A. INTRODUCTION

As described in detail in Chapter 1, "Project Description," the Applicant is seeking a number of discretionary approvals (the proposed actions) to support and permit a mixed-use development on several parcels near the waterfront in Astoria, Queens. The proposed project would include 2,644 units of residential space (market-rate and affordable), approximately 69,000 square feet of retail space (including supermarket use), and approximately 1,400 accessory parking spaces (including 1,347 garage parking spaces and 53 on-site surface parking spaces). The proposed project would also create ~~2.35~~ 2.43 acres of new publicly accessible open space, including a waterfront esplanade. The project site would contain eight building sites on which new development would occur pursuant to the proposed project. Seven of the building sites would be developed as part of the Applicant's proposal and one would be developed as part of a future request for proposals (RFP) by the New York City Housing Authority (NYCHA).

As also discussed in Chapter 1, the proposed project would be built out over an approximately 10-year period; therefore, the Environmental Impact Statement (EIS) uses 2022 as an analysis year. The transportation analyses consider this year to identify potential impacts and determine feasible mitigation measures that would be appropriate. Because an additional 71 dwelling units of affordable housing and 25 accessory parking spaces were added shortly prior to certification of the Draft EIS (DEIS), after substantial transportation-related analysis work had been completed and reviewed, the analyses and conclusions presented in the DEIS were ~~this chapter are~~ based on a slightly smaller version of the development program than that described above. These programming changes represented a less than 3-percent increase in the number of dwelling units and a comparable level of increase in trip-making. ~~These changes are not expected to alter the overall conclusions of the transportation analyses but could result in new or worsened impacts at specific analysis locations. Between the DEIS and Final EIS (FEIS), t~~The transportation and transportation-related analyses in this Final EIS (FEIS) ~~will be~~were updated to reflect the proposed project's programming changes, as well as background changes associated with other projects and the addition of new study area traffic intersections. ~~These changes could result in new, different, or worsened significant adverse impacts, all of which will be further detailed in the FEIS.~~

It should also be noted that the analysis of future conditions without the proposed project accounts for the proposed Astoria Cove project, which is in the planning stages and will require discretionary land use approvals and its own environmental review. However, because it is located in close proximity to the project site, the portion that is assumed to be completed by the 2022 Build year has been incorporated into the future without the proposed project for conservative impact analysis. Given the size of the proposed Astoria Cove project, it is expected that its environmental review will identify significant adverse impacts and the need for mitigation measures. These measures are not accounted for in this analysis. ~~As more information~~

~~about the Astoria Cove project becomes available, it will be incorporated into this analysis as appropriate.~~

This chapter examines the potential effects of the proposed project on nearby transportation systems in and around Astoria, Queens. Presented in the following sections are a description of the proposed project, an overview of the analysis methodology, a projection of site-generated trips and assignments, the results of the capacity analysis for existing and future conditions without and with the proposed project (the No Build and Build conditions), and findings of potential significant adverse transportation impacts. The travel demand projections, trip assignments, and capacity analysis were conducted pursuant to the methodologies outlined in the June 2012 *City Environmental Quality Review (CEQR) Technical Manual.*

This chapter is organized as follows:

- Section B, "Preliminary CEQR Screening Assessment," presents screening analyses that determine if quantified analyses of transportation conditions are warranted and provides information on the study locations for the quantified analyses determined to be warranted (i.e., traffic, transit, and pedestrians).
- Section C, "Transportation Analyses Methodology," presents a summary of the methodologies used to analyze those transportation areas that are analyzed in detail (i.e., traffic, transit, and pedestrians).
- Section D, "Detailed Traffic Analysis," presents a quantified analysis of traffic conditions at ~~25~~ 27 analysis locations.
- Section E, "Detailed Transit Analysis," presents a quantified analysis of transit conditions; specifically, an analysis of subway station elements at two area subway stations—the 30th Avenue Station (N,Q lines) and the 21st Street-Queensbridge Station (F line), and a bus line-haul analysis of three area bus routes—the Q18, Q102, and Q103 routes.
- Section F, "Detailed Pedestrian Analysis," presents a quantified analysis of pedestrian conditions at various sidewalks, crosswalks, and corners in the study area.
- Section G, "Vehicular and Pedestrian Safety Evaluation," presents accident data for the study area intersections and provides an evaluation of whether increases in vehicular and pedestrian activity due to the proposed project would affect accident rates at the study area's high accident locations.
- Section H, "Parking Conditions Assessment," presents information about on- and off-street parking supply and evaluates whether increased parking demand from the proposed project would result in a shortfall of parking spaces in the study area.
- Section I, "Detailed Analysis Results Tables," presents detailed tables for the traffic and pedestrian analyses.

PRINCIPAL CONCLUSIONS

As detailed in this chapter, the preliminary CEQR screening determined the need for quantified analyses of traffic, transit, and pedestrian conditions as well as an evaluation of vehicular and pedestrian safety and an assessment of parking conditions. These analyses are summarized here.

TRAFFIC

As part of this analysis, an estimate of the vehicular traffic expected to be generated by the proposed project was developed. In the weekday AM peak hour, it would generate ~~166~~ 171

vehicle trips arriving at the project site and ~~514~~ 529 vehicle trips leaving the site, for a total of ~~680~~ 700 vehicle trips. In the weekday midday peak hour, it would generate ~~213~~ 218 inbound vehicle trips plus ~~209~~ 213 outbound vehicle trips for a total of ~~422~~ 431 vehicle trips. In the weekday PM peak hour, it would generate ~~480~~ 492 inbound vehicle trips plus ~~289~~ 296 outbound vehicle trips for a total of ~~769~~ 788 vehicle trips.

Of the ~~25~~ 27 study area intersections analyzed[1], the proposed project would result in significant traffic impacts at ~~18~~ 20 intersections in the weekday AM peak hour, ~~10~~ 11 in the midday peak hour, and ~~17~~ 19 in the PM peak hour, as summarized in **Table 15-1**. Traffic capacity improvements that would be needed to mitigate these significant impacts are addressed in Chapter 22, "Mitigation." ~~As requested by the New York City Department of City Planning (DCP), two additional intersections will be analyzed for the FEIS and may result in additional significant impacts. The findings of this additional analysis will be documented in the FEIS.~~

TRANSIT

The preliminary screening assessment summarized below concluded that a detailed examination of subway line-haul analysis is not warranted. However, bus line-haul analyses and a detailed analysis of station elements at the 30th Avenue subway station (N and Q lines) and the 21st Street-Queensbridge subway station (F line) were prepared. Based on the results of the transit analysis, the proposed project would not result in any significant adverse impacts at the 30th Avenue station or the 21st Street-Queensbridge station during any analysis peak periods.

As summarized in **Table 15-2**, the proposed project would result in significant adverse impacts for bus line-haul levels on the eastbound and westbound Q18, the eastbound and westbound Q102, and the southbound Q103 during the AM peak period, and the eastbound and westbound Q18, the eastbound and westbound Q102, and the northbound and southbound Q103 during the PM peak period. Potential measures to mitigate the projected significant adverse bus line-haul impacts are described in Chapter 22, "Mitigation."

As discussed in Chapter 1, "Project Description," the proposed project would also include a bus layover ~~facility~~ area along 2nd Street adjacent to Building 1 for the Q18, Q102, and Q103 bus routes, and potentially other routes in the future. Although this layover facility would not affect the bus line-haul analysis, it would be an important transit amenity for the area. Preliminary discussions have taken place between the Applicant and the Metropolitan Transportation Authority (MTA) Bus Company about the anticipated need to improve existing service on the Q18, Q102, and Q103, as well as the possible extension of the Q19 to the waterfront to serve the additional demand that is expected to occur over time with the development of this and other projects.

PEDESTRIANS

Weekday peak period pedestrian conditions were evaluated at key sidewalk, corner reservoir, and crosswalk elements at six area intersections. It was concluded that the proposed project would not result in any significant adverse pedestrian impacts at any of the analysis locations. However, as detailed in Chapter 22, "Mitigation," one of the recommended traffic mitigation measures is expected to result in a pedestrian crosswalk impact, which could be mitigated by coupling the traffic mitigation measure with the necessary crosswalk widening.

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[1] Two study area intersections were added for the analysis between completion of the DEIS and completion of this FEIS.

Table 15-1
Summary of Significant Adverse Traffic Impacts

Intersection		AM	Midday	PM
EB/WB Street	**NB/SB Street**	**Peak Hour**	**Peak Hour**	**Peak Hour**
27th Avenue	8th Street	EB-TR WB-LT	EB-TR WB-LT NB-R	EB-TR WB-LT NB-R
Vernon Boulevard/ Main Street	8th Street/ Welling Court	EB-LT SB-R	EB-LT	EB-LT
Astoria Boulevard	8th Street	EB-LR		EB-LR NB-LT
Astoria Boulevard	21st Street	EB-L EB-TR NB-LTR SB-LTR	 NB-LTR SB-LTR	 EB-TR WB-TR NB-LTR SB-LTR
Astoria Boulevard	23rd Street	EB-LT		EB-LT
Astoria Boulevard	Crescent Street	EB-TR WB-LT	 WB-LT	EB-TR WB-LT
Astoria Boulevard	31st Street	EB-LTR	EB-LTR	EB-LTR
Astoria Park South/ Hoyt Avenue South	21st Street	 SB-LTR		NB-LTR SB-LTR
Hoyt Avenue South	31st Street	EB-LT		
Hoyt Ave S/Astoria Blvd	33rd Street	EB-LT	EB-LT	EB-LT
Hoyt Avenue North	21st Street	WB-L NB-T	WB-L	WB-L NB-T
Hoyt Avenue North	29th Street	SB-R		
Hoyt Ave N/GCP Ramp	32nd Street	WB-T	WB-T	WB-T
24th Avenue	21st Street			NB-LTR
Broadway	Vernon Boulevard/ 11th Street	WB-LTR SB-LTR	WB-LTR	WB-LTR SB-LTR
Broadway	21st Street	EB-LTR WB-LTR SB-LTR	EB-LTR WB-LTR	EB-LTR WB-LTR
27th Avenue	2nd Street	SB-LR		SB-LR
27th Avenue	4th Street	EB-LT WB-TR		 WB-TR
Astoria Boulevard	18th Street	SB-LR		SB-LR
27th Avenue	12th Street	NB-LTR	NB-LTR	NB-LTR
27th Avenue	14th Street	EB-TR SB-LTR		EB-TR WB-LT

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left Turn; T = Through; R = Right Turn

Table 15-2
Summary of Significant Adverse Bus Impacts

Route	Direction	Load Point	AM Peak Hour	PM Peak Hour
Q18	**East**	30th Avenue East of 31st Street	X	X
	West	30th Avenue West of 31st Street	X	X
Q102	**East**	30th Avenue West of 31st Street	X	X
	West	30th Avenue West of 31st Street	X	X
Q103	**North**	41st Avenue and 21st Street		X
	South	41st Avenue and 21st Street	X	X

Note: X = Impacted

VEHICULAR AND PEDESTRIAN SAFETY

Crash data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between January 1, 2009 and December 31, 2011. During this period, a total of 161 reportable and non-reportable accidents, one fatality, 79 injuries, and 7 pedestrian/bicyclist-related accidents occurred at the study area intersections. A

rolling total of the 2009-2011 accident data indicates that the number of vehicular and pedestrian/bicyclist-related accidents at the study area intersections is well below the CEQR thresholds for high-accident locations. Although the proposed project is expected to result in significant adverse traffic impacts at some of these locations, given the low accident frequencies, the proposed project would not have the potential to result in any significant adverse vehicular and pedestrian safety impacts.

PARKING

The proposed project would include the construction of ~~1,375~~ 1,400 off-street parking spaces and is estimated to add approximately 28 on-street parking spaces with the extension of Astoria Boulevard, but would remove 14 on-street spaces on 1st Street. The total overall project parking demand would be accommodated in the provided accessory spaces except during overnight hours where there would be a shortfall of up to ~~169~~ 186 parking spaces. Much of this shortfall could likely be accommodated by available on-street parking within the parking study area, and would be more easily accommodated by on-street availability within an extended ½-mile radius. Therefore, the proposed project would not result in a significant adverse parking impact.

The proposed project (specifically, the development of Buildings 6, 7, and 8) would also displace approximately 144 existing NYCHA resident permit parking spaces on the Astoria Houses Campus. However, 178 new NYCHA resident permit parking spaces would be provided within the Astoria Houses campus to replace those displaced by the proposed project.

B. PRELIMINARY CEQR SCREENING ASSESSMENT

The 2012 *CEQR Technical Manual* recommends a two-tier screening procedure for the preparation of a "preliminary analysis" to determine if quantified analyses of transportation conditions are warranted. The *CEQR Technical Manual* recommends that a preliminary analysis begin with a trip generation analysis (Level 1) to estimate the volume of person and vehicle trips attributable to the proposed project. If the proposed project is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, the 2012 *CEQR Technical Manual* recommends that detailed trip assignments (Level 2) be performed to estimate the incremental trips at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the proposed project would result in 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety.

LEVEL 1 SCREENING ASSESSMENT

A Level 1 trip generation screening assessment was conducted to estimate the numbers of person and vehicle trips by mode expected to be generated by the proposed project during the weekday AM, midday, and PM peak hours. These estimates were then compared to the *CEQR Technical Manual* thresholds to determine if a Level 2 screening and/or quantified operational analyses would be warranted. As demonstrated in this section, the Level 1 Screening Assessment indicated the need to undertake a Level 2 screening assessment and quantified operational analyses.

The Level 1 screening assessment relies on the project's proposed uses; as described above, the proposed project would include residential, retail (including local retail and supermarket use), and open space uses (see **Table 15-3**).

Table 15-3
Halletts Point Program

Land Use	Programming
Residential	2,644 DU
Local Retail	38,563 gsf
Supermarket	30,100gsf
Parkland	2.43 acres
Accessory Parking	1,400 spaces

TRANSPORTATION PLANNING ASSUMPTIONS (TRAVEL DEMAND FACTORS)

Modal Split and Auto Occupancy Factors

2006-2010 American Community Survey (ACS) journey-to-work data from Queens census tracts 81, 83, 91, 97, 101, 103, and 105 were used to develop modal split and auto occupancy factors for the residential use. The census tracts were identified in coordination with DCP to be appropriate for representing travel by future residents of the proposed project. **Table 15-4** presents the ACS journey-to-work data.

Table 15-4
ACS Journey-to-Work Data

	Modal Split					Auto	Auto Ownership		
Data Source	Auto	Taxi	Subway	Bus	Walk	Occupancy	Owner	Renter	Average
2006-2010 ACS[1]	31.2%	1.7%	54.0%	6.2%	6.9%	1.12	79%	54%	60%
Note: 1. Census Tracts 81, 83, 91, 97, 101, 103, 105									

Travel Demand Projections

Trip estimates developed for the proposed project's land uses are based on the travel demand factors summarized in **Table 15-5**. The references used for these estimates include the 2012 *CEQR Technical Manual, 2006-2010 ACS* data, and other established sources and approved studies.

Travel Demand Projection Summary

As summarized in **Table 15-6**, the proposed project would result in a total of ~~2,416~~ 2,474, ~~2,750~~ 2,780, and ~~3,363~~ 3,427 person trips during the weekday AM, midday, and PM peak hours, respectively. Approximately ~~680~~ 700, ~~422~~ 431, and ~~769~~ 788 vehicle trips would be generated during the same respective time periods.

As per the criteria established in the 2012 *CEQR Technical Manual*, a quantified transportation analysis may be warranted if a proposed project is expected to result in 50 or more vehicle trips, 200 or more transit trips (200 or more peak hour transit riders at any given subway station or 50 or more peak hour bus trips on a particular route in one direction), and/or 200 or more pedestrian trips during a given peak hour.

Table 15-5
Travel Demand Factors

Land Use	Residential			Local Retail			Supermarket			Parkland		
Person Trips:	(1)			(1,2)			(2,3)			(1)		
Daily Trip Rate	8.075 / DU			205.0 / KSF			205.0 / KSF			139.0 / acre		
Trip Linkage Credit	0%			25%			25%			0%		
Net Trip Rate	8.075 / DU			153.8 / KSF			153.8 / KSF			139.0 / acre		
	(1)			(1)			(3)			(1)		
Temporal	AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
Distribution	10%	5%	11%	3%	19%	10%	3%	12%	10%	7%	10%	7%
	(4)			(4)			(3)			(6)		
In	20%	51%	65%	50%	50%	50%	45%	46%	47%	55%	50%	45%
Out	80%	49%	35%	50%	50%	50%	55%	54%	53%	45%	50%	50%
Modal Split	(5)			(4)			(3)			(6)		
Auto	31.2%			2.0%			4.0%			5.0%		
Taxi	1.7%			3.0%			3.0%			0.0%		
Subway	54.0%			6.0%			5.0%			5.0%		
Bus	6.2%			6.0%			5.0%			5.0%		
Walk	6.9%			83.0%			83.0%			85.0%		
Vehicle Occupancy	(5,7)			(4)			(3)			(6)		
Auto	1.12			2.00			1.65			2.80		
Taxi	1.12			2.00			1.40			2.80		
Delivery Trips:	(1)			(1)			(3)			(6)		
Daily Trip Rate	0.06			0.35			0.35			0.02		
	(1)			(1)			(3)			(6)		
Delivery Temporal	AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
Distribution	12%	9%	2%	8%	11%	2%	10%	8%	5%	6%	6%	1%
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

Sources:
(1) 2012 *CEQR Technical Manual*.
(2) Assumed 25% trip linkage per 2012 *CEQR Technical Manual*.
(3) *The Food Retail Expansion to Support Health (FRESH) Food Store Program*, DCP, 2009.
(4) *Dutch Kills Rezoning and Related Actions FEIS*, CEQR #08DCP021Q (2008).
(5) 2006-2010 ACS data for Queens census tracts 81, 83, 91, 97, 101, 103, 105.
(6) *Hunters Point South FEIS*, CEQR #08DME006Q (2008).
(7) Taxi vehicle occupancy assumed to equal that of autos.

Table 15-6[1]
Trip Generation Summary

Peak Hour	In/Out	Person Trip						Vehicle Trip			
		Auto	Taxi	Subway	Bus	Walk	Total	Auto	Taxi	Delivery	Total
AM	In	138	12	240	35	166	591	121	38	12	171
	Out	539	34	932	116	262	1,883	479	38	12	529
	Total	677	46	1,172	151	428	2,474	600	76	24	700
Midday	In	192	34	342	82	728	1,378	164	46	8	218
	Out	187	35	332	82	766	1,402	159	46	8	213
	Total	379	69	674	164	1,494	2,780	323	92	16	431
PM	In	492	42	855	125	537	2,051	434	56	2	492
	Out	273	30	475	82	516	1,376	238	56	2	296
	Total	765	72	1,330	207	1,053	3,427	672	112	4	788

[1] This table is new to the FEIS.

Traffic

Since the projected incremental vehicle trips would be greater than the 2012 *CEQR Technical Manual* analysis threshold of 50 peak hour vehicle trips, a Level 2 screening assessment is warranted to determine if there is a need for additional quantified traffic analyses and identify the potential intersections warranting analysis. The Level 2 screening assessment for traffic is provided in the next section, "Level 2 Screening Assessment."

Transit

The proposed project would result in a total of approximately ~~1,141~~ 1,172, ~~659~~ 674, and ~~1,295~~ 1,330 person trips by subway and ~~148~~ 151, ~~163~~ 164, and ~~203~~ 207 person trips by bus during the weekday AM, midday, and PM peak hours, respectively. Since the net incremental bus trips would be greater than 200 during the PM peak hours, and the net incremental subway trips would be greater than 200 during all three peak hours, a Level 2 screening assessment is warranted to determine if there is a need for additional quantified transit analyses. The Level 2 screening assessment for transit is provided in the next section, "Level 2 Screening Assessment."

Pedestrians

With the exception of auto trips made directly to on-site parking facilities, all trips made to and from the project sites would traverse area sidewalks, corner reservoirs, and crosswalks. Since the proposed project would result in more than 200 pedestrian trips in all three peak hours, a Level 2 screening assessment is warranted to determine if there is a need for additional quantified pedestrian analyses. The Level 2 screening assessment for pedestrians is provided in the next section, "Level 2 Screening Assessment."

LEVEL 2 SCREENING ASSESSMENT

A Level 2 screening assessment involves the distribution and assignment of project-generated trips to the transportation network and the determination of whether specific locations are expected to experience volumes in excess of the CEQR thresholds. Predictions of project-generated trips were allocated to the area's roadways, transit facilities, and pedestrian elements so as to identify the various study areas for which detailed analyses of potential impacts would be prepared. As previously stated, more quantified analyses to assess the potential impacts of the proposed project on the transportation system are warranted if the trip assignments result in 50 or more peak hour vehicles trips or pedestrian elements incurring 200 or more peak hour pedestrian trips. Similarly, for transit elements, the projected trips were considered in determining the likely transit facilities requiring a detailed analysis of potential impacts.

TRAFFIC

As shown above, incremental vehicle trips resulting from the proposed project would exceed the CEQR Level 1 screening threshold during the weekday AM, midday, and PM peak hours. These vehicle trips were assigned to area intersections based on logical and direct travel routes to and from the project site. Traffic assignments for autos, taxis, and deliveries are discussed in detail later in this chapter under Section D, "Detailed Traffic Analysis."

Figures 15-1 to 15-3 depict the projected vehicle trip increments. In coordination with DCP and the New York City Department of Transportation (NYCDOT), ~~25~~ 27 intersections were identified for analysis. This includes a primary traffic study area of intersections closest to the project site and through which most project-generated traffic would pass. In general, the primary study area includes potentially critical intersections within the Halletts Point project area and along the primary routes to/from the development area along Astoria Boulevard, Hoyt Avenue

2022 Proposed Project Net Increment Vehicle Trips
Weekday AM Peak Hour

HALLETTS POINT

Figure 15-1

2022 Proposed Project Net Increment Vehicle Trips
Weekday Midday Peak Hour

HALLETTS POINT

Figure 15-2

2022 Proposed Project Net Increment Vehicle Trips
Weekday PM Peak Hour

HALLETTS POINT

Figure 15-3

North and South, and other nearby intersections. The secondary traffic study area includes potentially critical intersections further away from the site at which a significant volume of project-generated traffic can be expected to pass and/or where background traffic conditions are heavily trafficked or are known congestion points. The following intersections have been identified for analysis within the primary and secondary study areas (see **Figure 15-4**):

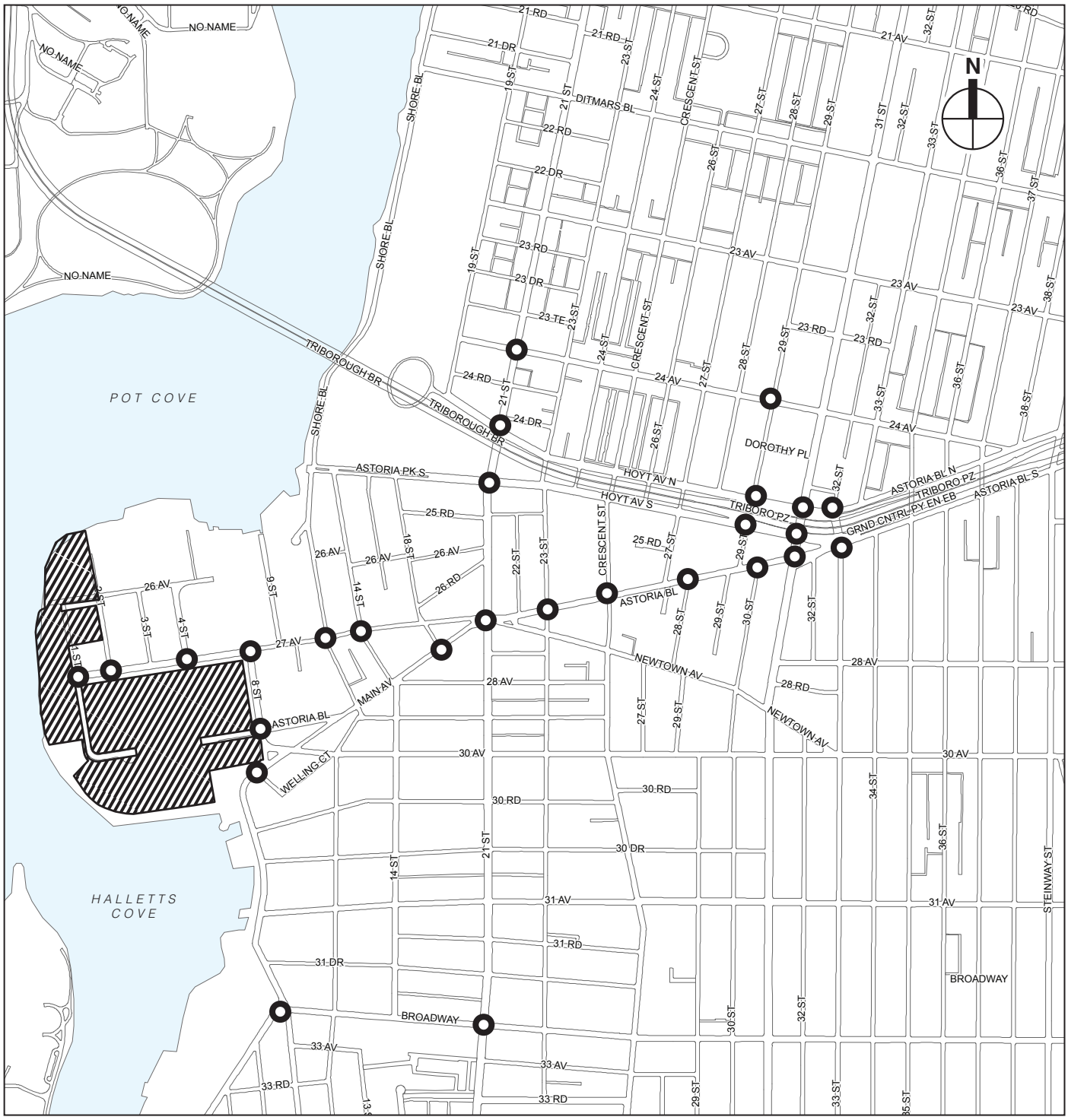
1. 27th Avenue and 1st Street (unsignalized)
2. 27th Avenue and 2nd Street (unsignalized)
3. 27th Avenue and 4th Street (unsignalized)
4. 27th Avenue and 8th Street (signalized)
5. 27th Avenue and 12th Street (unsignalized)
6. 27th Avenue and 14th Street (unsignalized)
7. Vernon Boulevard/Main Avenue and 8th Street/Welling Court (signalized)
8. Astoria Boulevard and 8th Street (signalized)
9. Astoria Boulevard and 18th Street (unsignalized)
10. Astoria Boulevard and 21st Street (signalized)
11. Astoria Boulevard and 23rd Street (signalized)
12. Astoria Boulevard and Crescent Street (signalized)
13. Astoria Boulevard and 28th Street (unsignalized)
14. Astoria Boulevard and 30th Street (unsignalized)
15. Astoria Boulevard and 31st Street (signalized)
16. Astoria Park South/Hoyt Avenue South and 21st Street (signalized)
17. Hoyt Avenue South and Triborough/RFK Bridge Off-Ramp/29th Street (signalized)
18. Hoyt Avenue South and 31st Street (signalized)
19. Hoyt Avenue South/Astoria Boulevard and 33rd Street (signalized)
20. Hoyt Avenue North and 21st Street (signalized)
21. Hoyt Avenue North and 29th Street (signalized)
22. Hoyt Avenue North and 31st Street (signalized)
23. Hoyt Avenue North/Astoria Boulevard North and 32nd Street (signalized)
24. 24th Avenue and 21st Street (signalized)
25. 24th Avenue and 29th Avenue (signalized)
26. Broadway and Vernon Boulevard/11th Street (signalized)
27. Broadway and 21st Street (signalized)

~~Subsequent to this traffic study, DCP requested the addition of two more study intersections: 27th Avenue at 12th and 14th Streets. These intersections will be studied between Draft and Final certification and will be included in the FEIS.~~

The intersections of 27th Avenue and 12th Street and at 14th Street were added for traffic analysis during the period between certification of the DEIS and the FEIS.

TRANSIT

As discussed above under "Level 1 Screening," the proposed project's peak hour subway trip estimates exceed the 200 peak hour subway trip threshold during the weekday peak hours. As further discussed in Section E, "Detailed Transit Analysis," these trips were assigned to



Traffic Analysis Locations

HALLETTS POINT

Figure 15-4

available subway lines in the area; and based on the assignment of the projected subway trips, it was determined that circulation elements and control areas at the following two subway stations would require detailed analysis (see transit map shown on **Figure 15-5**):

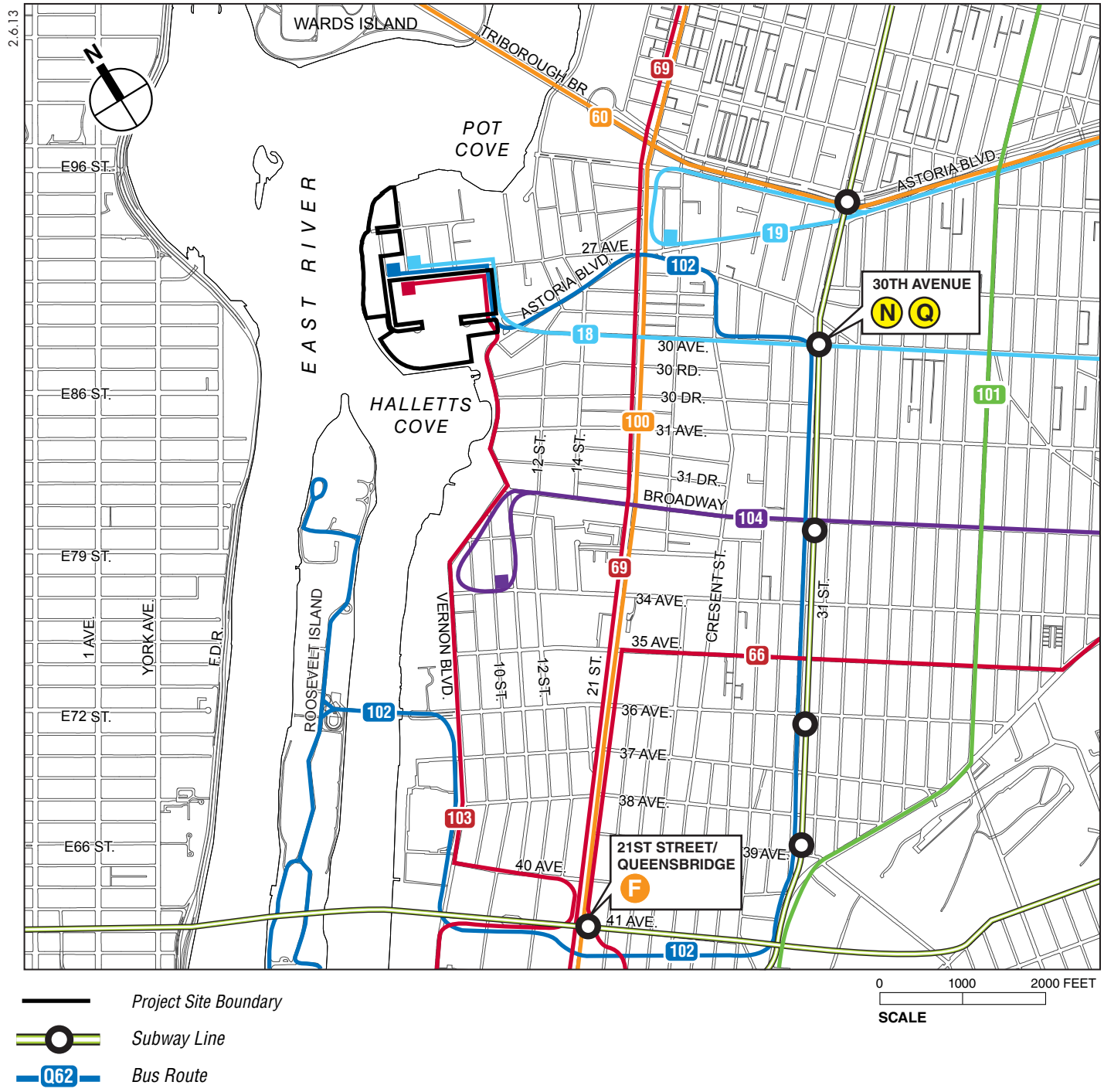
1. 21st Street-Queensbridge (F) Station
2. 30th Avenue (N, Q) Station

To determine whether a subway line-haul analysis is warranted, the estimated incremental ridership for the F, N, and Q subway lines by direction was compared with the peak period service frequencies to determine the increase in subway riders per subway car, as shown in **Table 15-7**. Population data from the 2010 Census and origin-destination data from the 2000 Census Transportation Planning Package (CTTP) were reviewed, together with the latest available MTA-New York City Transit (NYCT) station registration data, to develop the assignment patterns used in the allocation of projected subway trips. Based on MTA-NYCT data, the 30th Avenue (N, Q) Station serves nearly twice as many riders on a typical weekday as the 21st Street-Queensbridge (F) Station. The assignments were further adjusted to account for the fact that the 30th Avenue Station is located closer to the project site and more buses provide service from the project site to that station. Therefore, accounting for the two stations' proximity and connectivity to the project sites, it was assumed that 25 percent of project-generated subway trips would travel to the 21st Street-Queensbridge Station, while 75 percent would access the subway system at the 30th Avenue Station.

