested LOS or v/c ratio or better with the exception of the following 17 lane groups at eight intersections during the any one peak hour:

- the southbound through lane group at 26th Avenue and 21st Street (LOS D in the AM peak hour);
- the northbound left-through-right lane group at 27th Avenue and 12th Street (LOS F in the PM peak hour);
- all lane groups at Astoria Boulevard and 21st Street, including:
    - the eastbound left lane group (LOS E in the AM peak hour),
    - the eastbound through-right lane group (LOS F in all four analyzed peak hours),
    - the westbound left lane group (LOS F in the AM and PM peak hours, LOS E in the weekday midday peak hour),
    - the westbound through lane group (LOS F in the AM and PM peak hours, LOS E in the weekday midday peak hour)
    - the westbound right lane group (LOS E in the PM peak hour),
    - the northbound left-through-right (LOS F in the weekday and Saturday midday peak hours, LOS E in the PM peak hour), and
    - the southbound through-right lane group (LOS E in the AM peak hour, LOS F in the weekday and Saturday midday peak hours, and LOS D in the PM peak hour);
- the northbound left-through-right lane group at 24th Avenue and 21st Street (LOS E in all four analyzed peak hours);
- two lane groups at Hoyt Avenue North and 21st Street, including:
    - the northbound through lane group (LOS E in the AM peak hour, and LOS F in the midday and PM peak hours), and
    - the southbound through-right lane group (LOS E in the AM peak hour);
- three lane groups at Astoria Park South/Hoyt Avenue and 21st Street, including:
    - the eastbound through-right lane group (LOS F in the AM peak hour),
    - the northbound left-through-right lane group (LOS D in the AM peak hour, and LOS E in the PM and Saturday midday peak hours), and
    - the southbound left-through-right lane group (LOS E in the AM, PM, and Saturday midday peak hours);
- the westbound left-through-right lane group at 25th Road and 21st Street (LOS F in all analyzed peak hours, except the Saturday midday at LOS E); and
- the southbound left-through-right lane group at 30th Avenue and 21st Street (LOS D in the AM peak hour).

TABLE 11-15a
Existing Traffic Levels of Service

			Weekday AM			Weekday Midday			Weekday PM			Weekday Saturday MD		
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
26th Avenue &	WB	LT	0.00	7.4	A	0.01	7.3	A	0.02	7.5	A	0.02	7.4	A
3rd St	NB	LR	0.02	9.7	A	0.02	9.1	A	0.04	9.5	A	0.02	8.7	A
26th Avenue &	NB	LR	0.12	9.8	A	0.07	9.2	A	0.06	8.9	A	0.06	9.1	A
4th Street														
26th Ave &	EB	LR	0.09	22.7	C	0.14	24.0	C	0.08	22.6	C	0.08	23.2	C
21st St	NB	T	0.51	24.3	C	0.48	25.0	C	0.74	30.1	C	0.54	26.1	C
	SB	T	0.97	49.6	D *	0.64	28.4	C	0.68	28.3	C	0.62	27.8	C
27th Avenue &	EB	LT	0.00	8.0	A	0.00	8.0	A	0.00	7.9	A	0.00	7.6	A
3rd St	SB	LR	0.06	14.3	B	0.07	13.4	B	0.16	13.6	B	0.06	10.7	B
27th Avenue &	EB	LT	0.00	8.6	A	0.00	8.2	A	0.01	8.2	A	0.01	8.0	A
4th St														
27th Avenue &	EB	TR	0.54	17.1	B	0.55	17.4	B	0.47	15.4	B	0.29	12.6	B
8th Street	WB	LT	0.66	21.5	C	0.30	12.8	B	0.41	14.8	B	0.27	12.4	B
	NB	L	0.35	23.5	C	0.38	24.1	C	0.37	23.7	C	0.16	20.4	C
	NB	R	0.23	21.6	C	0.20	21.2	C	0.26	21.8	C	0.16	20.6	C
27th Avenue &	EB	LT	0.01	8.9	A	0.01	8.2	A	0.01	8.4	A	0.01	8.3	A
9th St	SB	LR	0.13	14.8	B	0.06	11.7	B	0.04	11.2	B	0.07	13.0	B
27th Avenue &	EB	LT	0.09	9.0	A	0.00	7.9	A	0.10	8.5	A	0.04	8.2	A
12th Street	NB	LTR	0.56	35.0	D	0.21	13.8	B	0.88	69.0	F *	0.33	18.3	C
27th Avenue &	EB	TR	-	10.6	B	-	9.1	A	-	10.3	B	-	9.3	A
14th Street	WB	LT	-	11.9	B	-	9.0	A	-	10.0	A	-	8.7	A
	SB	LTR	-	17.4	C	-	9.1	A	-	11.4	B	-	9.4	A
27th Avenue &	EB	LTR	0.06	8.9	A	0.06	9.1	A	0.11	8.6	A	0.09	9.1	A
18th Street	WB	LTR	0.01	7.7	A	0.01	8.0	A	0.01	7.7	A	0.01	7.8	A
Astoria Boulevard &	EB	LR	0.22	28.2	C	0.13	26.5	C	0.18	27.4	C	0.11	26.3	C
8th Street	WB	LTR	0.45	32.8	C	0.38	31.2	C	0.33	30.2	C	0.25	28.3	C
	NB	LT	0.33	15.8	B	0.33	15.7	B	0.35	16.0	B	0.19	13.6	B
	SB	T	0.39	16.3	B	0.29	14.8	B	0.26	14.4	B	0.15	13.1	B
	SB	R	0.03	12.0	B	0.02	11.9	B	0.03	12.0	B	0.02	11.9	B
Astoria Boulevard &	SB	LR	0.35	24.9	C	0.34	18.8	C	0.23	15.7	C	0.21	13.2	B
18th Street														
Astoria Boulevard &	EB	L	0.73	63.9	E *	0.33	38.4	D	0.51	48.3	D	0.29	37.6	D
21st Street	EB	TR	1.05	110.9	F *	0.96	89.2	F *	1.05	105.2	F *	0.98	90.8	F *
	WB	L	1.05	105.8	F *	0.77	56.1	E *	0.91	86.1	F *	0.61	46.4	D
	WB	T	1.05	103.0	F *	0.84	67.5	E *	1.04	127.0	F *	0.67	51.8	D
	WB	R	0.25	40.1	D	0.24	37.0	D	0.59	56.9	E *	0.16	35.5	D
	NB	LTR	0.85	45.3	D	1.05	91.5	F *	1.04	73.2	E *	1.05	89.5	F *
	SB	TR	1.05	73.4	E *	1.05	89.7	F *	0.94	49.4	D *	1.05	90.0	F *

TABLE 11-15b
Existing Traffic Levels of Service (Cont'd)

Intersections	Approach	Lane Group	Weekday AM V/C Ratio	Weekday AM Delay (sec/veh)	Weekday AM LOS	Weekday Midday V/C Ratio	Weekday Midday Delay (sec/veh)	Weekday Midday LOS	Weekday PM V/C Ratio	Weekday PM Delay (sec/veh)	Weekday PM LOS	Weekday Saturday MD V/C Ratio	Weekday Saturday MD Delay (sec/veh)	Weekday Saturday MD LOS
Astoria Blvd & Newtown Ave	NB	LR	0.14	19.2	C	0.11	15.7	C	0.15	18.4	C	0.22	15.7	C
30th Av & 8th St	SB	LT	0.14	8.2	A	0.11	8.1	A	0.10	8.2	A	0.06	7.8	A
	WB	LR	0.12	10.9	B	0.12	10.3	B	0.16	11.2	B	0.12	10.6	B
30th Av & Main St	NB	LTR	0.00	7.3	A	0.00	7.3	A	0.00	7.4	A	0.00	7.3	A
	WB	TR	0.14	12.5	B	0.15	12.1	B	0.19	12.8	B	0.15	11.8	B
	EB	LT	0.38	17.0	C	0.28	15.1	C	0.28	15.5	C	0.16	12.7	B
30th Avenue & 12th Street	EB	LTR	-	9.8	A	-	8.6	A	-	8.9	A	-	8.1	A
	WB	LTR	-	9.0	A	-	8.1	A	-	8.6	A	-	8.2	A
	NB	LTR	-	9.9	A	-	7.8	A	-	9.7	A	-	8.3	A
30th Avenue & 14th Street	EB	LTR	-	11.2	B	-	9.7	A	-	9.4	A	-	8.9	A
	WB	LTR	-	11.2	B	-	9.3	A	-	9.1	A	-	8.7	A
	NB	LTR	-	9.2	A	-	8.6	A	-	8.5	A	-	8.2	A
	SB	LTR	-	14.5	B	-	10.7	B	-	10.3	B	-	9.3	A
24th Ave & 21st St	EB	LTR	0.08	16.1	B	0.01	15.5	B	0.03	15.6	B	0.46	22.8	C
	WB	LTR	0.55	25.0	C	0.34	19.7	B	0.40	20.7	C	0.13	16.7	B
	NB	LTR	1.05	69.7	E *	1.05	70.2	E *	1.05	64.3	E *	1.05	68.3	E *
	SB	LT	0.85	30.5	C	0.52	17.7	B	0.59	16.7	B	0.63	19.7	B
	SB	R	0.00	9.6	A	0.00	11.4	B	0.00	9.6	A	0.17	12.9	B
24th Rd & 21st St	NB	LT	0.01	9.3	A	0.01	8.3	A	0.03	9.2	A	0.03	9.0	A
	WB	LTR	0.10	22.1	C	0.01	11.6	B	0.02	15.3	C	0.18	26.6	D
Hoyt Avenue North & 21st Street	EB	L	0.00	40.0	D	0.06	41.0	D	0.07	42.1	D	0.07	41.2	D
	EB	R	0.33	47.2	D	0.12	42.1	D	0.15	42.7	D	0.32	46.0	D
	WB	L	0.87	48.4	D	0.64	38.1	D	0.60	37.1	D	0.62	37.8	D
	WB	TR	0.35	17.7	B	0.17	14.4	B	0.26	15.5	B	0.38	18.1	B
	NB	L	0.15	27.3	C	0.11	25.2	C	0.29	29.9	C	0.27	29.0	C
	NB	T	0.96	69.4	E *	1.04	86.6	F *	1.05	86.5	F *	0.88	51.9	D
	SB	TR	1.00	77.7	E *	0.63	36.2	D	0.79	44.4	D	0.69	38.1	D
Astoria Park S/ Hoyt Ave	EB	L	0.05	22.3	C	0.12	23.7	C	0.12	23.1	C	0.15	24.2	C
21st Street	EB	TR	1.03	82.4	F *	0.34	27.2	C	0.58	32.2	C	0.50	30.8	C
	NB	LTR	0.91	46.3	D *	0.72	31.6	C	1.05	74.8	E *	0.98	59.8	E *
	SB	LTR	1.05	71.2	E *	0.89	41.3	D	1.05	71.8	E *	1.05	74.2	E *
25th Rd & 21st St	NB	LT	0.00	12.4	B	0.02	10.3	B	0.00	12.1	B	0.02	11.9	B
	WB	LTR	0.96	167.6	F *	0.20	79.4	F *	0.92	194.1	F *	0.10	37.1	E *
30th Avenue & 21st Street	EB	LTR	0.58	40.5	D	0.41	35.8	D	0.41	35.1	D	0.40	35.7	D
	WB	LTR	0.67	45.1	D	0.34	34.6	C	0.39	35.1	D	0.47	38.2	D
	NB	LTR	0.57	19.9	B	0.59	21.5	C	0.88	32.1	C	0.58	21.2	C
	SB	LTR	0.96	41.9	D *	0.53	20.2	C	0.59	20.5	C	0.73	25.3	C

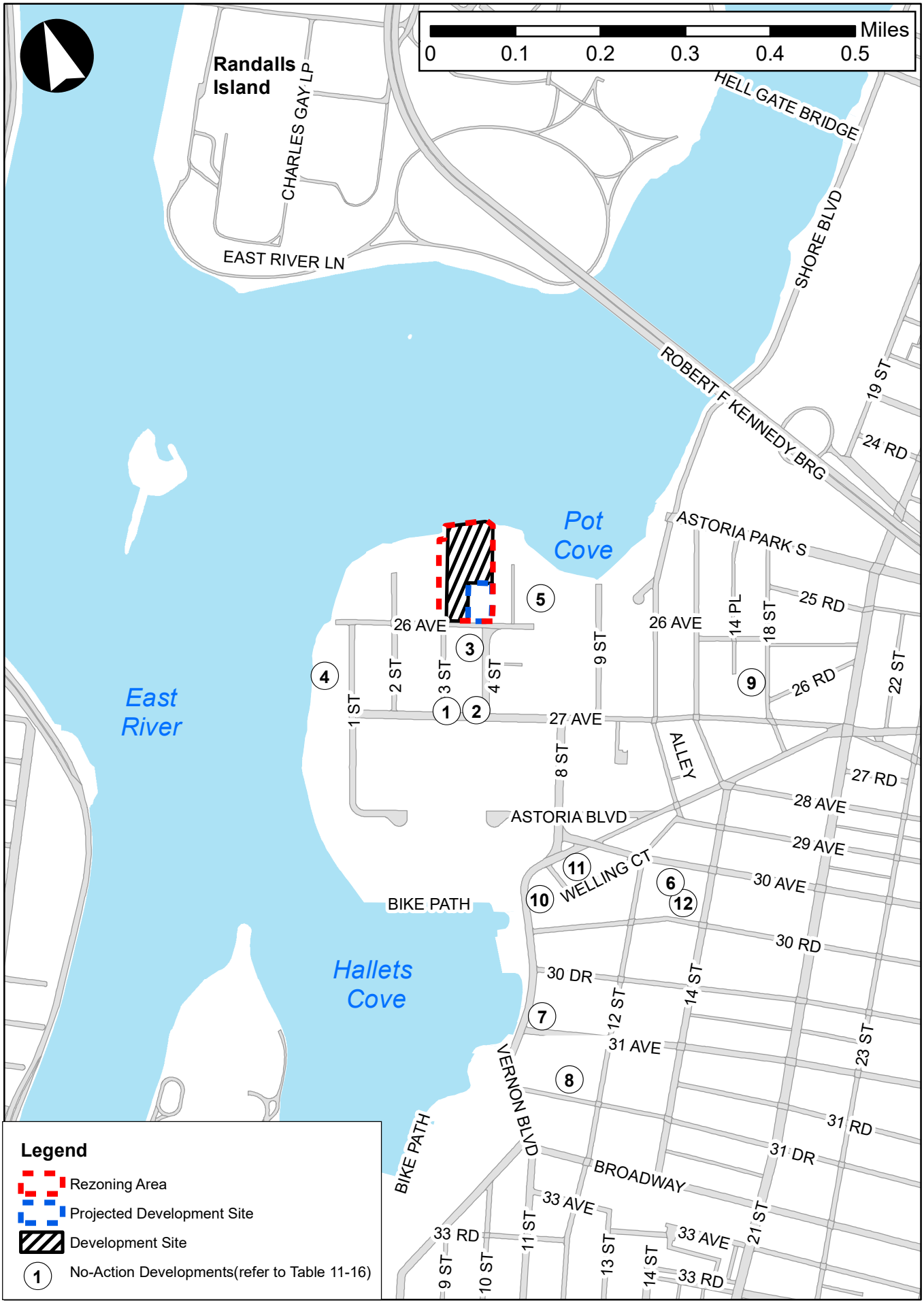
Notes:
EB - eastbound, WB - westbound, NB - northbound, SB - southbound
L - left, T - through, R - right, DefL - Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume-to-capacity ratio
Sec/veh - seconds per vehicle
LOS - level of service
* - Denotes a congested movement (LOS E or F, or v/c ratio greater than or equal to 0.9)
Analysis is based on the 2000 Highway Capacity Manual methodology (HCS+, version 5.5)

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

Future No-Action Traffic Growth

In order to forecast 2031 future traffic conditions without the Proposed Actions (the No-Action condition), development on the Development Site and other developments listed in **Table 11-16** and shown in **Figure 11-7** were considered, including large projects like Astoria Cove and Halletts Point. Although these two particular developments were slated for completion in the years 2022 and 2023 per their respective FEISs but only one building has since been erected for Halletts Point and no immediate prospective construction planned, they were conservatively included as No-Action demand based on their proposed size and

Figure 11-7
No-Action Developments



densities discussed in their FEISs. These developments account for at least 83% of the total No-Action trip demand in each analyzed peak hour. The future No-Action traffic volumes also reflect annual background growth rates as recommended in the *2020 CEQR Technical Manual* for projects in Queens. This background growth was applied to account for smaller projects and as-of-right developments not reflected in **Table 11-16**, and general increases in travel demand not attributable to specific development projects. Where new developments were found to generate relatively little new traffic through analyzed intersections, demand from these sites was also assumed to be reflected as part of general background growth. **Figure 11-8** shows total year 2031 No-Action traffic volumes during weekday AM, midday, and PM and Saturday peak hours.