According to the *CEQR Technical Manual*, an incremental ridership of fewer than five riders per subway car is unlikely to result in the potential for a significant subway line-haul impact. The detailed subway trip assignments showed that the F, N, and Q subway lines would incur fewer than five additional riders per car in all directions and time periods. Since the projected peak ridership increment would be below this threshold, a detailed subway line-haul analysis is not warranted. Project-generated peak hour bus trips would also exceed the *CEQR Technical Manual* analysis thresholds (in the PM peak hour). In addition, as the project site is located at significant distances from the nearest subway stations, the majority of the estimated project-generated subway trips would also use the Q18, Q102, and Q103 local bus routes, which have stops near the analyzed subway stations, to connect with the N, Q, and F subway lines. Therefore, a detailed bus-line haul analysis is warranted for all three of the area bus routes.

PEDESTRIANS

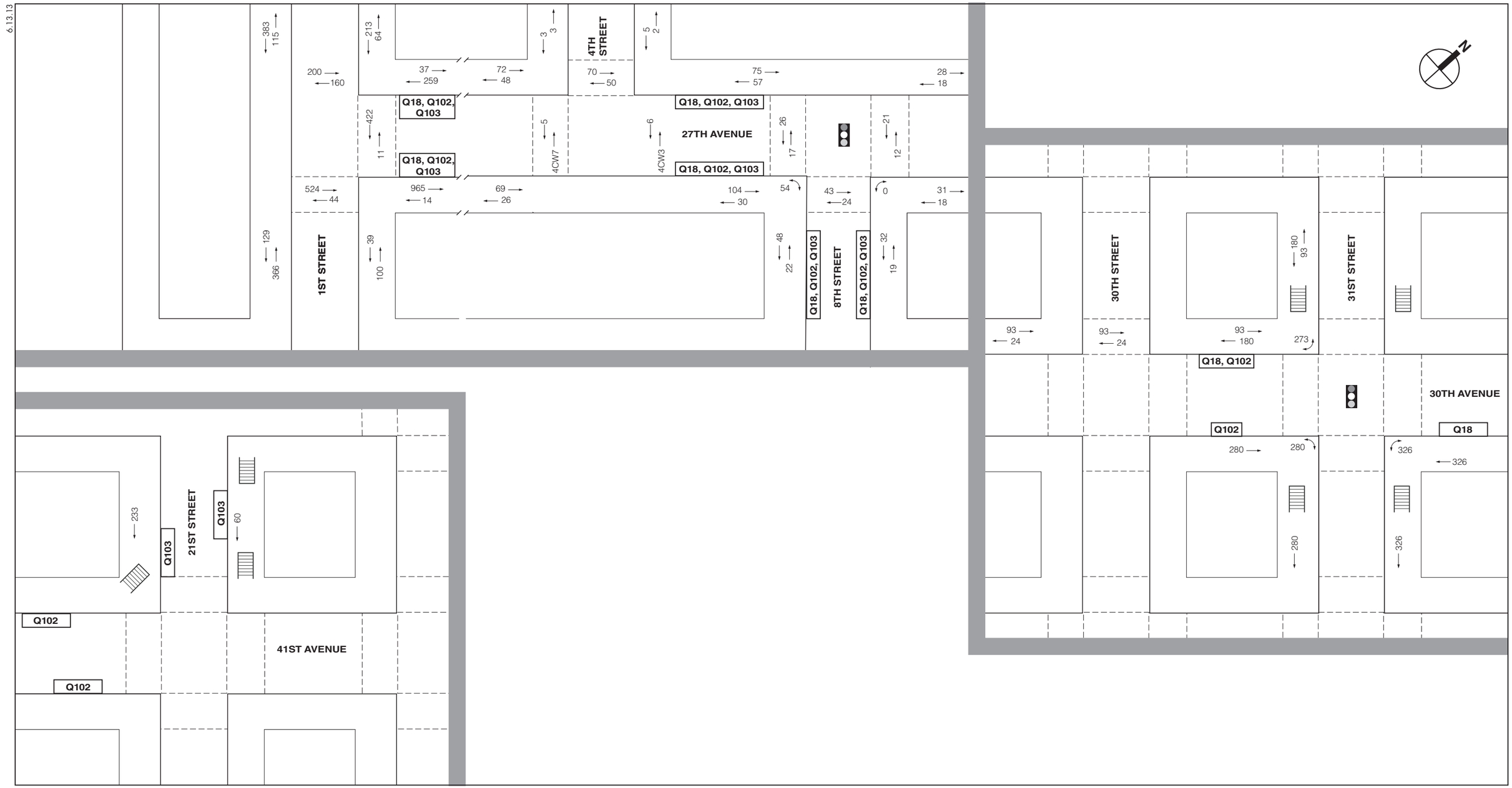
As discussed above under "Level 1 Screening," the proposed project's peak hour pedestrian trip estimates exceed the *CEQR Technical Manual* threshold during the AM, midday, and PM peak hours. These pedestrian trips were assigned to area pedestrian elements based on logical and direct travel routes to and from the project site. Based on the pedestrian trip increments shown in **Figures 15-6 to 15-8**, corner reservoirs and crosswalks, as well as connecting sidewalks, at six intersections were selected for a detailed analysis (see **Table 15-8** and **Figure 15-9**).



HALLETTS POINT

Transit Map
Figure 15-5

6.13.13



Signalized Intersection

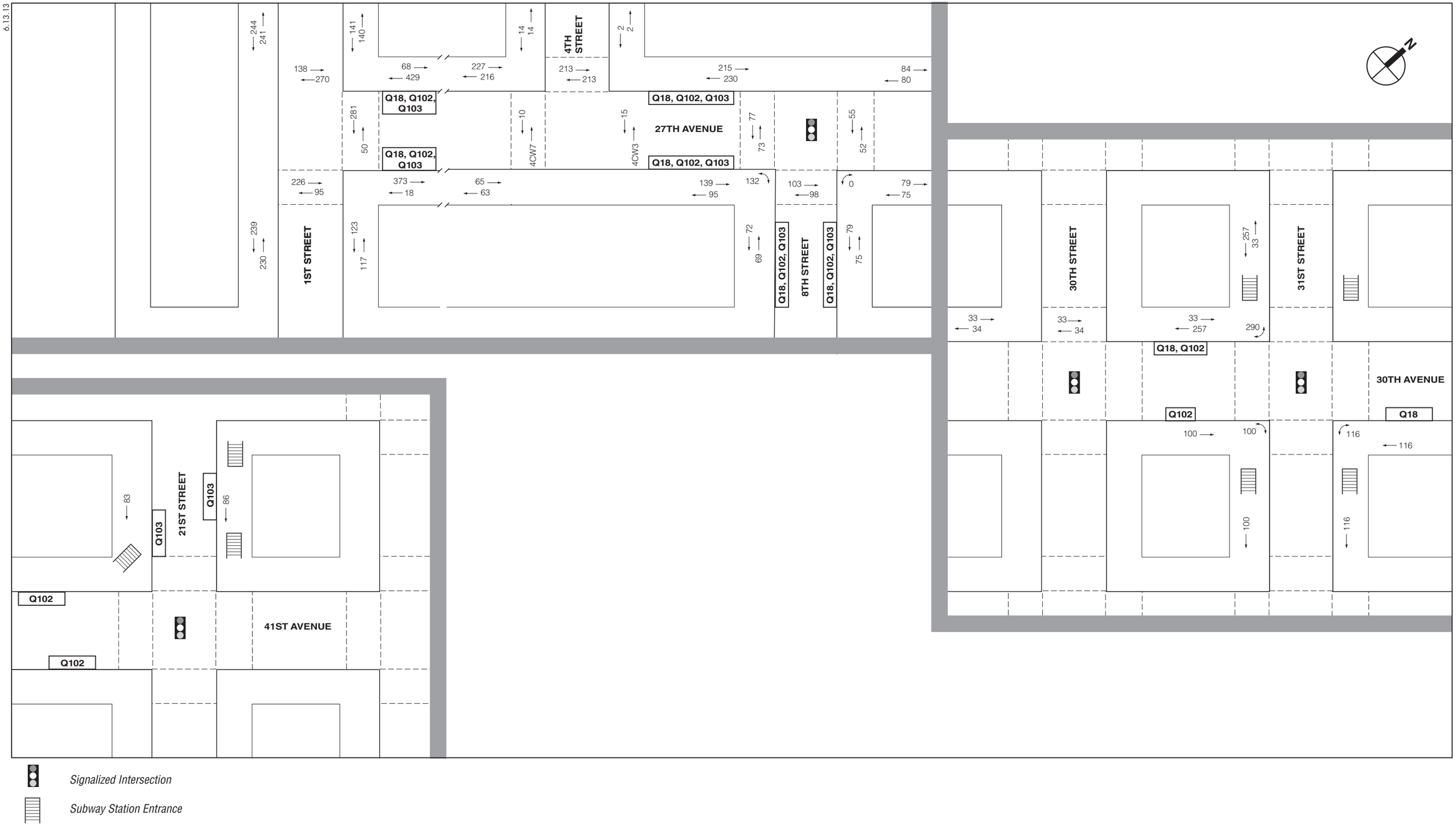
Subway Station Entrance

Q103 *Bus Stop and Bus Route*

2022 Proposed Project Generated Pedestrian Trips
Weekday AM Peak Hour
Figure 15-6

HALLETTS POINT

6.13.13



Signalized Intersection

Subway Station Entrance

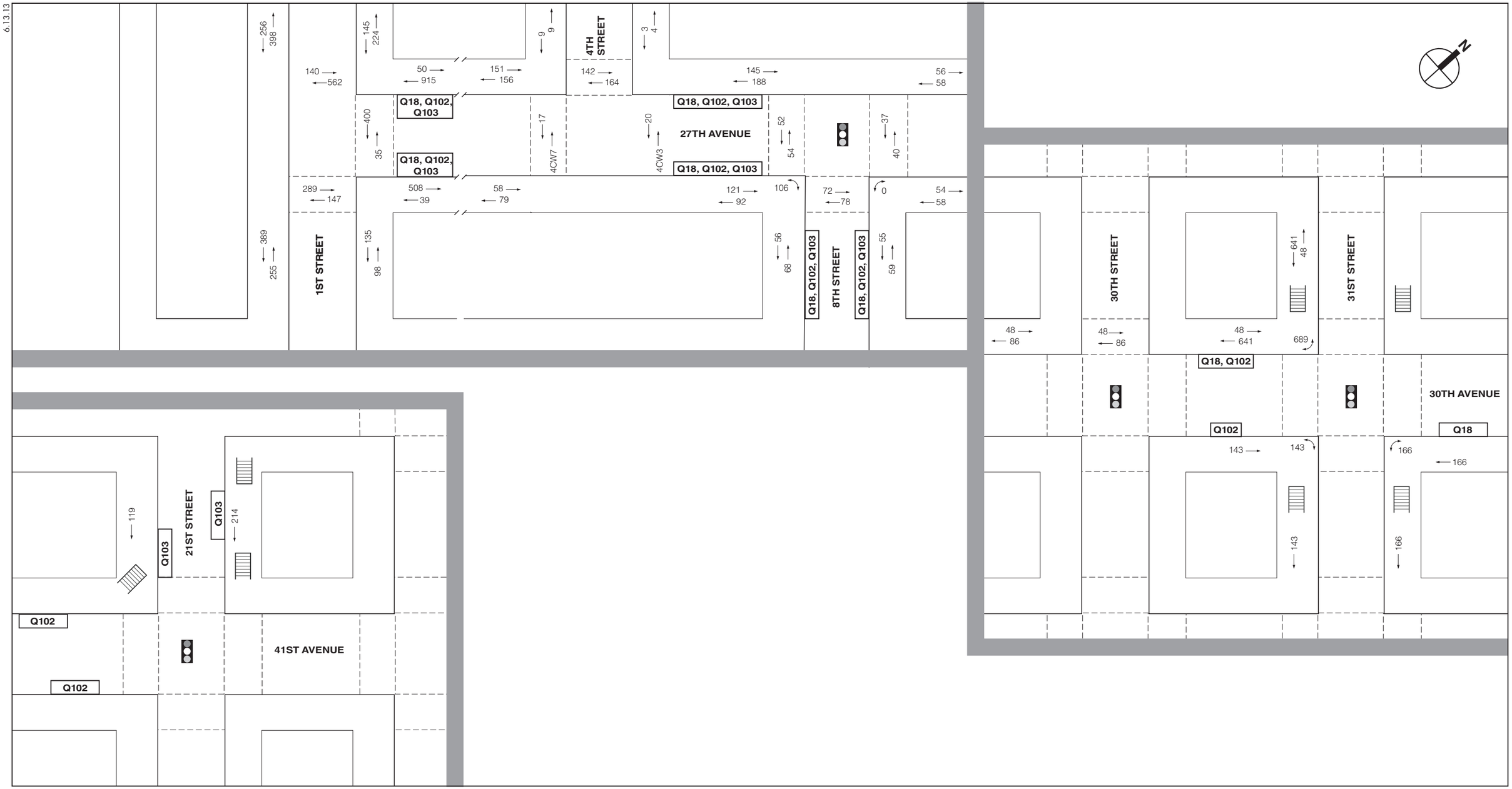
Q103 *Bus Stop and Bus Route*

2022 Proposed Project Generated Pedestrian Trips
Weekday Midday Peak Hour

HALLETTS POINT

Figure 15-7

6.13.13



Signalized Intersection

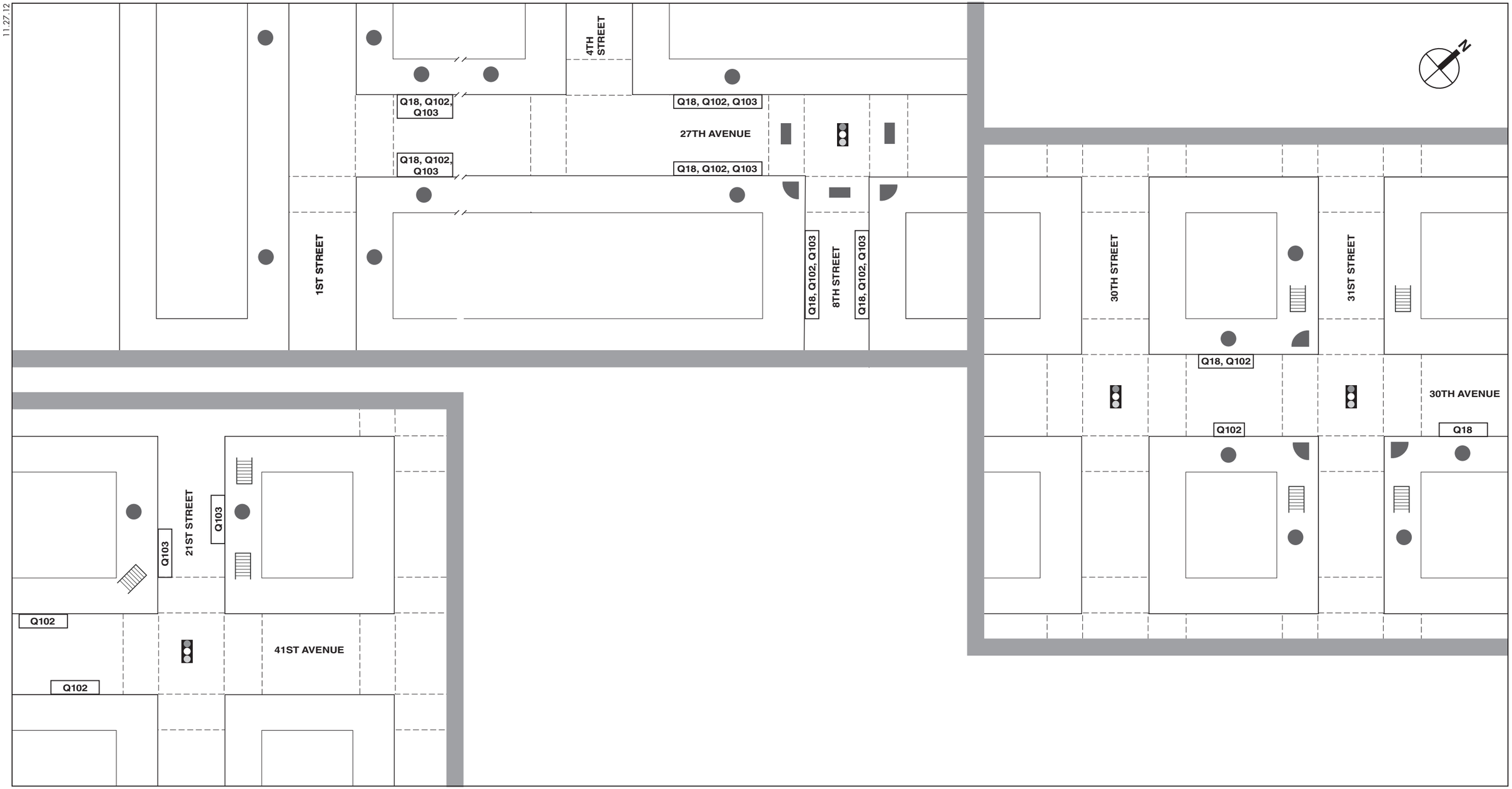
Subway Station Entrance

Q103 *Bus Stop and Bus Route*

2022 Proposed Project Generated Pedestrian Trips
Weekday PM Peak Hour
Figure 15-8

HALLETTS POINT

11.27.12



HALLETTS POINT

Pedestrian Analysis Locations
Figure 15-9

Table 15-7[1]
Subway Line Haul Screening Analysis

Subway Line	Projected Riders	No. of Cars *	No. Riders/Car	Screening Result
AM Peak Hour				
To Site	**240**			
N – Queens Bound	83	80	1.04	Screened out
N – Manhattan Bound	7	70	0.10	Screened out
Q – Queens Bound	83	70	1.18	Screened out
Q – Manhattan Bound	7	70	0.10	Screened out
F – Queens Bound	55	130	0.42	Screened out
F – Manhattan Bound	4	150	0.03	Screened out
From Site	**932**			
N – Queens Bound	28	80	0.35	Screened out
N – Manhattan Bound	322	70	4.59	Screened out
Q – Queens Bound	28	70	0.40	Screened out
Q – Manhattan Bound	322	70	4.59	Screened out
F – Queens Bound	19	130	0.14	Screened out
F – Manhattan Bound	214	150	1.43	Screened out
PM Peak Hour				
To Site	**855**			
N – Queens Bound	295	60	4.92	Screened out
N – Manhattan Bound	26	70	0.37	Screened out
Q – Queens Bound	295	60	4.92	Screened out
Q – Manhattan Bound	26	60	0.43	Screened out
F – Queens Bound	197	150	1.31	Screened out
F – Manhattan Bound	17	120	0.14	Screened out
From Site	**475**			
N – Queens Bound	14	60	0.24	Screened out
N – Manhattan Bound	164	70	2.34	Screened out
Q – Queens Bound	14	60	0.24	Screened out
Q – Manhattan Bound	164	60	2.73	Screened out
F – Queens Bound	10	150	0.06	Screened out
F – Manhattan Bound	109	120	0.91	Screened out
Note: * Number of cars available for each line during the peak hour was obtained from 2011 cordon counts				

Table 15-8
Pedestrian Analysis Locations

Intersection No.	Location	Elements
1	30th Avenue and 31st Street	Northwest corner/ Southwest corner/ Southeast corner
		West sidewalk of 31st Street between 30th Avenue and Newtown Avenue
		East sidewalk of 31st Street between 30th Avenue and 30th Drive
		West sidewalk of 31st Street between 30th Avenue and 30th Drive
		South sidewalk of 30th Avenue between 31st Street and 32nd Street
2	30th Avenue and 30th Street	North sidewalk of 30th Avenue between 30th Street and 3st Street
		South sidewalk of 30th Avenue between 30th Street and 31st Street
3	27th Avenue and 8th Street	South crosswalk
		West crosswalk
		Southwest corner/ Southeast corner
		North sidewalk of 27th Avenue between 4th Street and 8th Street
		South sidewalk of 27th Avenue between 4th Street and 8th Street
4	27th Avenue and 4th Street	North sidewalk of 27th Avenue between 4th Street and 3rd Street
5	27th Avenue and 1st Street	North sidewalk of 27th Avenue between 1st Street and 2nd Street
		South sidewalk of 27th Avenue between 1st Street and 2nd Street
		East sidewalk of 1st Street between 27th Avenue and 26th Avenue
		West sidewalk of 1st Street between 27th Avenue and 26th Avenue
		East sidewalk of 1st Street between 27th Avenue and Astoria Boulevard
		West sidewalk of 1st Street between 27th Avenue and Astoria Boulevard
6	41st Avenue and 21st Street	East sidewalk of 21st Street between 41st Avenue and 40th Avenue
		West sidewalk of 21st Street between 41st Avenue and 40th Avenue

[1] This table is new to the FEIS.

C. TRANSPORTATION ANALYSIS METHODOLOGY

TRAFFIC OPERATIONS

The operation of all signalized and unsignalized intersection analysis locations were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5),* which is the analysis methodology approved for use by NYCDOT. The *HCM* procedures evaluate the levels of service (LOS) for signalized and unsignalized intersections using average stop control delay, in seconds per vehicle, as described below.

SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for determining levels of service for individual lane groups (grouping of movements in one or more travel lanes), the overall approaches to each intersection, and the overall intersection itself. LOS are defined in **Table 15-9**.

Table 15-9
LOS Criteria for Signalized Intersections

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

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

LOS A describes operations with low delays, i.e., an average control delay of 10.0 seconds or less per vehicle. This occurs when signal progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.

LOS B describes operations with delays in excess of 10.0 seconds up to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.

LOS C describes operations with delays in excess of 20.0 seconds up to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is noticeable at this level, although many still pass through the intersection without stopping.

LOS D describes operations with delays in excess of 35.0 seconds up to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

LOS E describes operations with delays in excess of 55.0 seconds up to 80.0 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios.

LOS F describes operations with delays in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios with

cycle failures. Poor progression and long cycle lengths may also contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

Based on *CEQR Technical Manual* guidelines, LOS A, B, and C are considered acceptable, LOS D is considered marginally acceptable up to mid-LOS D (45 seconds of delay for signalized intersections) and unacceptable above mid-LOS D, and LOS E and F indicate congestion. These guidelines are applicable to individual traffic movements and overall intersection levels of service.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the average control delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. The level of service criteria for unsignalized intersections are summarized in **Table 15-10**. For unsignalized intersections, LOS E is considered the limit of acceptable delay, while LOS F is considered unacceptable to most drivers. LOS F conditions exist when there are insufficient gaps of suitable size in a major vehicular traffic stream to allow side street traffic to cross safely.

Table 15-10
LOS Criteria for Unsignalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

SIGNIFICANT IMPACT CRITERIA

The assessment of potential significant traffic impacts of a proposed project is based on significant impact criteria defined in the *CEQR Technical Manual.* No Action LOS A, B, or C conditions that deteriorate to unacceptable LOS D, E, or F in the future With Action condition are considered a significant traffic impact. For future No Action LOS A, B, or C conditions that deteriorate to unacceptable LOS D, mitigation to mid-LOS D (45.0 seconds of delay for signalized intersections and 30.0 seconds of delay for unsignalized intersections) needs to be considered to fully mitigate the impact. For a No Action LOS D, an increase of delay by five or more seconds in the With Action condition is considered a significant impact if the With Action condition delay meets or exceeds 45.0 seconds. For a No Action LOS E, the threshold is a four second increase in With Action condition delay; for a No Action LOS F, a three second increase in delay in the With Action condition is significant. For unsignalized intersections, for the minor street to generate a significant impact, 90 passenger car equivalents (PCEs) must be identified in the With Action condition in any peak hour.

TRANSIT OPERATIONS

SUBWAY STATION ANALYSIS

The methodology for assessing station circulation (stairs and escalators) and fare control (regular turnstiles, high entry/exit turnstiles, and high exit turnstiles) elements compares the user volume with the analyzed element's design capacity, resulting in a v/c ratio. For stairs, the design capacity considers the effective width of a tread, which accounts for railings or other obstructions, the friction or counter-flow between upward and downward pedestrians (up to 10 percent capacity reduction is applied to account for counter-flow friction), surging of exiting pedestrians (up to 25 percent capacity reduction is applied to account for detraining surges near platforms), and the average area required for circulation. For escalators and turnstiles, capacities are measured by the number and width of an element and the NYCT optimum capacity per element, also account for the potential for surging of exiting pedestrians. The estimated v/c ratio is compared with NYCT criteria to determine a LOS for the operation of an element, as shown in **Table 15-11**.

Table 15-11
LOS Criteria for Subway Station Elements

LOS	V/C Ratio
A	0.00 to 0.45
B	0.45 to 0.70
C	0.70 to 1.00
D	1.00 to 1.33
E	1.33 to 1.67
F	Above 1.67

Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (February 2012).

At LOS A ("free flow") and B ("fluid flow"), there is sufficient area to allow pedestrians to freely select their walking speed and bypass slower pedestrians. When cross and reverse flow movement exists, only minor conflicts may occur. At LOS C ("fluid, somewhat restricted"), movement is fluid although somewhat restricted. While there is sufficient room for standing without personal contact, circulation through queuing areas may require adjustments to walking speed. At LOS D ("crowded, walking speed restricted"), walking speed is restricted and reduced. Reverse and cross flow movement is severely restricted because of congestion and the difficult passage of slower moving pedestrians. At LOS E ("congested, some shuffling and queuing") and F ("severely congested, queued"), walking speed is restricted. There is also insufficient area to bypass others, and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming.

Significant Impact Criteria

The determination of significant impacts for station elements varies based on their type and use. For stairs, significant impacts are defined in term of width increment threshold (WIT) based on the minimum amount of additional capacity that would be required either to mitigate the location to its service conditions (LOS) under the No Build levels, or to bring it to a v/c ratio of 1.00 (LOS C/D), whichever is greater. Significant impacts are typically considered to occur once the WITs in **Table 15-12** are reached or exceeded.

Table 15-12
Significant Impact Guidance for Stairs

No Build V/C Ratio	WIT for Significant Impact (inches)	
	Stairway	Passageway
1.00 to 1.09	8.0	13.0
1.10 to 1.19	7.0	11.5
1.20 to 1.29	6.0	10.0
1.30 to 1.39	5.0	8.5
1.40 to 1.49	4.0	6.0
1.50 to 1.59	3.0	4.5
1.60 and up	2.0	3.0

Note: WIT = Width Increment Threshold
Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

For escalators and control area elements, impacts are significant if the proposed project causes a v/c ratio to increase from below 1.00 to 1.00 or greater. Where a facility is already at or above its capacity (a v/c of 1.00 or greater) in the No Build condition, a 0.01 increase in v/c ratio is also significant.

BUS LINE-HAUL ANALYSIS

The assessment of bus line-haul conditions involves analyzing bus routes at their peak load points and, if necessary, also their bus stops closest to the project site to identify the potential for the analyzed routes to exceed their guideline (or practical) capacities. NYCT and the MTA Bus Company operate three types of buses: standard and articulated buses, and over-the-road coaches. During peak hours, standard buses operate with up to 54 passengers per bus, articulated buses operate with up to 85 passengers per bus, and over-the-road coaches operate with up to 55 passengers per bus.

Significant Impact Criteria

An increase in bus load levels greater than the maximum capacity at any load point is defined as a significant adverse impact. While subject to operational and fiscal constraints, bus impacts can typically be mitigated by increasing service frequency. Therefore, mitigation of bus line-haul capacity impacts, where appropriate, would be recommended for NYCT's approval.

PEDESTRIAN OPERATIONS

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

Sidewalks are analyzed in terms of pedestrian flow. The calculation of the average pedestrians per minute per foot (PMF) of effective walkway width is the basis for a sidewalk LOS analysis. The determination of walkway LOS is also dependent on whether the pedestrian flow being analyzed is best described as "non-platoon" or "platoon." Non-platoon flow occurs when pedestrian volume within the peak period is relatively uniform, whereas, platoon flow occurs when pedestrian volumes vary significantly with the peak period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway's pedestrian volume.

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

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

Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in square feet-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk. The LOS standards for sidewalks, corner reservoirs, and crosswalks are summarized in **Table 15-13**.

Table 15-13
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	≤ 5 PMF	≤ 0.5 PMF	> 60 SFP
B	> 5 and ≤ 7 PMF	> 0.5 and ≤ 3 PMF	> 40 and ≤ 60 SFP
C	> 7 and ≤ 10 PMF	> 3 and ≤ 6 PMF	> 24 and ≤ 40 SFP
D	> 10 and ≤ 15 PMF	> 6 and ≤ 11 PMF	> 15 and ≤ 24 SFP
E	> 15 and ≤ 23 PMF	> 11 and ≤ 18 PMF	> 8 and ≤ 15 SFP
F	> 23 PMF	> 18 PMF	≤ 8 SFP

Notes: PMF = pedestrians per minute per foot; SFP = square feet per pedestrian.
Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

SIGNIFICANT IMPACT CRITERIA

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

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the increase in average pedestrian flow rate (Y) in PMF needs to be greater or equal to 3.5 minus X divided by 8.0 (where X is the No Build pedestrian flow rate in PMF [$Y \geq 3.5 - X/8.0$]) for it to be a significant impact. For platoon flow, the sliding-scale formula is $Y \geq 3.0 - X/8.0$. Since deterioration in pedestrian flow within acceptable levels would not constitute

a significant impact, these formulas would apply only if the Build pedestrian flow exceeds LOS C in non-Central Business District (CBD) areas or mid-LOS D in CBD areas. **Table 15-14** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts. According to CEQR guidelines, the proposed project is located in a non-CBD area. For informational purposes, the tables below present the significant impact guidance for CBD and non-CBD areas. The determination of significant corner and crosswalk impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.3$, where Y is the decrease in pedestrian space in SFP and X is the No Build pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the Build pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 15-15** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 15-14
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: ***Y ≥ 3.5 – X/8.0***				**Sliding Scale Formula:** ***Y ≥ 3.0 – X/8.0***			
Non-CBD Areas		**CBD Areas**		**Non-CBD Areas**		**CBD Areas**	
No Build Ped. Flow (X, PMF)	**Build Ped. Flow Incr. (Y, PMF)**	**No Build Ped. Flow (X, PMF)**	**Build Ped. Flow Incr. (Y, PMF)**	**No Build Ped. Flow (X, PMF)**	**Build Ped. Flow Incr. (Y, PMF)**	**No Build Ped. Flow (X, PMF)**	**Build Ped. Flow Incr. (Y, PMF)**
7.4 to 7.8	≥ 2.6	–	–	3.4 to 3.8	≥ 2.6	–	–
7.9 to 8.6	≥ 2.5	–	–	3.9 to 4.6	≥ 2.5	–	–
8.7 to 9.4	≥ 2.4	–	–	4.7 to 5.4	≥ 2.4	–	–
9.5 to 10.2	≥ 2.3	–	–	5.5 to 6.2	≥ 2.3	–	–
10.3 to 11.0	≥ 2.2	10.3 to 11.0	≥ 2.2	6.3 to 7.0	≥ 2.2	6.3 to 7.0	≥ 2.2
11.1 to 11.8	≥ 2.1	11.1 to 11.8	≥ 2.1	7.1 to 7.8	≥ 2.1	7.1 to 7.8	≥ 2.1
11.9 to 12.6	≥ 2.0	11.9 to 12.6	≥ 2.0	7.9 to 8.6	≥ 2.0	7.9 to 8.6	≥ 2.0
12.7 to 13.4	≥ 1.9	12.7 to 13.4	≥ 1.9	8.7 to 9.4	≥ 1.9	8.7 to 9.4	≥ 1.9
13.5 to 14.2	≥ 1.8	13.5 to 14.2	≥ 1.8	9.5 to 10.2	≥ 1.8	9.5 to 10.2	≥ 1.8
14.3 to 15.0	≥ 1.7	14.3 to 15.0	≥ 1.7	10.3 to 11.0	≥ 1.7	10.3 to 11.0	≥ 1.7
15.1 to 15.8	≥ 1.6	15.1 to 15.8	≥ 1.6	11.1 to 11.8	≥ 1.6	11.1 to 11.8	≥ 1.6
15.9 to 16.6	≥ 1.5	15.9 to 16.6	≥ 1.5	11.9 to 12.6	≥ 1.5	11.9 to 12.6	≥ 1.5
16.7 to 17.4	≥ 1.4	16.7 to 17.4	≥ 1.4	12.7 to 13.4	≥ 1.4	12.7 to 13.4	≥ 1.4
17.5 to 18.2	≥ 1.3	17.5 to 18.2	≥ 1.3	13.5 to 14.2	≥ 1.3	13.5 to 14.2	≥ 1.3
18.3 to 19.0	≥ 1.2	18.3 to 19.0	≥ 1.2	14.3 to 15.0	≥ 1.2	14.3 to 15.0	≥ 1.2
19.1 to 19.8	≥ 1.1	19.1 to 19.8	≥ 1.1	15.1 to 15.8	≥ 1.1	15.1 to 15.8	≥ 1.1
19.9 to 20.6	≥ 1.0	19.9 to 20.6	≥ 1.0	15.9 to 16.6	≥ 1.0	15.9 to 16.6	≥ 1.0
20.7 to 21.4	≥ 0.9	20.7 to 21.4	≥ 0.9	16.7 to 17.4	≥ 0.9	16.7 to 17.4	≥ 0.9
21.5 to 22.2	≥ 0.8	21.5 to 22.2	≥ 0.8	17.5 to 18.2	≥ 0.8	17.5 to 18.2	≥ 0.8
22.3 to 23.0	≥ 0.7	22.3 to 23.0	≥ 0.7	18.3 to 19.0	≥ 0.7	18.3 to 19.0	≥ 0.7
> 23.0	≥ 0.6	> 23.0	≥ 0.6	> 19.0	≥ 0.6	> 19.0	≥ 0.6

Notes: PMF = pedestrians per minute per foot; Y = increase in average pedestrian flow rate in PMF; X = No Build pedestrian flow rate in PMF.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

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

Table 15-15
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: *Y ≥ X/9.0 – 0.3*			
Non-CBD Areas		**CBD Areas**	
No Build Pedestrian Space (X, SFP)	**Build Pedestrian Space Reduction (Y, SFP)**	**No Build Pedestrian Space (X, SFP)**	**Build Pedestrian Space Reduction (Y, SFP)**
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2
Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Build pedestrian space in SFP.			
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.			

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which on-street and off-street parking is available and utilized under existing and future conditions, and estimates the parking demand resulting from the proposed project during peak periods. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from parking displacement attributable to or additional demand generated by the proposed actions. Typically, this analysis encompasses a study area within ¼-mile of the project site.

D. DETAILED TRAFFIC ANALYSIS

EXISTING CONDITIONS

ROADWAY NETWORK AND TRAFFIC STUDY AREA

As detailed above in "Level 2 Screening Assessment," ~~25~~ 27 key intersections near the project site were identified that would most likely be affected by project-generated traffic.

The roadway network around the project site is generally a grid of local streets through the neighborhood of Astoria, Queens which also contains access points to major regional roadways, including the Grand Central Parkway (GCP) and the Triborough/RFK Bridge (RFK Bridge). Key north-south roadways within the study area include Vernon Boulevard, 21st Street, and 31st

Street. Key east-west roadways in the study area include the GCP, Hoyt Avenue (North and South), Astoria Boulevard, and 27th Avenue.

Vernon Boulevard is a north-south street that travels adjacent to the waterfront in Western Queens, and has a mix of industrial, transportation/utilities, commercial, residential, and open space/recreational uses. It extends from Borden Avenue in Hunter's Point in the south to Main Avenue in Astoria in the north. Within the study area, the road operates with one travel lane and one striped (Class II), buffered bike lane in each direction. There is also curbside parking in the northbound direction. Vernon Boulevard also has local bus service and is a local truck route.

8th Street serves as a local north-south street in the study area and is the eastern border of the Astoria Houses Campus. The roadway operates as a two-way street with one travel lane, one Class II bike lane and parking in each direction, and is characterized by residential use.

21st Street is a north-south arterial that spans between Astoria to the north and Hunter's Point to the south, and provides direct access to the Ed Koch/Queensboro Bridge and the Queens-Midtown Tunnel. Within the study area, the roadway has two travel lanes and a parking lane in each direction south of the RFK Bridge and one travel lane and a parking lane in each direction north of it. Motorists are prohibited from making left turns from 21st Street along much of the corridor during weekday AM and PM peak periods. Multiple local bus routes operate along 21st Street, and it is a designated through truck route. North of Hoyt Avenue South/Astoria Park South, the roadway has a Class II bike lane in both directions.

31st Street extends from Northern Boulevard to the north end of Queens. It is a two-way street and typically has one travel lane and one parking lane in each direction. It is a residential and commercial street and is characterized by the elevated N/Q subway line that operates above it. 31st Street intersects Hoyt Avenue North and South and Astoria Boulevard North and South which feed traffic from nearby RFK Bridge and GCP ramps.

Hoyt Avenue acts as a service road to the GCP west of 31st Street, operating as Hoyt Avenue North in the westbound direction and Hoyt Avenue South going eastbound. The roadway is typically three to four lanes wide in each direction, and has extra lanes available for traffic entering and exiting the GCP at merge/diverge locations. There is typically one parking lane and a Class II bike lane in each direction along the right curb; however, there are some locations with parking along both curbs.

The GCP is a major east-west highway with three travel lanes in each direction that extend from the RFK Bridge in the northwest corner of Queens to the Queens-Nassau County border where it becomes the Northern State Parkway. It is a major carrier of traffic between Manhattan and the Bronx, and eastern Queens and Long Island. The roadway provides access to the study area via the 31st Street exit. As it transitions to the RFK Bridge (west of 27th Street), the roadway widens to four travel lanes in each direction.

Astoria Boulevard is a key east-west thoroughfare through southern Astoria. West of 31st Street, it is an east-west street with typically one travel lane and one parking lane in each direction and serves as a residential and commercial street. Astoria Boulevard currently terminates in the west within the Astoria Houses Campus, just west of 8th Street. East of 31st Street, Astoria Boulevard is one way eastbound and merges with Hoyt Avenue South, becoming the eastbound service road to the GCP.

27th Avenue is the primary east-west access to the Halletts Point peninsula and to the project site. It extends from the East River in the west to 21st Street in the east where it merges with

Astoria Boulevard. It operates as a two-way commercial and residential street with one travel lane and parking in each direction except for the block between 18th Street and Astoria Boulevard where it operates one-way westbound. To continue east, vehicles can transition to Astoria Boulevard via 18th Street.

24th Avenue serves as a local east-west street in the study area north of the RFK Bridge and is a two-way street with one travel lane and a parking lane in each direction characterized by residential and commercial use.

New York City-designated truck routes in the study area include Vernon Boulevard, 21st Street, 29th Street, 24th Avenue, Hoyt Avenue North and South, Astoria Boulevard, and the GCP (between the RFK Bridge and the Brooklyn-Queens Expressway [BQE] only), the RFK Bridge, and Broadway.

The overall traffic study area addressed in this EIS encompasses ~~25~~ 27 intersections within a primary traffic study area generally bounded by 24th Avenue to the north, 33rd Street to the east, Broadway to the south, and the East River to the west. Nineteen of the study intersections are signalized and six are unsignalized.

TRAFFIC VOLUMES

Traffic data were collected for weekday AM, midday, and PM peak periods using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts. These volumes were used along with field observations of traffic conditions to determine levels of service for the weekday 7:30 to 8:30 AM, 12:00 to 1:00 PM midday, and 4:30 to 5:30 PM peak hours.

Traffic counts were originally conducted for this EIS in June 2008 before the project was put on a temporary hiatus. When the study recommenced in 2011, these volumes were validated by a subsequent ATR data collection program which determined that, overall, the 2011 traffic volumes were the same or lower than in 2008. Therefore (in consultation with DCP and NYCDOT), the original 2008 volumes were retained for the 2011 existing conditions analysis; however, any street network changes (e.g., lane width changes, installation of bike lanes, reduced number of travel lanes, turn prohibitions, new traffic signals or new signal timing plans) that occurred between 2008 and 2011 were reflected in the existing conditions traffic analysis. Between the DEIS and FEIS, two additional study intersections along 27th Street were added to the project scope. Traffic data were collected for these locations in May 2013; traffic volumes on this portion of 27th Avenue were similar to those collected in 2008, and integrated into the existing traffic volume network.

Traffic volumes within the immediate project site vicinity are generally low. North-south roads such as 1st, 2nd and 4th Streets have approximately 25 to 100 vehicles per hour (vph) per direction during all peak hours. 27th Avenue, the primary east-west street through this area, has 100 to 300 vph during peak hours.

Vernon Boulevard between Broadway and 30th Avenue is traveled by approximately 250 to 350 vph in the northbound direction in the weekday AM and midday peak hours, and 350 to 550 vph in the PM peak hour. In the southbound direction, Vernon Boulevard is traversed by 300 to 450 vph in the AM peak hour and 200 to 300 vph in the midday and PM peak hours.

Volumes along 8th Street range from approximately 200 to 300 vph during all weekday peak hours.

Between Broadway and Hoyt Avenue, 21st Street has northbound traffic volumes of approximately 500 to 650 vph in the AM peak hour, 550 to 1,000 vph in the midday peak hour, and 950 to 1,100 vph in the PM peak hour. Southbound volumes range from 1,200 to 1,500 vph during the AM peak hour, 750 to 850 vph during the midday peak hour, and 800 to 1,000 vph during the PM peak hour. North of Hoyt Avenue the volumes on 21st Street decrease to a range of 350 to 700 vph in the northbound direction and 250 to 450 vph in the southbound direction during weekday peak hours.

Volumes along 31st Street generally range from approximately 200 to 450 vph per direction during the weekday peak hours. At Triborough Plaza, where 31st Street intersects ramps to and from the RFK Bridge and GCP, traffic volumes increase to 550 to 750 vph in the northbound direction and 600 to 1,100 vph in the southbound direction during all peak hours.

Hoyt Avenue South, which is one-way eastbound, has volumes ranging from approximately 350 to 750 vph west of the 29th Street which increase to 1,050 to 1,450 vph between 29th Street and 33rd Street where it merges with Astoria Boulevard. Volumes on westbound Hoyt Avenue North are approximately 2,800 vph in the weekday AM peak hour and 2,100 vph in the midday and PM peak hours, between 31st Street and 29th Street/RFK Bridge on-ramp. West of 29th Street/RFK Bridge on-ramp, volumes range from 950 to 1,600 vph during the AM peak hour and 650 to 1,400 vph during the midday and PM peak hours.

Volumes along Astoria Boulevard are approximately 200 to 500 vph in the eastbound direction and 125 to 375 vph in the westbound direction between the project site and 21st Street. Between 21st Street and 31st Street, traffic volumes increase to 400 to 700 vph in the eastbound direction and 250 to 750 vph in the westbound direction. East of 31st Street, Astoria Boulevard operates as a service road to the GCP. Astoria Boulevard South (eastbound) has volumes of 800 to 1,075 vph during all peak hours while Astoria Boulevard North (westbound) has volumes of 2,700 to 3,750 vph.

Other key east-west streets in the study area such as Broadway and 24th Avenue are generally traveled by 150 to 350 vph per direction during all weekday peak hours with the exception of 24th Avenue which is traversed by as many as 500 vph in the eastbound direction during the PM peak hour.

The existing traffic volumes for the weekday AM, midday and PM peak hours are presented in **Figures 15-10 to 15-12**.

LEVELS OF SERVICE

Tables 15-16 and **15-17** provide an overview of the levels of service that characterize existing "overall" intersection conditions and individual traffic movements, respectively, during the weekday AM, midday and PM peak hours. Detailed descriptions of existing traffic levels of service are provided in Section I, "Detailed Analysis Results Tables," **Tables 15-49** and **15-50**. Overall, the capacity analysis indicates that most of the study area's intersection approaches/lane groups operate acceptably—at mid-LOS D (delays of 45 seconds or fewer per vehicle for signalized intersections and 30 seconds or fewer per vehicle for unsignalized intersections) or better for the peak hours.

Existing Traffic Volume
Weekday AM Peak Hour

HALLETTS POINT

Figure 15-10

Existing Traffic Volume
Weekday Midday Peak Hour

HALLETTS POINT

Figure 15-11

Existing Traffic Volume
Weekday PM Peak Hour

HALLETTS POINT

Figure 15-12

Table 15-16
2011 Existing Traffic Level of Service Summary—Overall Intersections

	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Intersections at Overall LOS A/B/C	20	24	22
Intersections at Overall LOS D	7	3	4
Intersections at Overall LOS E	0	0	1
Intersections Overall LOS F	0	0	0
Note: Includes the 27 analyzed intersections (19 signalized and 8 unsignalized).			

Table 15-17
2011 Existing Traffic Level of Service Summary—Traffic Movements

	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Traffic movements at LOS A/B/C and acceptable LOS D	74	90	82
Traffic movements at unacceptable LOS D	13	6	8
Traffic movements at LOS E	7	1	7
Traffic movements at LOS F	3	1	0
Number of individual traffic movements*	97	98	97
Note: * Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements			

This summary overview of existing conditions indicates that:

- In the AM peak hour, none of the ~~25~~ 27 intersections analyzed are operating at overall LOS E or F, and ~~eight~~ seven intersections are operating at marginally acceptable/unacceptable LOS D. "Overall" LOS E or F means that serious congestion exists—either one specific traffic movement has severe delays or two or more of the specific traffic movements at the intersection are at LOS E or F with very significant delays (the overall intersection LOS is a weighted average of all the individual traffic movements). ~~Twelve~~ Ten individual traffic movements out of approximately ~~92~~ 97 such movements analyzed are at LOS E or F (e.g., left turns from one street to another, through traffic on one street passing through the intersection, etc.) while ~~ten~~ 13 movements are at unacceptable LOS D.
- In the midday peak hour, none of the intersections operate at overall LOS E or F, and three intersections operate at marginally acceptable/unacceptable LOS D. Two individual traffic movements operate at LOS E or F while ~~five~~ six movements are at unacceptable LOS D.
- In the PM peak hour, one intersection~~s~~ analyzed operate~~s~~ at overall LOS E, and four intersection~~s~~ operate~~s~~ at marginally acceptable/unacceptable LOS D. Seven individual traffic movements operate at LOS E or F, and ~~seven~~ eight are at unacceptable LOS D.

Only one of the ~~25~~ 27 intersections—Hoyt Avenue South/Astoria Boulevard at 33rd Street—operates at overall LOS E during any peak hour. This intersection operates at LOS E during the weekday PM peak hour.

All of the ~~six~~ eight unsignalized intersections analyzed are operating at overall LOS A, B, or C during all peak hours analyzed. One intersection—27th Avenue and 12th Street—has a traffic movement that operates at unacceptable LOS D during at least one peak hour.

~~Thirteen~~ Fourteen intersections have at least one movement operating at unacceptable level of service during at least one peak hour. Traffic movements operating at unacceptable levels of service (unacceptable LOS D, LOS E or LOS F) are listed below:

Vernon Boulevard/Main Avenue and 8th Street/Welling Court

- Eastbound Vernon Boulevard shared left-turn/through (AM and PM)

Astoria Boulevard and 21st Street

- Eastbound Astoria Boulevard ~~shared~~ left-turn~~/through~~ (AM)
- Eastbound Astoria Boulevard shared through/right-turn (AM and PM)
- Westbound Astoria Boulevard left-turn (AM, midday, and PM)
- Westbound Astoria Boulevard shared through/right-turn (PM)
- Northbound 21st Street shared left-turn/through/right-turn (midday)
- Southbound 21st Street shared left-turn/through/right-turn (AM and midday)

Astoria Boulevard and Crescent Street

- Southbound Crescent Street shared left-turn/through/right-turn (AM, midday, and PM)

Astoria Boulevard and 31st Street

- Eastbound Astoria Boulevard shared left-turn/through/right-turn (PM)

Astoria Park South/ Hoyt Avenue South and 21st Street

- Eastbound Astoria Park South/ Hoyt Avenue South shared through/right-turn (AM)

Hoyt Avenue South and 31st Street

- Eastbound Hoyt Avenue South shared left-turn/through (AM)
- Eastbound Hoyt Avenue South right-turn (AM)

Hoyt Avenue South/Astoria Boulevard and 33rd Street

- Eastbound Astoria Boulevard shared left-turn/through (AM and PM)
- Northbound 33rd Street shared through/right-turn (AM and PM)
- Northbound 33rd Street right-turn (AM and PM)

Hoyt Avenue North and 21st Street

- Eastbound Hoyt Avenue North right-turn (AM)
- Northbound 21st Street through (AM and PM)
- Southbound 21st Street shared through/right-turn (AM)

Hoyt Avenue North and 29th Street

- Southbound 29th Street right-turn (AM and PM)

Hoyt Avenue North and 31st Street

- Westbound Hoyt Avenue North left-turn (AM and midday)

- Southbound 31st Street right-turn (AM)

Hoyt Avenue North and 32nd Street

- Westbound GCP Off-ramp through (AM)

Broadway and Vernon Boulevard/11th Street

- Westbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)

Broadway and 21st Street

- Eastbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)
- Westbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)

27th Avenue and 12th Street

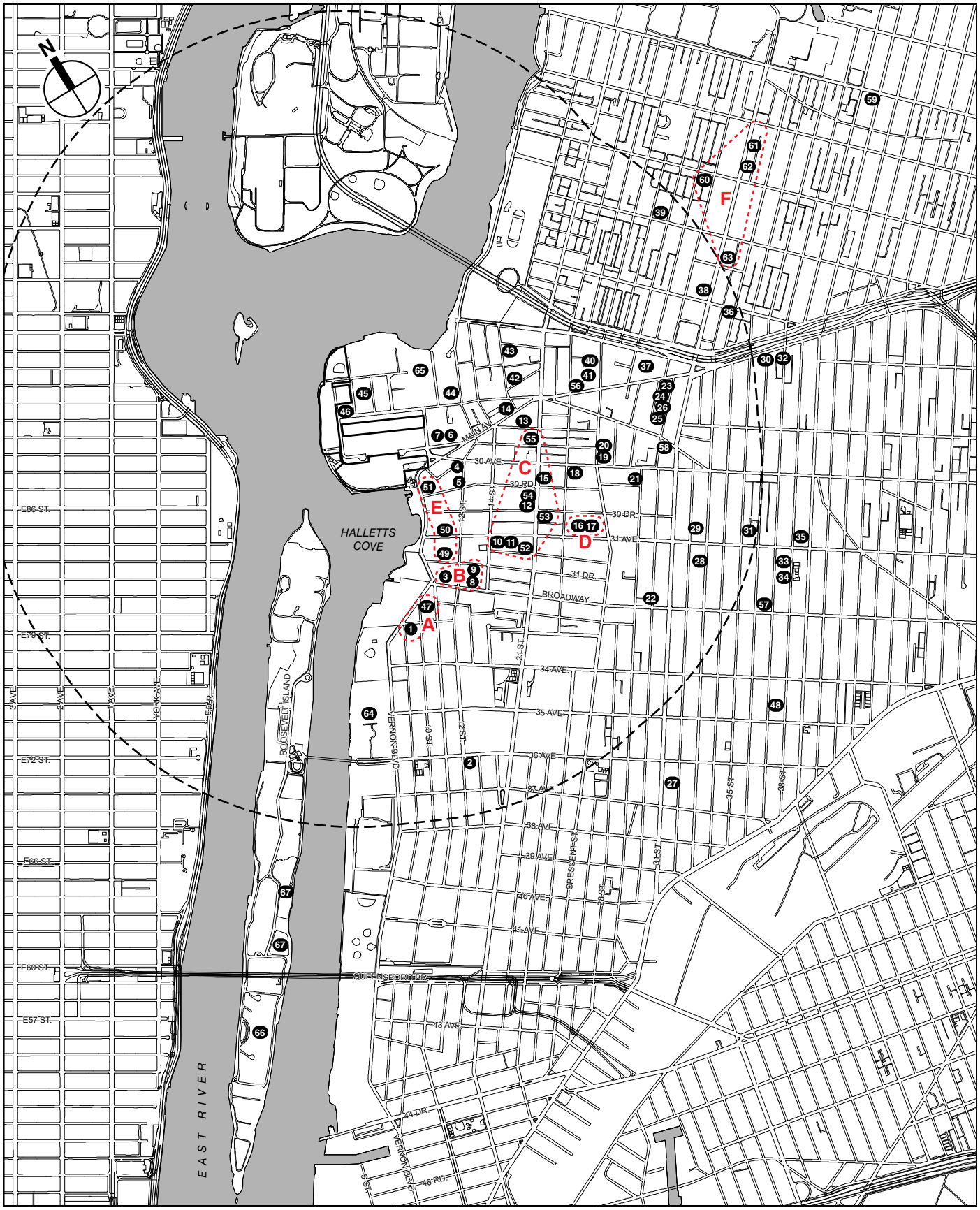
- Northbound 12th Street shared left-turn/through/right-turn (AM and PM)

FUTURE WITHOUT THE PROPOSED PROJECT (2022 NO BUILD CONDITION)

The 2022 No Build condition was developed by increasing existing traffic volumes by the expected growth in overall travel through and within the study area. As per *CEQR* guidelines, an annual background growth rate of 0.5 percent was assumed for the first five years and then 0.25 percent for the remaining years to the year 2022. In addition, planned or proposed background projects were researched within the study area. A total of 67 projects are planned or proposed within or just outside the traffic study area. **Table 15-18** and **Figure 15-13** summarize the projects that were included in the future 2022 baseline; some smaller projects that would generate a very modest volume of traffic were considered as part of the general study area background traffic growth rate.

After reviewing the development programs for each of the 67 No Build projects, it was determined that background growth will address the increase in traffic and pedestrian levels for 36 of the small projects in the study area. These small projects are dispersed throughout the study area and are not clustered together on a single block. As a result, these sites would not add a noticeable amount of traffic to any single block and have been screened out; they are considered as part of the general background growth rate. Person and vehicle trips generated by the remaining 31 projects were then determined, their traffic assigned, and their trips added to background growth to form the 2022 No Build traffic volumes.

2.6.13



Project Site Boundary

1-Mile Study Area Boundary

1 No Build Project (See Table 15-6 for Reference)

A Cluster Location

0 1000 FEET

SCALE

Future Development Projects in the No Build Condition

Figure 15-13

HALLETTS POINT

Table 15-18
2022 No Build Projects

Map ID No.[1]	Address	Description	Transportation Assumptions	Status/Build Year[2]
1	9-04 33 Road	3 residential units	Assumptions from *Dutch Kills Rezoning and Related Actions FEIS* (2008) with updated modal splits and vehicle occupancies based on 2006-2010 ACS Estimates	2013
2	36-11 12 Street	Hour Children: 20,000 sf community facility with 18 beds	Included in background growth	2013
3	11-15 Broadway	82 residential units, 43 parking spaces	Same assumptions as Site 1	Completed
4	30-18 12 Street	2 residential units	Included in background growth	2022*
5	30-20 12 Street	2 residential units	Included in background growth	2022*
6	8-03 Astoria Blvd	5 residential units	Included in background growth	2011
7	8-13 Astoria Blvd	Reality House—community facility with 30 beds	Included in background growth	Completed
8	12-07 Broadway	190 residential units	Same assumptions as Site 1	2022*
9	12-20 31 Drive	6 residential units	Same assumptions as Site 1	2013
10	14-18 31 Ave	6 residential units	Same assumptions as Site 1	2017
11	14-34 31 Drive	14 residential units; 8 parking spaces	Same assumptions as Site 1	2013
12	30-50 21 Street	65 residential units; 18 parking spaces	Same assumptions as Site 1	2012
13	14-31 28 Ave	8 residential units; 400 sf commercial	Included in background growth	2013
14	14-35 Astoria Blvd	3 story addition with 9 new residential units	Included in background growth	2022*
15	30-11 21 Street	33 residential units	Same assumptions as Site 1	2012
16	23-12 30 Drive	20 residential units	Same assumptions as Site 1	2012
17	23-20 30 Drive	22 residential units	Same assumptions as Site 1	2012
18	30-05 23 Street	4 residential units	Included in background growth	2022*
19	27-59 Crescent Street	7 residential units; 1800 sf community facility	Included in background growth	2013
20	27-57 Crescent Street	7 residential units; 1800 sf commercial	Included in background growth	2013
21	30-16 29 Street	10 residential units	Included in background growth	2022*
22	31-84 30 Street	3 residential units; 1000 sf commercial (medical office)	Included in background growth	2022*
23	26-28 30 Street	8 residential units	Included in background growth	2012
24	26-50 30 Street	7 residential units	Included in background growth	2012
25	26-60 30 Street	8 residential units	Included in background growth	2013
26	26-58 30 Street	8 residential units	Included in background growth	2013
27	36-31 32 Street	2,447 sf warehousing/light manufacturing; 1719 sf office space	Included in background growth	2022*
28	31-30 33 Street	Hanac Senior Housing - 66 units	Included in background growth	2022*
29	30-83 32 Street	7 residential units	Included in background growth	2022*
30	35-16 Astoria Blvd	15 residential units; 1600 sf community facility; 7 parking spaces	Included in background growth	2013
31	30-86 36 Street	8 residential units	Included in background growth	2012
32	25-09 36 Street	6 residential units; 8 parking spaces	Included in background growth	2022*
33	31-16 38 Street	7 residential units	Included in background growth	2022*
34	31-32 38 Street	10 residential units; 1760 sf community facility	Included in background growth	2011
35	30-89 38 Street	10 residential units; 3275 sf community facility	Included in background growth	2012

Table 15-18 (cont'd)
2022 No Build Projects

Map ID No.[1]	Address	Description	Transportation Assumptions	Status/Build Year[2]
36	31-12 24 Ave	22 residential units; 4600 sf commercial; 4600 sf community facility	Residential: Same assumptions as Site 1. Retail: trip rates and temporal distributions from the *2012 CEQR Technical Manual*; modal splits and vehicle occupancies from *Dutch Kills Rezoning and Related Actions FEIS* (2008). Community Facility: Trip rates, modal splits, vehicle occupancies, and temporal distributions from *Jamaica Plan FEIS* (2007)	2022*
37	27-18 Hoyt Ave South	34 residential units; 5300 sf community facility; 26 parking spaces	Same assumptions as Site 36	2022*
38	23-88 31 Street	28 residential units; 9000 sf commercial; 1200 sf community facility; 14 parking spaces	Residential and community facility: same assumptions as Site 36. Modal splits and vehicle occupancies for commercial from *Dutch Kills Rezoning and Related Actions FEIS* (2008)	2022*
39	27-07 23 Ave	12 residential units	Included in background growth	2013
40	25-50 Crescent Street	12 residential units	Included in background growth	2011
41	25-54 Crescent Street	5 residential units	Included in background growth	2011
42	18-15 26 Road	Accessory community facility kitchen	Included in background growth	2012
43	25-27 18 Street	14 residential units	Included in background growth	2022*
44	26-28 12 Street	8 residential units	Included in background growth	2022*
45	26-27 2 Street	28 residential units; 3000 sf community facility	Same assumptions as Site 36	2013
46	26-46 2 Street	Urban Pathways, 50 beds	Trip rates, modal splits, taxi occupancy, and directional trip distribution from *30-30 Northern Boulevard Dormitory Project EAS* (2010); Auto occupancy from 2006-2010 American Community Survey 5 Year Estimates. Temporal distribution from *2012 CEQR Technical Manual* (Residential use)	Completed
47	32-01 Vernon Blvd[3]	261 market-rate residential units and 52 affordable units within 3 buildings	Same assumptions as Site 1	2022*
48	38 Street bet. 34 & 35 Ave[4]	63 residential units, 2651 sf retail, 81 parking spaces in new building; 43 residential units in conversion and enlargement of existing commercial bldg	Included in background growth	2022*
49[8]	Astoria Rezoning RWCDS Site 101	15 residential units	Same assumptions as Site 1	2019
50[8]	Astoria Rezoning RWCDS Site 102	174 residential units, 16,367 sf retail	Residential: Same assumptions as Site 1. Retail: Trip rates and temporal distribution from the *2012 CEQR Technical Manual*; Modal splits, vehicle occupancies, and directional trip distribution from *Dutch Kills Rezoning and Related Actions FEIS* (2008)	2019
51[8]	Astoria Rezoning RWCDS Site 103	2 residential units, 13,430 sf retail	Same assumptions as Site 50	2019
52[8]	Astoria Rezoning RWCDS Site 104	40 residential units, 9,017 sf retail	Same assumptions as Site 50	2019
53[8]	Astoria Rezoning RWCDS Site 106	66 residential units, 15,037 sf retail	Same assumptions as Site 50	2019
54[8]	Astoria Rezoning RWCDS Site 108	9 residential units, 10,455 sf retail	Same assumptions as Site 50	2019
55[8]	Astoria Rezoning RWCDS Site 109	28 residential units	Same assumptions as Site 1	2019

Table 15-18 (cont'd)
2022 No Build Projects

Map ID No.(1)	Address	Description	Transportation Assumptions	Status/Build Year(2)
56(8)	Astoria Rezoning RWCDS Site 110	6 residential units, 6,423 sf retail	Included in background growth	2019
57(8)	Astoria Rezoning RWCDS Site 112	12 residential units, 3,060 sf retail	Included in background growth	2019
58(8)	Astoria Rezoning RWCDS Site 113	24 residential units, 450 sf retail	Included in background growth	2019
59(8)	Astoria Rezoning RWCDS Site 115	4 residential units	Included in background growth	2019
60(8)	Astoria Rezoning RWCDS Site 118	51 residential units, 5,664 sf retail	Same assumptions as Site 50	2019
61(8)	Astoria Rezoning RWCDS Site 119	31 residential units	Same assumptions as Site 1	2019
62(8)	Astoria Rezoning RWCDS Site 121	24 residential units	Same assumptions as Site 1	2019
63(8)	Astoria Rezoning RWCDS Site 122	25,200 sf community facility	Trip rates, modal splits, vehicle occupancies, and temporal distributions for community facility from *Jamaica Plan FEIS* (2007)	2019
64	34-20-50 Vernon Blvd	350 residential units, 20,000 sf community facility, and 295 parking spaces	Same assumptions as Site 36	2022*
65	Astoria Cove (portion that would be completed by 2022)(5)	1,135 residential units (including 340 affordable), 85,000 gsf local retail (including 25,000 gsf supermarket), 756 parking spaces, 71,000 sf of publicly accessible open space (active/passive)	Residential and retail: Same assumptions as Site 50. Supermarket: assumptions from *The Food Retail Expansion to Support Health (FRESH) Food Store Program*, DCP, 2009; Parkland: assumptions from the *2012 CEQR Technical Manual* and *Hunters Point South EIS* (2008)	2022[7]
66	Cornell NYC Tech - Roosevelt Island (Phase 1)(6)	200,000 gsf of academic space; 100,000 gsf of partner research and development space, approximately 300,000 gsf of residential space (442 units), and 170,000 gsf for an academic-oriented hotel with conference facilities. Up to another 20,000 gsf could be developed as a central utility plant, and up to 250 parking spaces could be provided.	Assumptions from the *Cornell NYC Tech DEIS* (2012)	2018
67	Roosevelt Island Southtown: Main Street	540 Residential Units in Southtown Buildings 8, 9, 10	Trip rates and temporal distribution from the *2012 CEQR Technical Manual*; Modal splits and vehicle occupancies from 2006-2010 American Community Survey (ACS) 5 Year Estimates; Directional trip distribution from *Dutch Kills Rezoning and Related Actions FEIS* (2008)	2018

Notes:

* Projects for which build year is unknown were assumed to be complete by the 2022 analysis year.
gsf = gross square feet; all gsf are approximate.

(1) See **Figure 15-13** for Map ID numbers and the location of the No Build projects.
(2) As indicated, some of these projects were completed and occupied subsequent to the baseline data collection and therefore are included in the No Build condition for this EIS.
(3) Includes rezoning from R5 to R7A/C1-3 and R6B.
(4) Includes rezoning from M1-1 and M1-5 to R6A/C1-2 and M1-5/R7-A.
(5) This is a proposed project that will require discretionary land use approvals; however, because it is located in close proximity to the project site, the portion that would be completed by the 2022 Build year has been incorporated into the future without the proposed project for conservative impact analysis.
(6) Cornell NYC Tech Phase 2 commences construction in 2024.
(7) The proposed Astoria Cove project would be complete by 2023. This development program reflects that portion of the project that would be complete by the 2022 analysis year.
(8) Trip generation for no build projects 49 through 63, and the subsequent transportation analyses, were based on the incremental development on those sites as presented in the Astoria Rezoning EAS, rather than the full "With-Action Scenario" development (as shown in Table 2-1 in Chapter 2, "Analytical Framework"). **Appendix H** addresses the full "With-Action Scenario" development and demonstrates that it would not alter the conclusions of the transportation analyses.

Sources: AKRF, October 2012; DCP, April 2012.

It should be noted that the analysis of No Build condition accounts for the proposed Astoria Cove project, which is in the planning stages and will require discretionary land use approvals and its own environmental review. However, because it is located in close proximity to the project site, the portion that is assumed to be completed by the 2022 Build year has been incorporated into the future without the proposed project for conservative impact analysis. Given the size of the proposed Astoria Cove project, it is expected that its environmental review will identify significant adverse impacts and the need for mitigation measures. These measures are not accounted for in this analysis. ~~As more information about the Astoria Cove project becomes available, it will be incorporated into this analysis as appropriate.~~

Overall, the volume of vehicle trips that would be generated by these developments is estimated to be 279 inbound and 625 outbound in the AM peak hour, 386 inbound and 359 outbound in the midday peak hour, and 621 inbound and 449 outbound in the PM peak hour. The growth of existing traffic volumes and addition of these trips to the traffic network are the basis of the 2022 No Build traffic volumes, which are discussed below and shown in **Figures 15-14 through 15-16**.

Traffic volumes along Vernon Boulevard between Broadway and 8th Street/Welling Court are expected to increase by approximately 25 to 70 vph in the northbound direction and 30 to 70 vph in the southbound direction during the weekday AM, midday, and PM peak hours.

Volumes along 8th Street are expected to increase by approximately 30 vph in the northbound direction and 80 vph in the southbound direction in the weekday AM peak hour. During the midday and PM peak hours, northbound and southbound volumes are expected to increase 45 to 65 vph per direction.

Traffic volume increases along 21st Street between Broadway and Hoyt Avenue are expected to increase by approximately 90 to 140 vph in the southbound direction and 50 to 100 vph in the northbound direction during the weekday AM and midday peak hours. In the PM peak hour, volume increases are in the range of 80 to 170 vph in the northbound direction and 110 to 200 vph in the southbound direction. Along 21st Street north of Hoyt Avenue North, traffic volume increases are expected to be approximately 20 to 55 vph per direction in the northbound and southbound directions for all peak hours.

31st Street's traffic volumes are expected to increase by fewer than 35 vph in the northbound and southbound directions for all peak hours. At Triborough Plaza, where 31st Street intersects Hoyt Avenue North and South, the volumes along 31st Street are expected to increase by 10 vph or less in the northbound direction and 25 to 50 vph in the southbound direction during peak hours.