TABLE 11-16
No-Action Developments

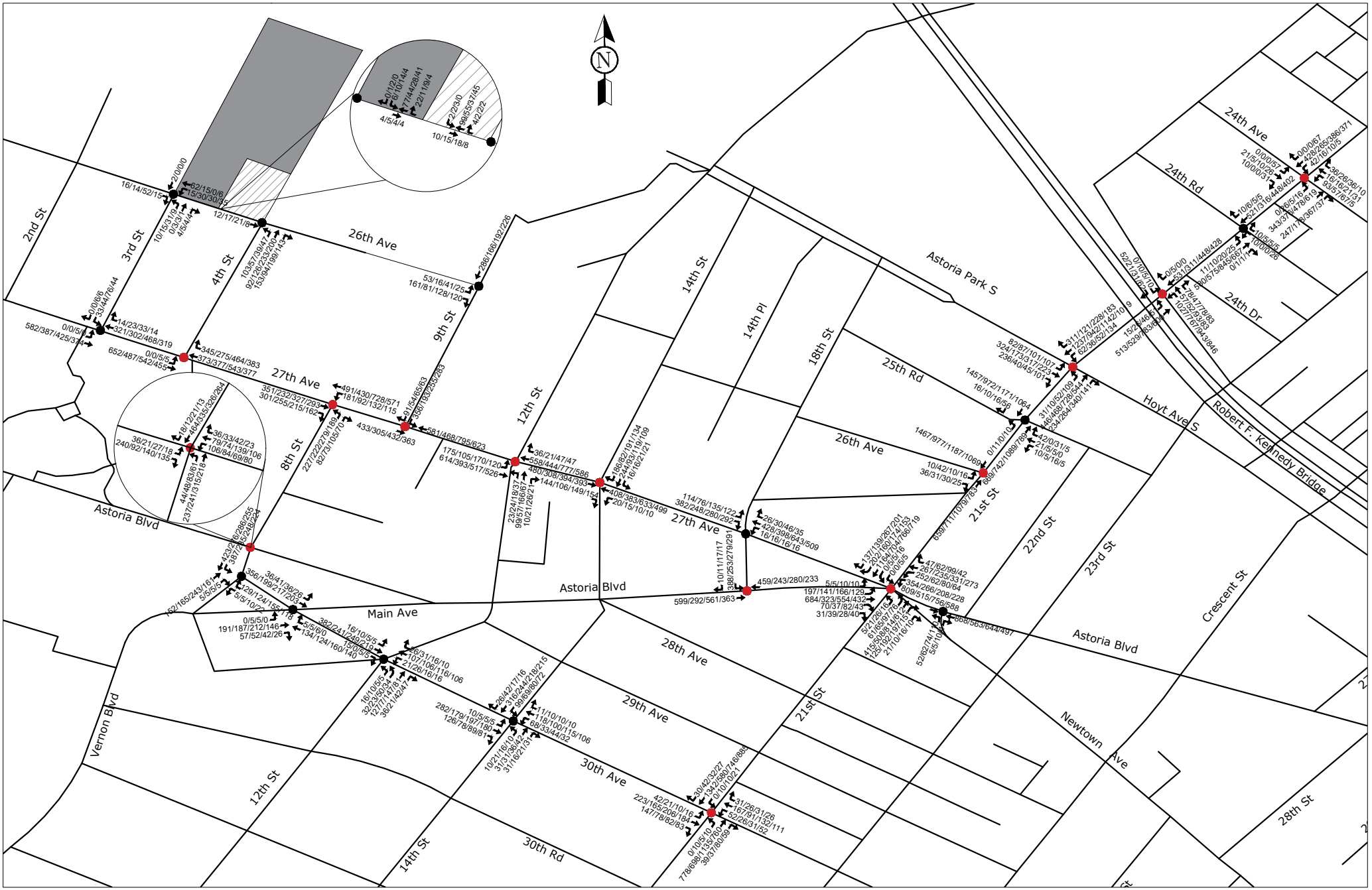
Map No.[1]	Project	Residential (DUs)	Commercial (sf)	Community Facility (sf)	Build Year	Notes
Within a Quarter-Mile Radius						
1	26-35 3rd Street	58	14,780	14,681	TBD	Included in analyses
2[2]	26-30 4th Street	99	0	0	TBD	Included in analyses
3[2]	26-02 4th Street	46	0	9,184	2021	Included in analyses
4	3-24 27th Avenue (Halletts Point)	2,239	38,563	0	2022 (FEIS)	Included in analyses
5	Astoria Cove	1,689	109,740	62,248	2023 (FEIS)	Included in analyses
Within a Half-Mile Radius						
6	12-16 30th Avenue	15	0	0	TBD	Included in background growth
7	30-77 Vernon Boulevard	569	1,183	0	2021	Included in analyses
8	11-35 31st Drive	40	0	0	TBD	Included in background growth
9	26-26 18th Street	7	0	0	2020	Included in background growth
10	30-07 Vernon Boulevard	67	6,009	0	2022	Included in background growth
11	9-24 Main Avenue	31	0	0	2021	Included in background growth
12	30-18 14th Street	10	0	0	2021	Included in background growth

Notes:
Developments with TBD Build Years were included in the No-Action list as they are assumed to be completed before 2031.
1 – Refer to **Figure 11-7**
2 – While developments No. 2 and 3 would typically be included in background growth due to their relatively small size (<200 dwelling units), they were conservatively included due to their close proximity.

Future No-Action Changes

It should be noted, in the future without the Proposed Actions, that street network changes proposed in association with the Astoria Cove Development (located directly to the east of the Project Area) and the Hallett's Point Rezoning (located to south and west) are assumed to be implemented by the 2031 build year regardless of the Proposed Actions. As stated in the 2014 *Astoria Cove Development FEIS*, portions of the unbuilt segment of 8th Street south of 26th Avenue would be demapped and built out and converted to pedestrian public access (the "8th Street Mews") and portions of the unimproved segment of 26th Avenue east of 4th Street would be built out and connected to 9th Street. The Astoria Cove development will also include extending 4th Street north of 26th Avenue to allow for pedestrian and vehicular access. This portion of 4th Street, which penetrates the Astoria Cove development site, would be mapped as a northbound one-way that would extend to the waterfront and continue eastward (as public access easement) toward 9th Street as an eastbound one-way. The extension of 4th Street would connect to the proposed vehicular right-of-way within the Astoria Cove waterfront public access area, allowing uninterrupted pedestrian and vehicular traffic flow more in keeping with the surrounding Astoria street

No-Action Traffic Volumes



← 4/1/4/4 - AM/MD/PM/SAT Vehicular Volumes

● Signalized Analysis Intersection

● Unsignalized Analysis Intersection

Projected Development Site 1

Projected Development Site 2

grid. The segment of 26th Avenue east of 4th Street and west of 9th Street would be reopened, providing a connection to 9th Street. This portion would function as an eastbound one-way. As part of the Astoria Cover mitigation measures, 9th Street would be converted into a southbound one-way and its northbound traffic would be expected to be diverted to 4th Street. In addition, the development proposes to mitigate project-related impacts by signalizing the intersections of 27th Avenue and 9th Street, 27th Avenue and 12th Street, 27th Avenue and 14th Street, and Astoria Boulevard and 18th Street. The *Astoria Cove FEIS* also proposes an all-way stop control at the intersection of 26th Avenue and 4th Street and a two-way stop control at the intersection of 26th Avenue and 9th Street. 9th Street would be converted as southbound one-way as a mitigation measure. The extension of 4th Street, the extension of 26th Avenue, the creation of the vehicular right-of-way, and the demapping of 8th Street are planned to be completed by the 2031 build year.

Furthermore, as stated in the 2013 *Halletts Point Rezoning FEIS*, a segment of 27th Avenue (west of 1st Street) would be demapped and transformed into a pedestrian waterfront access corridor. Similarly, the segment of 26th Avenue west of 1st Street would also be demapped and transformed into a pedestrian waterfront access corridor. The rezoning would also connect the street segments between existing mapped portions of Astoria Boulevard (between 1st and 8th Streets). The rezoning also proposed that 26th Avenue would become one-way eastbound between 1st and 2nd Streets, 1st Street would also become one-way northbound, and 2nd Street would become one-way southbound. As part of mitigation, the Halletts development would signalize several intersections, including 27th Avenue and 4th Street, 27th Avenue and 12th Street, 27th Avenue and 14th Street, 27th Avenue and 18th Street, and Astoria Boulevard and 18th Street. These signal improvements are planned to be implemented by 2031.

Aside from the aforementioned new signalizations, there are other measures and changes proposed in association with the Astoria Cove Development and the Hallett's Point Rezoning as mitigation (to be implemented by 2031). Refer to the 2014 *Astoria Cove Development FEIS* and 2013 *Halletts Point Rezoning FEIS* for additional details on the mitigation measures by peak hour in their respective EIS. These changes include minor timing adjustments to existing signals, parking regulation changes to gain a travel lanes, and lane restriping or lane reconfigurations. It should be noted that mitigations measured from *Hallett's Point Rezoning FEIS* were accounted for in the analysis of *Astoria Cove FEIS*. It should also be noted that some improvements (like the addition of pedestrian phases to signals at key intersections along 21st Street) were made between the publication of the *Astoria Cove FEIS* and this EIS; those improvements were considered from the Existing conditions. All proposed No-Action changes are reflected in the No-Action (and With Action) analyses. Some of these changes are listed below:

- 27th Avenue & 4th Street (converted to a northbound one-way between Existing and No-Action)
    - Halletts Point – New signal with 90-second cycle, eastbound/westbound phase of 49/49/51 seconds green time, and southbound phase of 31/31/29 seconds green time during the AM/midday/PM peak periods.
    - Astoria Cove - Shifting three seconds of green from the southbound phase to the eastbound/westbound phase in PM and Saturday peak period.
- 27th Avenue at 8th Street
    - Halletts Point - Installation of "No Standing Anytime" regulation on the eastbound approach for 100'. Restriping this approach to one 11' through lane, and one 14' right turn lane with "shared road" bike provisions. Also, shifting two seconds of green time from the northbound phase to the eastbound/westbound phase in AM.
    - Astoria Cove - Installation of "No Standing Anytime" regulations on the westbound approach between 8th and 9th Streets as well as the westbound receiving lane for 100'.

Also, shifting the westbound approach centerline 1' to the south and restriping the approach to one 10' through-only lane, one 10' left-turn lane, and one 10' receiving lane.

- 27th Avenue & 9th Street
    - Astoria Cove (conversion to southbound one-way) - New signal with 90-second cycle, eastbound/westbound phase of 43/45/52/50 seconds green time, and southbound phase of 37/35/28/30 seconds green time during the AM/midday/PM/Saturday peak periods. Restriping the south approach to one 20' right turn lane, one 12' left-turn lane for 100' with "No Standing Anytime" regulations along the east curb for 150'. Also, shifting the eastbound approach centerline 1' to the south and restriping to one 10' ' through-only lane and two 10' receiving lanes.
- 27th Avenue at 12th Street
    - Halletts Point – New signal with 90-second cycle, eastbound/westbound phase of 64/55/64 seconds green time, and northbound phase of 16/25/16 seconds green time during the AM/midday/PM peak periods.
    - Astoria Cove - Shifting one second of green time from the northbound phase to the eastbound/westbound phase in AM.
- 27th Avenue at 14th Street
    - Halletts Point – New signal with 90-second cycle, eastbound/westbound phase of 40/50/44 seconds green time, and southbound phase of 40/30/36 seconds green time during the AM/midday/PM peak periods.
    - Astoria Cove - Shifting one second of green time from the southbound phase to the eastbound/westbound phase in AM.
- Astoria Boulevard & 8th Street
    - Halletts Point - Installation of "No Standing Anytime" regulation on the eastbound approach for 100'. Restriping this approach to one 10' left turn lane, and one 10' right turn lane for 100'. Also, shifting four and two seconds of green time from the northbound/southbound phase to the eastbound/westbound phase in AM and PM, respectively.
    - Astoria Cove - Shifting two seconds of green time from the eastbound/westbound phase to the northbound/southbound phase in PM.
- Astoria Boulevard & 18th Street
    - Halletts Point – New signal with 120-second cycle, eastbound/westbound phase of 55/55/55 seconds green time, and southbound phase of 55/55/55 seconds green time during the AM/midday/PM peak periods.
- Astoria Boulevard & 21st Street
    - Halletts Point - Installation of "No Standing Anytime" regulations on the eastbound approach for 165', eastbound receiving for 135', southbound approach for 340', and southbound receiving for 125'. Shifting northbound approach centerline 3' to the west and restriping to two 11' travel lanes, one 12' right turn lane, one 12' receiving lane, and one 15' wide receiving lane for 125'. Also, shifting the southbound approach centerline 4' to the east and restriping to two 11' travel lanes, one 12' right turn lane, one 11' wide receiving lane, and one 15' receiving lane for 135'.
    - Astoria Cove - Shifting three, one, and three seconds of green time from the northbound/southbound phase to the eastbound phase, thewestbound phase the

northbound/southbound phase, and the westbound phase to the northbound/southbound phase in the AM, midday, Saturday, respectively.

- 30th Avenue & 21st Street
  - Astoria Cove - Shifting three seconds of green from the eastbound/westbound phase to the northbound/southbound phase in AM.
- Hoyt Avenue North & 21st Street
  - Halletts Point - Shifting two seconds of green from the eastbound/westbound phase to the eastbound lag phase in midday and the northbound/southbound PM.
  - Astoria Cove – Installation of "No Standing 7AM-10AM Mon-Fri" regulation along the southbound approach for 250'. Also, restriping the westbound approach to one 5' wide bike lane, one 11' wide through-right lane, and two 12'wide left-turn lanes.
- Hoyt Avenue South/Astoria Park South & 21st Street
  - Halletts Point - Shifting three, two, and two seconds of green time from the eastbound phase to the northbound/southbound phase in AM, midday, and PM peak hours, respectively. Also, installation of "No Standing 4PM-7PM Mon-Fri" regulation along the northbound approach for 175'. However, based on DOT guidance, this daylighting measure was not included in the analysis because of a neckdown installed under existing conditions.
  - Astoria Cove - Shifting three seconds of green time from the northbound/southbound phase to the eastbound phase in PM.
- 24th Avenue & 21st Street
  - Halletts Point - Shift two seconds of green from the eastbound/westbound phase to the northbound/southbound phase in PM.

Intersection Capacity Analysis

Based on No-Action volumes in **Figure 11-8**, the volume-to-capacity (v/c) ratios, delays and levels of service for all lane groups at the analyzed intersections in all peak periods under No-Action conditions are provided in **Tables 11-17a and 11-17b**. As shown in **Tables 11-17a and 11-17b**, some of movements would become congested (LOS E or F, or V/C ratio greater than or equal to 0.9) in the No-Action condition. It is important to reiterate, as mentioned above, that some intersections (e.g. 27th Avenue and 4th Street, 27th Avenue and 9th Street, 27th Avenue and 12th Street, 27th Avenue and 14th Street, Astoria Boulevard and 18th Street, etc) that are unsignalized under Existing conditions would be signalized under No-Action conditions as a result of mitigation or improvement measures proposed as part of the 2014 *Astoria Cove Development FEIS* and 2013 *Halletts Point Rezoning FEIS*.

During the AM peak hour, a total of 31 lane groups at 17 intersections (11 signalized and six unsignalized) are expected to be congested under the No-Action conditions. This compares to 14 lane groups at seven intersections (six signalized and one unsignalized) intersections during the AM peak hour under Existing conditions. A total of 18 lane groups at 11 intersections (seven signalized and four unsignalized) are expected to be congested in the weekday midday peak hour under the No-Action conditions. This compares to eight lane groups at four intersections (three signalized and one unsignalized) intersections during the weekday midday peak hour under Existing conditions. During the weekday PM peak hour, a total of 29 lane groups at 16 intersections (11 signalized and five unsignalized) are expected to be congested under the No-Action conditions. This compares to 12 lane groups at six intersections (five signalized and one unsignalized) intersections during the PM peak hour under Existing conditions. A total

of 25 lane groups at 14 intersections (eight signalized and six unsignalized) are expected to be congested in the Saturday midday peak hour under the No-Action conditions. This compares to seven lane groups at four intersections (three signalized and one unsignalized) intersections during the Saturday midday peak hour under Existing conditions. As shown in the **Tables 17a** and **17b**, 21st Street and 27th Avenue would have the most congested intersections, followed by 30th Avenue.