Volumes along Hoyt Avenue South are expected to increase by 40 to 110 vph during all peak hours.

Along Hoyt Avenue North, traffic volumes are expected to increase by 220 to 270 vph in the weekday AM and midday peak hours and approximately 330 in the PM peak hour between 31st Street and 29th Street/RFK Bridge on-ramp. West of the ramp, traffic volumes are expected to increase by 110 to 150 vph in the AM and midday peak hours and 200 to 240 vph in the PM peak hour. East of 32nd Street, where Hoyt Avenue North becomes Astoria Boulevard North, traffic volumes are expected to increase by 220 to 270 vph in the weekday AM and midday peak hours and approximately 335 vph in the PM peak hour.

2022 No Build Traffic Volume
Weekday AM Peak Hour

HALLETTS POINT

Figure 15-14

2022 No Build Traffic Volume
Weekday Midday Peak Hour

HALLETTS POINT

Figure 15-15

2022 No Build Traffic Volume
Weekday PM Peak Hour

HALLETTS POINT **Figure 15-16**

Volumes along Astoria Boulevard between the project site and 21st Street are expected to increase by 35 to 65 in each direction during each peak hour. Between 21st Street and 31st Street, volumes are expected to increase by similar increments in the westbound direction; however in the eastbound direction, volumes are expected to increase by approximately 175 vph in the AM peak hour and 80 to 120 vph in the midday and PM peak hours. East of 31st Street, where Astoria Boulevard acts as a service road to the GCP, volumes are expected to increase by approximately 200 vph in the AM peak hour and by 100 to 140 vph in the midday and PM peak hours.

On 27th Avenue, volumes are expected to increase by up to up to 120 vph in the eastbound direction during the weekday AM peak hour and up to 160 vph in the westbound direction in the PM peak hour. Otherwise, traffic increases are expected to be up to 80 vph per direction during peak hours. These increases are mostly due to the partial buildout of the proposed Astoria Cove project on 26th Avenue between 4th Street and 9th Street.

Volumes on Broadway between Vernon Boulevard and 21st Street, are expected to increase by 45 to 105 vph in the eastbound direction and by 35 to 50 vph in the westbound direction for all peak hours.

Along 24th street, volumes are expected to increase by 35 vph or less in each direction during all peak hours.

TRAFFIC IMPROVEMENTS

Traffic operations at some study intersections are expected to change in the future as a result of the implementation of traffic mitigation measures identified in the ~~*Cornell NYC Tech Campus DEIS* (2012)~~ *Cornell NYC Tech Campus FEIS* (2013) for its initial phase of development by its Phase I-2018 Build year. Traffic mitigation measures from the Cornell study at intersections that overlap with this study are as follows:

Broadway & 21st Street

- Modify signal timing (shift one second of green time from the northbound/southbound phase to the eastbound/westbound phase).

Astoria Boulevard & 21st Street

- ~~Modify signal phasing – add a new lag phase for eastbound/westbound exclusive left turns.~~ Modify signal timing (shift one second of green time from the eastbound phase to the northbound/southbound phase).

Hoyt Avenue South & 21st Street

- Restripe eastbound Hoyt Avenue South from one 11-foot-wide exclusive left turn lane and one 11-foot-wide shared through-right lane to two 11-foot-wide shared left-through-right lanes for 250 feet.
- Modify signal timing (shift one second of green time from the eastbound phase to the northbound/southbound phase).

These improvements are assumed to be in place by the proposed project's 2022 Build Year and have been incorporated into the No Build traffic analysis. ~~However, the *Cornell NYC Tech Campus EIS* is currently under review for Final certification. Any changes made to the proposed~~

~~2018 traffic mitigation between Cornell NYC Tech's DEIS and FEIS for these locations will also be reflected in the No Build analysis for this study's FEIS.~~

In addition to the changes incorporated from the *Cornell NYC Tech FEIS*, the 2022 No Build traffic analysis also incorporates westbound left turn prohibitions during the weekday AM peak period (7-10 AM, Monday-Friday) at the intersection of Astoria Boulevard and 30th Street that have been installed by NYCDOT since the existing condition data were collected.

LEVELS OF SERVICE

Based on the traffic increases and traffic improvement measures mentioned above, 2022 No Build traffic levels of service were determined for the ~~25~~ 27 analysis locations. **Tables 15-19** and **15-20** provide an overview of the levels of service that characterize 2022 No Build "overall" intersection conditions and individual traffic movements, respectively, during the weekday AM, midday and PM peak hours. Detailed descriptions of the 2022 No Build traffic levels of service are provided in Section I, "Detailed Analysis Results Tables," **Tables 15-51** and **15-52**.

Table 15-19
Traffic Level of Service Summary Comparison - Overall Intersections: Existing vs. No Build Conditions (2022)

	Existing			2022 No Build		
	AM	**Midday**	**PM**	**AM**	**Midday**	**PM**
Intersections at Overall LOS A/B/C	20	24	22	14	23	16
Intersections at Overall LOS D	7	3	4	7	3	5
Intersections at Overall LOS E	0	0	1	4	1	2
Intersections at Overall LOS F	0	0	0	2	1	4
Note: Includes 27 analyzed intersections (19 signalized and ~~6~~ 8 unsignalized). Seven of the eight unsignalized intersections operate at overall LOS A, B or C during all three traffic analysis hours						

Table 15-20
Traffic Level of Service Summary Comparison - Traffic Movements: Existing vs. No Build Conditions (2022)

	Existing			2022 No Build		
	AM	**Midday**	**PM**	**AM**	**Midday**	**PM**
Traffic Movements at LOS A/B/C and acceptable LOS D	74	90	82	62	85	74
Traffic Movements at Unacceptable LOS D	13	6	8	3	2	4
Traffic Movements at LOS E	7	1	7	15	6	6
Traffic Movements at LOS F	3	1	0	16	4	12
Number of individual traffic movements*	97	98	97	96	97	96
Note: * Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements						

The summary overview of 2022 No Build condition indicates that:

- In the weekday AM peak hour, ~~seven~~ four of the ~~25~~ 27 study area intersections analyzed would operate at overall LOS E, ~~one~~ two intersections would operate at overall LOS F, and ~~six~~ seven intersections would operate at marginally acceptable/unacceptable LOS D. ~~Thirty-one~~ Thirty-four individual traffic movements out of approximately ~~91~~ 96 movements analyzed would operate at unacceptable levels of service compared to ~~22~~ 23 under existing conditions.

- In the weekday midday peak hour, ~~one~~ two of the ~~25~~ 27 intersections would operate at overall LOS E or F, and ~~four~~ three intersections would operate at LOS D. ~~Ten~~ Twelve individual movements would operate at unacceptable levels of service compared to ~~seven~~ eight under existing conditions.
- In the weekday PM peak hour, six intersections would operate at LOS E or LOS F, and ~~four~~ five intersections would operate at marginally acceptable/unacceptable LOS D. ~~Twenty~~ Twenty-two individual movements would operate at unacceptable levels of service compared to ~~14~~ 15 under existing conditions.

~~All six~~ Seven of the eight unsignalized study intersections would continue to operate at overall LOS ~~B~~ C or better during the PM peak hour ~~all peak hours.~~; all eight would continue to operate at overall LOS C or better during the AM and midday peak hours. One intersection—27th Avenue and 12th Street—has a traffic movement that would continue to operate at unacceptable LOS D during the weekday AM and PM peak hours.

Based on the analysis results, the majority of traffic movements would continue to operate at acceptable levels of service; however, ~~17~~ 18 intersections would have at least one movement operating at unacceptable levels of service during at least one peak hour as compared to ~~13~~ 14 under existing conditions. Traffic movements operating at unacceptable levels of service are listed below:

27th Avenue and 8th Street

- Westbound 27th Avenue shared left-turn/through (AM)

Vernon Boulevard/Main Avenue and 8th Street/Welling Court

- Eastbound Vernon Boulevard shared left-turn/through (AM, midday, and PM)
- Southbound 8th Street right-turn (AM)

Astoria Boulevard and 21st Street

- Eastbound Astoria Boulevard left-turn (AM)
- Eastbound Astoria Boulevard shared through/right-turn (AM and PM)
- Westbound Astoria Boulevard left-turn (AM, midday, and PM)
- Westbound Astoria Boulevard shared through/right-turn (PM)
- Northbound 21st Street shared left-turn/through/right-turn (AM, midday, and PM)
- Southbound 21st Street shared left-turn/through/right-turn (AM, midday, and PM)

Astoria Boulevard and Crescent Street

- Eastbound Astoria Boulevard shared through/right-turn (AM and PM)
- Westbound Astoria Boulevard shared left-turn/through (AM, midday, and PM)
- Southbound Crescent Street shared left-turn/through/right-turn (AM, midday, and PM)

Astoria Boulevard and 31st Street

- Eastbound Astoria Boulevard shared left-turn/through/right-turn (AM, midday, and PM)
- Southbound 31st Street through (AM)

Astoria Park South/Hoyt Avenue South and 21st Street

- Northbound 21st Street shared left-turn/through/right-turn (PM)
- Southbound 21st Street shared left-turn/through/right-turn (AM and PM)

Hoyt Avenue South/31st Street

- Eastbound Hoyt Avenue South shared left-turn/through (AM)
- Eastbound Hoyt Avenue South right-turn (AM)

Hoyt Avenue South/Astoria Boulevard and 33rd Street

- Eastbound Astoria Boulevard shared left-turn/through (AM, midday, and PM)
- Northbound 33rd Street shared through/right-turn (AM and PM)
- Northbound 33rd Street right-turn (AM and PM)

Hoyt Avenue North and 21st Street

- Eastbound Hoyt Avenue North right-turn (AM)
- Westbound Hoyt Avenue North left-turn (AM)
- Northbound 21st Street through (AM and PM)
- Southbound 21st Street shared through/right-turn (AM)

Hoyt Avenue North and 29th Street

- Southbound 29th Street right-turn (AM and PM)

Hoyt Avenue North and 31st Street

- Westbound Hoyt Avenue North left-turn (AM and midday)
- Southbound 31st Street right-turn (AM)

Hoyt Avenue North and 32nd Street

- Westbound GCP Off-Ramp through (AM and PM)

24th Avenue and 21st Street

- Northbound 21st Street shared left-turn/through/right-turn (PM)

Broadway and Vernon Boulevard/11th Street

- Westbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)
- Southbound Vernon Boulevard shared left-turn/through/right-turn (AM)

Broadway and 21st Street

- Eastbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)
- Westbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)
- ~~Southbound 21st Street shared left-turn/through/right-turn (AM)~~

Astoria Boulevard and 18th Street

- Southbound 18th Street shared left-turn/right-turn (AM)

Astoria Boulevard and 28th Street

- Northbound 28th Street shared left-turn/right-turn (AM)

27th Avenue and 12th Street

- Northbound 12th Street shared left-turn/through/right-turn (AM and PM)

PROBABLE IMPACTS OF THE PROPOSED PROJECT (2022 BUILD CONDITION)

As discussed above in "Level 2 Screening Assessment," in Section B, "Preliminary CEQR Screening Assessment," the proposed project would generate ~~166~~ 171 vehicle trips arriving at the project site and ~~514~~ 529 vehicle trips leaving the project site in the weekday AM peak hour, for a total of ~~680~~ 700 vehicle trips. In the weekday midday peak hour, it would generate ~~213~~ 218 inbound vehicle trips plus ~~209~~ 213 outbound vehicle trips for a total of ~~422~~ 431 vehicle trips. In the weekday PM peak hour, it would generate ~~480~~ 492 inbound vehicle trips plus ~~289~~ 296 outbound vehicle trips for a total of ~~769~~ 788 vehicle trips.[1] The assignment of these vehicle trips are shown in **Figures 15-1 to 15-3**, and impacts on levels of service are presented in this section.

TRIP DISTRIBUTION AND ASSIGNMENT

Autos

Residential

Residential auto assignments were based on U.S. Census 2000 journey-to-work data. Most residential trips would occur within Queens (54 percent) with the remaining trips being made to Manhattan (23 percent), Brooklyn (10 percent), Long Island (5 percent), New Jersey (4 percent), the Bronx and Westchester County (3 percent), and Connecticut (1 percent).

Of the 54 percent of trips within Queens, approximately 35 percent were assigned to points east and south via the GCP and the BQE. The remaining 19 percent were assigned to local Queens routes (2 to 5 percent per route) which include Vernon Boulevard, 21st Street (to points north and south), Broadway, and 30th Avenue.

Of the 23 percent of trips traveling to Manhattan, approximately 12 percent were assigned to the Queensboro/Ed Koch Bridge (via Vernon Boulevard and 21st Street), 7 percent were assigned to the RFK Bridge, 3 percent were assigned to the Williamsburg Bridge (via the BQE), and 1 percent assigned to Roosevelt Island (via Vernon Boulevard) which is jurisdictionally within Manhattan.

All Brooklyn trips (10 percent) were assigned to the BQE via the GCP.

Of the 4 percent of trips to New Jersey, half were assigned to the BQE via the GCP (destined for the Verrazano-Narrows Bridge) and half were assigned to the RFK Bridge (destined to the George Washington Bridge).

All Long Island trips (5 percent) were assigned to the GCP.

All Bronx, Westchester County, and Connecticut trips (4 percent total) were assigned to the RFK Bridge.

[1] As noted, the FEIS analyzed a development program that includes an additional 71 residential units compared to what was analyzed in the DEIS. As a result, the overall project-generated peak hour vehicle trips increased by 10 to 20 vehicles per hour in the FEIS as compared to the DEIS.

Reverse trips are expected to return along the same general routes on which they departed. Residential auto trips were assigned to the accessory parking garages included as part of the proposed development plan.

Local Retail/Food Store

Local retail and food store auto trips are expected to be generated within the neighborhood and immediate surrounding neighborhoods. These trips were generally assigned from local residential streets within the area bound by Astoria Park South to the north, 21st Street to the east, and Broadway to the south.

Taxis

Taxi pick-ups and drop-offs for all development components were assigned to pick up and drop off along the building frontages on 1st Street, 2nd Street, 27th Avenue, and Astoria Boulevard.

Deliveries

Truck delivery trips for all land uses were assigned to NYCDOT-designated truck routes. Trucks were assigned to the study area from regional origins via the BQE and RFK Bridge and then distributed along local truck routes as long as possible until reaching the project site.

PROPOSED ROADWAY NETWORK AND TRAFFIC CIRCULATION IMPROVEMENTS

As part of the proposed project, a "one-way loop" would be created to improve traffic flow through the project site by converting 1st Street, 2nd Street, and 26th Avenue from two-way traffic to one-way as follows: between 26th and 27th Avenues, 1st Street would become one-way northbound and 2nd Street would become one-way southbound; between 1st and 2nd Streets, 26th Avenue would become one-way eastbound. These streets are too narrow as two-way roadways to safely and adequately provide the capacity needed to accommodate the traffic expected to be generated by the proposed project. The resulting traffic diversions due to the roadway changes are shown in **Figures 15-1 to 15-3**.

Additionally, an extension of Astoria Boulevard through the NYCHA Parcel is proposed in order to provide a second route to the waterfront development (besides 27th Avenue). Between 1st Street and 8th Street, Astoria Boulevard (which is currently mapped but unconstructed) would be a two-way roadway with one lane in each direction. A traffic calming plan is being developed in consultation with NYCDOT to ensure that the most appropriate design is implemented that will slow vehicular traffic on ~~for~~ this street segment. The exact measures that will be utilized will depend on the final design of the street; however, it is expected that parking would be added along this street, depending on required street widths and the location of existing mature trees.

Also, short, dead-end portions of 27th Avenue (currently fenced off and used for private parking) and 26th Avenue west of 1st Street would also be demapped and transformed into a pedestrian waterfront access corridor. This change would have no effect on existing traffic circulation.

These measures would better accommodate access and circulation throughout the area. These improvements are shown on Figure 1-12 in Chapter 1, "Project Description."

TRAFFIC VOLUME INCREMENTS

Project-generated auto trips were assigned to project site off-street parking facilities located along 27th Avenue, 1st and 2nd Streets, and Astoria Boulevard.

Along 1st Street, which runs through the project site, volumes would increase by approximately 25 to ~~50~~ 60 vph per direction during weekday peak hours, south of 27th Avenue. North of 27th Avenue, 1st Street would be converted to one-way northbound as part of the project, and would have volume increases of 75 to 100 vph during the weekday AM and midday peak hours, and up to ~~240~~ 250 vph in the PM peak hour.

Volumes along 2nd Street (proposed one-way southbound) would increase by approximately 250 vph during the weekday AM peak hour, and 100 to 150 vph in the midday and PM peak hours.

Along 8th Street, traffic volumes would increase by approximately 50 to 100 vph in the southbound direction and 25 to 75 vph traveling northbound during all peak hours.

Vernon Boulevard volumes would increase by approximately 20 to 70 vph per direction in the peak hours, with the exception of the southbound direction during the weekday AM peak hour which would increase by up to 100 vph.

Project-generated increases on 21st Street south of Astoria Boulevard/27th Avenue would be approximately 15 to 60 vph in each direction during peak hours. North of 27th Avenue, northbound increases would be approximately 20 vph for all peak hours and southbound increases would be approximately 75 to 90 vph in the weekday AM and midday peak hours and 200 vph in the PM peak hour. North of Hoyt Avenue North, volumes would increase by less than 30 vph per direction for all peak hours, except in the northbound direction during the weekday AM peak hour which is expected to increase by approximately 50 vph.

Along Hoyt Avenue South, volumes would increase by approximately 75 vph in the weekday AM peak hour and 25 to 40 vph in the midday and PM peak hours.

Traffic volumes along Hoyt Avenue North would increase by 80 to 125 vph in the weekday AM and midday peak hours and approximately 225 to 275 vph in the PM peak hour.

Volumes along Astoria Boulevard west of 18th Street are expected to increase by approximately 50 to 100 vph per direction, except in the ~~westbound~~ eastbound direction during the AM peak hour where volumes would increase by up to ~~150~~ 165 vph and in the westbound direction during the PM peak hour where volumes would increase by up to 125 vph. East of 18th Street, eastbound volumes on Astoria Boulevard would increase by approximately 250 vph during the AM hour, and 75 to 125 during the midday and PM peak hours. In the westbound direction, traffic volumes would increase by 25 to 50 vph in the weekday AM and midday peak hours, and by ~~50~~ 60 to ~~100~~ 125 vph during the weekday PM peak hour.

27th Avenue volumes would increase in the eastbound direction~~s~~ by as much as ~~350~~ 325 vph between the project site and 8th Street, and by as much as 250 vph east of 8th Street during the weekday AM peak hour. During the midday and PM peak hours, eastbound volumes would increase by ~~150~~ up to 200 vph between the project site and 8th Street, and by ~~65~~ 60 to 150 vph east of 8th Street. In the westbound direction, traffic volumes would increase by approximately 75 to 125 vph in the weekday AM and midday peak hours, and by ~~225~~ 200 to ~~325~~ 300 vph in the PM peak hour.[1]

[1] Even though there was an overall increase in project vehicle trips between the DEIS and FEIS, some parking assignment adjustments were made to accommodate additional demand from 71 residential units which resulted in minor decreases in project trips along 27th Avenue and minor increases in trips along Astoria Boulevard near the project site, as compared to the DEIS.

Volume increases along Broadway and along 24th Avenue would be under 35 vph per direction for all peak hours.

The total 2022 Build traffic volumes for weekday AM, midday, and PM peak hours are provided in **Figures 15-17 to 15-19**.

LEVELS OF SERVICE AND SIGNIFICANT IMPACTS

Based on the 2022 Build traffic volumes, traffic levels of service were determined for the ~~25~~ 27 analysis locations. Significantly impacted locations and traffic movements were identified according to the criteria presented in the *CEQR Technical Manual* and discussed previously in Section C, "Transportation Analyses Methodology."

Tables 15-21 and **15-22** provide an overview of the levels of service that characterize 2022 Build "overall" intersection conditions and individual traffic movements, respectively, during the weekday AM, midday and PM peak hours. Also summarized within each table are the number of intersections and movements that would have significant impacts. Detailed descriptions of the 2022 Build condition traffic levels of service are provided in Section I, "Detailed Analysis Results Tables," **Table 15-53** and **15-54**, where significant adverse impacts are identified by the shaded rows in the analysis summary tables.

Table 15-21
Traffic Level of Service Summary Comparison—Overall Intersections: No Build vs. Build Conditions (2022)

	2022 No Build			2022 Build		
	AM	Midday	PM	AM	Midday	PM
Intersections at Overall LOS A/B/C	14	23	16	7	17	10
Intersections at Overall LOS D	7	3	5	4	5	2
Intersections at Overall LOS E	4	1	2	3	2	7
Intersections at Overall LOS F	2	1	4	13	3	8
Number of intersections with significant impacts	-	-	-	20	11	19

Table 15-22
Traffic Level of Service Summary Comparison—Traffic Movements: No Build vs. Build Conditions (2022)

	2022 No Build			2022 Build		
	AM	Midday	PM	AM	Midday	PM
Traffic Movements at Acceptable LOS	63	85	74	49	76	56
Traffic Movements at Unacceptable LOS D	3	2	4	4	5	7
Traffic Movements at LOS E	15	6	6	6	5	6
Traffic Movements at LOS F	16	4	12	35	9	25
Number of significantly impacted movements	-	-	-	32	15	31
Number of individual traffic movements*	96	97	96	94	95	94

Note:
* Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements

This summary overview of the 2022 Build condition indicates that:

- During the weekday AM peak hour, the number of intersections analyzed that are projected to operate at overall LOS E or F under the Build condition would increase from ~~seven~~ six under the No Build condition to ~~14~~ 16 under the Build condition, and ~~three~~ four intersections

2022 Build Traffic Volume
Weekday AM Peak Hour

HALLETTS POINT

Figure 15-17

2022 Build Traffic Volume
Weekday Midday Peak Hour

HALLETTS POINT

Figure 15-18

2022 Build Traffic Volume
Weekday PM Peak Hour

HALLETTS POINT

Figure 15-19

would operate at marginally acceptable/unacceptable LOS D compared with ~~six~~ seven under the No Build condition. The number of traffic movements projected to operate at unacceptable levels of service would increase from ~~31~~ 34 under the No Build condition to ~~40~~ 45 under the Build condition. Overall, ~~18~~ 20 of the ~~25~~ 27 intersections would have significant impacts.

- During the weekday midday peak hour, the number of intersections analyzed that are projected to operate at overall LOS E or F under the Build condition would increase from ~~one~~ two under the No Build condition to ~~three~~ five under the Build condition, and ~~seven~~ five intersections would operate at marginally acceptable/unacceptable LOS D compared with ~~four~~ three under the No Build condition. The number of traffic movements at unacceptable levels of service would increase from ~~10~~ 12 to ~~17~~ 19. Overall, ~~ten~~ 11 intersections would be significantly impacted.
- During the weekday PM peak hour, the number of intersections analyzed that are projected to operate at overall LOS E or F under the Build condition would increase from six under the No Build condition to ~~12~~ 15 under the Build condition, and the number of intersections that would operate at marginally acceptable/unacceptable LOS D would decrease from ~~four~~ five to two. The number of traffic movements projected to operate at unacceptable levels of service would increase from ~~20~~ 22 to ~~32~~ 38. Overall, ~~17~~ 19 intersections would experience significant impacts.

Of the ~~six~~ eight unsignalized intersections analyzed, three would continue to operate at overall LOS A, B or C during the weekday AM peak hour, all would continue to do so during the midday peak hour, and five would continue to do so during the PM peak hour. ~~Three~~ Five unsignalized intersections would be significantly impacted in the weekday AM and PM peak hours and ~~none~~ one would be impacted in the midday peak hour.

Traffic movements expected to operate at unacceptable levels of service under the No Build condition would continue to do so under the Build condition. Additional movements expected to operate at unacceptable levels of service as a result of the proposed actions are listed below.

27th Avenue and 8th Street

- Eastbound 27th Street shared through/right-turn (AM, midday, and PM)
- Westbound 27th Avenue shared left-turn/through (midday and PM)
- Northbound 8th Street right-turn (midday and PM)

Astoria Boulevard and 8th Street

- Eastbound Astoria Boulevard shared left-turn/right-turn (AM and PM)
- Northbound 8th Street shared left-turn/through (PM)

Astoria Boulevard and 21st Street

- Eastbound Astoria Boulevard left-turn (PM)
- ~~Eastbound Astoria Boulevard shared through/right-turn (AM)~~
- Westbound Astoria Boulevard shared through/right-turn (AM)
- ~~Northbound 21st Street shared left-turn/through/right-turn (AM)~~

Astoria Boulevard and 23rd Street

- Eastbound Astoria Boulevard shared through/right-turn (AM and PM)

Hoyt Avenue North and 21st Street

- Westbound Hoyt Avenue North left-turn (midday and PM)
- Northbound 21st Street through (midday)

Hoyt Avenue North and 32nd Street

- Westbound GCP Off-ramp through (midday)
- Northbound 32nd Street left-turn (AM)

Broadway and Vernon Boulevard/11th Street

- Southbound Vernon Boulevard shared left-turn/through/right-turn (PM)

Broadway and 21st Street

- ~~Northbound 21st Street shared left-turn/through/right-turn (PM)~~
- Southbound 21st Street shared left-turn/through/right-turn (AM)

27th Avenue and 2nd Street

- Southbound 2nd Street shared left-turn/right-turn (AM and PM)

27th Avenue and 4th Street

- Eastbound 27th Avenue shared left-turn/through (AM)
- Westbound 27th Avenue shared through/right-turn (~~AM and~~ PM)

Astoria Boulevard and 18th Street

- Southbound 18th Street shared left-turn/right-turn (PM)

Astoria Boulevard and 28th Street

- Northbound 28th Street shared left-turn/right-turn (midday and PM)

27th Avenue and 12th Street

- Northbound 12th Street shared left-turn/through/right-turn (midday)

27th Avenue and 14th Street

- Eastbound 27th Avenue shared through/right-turn (AM and PM)
- Westbound 27th Avenue shared left-turn/through (AM and PM)
- Southbound 14th Street shared left-turn/through/right-turn (AM)

The remainder of this section provides an overview of significant traffic impacts that would result under the Build condition. Of the ~~25~~ 27 study area intersections analyzed, ~~19~~ 21 would be significantly impacted during at least one peak hour as a result of the proposed actions. This includes ~~three~~ five of the ~~six~~ eight unsignalized intersections and 16 of the 19 signalized intersections. These intersections, along with the impacted traffic movements and the peak hours in which they are impacted, are listed below.

27th Avenue and 8th Street

- Eastbound 27th Street shared through/right-turn (AM, midday, and PM)
- Westbound 27th Avenue shared left-turn/through (AM, midday, and PM)
- Northbound 8th Street right-turn (midday and PM)

Vernon Boulevard/Main Avenue and 8th Street/Welling Court

- Eastbound Vernon Boulevard shared left-turn/through (AM, midday, and PM)
- Southbound 8th Street right-turn (AM)

Astoria Boulevard and 8th Street

- Eastbound Astoria Boulevard shared left-turn/right-turn (AM and PM)
- Northbound 8th Street shared left-turn/through (PM)

Astoria Boulevard and 21st Street

- Eastbound Astoria Boulevard left-turn (AM)
- Eastbound Astoria Boulevard shared through/right-turn (AM and PM)
- ~~Westbound Astoria Boulevard left-turn (AM, midday, and PM)~~
- Westbound Astoria Boulevard shared through/right-turn (PM)
- Northbound 21st Street shared left-turn/through/right-turn (AM, midday, and PM)
- Southbound 21st Street shared left-turn/through/right-turn (AM, midday, and PM)

Astoria Boulevard and 23rd Street

- Eastbound Astoria Boulevard shared left-turn/through (AM and PM)

Astoria Boulevard and Crescent Street

- Eastbound Astoria Boulevard shared through/right-turn (AM and PM)
- Westbound Astoria Boulevard shared left-turn/through (AM, midday, and PM)

Astoria Boulevard and 31st Street

- Eastbound Astoria Boulevard shared left-turn/through/right-turn (AM, midday, and PM)

Astoria Park South/Hoyt Avenue South and 21st Street

- Northbound 21st Street shared left-turn/through/right-turn (PM)
- Southbound 21st Street shared left-turn/through/right-turn (AM and PM)

Hoyt Avenue South and 31st Street

- Eastbound Hoyt Avenue South shared left-turn/through (AM)

Hoyt Avenue South/Astoria Boulevard and 33rd Street

- Eastbound Astoria Boulevard shared left-turn/through (AM, midday, and PM)

Hoyt Avenue North and 21st Street

- Westbound Hoyt Avenue North left-turn (AM, midday, and PM)

- Northbound 21st Street through (AM and PM)

Hoyt Avenue North and 29th Street

- Southbound 29th Street right-turn (AM)

Hoyt Avenue North and 32nd Street

- Westbound GCP Off-ramp through (AM, midday, and PM)

24th Avenue and 21st Street

- Northbound 21st Street shared left-turn/through/right-turn (PM)

Broadway and Vernon Boulevard/11th Street

- Westbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)
- Southbound Vernon Boulevard shared left-turn/through/right-turn (AM and PM)

Broadway and 21st Street

- Eastbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)
- Westbound Broadway shared left-turn/through/right-turn (AM, midday, and PM)
- ~~Northbound 21st Street shared left-turn/through/right-turn (PM)~~
- Southbound 21st Street shared left-turn/through/right-turn (AM)

27th Avenue and 2nd Street

- Southbound 2nd Street shared left-turn/right-turn (AM and PM)

27th Avenue and 4th Street

- Eastbound 27th Avenue shared left-turn/through (AM)
- Westbound 27th Avenue shared through/right-turn (~~AM and~~ PM)

Astoria Boulevard and 18th Street

- Southbound 18th Street shared left-turn/right-turn (AM and PM)

27th Avenue and 12th Street

- Northbound 18th Street shared left-turn/through/right-turn (AM, midday, and PM)

27th Avenue and 14th Street

- Eastbound 27th Avenue shared through/right-turn (AM and PM)
- Westbound 27th Avenue shared left-turn/through (PM)
- Southbound 14th Street shared left-turn/through/right-turn (AM)

~~As mentioned, two additional intersections will be addressed in the FEIS. Any additional significant impacts identified by this analysis would be documented in the FEIS.~~

A variety of traffic capacity improvements were used to identify measures to mitigate these traffic impacts, wherever feasible. Mitigation is addressed in detail in Chapter 22, "Mitigation." ~~For this project's FEIS, changes in the proposed Astoria Cove and Cornell NYC Tech project's respective environmental review documents will be incorporated. It is possible that some~~

~~conclusions regarding levels of service and significant impacts may change and will be so noted in this project's FEIS.~~

E. DETAILED TRANSIT ANALYSIS

Mass transit options serving the study area, provided by NYCT and the MTA Bus Company, include the N and Q subway lines at the 30th Avenue Station, the F subway line at the 21st Street-Queensbridge Station, and the Q18, Q102, and Q103 bus routes. These facilities are illustrated in **Figure 15-5**. A detailed analysis of transit operations during the critical weekday AM and PM peak periods is presented below. During other time periods, background transit ridership and station utilization, as well as project trip generation, are comparatively lower. Hence, potential transit impacts were evaluated only for the weekday AM and PM peak periods.

TRANSIT STUDY AREAS

SUBWAY SERVICE

The N subway line (Broadway Local) operates between Coney Island-Stillwell Avenue, Brooklyn and Astoria-Ditmars Boulevard, Queens, at all times. The Q subway line (Broadway Express) operates between Coney Island-Stillwell Avenue, Brooklyn and Astoria-Ditmars Boulevard, Queens. Both of these lines operate above ground, along 31st Street, between Queens Plaza and Ditmars Boulevard in Astoria. The F subway line (Sixth Avenue Local) operates between Jamaica-179th Street, Queens and Coney Island-Stillwell Avenue, Brooklyn.

BUS SERVICE

The MTA Bus Company Q18, Q102, and Q103 routes have their terminals near the project site and connect the area's population to the N and Q trains at the 30th Avenue Station and the F train at the 21st Street-Queensbridge Station. These routes operate standard buses with a guideline capacity of 54 passengers per bus. **Table 15-23** provides a summary of these routes and their peak period schedules.

Table 15-23
NYCT Local Bus Routes Serving The Study Area

Bus Route	Start Point	End Point	Routing in Study Area	Freq. of Bus Service (Headway in Minutes)	
				AM	PM
Q18 (EB/WB)	Maspeth – 69th Street and Grand Avenue	Astoria – 27th Avenue and 2nd Street	30th Avenue/27th Avenue	(14/12)	(10/10)
Q102 (EB/WB)	Roosevelt Island – Goldwater Memorial Hospital	Astoria – 27th Avenue and 2nd Street	30th Avenue/27th Avenue	(18/23)	(30/30)
Q103 (NB/SB)	Hunters Point – Vernon Boulevard and Borden Avenue	Astoria – 27th Avenue and 2nd Street	21st Street/8th Street/ 27th Avenue	(24/35)	(20/20)

Source: MTA Bus Company Timetables (2012).

SUBWAY STATION ANALYSIS

EXISTING CONDITIONS

As presented in Section B under "Level 1 Screening Assessment," the proposed project is expected to generate approximately 1,141 and 1,295 subway trips during the AM and PM peak hours, respectively. These trips were assigned to the three area subway lines and critical station elements, including station control areas, stairways, and escalators, were identified for analysis.

Field surveys were conducted at the 30th Avenue Station and the 21st Street-Queensbridge Station in November 2008 during the hours of 7:00 AM to 10:00 AM and 4:00 PM to 7:00 PM. A comparison of NYCT's 2008 and 2011 average annual weekday ridership statistics shows that 2008 and 2011 ridership levels at the 30th Avenue Station were almost identical; therefore, the 2008 counts at this station were unadjusted and used as representative volumes for the 2011 existing conditions analysis. At the 21st Street-Queensbridge Station, 2011 ridership was approximately 17.7 percent higher than 2008 levels. Therefore, the 2008 21st Street-Queensbridge Station counts were prorated by 17.7 percent to bring them up to 2011 levels. These volumes were then used for analysis using the methodologies described above. As shown in **Table 15-24** through **Table 15-26**, all critical subway station elements operate at LOS A or B during the weekday AM and PM peak periods.

Table 15-24
2011 Existing Conditions: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	1-Hour Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak Hour								
30th Avenue Station (N,Q Lines)								
SW (S-1)	4.5	3.5	195	765	0.90	0.90	0.63	B
SE (S-2)	5.0	4.0	105	672	0.90	0.90	0.44	A
NW (S-3)	4.5	3.5	208	527	0.90	0.90	0.47	B
21st Street-Queensbridge Station (F Line)								
NE – North Stair (S-2)	6.0	5.0	314	86	0.90	0.90	0.19	A
Weekday PM Peak Hour								
30th Avenue Station (N,Q Lines)								
SW (S-1)	4.5	3.5	499	233	0.90	0.90	0.45	A
SE (S-2)	5.0	4.0	571	203	0.90	0.90	0.42	A
NW (S-3)	4.5	3.5	445	165	0.90	0.90	0.38	A
21st Street-Queensbridge Station (F Line)								
NE – North Stair (S-2)	6.0	5.0	69	176	0.90	0.90	0.12	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)], where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)

Table 15-25
2011 Existing Conditions: Subway Escalator Analysis

21st Street-Queensbridge (F) Station Elements	Quantity	Tread Width (in.)	Capacity (people/ minute)	Surge Factor Exiting	1-Hour Pedestrian Volume		Peak 15-Min. Capacity (w/o Surge)	V/C ratio	LOS
					Up	Down			
AM Peak Period									
Escalator – Down	1	24	32	0.90	0	663	480	0.43	A
PM Peak Period									
Escalator – Down	1	24	32	0.90	0	151	480	0.10	A

Notes:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (2012 *CEQR Technical Manual*).
V/C = V/ GCap* Sf
Where
V = Peak 15-minute passenger volume
Gcap = Guideline Capacity for the escalator
Sf = Surging factor (if applicable)

Table 15-26
2011 Existing Conditions: Subway Control Area Analysis

Station Elements	Qty.	1-Hour Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
		Into Control Area	Out from Control Area				
AM Peak Hour							
30th Avenue Station (N,Q Lines)							
Two-Way Turnstiles	6	1,115	2,027	0.90	0.90	0.31	A
21st Street-Queensbridge Station (F Line)							
Two-Way Turnstiles	4	1,282	488	0.90	0.90	0.30	A
PM Peak Hour							
30th Avenue Station (N,Q Lines)							
Two-Way Turnstiles	6	1,690	1,085	0.90	0.90	0.31	A
21st Street-Queensbridge Station (F Line)							
Two-Way Turnstiles	4	292	1,292	0.90	0.90	0.25	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff), where
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

THE FUTURE WITHOUT THE PROPOSED PROJECT (2022 NO BUILD CONDITION)

An annual compounded background growth rate of 0.5 percent was applied to the existing station volumes from 2011 to 2016 and an annual compounded background growth rate of 0.25 percent was applied from 2016 to 2022. In addition, trips associated with the adjacent Astoria Cove project were incorporated into the No Build station volumes, using the same trip assignment patterns assumed for the proposed project. As shown in **Tables 15-27** through **15-29**,

all station stairways, escalators, and control area elements will continue to operate at acceptable levels during the weekday AM and PM peak periods.

PROBABLE IMPACTS OF THE PROPOSED PROJECT (2022 BUILD CONDITION)

As discussed above, the projected incremental AM and PM peak hour subway trips were assigned to the three area subway lines and critical station elements. As summarized in **Table 15-6**, the proposed project is estimated to generate 1,141 (234 in and 907 out) subway trips during the weekday AM peak hour and 1,295 (832 in and 463 out) subway trips during the weekday PM peak hour. The combination of these trips with the 2022 No Build volumes would result in the 2022 Build condition. As shown in **Tables 15-30** through **15-32**, all station stairways, escalators, and control elements would continue to operate at acceptable levels during the weekday AM and PM peak periods. Therefore, the proposed project would not result in any significant adverse impacts to the analyzed subway station elements.

Table 15-27
2022 No Build Condition: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	1-Hour Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak Hour								
30th Avenue Station (N,Q Lines)								
SW (S-1)	4.5	3.5	236	796	0.90	0.90	0.65	B
SE (S-2)	5.0	4.0	147	699	0.90	0.90	0.46	B
NW (S-3)	4.5	3.5	228	854	0.90	0.90	0.67	B
21st Street-Queensbridge Station (F Line)								
NE – North Stair (S-2)	6.0	5.0	327	192	0.90	0.90	0.24	A
Weekday PM Peak Hour								
30th Avenue Station (N,Q Lines)								
SW (S-1)	4.5	3.5	636	243	0.90	0.90	0.52	B
SE (S-2)	5.0	4.0	731	211	0.90	0.90	0.49	B
NW (S-3)	4.5	3.5	502	344	0.90	0.90	0.52	B
21st Street-Queensbridge Station (F Line)								
NE – North Stair (S-2)	6.0	5.0	72	240	0.90	0.90	0.15	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)], where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)

Table 15-28
2022 No Build Condition: Subway Escalator Analysis

21st Street-Queensbridge (F) Station Elements	Quantity	Tread Width (in.)	Capacity (people/ minute)	Surge Factor Exiting	1-Hour Pedestrian Volume		Peak 15-Min. Capacity (w/o Surge)	V/C ratio	LOS
					Up	Down			
AM Peak Period									
Escalator – Down	1	24	32	0.90	0	718	480	0.47	B
PM Peak Period									
Escalator – Down	1	24	32	0.90	0	255	480	0.18	A

Notes:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (2012 *CEQR Technical Manual*).
V/C = V/ GCap* Sf
Where
V = Peak 15-minute passenger volume
Gcap = Guideline Capacity for the escalator
Sf = Surging factor (if applicable)

Table 15-29
2022 No Build Condition: Subway Control Area Analysis

Station Elements	Qty.	1-Hour Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
		Into Control Area	Out from Control Area				
AM Peak Hour							
30th Avenue Station (N,Q Lines)							
Two-Way Turnstiles	6	1,243	2,415	0.90	0.90	0.43	A
21st Street-Queensbridge Station (F Line)							
Two-Way Turnstiles	4	1,362	610	0.90	0.90	0.34	A
PM Peak Hour							
30th Avenue Station (N,Q Lines)							
Two-Way Turnstiles	6	2,052	1,301	0.90	0.90	0.38	A
21st Street-Queensbridge Station (F Line)							
Two-Way Turnstiles	4	402	1,402	0.90	0.90	0.29	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff), where
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

Table 15-30
2022 Build Condition: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	1-Hour Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak Hour								
30th Avenue Station (N,Q Lines)								
SW (S-1)	4.5	3.5	516	796	0.90	0.90	0.82	C
SE (S-2)	5.0	4.0	473	699	0.90	0.90	0.63	B
NW (S-3)	4.5	3.5	321	1,034	0.90	0.90	0.84	C
21st Street-Queensbridge Station (F Line)								
NE – North Stair (S-2)	6.0	5.0	327	251	0.90	0.90	0.27	A
Weekday PM Peak Hour								
30th Avenue Station (N,Q Lines)								
SW (S-1)	4.5	3.5	779	243	0.90	0.90	0.60	B
SE (S-2)	5.0	4.0	897	211	0.90	0.90	0.58	B
NW (S-3)	4.5	3.5	550	958	0.90	0.90	0.97	C
21st Street-Queensbridge Station (F Line)								
NE – North Stair (S-2)	6.0	5.0	72	454	0.90	0.90	0.26	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)], where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)

Table 15-31
2022 Build Condition: Subway Escalator Analysis

21st Street-Queensbridge (F) Station Elements	Quantity	Tread Width (in.)	Capacity (people/ minute)	Surge Factor Exiting	1-Hour Pedestrian Volume		Peak 15-Min. Capacity (w/o Surge)	V/C ratio	LOS
					Up	Down			
AM Peak Period									
Escalator – Down	1	24	32	0.90	0	951	480	0.62	B
PM Peak Period									
Escalator – Down	1	24	32	0.90	0	374	480	0.26	A

Notes:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (2012 *CEQR Technical Manual*).
V/C = V/ GCap* Sf
Where
V = Peak 15-minute passenger volume
GCap = Guideline Capacity for the escalator
Sf = Surging factor (if applicable)

Table 15-32
2022 Build Condition: Subway Control Area Analysis

Station Elements	Qty.	1-Hour Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
		Into Control Area	Out from Control Area				
AM Peak Hour							
30th Avenue Station (N,Q Lines)							
Two-Way Turnstiles	6	1,942	2,595	0.90	0.90	0.53	B
21st Street-Queensbridge Station (F Line)							
Two-Way Turnstiles	4	1,595	670	0.90	0.90	0.39	A
PM Peak Hour							
30th Avenue Station (N,Q Lines)							
Two-Way Turnstiles	6	2,409	1,942	0.90	0.90	0.43	A
21st Street-Queensbridge Station (F Line)							
Two-Way Turnstiles	4	521	1,616	0.90	0.90	0.44	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff), where
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

BUS LINE-HAUL ANALYSIS

EXISTING CONDITIONS

To assess the potential impacts on the study area bus routes, maximum load point data for the Q18, Q102, and Q103 bus routes were obtained from the MTA Bus Company. These data were supplemented with passenger volumes gathered in November 2012. The field effort involved collecting arrival load and alighting/boarding counts at the bus stops adjacent to the 30th Avenue and 21st Street-Queensbridge Stations, where the highest numbers of bus riders generated by the proposed project would be expected to add loading to the three study area bus routes. The collected field data were compared with the MTA Bus Company ridership data for validation and were subsequently used for the bus line-haul analyses. As shown in **Table 15-33**, under existing conditions, the Q18, Q102, and Q103 bus routes currently operate within guideline capacity during the weekday AM and PM peak periods.

Table 15-33
2012 Existing Conditions: Bus Line-Haul Analysis

Route	Direction	Load Point	Hourly Volumes	Buses/ Hour	AP
AM Peak Hour					
Q18	**East**	30th Avenue East of 31st Street	216	7	31
	West	30th Avenue West of 31st Street	139	4	35
Q102	**East**	30th Avenue West of 31st Street	125	4	32
	West	30th Avenue West of 31st Street	126	4	32
Q103	**North**	41st Avenue and 21st Street	35	3	12
	South	41st Avenue and 21st Street	38	3	13
PM Peak Hour					
Q18	**East**	30th Avenue East of 31st Street	175	7	25
	West	30th Avenue West of 31st Street	232	7	34
Q102	**East**	30th Avenue West of 31st Street	28	3	10
	West	30th Avenue West of 31st Street	80	4	20
Q103	**North**	41st Avenue and 21st Street	41	3	14
	South	41st Avenue and 21st Street	11	3	4

Notes: AP = average passengers per bus
Sources: AKRF Survey, November 2012; MTA Bus Company ridership data (2012)

FUTURE WITHOUT THE PROPOSED PROJECT (2022 NO BUILD CONDITION)

Estimates of peak hour bus volumes in the No Build condition were developed by applying the *CEQR Technical Manual* recommended annual background growth rates as previously described. In addition, trips associated with the adjacent Astoria Cove project were incorporated into the No Build bus line-haul volumes, using the same trip assignment patterns assumed for the proposed project. As shown in **Table 15-34**, under the No Build condition, during the AM peak period, the eastbound Q18 and eastbound Q102 are expected to exceed guideline capacity (54 passengers per bus) while the westbound Q18, the westbound Q102, and the northbound Q103 would exceed guideline capacity during the PM peak period.

Table 15-34
2022 No Build Condition: Bus Line-Haul Analysis

Route	Direction	Load Point	Hourly Volumes	Buses/ Hour	AP	Bus Demand at Guideline Capacity
AM Peak Hour						
Q18	**East**	30th Avenue East of 31st Street	386	7	**(55)**	**8**
	West	30th Avenue West of 31st Street	190	4	48	4
Q102	**East**	30th Avenue West of 31st Street	269	4	**(67)**	**5**
	West	30th Avenue West of 31st Street	171	4	43	4
Q103	**North**	41st Avenue and 21st Street	72	3	24	2
	South	41st Avenue and 21st Street	162	3	54	3
PM Peak Hour						
Q18	**East**	30th Avenue East of 31st Street	283	7	40	6
	West	30th Avenue West of 31st Street	405	7	**(58)**	**8**
Q102	**East**	30th Avenue West of 31st Street	116	3	39	3
	West	30th Avenue West of 31st Street	223	4	**(56)**	**5**
Q103	**North**	41st Avenue and 21st Street	168	3	**(56)**	**4**
	South	41st Avenue and 21st Street	89	3	30	2

Notes: AP = average passengers per bus
(#) = exceeds NYCT/MTA Bus Company guideline capacity
Sources: AKRF Survey, November 2012; MTA Bus Company ridership data (2012)

PROBABLE IMPACTS OF THE PROPOSED PROJECT (2022 BUILD CONDITION)

As discussed in Chapter 1, "Project Description," the proposed project would include a bus layover ~~facility~~ area along 2nd Street adjacent to Building 1 for the Q18, Q102, and Q103 bus routes, and potentially other routes in the future. Although this layover facility would not affect the bus line-haul analysis, it would be an important transit amenity for the area.

Peak period bus ridership for the Build condition was generated by adding the incremental trips associated with the proposed project to the No Build bus line-haul volumes. Based on the relative frequencies of the three area bus routes and anticipated distribution of subway trips to the 30th Avenue and 21st Street-Queensbridge Stations, it was assumed that 70 percent of projected bus riders would be evenly distributed between the Q18 and Q103 routes (i.e., 35 percent for each route), and 30 percent of the riders would use the Q102 route. As shown in **Table 15-35**, under the Build condition, all three bus routes in all directions would exceed guideline capacity (54 passengers per bus) during peak periods, except the Q103 northbound during the AM peak period. These projected increases in bus ridership beyond guideline capacities constitute significant adverse bus line-haul impacts.

Table 15-35
2022 Build Condition: Bus Line-Haul Analysis

Route	Direction	Load Point	Hourly Volumes	Buses/ Hour	AP	Bus Demand at Guideline Capacity
AM Peak Hour						
Q18	**East**	30th Avenue East of 31st Street	753	7	**(108)**	**14**
	West	30th Avenue West of 31st Street	286	4	**(72)**	**6**
Q102	**East**	30th Avenue West of 31st Street	584	4	**(146)**	**11**
	West	30th Avenue West of 31st Street	254	4	**(64)**	**5**
Q103	**North**	41st Avenue and 21st Street	144	3	48	3
	South	41st Avenue and 21st Street	436	3	**(146)**	**9**
PM Peak Hour						
Q18	**East**	30th Avenue East of 31st Street	478	7	**(69)**	**9**
	West	30th Avenue West of 31st Street	748	7	**(107)**	**14**
Q102	**East**	30th Avenue West of 31st Street	284	3	**(95)**	**6**
	West	30th Avenue West of 31st Street	518	4	**(130)**	**10**
Q103	**North**	41st Avenue and 21st Street	426	3	**(142)**	**8**
	South	41st Avenue and 21st Street	237	3	**(79)**	**5**

Notes: AP=average passengers per bus
(#)=exceeds NYCT/MTA Bus Company guideline capacity
denotes a significant adverse impact
Sources: AKRF Survey, November 2012; MTA Bus Company ridership data (2012)

Potential measures to mitigate the above significant adverse bus line-haul impacts include scheduling additional buses to increase capacity. NYCT and MTA Bus Company routinely monitors changes in bus ridership and would make the necessary service adjustments where warranted. Service adjustments are subject to fiscal and operational constraints and, if implemented, are expected to occur over time. These measures are discussed in greater detail in Chapter 22, "Mitigation." In addition, preliminary discussions have taken place between the Applicant and the MTA Bus Company about the anticipated need to improve existing service on the Q18, Q102, and Q103, as well as the possible extension of the Q19 to the waterfront to serve the additional demand that is expected to occur over time with the development of this and other projects.

F. DETAILED PEDESTRIAN ANALYSIS

EXISTING CONDITIONS

Pedestrian data were collected in November 2008 during the hours of 7:00 AM to 10:00 AM, 12:00 PM to 2:00 PM, and 4:00 PM to 7:00 PM. As described in section E, "Detailed Transit Analysis," a comparison of NYCT's 2008 and 2011 average annual weekday ridership statistics shows that 2008 and 2011 ridership levels at the 30th Avenue Station were almost identical; therefore, the 2008 counts of pedestrian elements near this station were unadjusted and used as representative volumes for the 2011 existing conditions analysis. At the 21st Street-Queensbridge Station, 2011 ridership was approximately 17.7 percent higher than 2008 levels. Therefore, the 2008 counts of pedestrian elements near this station were prorated by 17.7 percent to bring them up to 2011 levels. For the remaining pedestrian locations, all of which located near the project sites, 2008 volumes were used for the analysis, as pedestrian activities were observed to remain approximately constant between 2008 and 2011.

Peak hours were determined by comparing rolling hourly averages; peak 15-minute pedestrian volumes were developed by dividing the hourly incremental volumes by four and accounting for peaking characteristics within the peak hours for each pedestrian element. The existing peak 1-hour weekday AM, midday, and PM pedestrian volumes are presented in **Figures 15-20 to 15-22**. **Tables 15-36** through **15-38** provide overall summaries of pedestrian levels of service under 2011 existing conditions. As shown in **Tables 15-55** through **15-57** in Section I, "Detailed Analysis Results Tables," all sidewalk, corner reservoir, and crosswalk analysis locations operate at acceptable LOS C or better (maximum of 6 PMF platoon flows for sidewalks; minimum of 24 SFP for corners and crosswalks) except the west sidewalk of 31st Street between 30th Avenue and 30th Drive during the PM peak hour (LOS D with 6.24 PMF).

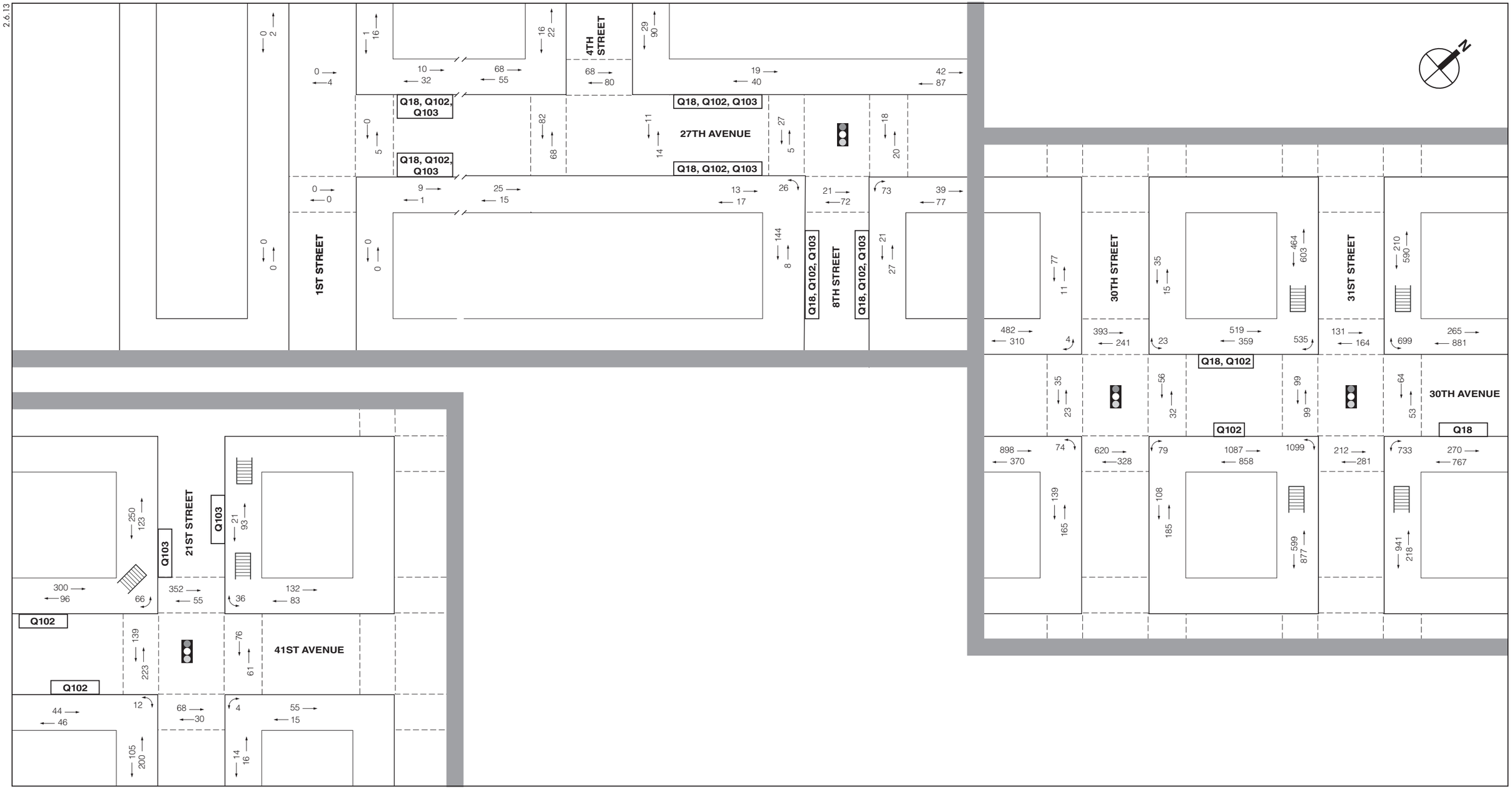
Table 15-36
2011 Existing Conditions: Sidewalk LOS Analysis

Service Levels	Weekday		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Overall LOS A/B/C	17	17	16
Overall LOS D	0	0	1
Overall LOS E	0	0	0
Overall LOS F	0	0	0
Note: Includes 17 sidewalk analysis locations.			

Table 15-37
2011 Existing Conditions: Corner LOS Analysis

Service Levels	Weekday		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Overall LOS A/B/C	5	5	5
Overall LOS D	0	0	0
Overall LOS E	0	0	0
Overall LOS F	0	0	0
Note: Includes 5 corner analysis locations.			

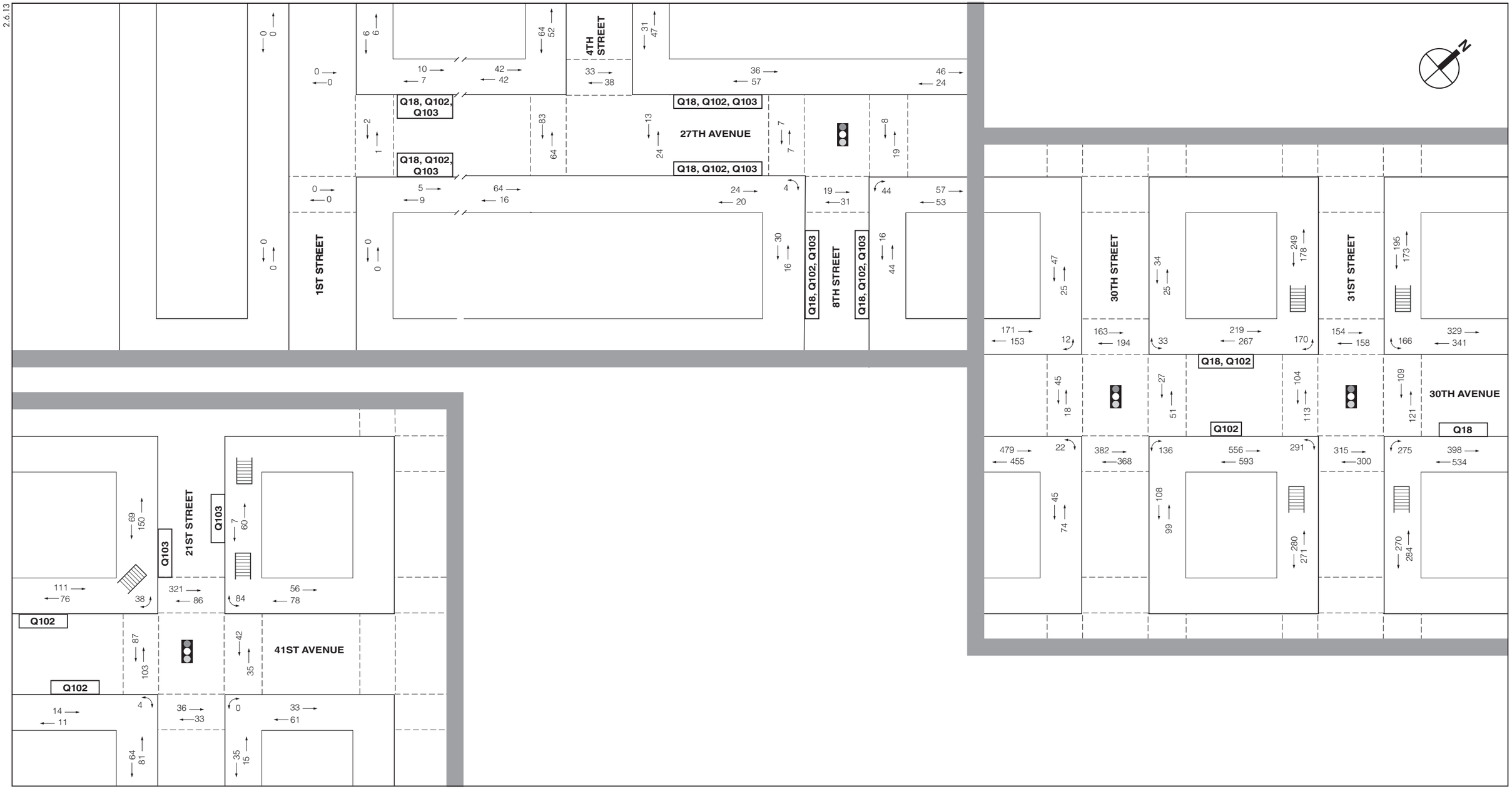
2.6.13



2011 Existing Pedestrian Trips
Weekday AM Peak Hour
Figure 15-20

HALLETTS POINT

2.6.13



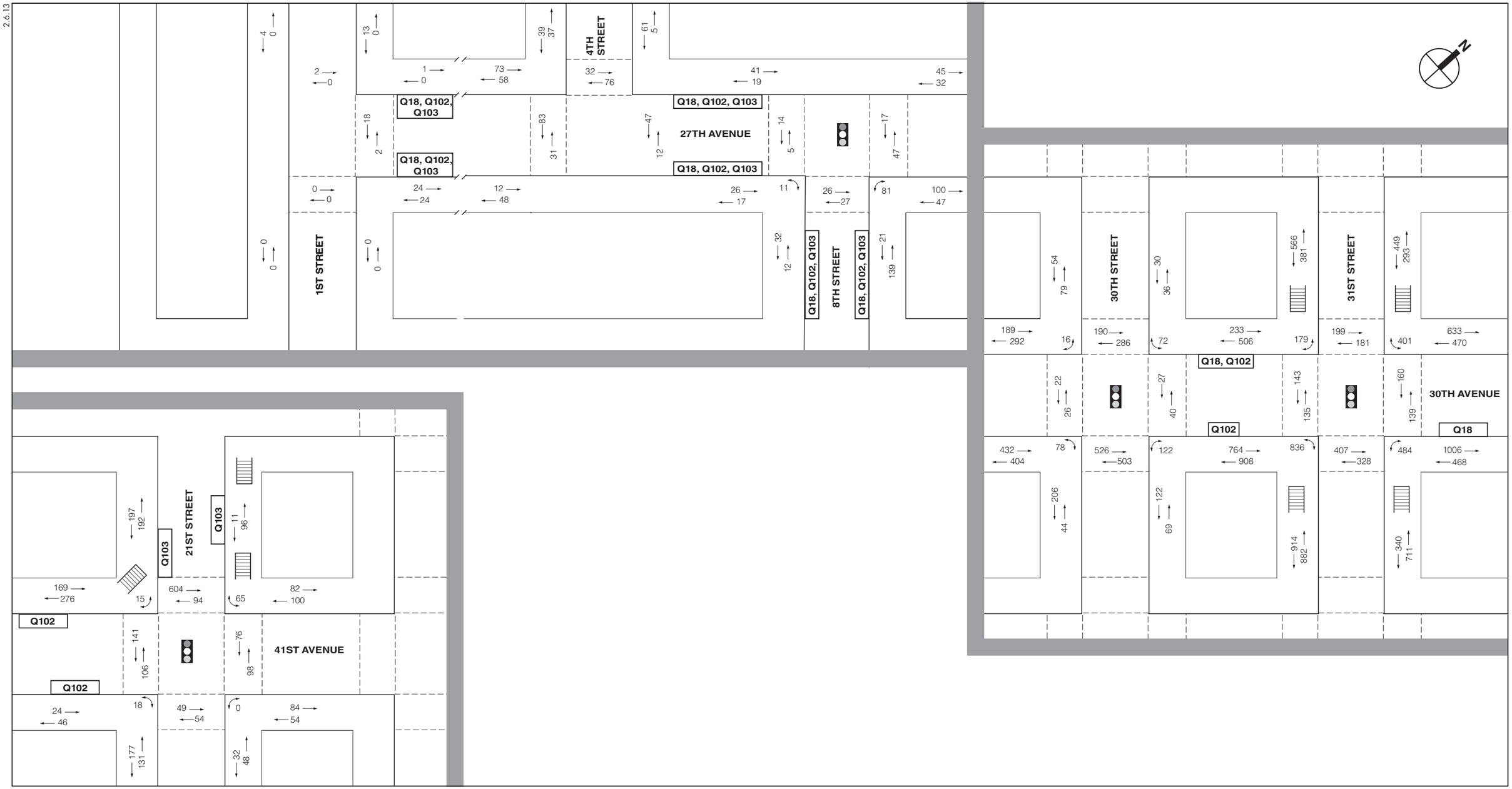
Signalized Intersection

Subway Station Entrance

Q103 *Bus Stop and Bus Route*

2011 Existing Pedestrian Trips
Weekday Midday Peak Hour
Figure 15-21

2.6.13



Signalized Intersection

Subway Station Entrance

Q103 *Bus Stop and Bus Route*

2011 Existing Pedestrian Trips
Weekday PM Peak Hour
Figure 15-22

Table 15-38
2011 Existing Conditions: Crosswalk LOS Analysis

Service Levels	Weekday		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Overall LOS A/B/C	2	2	2
Overall LOS D	0	0	0
Overall LOS E	0	0	0
Overall LOS F	0	0	0
Note: Includes 2 crosswalk analysis locations.			

FUTURE WITHOUT THE PROPOSED PROJECT (2022 NO BUILD CONDITION)

No Build condition pedestrian volumes were estimated by increasing existing pedestrian levels to reflect expected growth in overall travel through and within the study area. As per *CEQR Technical Manual* guidelines, an annual background growth rate of 0.50 percent was assumed for the first five years (year 2011 to year 2016) and then 0.25 percent for the remaining years (year 2016 to year 2022). In addition, pedestrian trips associated with the adjacent Astoria Cove project were incorporated into the No Build station volumes, using the same trip assignment patterns assumed for the proposed project. The total No Build peak 1-hour pedestrian volumes for the weekday AM, midday, and PM peak periods are presented in **Figures 15-23 to 15-25**. **Tables 15-39** through **15-41** provide overall comparisons of pedestrian levels of service for the existing and No Build conditions. As summarized in **Tables 15-58** to **15-60** in Section I, "Detailed Analysis Results Tables," all sidewalk, corner reservoir, and crosswalk analysis locations will continue to operate at acceptable LOS C or better (maximum of 6 PMF platoon flows for sidewalks; minimum of 24 SFP for corners and crosswalks) except the west sidewalk of 31st Street between 30th Avenue and 30th Drive during the weekday PM peak hour (LOS D with 6.73 PMF).