TABLE 11-17a
No-Action Traffic Levels of Service

			Existing AM			No-Action AM			Existing MD			No-Action MD			Existing PM			No-Action PM			Existing Saturday			No-Action Saturday		
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
26th Avenue &	WB	LT	0.00	7.4	A	0.01	7.5	A	0.01	7.3	A	0.02	7.4	A	0.02	7.5	A	0.03	7.5	A	0.02	7.4	A	0.03	7.4	A
3rd St	NB	LR	0.02	9.7	A	0.02	9.8	A	0.02	9.1	A	0.03	9.6	A	0.04	9.5	A	0.06	10.0	A	0.02	8.7	A	0.02	9.3	A
(Stop-Control)	SB	LTR				0.00	11.6	B																		
26th Avenue & Site 1 (Stop-Control)	SB	LR				0.01	10.0	A				0.02	9.7	A				0.02	9.3	A				0.00	9.4	A
26th Ave & Site 2 (Stop-Control)	SB	LR				0.00	10.1	B				0.00	9.8	A				0.00	9.5	A				0.00	9.0	A
26th Avenue &	EB	T	-	-	-	-	8.0	A	-	-	-	-	7.9	A	-	-	-	-	8.4	A	-	-	-	-	8.2	A
4th Street	NB	LR	0.12	9.8	A	-	-	-	0.07	9.2	A	-	-	-	0.06	8.9	A	-	-	-	0.06	9.1	A	-	-	-
(Stop-Control/Allway Stop)	NB	LTR	-	-	-	-	10.9	B	-	-	-	-	9.5	A	-	-	-	-	13.2	B	-	-	-	-	12.2	B
26th Avenue & 9th St (Stop-Control)	EB	LR	-	-	-	0.43	15.1	C	-	-	-	0.16	10.8	B	-	-	-	0.29	12.0	B	-	-	-	0.26	12.1	B
26th Ave &	EB	LR	0.09	22.7	C	0.09	22.7	C	0.14	24.0	C	0.15	24.1	C	0.08	22.6	C	0.08	22.6	C	0.08	23.2	C	0.08	23.2	C
21st St	NB	T	0.51	24.3	C	0.60	26.2	C	0.48	25.0	C	0.54	26.1	C	0.74	30.1	C	0.82	33.3	C	0.54	26.1	C	0.62	27.7	C
(Signalized)	SB	T	0.97	49.6	D *	1.13	99.0	F *	0.64	28.4	C	0.81	34.6	C	0.68	28.3	C	1.00	56.4	E *	0.62	27.8	C	0.85	36.3	D
27th Avenue &	EB	LT	0.00	8.0	A	0.00	9.0	A	0.00	8.0	A	0.00	12.9	B	0.00	7.9	A	0.01	11.9	B	0.00	7.6	A	0.00	13.4	B
3rd St	SB	LR	0.06	14.3	B	0.26	35.6	E *	0.07	13.4	B	0.53	75.7	F *	0.16	13.6	B	0.91	134.2	F *	0.06	10.7	B	0.64	92.6	F *
(Stop-Control)																										
27th Avenue &	EB	LT	0.00	8.6	A	0.99	49.1	D *	0.00	8.2	A	0.75	22.1	C	0.01	8.2	A	0.76	19.2	B	0.01	8.0	A	0.64	16.3	B
4th St	WB	T	-	-	-	0.50	14.8	B	-	-	-	0.51	14.9	B	-	-	-	0.66	15.3	B	-	-	-	0.43	12.0	B
(Stop-Control/Signalized)	WB	R	-	-	-	1.11	100.4	F *	-	-	-	1.34	197.0	F *	-	-	-	1.76	371.3	F *	-	-	-	1.49	254.4	F *
27th Avenue &	EB	TR	0.54	17.1	B	-	-	-	0.55	17.4	B	-	-	-	0.47	15.4	B	-	-	-	0.29	12.6	B	-	-	-
8th Street	EB	T	-	-		0.48	14.0	B	-	-	-	0.35	13.3	B	-	-	-	0.44	14.3	B	-	-	-	0.41	13.9	B
(Signalized)	EB	R	-	-		0.70	22.1	C	-	-	-	0.99	68.8	E *	-	-	-	0.53	18.1	B	-	-	-	0.48	17.2	B
	WB	LT	0.66	21.5	C	-	-	-	0.30	12.8	B	-	-	-	0.41	14.8	B	-	-	-	0.27	12.4	B	-	-	-
	WB	L	-	-	-	0.62	21.4	C	-	-	-	0.29	13.7	B	-	-	-	0.48	18.0	B	-	-	-	0.40	15.9	B
	WB	T	-	-	-	0.67	18.1	B	-	-	-	0.65	18.9	B	-	-	-	1.11	89.1	F *	-	-	-	0.75	21.6	C
	NB	L	0.35	23.5	C	0.68	34.6	C	0.38	24.1	C	0.61	29.8	C	0.37	23.7	C	0.73	35.6	D	0.16	20.4	C	0.40	23.9	C
	NB	R	0.23	21.6	C	0.37	26.8	C	0.20	21.2	C	0.50	33.7	C	0.26	21.8	C	0.58	33.9	C	0.16	20.6	C	0.38	26.4	C
27th Avenue &	EB	LT	0.01	8.9	A				0.01	8.2	A				0.01	8.4	A				0.01	8.3	A			
9th St	EB	T				0.68	22.7	C				0.46	16.4	B				0.53	13.5	B				0.49	14.1	B
(Stop-Control/Signalized)	WB	TR	-	-	-				-	-	-				-	-	-				-	-	-			
	WB	T				1.00	56.9	E *				0.78	26.3	C				1.15	101.1	F *				0.93	36.9	D *
	SB	LR	0.13	14.8	B	-	-	-	0.06	11.7	B	-	-	-	0.04	11.2	B	-	-	-	0.07	13.0	B	-	-	-
	SB	L	-	-	-	0.75	30.9	C	-	-	-	0.41	22.1	C	-	-	-	0.68	35.1	D	-	-	-	0.77	38.6	D
		R	-	-	-	0.21	17.9	B	-	-	-	0.13	18.3	B	-	-	-	0.20	23.9	C	-	-	-	0.20	22.6	C
27th Avenue &	EB	LT	0.09	9.0	A	1.13	88.7	F *	0.00	7.9	A	0.75	19.5	B	0.10	8.5	A	1.30	157.8	F *	0.04	8.2	A	1.22	130.2	F *
12th Street	WB	TR	-	-	-	0.65	9.5	A	-	-	-	0.64	14.7	B	-	-	-	0.93	25.6	C *	-	-	-	0.85	24.0	C
(Stop-Control/Signalized)	NB	LTR	0.56	35.0	D	0.68	49.6	D	0.21	13.8	B	0.31	27.7	C	0.88	69.0	F *	0.98	88.6	F *	0.33	18.3	C	0.39	29.3	C
27th Avenue &	EB	TR	-	10.6	B	1.08	82.9	F *	-	9.1	A	0.61	16.8	B	-	10.3	B	0.85	31.5	C	-	9.3	A	0.77	22.6	C
14th Street	WB	LT	-	11.9	B	0.76	28.2	C	-	9.0	A	0.54	15.0	B	-	10.0	A	1.07	76.0	E *	-	8.7	A	0.60	15.9	B
(Stop-Control/Signalized)	SB	LTR	-	17.4	C	0.87	38.9	D	-	9.1	A	0.49	27.6	C	-	11.4	B	0.73	30.9	C	-	9.4	A	0.69	34.1	C
27th Avenue &	EB	LTR	0.06	8.9	A	0.28	14.8	B	0.06	9.1	A	0.51	47.4	E *	0.11	8.6	A	0.76	60.9	F *	0.09	9.1	A	6.52	2819.0	F *
18th Street	WB	LTR	0.01	7.7	A	0.03	10.0	A	0.01	8.0	A	0.06	16.7	C	0.01	7.7	A	0.03	11.3	B	0.01	7.8	A	0.06	17.4	C
(Stop-Control)																										
Astoria Boulevard &	EB	LR	0.22	28.2	C	-	-	-	0.13	26.5	C	-	-	-	0.18	27.4	C	-	-	-	0.11	26.3	C	-	-	-
8th Street	EB	L	-	-	-	0.15	24.8	C	-	-	-	0.09	26.1	C	-	-	-	0.14	27.3	C	-	-	-	0.09	26.1	C
(Signalized)	EB	R	-	-	-	0.65	37.8	D	-	-	-	0.31	29.9	C	-	-	-	0.42	32.1	C	-	-	-	0.48	34.4	C
	WB	LTR	0.45	32.8	C	0.54	32.1	C	0.38	31.2	C	0.51	34.1	C	0.33	30.2	C	0.62	37.5	D	0.25	28.3	C	0.45	32.1	C
	NB	LT	0.33	15.8	B	0.68	28.8	C	0.33	15.7	B	0.58	21.1	C	0.35	16.0	B	0.87	40.7	D	0.19	13.6	B	0.51	19.3	B
	SB	T	0.39	16.3	B	0.71	26.7	C	0.29	14.8	B	0.46	17.5	B	0.26	14.4	B	0.45	17.2	B	0.15	13.1	B	0.36	15.7	B
	SB	R	0.03	12.0	B	0.04	14.0	B	0.02	11.9	B	0.03	12.0	B	0.03	12.0	B	0.05	12.2	B	0.02	11.9	B	0.04	12.1	B
Astoria Boulevard &	EB	T				0.91	46.3	D *				0.44	23.9	C				0.75	32.6	C				0.46	23.8	C
18th Street	WB	T				0.65	28.9	C				0.38	22.7	C				0.37	22.5	C				0.28	20.9	C
(Stop-Control/Signalized)	SB	LR	0.35	24.9	C	0.81	38.9	D	0.34	18.8	C	0.54	26.7	C	0.23	15.7	C	0.49	25.3	C	0.21	13.2	B	0.60	28.3	C

TABLE 11-17b
No-Action Traffic Levels of Service (Cont'd)

Intersections	Approach	Lane Group	Existing AM V/C Ratio	Existing AM Delay (sec/veh)	Existing AM LOS	No-Action AM V/C Ratio	No-Action AM Delay (sec/veh)	No-Action AM LOS	Existing MD V/C Ratio	Existing MD Delay (sec/veh)	Existing MD LOS	No-Action MD V/C Ratio	No-Action MD Delay (sec/veh)	No-Action MD LOS	Existing PM V/C Ratio	Existing PM Delay (sec/veh)	Existing PM LOS	No-Action PM V/C Ratio	No-Action PM Delay (sec/veh)	No-Action PM LOS	Existing Saturday V/C Ratio	Existing Saturday Delay (sec/veh)	Existing Saturday LOS	No-Action Saturday V/C Ratio	No-Action Saturday Delay (sec/veh)	No-Action Saturday LOS
Astoria Boulevard &	EB	L	0.73	63.9	E *	1.02	112.0	F *	0.33	38.4	D	0.48	42.1	D	0.51	48.3	D	0.71	58.3	E *	0.29	37.6	D	0.45	41.1	D
21st Street	EB	TR	1.05	110.9	F *	2.50	733.3	F *	0.96	89.2	F *	1.71	379.2	F *	1.05	105.2	F *	1.76	397.5	F *	0.98	90.8	F *	2.10	552.4	F *
(Signalized)	WB	L	1.05	105.8	F *	1.11	124.7	F *	0.77	56.1	E *	0.82	60.7	E *	0.91	86.1	F *	1.03	113.4	F *	0.61	46.4	D	0.67	48.7	D
	WB	T	1.05	103.0	F *	1.33	209.1	F *	0.84	67.5	E *	1.35	224.0	F *	1.04	127.0	F *	2.52	750.7	F *	0.67	51.8	D	1.41	249.5	F *
	WB	R	0.25	40.1	D	0.32	42.5	D	0.24	37.0	D	0.37	41.3	D	0.59	56.9	E *	0.84	88.9	-	0.16	35.5	D	0.23	37.5	D
	NB	LT				0.96	66.3	E *				1.06	95.2	F *				1.34	194.6	F *				1.39	227.7	F *
	NB	R	-	-	-	0.44	29.7	C	-	-	-	0.61	44.7	D	-	-	-	0.51	29.5	C	-	-	-	0.53	43.2	D
	NB	LTR	0.85	45.3	D		56.8	E *	1.05	91.5	F *		82.4	F *	1.04	73.2	E *		163.7	F *	1.05	89.5	F *		193.7	F *
	SB	LT				0.85	38.4	D				0.85	50.1	-				0.79	35.7	D				0.92	58.2	E *
	SB	R	-	-	-	0.69	36.2	D	-	-	-	0.94	79.2	E *	-	-	-	1.10	108.6	F *	-	-	-	0.95	76.8	E *
	SB	LTR	1.05	73.4	E *		37.9	D	1.05	89.7	F *		58.7	E *	0.94	49.4	D *		61.0	E *	1.05	90.0	F *		64.2	E *
Astoria Blvd & Newtown Ave (Stop-Control)	NB	LR	0.14	19.2	C	0.59	71.4	F *	0.11	15.7	C	0.33	26.7	D	0.15	18.4	C	0.68	67.9	F *	0.22	15.7	C	0.61	43.1	E *
30th Av &	SB	LT	0.14	8.2	A	0.72	22.8	C	0.11	8.1	A	3.87	1405.0	F *	0.10	8.2	A	1.19	160.5	F *	0.06	7.8	A		9999.0	F *
8th St (Stop-Control)	WB	LR	0.12	10.9	B	1.20	201.5	F *	0.12	10.3	B		9999.0	F *	0.16	11.2	B		9999.0	F *	0.12	10.6	B		9999.0	F *
30th Av &	NB	LTR	0.00	7.3	A	0.00	7.3	A	0.00	7.3	A	0.00	7.3	A	0.00	7.4	A	0.00	7.4	A	0.00	7.3	A	0.00	7.3	A
Main St	WB	TR	0.14	12.5	B	0.30	15.2	C	0.15	12.1	B	0.28	13.7	B	0.19	12.8	B	0.39	16.1	C	0.15	11.8	B	0.28	13.1	B
(Stop-Control)	EB	LT	0.38	17.0	C	0.99	69.4	F *	0.28	15.1	C	0.58	22.1	C	0.28	15.5	C	0.68	28.3	D	0.16	12.7	B	0.48	17.0	C
30th Avenue &	EB	LTR	-	9.8	A	-	20.8	C	-	8.6	A	-	10.4	B	-	8.9	A	-	12.1	B	-	8.1	A	-	10.6	B
12th Street	WB	LTR	-	9.0	A	-	11.1	B	-	8.1	A	-	8.9	A	-	8.6	A	-	10.3	B	-	8.2	A	-	9.4	A
(All-way Stop)	NB	LTR	-	9.9	A	-	12.9	B	-	7.8	A	-	8.6	A	-	9.7	A	-	11.9	B	-	8.3	A	-	9.7	A
30th Avenue &	EB	LTR	-	11.2	B	-	43.6	E *	-	9.7	A	-	14.8	B	-	9.4	A	-	14.9	B	-	8.9	A	-	13.9	B
14th Street	WB	LTR	-	11.2	B	-	18.3	C	-	9.3	A	-	11.6	B	-	9.1	A	-	12.1	B	-	8.7	A	-	11.1	B
(All-way Stop)	NB	LTR	-	9.2	A	-	12.8	B	-	8.6	A	-	10.1	B	-	8.5	A	-	10.3	B	-	8.2	A	-	9.9	A
	SB	LTR	-	14.5	B	-	58.2	F *	-	10.7	B	-	17.7	C	-	10.3	B	-	17.5	C	-	9.3	A	-	14.3	B
24th Ave &	EB	LTR	0.08	16.1	B	0.08	16.1	B	0.01	15.5	B	0.01	15.5	B	0.03	15.6	B	0.03	15.6	B	0.46	22.8	C	0.48	23.3	C
21st St	WB	LTR	0.55	25.0	C	0.57	25.8	C	0.34	19.7	B	0.35	20.0	B	0.40	20.7	C	0.42	21.1	C	0.13	16.7	B	0.13	16.7	B
(Signalized)	NB	LTR	1.05	69.7	E *	1.35	188.8	F *	1.05	70.2	E *	1.24	142.7	F *	1.05	64.3	E *	1.22	126.7	F *	1.05	68.3	E *	1.27	152.3	F *
	SB	LT	0.85	30.5	C	1.11	91.1	F *	0.52	17.7	B	0.61	19.6	B	0.59	16.7	B	0.67	19.1	B	0.63	19.7	B	0.72	22.9	C
	SB	R	0.00	9.6	A	0.00	9.6	A	0.00	11.4	B	0.00	11.4	B	0.00	9.6	A	0.00	9.6	A	0.17	12.9	B	0.17	13.0	B
24th Rd &	NB	LT	0.01	9.3	A	0.02	9.5	A	0.01	8.3	A	0.01	8.4	A	0.03	9.2	A	0.03	9.0	A	0.03	9.0	A	0.04	9.3	A
21st St (Stop-Control)	WB	LTR	0.10	22.1	C	0.15	30.5	D	0.01	11.6	B	0.01	12.8	B	0.02	15.3	C	0.02	17.6	C	0.18	26.6	D	0.26	38.7	E *
Hoyt Avenue North &	EB	L	0.00	40.0	D	0.00	40.0	D	0.06	41.0	D	0.07	42.8	D	0.07	42.1	D	0.08	44.3	D	0.07	41.2	D	0.07	41.2	D
21st Street	EB	R	0.33	47.2	D	0.33	47.1	D	0.12	42.1	D	0.14	44.2	D	0.15	42.7	D	0.18	44.8	D	0.32	46.0	D	0.29	45.4	D
(Signalized)	WB	L	0.87	48.4	D	1.05	81.3	F *	0.64	38.1	D	0.79	42.0	D	0.60	37.1	D	0.99	65.7	E *	0.62	37.8	D	0.89	50.8	D
	WB	TR	0.35	17.7	B	0.36	17.9	B	0.17	14.4	B	0.17	14.4	B	0.26	15.5	B	0.28	16.8	B	0.38	18.1	B	0.39	18.3	B
	NB	L	0.15	27.3	C	0.17	28.4	C	0.11	25.2	C	0.13	25.8	C	0.29	29.9	C	0.30	29.3	C	0.27	29.0	C	0.31	30.9	C
	NB	T	0.96	69.4	E *	1.28	179.6	F *	1.04	86.6	F *	1.24	163.0	F *	1.05	86.5	F *	1.18	131.0	F *	0.88	51.9	D	1.06	93.1	F *
	SB	TR	1.00	77.7	E *	0.98	69.0	E *	0.63	36.2	D	0.72	40.3	D	0.79	44.4	D	0.86	48.8	D	0.69	38.1	D	0.78	43.3	D
Astoria Park S/ Hoyt Aven &	EB	L	0.05	22.3	C	0.18	23.9	C	0.12	23.7	C	0.18	24.6	C	0.12	23.1	C	0.20	24.2	C	0.15	24.2	C	0.25	25.7	C
21st Street	EB	TR	1.03	82.4	F *	1.27	170.9	F *	0.34	27.2	C	0.47	30.0	C	0.58	32.2	C	0.74	38.5	D	0.50	30.8	C	0.65	35.7	D
(Signalized)	NB	DefL																						2.18	611.5	F *
	NB	TR				-	-	-				-	-	-										1.04	77.5	E *
	NB	LTR	0.91	46.3	D *	1.18	129.0	F *	0.72	31.6	C	0.84	37.9	D	1.05	74.8	E *	1.49	258.6	F *	0.98	59.8	E *	-	160.4	F *
	SB	LTR	1.05	71.2	E *	1.27	161.1	F *	0.89	41.3	D	1.14	108.3	F *	1.05	71.8	E *	1.53	274.1	F *	1.05	74.2	E *	1.28	164.5	F *
25th Rd &	NB	LT	0.00	12.4	B	0.00	13.9	B	0.02	10.3	B	0.02	11.5	B	0.00	12.1	B	0.00	14.7	B	0.02	11.9	B	0.03	13.9	B
21st St (Stop-Control)	WB	LTR	0.96	167.6	F *	1.59	454.0	F *	0.20	79.4	F *	0.32	143.4	F *	0.92	194.1	F *	1.80	628.0	F *	0.10	37.1	E *	0.16	62.8	F *
30th Avenue &	EB	LTR	0.58	40.5	D	1.30	193.4	F *	0.41	35.8	D	0.82	55.1	E *	0.41	35.1	D	0.86	57.6	E *	0.40	35.7	D	0.91	67.3	E *
21st Street	WB	LTR	0.67	45.1	D	1.03	103.4	F *	0.34	34.6	C	0.48	38.1	D	0.39	35.1	D	0.62	42.3	D	0.47	38.2	D	0.78	56.5	E *
(Signalized)	NB	LTR	0.57	19.9	B	0.66	21.9	C	0.59	21.5	C	0.67	23.7	C	0.88	32.1	C	1.00	52.4	D *	0.58	21.2	C	0.67	23.7	C
	SB	LTR	0.96	41.9	D *	1.01	53.5	D *	0.53	20.2	C	0.56	20.9	C	0.59	20.5	C	0.65	21.9	C	0.73	25.3	C	0.78	27.6	C

Notes:
EB - eastbound, WB - westbound, NB - northbound, SB - southbound
L - left, T - through, R - right, DefL - Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume-to-capacity ratio
Sec/veh - seconds per vehicle
LOS - level of service
* - Denotes a congested movement (LOS E or F, or v/c ratio greater than or equal to 0.9)
Analysis is based on the 2000 Highway Capacity Manual methodology (HCS+, version 5.5)

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

Future With-Action Traffic Growth

As discussed above and shown in **Table 11-2**, the Proposed Actions would result in a total of 335, 259, 353, and 309 additional vehicle trips during the weekday AM, midday, and PM and Saturday peak hours, respectively (including autos, taxis and trucks). **Figure 11-9** shows the total peak hour traffic volumes at the analyzed intersections for the 2031 future with the Proposed Actions. The volumes shown are the combination of the net peak hour incremental traffic assignment of the traffic generated by the Proposed Actions (**Figure 11-2)** and the No-Action volumes (**Figure 11-8)**.

Intersection Capacity Analysis

The v/c ratios, delays and levels of service for all lane groups at the analyzed intersections in all peak periods under With-Action conditions are provided in **Tables 11-18a and 11-18b**. Lane groups with significant adverse impacts are denoted with an asterisk (*). Under the With-Action condition, a total of 38, 19, 34, and 29 lanes groups at 21, 14, 20, and 16 intersections, respectively, would be congested lane group in the weekday AM, midday, PM, and Saturday midday peak hours respectively. This compares to 31, 18, 29, and 25 lanes groups at 17, 11, 16, and 14 intersections, respectively, during the same peak hours under No-Action conditions.