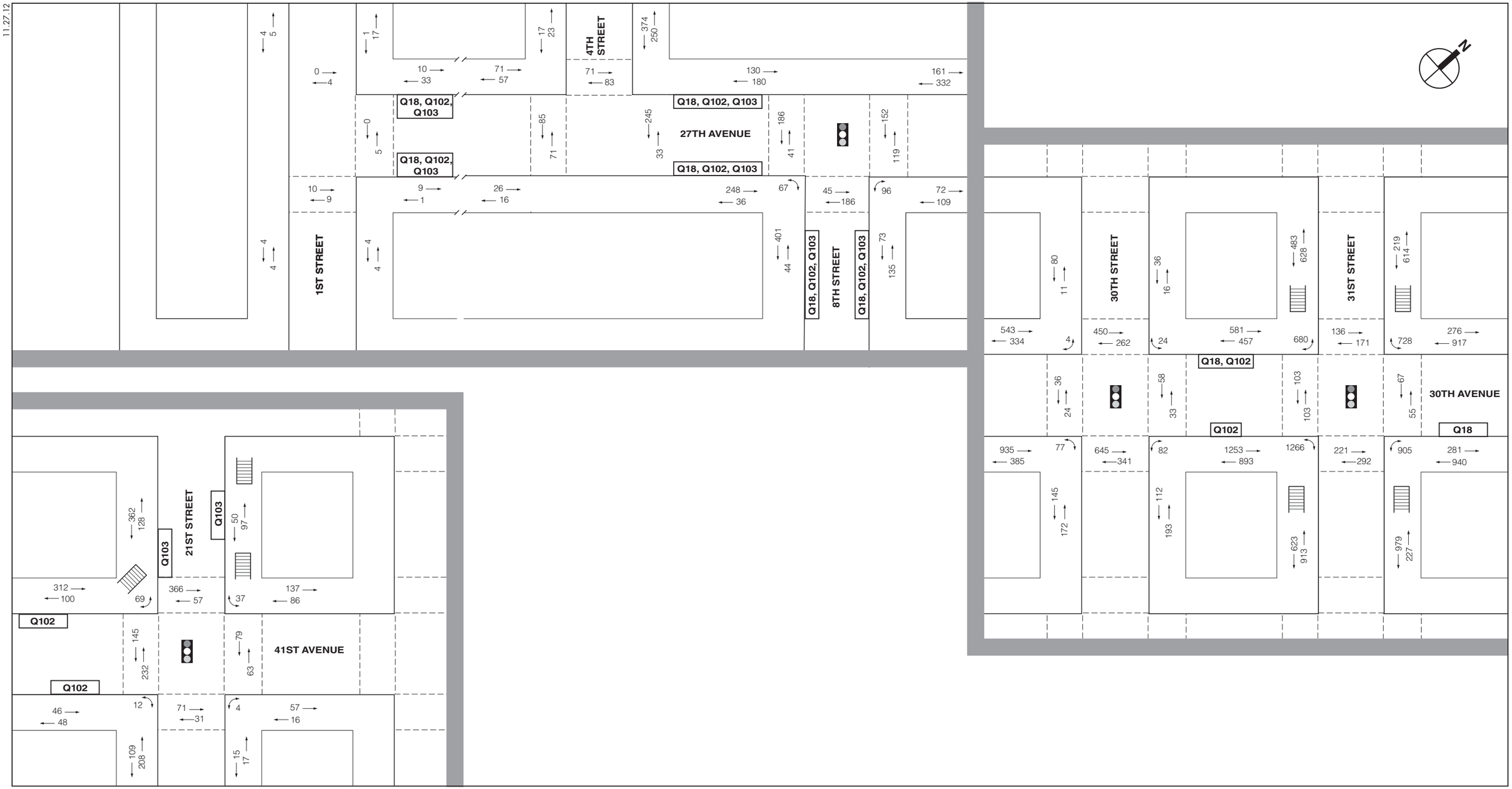
Table 15-39
2011 Existing vs. 2022 No Build Conditions: Sidewalk LOS Analysis

	Existing			No Build		
	Weekday Peak Hours			Weekday Peak Hours		
	AM	Midday	PM	AM	Midday	PM
Overall LOS A/B/C	17	17	16	17	17	16
Overall LOS D	0	0	1	0	0	1
Overall LOS E	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0
Note: Includes 17 sidewalk analysis locations.						

Table 15-40
2011 Existing vs. 2022 No Build Conditions: Corner LOS Analysis

	Existing			No Build		
	Weekday Peak Hours			Weekday Peak Hours		
	AM	Midday	PM	AM	Midday	PM
Overall LOS A/B/C	5	5	5	5	5	5
Overall LOS D	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0
Note: Includes 5 corner analysis locations.						

11.27.12



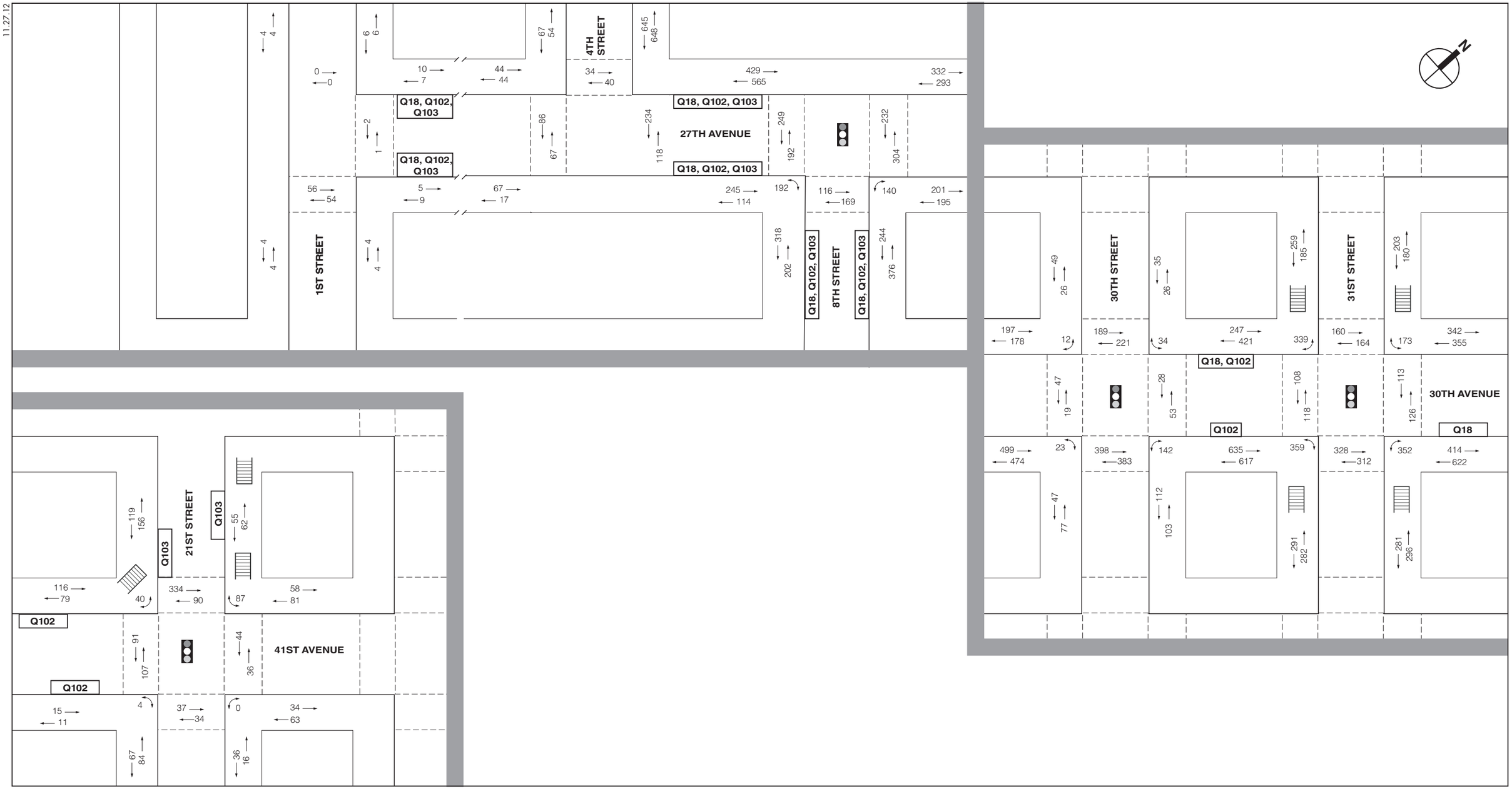
Signalized Intersection

Subway Station Entrance

Q103 *Bus Stop and Bus Route*

2022 No Build Pedestrian Trips
Weekday AM Peak Hour
Figure 15-23

11.27.12

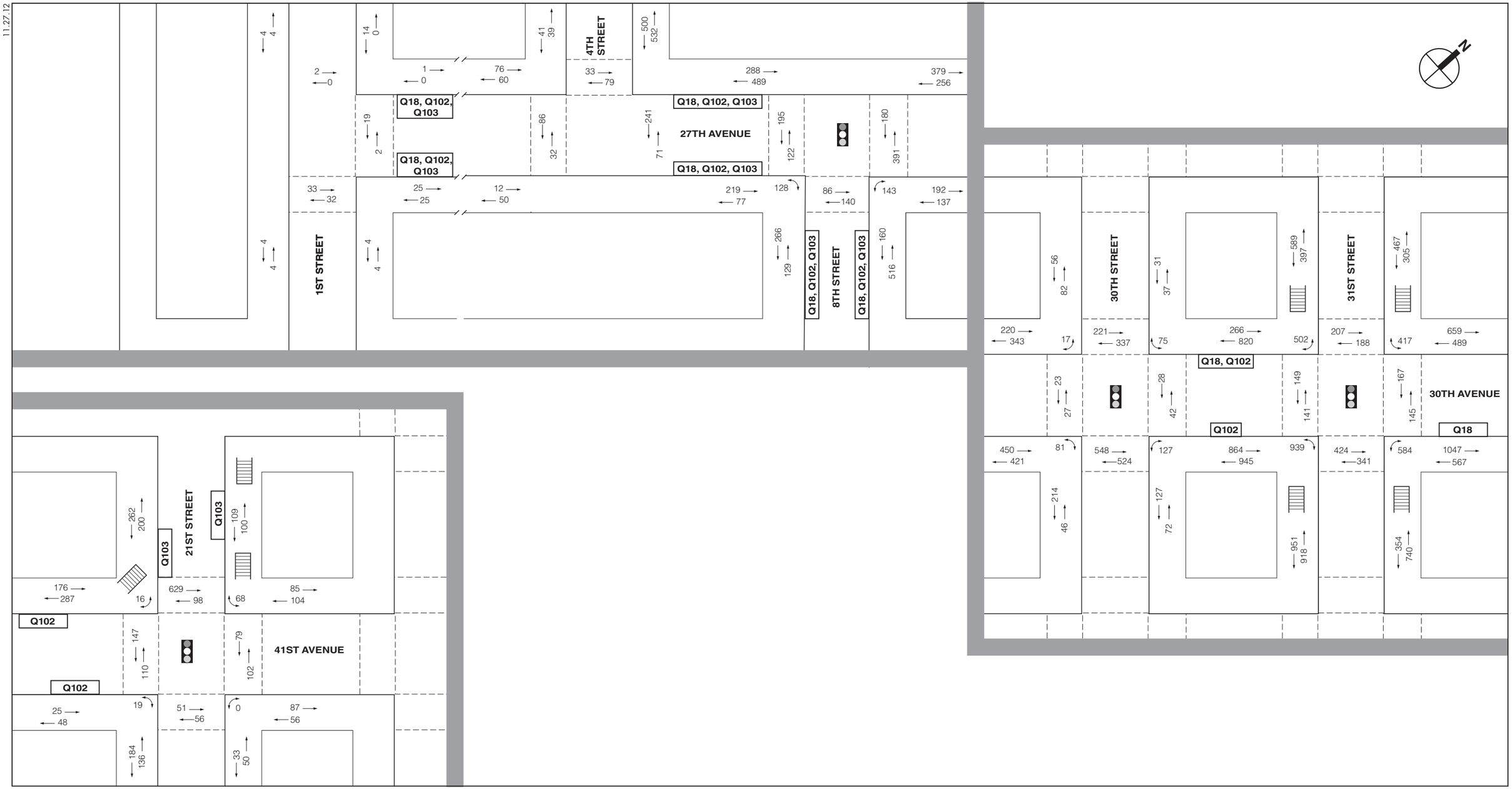


2022 No Build Pedestrian Trips
Weekday Midday Peak Hour

HALLETTS POINT

Figure 15-24

11.27.12



Signalized Intersection

Subway Station Entrance

Q103 *Bus Stop and Bus Route*

HALLETTS POINT

2022 No Build Pedestrian Trips
Weekday PM Peak Hour
Figure 15-25

Table 15-41
2011 Existing vs. 2022 No Build Conditions: Crosswalk LOS Analysis

	Existing			No Build		
	Weekday Peak Hours			Weekday Peak Hours		
	AM	Midday	PM	AM	Midday	PM
Overall LOS A/B/C	2	2	2	2	2	2
Overall LOS D	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0
Note: Includes 2 crosswalk analysis locations.						

PROBABLE IMPACTS OF THE PROPOSED PROJECT (2022 BUILD CONDITION)

TRIP DISTRIBUTION AND ASSIGNMENT

The project-generated pedestrian volumes were assigned to the pedestrian network considering current land uses in the area, parking locations, available transit services, and pedestrian pathways connecting to/from the project sites.

For each use, pedestrian trips would follow similar assignment procedures, as described below:

- Auto Trips – For the residential use, motorists would park on site and would have direct access to the site without traversing any pedestrian elements. For all other uses, it was assumed that the motorists would drive to the site and park near the site entrance and walk to and from the site.
- Taxi Trips – Taxi riders would get dropped off and picked up near their destination for each use.
- Bus Trips – Bus riders would use one of the three bus routes serving the area (Q18, Q102, and Q103) and would get on and off at the bus stops nearest to the destinations and walk to and from the project sites.
- Subway Trips – Subway riders were assigned to the 30th Avenue (N, Q) Station and the 21st Street-Queensbridge (F) Station. It was assumed that 10 percent of the subway riders would walk to/from the project sites while 90 percent would connect to/from these stations via the Q18, Q102, and Q103 bus routes at bus stops adjacent to the projects sites and the two subway stations. As described in section E, "Detailed Transit Analysis," approximately 75 percent of the total project-generated subway trips is expected to be served by the 30th Avenue Station while the remaining 25 percent would be served by the 21st Street-Kingsbridge Station.
- Walk-Only Trips – Walk-only pedestrian trips generated by the proposed residential, retail, and open space uses were distributed to the area's pedestrian facilities (i.e., sidewalks, corner reservoirs, and crosswalks) based on neighborhood land-use characteristics and population concentrations identified by the 2010 Census population data.

PEDESTRIAN VOLUME INCREMENTS

Based on the incremental peak hour pedestrian trips presented on **Figures 15-6 to 15-8** in Section B, "Level 2 Screening Assessment," peak 15-minute incremental pedestrian volumes were developed by dividing the hourly incremental volumes by four and accounting for peaking

characteristics within the peak hours. These pedestrian volumes were added to the No Build volumes to arrive at the Build pedestrian volumes for analysis. The total Build peak 1-hour pedestrian volumes are presented in **Figures 15-26 to 15-28**.

LEVELS OF SERVICE AND SIGNIFICANT IMPACTS

The pedestrian analyses conducted for the Build condition accounted for the project-generated pedestrian volumes and anticipated physical changes, if any, to the pedestrian environment resulting from the proposed project. **Tables 15-42** through **15-44** provide overall comparisons of pedestrian levels of service for the No Build and Build conditions.

Table 15-42
2022 No Build vs. 2022 Build Conditions: Sidewalk LOS Analysis

	No Build			Build		
	Weekday Peak Hours			Weekday Peak Hours		
	AM	Midday	PM	AM	Midday	PM
Overall LOS A/B/C	17	17	16	16	17	16
Overall LOS D	0	0	1	1	0	1
Overall LOS E	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0
Note: Includes 17 sidewalk analysis locations.						

Table 15-43
2022 No Build vs. 2022 Build Conditions: Corner LOS Analysis

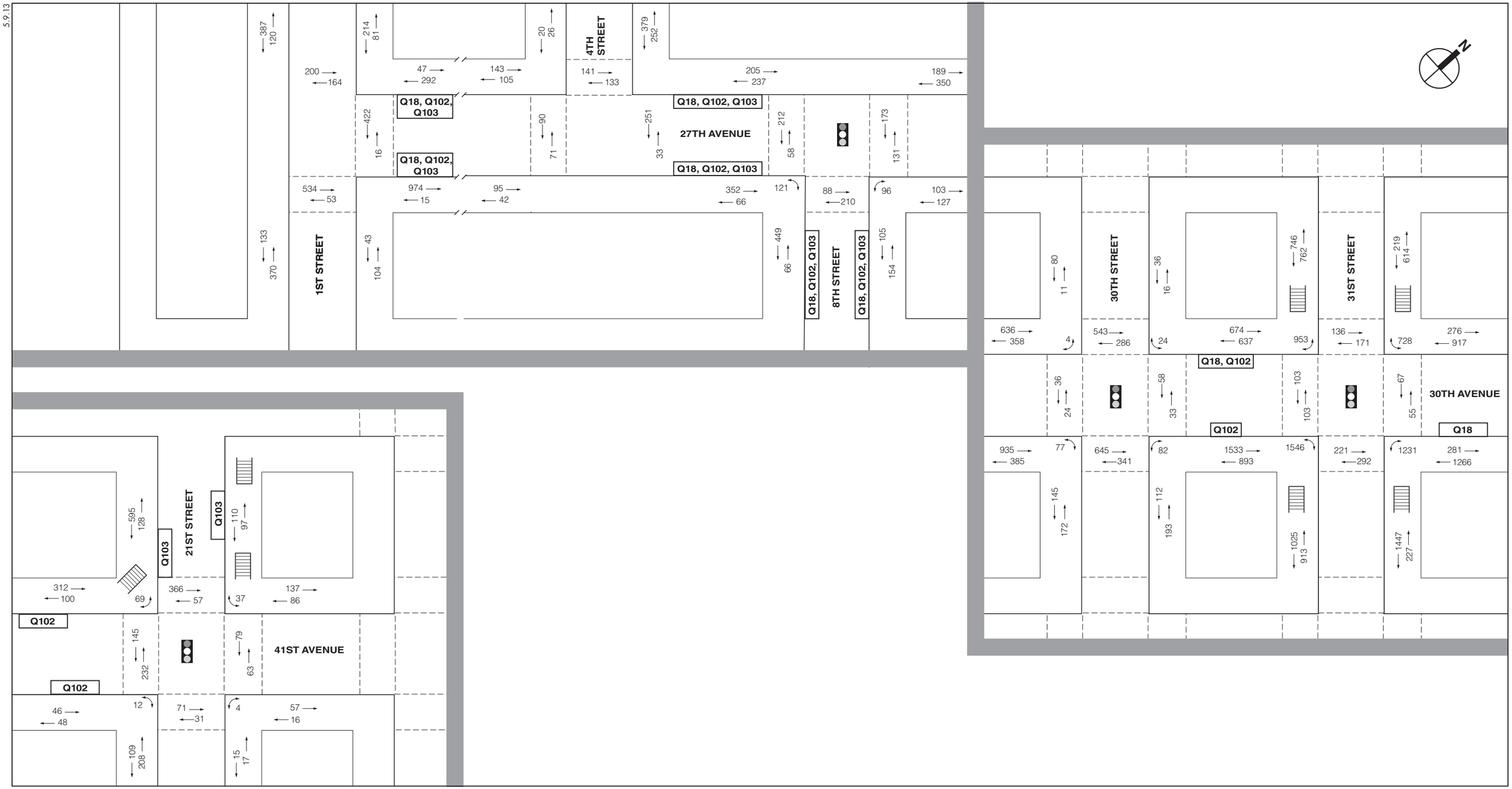
	No Build			Build		
	Weekday Peak Hours			Weekday Peak Hours		
	AM	Midday	PM	AM	Midday	PM
Overall LOS A/B/C	5	5	5	5	5	5
Overall LOS D	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0
Note: Includes 5 corner analysis locations.						

Table 15-44
2022 No Build vs. 2022 Build Conditions: Crosswalk LOS Analysis

	No Build			Build		
	Weekday Peak Hours			Weekday Peak Hours		
	AM	Midday	PM	AM	Midday	PM
Overall LOS A/B/C	2	2	2	2	2	2
Overall LOS D	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0
Note: Includes 2 crosswalk analysis locations.						

As summarized in **Tables 15-61** through **15-63** in Section I, "Detailed Analysis Results Tables," all sidewalk, corner reservoir, and crosswalk analysis locations would continue to operate at acceptable LOS C or better (maximum of 6 PMF platoon flows for sidewalks; minimum of 24 SFP for corners and crosswalks) except the west sidewalk of 31st Street between 30th Avenue and 30th Drive during the weekday AM and PM peak hours (LOS D with 6.~~70~~73 PMF and LOS D with 7.~~21~~23 PMF,

5.9.13



Signalized Intersection

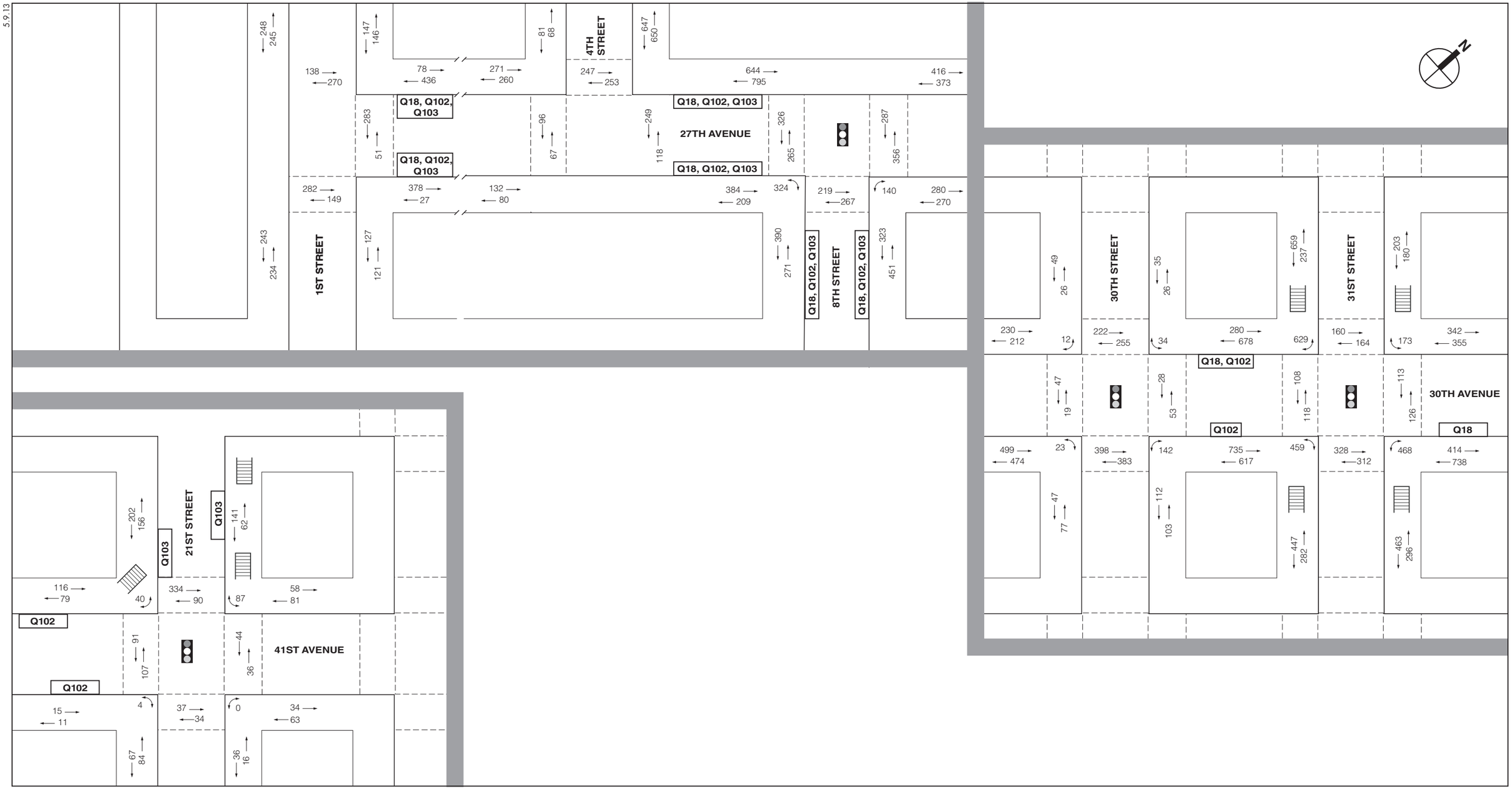
Subway Station Entrance

Q103 *Bus Stop and Bus Route*

HALLETTS POINT

2022 Build Pedestrian Trips
Weekday AM Peak Hour
Figure 15-26

5.9.13



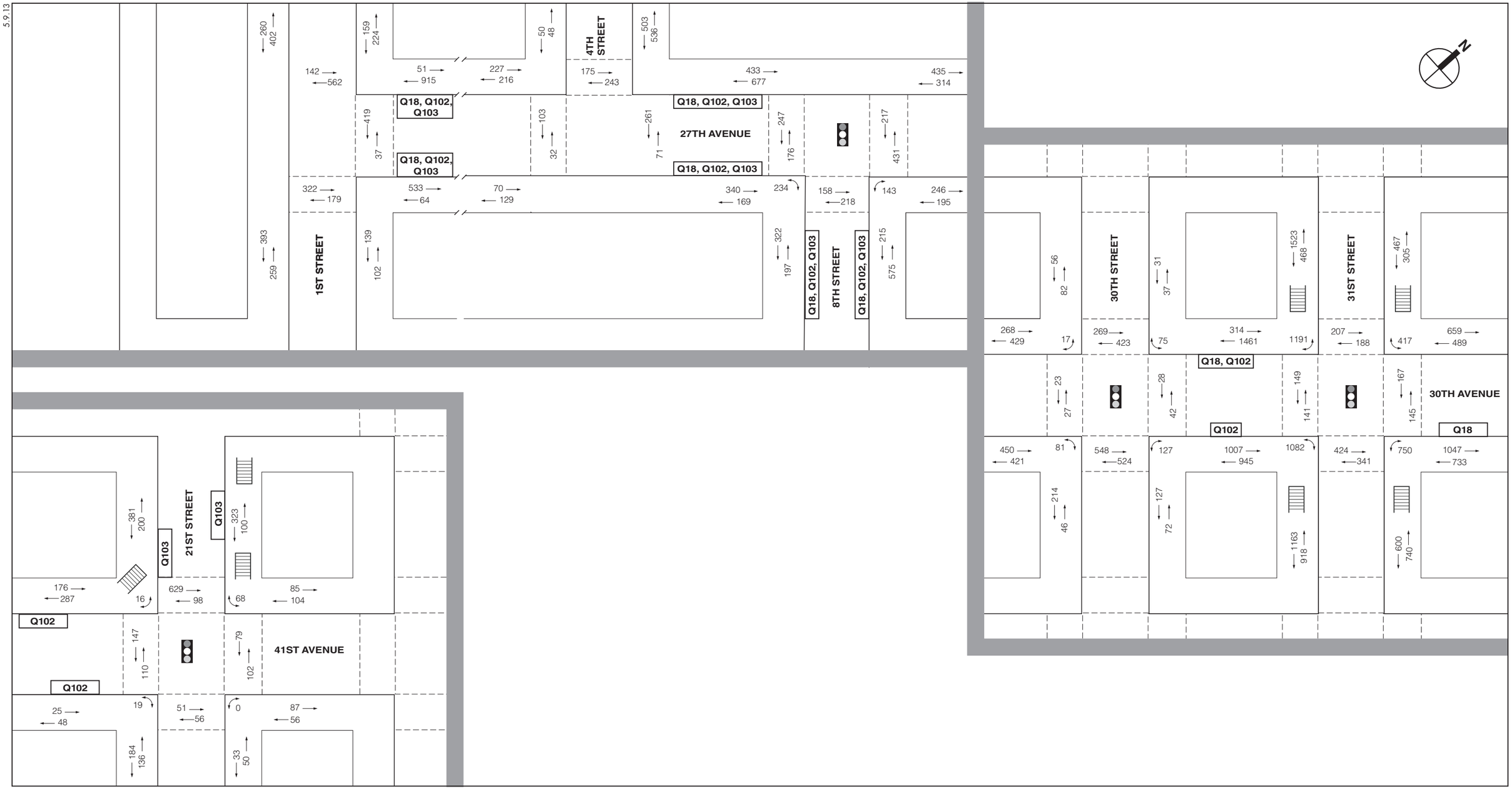
Signalized Intersection

Subway Station Entrance

Q103 *Bus Stop and Bus Route*

2022 Build Pedestrian Trips
Weekday Midday Peak Hour
Figure 15-27

5.9.13



Signalized Intersection

Subway Station Entrance

Q103 *Bus Stop and Bus Route*

HALLETTS POINT

2022 Build Pedestrian Trips
Weekday PM Peak Hour
Figure 15-28

respectively). As detailed for the sliding scale presented in **Table 15-14**, for No Build pedestrian flows of 5.5 to 6.2 PMF and 6.3 to 7.0 PMF, deteriorations of 2.3 PMF and 2.2 PMF or greater, respectively, would constitute significant adverse pedestrian impacts. For the west sidewalk of 31st Street between 30th Avenue and 30th Drive, the projected deteriorations during the AM and PM peak hours are projected to be from 5.76 to 6.~~70~~73 PMF (difference of 0.~~94~~97 PMF) and from 6.73 to 7.~~21~~23 PMF (difference of 0.48 PMF), respectively. Since these levels of deterioration are less than the impact thresholds described above and all other study area pedestrian facilities would continue to operate at acceptable levels, the proposed project would not result in any significant adverse pedestrian impacts.

G. VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

Crash data for the study area intersections were obtained from the NYSDOT for the time period between January 1, 2009 and December 31, 2011. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. According to the *CEQR Technical Manual*, a high accident location is one where there were five or more pedestrian/bicyclist-related accidents or 48 or more reportable and non-reportable accidents in any consecutive 12 months within the most recent 3-year period for which data are available.

During the January 1, 2009 to December 31, 2011 3-year period, a total of 161 reportable and non-reportable accidents, one fatality, 79 injuries, and 7 pedestrian/bicyclist-related accidents occurred at the study area intersections. A rolling total of the 2009-2011 accident data indicates that the numbers of vehicular and pedestrian/bicyclist-related accidents at the study area intersections are well below the CEQR thresholds for high-accident locations. Although the proposed project is expected to result in significant adverse traffic impacts at some of these locations, given the low accident frequencies, the proposed project would not have the potential to result in any significant adverse vehicular and pedestrian safety impacts. **Table 15-45** depicts total accident characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle accidents by year and location.

Table 15-45
Vehicle and Pedestrian Accident Details

Intersection		Study Period					Accidents by Year					
North-South Roadway	East-West Roadway	All Accidents by Year			Total Fatalities	Total Injuries	Pedestrian			Bicycle		
		2009	2010	2011			2009	2010	2011	2009	2010	2011
21st Street	Astoria Blvd	4	4	5	0	7						
23rd Street	Astoria Blvd	1	1	2	0	2						
Crescent Street	Astoria Blvd	3	1	1	0	3						
28th Street	Astoria Blvd	2	1	1	0	0						
30th Street	Astoria Blvd	1	1	1	0	1						
31st Street	Astoria Blvd	22	8	14	0	17						
31st Street	Hoyt Ave (S)	3	6	3	0	5			1			
31st Street	Hoyt Ave (N)	2	0	6	0	6						
29th Street	Hoyt Ave (S)	2	1	2	0	2						
29th Street	Hoyt Ave (N)	1	2	1	0	1						
21st Street	Hoyt Ave (S)	0	5	0	0	3					1	
21st Street	Hoyt Ave (N)	1	0	6	0	2						
21st Street	24th Avenue	0	1	1	0	0						
29th Street	24th Avenue	0	0	0	0	0						
32nd Street	Astoria Blvd	1	3	0	0	3						
33rd Street	Astoria Blvd	6	5	6	0	14						
8th Street	Astoria Blvd	0	0	1	0	1			1			
8th Street	Vernon Blvd	0	0	0	0	0						
8th Street	27th Avenue	0	0	0	0	0						
Vernon Blvd	Broadway	0	0	0	0	0						
21st Street	Broadway	4	10	5	1	12		3			1	
1st Street	27th Avenue	1	1	0	0	0						
2nd Street	27th Avenue	0	0	0	0	0						
4th Street	27th Avenue	1	0	0	0	0						
18th Street	Astoria Blvd	1	0	0	0	0						

Source: NYSDOT January 1, 2009 and December 31, 2011 accident data.

H. PARKING ANALYSIS

EXISTING CONDITIONS

A detailed parking inventory of the area surrounding the project site was conducted on a typical weekday. The parking study area encompassed a ¼-mile radius (approximately a five-minute walk) from the project site, as recommended by CEQR guidelines. This area extends approximately between 8th Street to the east, the East River to the west, 26th Avenue to the north, and 30th Avenue/Main Avenue to the south. Parking data were collected during the morning (6:30 to 9:30 AM), midday (12 to 2 PM) and PM (4:30 to 6:30 PM) peak periods.

On-street parking regulations, capacity, and occupancy were inventoried for the study area on a block-by-block basis. Several streets within the study area have no posted parking regulations on either side of the street. Alternate side parking for street cleaning is regulated on many streets within the parking study area. There is no metered parking within the study area. The average number of legal on-street parking spaces within the parking study area ranges approximately between 425 and 500 spaces during weekday peak periods. During the weekday AM and midday peak periods, the average on-street parking occupancy is approximately 90 percent with about 50 on-street parking spaces available. In the PM peak period, the occupancy rate drops to 77 percent and there are approximately 100 on-street spaces available. This rate drops even further (to 71 percent) in the latter half of the PM peak period.

There are no public off-street parking facilities within the parking study area; however, an inventory of the permit-only off-street parking on the Astoria Houses Campus was performed since the proposed project would displace some of these facilities and replace them with new parking facilities. Therefore, an analysis was performed to determine whether the total parking provided on the campus in the future with the project would accommodate the parking demands of both the project and of the existing NYCHA permit-parking users.

As shown in **Table 15-46**, there are a total of seven surface parking lots on the Astoria Houses Campus—six residential permit parking lots, and one NYCHA employee lot. The total capacity of these lots is 178 spaces. Overall, these lots are approximately 70 to 80 percent occupied in the weekday AM peak period, and 65 to 75 percent occupied in the midday and PM peak periods.

Table 15-46
Off-Street Parking Utilization (Astoria Houses Campus)

Lot No.	Parking Lot Location	Type	Capacity	Parking Occupancy By Period						
				AM Period			Midday Period		PM Period	
				6:30 – 7:30	7:30 – 8:30	8:30 – 9:30	12 – 1	1 – 2	4:30 – 5:30	5:30 – 6:30
1	Astoria Boulevard near 8th Street	Permit parking	40	32	27	28	29	26	34	33
2	Astoria Boulevard near 8th Street – section adjacent to apartment building	NYCHA employee	21	4	14	14	11	11	1	2
3*	Astoria Boulevard and 1st Street	Permit parking	34	34	27	29	28	26	28	29
4*	Astoria Boulevard just east of 1st Street –at cul-de-sac	Permit parking	10	10	8	6	6	5	10	10
5*	27th Avenue at 4th Street	Permit parking	29	23	20	22	21	20	18	19
6*	27th Avenue between 3rd and 2nd Streets	Permit parking	33	32	20	25	23	19	16	26
7	8th Street at 30th Avenue	Permit parking	11	11	11	11	11	11	11	11
Total			**178**	**146**	**127**	**135**	**129**	**118**	**118**	**130**
Percent Occupied			-	**82%**	**71%**	**76%**	**72%**	**66%**	**66%**	**73%**

Note: * Lot would be displaced by proposed project

FUTURE WITHOUT THE PROPOSED PROJECT (2022 NO BUILD CONDITION)

Under the 2022 No Build condition, on-street parking demand is expected to increase by the same background growth rate assumed for traffic—0.5 percent per year for the first five years and 0.25 percent per year for each additional year until 2022. As a result of this growth, on-street parking occupancy is expected to reach 91 to 94 percent during the weekday AM and midday parking periods, and 80 percent in the PM period. The amount of on-street parking availability in the study area would decrease slightly to 30 to 40 spaces in the weekday AM and midday periods, and to about 85 spaces in the PM period, under the No Build condition.

No changes to parking demand or supply are expected to occur at the NYCHA parking facilities under the No Build condition.

PROBABLE IMPACTS OF THE PROPOSED PROJECT (2022 BUILD CONDITION)

The proposed project would provide ~~1,375~~ 1,400 off-street parking spaces which would be accessory to the residential and commercial uses. This would consist of ~~1,151~~ 1,176 garage parking spaces within Buildings 1 through 5 (along 1st and 2nd Streets), and 224 project parking spaces on the Astoria Houses campus—53 surface lot spaces adjacent to Buildings 6 and 7 (along 27th Avenue) and 171 garage spaces in Building 8 (on Astoria Boulevard). It is estimated

that the proposed project would also add approximately 28 on-street parking spaces with the extension of Astoria Boulevard through the Astoria Houses Campus. However, approximately 14 on-street spaces would be removed along the west side of 1st Street between 26th and 27th Avenues. These are generally evening/overnight parking spaces based on the regulations ('No Parking 8 AM- 6 PM Monday – Friday'). Overall, there would be a net increase of 14 overnight parking spaces in the area as a result of the proposed project.

The construction of Buildings 6, 7 and 8 would displace 144 residential permit parking spaces on lots within the Astoria Houses Campus. These spaces would be replaced by 178 new spaces within new parking facilities including Buildings' 6 and 7 lots and within reconfigured lots elsewhere in the Astoria Houses Campus. Therefore, a net increase in NYCHA permit parking would occur as a result of the proposed project.

A 24-hour parking accumulation was developed for project-generated demand based on temporal distribution data available for each associated land use. An overnight parking rate of 0.6 vehicles per dwelling unit was developed based on vehicle ownership rates in *similar* nearby census tracts (e.g. excludes census tracts that are predominantly low income housing or single family homes with driveways/garages). As shown in **Table 15-47**, there would be an overall parking surplus in the garages for Buildings 1 through 5 during the majority of the day, but there would be a parking shortfall of up to ~~87~~ 122 spaces during overnight hours ~~(10 PM to 7 AM)~~ (9 PM to 8 AM).

Table 15-47[1]
Build Parking Accumulation: Buildings 1–5

	Demand by Land Use									Total Demand			Total Surplus/ Shortfall
	Residential			Food Store			Local Retail						
Time	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.	
12 – 1 AM	41	41	1298	0	0	0	0	0	0	41	41	1298	-122
1 – 2 AM	17	17	1298	0	0	0	0	0	0	17	17	1298	-122
2 – 3 AM	10	10	1298	0	0	0	0	0	0	10	10	1298	-122
3 – 4 AM	8	8	1298	0	0	0	0	0	0	8	8	1298	-122
4 – 5 AM	8	8	1298	0	0	0	0	0	0	8	8	1298	-122
5 – 6 AM	8	8	1298	0	0	0	0	0	0	8	8	1298	-122
6 – 7 AM	14	14	1298	0	0	0	0	0	0	14	14	1298	-122
7 – 8 AM	17	154	1161	2	1	1	0	0	0	19	155	1162	14
8 – 9 AM	97	389	869	1	2	0	1	1	0	99	392	869	307
9 – 10 AM	74	222	721	2	2	0	0	0	0	76	224	721	455
10 – 11 AM	65	153	633	3	3	0	0	0	0	68	156	633	543
11 AM – 12 PM	82	123	592	4	3	1	0	0	0	86	126	593	583
12 – 1 PM	124	119	597	6	7	0	3	3	0	133	129	597	579
1 – 2 PM	121	123	595	6	6	0	2	2	0	129	131	595	581
2 – 3 PM	127	127	595	4	4	0	2	2	0	133	133	595	581
3 – 4 PM	132	132	595	4	4	0	1	1	0	137	137	595	581
4 – 5 PM	198	132	661	5	4	1	2	2	0	205	138	662	514
5 – 6 PM	346	187	820	6	6	1	2	2	0	354	195	821	355
6 – 7 PM	260	173	907	5	6	0	2	2	0	267	181	907	269
7 – 8 PM	269	115	1061	4	4	0	2	2	0	275	121	1061	115
8 – 9 PM	123	52	1132	3	3	0	0	0	0	126	55	1132	44
9 – 10 PM	98	42	1188	1	1	0	0	0	0	99	43	1188	-12
10 – 11 PM	112	48	1252	0	0	0	0	0	0	112	48	1252	-76
11 PM – 12 AM	82	36	1298	0	0	0	0	0	0	82	36	1298	-122
Daily Total	2,433	2,433	-	56	56	-	17	17	-	**2,506**	**2,506**	**-**	
Overnight Demand	-	-	1,298	-	-	0	-	-	0	**-**	**-**	**1,298**	
Number of Parking Spaces Provided :												**1,176**	

[1] This table has been revised for the FEIS.

Table 15-48 shows the projected parking accumulation for project Buildings 6, 7 and 8. ~~Similarly, these~~ These buildings would have an overall overnight shortfall of ~~82~~ 64 spaces. Much, of this shortfall could be absorbed by available on-street spaces within the ¼-mile parking study area. It is estimated (based on parking availability at the end of the PM peak period and at the beginning of the AM peak period in the No Build condition) that between 30 and 85 on-street spaces would be available during overnight hours. In addition to that, a net of approximately 14 new on-street spaces would be created with the extension of Astoria Boulevard, increasing available overnight on-street parking availability to 44 to 99 spaces. Also, parking data collected for a ½-mile radius (up to a ten-minute walk) from the project site indicates that any remaining overnight shortfall could be accommodated by the additional 50 to 125 on-street parking spaces available slightly beyond the ¼-mile parking study area. It is also noted that even more on-street parking would presumably become available in the future Build condition when existing uses on the project site vacate the premises. However, to be conservative, no credit was taken for on-street parking trips generated by these uses. Therefore, the proposed project would not result in a significant adverse parking impact.

Table 15-48[1]
Build Parking Accumulation: Buildings 6-8

Time	Demand by Land Use						Total Demand			Project Surplus/Shortfall
	Residential			Local Retail			In	Out	Accum.	
	In	Out	Accum.	In	Out	Accum.				
12 – 1 AM	9	9	288	0	0	0	9	9	288	-64
1 – 2 AM	5	5	288	0	0	0	5	5	288	-64
2 – 3 AM	2	2	288	0	0	0	2	2	288	-64
3 – 4 AM	1	1	288	0	0	0	1	1	288	-64
4 – 5 AM	1	1	288	0	0	0	1	1	288	-64
5 – 6 AM	1	1	288	0	0	0	1	1	288	-64
6 – 7 AM	2	2	288	0	0	0	2	2	288	-64
7 – 8 AM	5	39	254	0	0	0	5	39	254	-30
8 – 9 AM	22	86	190	0	0	0	22	86	190	34
9 – 10 AM	15	48	157	0	0	0	15	48	157	67
10 – 11 AM	14	34	137	0	0	0	14	34	137	87
11 AM – 12 PM	19	27	129	1	1	0	20	28	129	95
12 – 1 PM	28	27	130	3	3	0	31	30	130	94
1 – 2 PM	27	27	130	3	3	0	30	30	130	94
2 – 3 PM	28	28	130	2	2	0	30	30	130	94
3 – 4 PM	29	29	130	0	0	0	29	29	130	94
4 – 5 PM	43	29	144	2	2	0	45	31	144	80
5 – 6 PM	79	42	181	1	1	0	80	43	181	43
6 – 7 PM	57	38	200	1	1	0	58	39	200	24
7 – 8 PM	59	25	234	0	0	0	59	25	234	-10
8 – 9 PM	28	12	250	0	0	0	28	12	250	-26
9 – 10 PM	22	9	263	0	0	0	22	9	263	-39
10 – 11 PM	26	12	277	0	0	0	26	12	277	-53
11 PM – 12 AM	19	8	288	0	0	0	19	8	288	-64
Daily Total	541	541	-	13	13	-	**554**	**554**	**-**	-
Overnight Demand	-	-	288	-	-	0	**-**	**-**	**288**	-
# of Parking Spaces Provided : 224										

[1] This table has been revised for the FEIS.

I. DETAILED ANALYSIS RESULTS TABLES

Table 15-49[1]
Existing Conditions Traffic Level of Service Analysis
Signalized Intersections

INTERSECTION & APPROACH		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
27th Avenue & 8th Street													
27th Avenue	EB	TR	0.59	18.4	B	TR	0.54	17.1	B	TR	0.48	15.6	B
	WB	LT	0.81	30.2	C	LT	0.54	18.3	B	LT	0.41	14.9	B
8th Street	NB	L	0.39	23.8	C	L	0.29	22.2	C	L	0.31	22.6	C
		R	0.26	22.3	C	R	0.28	22.5	C	R	0.32	23.0	C
Overall Intersection		-	**0.64**	**24.3**	**C**	-	**0.44**	**19.1**	**B**	-	**0.41**	**17.9**	**B**
Vernon Boulevard/Main Avenue & 8th Street/Welling Court													
Vernon Boulevard	EB	LT	0.96	46.7	D	LT	0.79	37.4	D	LT	1.00	54.0	D
Main Street	WB	TR	0.06	21.3	C	TR	0.03	21.0	C	TR	0.04	21.1	C
Welling Court	NB	LTR	0.26	31.5	C	LTR	0.14	28.9	C	LTR	0.08	28.2	C
8th Street	SB	R	0.72	36.1	D	R	0.55	31.3	C	R	0.47	29.5	C
Overall Intersection		-	**0.42**	**40.0**	**D**	-	**0.32**	**34.0**	**C**	-	**0.38**	**44.4**	**D**
Astoria Boulevard & 8th Street													
Astoria Boulevard	EB	LR	0.25	28.5	C	LR	0.12	26.4	C	LR	0.26	28.6	C
	WB	L	0.26	28.5	C	L	0.25	28.5	C	L	0.16	27.0	C
		TR	0.20	27.7	C	TR	0.15	27.0	C	TR	0.15	26.9	C
8th Street	NB	LT	0.34	15.1	B	LT	0.31	14.8	B	LT	0.40	15.5	B
	SB	TR	0.49	17.8	B	TR	0.31	15.1	B	TR	0.29	14.8	B
Overall Intersection		-	**0.40**	**20.6**	**C**	-	**0.29**	**18.9**	**B**	-	**0.34**	**19.3**	**B**
Astoria Boulevard & 21st Street													
Astoria Boulevard	EB	L	0.75	54.7	D	L	0.25	34.6	C	L	0.44	41.8	D
		TR	0.79	50.9	D	TR	0.38	35.9	D	TR	0.73	46.9	D
	WB	L	0.94	57.0	E	L	0.81	49.1	D	L	0.82	57.2	E
		TR	0.71	42.5	D	TR	0.36	34.9	C	TR	0.65	47.2	D
21st Street	NB	LTR	0.75	33.3	C	LTR	1.05	69.4	E	LTR	0.99	40.3	D
	SB	LTR	1.05	59.2	E	LTR	0.96	48.4	D	LTR	0.87	34.2	C
Overall Intersection		-	**0.96**	**50.7**	**D**	-	**0.75**	**51.3**	**D**	-	**0.88**	**41.4**	**D**
Astoria Boulevard & 23rd Street													
Astoria Boulevard	EB	LT	0.64	20.0	C	LT	0.61	16.4	B	LT	0.69	21.0	C
	WB	TR	0.81	24.3	C	TR	0.66	15.2	B	TR	0.62	18.4	B
23rd Street	NB	LTR	0.48	33.0	C	LTR	0.53	27.8	C	LTR	0.57	35.3	D
Overall Intersection		-	**0.68**	**24.2**	**C**	-	**0.61**	**18.5**	**B**	-	**0.64**	**23.3**	**C**
Astoria Boulevard & Crescent Street													
Astoria Boulevard	EB	TR	0.72	23.9	C	TR	0.63	17.2	B	TR	0.82	27.7	C
	WB	LT	0.85	26.9	C	LT	0.98	30.0	C	LT	0.99	37.2	D
Crescent Street	SB	LTR	1.05	66.6	E	LTR	1.03	52.2	D	LTR	1.00	49.8	D
Overall Intersection		-	**0.93**	**37.6**	**D**	-	**1.00**	**33.3**	**C**	-	**0.99**	**37.3**	**D**
Astoria Boulevard & 31st Street													
Astoria Boulevard	EB	LTR	0.90	44.2	D	LTR	0.85	31.6	C	LTR	0.95	45.8	D
31st Street	NB	T	0.49	41.1	D	T	0.51	33.1	C	T	0.49	41.0	D
		R	0.63	15.2	B	R	0.51	8.6	A	R	0.79	21.2	C
	SB	T	0.86	31.0	C	T	0.62	19.0	B	T	0.66	21.7	C
		R	0.53	18.9	B	R	0.29	14.1	B	R	0.29	14.9	B
Overall Intersection		-	**0.87**	**29.3**	**C**	-	**0.72**	**21.1**	**C**	-	**0.78**	**29.1**	**C**
Astoria Park South/ Hoyt Ave South & 21st Street													
Astoria Park South/ Hoyt Ave South	EB	L	0.12	29.9	C	L	0.21	31.5	C	L	0.17	30.7	C
		TR	1.02	59.7	E	TR	0.40	35.2	D	TR	0.73	43.1	D
21st Street	NB	LTR	0.51	14.6	B	LTR	0.41	13.0	B	LTR	0.86	22.3	C
	SB	LTR	0.98	32.1	C	LTR	0.58	15.4	B	LTR	0.83	23.3	C
Overall Intersection		-	**0.99**	**32.1**	**C**	-	**0.52**	**17.4**	**B**	-	**0.81**	**25.6**	**C**
Hoyt Avenue South & RFK Bridge Off-Ramp/29th Street													
Hoyt Avenue South	EB	TR	0.52	24.9	C	TR	0.46	19.0	B	TR	0.53	25.0	C
RFK Bridge Off-Ramp	SB	T	0.67	30.8	C	T	0.39	19.2	B	T	0.46	25.2	C
Overall Intersection		-	**0.60**	**27.5**	**C**	-	**0.42**	**19.1**	**B**	-	**0.50**	**25.0**	**C**

[1] This table has been revised for the FEIS.

Table 15-49 (cont'd)
Existing Conditions Traffic Level of Service Analysis
Signalized Intersections

		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
INTERSECTION & APPROACH		**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**
Hoyt Avenue South & 31st Street													
Hoyt Avenue South	EB	LT	0.89	50.5	D	LT	0.60	25.7	C	T	0.76	36.5	D
		R	0.54	46.7	D	R	0.41	25.9	C	R	0.31	29.9	C
31st Street	NB	TR	0.20	35.3	D	TR	0.25	27.2	C	TR	0.27	36.1	D
	SB	T	0.47	10.7	B	LT	0.56	14.9	B	T	0.42	15.8	B
Overall Intersection		-	**0.59**	**32.9**	**C**	-	**0.61**	**21.8**	**C**	-	**0.55**	**29.9**	**C**
Hoyt Avenue South/Astoria Boulevard & 33rd Street													
Hoyt Avenue South	EB	LT	0.54	25.6	C	LT	0.67	26.7	C	LT	0.73	35.0	D
Astoria Boulevard	EB	LT	0.90	50.0	D	LT	0.92	44.0	D	LT	1.05	75.5	E
33rd Street	NB	TR	1.04	75.4	E	TR	0.77	37.1	D	TR	1.04	67.7	E
		R	1.03	75.3	E	R	0.75	40.6	D	R	1.03	68.1	E
Overall Intersection		-	**0.75**	**45.9**	**D**	-	**0.77**	**35.0**	**D**	-	**0.92**	**57.3**	**E**
Hoyt Avenue North & 21st Street													
Hoyt Avenue North	EB	L	0.02	40.4	D	L	0.11	42.0	D	L	0.09	41.7	D
		R	0.36	47.1	D	R	0.13	42.3	D	R	0.17	43.0	D
	WB	L	0.88	43.1	D	L	0.66	37.9	D	L	0.59	36.4	D
		TR	0.24	14.7	B	TR	0.16	14.1	B	TR	0.27	15.5	B
21st Street	NB	L	0.27	30.4	C	L	0.10	25.1	C	L	0.16	25.8	C
		T	0.99	73.5	E	T	0.73	40.9	D	T	1.05	76.6	E
	SB	TR	0.97	46.6	D	TR	0.55	32.7	C	TR	0.73	37.4	D
Overall Intersection		-	**0.82**	**48.2**	**D**	-	**0.58**	**35.7**	**D**	-	**0.70**	**48.0**	**D**
Hoyt Avenue North & 29th Street													
Hoyt Avenue North	WB	L	0.71	11.6	B	L	0.53	11.5	B	L	0.41	12.2	B
		LT	0.71	11.2	B	LT	0.50	10.8	B	LT	0.56	14.0	B
29th Street	SB	R	0.98	89.2	F	R	0.49	34.5	C	R	0.78	49.7	D
Overall Intersection		-	**0.77**	**18.4**	**B**	-	**0.52**	**13.2**	**B**	-	**0.63**	**19.2**	**C**
Hoyt Avenue North & 31st Street													
Hoyt Avenue North	WB	L	1.01	86.3	F	L	1.00	81.8	F	L	0.42	16.0	B
		T	0.90	21.3	C	T	0.71	17.2	B	T	0.68	20.0	C
		R	0.31	10.1	B	R	0.60	19.5	B	R	0.64	23.6	C
31st Street	NB	LT	0.27	35.6	D	DefL	0.49	29.1	C	LT	0.27	28.0	C
		-	-	-	-	T	0.22	21.1	C	-	-	-	-
	SB	T	0.26	36.0	C	T	0.43	24.0	C	T	0.15	26.5	C
		R	0.68	53.1	D	R	0.24	21.9	C	R	0.46	33.5	C
Overall Intersection		-	**0.84**	**38.8**	**D**	-	**0.62**	**31.4**	**C**	-	**0.59**	**20.9**	**C**
Hoyt Avenue North & 32nd Street													
Hoyt Avenue North	WB	T	0.51	8.6	A	T	0.35	7.8	A	T	0.31	9.1	A
Grand Central Parkway Off-Ramp	WB	T	1.05	81.0	F	T	0.91	21.5	C	T	0.89	23.1	C
32nd Street	NB	L	0.56	43.7	D	L	0.33	28.5	C	L	0.50	38.2	D
	SB	R	0.03	38.0	D	R	0.02	25.9	C	R	0.02	33.3	C
Overall Intersection		-	**0.95**	**52.8**	**D**	-	**0.75**	**18.6**	**B**	-	**0.77**	**22.3**	**C**
24th Avenue & 21st Street													
24th Avenue	EB	LTR	0.11	30.1	C	LTR	0.04	29.2	C	LTR	0.05	29.3	C
	WB	LTR	0.57	40.1	D	LTR	0.28	33.0	C	LTR	0.41	35.6	D
21st Street	NB	LTR	0.70	18.4	B	LTR	0.68	19.3	B	LTR	1.01	40.8	D
	SB	LTR	0.65	18.3	B	LTR	0.36	13.1	B	LTR	0.46	14.5	B
Overall Intersection		-	**0.66**	**22.5**	**C**	-	**0.55**	**19.4**	**B**	-	**0.80**	**32.7**	**C**
24th Avenue & 29th Street													
24th Avenue	EB	TR	0.59	13.8	B	TR	0.40	10.5	B	TR	0.73	17.5	B
	WB	LT	0.33	9.6	A	LT	0.22	8.5	A	LT	0.32	9.3	A
29th Street	SB	LTR	0.45	19.1	B	LTR	0.34	17.6	B	LTR	0.41	18.4	B
Overall Intersection		-	**0.54**	**13.9**	**B**	-	**0.38**	**11.7**	**B**	-	**0.61**	**15.5**	**B**
Broadway & Vernon Boulevard/11th Street (Synchro Results)													
Broadway	EB	LTR	0.01	28.2	C	LTR	0.02	26.2	C	LTR	0.03	33.2	C
	WB	LTR	0.79	53.4	D	LTR	0.79	48.4	D	LTR	0.70	50.9	D
Vernon Boulevard	NB	LT	0.24	1.5	A	LT	0.24	1.2	A	LT	0.43	1.1	A
		R	0.04	0.1	A	R	0.16	1.0	A	R	0.12	0.4	A
	SB	LTR	0.87	42.5	D	LTR	0.58	29.0	C	LTR	0.64	31.3	C
11th Street	NB	LTR	0.36	41.0	D	LTR	0.21	32.8	C	LTR	0.31	37.9	D
Overall Intersection		-	**0.75**	**34.8**	**C**	-	**0.49**	**23.4**	**C**	-	**0.57**	**20.6**	**C**

Table 15-49 (cont'd)
Existing Conditions Traffic Level of Service Analysis
Signalized Intersections

INTERSECTION & APPROACH		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
Broadway & 21st Street													
Broadway	EB	LTR	0.68	46.1	D	LTR	0.78	48.0	D	LTR	1.03	69.4	E
	WB	LTR	0.79	48.2	D	LTR	0.87	53.7	D	LTR	1.02	67.8	E
21st Street	NB	LTR	0.45	15.5	B	LTR	0.78	22.1	C	LTR	0.88	25.0	C
	SB	LTR	0.93	26.3	C	LTR	0.67	19.2	B	LTR	0.67	19.3	B
Overall Intersection		-	**0.86**	**27.1**	**C**	-	**0.82**	**27.1**	**C**	-	**0.94**	**31.9**	**C**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table 15-50[1]
Existing Conditions Traffic Level of Service Analysis
Unsignalized Intersections

INTERSECTION & APPROACH		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
27th Avenue & 1st Street													
27th Avenue	WB	LR	-	9.2	A	LR	-	9.3	A	LR	-	8.7	A
1st Street	NB	TR	-	7.8	A	TR	-	7.9	A	TR	-	7.3	A
	SB	LT	-	8.5	A	LT	-	8.3	A	LT	-	8.2	A
Overall Intersection		-	**-**	**8.7**	**A**	-	**-**	**8.8**	**A**	-	**-**	**8.2**	**A**
27th Avenue & 2nd Street													
27th Avenue	EB	LT	-	7.7	A	LT	-	7.8	A	LT	-	7.8	A
2nd Street	SB	LR	-	12.3	B	LR	-	11.2	B	LR	-	12.4	B
Overall Intersection		-	**-**	**1.3**	**A**	-	**-**	**1.8**	**A**	-	**-**	**2.0**	**A**
27th Avenue & 4th Street													
27th Avenue	EB	LT	-	9.8	A	LT	-	9.4	A	LT	-	9.7	A
	WB	TR	-	11.7	B	TR	-	10.9	B	TR	-	11.3	B
4th Street	SB	LR	-	9.8	A	LR	-	9.8	A	LR	-	9.5	A
Overall Intersection		-	**-**	**10.8**	**B**	-	**-**	**10.2**	**B**	-	**-**	**10.4**	**B**
Astoria Boulevard & 18th Street													
18th Street	SB	LR	-	20.6	C	LR	-	12.6	B	LR	-	14.2	B
Overall Intersection		-	**-**	**2.0**	**A**	-	**-**	**2.7**	**A**	-	**-**	**2.0**	**A**
Astoria Boulevard & 28th Street													
28th Street	NB	LR	-	20.7	C	LR	-	18.8	C	LR	-	17.3	C
Overall Intersection		-	**-**	**1.8**	**A**	-	**-**	**1.9**	**A**	-	**-**	**1.4**	**A**
Astoria Boulevard & 30th Street													
Astoria Boulevard	WB	LT	-	11.3	B	LT	-	9.2	A	LT	-	10.3	B
Overall Intersection		-	**-**	**1.8**	**A**	-	**-**	**0.8**	**A**	-	**-**	**1.4**	**A**
27th Avenue & 1 2th Street													
27th Avenue	EB	LT	-	8.4	A	LT	-	8.0	A	LT	-	8.6	A
12th Street	NB	LTR	-	30.7	D	LTR	-	15.9	C	LTR	-	34.8	D
Overall Intersection		-	**-**	**6.8**	**A**	-	**-**	**4.8**	**A**	-	**-**	**10.7**	**B**
27th Avenue & 14th Street													
27th Avenue	EB	TR	-	10.6	B	TR	-	9.2	A	TR	-	9.9	A
	WB	LT	-	12.1	B	LT	-	9.0	A	LT	-	9.6	A
14th Street	SB	LTR	-	16.7	C	LTR	-	9.2	A	LTR	-	10.5	B
Overall Intersection		-	**-**	**14.3**	**B**	-	**-**	**9.2**	**A**	-	**-**	**10.1**	**B**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

[1] This table has been revised for the FEIS.

Table 15-51[1]
2022 No Build Traffic Level of Service Analysis
Signalized Intersections

		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
INTERSECTION & APPROACH		**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**
27th Avenue & 8th Street													
27th Avenue	EB	TR	0.86	34.7	C	TR	0.76	26.5	C	TR	0.64	19.9	B
	WB	LT	0.98	59.5	E	LT	0.65	22.6	C	LT	0.49	16.9	B
8th Street	NB	L	0.49	26.2	C	L	0.39	23.8	C	L	0.47	25.6	C
		R	0.42	26.4	C	R	0.64	39.0	D	R	0.66	39.1	D
Overall Intersection		-	**0.79**	**40.8**	**D**	-	**0.71**	**26.4**	**C**	-	**0.65**	**23.2**	**C**
Vernon Boulevard/Main Avenue & 8th Street/Welling Court													
Vernon Boulevard	EB	LT	1.13	100.5	F	LT	0.93	50.7	D	LT	1.20	127.2	F
Main Street	WB	TR	0.08	21.5	C	TR	0.04	21.1	C	TR	0.06	21.3	C
Welling Court	NB	LTR	0.27	31.7	C	LTR	0.15	29.1	C	LTR	0.12	28.7	C
8th Street	SB	R	0.94	55.7	E	R	0.71	37.1	D	R	0.63	33.8	C
Overall Intersection		-	**0.50**	**72.2**	**E**	-	**0.38**	**42.9**	**D**	-	**0.47**	**88.4**	**F**
Astoria Boulevard & 8th Street													
Astoria Boulevard	EB	LR	0.26	28.9	C	LR	0.13	26.5	C	LR	0.28	29.1	C
	WB	L	0.33	29.8	C	L	0.36	30.6	C	L	0.25	28.6	C
		TR	0.23	28.1	C	TR	0.18	27.5	C	TR	0.17	27.2	C
8th Street	NB	LT	0.40	15.9	B	LT	0.37	15.7	B	LT	0.50	17.0	B
	SB	TR	0.64	21.1	C	TR	0.38	16.0	B	TR	0.36	15.8	B
Overall Intersection		-	**0.52**	**22.4**	**C**	-	**0.37**	**20.1**	**C**	-	**0.41**	**20.3**	**C**
Astoria Boulevard & 21st Street													
Astoria Boulevard	EB	L	0.92	73.1	E	L	0.32	36.7	D	L	0.54	44.8	D
		TR	1.18	139.8	F	TR	0.50	39.0	D	TR	0.94	62.0	E
	WB	L	1.00	67.0	E	L	0.86	53.0	D	L	0.89	64.3	E
		TR	0.78	43.9	D	TR	0.41	35.7	D	TR	0.79	51.5	D
21st Street	NB	LTR	1.00	60.9	E	LTR	1.34	196.7	F	LTR	1.42	224.9	F
	SB	LTR	1.15	102.7	F	LTR	1.13	104.1	F	LTR	1.10	85.4	F
Overall Intersection		-	**1.12**	**87.6**	**F**	-	**0.92**	**106.2**	**F**	-	**1.18**	**118.4**	**F**
Astoria Boulevard & 23rd Street													
Astoria Boulevard	EB	LT	0.91	33.1	C	LT	0.73	19.7	B	LT	0.84	26.7	C
	WB	TR	0.87	27.4	C	TR	0.73	16.5	B	TR	0.74	20.7	C
23rd Street	NB	LTR	0.50	33.5	C	LTR	0.56	28.4	C	LTR	0.59	36.1	D
Overall Intersection		-	**0.75**	**30.5**	**C**	-	**0.66**	**20.3**	**C**	-	**0.74**	**26.5**	**C**
Astoria Boulevard & Crescent Street													
Astoria Boulevard	EB	TR	0.99	52.8	D	TR	0.75	21.1	C	TR	0.98	48.3	D
	WB	LT	1.04	57.7	E	LT	1.18	102.9	F	LT	1.29	158.9	F
Crescent Street	SB	LTR	1.09	83.5	F	LTR	1.07	68.1	E	LTR	1.04	62.4	E
Overall Intersection		-	**1.06**	**62.7**	**E**	-	**1.13**	**63.5**	**E**	-	**1.19**	**84.8**	**F**
Astoria Boulevard & 31st Street													
Astoria Boulevard	EB	LTR	1.26	160.5	F	LTR	1.02	56.4	E	LTR	1.15	112.2	F
31st Street	NB	T	0.51	41.7	D	T	0.53	33.7	C	T	0.51	41.5	D
		R	0.67	16.4	B	R	0.53	8.8	A	R	0.83	24.0	C
	SB	T	1.09	83.0	F	T	0.64	19.7	B	T	0.69	22.7	C
		R	0.30	14.9	B	R	0.31	14.3	B	R	0.31	15.1	B
Overall Intersection		-	**1.16**	**80.4**	**F**	-	**0.81**	**29.4**	**C**	-	**0.87**	**50.1**	**D**
Astoria Park South/ Hoyt Ave South & 21st Street													
Astoria Park South/ Hoyt Ave South	EB	LTR	0.68	37.3	D	LTR	0.36	33.3	C	LTR	0.51	35.2	D
21st Street	NB	LTR	0.59	15.5	B	LTR	0.46	13.7	B	LTR	1.04	51.2	D
	SB	LTR	1.10	72.7	E	LTR	0.67	17.2	B	LTR	1.05	58.4	E
Overall Intersection		-	**0.96**	**50.5**	**D**	-	**0.57**	**18.5**	**B**	-	**0.87**	**52.0**	**D**
Hoyt Avenue South & RFK Bridge Off-Ramp/29th Street													
Hoyt Avenue South	EB	TR	0.60	26.4	C	TR	0.50	19.5	B	TR	0.58	26.0	C
RFK Bridge Off-Ramp	SB	T	0.73	33.1	C	T	0.43	19.9	B	T	0.55	26.9	C
Overall Intersection		-	**0.66**	**29.3**	**C**	-	**0.47**	**19.7**	**B**	-	**0.56**	**26.3**	**C**

[1] This table has been revised for the FEIS.