As also shown in **Tables 11-18a and 11-18b**, the traffic impact analysis indicates the potential for significant adverse impacts would occur at 41 lane groups at 20 intersections (13 signalized and seven unsignalized) during one or more analyzed peak hours. It should be noted that the Sites 1 and 2 Driveway are not considered a significant adverse impact because there are less than 90 PCEs on the approach. During the AM peak hour, a total of 32 lane groups at 18 intersections (12 signalized and six unsignalized) are expected to be significantly adversely impacted. A total of 14 lane groups at 10 intersections (seven signalized and three unsignalized) are expected to be significantly adversely impacted in the weekday midday peak hour. During the weekday PM peak hour, a total of 30 lane groups at 17 intersections (11 signalized and six unsignalized) are expected to be significantly adversely impacted. A total of 20 lane groups at 12 intersections (eight signalized and four unsignalized) are expected to be significantly adversely impacted in the Saturday midday peak hour. As shown in the **Tables 11-18a** and **11-18b**, the 21st Street and 27th Avenue corridors would have the most significantly adversely impacted intersections. **Chapter 18, "Mitigation,"** discusses potential measures to mitigate these significant adverse traffic impacts.

□ ith-Action Tra□ic Volumes

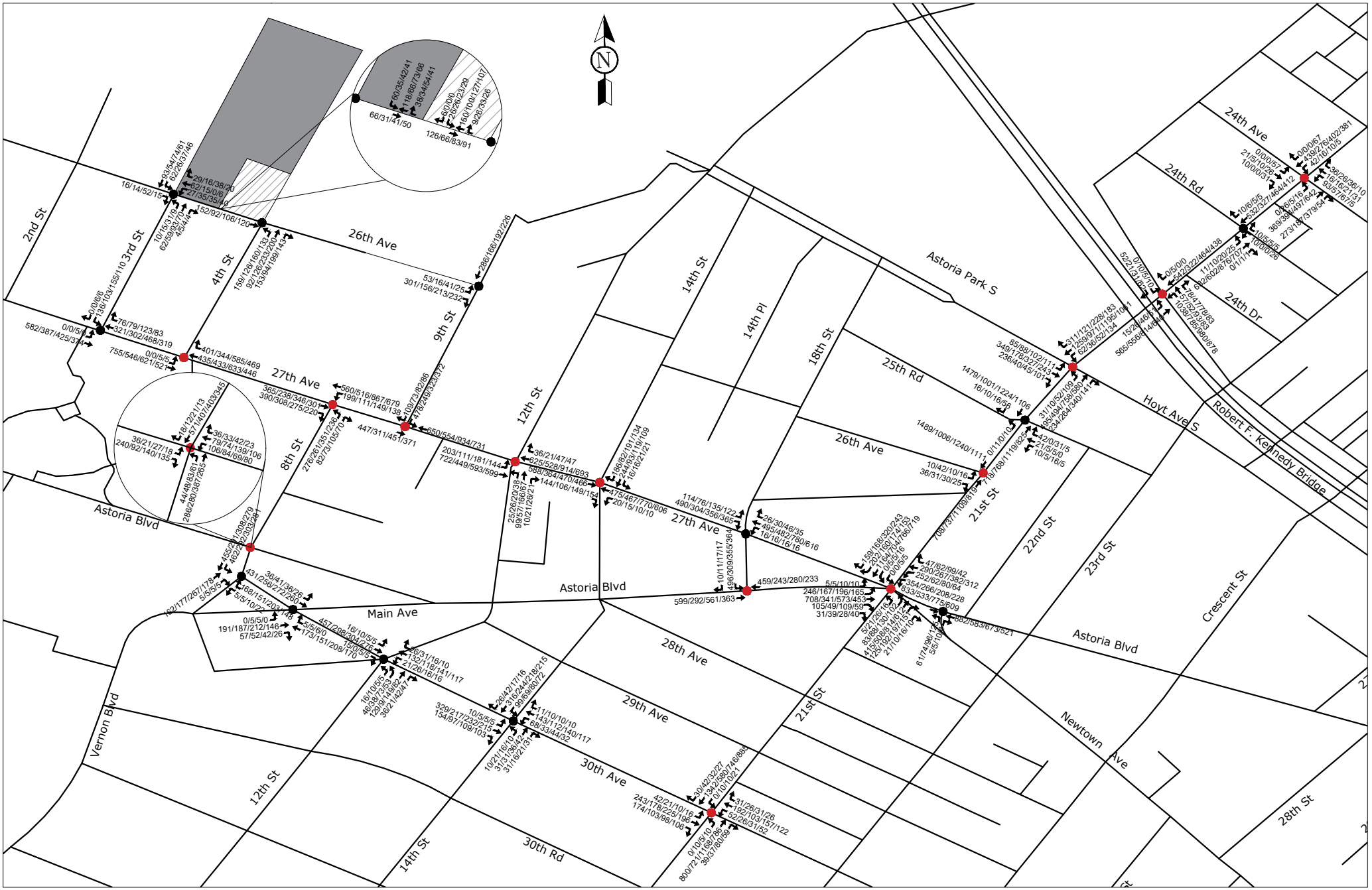


TABLE 11-18a
With-Action Traffic Levels of Service

			No-Action AM			With-Action AM			No-Action MD			With-Action MD			No-Action PM			With-Action PM			No-Action Saturday MD			With-Action Saturday MD		
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
26th Avenue &	WB	LT	0.01	7.5	A	0.02	7.4	A	0.02	7.4	A	0.03	7.4	A	0.03	7.5	A	0.03	7.5	A	0.03	7.4	A	0.03	7.4	A
3rd St	NB	LR	0.02	9.8	A	-	-	-	0.03	9.6	-	-	-	-	0.06	10.0	-	-	-	-	0.02	9.3	-	-	-	-
(Stop-Control)	NB	LTR	-	-	-	0.16	12.3	B	-	-	-	0.16	12.3	B	-	-	-	0.28	12.8	B	-	-	-	0.19	13.1	B
	SB	LT	0.00	11.6	B	0.66	38.4	E	-	-	-	0.42	31.0	D	-	-	-	0.56	36.6	E	-	-	-	1.40	311.7	F
26th Avenue & Site 1** (Stop-Control)	SB	LR	0.01	10.0	A	0.33	29.1	D	0.02	9.7	A	0.28	39.0	E	0.02	9.3	A	0.28	33.6	D	0.00	9.4	A	1.27	392.4	F
26th Avenue & Site 2 ** (Stop-Control/Allway Stop)	NB	LR	0.00	10.1	B	0.20	26.9	D	0.00	9.8	A	0.27	43.8	E	0.00	9.5	A	0.22	37.3	E	0.00	9.0	A	0.84	233.4	F
26th Avenue &	EB	T	-	8.0	A	-	10.1	B	-	7.9	A	-	8.9	A	-	8.4	A	-	10.2	B	-	8.2	A	-	10.1	B
4th Street (Stop-Control/Allway Stop)	NB	LR	-	10.9	B	-	15.5	C	-	9.5	A	-	12.0	B	-	13.2	B	-	28.9	D	-	12.2	B	-	20.6	C
26th Avenue &	EB	LR	0.43	15.1	C	0.71	23.6	C	0.16	10.8	B	0.28	11.8	B	0.29	12.0	B	0.43	13.7	B	0.26	12.1	B	0.46	14.6	B
9th St (Stop-Control)																										
26th Ave &	EB	LR	0.09	22.7	C	0.09	22.7	C	0.15	24.1	C	0.15	24.1	C	0.08	22.6	C	0.08	22.6	C	0.08	23.2	C	0.08	23.2	C
21st St	NB	T	0.60	26.2	C	0.64	27.3	C	0.54	26.1	C	0.56	26.5	C	0.82	33.3	C	0.84	34.6	C	0.62	27.7	C	0.64	28.4	C
(Signalized)	SB	T	1.13	99.0	F	1.14	105.8	F *	0.81	34.6	C	0.83	35.9	D	1.00	56.4	E	1.04	69.0	E *	0.85	36.3	D	0.88	38.7	D
27th Avenue &	EB	LT	0.00	9.0	A	0.00	9.7	A	0.00	12.9	B	0.00	14.2	B	0.01	11.9	B	0.01	13.2	B	0.00	13.4	B	0.00	15.0	C
3rd St (Stop-Control)	SB	LR	0.26	35.6	E	1.26	227.4	F *	0.53	75.7	F	1.47	349.0	F *	0.91	134.2	F	2.20	648.4	F *	0.64	92.6	F	1.85	514.6	F *
27th Avenue &	EB	LT	0.99	49.1	D	1.14	99.9	F *	0.75	22.1	C	0.84	27.4	C	0.76	19.2	B	0.87	26.1	C	0.64	16.3	B	0.73	19.3	B
4th St	WB	T	0.50	14.8	B	0.58	16.4	B	0.51	14.9	B	0.58	16.4	B	0.66	15.3	B	0.77	19.1	B	0.43	12.0	B	0.51	13.2	B
(Signalized)	WB	R	1.11	100.4	F	1.70	350.3	F *	1.34	197.0	F	2.00	484.7	F *	1.76	371.3	F	2.52	714.3	F *	1.49	254.4	F	2.28	607.1	F *
27th Avenue &	EB	T	0.48	14.0	B	0.50	14.3	B	0.35	13.3	B	0.36	13.4	B	0.44	14.3	B	0.46	14.7	B	0.41	13.9	B	0.42	14.1	B
8th Street	EB	R	0.70	22.1	C	0.99	59.3	E *	0.99	68.8	E	1.33	192.2	F *	0.53	18.1	B	0.83	36.8	D	0.48	17.2	B	0.78	32.5	C
(Signalized)	WB	L	0.62	21.4	C	0.73	28.2	C	0.29	13.7	B	0.37	15.4	B	0.48	18.0	B	0.61	23.4	C	0.40	15.9	B	0.52	19.6	B
	WB	T	0.67	18.1	B	0.76	21.5	C	0.65	18.9	B	0.77	23.8	C	1.11	89.1	F	1.33	176.8	F *	0.75	21.6	C	0.89	30.5	C
	NB	L	0.68	34.6	C	0.83	44.8	D	0.61	29.8	C	0.71	34.3	C	0.73	35.6	D	0.92	55.1	E *	0.40	23.9	C	0.50	25.9	C
	NB	R	0.37	26.8	C	0.45	29.8	C	0.50	33.7	C	0.55	37.5	D	0.58	33.9	C	0.62	36.9	D	0.38	26.4	C	0.41	27.7	C
27th Avenue &	EB	T	0.68	22.7	C	0.70	23.5	C	0.46	16.4	B	0.46	16.5	B	0.53	13.5	B	0.55	13.9	B	0.49	14.1	B	0.50	14.3	B
9th St	WB	T	1.00	56.9	E	1.12	94.1	F *	0.78	26.3	C	0.92	39.3	D	1.15	101.1	F	1.35	186.4	F *	0.93	36.9	D	1.09	79.4	E *
(Signalized)	SB	L	0.75	30.9	C	1.00	64.2	E *	0.41	22.1	C	0.53	24.5	C	0.68	35.1	D	0.87	48.3	D *	0.77	38.6	D	1.01	74.7	E *
	SB	R	0.21	17.9	B	0.25	18.4	B	0.13	18.3	B	0.18	18.8	B	0.20	23.9	C	0.25	24.7	C	0.20	22.6	C	0.27	23.7	C
27th Avenue &	EB	LT	1.13	88.7	F	1.42	210.2	F *	0.75	19.5	B	0.90	32.4	C	1.30	157.8	F	1.64	311.1	F *	1.22	130.2	F	1.66	321.1	F *
12th Street	WB	TR	0.65	9.5	A	0.73	11.5	B	0.64	14.7	B	0.75	18.5	B	0.93	25.6	C	1.08	65.6	E *	0.85	24.0	C	0.99	44.9	D
(Signalized)	NB	LTR	0.68	49.6	D	0.69	50.7	D	0.31	27.7	C	0.32	27.8	C	0.98	88.6	F	1.00	91.5	F	0.39	29.3	C	0.40	29.4	C
27th Avenue &	EB	TR	1.08	82.9	F	1.28	160.6	F *	0.61	16.8	B	0.68	18.7	B	0.85	31.5	C	0.99	52.8	D *	0.77	22.6	C	0.90	32.5	C
14th Street	WB	LT	0.76	28.2	C	0.96	51.0	D *	0.54	15.0	B	0.65	17.5	B	1.07	76.0	E	1.30	166.9	F *	0.60	15.9	B	0.67	17.5	B
(Signalized)	SB	LTR	0.87	38.9	D	0.87	38.9	D	0.49	27.6	C	0.49	27.6	C	0.73	30.9	C	0.73	30.9	C	0.69	34.1	C	0.66	32.9	C
27th Avenue &	EB	LTR	0.28	14.8	B	0.40	21.9	C	0.51	47.4	E		9999.0	F *	0.76	60.9	F	1.54	353.2	F *	6.52	2819.0	F		9999.0	F *
18th Street (Stop-Control)	WB	LTR	0.03	10.0	A	0.03	11.6	B	0.06	16.7	C	0.11	29.5	D	0.03	11.3	B	0.05	14.6	B	0.06	17.4	C	0.12	30.0	D
Astoria Boulevard &	EB	L	0.15	24.8	C	0.15	24.8	C	0.09	26.1	C	0.09	26.1	C	0.14	27.3	C	0.14	27.3	C	0.09	26.1	C	0.09	26.1	C
8th Street	EB	R	0.65	37.8	D	0.65	37.8	D	0.31	29.9	C	0.31	29.9	C	0.42	32.1	C	0.42	32.1	C	0.48	34.4	C	0.47	34.1	C
(Signalized)	WB	LTR	0.54	32.1	C	0.54	32.1	C	0.51	34.1	C	0.51	34.2	C	0.62	37.5	D	0.62	37.5	D	0.45	32.1	C	0.45	32.1	C
	NB	LT	0.68	28.8	C	0.86	43.6	D	0.58	21.1	C	0.66	24.2	C	0.87	40.7	D	1.08	90.4	F *	0.51	19.3	B	0.62	22.6	C
	SB	T	0.71	26.7	C	0.87	37.2	D	0.46	17.5	B	0.55	19.6	B	0.45	17.2	B	0.56	19.4	B	0.36	15.7	B	0.47	17.5	B
	SB	R	0.04	14.0	B	0.05	14.0	B	0.03	12.0	B	0.04	12.1	B	0.05	12.2	B	0.06	12.4	B	0.04	12.1	B	0.04	12.2	B
Astoria Boulevard &	EB	T	0.91	46.3	D	0.91	46.3	D	0.44	23.9	C	0.44	23.9	C	0.75	32.6	C	0.75	32.6	C	0.46	23.8	C	0.46	23.8	C
18th Street	WB	T	0.65	28.9	C	0.65	28.9	C	0.38	22.7	C	0.38	22.7	C	0.37	22.5	C	0.37	22.5	C	0.28	20.9	C	0.28	20.9	C
(Signalized)	SB	LR	0.81	38.9	D	1.02	74.9	E *	0.54	26.7	C	0.65	30.4	C	0.49	25.3	C	0.61	28.7	C	0.60	28.3	C	0.74	34.0	C
Astoria Boulevard &	EB	L	1.02	112.0	F	1.27	198.9	F *	0.48	42.1	D	0.57	44.8	D	0.71	58.3	E	0.84	69.7	E *	0.45	41.1	D	0.56	44.5	D
21st Street	EB	TR	2.50	733.3	F	2.90	909.7	F *	1.71	379.2	F	1.84	435.9	F *	1.76	397.5	F	1.88	450.7	F *	2.10	552.4	F	2.25	619.5	F *
(Signalized)	WB	L	1.11	124.7	F	1.11	124.7	F	0.82	60.7	E	0.82	60.7	E	1.03	113.4	F	1.03	113.4	F	0.67	48.7	D	0.67	48.7	D
	WB	T	1.33	209.1	F	1.50	282.4	F *	1.35	224.0	F	1.49	284.7	F *	2.52	750.7	F	2.84	890.8	F *	1.41	249.5	F	1.58	320.7	F *
	WB	R	0.32	42.5	D	0.35	43.9	D	0.37	41.3	D	0.38	42.1	D	0.84	88.9	F	0.88	96.7	F *	0.23	37.5	D	0.24	37.8	D
	NB	Defl				1.83	468.3	F																		
	NB	T				0.83	47.0	D																		
	NB	LT	0.96	66.3	E		132.5	F *	1.06	95.2	F	1.17	136.2	F *	1.34	194.6	F	1.45	244.4	F *	1.39	227.7	F	1.47	262.3	F *
	NB	R	0.44	29.7	C	0.44	29.7	C	0.61	44.7	D	0.66	47.5	D	0.51	29.5	C	0.51	29.5	C	0.53	43.2	D	0.54	43.8	D
	SB	LT	0.85	38.4	D	0.85	38.4	D	0.85	50.1	D	0.85	50.1	D	0.79	35.7	D	0.79	35.8	D	0.92	58.2	E	0.91	56.7	E
	SB	R	0.69	36.2	D	0.74	38.7	D	0.94	79.2	E	1.03	100.3	F *	1.10	108.6	F	1.23	158.9	F *	0.95	76.8	E	1.13	131.2	F *

TABLE 11-18b
With-Action Traffic Levels of Service (Cont'd)

			No-Action AM			With-Action AM				No-Action MD			With-Action MD				No-Action PM			With-Action PM				No-Action Saturday MD			With-Action Saturday MD			
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	
Astoria Blvd & Newtown Ave (Stop-Control)	NB	LR	0.59	71.4	F	0.73	96.1	F	*	0.33	26.7	D	0.41	30.9	D		0.68	67.9	F	0.93	119.5	F	*	0.61	43.1	E	0.74	58.8	F	*
30th Av & 8th St (Stop-Control)	SB	LT	0.72	22.8	C	1.04	76.8	F	*	3.87	1405.0	F		9999.0	F	*	1.19	160.5	F	2.58	780.3	F	*		9999.0	F		9999.0	F	*
	WB	LR	1.20	201.5	F		9999.0	F	*		9999.0	F		9999.0	F	*		9999.0	F		9999.0	F	*		9999.0	F		9999.0	F	*
30th Av & Main St (Stop-Control)	NB	LTR	0.00	7.3	A	0.00	7.3	A		0.00	7.3	A	0.00	7.3	A		0.00	7.4	A	0.00	7.4	A		0.00	7.3	A	0.00	7.3	A	
	WB	TR	0.30	15.2	C	0.34	14.7	B		0.28	13.7	B	0.32	14.0	B		0.39	16.1	C	0.50	18.5	C		0.28	13.1	B	0.34	13.8	B	
	EB	LT	0.99	69.4	F	1.19	130.3	F	*	0.58	22.1	C	0.68	25.8	D		0.68	28.3	D	0.85	44.3	E	*	0.48	17.0	C	0.60	20.4	C	
30th Avenue & 12th Street (All-way Stop)	EB	LTR	-	20.8	C	-	36.4	E	*	-	10.4	B	-	11.9	B		-	12.1	B	-	14.7	B		-	10.6	B	-	12.4	B	
	WB	LTR	-	11.1	B	-	12.5	B		-	8.9	A	-	9.4	A		-	10.3	B	-	11.4	B		-	9.4	A	-	9.9	A	
	NB	LTR	-	12.9	B	-	14.8	B		-	8.6	A	-	9.2	A		-	11.9	B	-	13.7	B		-	9.7	A	-	10.6	B	
30th Avenue & 14th Street (All-way Stop)	EB	LTR	-	43.6	E	-	91.0	F	*	-	14.8	B	-	19.0	C		-	14.9	B	-	19.0	C		-	13.9	B	-	17.3	C	
	WB	LTR	-	18.3	C	-	21.8	C		-	11.6	B	-	12.5	B		-	12.1	B	-	13.5	B		-	11.1	B	-	11.8	B	
	NB	LTR	-	12.8	B	-	13.7	B		-	10.1	B	-	10.7	B		-	10.3	B	-	10.9	B		-	9.9	A	-	10.4	B	
	SB	LTR	-	58.2	F	-	72.8	F	*	-	17.7	C	-	20.0	C		-	17.5	C	-	19.8	C		-	14.3	B	-	15.6	C	
24th Ave & 21st St (Signalized)	EB	LTR	0.08	16.1	B	0.08	16.1	B		0.01	15.5	B	0.01	15.5	B		0.03	15.6	B	0.03	15.6	B		0.48	23.3	C	0.48	23.3	C	
	WB	LTR	0.57	25.8	C	0.57	25.8	C		0.35	20.0	B	0.35	20.0	B		0.42	21.1	C	0.42	21.1	C		0.13	16.7	B	0.13	16.7	B	
	NB	LTR	1.35	188.8	F	1.48	241.8	F	*	1.24	142.7	F	1.34	184.4	F	*	1.22	126.7	F	1.26	145.3	F	*	1.27	152.3	F	1.36	188.0	F	*
	SB	LT	1.11	91.1	F	1.20	128.0	F	*	0.61	19.6	B	0.64	20.7	C		0.67	19.1	B	0.70	19.9	B		0.72	22.9	C	0.74	23.7	C	
	SB	R	0.00	9.6	A	0.00	9.6	A		0.00	11.4	B	0.00	11.4	B		0.00	9.6	A	0.00	9.6	A		0.17	13.0	B	0.17	13.0	B	
24th Rd & 21st St (Stop-Control)	NB	LT	0.02	9.5	A	0.02	9.6	A		0.01	8.4	A	0.01	8.4	A		0.03	9.0	A	0.03	9.0	A		0.04	9.3	A	0.04	9.3	A	
	WB	LTR	0.15	30.5	D	0.17	34.7	D		0.01	12.8	B	0.01	13.2	B		0.02	17.6	C	0.02	18.4	C		0.26	38.7	E	0.29	44.2	E	
Hoyt Avenue North & 21st Street (Signalized)	EB	L	0.00	40.0	D	0.00	40.0	D		0.07	42.8	D	0.07	42.8	D		0.08	44.3	D	0.08	44.3	D		0.07	41.2	D	0.07	41.2	D	
	EB	R	0.33	47.1	D	0.33	47.1	D		0.14	44.2	D	0.14	44.2	D		0.18	44.8	D	0.18	44.8	D		0.29	45.4	D	0.29	45.4	D	
	WB	L	1.05	81.3	F	1.06	85.0	F	*	0.79	42.0	D	0.81	42.9	D		0.99	65.7	E	1.03	75.7	E	*	0.89	50.8	D	0.92	54.8	D	
	WB	TR	0.36	17.9	B	0.36	17.9	B		0.17	14.4	B	0.17	14.4	B		0.28	16.8	B	0.28	16.8	B		0.39	18.3	B	0.39	18.3	B	
	NB	L	0.17	28.4	C	0.18	28.6	C		0.13	25.8	C	0.13	25.9	C		0.30	29.3	C	0.31	29.8	C		0.31	30.9	C	0.32	31.3	C	
	NB	T	1.28	179.6	F	1.41	235.3	F	*	1.24	163.0	F	1.31	189.9	F	*	1.18	131.0	F	1.23	150.1	F	*	1.06	93.1	F	1.14	118.2	F	*
	SB	TR	0.98	69.0	E	1.00	74.1	E	*	0.72	40.3	D	0.74	41.7	D		0.86	48.8	D	0.89	52.4	D		0.78	43.3	D	0.80	44.7	D	
Astoria Park S/ Hoyt Aven & 21st Street (Signalized)	EB	L	0.18	23.9	C	0.18	24.0	C		0.18	24.6	C	0.19	24.7	C		0.20	24.2	C	0.20	24.3	C		0.25	25.7	C	0.26	25.8	C	
	EB	TR	1.27	170.9	F	1.32	191.2	F	*	0.47	30.0	C	0.48	30.2	C		0.74	38.5	D	0.76	39.5	D		0.65	35.7	D	0.69	37.2	D	
	NB	DefL																						2.18	611.5	F	2.18	611.5	F	
	NB	TR																						1.04	77.5	E	1.09	93.6	F	*
	NB	LTR	1.18	129.0	F	1.28	167.4	F	*	0.84	37.9	D	0.88	41.6	D		1.49	258.6	F	1.56	291.9	F	*		160.4	F		170.7	F	*
	SB	LTR	1.27	161.1	F	1.32	182.6	F	*	1.14	108.3	F	1.19	126.7	F	*	1.53	274.1	F	1.60	306.8	F	*	1.28	164.5	F	1.34	191.1	F	*
25th Rd & 21st St (Stop-Control)	NB	LT	0.00	13.9	B	0.00	14.1	B		0.02	11.5	B	0.02	11.7	B		0.00	14.7	B	0.00	15.2	C		0.03	13.9	B	0.03	14.3	B	
	WB	LTR	1.59	454.0	F	1.75	532.3	F		0.32	143.4	F	0.36	166.7	F		1.80	628.0	F	1.97	719.1	F		0.16	62.8	F	0.18	71.3	F	
30th Avenue & 21st Street (Signalized)	EB	LTR	1.30	193.4	F	1.46	262.8	F	*	0.82	55.1	E	0.95	74.8	E	*	0.86	57.6	E	0.96	75.4	E	*	0.91	67.3	E	1.03	94.2	F	*
	WB	LTR	1.03	103.4	F	1.17	150.0	F	*	0.48	38.1	D	0.53	39.8	D		0.62	42.3	D	0.71	46.9	D		0.78	56.5	E	0.86	66.7	E	*
	NB	LTR	0.66	21.9	C	0.67	22.4	C		0.67	23.7	C	0.69	24.3	C		1.00	52.4	D	1.03	59.4	E	*	0.67	23.7	C	0.69	24.3	C	
	SB	LTR	1.01	53.5	D	1.01	53.5	D		0.56	20.9	D	0.56	20.9	C		0.65	21.9	D	0.65	21.9	C		0.78	27.6	E	0.78	27.6	C	

Notes:
EB - eastbound, WB - westbound, NB - northbound, SB - southbound
L - left, T - through, R - right, DefL - Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume-to-capacity ratio
Sec/veh - seconds per vehicle
LOS - level of service
* - Denotes a significant adverse impact
Analysis is based on the 2000 Highway Capacity Manual methodology (HCS+, version 5.5)
** Sites 1 and 2 Driveway are not considered significant adverse impacts because there are less than 90 PCEs on the approach.

H. TRANSIT

As discussed above in Section E, "Level 2 Screening Assessment," action-generated trips are expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold at the 30th Avenue (N and W trains) subway station and on N/W route of the subway line.

Existing Conditions

Subway Service

Subway Station

The 30th Avenue station is a local, elevated station on the BMT Astoria Line. Located at the intersection of 30th Avenue and 31st Street in Astoria, it is served by the N and W trains. A schematic of the station layout is provided in **Figure 11-10**. The N train operates between Coney Island, Brooklyn and Ditmars Boulevard, Queens. The W train operates between Whitehall Street, Manhattan and Ditmars Boulevard, Queens. The N/W line terminates/begins two station stops to the north of the 30th Avenue station. As shown in **Figure 11-10**, the 30th Avenue station has side platforms with two staircases leading down to the mezzanine level. The station's mezzanine level allows for free transfer between the northbound (Ditmars-bound) and southbound (Brooklyn/Manhattan-bound) trains. Outside of the bank of seven turnstiles, there is a token booth and four street stairs leading to the four corners of 30th Avenue and 31st Street. As the majority of project-generated subway riders are anticipated to use the northwest street stairs, southwest street stairs, southeast street stairs, all four platform stairs, and the fare array, the analysis focuses on all of these station elements.

As shown in **Tables 11-19** and **11-20**, all of the analyzed elements at 30th Avenue station, where project generated demand is expected to be most concentrated, currently operate at an uncongested LOS C or better in both the AM and PM peak hours. It should be noted that the P1-P2 platform stairs currently operates at capacity (v/c ratio of 1.00) during the AM peak hour and the P3-P4 platform stairs currently operates near capacity (v/c ratio of 0.96) during the PM peak hour. The fare array currently operates at LOS A in both the AM and AM peak hours.

TABLE 11-19
Existing Conditions Subway Station Stair Analysis

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	662	108	1.00	0.80	0.90	0.46	B
		M2-S2 (SE)	5.00	4.00	963	92	1.00	0.80	0.90	0.62	B
		M3-S3 (NW)	5.00	4.00	614	83	1.00	0.80	0.90	0.42	A
		P1-P2 (SB)	5.00	4.00	1,915	7	1.00	0.75	1.00	1.00	C
		P5-P6 (SB)	5.00	4.00	1,139	3	1.00	0.75	1.00	0.60	B
		P3-P4 (NB)	5.00	4.00	9	197	1.00	0.75	1.00	0.14	A
		P7-P8 (NB)	5.00	4.00	7	165	1.00	0.75	1.00	0.12	A
PM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	155	560	1.00	0.80	0.90	0.49	B
		M2-S2 (SE)	5.00	4.00	131	814	1.00	0.80	0.90	0.66	B
		M3-S3 (NW)	5.00	4.00	120	518	1.00	0.80	0.90	0.45	A
		P1-P2 (SB)	5.00	4.00	327	51	1.00	0.75	0.90	0.23	A
		P5-P6 (SB)	5.00	4.00	234	19	1.00	0.75	0.90	0.15	A
		P3-P4 (NB)	5.00	4.00	14	1,375	1.00	0.75	1.00	0.96	C
		P7-P8 (NB)	5.00	4.00	31	1,144	1.00	0.75	1.00	0.81	C

Figure 11-10

30th Avenue Subway Station Layout

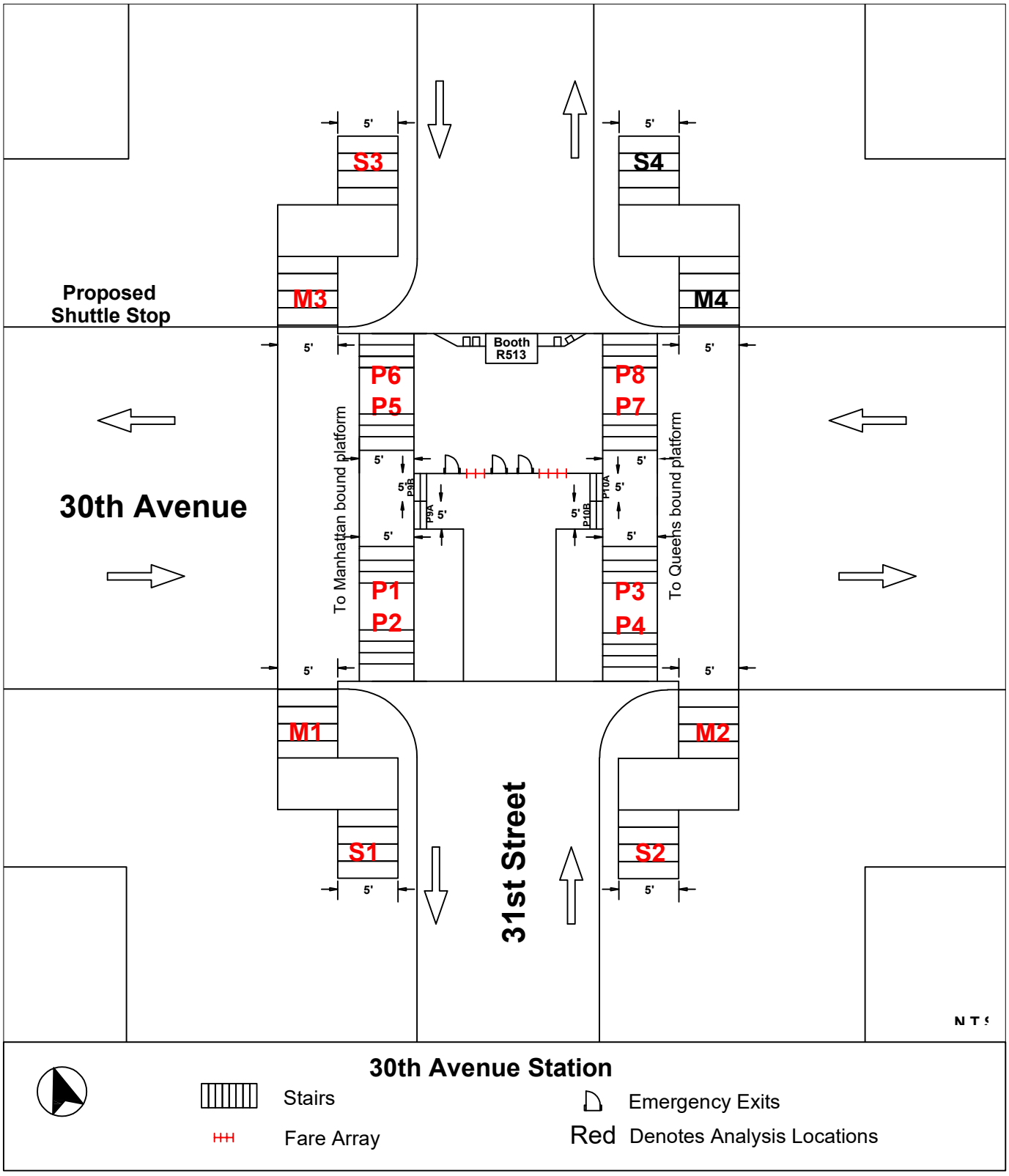


TABLE 11-20
Existing Conditions Subway Station Fare Array Analysis

Peak Hour	Station	Control Area	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	30th Ave (N/W)	R513	7	0	0	3,070	372	1.00	0.75	0.90	0.40	A
PM	30th Ave (N/W)	R513	7	0	0	606	2,589	1.00	0.75	0.90	0.34	A

Subway Line Haul

Line haul is the volume of transit riders passing a defined point on a given transit route. For subway routes in New York City to and from Queens, line haul is typically measured either at East River bridges and tunnel crossings, or at the actual maximum load point on each subway route (the point where the trains carry the greatest number of passengers during the peak hour). As discussed previously, one NYCT subway routes operate in proximity to the Project Area, specifically the N/W line. Both of these routes cross the East River. The peak direction of travel is typically Manhattan-bound in the AM peak period and Astoria-Ditmars-bound in the PM.

The analysis of existing subway line haul conditions is based on maximum load point capacity and route ridership data for 2017 provided by NYCT. The ridership data were conservatively grown by 0.5 percent to account for any increases in demand.

Table 11-21 shows existing line haul conditions in the peak direction at the maximum load points for the N/W subway route during the AM and PM peak hours. As shown in **Table 11-21**, the N/W route currently operates below capacity in the peak direction in both periods; however, in the AM peak hour, southbound N/W trains operate close to capacity with a v/c ratio of 0.99.

TABLE 11-21
Existing Conditions Subway Line Haul Analysis

Peak Hour	Route	Direction	Maximum Load Point	Average Trains per Hour[1]	Average Cars per Hour[1]	Average Passengers per Hour[1,2]	Average Passengers per Car[1]	Guideline Passengers per Car[2]	V/C Ratio[4]
AM	N/W	SB	Queensboro Plaza	15.1	150	21,572	144	145	0.99
PM	N/W	NB	Lexington Av - 59 St	14.3	144	15,381	107	145	0.74

Notes:
(1) Based on 2017 ridership and train throughput data from NYCT.
(2) Passenger volumes grown by 0.5 percent/year (based on *CEQR Technical Manual*) to account for background growth in demand during the 2017 to 2019 period.
(3) Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.
(4) Volume to guideline capacity ratio.

Bus Service

The Project Area is served by a total of three local bus routes, all operated by MTA Bus. As shown previously in **Figure 11-3**, the Q18, Q19, Q102 and Q103 provide service within one quarter-mile of the Project Area. Additionally, all three routes terminate/begin approximately one block south of the Project Area. The Q18 operates between Maspeth, Queens and Astoria, Queens; the Q19 operates between Flushing, Queens and Astoria, Queens; the Q102 operates between Roosevelt Island, Manhattan and Astoria, Queens; and the Q103 operates between Hunters Point and Astoria. Both the Q18 and Q102 routes service the 30th Avenue subway station, while the Q19 services the Astoria Boulevard station and

the Q103 services the 21st Street-Queensbridge station.

As shown in **Table 11-4**, three bus routes are expected to potentially experience 50 or more new trips in one direction in one or both peak hours and are therefore analyzed in this EIS—the Q18, Q19 and Q103. Service on these local routes is provided by 40-foot standard buses. **Table 11-22** shows the existing number of buses and ridership at the maximum load point in each direction for both services in the weekday AM and PM peak hours. As shown in **Table 11-22**, based on MTA loading guidelines, the Q18 and Q19 routes currently operate with available capacity in each direction during the weekday PM peak hour. However, in the AM peak hour Q18 buses currently operate with available capacity in the eastbound direction, but experience a capacity shortfall of eight seats in the westbound direction. In the AM peak hour, Q19 buses currently operate with available capacity in the westbound direction, but experience a capacity shortfall of 30 seats in the eastbound direction. In addition, the Q103 route currently operates with available capacity in the northbound direction during the weekday AM and PM peak hours, but experiences a capacity shortfall of 126 seats and 15 seats in the southbound direction during the weekday AM and PM peak hours respectively.

TABLE 11-22
Existing Conditions Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	Peak Hour Passengers[1]	Average Passengers per Bus	Available Capacity[2]
AM	Q18	EB	30 Av & 27 St	6.5	281.5	43	70
		WB	Woodside Av & 61 St	8	439.5	55	-8
	Q19	EB	Northern Bl & 127 Pl	4	246	62	-30
		WB	Astoria Bl & 94 St	4	208	52	8
	Q103	NB	21 St & 41 Av	2	99	50	9
		SB	40 Av & 10 St	2	234	117	-126
PM	Q18	EB	Woodside Av & 60 St	9	334.5	37	152
		WB	30 Av & 21 St	7	206	29	172
	Q19	EB	Astoria Bl & 90 St	3	136	45	26
		WB	Main St & Northern Bl	3	107	36	55
	Q103	NB	21 St & 41 Av	2	102	51	6
		SB	40 Av & 12 St	2	123	62	-15

Notes:
(1) Based on NYCT 2019 ridership data.
(2) Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

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

Under No-Action conditions, demand at all analyzed subway stations is expected to increase as a result of new development and/or background growth. In order to forecast 2031 future transit conditions without the Proposed Actions (the No-Action condition), development on the Development Site and other developments listed in **Table 11-16** and shown in **Figure 11-7** were considered. The future No-Action traffic volumes also reflect annual background growth rates as recommended in the 2020 *CEQR Technical Manual* for projects in Queens. It should be noted that considered improvements or mitigation measures proposed as part of the *Astoria Cove Rezoning FEIS* that would directly affect the No-Action transit analyses, specifically the project's commitment to provided shuttle buses to the Astoria Boulevard and 21st Street-Queensbridge stations.

Subway Service

Subway Station

Tables 11-23 and **11-24** show the results of the analysis of No-Action AM and PM peak hour conditions at the 30th Avenue subway stations. As shown in **Tables 11-23** and **11-24**, all analyzed stairs and fare arrays at these stations would continue to operate at an acceptable LOS C or better in both peak hours in the 2031 future without the Proposed Actions, with the exception of the P1-P2 platform stairs in the AM; and the M1-S3 street stair, P3-P4 and P7-P8 platform stairs in the PM.

TABLE 11-23
No-Action Conditions Subway Station Stair Analysis

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	1,142	113	1.00	0.80	0.90	0.74	C
		M2-S2 (SE)	5.00	4.00	1,456	96	1.00	0.80	0.90	0.91	C
		M3-S3 (NW)	5.00	4.00	641	338	1.00	0.80	0.90	0.62	B
		P1-P2 (SB)	5.00	4.00	2,564	7	1.00	0.75	1.00	1.34	E
		P5-P6 (SB)	5.00	4.00	1,524	3	1.00	0.75	1.00	0.80	C
		P3-P4 (NB)	5.00	4.00	9	343	1.00	0.75	1.00	0.24	A
		P7-P8 (NB)	5.00	4.00	7	286	1.00	0.75	1.00	0.20	A
PM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	402	584	1.00	0.80	0.90	0.66	B
		M2-S2 (SE)	5.00	4.00	377	849	1.00	0.80	0.90	0.83	C
		M3-S3 (NW)	5.00	4.00	125	1,365	1.00	0.80	0.90	1.06	D
		P1-P2 (SB)	5.00	4.00	621	53	1.00	0.75	0.90	0.40	A
		P5-P6 (SB)	5.00	4.00	444	20	1.00	0.75	1.00	0.25	A
		P3-P4 (NB)	5.00	4.00	15	1,885	1.00	0.75	1.00	1.32	D
		P7-P8 (NB)	5.00	4.00	32	1,569	1.00	0.75	1.00	1.11	D

TABLE 11-24
No-Action Conditions Subway Station Fare Array Analysis

Peak Hour	Station	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	30th Ave (N/W)	R513	7	0	0	4,105	639	1.00	0.75	0.90	0.55	B
PM	30th Ave (N/W)	R513	7	0	0	1,112	3,526	1.00	0.75	0.90	0.49	B

In the AM peak hour, the P1-P2 platform stair would degrade to LOS E with a v/c ratio of 1.34 under No-Action conditions from LOS C with a v/c ratio of 1.00 under Existing conditions (34% increase as result of No-Action demand). In addition, during the AM peak hour, minor degradations would occur on the M1-S1, M2-S2, P5-P6 staircases to LOS C under No-Action conditions from LOS B under the Existing conditions. The M3-S3 would degrade to LOS B under No-Action conditions from LOS A under Existing conditions in the AM peak hour. In the PM peak hour, the M3-S3 street stairs would degrade to LOS D with a v/c ratio of 1.06 under No-Action conditions from LOS A with a v/c ratio of 0.45 under Existing conditions (136% increase as result of No-Action demand). During the same period, the P3-P4 platform stairs would degrade to LOS D with a v/c ratio of 1.32 under No-Action conditions from LOS C with a v/c ratio of 0.96 under Existing conditions (38% increase as result of No-Action demand; and the P7-P8 platform stairs would degrade to LOS D with a v/c ratio of 1.11 under No-Action conditions from LOS C with a v/c ratio of 0.81 under Existing conditions (37% increase as result of No-Action demand). In addition, during the PM peak hour, minor degradation would occur on M2-S2 staircase to LOS C under No-Action conditions from LOS

B under the Existing conditions. The fare array at 30th Avenue would degrade to LOS B under the No-Action conditions from LOS A under Existing conditions during both the AM and PM peak hours.

The significant increase in transit usage in the No-Action conditions is due to the conservative assumption that major No-Action developments (shown in **Table 11-16**), such as Halletts Point and Astoria Cove (a total of nearly 4000 dwelling units), would be developed as proposed in their respective FEISs (completed in 2014 and 2013, respectively). These developments account for approximately 76% of the transit No-Action demand through the 30th Avenue station in both the AM and PM peak hours. It should be noted that these two particular developments were slated for completion in the years 2022 and 2023, but only one building has since been erected for Halletts Point and no immediate prospective construction is planned.

Subway Line Haul

Table 11-25 shows anticipated 2031 No-Action line haul conditions at the maximum load points on the eleven subway routes operating in proximity to the Project Area. The data in **Table 11-25** reflect both background growth for the 2019 through 2031 period and the addition of demand from new development within the Project Area and its proximity.

As shown in **Table 11-25**, in the No-Action condition, N/W route is expected to operate overcapacity in the AM peak hour with a v/c ratio of 1.10 in the peak southbound direction compared to a v/c ratio of 0.99 under Existing conditions. During the PM peak hour, the N/W subway route is expected to continue to operate below capacity in the peak northbound direction with a v/c ratio of 0.83 under the No-Action conditions compared to a v/c ratio of 0.74 under the Existing conditions.

TABLE 11-25
No-Action Conditions Subway Line Haul Analysis

Peak Hour	Route	Direction	Maximum Load Point	Average Trains per Hour[1]	Average Cars per Hour	Average Passengers per Hour[1,2]	Average Passengers per Car	Guideline Passengers per Car[3]	V/C Ratio[4]
AM	N/W	SB	Queensboro Plaza	15.1	150	23,893	159	145	1.10
PM	N/W	NB	Lexington Av - 59 St	14.3	144	17,327	120	145	0.83

Notes:

(1) Based on 2017 ridership and train throughput data from NYCT.

(2) Passenger volumes demand from No-Action development plus growth of 0.5 percent/year for first five years and 0.25 percent/year till 2031 (based on *CEQR Technical Manual*) to account for background growth in demand.

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

(4) Volume to guideline capacity ratio.

Bus Service

Demand on the local bus services operating in the vicinity of the Project Area is expected to increase during the 2019 through 2031 period as a result of background growth as well as demand from new development. As shown in **Table 11-26**, existing levels of bus service are not expected to be sufficient to provide adequate supply to meet the projected demand in the 2031 No-Action condition on the eastbound Q18, westbound Q18, eastbound Q19, westbound Q19, northbound Q103, and southbound Q103 in the AM peak hour. Based on a loading guideline of 54 passengers per standard bus, ten, one, one,

one, four, and 17 additional buses would be needed for the eastbound Q18, westbound Q18, eastbound Q19, westbound Q19, northbound Q103, and southbound Q103 services, respectively, in the AM peak hour in order to accommodate projected demand. Also shown in **Table 11-26**, existing levels of bus service are not expected to be sufficient to provide adequate supply to meet the projected demand in the 2031 No-Action condition on the westbound Q18, northbound Q103, and southbound Q103 services in the PM peak hour. Based on a loading guideline of 54 passengers per standard bus, eight, thirteen, and eight additional buses would be needed for the westbound Q18, northbound Q103, and southbound Q103 services in the PM peak hour in order to accommodate projected demand.

As a general policy, the MTA provides additional bus service where demand warrants, taking into account financial and operational constraints. Based on ongoing passenger monitoring programs, comprehensive service plans would be generated to respond to specific, known needs with capital and/or operational improvements where fiscally and operationally practicable. The MTA's capital program is developed on a five-year cycle; through this program, expansion of bus services would be provided as needs are determined. It is therefore anticipated that in the No-Action condition, the MTA would increase service frequency on the eastbound Q18, westbound Q18, eastbound Q19, westbound Q19, northbound Q103 and southbound Q103 buses in the AM peak hour and the westbound Q18, northbound Q103, and southbound Q103 buses in the PM peak hour to address its capacity shortfall.

TABLE 11-26
No-Action Conditions Bus Analysis

					No-Action with Current Service Levels			No-Action with Potential Service Adjustments		
Peak Hour[1]	Route	Direction	Maximum Load Point	Peak Hour Passengers[1]	Peak Hour Buses[2]	Average Passengers per Bus	Available Capacity[3]	Peak Hour Buses	Average Passengers per Bus	Available Capacity[3]
AM	Q18	EB	30 Av & 27 St	840	6.5	129	-489	16.5	51	51
		WB	Woodside Av & 61 St	477	8	60	-45	9	53	9
	Q19	EB	Northern Bl & 127 Pl	257	4	64	-41	5	51	13
		WB	Astoria Bl & 94 St	222	4	56	-6	5	44	48
	Q103	NB	21 St & 41 Av	306	2	153	-198	6	51	18
		SB	40 Av & 10 St	975	2	488	-867	19	51	51
PM	Q18	EB	Woodside Av & 60 St	385	9	43	101	9	43	101
		WB	30 Av & 21 St	738	7	105	-360	15	49	72
	Q19	EB	Astoria Bl & 90 St	156	3	52	6	3	52	6
		WB	Main St & Northern Bl	112	3	37	50	3	37	50
	Q103	NB	21 St & 41 Av	788	2	394	-680	15	53	22
		SB	40 Av & 12 St	530	2	265	-422	10	53	10

Notes:
[1] No-Action passenger volumes reflect demand from No-Action development plus background growth rates 0.5 percent/year for first five years and 0.25 percent/year till 2031 (based on *CEQR Technical Manual*).
[2] Based on most currently available data from NYCT.
[3] Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

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

Subway Service

Subway Station
As shown in **Table 11-3**, the Proposed Actions are expected to generate a net total of 796 and 886 new subway trips in the weekday AM and PM peak hours, respectively. The 30th Avenue station is expected to

experience an increase of 557 AM and 620 PM peak hour trips.

Tables 11-27 and **11-28** show conditions at stairs and fare arrays at the 30th Avenue subway station in the future with the Proposed Actions. As shown in **Table 11-27**, under With-Action conditions, six stairs in the AM peak hour and four stairs would operate at LOS C or better. In the AM peak hour, under With-Action conditions, the M3-S3 street stairs (at the northwest corner of 30th Avenue and 31st Street) is projected to deteriorate in level of service and operate at LOS C with a v/c ratio of 0.92, compared to a v/c ratio of 0.62 (LOS B) in the No-Action condition. In the PM peak hour, under With-Action conditions, the same street stairs are projected to deteriorate in level of service and operate at LOS E with a v/c ratio of 1.45, compared to a v/c ratio of 1.06 (LOS D) in the No-Action conditions. Additionally, under With-Action conditions, the P1-P2 platform stairs is projected to deteriorate in level of service and operate at LOS B with a v/c ratio of 0.48, compared to a v/c ratio of 0.40 (LOS A) in the No-Action conditions. Under With-Action conditions, the P3-P4 platform stairs is projected to deteriorate in level of service and operate at LOS E with a v/c ratio of 1.46, compared to a v/c ratio of 1.32 (LOS D) in the No-Action conditions.

TABLE 11-27
With-Action Conditions Subway Station Stair Analysis

Peak Hour	Station	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	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	34	0	1,176	113	1.00	0.80	0.90	0.76	C	- - -	- - -
		M2-S2 (SE)	5.00	4.00	35	0	1,491	96	1.00	0.80	0.90	0.93	C	- - -	- - -
		M3-S3 (NW)	5.00	4.00	359	129	1,000	467	1.00	0.80	0.90	0.92	C	-	-
		P1-P2 (SB)	5.00	4.00	268	0	2,832	7	1.00	0.75	1.00	1.48	E *	5.0	4
		P5-P6 (SB)	5.00	4.00	160	0	1,684	3	1.00	0.75	1.00	0.88	C	-	-
		P3-P4 (NB)	5.00	4.00	0	70	9	413	1.00	0.75	1.00	0.29	A	- - -	- - -
		P7-P8 (NB)	5.00	4.00	0	59	7	345	1.00	0.75	1.00	0.24	A	- - -	- - -
PM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	19	0	421	584	1.00	0.80	0.90	0.67	B	- - -	- - -
		M2-S2 (SE)	5.00	4.00	19	0	396	849	1.00	0.80	0.90	0.84	C	- - -	- - -
		M3-S3 (NW)	5.00	4.00	202	380	327	1,745	1.00	0.80	0.90	1.45	E *	18.6	4
		P1-P2 (SB)	5.00	4.00	140	0	761	53	1.00	0.75	0.90	0.48	B	- - -	- - -
		P5-P6 (SB)	5.00	4.00	100	0	544	20	1.00	0.75	1.00	0.30	A	- - -	- - -
		P3-P4 (NB)	5.00	4.00	0	207	15	2,092	1.00	0.75	1.00	1.46	E *	5.3	4
		P7-P8 (NB)	5.00	4.00	0	173	32	1,742	1.00	0.75	1.00	1.23	D	5.2	6

*Denotes a significant adverse impact

TABLE 11-28
With-Action Conditions Subway Station Fare Array Analysis

Peak Hour	Station	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	30th Ave (N/W)	R513	7	0	0	428	129	4,533	768	1.00	0.75	0.90	0.61	B
PM	30th Ave (N/W)	R513	7	0	0	240	380	1,352	3,906	1.00	0.75	0.90	0.56	B

As shown in **Table 11-27**, under With-Action conditions, one stairs (P1-P2) in the AM peak hour and two stairs (M3-S3, P3-P4) in the PM peak hour would operate overcapacity. In the AM peak hour, the P1-P2 platform stairs would have a WIT of 5.0 inches, which exceeds the four-inch impact threshold, and therefore be considered significantly adversely impacted as a result of the Proposed Actions in the AM peak hour. In the PM peak hour, the M3-S3 street stairs would have a WIT of 18.6 inches, which exceeds the four-inch impact threshold, and therefore also be considered significantly adversely impacted as a result of the Proposed Actions. During the same period, the P3-P4 and P7-P8 platform stairs would each have WITs of 5.2 and 5.6 inches, respectively. The P3-P4 platform stairs would exceed the four-inch impact

threshold but the P7-P8 platform stairs would not exceed the six-inch impact threshold. As such, the P3-P4 platform stairs would be considered significantly adversely impacted as a result of the Proposed Actions in the PM peak hour. It should be noted that the forecasted transit demand for the No-Action developments and Proposed Actions may be overestimated based on dated planning factors and the lack of consideration of growing modes of transportation like the NYC Ferry. As such, it is likely that forecasted transit demand would potentially not materialize at the degree forecasted for the No-Action developments and Proposed Actions. **Chapter 18, "Mitigation,"** further discusses this and potential measures to mitigate significant adverse subway station impacts.

As shown in **Table 11-28**, the analyzed fare array at the 30th Avenue station is projected to operate at an acceptable LOS B in both peak hours in the With-Action conditions, same as under the No-Action condition. As such, the fare array would not be significantly adversely impacted by the Proposed Actions based on 2020 *CEQR Technical Manual* criteria.

Subway Line Haul

Table 11-29 shows line haul conditions on the subway routes serving the Project Area in the With-Action condition. As shown in **Table 11-29**, in the With-Action conditions, N/W trains are expected to operate over capacity in the AM peak hour with a v/c ratio of 1.12 in the peak southbound direction, and below capacity in the PM peak hour with a v/c ratio of 0.85 in the peak northbound direction. This compares to v/c ratios of 1.10 southbound in the AM and 0.83 northbound in the PM under No-Action conditions. As the overcapacity southbound route in the AM peak hour would experience an average incremental increase of 3.46 persons/car, less than the five persons/car *CEQR Technical Manual* impact threshold, southbound N/W service would not be considered significantly adversely impacted by the Proposed Actions in the AM peak hour. The N/W analyzed subway route would therefore not be significant adversely impacted by the Proposed Actions in AM or PM peak hours.

TABLE 11-29
With-Action Conditions Subway Line Haul Analysis

							2031 No-Action Condition[1]			2031 With-Action Condition			
Peak Hour	Route	Direction	Maximum Load Point	Average Trains per Hour[1]	Average Cars per Hour	Guideline Passengers per Car[2]	Average Passengers per Hour	Average Passengers per Car	V/C Ratio[3]	Average Passengers per Hour	Average Passengers per Car	V/C Ratio[3]	Average Additional Passengers per Car
AM	N/W	SB	Queensboro Plaza	15.1	150	145	23,893	159	1.10	24,412	163	1.12	3.46
PM	N/W	NB	Lexington Av - 59 St	14.3	144	145	17,327	1.20	0.83	17,789	124	0.85	3.21

Notes:
(1) Based on 2017 ridership and train throughput data from NYCT.
(2) Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.
(3) Volume to guideline capacity ratio.

Bus Service

As shown in **Table 11-4**, projected development sites would generate a net total of approximately 92 and 106 new trips on the bus services operating in proximity to the Project Area during the weekday AM and PM peak hours, respectively. As shown in **Table 11-30**, demand on the Q18 route is expected to increase by approximately 67 eastbound trips and six westbound trips at the maximum load points in the AM peak hour and by nine eastbound trips and 62 westbound trips in the PM. Demand on the Q19 route is expected to increase by approximately zero eastbound trips and two westbound trips at the maximum load points in the AM peak hour and by four eastbound trips and zero westbound trips in the PM. Demand on the

Q103 route is expected to increase by approximately 30 northbound trips and 97 southbound trips at the maximum load points in the AM peak hour and by 85 northbound trips and 55 southbound trips in the PM. As shown in **Table 11-30**, with these incremental increases in demand, the westbound Q18, eastbound Q19, and westbound Q19 bus routes in the AM peak hour and the eastbound Q18, westbound Q18, eastbound Q19, and westbound Q19 bus routes in the PM peak hour would continue to operate with available capacity at their maximum load points.

As shown in **Table 11-30**, based on projected levels of bus service in the No-Action conditions, the Proposed Actions would result in a passenger capacity shortfall of 16 on the eastbound Q18 buses, twelve on the northbound Q103 buses, and 46 on the southbound Q103 buses in the AM peak hour. In addition, the Proposed Actions would also result in a passenger capacity shortfall of 63 on the northbound Q103 buses and 45 on the southbound Q103 buses in the PM peak hour. Therefore, based on *CEQR Technical Manual* impact criteria, the eastbound Q18, northbound Q103, and southbound Q103 bus routes in the AM peak hour and the northbound Q103 and southbound Q103 bus routes in the PM peak hour would be significantly adversely impacted. As discussed in **Chapter 18, "Mitigation**," the addition of one or two buses on each impacted bus route would fully mitigate these significant impacts.

TABLE 11-30
With-Action Conditions Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	No-Action Available Capacity[2]	Project Increment	Available Capacity w/Proposed Actions[2]
AM	Q18	EB	30 Av & 27 St	16.5	51	67	-16
		WB	Woodside Av & 61 St	9	9	6	3
	Q19	EB	Northern Bl & 127 Pl	5	13	0	13
		WB	Astoria Bl & 94 St	5	48	2	46
	Q103	NB	21 St & 41 Av	6	18	30	-12
		SB	40 Av & 10 St	19	51	97	-46
PM	Q18	EB	Woodside Av & 60 St	9	101	9	92
		WB	30 Av & 21 St	15	72	62	10
	Q19	EB	Astoria Bl & 90 St	3	6	4	2
		WB	Main St & Northern Bl	3	50	0	50
	Q103	NB	21 St & 41 Av	15	22	85	-63
		SB	40 Av & 12 St	10	10	55	-45

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

I. PEDESTRIANS

Existing Conditions

As discussed previously in Section E, "Level 2 Screening Assessment," the analysis of pedestrian conditions focuses on a total of 19 representative pedestrian elements where new trips generated by the Projected Development are expected to be most concentrated. These elements—sidewalks, corner areas, and crosswalks—are primarily located along corridors in the vicinity of the Projected Development and elements connecting the site to area subway station entrances and bus stops. As shown in **Figure 11-5**, they include a total of eleven sidewalks, five corner areas, and three crosswalks.

Sidewalks

Table 11-31 shows the existing peak hour pedestrian volumes, average pedestrian space (in sf/ped), and platoon-adjusted LOS at the eleven analyzed sidewalks. The west sidewalk of 3rd Street between 26th Avenue and the waterfront (S1) is not analyzed in the Existing conditions as it currently does not exist and not analyzed under Existing conditions. However, as the Applicant plans on construct this sidewalk in the future, this sidewalk would be analyzed in the No-Action and With-Action conditions. As shown in **Table 11-31**, all analyzed sidewalks currently operate at an uncongested LOS B or better in all peak hours.

Crosswalks

Study area intersections are a mix of signalized and stop controlled, and the signalized intersections generally include pedestrian signals. High visibility crosswalk striping is present at many intersections, especially in proximity to schools and along heavily trafficked commercial corridors. The intersection of 27th Avenue and 4th Street, where all three analyzed crosswalks are located, is currently an unsignalized intersection but would become a signalized intersection in the future as part of improvement or mitigation measure proposed for No-Action developments nearby. Therefore, the analyzed crosswalks at 27th Avenue and 4th Street are not analyzed in the Existing conditions, but will be analyzed in the No-Action and With-Action conditions.

TABLE 11-31
Existing Sidewalk Conditions

	Location	Sidewalk	Effective Width (ft)	Peak Hour Volume				Average Pedestrian Space (ft^2/ped)				Platoon-Adjusted Level of Service			
				AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
S1	3rd Street Btwn 26th Ave and the waterfront	West	---	---	---	---	---	---	---	---	---	---	---	---	---
S2	26th Ave Btwn 3rd St and 4th St	North	6.4	10	10	10	10	8,135	8,135	8,315	8,135	A	A	A	A
S3	3rd St Btwn 26th Ave and 27th Ave	East	2.7	6	10	3	10	2,679	3,383	5,357	3,383	A	A	A	A
S4	26th Ave Btwn 3rd St and 4th St	South	7.7	37	18	22	8	2,594	4,657	4,142	9,568	A	A	A	A
S5	4th St Btwn 26th Ave and 27th Ave	East	7.2	26	10	27	8	2,359	5,679	1,893	5,963	A	A	A	A
S6	26th Ave Btwn 4th St and 8th St	South	12.0	10	10	10	10	15,206	15,206	15,206	15,206	A	A	A	A
S7	4th St Btwn 26th Ave and 27th Ave	West	7.4	6	10	10	4	744	9,403	9,403	7,346	A	A	A	A
S8	27th Ave Btwn 3rd St and 4th St	North	7.5	44	5	31	13	1,566	5,940	2,798	9,139	A	A	A	A
S9	31st St Btwn Newtown Ave and 30th Ave	West	9.5	536	324	670	339	261	344	213	399	B	B	B	B
S10	30th Ave Btwn 30th St and 31st St	North	8.1	733	537	796	460	138	162	151	234	B	B	B	B
S11	27th Ave Btwn 4th St and 8th St	South	6.0	68	45	74	42	1,202	1,753	860	1,878	A	A	A	A

Corner Areas

Table 11-32 shows the average pedestrian space (in sf/ped) and levels of service at analyzed corner areas. As mentioned above, the intersection of 27th Avenue and 4th Street is currently an unsignalized intersection but would become a signalized intersection in the future. Therefore, the analyzed corners of 27th Avenue and 4th Street are not analyzed in the existing conditions, but will be analyzed in the No-Action and With-Action conditions. As shown in **Table 11-32**, all other analyzed corner areas currently operate at an uncongested LOS A in all analyzed peak hours.

TABLE 11-32
Existing Corner Area Conditions

			Average Pedestrian Space (ft^2/ped)				Level of Service			
	Location	Corner	AM	MD	PM	SAT	AM	MD	PM	SAT
C1	27th Ave and 4th St	NE	---	---	---	---	---	---	---	---
C2		NW	---	---	---	---	---	---	---	---
C3	27th Ave and 8th St	SE	444.6	501.2	586.5	511.0	A	A	A	A
C4		SW	471.0	896.8	1,005.3	641.0	A	A	A	A
C5	30th Ave and 31st St	NW	170.9	325.9	211.0	102.4	A	A	A	A

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

Pedestrian volumes along analyzed sidewalks, crosswalks, and corner areas are expected to increase during the 2021 through 2031 period as a result of background growth as well as demand from new development described in **Table 11-16** (shown in **Figure 11-7**). In determining future No-Action pedestrian volumes, development on the Projected Area pursuant to existing zoning was considered, as was demand from other No-Action development projects. It should be noted that, in the future without the Proposed Actions, mitigation and improvement measures from the *Astoria Cove Rezoning FEIS* (2014) and other No-Action Developments are expected to be implemented in proximity to the pedestrian study area that would affect pedestrian flow. The mitigation measures include converting the unsignalized intersection of 27th Avenue and 4th Street to a signalized intersection. In addition, 3rd Street would be demapped and a 13-foot wide sidewalk from 26th Avenue to the waterfront would be constructed by the Applicant in the future with the Proposed Actions but this improvement will also be considered under the future without the Proposed Actions. These future implementations are included in the No-Action (and With-Action) analyses.

Sidewalks

Table 11-33 shows the No-Action peak hour pedestrian volumes, average pedestrian space, and platoon-adjusted LOS at analyzed sidewalks. As shown in **Table 11-33**, all analyzed sidewalks are expected to operate at an acceptable LOS C or better in all peak hours in the future without the Proposed Actions. As shown in **Table 11-33**, a total of five sidewalks are expected to deteriorate in level of service (LOS) in one or more peak hours from Existing conditions to the No-Action conditions. These sidewalks include:

- S5 (east side of 4th Street between 26th Avenue & 27th Avenue) would deteriorate from LOS A to LOS B in the weekday midday, weekday PM, and Saturday midday peak hours;
- S7 (west side of 4th Street between 26th Avenue & 27th Avenue) would deteriorate from LOS A to LOS B in each analyzed peak hour;

- S8 (north side of 27th Avenue between 3rd Street & 4th Street) would deteriorate from LOS A to LOS B in weekday AM, weekday PM, and Saturday midday peak hours, and LOS A to LOS D in the weekday midday peak hour;
- S10 (north side of 30th Avenue between 30th Street & 31st Street) would deteriorate from LOS B to LOS C in the weekday PM peak hour; and
- S11 (south side of 27th Avenue between 4th Street & 8th Street) would deteriorate from LOS A to LOS B in each peak hour.

TABLE 11-33
No-Action Sidewalk Conditions

	Location	Sidewalk	Effective Width (ft)	Peak Hour Volume				Average Pedestrian Space (ft^2/ped)				Platoon-Adjusted Level of Service			
				AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
S1	3rd Street Btwn 26th Ave and the waterfront	West	6.0	22	21	23	6	3,456	3,621	3,306	12,672	A	A	A	A
S2	26th Ave Btwn 3rd St and 4th St	North	6.4	24	23	23	13	3,390	3,537	3,537	6,258	A	A	A	A
S3	3rd St Btwn 26th Ave and 27th Ave	East	2.7	14	18	9	12	1,148	1,880	1,786	2,820	A	A	A	A
S4	26th Ave Btwn 3rd St and 4th St	South	7.7	51	53	48	43	1,882	1,582	1,898	1,780	A	A	A	A
S5	4th St Btwn 26th Ave and 27th Ave	East	7.2	115	251	193	183	533	226	265	261	A	B	B	B
S6	26th Ave Btwn 4th St and 8th St	South	12.0	213	237	161	159	714	642	944	956	A	A	A	A
S7	4th St Btwn 26th Ave and 27th Ave	West	7.4	166	266	237	244	269	353	397	120	B	B	B	B
S8	27th Ave Btwn 3rd St and 4th St	North	7.5	307	883	611	827	224	32	142	143	B	D	B	B
S9	31st St Btwn Newtown Ave and 30th Ave	West	9.5	808	673	1,521	772	173	165	93	175	B	B	B	B
S10	30th Ave Btwn 30th St and 31st St	North	8.1	1,012	893	1,652	897	99	97	72	119	B	B	C	B
S11	27th Ave Btwn 4th St and 8th St	South	6.0	283	471	386	381	289	167	165	207	B	B	B	B

Crosswalks

Table 11-34 shows the peak hour volumes, average pedestrian space, and LOS at analyzed crosswalks in the No-Action condition. As shown in **Table 11-34**, all analyzed crosswalks are expected to operate at an acceptable LOS C or better in all analyzed peak hours in the future without the Proposed Actions with the exception of the north and east crosswalks at 27th Avenue and 4th Street, which would operate at LOS D in the weekday midday peak hour.

TABLE 11-34
No-Action Crosswalk Conditions

	Location	Crosswalk	Peak Hour Volume				Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
X1	27th Ave and 4th St	North	388	959	707	917	78.6	23.9	51.1	30.8	A	D	B	C
X2		East	131	283	207	226	178.1	23.8	47.8	52.3	A	D	B	B
X3		West	99	168	129	144	116.2	49.1	70.8	71.6	A	B	A	A

Corner Areas

Table 11-35 shows the average pedestrian space and LOS at analyzed corner areas in the No-Action condition. As shown in **Table 11-35**, all analyzed corner areas are expected to operate at an acceptable LOS C or better in all peak hours in the future without the Proposed Actions. As shown in **Table 11-35** one corner (C3) is expected to deteriorate in level of service (LOS) in one or more peak hours from Existing conditions to the No-Action conditions. This corner, C3 (southeast corner of 27th Avenue & 8th Street), would deteriorate from LOS A to LOS B in the weekday midday and Saturday peak hours.

TABLE 11-35
No-Action Corner Area Conditions

	Location	Corner	Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT
C1	27th Ave and 4th St	NE	188.1	38.4	90.4	69.4	A	C	A	A
C2		NW	161.4	51.0	107.9	67.6	A	B	A	A
C3	27th Ave and 8th St	SE	132.8	52.2	79.9	42.9	A	B	A	B
C4		SW	141.9	70.2	93.6	64.1	A	A	A	A
C5	30th Ave and 31st St	NW	173.4	200.9	118.5	83.6	A	A	A	A

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

The Proposed Actions would generate new pedestrian demand on analyzed sidewalks, crosswalks, and corner areas by 2031. This new demand would include trips made solely by walking, as well as pedestrian trips en route to and from subway station entrances, bus stops, and the nearest ferry landing. Pedestrian trips generated by the Proposed Actions are expected to be most concentrated in proximity to the Development Site and along corridors connecting the site to area transit services.

As shown in **Table 11-2**, to generate approximately 281 walk-only trips in the weekday AM peak hour, 588 in the midday peak hour, 474 in the PM peak hour, and 533 in the Saturday peak hour. Persons en route to and from subway station entrances, bus stops, and ferry stops would add approximately 942, 513, 1,051, and 935 additional pedestrian trips to sidewalks and crosswalks in the vicinity of the rezoning area during these same periods, respectively. New pedestrian trips would therefore total 548, 1,101, 783, and 1,468 (bus, subway, ferry, and “walk only”; in and out combined) in the weekday AM, midday, PM, and Saturday midday 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 and significant adverse impacts at analyzed sidewalks, crosswalks, and corner areas in the future with the Proposed Actions are shown in **Tables 11-36** through **11-38**. As discussed below, two sidewalks, three crosswalks, and one corner would be impacted in one or more peak hours by new demand from the Proposed Actions. **Chapter 18, "Mitigation"** addresses practicable measures to address these impacts.

Sidewalks

Table 11-36 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. It is worth noting that a total of ten sidewalks are expected to deteriorate in level of service (LOS) in one or more peak hours from the No-Action conditions to the With-Action conditions (refer to **Table 11-36**). These sidewalks include:

- S1 (west side of 3rd Street between 26th Avenue & the waterfront) would deteriorate from LOS A to LOS B in the weekday AM, midday, and PM peak hours, and from LOS A to LOS C in the Saturday midday peak hour;
- S2 (north side of 26th Avenue between 3rd Street & 4th Street) would deteriorate from LOS A to LOS B in each analyzed peak hour;
- S3 (east side of 3rd Street between 26th Avenue & 27th Avenue) would deteriorate from LOS A to LOS C in the weekday AM, weekday PM, and Saturday peak hours, and LOS A to LOS B in the weekday midday peak hour;
- S4 (south side of 26th Avenue between 3rd Street & 4th Street) would deteriorate from LOS A to LOS B in each analyzed peak hour;
- S5 (east side of 4th Street between 26th Avenue & 27th Avenue) would deteriorate from LOS A to LOS B in weekday AM peak hour, and LOS B to LOS C in the Saturday peak hour;
- S6 (south side of 26th Avenue between 4th Street & 8th Street) would deteriorate from LOS A to LOS B in each analyzed peak hour;
- S7 (west side of 4th Street between 26th Avenue & 27th Avenue) would deteriorate from LOS B to LOS D in the Saturday midday peak hour;
- S9 (west side of 4th Street between 26th Avenue & 27th Avenue) would deteriorate from LOS B to LOS C in the PM peak hour;
- S10 (north side of 30th Avenue between 30th St & 31st St) would deteriorate from LOS B to LOS C in the weekday AM and weekday midday peak hours; and
- S11 (south side of 27th Avenue between 4th Street and 8th Street) would deteriorate from LOS B to LOS C in the weekday midday, weekday PM, and Saturday peak hours

As shown in **Table 11-36,** there would be a total of two analyzed sidewalks that would experience a significant adverse sidewalk impact as a result of the Proposed Actions. The impacted sidewalks are the west sidewalk of 4th Street between 26th Avenue and 27th Avenue (S7) and the north sidewalk of 27th Avenue between 3rd Street and 4th Street (S8), which would operate at LOS D in the Saturday peak hour and weekday midday peak hour, respectively. **Chapter 18, "Mitigation,"** discusses potential measures to mitigate these significant adverse sidewalk impacts.

TABLE 11-36
With-Action Sidewalk Conditions

	Location	Sidewalk	Effective Width (ft)	Project Increment				Peak Hour Volume				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	3rd Street Btwn 26th Ave and the waterfront	West	6.0	472	579	518	1,035	494	600	541	1,041	154	126	140	72	B	B	B	C
S2	26th Ave Btwn 3rd St and 4th St	North	6.4	351	513	475	739	375	536	498	752	217	151	163	108	B	B	B	B
S3	3rd St Btwn 26th Ave and 27th Ave	East	2.7	205	298	272	387	219	316	281	399	73	107	56	84	C	B	C	C
S4	26th Ave Btwn 3rd St and 4th St	South	7.7	195	289	262	344	246	342	310	387	390	245	294	198	B	B	B	B
S5	4th St Btwn 26th Ave and 27th Ave	East	7.2	160	246	227	348	275	497	420	531	223	114	121	89	B	B	B	C
S6	26th Ave Btwn 4th St and 8th St	South	12.0	144	242	222	239	357	479	383	398	426	317	397	382	B	B	B	B
S7	4th St Btwn 26th Ave and 27th Ave	West	7.4	241	313	289	495	407	579	526	739	109	162	179	38	B	B	B	D
S8	27th Ave Btwn 3rd St and 4th St	North	7.5	172	260	227	341	479	1,143	838	1,168	144	24	103	101	B	D	B	B
S9	31st St Btwn Newtown Ave and 30th Ave	West	9.5	488	145	582	246	1,296	818	2,103	1,018	108	136	67	133	B	B	C	B
S10	30th Ave Btwn 30th St and 31st St	North	8.1	488	145	582	246	1,500	1,038	2,234	1,143	67	83	53	94	C	C	C	B
S11	27th Ave Btwn 4th St and 8th St	South	6.0	398	411	320	636	681	882	706	1,017	120	89	90	77	B	C	C	C

Note: Shading denotes a significant impact based on *CEQR Technical Manual*

Crosswalks

Table 11-37 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 analyzed crosswalks. As shown in **Table 11-37**, all three analyzed crosswalks are expected deteriorate in level of service (LOS) in one or more peak hours from the No-Action conditions to the With-Action conditions. These crosswalks include:

- X1 (north crosswalk at 27th Avenue & 4th Street) would deteriorate from LOS A to LOS B in the weekday AM peak hour, LOS B to LOS C in the weekday PM peak hour, and LOS C to LOS D in the weekday and Saturday midday peak hours;
- X2 (east crosswalk at 27th Avenue & 4th Street) would deteriorate from LOS D to LOS E in the weekday midday peak hour, LOS B to LOS C in the weekday PM peak hour, and LOS B to LOS D in the Saturday midday peak hour; and
- X3 (west crosswalk at 27th Avenue & 4th Street) would deteriorate from LOS A to LOS C in the weekday AM and PM peak hours, LOS B to LOS D in the weekday midday peak hour, and LOS A to LOS D in the Saturday midday peak hour.

As also shown in **Table 11-37**, all three analyzed crosswalks, the north, east, and west crosswalks at 27th Avenue and 4th Street (X1, X2, and X3), would be significantly adversely impacted in the weekday midday and Saturday peak hours based on the 2020 *CEQR Technical Manual* criteria shown in **Table 11-14** in Section F and operate at an acceptable LOS C or better in all other peak hours in the future with the Proposed Actions. **Chapter 18, "Mitigation,"** discusses potential measures to mitigate these significant

adverse crosswalk impacts.

TABLE 11-37
With-Action Crosswalk Conditions

	Location	Crosswalk	Project Increment				Peak Hour Volume				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
X1	27th Ave and 4th St	North	216	367	356	518	604	1,326	1,063	1,435	47.4	15.6	30.2	17.8	B	D	C	D
X2		East	199	205	169	318	330	488	376	544	67.8	12.7	26.7	20.7	A	E	C	D
X3		West	199	206	160	318	298	374	289	462	36.8	22.3	31.5	20.1	C	D	C	D

Note: Shading denotes a significant impact based on *CEQR Technical Manual*

Corner Areas

Table 11-38 shows the average pedestrian space and LOS at analyzed corner areas in the With-Action condition. As shown in **Table 11-38**, a total of four corners are expected deteriorate in level of service (LOS) in one or more peak hours from the No-Action conditions to the With-Action conditions. These corners include:

- C1 (northeast corner of 27th Avenue & 4th Street) would deteriorate from LOS C to LOS D in the weekday midday peak hour, LOS A to LOS B in the PM peak hour, and LOS A to LOS C in the Saturday midday peak hour;
- C2 (northwest corner of 27th Avenue & 4th Street) would deteriorate from LOS B to LOS C in the weekday midday peak hour, and LOS A to C in the Saturday midday peak hour;
- C3 (southeast corner of 27th Avenue & 8th Street) would deteriorate from LOS A to LOS B in the weekday PM peak hour, and LOS B to LOS C in the Saturday midday peak hour; and
- C4 (southwest corner of 27th Avenue & 8th Street) would deteriorate from LOS A to LOS B in the weekday midday and Saturday midday peak hours.

Also shown in **Table 11-38**, the northeast corner of 27th Avenue and 4th Street (C1) would be significantly adversely impacted in the weekday midday peak hour based on the 2020 *CEQR Technical Manual* criteria shown in **Table 11-14** in Section F, while all other analyzed crosswalks would operate at an acceptable LOS C or better in all peak hours in the future with the Proposed Actions. **Chapter 18, "Mitigation,"** discusses potential measures to mitigate these significant adverse corner impacts.

TABLE 11-38
With-Action Corner Area Conditions

	Location	Corner	Average Pedestrian Space (ft^2/ped)				Level of Service			
			AM	MD	PM	SAT	AM	MD	PM	SAT
C1	27th Ave and 4th St	NE	100.8	18.8	50.3	31.2	A	D	B	C
C2		NW	73.0	28.8	60.5	28.7	A	C	A	C
C3	27th Ave and 8th St	SE	97.6	41.0	59.1	31.8	A	B	B	C
C4		SW	106.1	52.4	67.5	48.4	A	B	A	B
C5	30th Ave and 31st St	NW	132.2	174.0	91.7	76.8	A	A	A	A

Note: Shading denotes a significant impact based on *CEQR Technical Manual*

J. STREET USER SAFETY

Recent DOT Initiatives

Vision Zero 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, DOT and the New York City Police Department (NYPD) developed a set of five plans, 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.

The *Vision Zero Queens Pedestrian Safety Action Plan* was released on February 18, 2015, and a *Boroughs Pedestrian Safety Action Plan Update* was released in 2019. Based on the 2019 update, the Project Area is located outside a designated Priority Area where safety issues were found to occur systematically at an area-wide level with the exception of the northwest corner area of 30th Avenue and 31st Street at the 30th Avenue (N/W) train station. In addition, 21st Street is currently identified as a Priority Corridor. There are no Priority Intersections in the proximity to the Project Area. Actions recommended in the *Vision Zero Queens Pedestrian Safety Action Plan* to enhance pedestrian safety in Queens are summarized below.

<u>Engineering and Planning</u>

- Implement at least 50 Vision Zero safety engineering improvements at Priority Corridors, Intersections, and Areas citywide, informed by community input
- Expand and add exclusive pedestrian crossing time, install expanded speed limit signage, and modify signal timing to reduce off-peak speeding on Priority Corridors and Intersections where feasible
- Drive community outreach and engagement with regard to 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

<u>Enforcement</u>

- Deploy speed camera at Priority Corridors, Intersections, and Areas
- Focus enforcement and deploy dedicated resources to Queens NYPD precincts that overlap substantially with Priority Areas
- Prioritize targeted enforcement at all Priority Corridors, Intersections, and Areas annually

<u>Education and Awareness Campaigns</u>

- Target child and senior safety education at Priority Corridors and Priority Areas
- Target intensive street-level outreach at Priority Corridors, Intersections, and Areas
- Launch multilingual public information campaigns in Priority Areas

Safe Streets for Seniors

Safe Streets for Seniors is a pedestrian safety initiative for older New Yorkers. The Safe Streets for Seniors program studies crash data, and then develops and implements mitigation measures to improve the safety of seniors and other pedestrians, as well as all road users in New York City. Under this program, DOT has identified Senior Pedestrian Focus Areas (SPFAs) throughout the city based on the density of senior pedestrian (age 65+) crashes resulting in fatalities or severe injuries in a five-year period, as well as variables such as senior trip generators, concentrations of senior centers, and senior housing locations. DOT designated an SPFA in Astoria. The southern portion of this SPFA encompasses 21st Street from Astoria Boulevard to 30th Avenue, and the intersection of 30th Avenue and 31st Street. Subsequent improvements implemented along these corridors to address senior concerns have included installation of high visibility crosswalks, painted curb extensions, parking lane stripe to standardize moving lanes, leading pedestrian intervals (LPIs) and additional street lighting.

Study Area High Crash Locations

Crash data for intersections in the pedestrian study area were obtained from DOT for the three-year period between January 1, 2016, and December 31, 2018 (the most recent three-year period for which data are available). The data quantify the total number of reportable crashes (involving a fatality, injury, or more than $1,000 in property damage) and non-reportable crashes as well as the total number of crashes involving injuries to pedestrians or bicyclists. During the three-year reporting period, a total of 209 reportable and non-reportable crashes, 82 pedestrian/bicyclist-related injury crashes and no fatalities occurred at intersections in the pedestrian study area. **Table 11-39** provides a summary of these crashes by year and location, including a breakdown of pedestrian and bicycle crashes.

According to the *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 11-39**, no study area intersection experienced 48 or more reportable and non-reportable crashes within a consecutive 12-month period during the 2016 to 2018 period. Therefore, no intersections were identified as high crash locations.

TABLE 11-39
Summary of Motor Vehicle Crash Data 2016-2018

Intersection		Pedestrian Injury Crashes			Bicycle Injury Crashes			Total Pedestrian/ Bicyclist Injury Crashes			Total Crashes (Reportable + Non-Reportable)		
Roadway 1	**Roadway 2**	**2016**	**2017**	**2018**	**2016**	**2017**	**2018**	**2016**	**2017**	**2018**	**2016**	**2017**	**2018**
12 STREET	27 AVENUE	0	0	1	0	0	0	0	0	1	0	1	3
	30 AVENUE / WELLING COURT	1	0	1	0	0	0	1	0	1	1	0	2
14 STREET	27 AVENUE	0	0	0	0	0	0	0	0	0	1	0	1
	30 AVENUE	0	0	0	0	0	0	0	0	0	1	0	3
18 STREET	27 AVENUE	0	0	0	0	1	0	0	1	0	2	1	1
	ASTORIA BOULEVARD	0	2	0	0	0	0	0	2	0	1	3	0
21 STREET	22 STREET / 27 AVENUE	0	1	0	3	0	0	3	1	0	14	7	16
	24 AVENUE	2	0	0	0	0	0	2	0	0	3	2	3
	24 ROAD	0	0	0	0	0	0	0	0	0	1	0	1
	25 ROAD	0	0	0	0	0	0	0	0	0	0	0	1
	26 AVENUE	0	0	0	0	0	0	0	0	0	1	0	4
	30 AVENUE	1	2	1	0	0	0	1	2	1	2	8	9
	ASTORIA PARK SOUTH	4	0	0	0	0	1	4	0	1	8	3	13
	HOYT AVENUE NORTH	1	0	1	0	1	0	1	1	1	5	4	7
26 AVENUE	3 STREET	0	0	0	0	0	0	0	0	0	0	1	0
	4 STREET	0	0	0	0	0	0	0	0	0	0	1	1
27 AVENUE	3 STREET	0	0	0	0	0	0	0	0	0	1	1	1
	4 STREET	1	0	0	0	0	0	1	0	0	1	1	2
	8 STREET	0	0	3	0	0	0	0	0	3	0	0	5
	9 STREET	0	0	1	0	0	0	0	0	1	0	0	3
30 AVENUE	8 STREET	0	0	0	0	0	1	0	0	1	1	0	1
	31 STREET	0	1	2	0	1	2	0	2	4	3	8	13
	MAIN AVENUE	0	0	0	0	0	0	0	0	0	1	0	1
8 STREET	ASTORIA BOULEVARD	0	0	1	0	0	0	0	0	1	0	0	3

Note: Shading denotes a high accident location based on *CEQR Technical Manual*

In addition, currently, the most direct route to the Project Area, across 26th Avenue, is via 3rd Street. This route is in close proximity to the demapped 3rd Street and site entrances (on the east side where the residential, community facility, and retail entrances are located). It is therefore likely that pedestrians en route to and from Proposed Development Site 1 would choose to cross 26th Avenue at this more proximate location where a crosswalk is not present (there are no existing crosswalks on 26th Avenue). This would result in a pedestrian safety concern. It should be noted that an intersection, like 26th Avenue and 3rd Street, where incremental pedestrian trips are expected to traverse uncontrolled intersections, that does not warrant new control as mitigation measure, are considered pedestrian safety concerns. **Chapter 18, "Mitigation"** addresses potential measures to address these safety concerns.

K. PARKING

Existing Conditions

On-street public parking within a ¼-mile radius of the Development Site is generally governed by street cleaning regulations. The 2021 Existing weekday overnight parking conditions are summarized below in **Table 11-40**. Based on data collected during field surveys conducted in October 2019, Existing on-street parking within the ¼-mile parking study area is approximately 98 percent utilized during the weekday overnight period, with approximately ten available spaces. As the parking available within the ¼-mile radius was limited, and additional parking survey was conducted within the area between the ¼-mile and ½-mile radius from the Proposed Area, which indicated that approximately 99 percent of the available on-street parking was utilized in the ½-mile study area during the weekday overnight period, with approximately 69 spaces. It should be noted that there were no operational public off-street parking facilities within the ¼-mile and ½-mile study areas of the Project Area.

TABLE 11-40
Existing Weekday Overnight Parking Capacity, Demand, and Utilization

Proximity to Project Area	Within Quarter-Mile Radius	Within Half-Mile Radius
Capacity		
Existing Supply	614	5,662
Demand		
Existing Demand*	604	5,593
Utilization/Surplus		
Existing Parking Utilization	98%	99%
Existing Surplus	10	69

Source: PHA Parking Surveys (October 2019)
*Assumes 0.5% background growth between 2019 to 2021

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

As shown in **Table 11-41**, background growth from 2021 to 2031 would result in 23 and 213 additional demand within the ¼ and ½-mile study areas, respectively, during the weekday overnight period. This demand is greater than the surplus of spaces under Existing conditions. As such, only accounting for additional parking demand as a result of background growth, there would be a deficit on on-street parking of 13 and 144 parking spaces during the weekday overnight period under the No-Action conditions. In addition, No-Action developments within proximity to the Project Area would generate 2,619 and 2,858 within ¼-mile and ½-mile of the Project Area, respectively. A majority of this demand will be accommodated by on-site parking supply on the No-Action developments, approximately 2,352 and 2,503 in the ¼-mile and ½- mile study areas, respectively, during the weekday overnight. However, approximately 267 and 355 will not be accommodate by off-street parking supply provided by the No-Action developments in the ¼-mile and ½-mile study areas, respectively. In all, including demand from background growth between 2021 and 2031 and excess in demand from proximate No-Action developments, the existing surplus of parking spaces would be insufficient under the No-Action conditions, resulting in a deficit of 280 and 499 spaces within the ¼-mile and ½-mile study areas, respectively, during the overnight period.

TABLE 11-41
No-Action Weekday Overnight Parking Capacity, Demand, and Utilization

Proximity to Project Area	Within Quarter-Mile Radius	Within Half-Mile Radius
Capacity		
No-Action On-Street Supply	614	5,662
No-Action Sites' Off-Street Supply	2,352	2,503
No-Action On-Street Supply	**614**	**5,662**
Demand		
Incremental On-Street Background Growth*	23	213
No-Action On-Street Parking Demand	627	5,806
No-Action Sites' Demand	2,619	2,858
Total No-Action Parking Demand	**3,246**	**8,664**
Utilization/Deficit		
No-Action On-Street Parking Utilization	102%	103%
No-Action On-Street Parking Surplus/(Deficit)	-13	-144
No-Action Sites Parking Excess**	-267	-355
Total No-Action Parking Deficit	**-280**	**-499**

* Assumes 0.5% background growth between 1 and 5 years; 0.25% background growth to 2031
**Parking not accommodated by No-Action Sites' provided Off-Street parking

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

The 2031 With-Action weekday overnight parking conditions are summarized below in **Table 11-42**. Based on **Tables 11-5** through **11-8**, the Projected Development would have a peak overnight parking demand of approximately 699 vehicles (588 from Projected Development Site 1 and 111 from Projected Development Site 2) and approximately 640 proposed on-site parking spaces (525 from Projected Development Site 1 and 115 from Projected Development Site 2), resulting in an excess demand of approximately 59 vehicles that would have to be accommodated in the surrounding area during the overnight period. On the frontage of project site, on the north side of 26th Avenue between 3rd and 4th Streets, approximately nine parking spaces would be eliminated as result of the Proposed Actions. The Proposed Actions would accommodate approximately 92 percent of its overnight parking demand in the off-street parking garage provided on the Project Area. It should be noted that the analysis focuses on this overnight period as the Proposed Actions is predominantly residential in nature in a residential neighborhood and is expected to be substantially less parking demand during the daytime than overnight period, which would be accommodated by on-site parking during the daytime.

In combination with the No-Action demand, the overall study area parking demand in the With-Action condition would therefore total approximately 3,945 spaces in the ¼-mile study area and 9,363 spaces in the ½-mile study area. As shown in **Table 11-42**, given the total With-Action parking supply of 3,597 and 8,796 spaces in the ¼-mile and ½-mile study area, respectively, the Proposed Actions would result in a deficit of approximately 348 spaces within the ¼-mile radius of the Project Area, and a deficit of approximately 567 spaces within the ½-mile radius of the Project Area during the overnight period. This compares to a deficit of 280 and 499 spaces in the ¼ mile and ½-mile study area, respectively, under the No-Action conditions. Per the *CEQR Technical Manual* guidelines, this deficit in the ½-mile study area is considered a shortfall.

TABLE 11-42
With-Action Weekday Overnight Parking Capacity, Demand, and Utilization

Proximity to Project Area	Within Quarter-Mile Radius	Within Half-Mile Radius
Capacity		
No-Action On-Street Supply	614	5,662
No-Action Sites' Off-Street Supply	2,352	2,503
Project Off-Street Supply	640	640
On-Street Parking Removed (Site Frontage)	**-9**	**-9**
Total With-Action Parking Supply	**3,597**	**8,796**
Demand		
No-Action On-Street Parking Demand	627	5,806
No-Action Sites' Demand	2,619	2,858
With-Action Project Demand	699	699
Total With-Action Parking Demand	**3,945**	**9,363**
Utilization/Deficit		
Total No-Action Parking Deficit	-280	-499
Project Demand Excess vs Supply	-59	-59
Removed Parking	**-9**	**-9**
Total With-Action Parking Deficit	**-348**	**-567**

As the study areas are located outside of CEQR Parking Zones 1 and 2 (within which a parking shortfall from a Proposed Action would not be considered significant), the inability of the Proposed Actions and the surrounding area to accommodate future parking demands in the weekday overnight period could potentially be considered significant. However, it is important to consider that the Proposed Actions would provide a substantial amount of on-site parking (640 spaces), sufficient to accommodate the majority (approximately 92 percent) of its total parking demand generated in the overnight period. The project-generated excess demand attributable to the Proposed Actions (59 spaces) would only amount to approximately less than ten percent of the total on-street parking capacity within the ¼-mile study area and one percent of the total on-street parking capacity within the ½-mile study area.

Furthermore, under *CEQR Technical Manual* guidance, one of the factors to be considered in determining significance of a parking shortfall is the availability of alternative modes of transportation. As discussed previously, three local bus routes would operate within one Avenue or 600 feet of the Project Area, including the Q18, Q19, and Q102 operated by MTA Bus Company. In addition, the 30th Avenue and Astoria Boulevard subway stations, served by the N/W local trains, are located within a mile of Project Area. The Q18 and Q102 bus routes provide a direct connection to services at the 30th Avenue station while the Q19 provides connection to the Astoria Boulevard station. Even further, the Applicant is also providing residents with a shuttle bus, which would further improve access to the 30th Avenue station. It is important to note that the Project Area is also in close proximity (within 1750 feet of the Project Area) to the Astoria ferry landing for the NYC Ferry, which provides access to the Downtown Manhattan, Midtown, and the Upper East Side. Therefore, the project area is well served by alternate modes.

Given alternative modes of transportation, the fact that the majority of Proposed Actions' demand would be accommodated on-site, and the deficit in parking under the No-Action conditions, the shortfall in parking during the weekday overnight period under the Proposed Actions would not be considered a significant shortfall.