Table 15-51 (cont'd)
2022 No Build Traffic Level of Service Analysis
Signalized Intersections

		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
INTERSECTION & APPROACH		**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**
Hoyt Avenue South & 31st Street													
Hoyt Avenue South	EB	LT	0.98	62.0	E	LT	0.65	26.4	C	T	0.82	38.4	D
		R	0.58	48.3	D	R	0.44	26.6	C	R	0.33	30.3	C
31st Street	NB	TR	0.21	35.4	D	TR	0.26	27.3	C	TR	0.28	36.3	D
	SB	T	0.49	11.0	B	LT	0.59	15.3	B	T	0.43	16.1	B
Overall Intersection		-	**0.63**	**39.1**	**D**	-	**0.63**	**22.5**	**C**	-	**0.59**	**31.2**	**C**
Hoyt Avenue South/Astoria Boulevard & 33rd Street													
Hoyt Avenue South	EB	LT	0.60	26.5	C	LT	0.71	27.5	C	LT	0.78	36.4	D
Astoria Boulevard	EB	LT	1.12	106.3	F	LT	1.05	71.2	E	LT	1.20	136.2	F
33rd Street	NB	TR	1.09	91.5	F	TR	0.80	38.4	D	TR	1.08	84.9	F
		R	1.08	91.3	F	R	0.78	42.2	D	R	1.07	83.3	F
Overall Intersection		-	**0.85**	**69.2**	**E**	-	**0.84**	**44.9**	**D**	-	**0.99**	**82.7**	**F**
Hoyt Avenue North & 21st Street													
Hoyt Avenue North	EB	L	0.02	40.4	D	L	0.11	42.0	D	L	0.09	41.8	D
		R	0.37	47.5	D	R	0.13	42.5	D	R	0.17	43.1	D
	WB	L	1.00	57.4	E	L	0.79	41.7	D	L	0.79	42.3	D
		TR	0.25	14.8	B	TR	0.17	14.2	B	TR	0.29	15.7	B
21st Street	NB	L	0.31	32.2	C	L	0.12	25.4	C	L	0.18	26.2	C
		T	1.11	111.0	F	T	0.80	44.9	D	T	1.13	106.7	F
	SB	TR	1.03	61.3	E	TR	0.59	34.0	C	TR	0.79	40.4	D
Overall Intersection		-	**0.92**	**66.2**	**E**	-	**0.65**	**38.8**	**D**	-	**0.81**	**59.4**	**E**
Hoyt Avenue North & 29th Street													
Hoyt Avenue North	WB	L	0.77	12.8	B	L	0.56	11.9	B	L	0.44	12.6	B
		LT	0.76	12.2	B	LT	0.56	11.4	B	LT	0.66	15.7	B
29th Street	SB	R	1.07	113.1	F	R	0.52	35.1	D	R	0.83	52.5	D
Overall Intersection		-	**0.83**	**21.6**	**C**	-	**0.55**	**13.7**	**B**	-	**0.71**	**20.4**	**C**
Hoyt Avenue North & 31st Street													
Hoyt Avenue North	WB	L	1.05	109.0	F	L	1.05	96.7	F	L	0.44	16.2	B
		T	0.97	29.2	C	T	0.77	18.7	B	T	0.78	22.6	C
		R	0.34	10.4	B	R	0.65	21.3	C	R	0.71	26.6	C
31st Street	NB	LT	0.29	35.8	D	DefL	0.53	30.9	C	LT	0.29	28.3	C
		-	-	-	-	T	0.23	21.2	C	-	-	-	-
	SB	T	0.28	36.3	D	T	0.45	24.4	C	T	0.15	26.6	C
		R	0.74	57.8	E	R	0.26	22.2	C	R	0.49	33.8	C
Overall Intersection		-	**0.91**	**48.9**	**D**	-	**0.68**	**35.0**	**C**	-	**0.66**	**22.8**	**C**
Hoyt Avenue North & 32nd Street													
Hoyt Avenue North	WB	T	0.53	8.8	A	T	0.37	7.9	A	T	0.32	9.2	A
Grand Central Parkway Off-Ramp	WB	T	1.14	162.5	F	T	1.00	35.4	D	T	1.02	46.8	D
32nd Street	NB	L	0.62	44.7	D	L	0.37	28.8	C	L	0.55	38.8	D
	SB	R	0.03	38.0	D	R	0.02	25.9	C	R	0.02	33.3	C
Overall Intersection		-	**1.03**	**46.8**	**D**	-	**0.82**	**27.6**	**C**	-	**0.88**	**36.8**	**D**
24th Avenue & 21st Street													
24th Avenue	EB	LTR	0.11	30.2	C	LTR	0.04	29.2	C	LTR	0.05	29.3	C
	WB	LTR	0.60	41.0	D	LTR	0.29	33.3	C	LTR	0.42	36.0	D
21st Street	NB	LTR	0.78	21.0	C	LTR	0.74	21.4	C	LTR	1.08	66.9	E
	SB	LTR	0.69	19.9	B	LTR	0.40	13.6	B	LTR	0.50	15.2	B
Overall Intersection		-	**0.72**	**24.3**	**C**	-	**0.59**	**20.6**	**C**	-	**0.86**	**48.3**	**D**
24th Avenue & 29th Street													
24th Avenue	EB	TR	0.65	15.3	B	TR	0.44	11.0	B	TR	0.78	19.8	B
	WB	LT	0.35	9.8	A	LT	0.24	8.7	A	LT	0.34	9.5	A
29th Street	SB	LTR	0.48	19.5	B	LTR	0.37	18.0	B	LTR	0.44	18.8	B
Overall Intersection		-	**0.58**	**14.7**	**B**	-	**0.41**	**12.1**	**B**	-	**0.65**	**16.9**	**B**
Broadway & Vernon Boulevard/11th Street (Synchro Results)													
Broadway	EB	LTR	0.01	28.2	C	LTR	0.02	26.2	C	LTR	0.03	33.2	C
	WB	LTR	0.93	71.9	E	LTR	0.91	62.9	E	LTR	0.89	69.0	E
Vernon Boulevard	NB	LT	0.26	1.2	A	LT	0.27	1.2	A	LT	0.49	1.2	A
		R	0.11	0.3	A	R	0.20	1.0	A	R	0.18	0.5	A
	SB	LTR	1.04	75.9	E	LTR	0.68	32.9	C	LTR	0.82	42.8	D
11th Street	NB	LTR	0.37	41.3	D	LTR	0.22	32.9	C	LTR	0.33	38.2	D
Overall Intersection		-	**0.87**	**54.2**	**D**	-	**0.64**	**28.2**	**C**	-	**0.67**	**26.9**	**C**
Broadway & 21st Street													
Broadway	EB	LTR	1.18	145.6	F	LTR	0.93	61.5	E	LTR	1.36	207.5	F
	WB	LTR	0.97	67.9	E	LTR	0.96	65.4	E	LTR	1.20	138.9	F
21st Street	NB	LTR	0.49	16.0	B	LTR	0.86	26.2	C	LTR	0.99	36.9	D
	SB	LTR	1.03	43.6	D	LTR	0.77	22.6	C	LTR	0.77	22.9	C
Overall Intersection		-	**1.08**	**50.7**	**D**	-	**0.90**	**33.1**	**C**	-	**1.10**	**63.4**	**E**

Notes: (1) Control delay is measured in seconds per vehicle; (2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table 15-52[1]
2022 No Build Traffic Level of Service Analysis
Unsignalized Intersections

		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
INTERSECTION & APPROACH		**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**
27th Avenue & 1st Street													
27th Avenue	WB	LR	-	9.3	A	LR	-	9.4	A	LR	-	8.8	A
1st Street	NB	TR	-	7.8	A	TR	-	7.9	A	TR	-	7.4	A
	SB	LT	-	8.6	A	LT	-	8.3	A	LT	-	8.3	A
Overall Intersection		-	**-**	**8.8**	**A**	-	**-**	**8.9**	**A**	-	**-**	**8.3**	**A**
27th Avenue & 2nd Street													
27th Avenue	EB	LT	-	7.7	A	LT	-	7.8	A	LT	-	7.8	A
2nd Street	SB	LR	-	12.6	B	LR	-	11.4	B	LR	-	12.7	B
Overall Intersection		-	**-**	**1.2**	**A**	-	**-**	**1.9**	**A**	-	**-**	**2.1**	**A**
27th Avenue & 4th Street													
27th Avenue	EB	LT	-	10.8	B	LT	-	10.0	A	LT	-	10.5	B
	WB	TR	-	14.0	B	TR	-	12.5	B	TR	-	13.6	B
4th Street	SB	LR	-	11.6	B	LR	-	11.0	B	LR	-	10.7	B
Overall Intersection		-	**-**	**12.5**	**B**	-	**-**	**11.4**	**B**	-	**-**	**12.0**	**B**
Astoria Boulevard & 18th Street													
18th Street	SB	LR	-	63.1	F	LR	-	15.1	C	LR	-	19.6	C
Overall Intersection		-	**-**	**10.9**	**B**	-	**-**	**3.8**	**A**	-	**-**	**4.2**	**A**
Astoria Boulevard & 28th Street													
28th Street	NB	LR	-	37.5	E	LR	-	24.3	C	LR	-	23.5	C
Overall Intersection		-	**-**	**2.8**	**A**	-	**-**	**2.2**	**A**	-	**-**	**1.7**	**A**
Astoria Boulevard & 30th Street													
Astoria Boulevard	WB	LT	-	0.0	A	LT	-	9.8	A	LT	-	11.8	B
Overall Intersection		-	**-**	**0.0**	**A**	-	**-**	**0.8**	**A**	-	**-**	**1.5**	**A**
27th Avenue & 12th Street													
27th Avenue	EB	LT	-	8.9	A	LT	-	8.5	A	LT	-	9.7	A
12th Street	NB	LTR	-	108.2	F	LTR	-	25.8	D	LTR	-	173.6	F
Overall Intersection		-	**-**	**16.3**	**C**	-	**-**	**5.6**	**A**	-	**-**	**34.3**	**D**
27th Avenue & 14th Street													
27th Avenue	EB	TR	-	18.2	C	TR	-	11.1	B	TR	-	13.9	B
	WB	LT	-	17.5	C	LT	-	10.6	B	LT	-	14.7	B
14th Street	SB	LTR	-	29.8	D	LTR	-	10.5	B	LTR	-	14.2	B
Overall Intersection		**-**	**-**	**23.1**	**C**	**-**	**-**	**10.8**	**B**	**-**	**-**	**14.2**	**B**

Notes: (1) Control delay is measured in seconds per vehicle; (2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

[1] This table has been revised for the FEIS.

Table 15-53[1]
2022 Build Traffic Level of Service Analysis
Signalized Intersections

INTERSECTION & APPROACH		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
27th Avenue & 8th Street													
27th Avenue	EB	TR	1.60	297.0	F	TR	1.18	120.5	F	TR	1.04	67.4	E
	WB	LT	1.96	464.4	F	LT	1.08	89.9	F	LT	1.19	127.9	F
8th Street	NB	L	0.55	27.6	C	L	0.43	24.7	C	L	0.59	28.7	C
		R	0.50	29.3	C	R	0.73	47.7	D	R	0.74	45.9	D
Overall Intersection		-	**1.39**	**290.6**	**F**	-	**1.00**	**88.3**	**F**	-	**1.01**	**78.5**	**E**
Vernon Boulevard/Main Avenue & 8th Street/Welling Court													
Vernon Boulevard	EB	LT	1.24	145.7	F	LT	1.02	69.4	E	LT	1.41	222.0	F
Main Street	WB	TR	0.08	21.5	C	TR	0.04	21.1	C	TR	0.06	21.3	C
Welling Court	NB	LTR	0.27	31.7	C	LTR	0.15	29.1	C	LTR	0.12	28.7	C
8th Street	SB	R	1.21	143.1	F	R	0.83	44.5	D	R	0.76	40.0	D
Overall Intersection		-	**0.53**	**132.3**	**F**	-	**0.41**	**55.2**	**E**	-	**0.55**	**146.4**	**F**
Astoria Boulevard & 8th Street													
Astoria Boulevard	EB	LR	1.01	85.6	F	LR	0.34	30.2	C	LR	0.82	50.4	D
	WB	L	0.33	29.8	C	L	0.36	30.6	C	L	0.25	28.6	C
		TR	0.39	31.1	C	TR	0.37	30.8	C	TR	0.49	33.5	C
8th Street	NB	LT	0.51	17.9	B	LT	0.51	18.1	B	LT	1.02	53.7	D
	SB	TR	0.80	27.4	C	TR	0.45	17.2	B	TR	0.45	17.3	B
Overall Intersection		-	**0.88**	**40.4**	**D**	-	**0.45**	**22.7**	**C**	-	**0.94**	**39.7**	**D**
Astoria Boulevard & 21st Street													
Astoria Boulevard	EB	L	1.04	99.0	F	L	0.36	37.5	D	L	0.60	46.3	D
		TR	1.83	424.6	F	TR	0.65	42.9	D	TR	1.19	141.4	F
	WB	L	1.00	67.0	E	L	0.86	53.0	D	L	0.89	64.3	E
		TR	0.83	45.3	D	TR	0.47	36.6	D	TR	0.98	71.0	E
21st Street	NB	LTR	1.19	131.1	F	LTR	1.64	329.5	F	LTR	1.98	473.2	F
	SB	LTR	1.23	138.7	F	LTR	1.29	174.3	F	LTR	1.41	221.3	F
Overall Intersection		-	**1.30**	**177.2**	**F**	-	**1.08**	**161.7**	**F**	-	**1.55**	**244.6**	**F**
Astoria Boulevard & 23rd Street													
Astoria Boulevard	EB	LT	1.33	177.7	F	LT	0.85	25.5	C	LT	1.00	47.8	D
	WB	TR	0.91	30.0	C	TR	0.79	17.6	B	TR	0.87	24.5	C
23rd Street	NB	LTR	0.50	33.5	C	LTR	0.56	28.4	C	LTR	0.59	36.1	D
Overall Intersection		-	**1.00**	**101.9**	**F**	-	**0.74**	**23.1**	**C**	-	**0.84**	**37.2**	**D**
Astoria Boulevard & Crescent Street													
Astoria Boulevard	EB	TR	1.39	208.3	F	TR	0.87	28.0	C	TR	1.16	107.7	F
	WB	LT	1.28	156.4	F	LT	1.34	177.5	F	LT	1.64	318.1	F
Crescent Street	SB	LTR	1.09	83.5	F	LTR	1.07	68.1	E	LTR	1.04	62.4	E
Overall Intersection		-	**1.27**	**162.4**	**F**	-	**1.24**	**89.7**	**F**	-	**1.41**	**159.9**	**F**
Astoria Boulevard & 31st Street													
Astoria Boulevard	EB	LTR	1.80	400.1	F	LTR	1.19	119.9	F	LTR	1.38	209.8	F
31st Street	NB	T	0.51	41.7	D	T	0.53	33.7	C	T	0.51	41.5	D
		R	0.67	16.4	B	R	0.53	8.8	A	R	0.83	24.0	C
	SB	T	1.09	83.0	F	T	0.64	19.7	B	T	0.69	22.7	C
		R	0.03	14.9	B	R	0.31	14.3	B	R	0.31	15.1	B
Overall Intersection		-	**1.37**	**166.3**	**F**	-	**0.88**	**51.9**	**D**	-	**0.96**	**85.5**	**F**
Astoria Park South/ Hoyt Ave South & 21st Street													
Astoria Park South/ Hoyt Ave South	EB	LTR	0.83	40.1	D	LTR	0.41	34.2	C	LTR	0.58	36.7	D
	NB	LTR	0.63	16.3	B	LTR	0.47	13.8	B	LTR	1.17	102.4	F
21st Street	SB	LTR	1.17	101.1	F	LTR	0.73	18.8	B	LTR	1.24	138.5	F
Overall Intersection		-	**1.06**	**66.0**	**E**	-	**0.63**	**19.8**	**B**	-	**1.02**	**109.6**	**F**
Hoyt Avenue South & RFK Bridge Off-Ramp/29th Street													
Hoyt Avenue South	EB	TR	0.65	27.6	C	TR	0.52	19.8	B	TR	0.61	26.6	C
RFK Bridge Off-Ramp	SB	T	0.77	34.8	C	T	0.47	20.4	C	T	0.63	29.0	C
Overall Intersection		-	**0.71**	**30.6**	**C**	-	**0.49**	**20.0**	**C**	-	**0.62**	**27.5**	**C**

[1] This table has been revised for the FEIS.

Table 15-53 (cont'd)
2022 Build Traffic Level of Service Analysis
Signalized Intersections

INTERSECTION & APPROACH		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
Hoyt Avenue South & 31st Street													
Hoyt Avenue South	EB	LT	1.04	78.4	E	LT	0.66	26.7	C	T	0.84	39.4	D
		R	0.58	48.3	D	R	0.44	26.6	C	R	0.33	30.3	C
31st Street	NB	TR	0.21	35.4	D	TR	0.26	27.3	C	TR	0.28	36.3	D
	SB	T	0.49	11.0	B	LT	0.59	15.3	B	T	0.43	16.1	B
Overall Intersection		-	**0.65**	**48.0**	**D**	-	**0.63**	**22.6**	**C**	-	**0.59**	**31.9**	**C**
Hoyt Avenue South/Astoria Boulevard & 33rd Street													
Hoyt Avenue South	EB	LT	0.64	27.2	C	LT	0.73	27.8	C	LT	0.81	37.1	D
Astoria Boulevard	EB	LT	1.40	225.6	F	LT	1.15	110.0	F	LT	1.32	192.3	F
33rd Street	NB	TR	1.09	91.5	F	TR	0.80	38.4	D	TR	1.08	84.9	F
		R	1.08	91.3	F	R	0.78	42.2	D	R	1.07	83.3	F
Overall Intersection		-	**0.95**	**117.5**	**F**	-	**0.87**	**59.4**	**E**	-	**1.04**	**103.7**	**F**
Hoyt Avenue North & 21st Street													
Hoyt Avenue North	EB	L	0.02	40.4	D	L	0.11	42.0	D	L	0.09	41.8	D
		R	0.37	47.5	D	R	0.13	42.5	D	R	0.17	43.1	D
	WB	L	1.09	87.2	F	L	0.89	47.9	D	L	1.04	77.8	E
		TR	0.25	14.8	B	TR	0.17	14.2	B	TR	0.29	15.7	B
21st Street	NB	L	0.31	32.3	C	L	0.12	25.4	C	L	0.18	26.3	C
		T	1.24	159.1	F	T	0.84	48.3	D	T	1.18	125.0	F
	SB	TR	1.04	63.1	E	TR	0.61	34.4	C	TR	0.81	41.6	D
Overall Intersection		-	**1.00**	**91.4**	**F**	-	**0.71**	**42.9**	**D**	-	**0.92**	**78.4**	**E**
Hoyt Avenue North & 29th Street													
Hoyt Avenue North	WB	L	0.79	13.3	B	L	0.57	12.0	B	L	0.45	12.7	B
		LT	0.80	13.1	B	LT	0.59	11.8	B	LT	0.77	18.2	B
29th Street	SB	R	1.17	148.4	F	R	0.55	35.8	D	R	0.86	55.0	D
Overall Intersection		-	**0.87**	**26.1**	**C**	-	**0.59**	**14.1**	**B**	-	**0.79**	**22.0**	**C**
Hoyt Avenue North & 31st Street													
Hoyt Avenue North	WB	L	1.05	109.0	F	L	1.05	96.7	F	L	0.44	16.2	B
		T	1.02	39.2	D	T	0.82	19.9	B	T	0.88	26.5	C
		R	0.34	10.4	B	R	0.65	21.3	C	R	0.71	26.6	C
31st Street	NB	LT	0.29	35.8	D	DefL	0.53	30.9	C	LT	0.29	28.3	C
		-	-	-	-	T	0.23	21.2	C	-	-	-	-
	SB	T	0.28	36.3	D	T	0.45	24.4	C	T	0.15	26.6	C
		R	0.74	57.8	E	R	0.26	22.2	C	R	0.49	33.8	C
Overall Intersection		-	**0.94**	**54.7**	**D**	-	**0.70**	**35.2**	**D**	-	**0.72**	**25.2**	**C**
Hoyt Avenue North & 32nd Street													
Hoyt Avenue North	WB	T	0.53	8.8	A	T	0.37	7.9	A	T	0.32	9.2	A
Grand Central Parkway Off-Ramp	WB	T	1.18	180.4	F	T	1.05	50.2	D	T	1.16	98.8	F
32nd Street	NB	L	0.67	45.5	D	L	0.38	29.0	C	L	0.56	39.0	D
	SB	R	0.03	38.0	D	R	0.02	25.9	C	R	0.02	33.3	C
Overall Intersection		-	**1.07**	**109.4**	**F**	-	**0.86**	**37.3**	**D**	-	**0.99**	**70.2**	**E**
24th Avenue & 21st Street													
24th Avenue	EB	LTR	0.11	30.2	C	LTR	0.04	29.2	C	LTR	0.05	29.3	C
	WB	LTR	0.60	41.0	D	LTR	0.29	33.3	C	LTR	0.42	36.0	D
21st Street	NB	LTR	0.86	25.3	C	LTR	0.77	22.8	C	LTR	1.12	81.9	F
	SB	LTR	0.71	20.3	C	LTR	0.41	13.8	B	LTR	0.52	15.5	B
Overall Intersection		-	**0.78**	**26.2**	**C**	-	**0.61**	**21.5**	**C**	-	**0.88**	**57.3**	**E**
24th Avenue & 29th Street													
24th Avenue	EB	TR	0.72	17.7	B	TR	0.46	11.3	B	TR	0.81	21.6	C
	WB	LT	0.35	9.8	A	LT	0.24	8.7	A	LT	0.34	9.6	A
29th Street	SB	LTR	0.48	19.5	B	LTR	0.37	18.0	B	LTR	0.44	18.8	B
Overall Intersection		-	**0.63**	**15.9**	**B**	-	**0.42**	**12.2**	**B**	-	**0.67**	**18.0**	**B**
Broadway & Vernon Boulevard/11th Street													
Broadway	EB	LTR	0.01	28.2	C	LTR	0.02	26.2	C	LTR	0.03	33.2	C
	WB	LTR	0.98	83.4	F	LTR	0.96	72.5	E	LTR	1.01	95.1	F
Vernon Boulevard	NB	LT	0.28	1.4	A	LT	0.29	1.2	A	LT	0.53	1.3	A
		R	0.11	0.3	A	R	0.20	1.0	A	R	0.18	0.5	A
	SB	LTR	1.21	141.1	F	LTR	0.76	37.4	D	LTR	1.17	131.7	F
11th Street	NB	LTR	0.37	41.3	D	LTR	0.22	32.9	C	LTR	0.33	38.2	D
Overall Intersection		-	**0.96**	**85.5**	**F**	-	**0.69**	**32.1**	**C**	-	**0.86**	**56.6**	**E**

Table 15-53 (cont'd)
2022 Build Traffic Level of Service Analysis
Signalized Intersections

INTERSECTION & APPROACH		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
Broadway & 21st Street													
Broadway	EB	LTR	1.27	180.2	F	LTR	0.96	66.0	E	LTR	1.44	242.6	F
	WB	LTR	1.03	84.6	F	LTR	1.00	73.7	E	LTR	1.31	184.4	F
21st Street	NB	LTR	0.50	16.2	B	LTR	0.87	26.9	C	LTR	1.02	44.4	D
	SB	LTR	1.07	59.2	E	LTR	0.79	23.3	C	LTR	0.80	23.9	C
Overall Intersection		-	**1.13**	**65.5**	**E**	-	**0.92**	**35.1**	**D**	-	**1.15**	**76.3**	**E**

Notes: (1) Control delay is measured in seconds per vehicle; (2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Denotes a significant impact.

Table 15-54[1]
2022 Build Traffic Level of Service Analysis
Unsignalized Intersections

INTERSECTION & APPROACH		AM Peak Hour				Midday Peak Hour				PM Peak Hour			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
27th Avenue & 1st Street													
27th Avenue	WB	LR	-	10.9	B	LR	-	11.9	B	LR	-	14.3	A
1st Street	NB	TR	-	8.8	A	TR	-	8.9	A	TR	-	8.7	B
Overall Intersection		-	**-**	**10.1**	**B**	-	**-**	**11.2**	**B**	-	**-**	**13.2**	**B**
27th Avenue & 2nd Street													
2nd Street	SB	LR	-	63.4	F	LR	-	17.2	C	LR	-	64.0	F
Overall Intersection		-	**-**	**27.0**	**D**	-	**-**	**5.3**	**A**	-	**-**	**19.7**	**C**
27th Avenue & 4th Street													
27th Avenue	EB	LT	-	50.9	F	LT	-	14.8	B	LT	-	22.0	C
	WB	TR	-	30.0	D	TR	-	22.8	C	TR	-	108.4	F
4th Street	SB	LR	-	14.6	B	LR	-	12.9	B	LR	-	13.4	B
Overall Intersection		-	**-**	**37.9**	**E**	-	**-**	**18.2**	**C**	-	**-**	**67.1**	**F**
Astoria Boulevard & 18th Street													
18th Street	SB	LR	-	575.2	F	LR	-	20.3	C	LR	-	56.0	F
Overall Intersection		-	**-**	**121.9**	**F**	-	**-**	**5.1**	**A**	-	**-**	**10.8**	**B**
Astoria Boulevard & 28th Street													
28th Street	NB	LR	-	263.5	F	LR	-	32.7	D	LR	-	39.2	E
Overall Intersection		-	**-**	**16.6**	**C**	-	**-**	**2.7**	**A**	-	**-**	**2.5**	**A**
Astoria Boulevard & 30th Street													
Astoria Boulevard	WB	LT	-	28.7	D	LT	-	10.5	B	LT	-	13.8	B
Overall Intersection		-	**-**	**3.4**	**A**	-	**-**	**0.8**	**A**	-	**-**	**1.5**	**A**
27th Avenue & 12th Street													
27th Avenue	EB	LT	-	9.8	A	LT	-	9.1	A	LT	-	12.2	B
12th Street	NB	LTR	-	893.0	F	LTR	-	61.5	F	LTR	-	1061.0	F
Overall Intersection		-	**-**	**92.4**	**F**	-	**-**	**9.1**	**A**	-	**-**	**144.7**	**F**
27th Avenue &14th Street													
27th Avenue	EB	TR	-	99.2	F	TR	-	14.8	B	TR	-	34.0	D
	WB	LT	-	37.1	E	LT	-	13.7	B	LT	-	73.1	F
14th Street	SB	LTR	-	63.3	F	LTR	-	12.5	B	LTR	-	25.6	D
Overall Intersection		-	**-**	**69.8**	**F**	-	**-**	**13.8**	**B**	-	**-**	**46.9**	**E**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Denotes a significant impact.

[1] This table has been revised for the FEIS.

Table 15-55
2011 Existing Conditions Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
					PMF	LOS
AM Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	1067	2.02	B
	31st Street between 30th Avenue and 30th Drive	East	8	1159	3.02	C
		West	6	1476	5.13	C
	30th Avenue between 31st Street and 32nd Street	South	10	1037	2.16	B
2	30th Avenue between 31st Street and 30th Street	North	10	878	1.47	B
		South	13	1945	3.12	C
3	27th Avenue between 4th Street and 8th Street	North	6	59	0.20	A
		South	9	30	0.07	A
4	27th Avenue between 4th Street and 3rd Street	North	9	123	0.26	A
5	27th Avenue between 1st Street and 2nd Street	North	8	42	0.11	A
		South	10	10	0.02	A
	1st Street between 27th Avenue and 26th Avenue	East	9	17	0.04	A
		West	7	9	0.03	A
	1st Street between 27th Avenue and Astoria Boulevard	East	9	8	0.02	A
		West	8	8	0.02	A
6	21st Street between 41st Avenue and 40th Avenue	East	5	114	0.44	A
		West	6	373	1.23	B
Midday Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	427	0.81	B
	31st Street between 30th Avenue and 30th Drive	East	8	554	1.25	B
		West	6	551	1.91	B
	30th Avenue between 31st Street and 32nd Street	South	10	932	1.67	B
2	30th Avenue between 31st Street and 30th Street	North	10	486	0.86	B
		South	13	1149	1.84	B
3	27th Avenue between 4th Street and 8th Street	North	6	93	0.27	A
		South	9	44	0.10	A
4	27th Avenue between 4th Street and 3rd Street	North	9	84	0.19	A
5	27th Avenue between 1st Street and 2nd Street	North	8	17	0.04	A
		South	10	14	0.03	A
	1st Street between 27th Avenue and 26th Avenue	East	9	12	0.03	A
		West	7	8	0.02	A
	1st Street between 27th Avenue and Astoria Boulevard	East	9	8	0.02	A
		West	8	8	0.02	A
6	21st Street between 41st Avenue and 40th Avenue	East	5	67	0.27	A
		West	6	219	0.70	B
PM Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	947	1.64	B
	31st Street between 30th Avenue and 30th Drive	East	8	1051	2.74	B
		West	6	1796	6.24	D
	30th Avenue between 31st Street and 32nd Street	South	10	1474	2.65	B
2	30th Avenue between 31st Street and 30th Street	North	10	739	1.45	B
		South	13	1672	2.53	B
3	27th Avenue between 4th Street and 8th Street	North	6	60	0.18	A
		South	9	43	0.09	A
4	27th Avenue between 4th Street and 3rd Street	North	9	131	0.30	A
5	27th Avenue between 1st Street and 2nd Street	North	8	1	0.00	A
		South	10	48	0.10	A
	1st Street between 27th Avenue and 26th Avenue	East	9	13	0.03	A
		West	7	8	0.02	A
	1st Street between 27th Avenue and Astoria Boulevard	East	9	8	0.02	A
		West	8	8	0.02	A
6	21st Street between 41st Avenue and 40th Avenue	East	5	107	0.43	A
		West	6	389	1.35	B

Table 15-56
2011 Existing Conditions Corner Analyis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS
1	30th Avenue and 31st Street	Northwest	238.4	A	370.9	A	325.0	A
		Southwest	139.2	A	234.5	A	142.4	A
		Southeast	185.3	A	225.1	A	176.2	A
3	27th Avenue and 8th Street	Southwest	949.1	A	2141.0	A	1649.8	A
		Southeast	687.7	A	1238.0	A	712.1	A

Notes: SFP = square feet per pedestrian

Table 15-57
2011 Existing Conditions Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles								
					AM Peak Period			Midday Peak Period			PM Peak Period		
					2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS
3	27th Avenue and 8th Street	South	50	13	93	468.7	A	50	881.1	A	53	805.8	A
		West	50	12	32	587.6	A	14	1456.2	A	19	979.7	A

Notes: SFP = square feet per pedestrian

Table 15-58
2022 No Build Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
					PMF	LOS
AM Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	1235	2.34	B
	31st Street between 30th Avenue and 30th Drive	East	8	1348	3.51	C
		West	6	1658	5.76	C
	30th Avenue between 31st Street and 32nd Street	South	10	1221	2.54	B
2	30th Avenue between 31st Street and 30th Street	North	10	1038	1.73	B
		South	13	2146	3.44	C
3	27th Avenue between 4th Street and 8th Street	North	6	310	1.08	B
		South	9	284	0.66	B
4	27th Avenue between 4th Street and 3rd Street	North	9	128	0.27	A
5	27th Avenue between 1st Street and 2nd Street	North	8	43	0.11	A
		South	10	10	0.02	A
	1st Street between 27th Avenue and 26th Avenue	East	9	18	0.04	A
		West	7	9	0.03	A
	1st Street between 27th Avenue and Astoria Boulevard	East	9	8	0.02	A
		West	8	8	0.02	A
6	21st Street between 41st Avenue and 40th Avenue	East	5	147	0.57	B
		West	6	490	1.62	B
Midday Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	606	1.15	B
	31st Street between 30th Avenue and 30th Drive	East	8	643	1.45	B
		West	6	629	2.18	B
	30th Avenue between 31st Street and 32nd Street	South	10	1036	1.86	B
2	30th Avenue between 31st Street and 30th Street	North	10	668	1.18	B
		South	13	1252	2.01	B
3	27th Avenue between 4th Street and 8th Street	North	6	994	2.85	B
		South	9	359	0.83	B
4	27th Avenue between 4th Street and 3rd Street	North	9	88	0.20	A
5	27th Avenue between 1st Street and 2nd Street	North	8	17	0.04	A
		South	10	14	0.03	A
	1st Street between 27th Avenue and 26th Avenue	East	9	12	0.03	A
		West	7	8	0.02	A
	1st Street between 27th Avenue and Astoria Boulevard	East	9	8	0.02	A
		West	8	8	0.02	A
6	21st Street between 41st Avenue and 40th Avenue	East	5	117	0.47	A
		West	6	275	0.88	B
PM Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	1302	2.26	B
	31st Street between 30th Avenue and 30th Drive	East	8	1174	3.06	C
		West	6	1938	6.73	D
	30th Avenue between 31st Street and 32nd Street	South	10	1614	2.90	B
2	30th Avenue between 31st Street and 30th Street	North	10	1086	2.14	B
		South	13	1809	2.74	B
3	27th Avenue between 4th Street and 8th Street	North	6	777	2.30	B
		South	9	296	0.61	B
4	27th Avenue between 4th Street and 3rd Street	North	9	136	0.31	A
5	27th Avenue between 1st Street and 2nd Street	North	8	1	0.00	A
		South	10	50	0.10	A
	1st Street between 27th Avenue and 26th Avenue	East	9	14	0.03	A
		West	7	8	0.02	A
	1st Street between 27th Avenue and Astoria Boulevard	East	9	8	0.02	A
		West	8	8	0.02	A
6	21st Street between 41st Avenue and 40th Avenue	East	5	209	0.83	B
		West	6	462	1.60	B

Table 15-59
2022 No Build Condition Corner Analyis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS
1	30th Avenue and 31st Street	Northwest	204.7	A	290.1	A	227.3	A
		Southwest	125.2	A	215.1	A	131.6	A
		Southeast	161.2	A	204.2	A	160.3	A
3	27th Avenue and 8th Street	Southwest	266.4	A	156.5	A	196.9	A
		Southeast	224.8	A	135.6	A	140.5	A

Notes: SFP = square feet per pedestrian

Table 15-60
2022 No Build Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles								
					AM Peak Period			Midday Peak Period			PM Peak Period		
					2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS
3	27th Avenue and 8th Street	South	50	13	231	176.4	A	285	147.0	A	226	180.2	A
		West	50	12	227	77.9	A	441	42.0	B	317	53.0	B

Notes: SFP = square feet per pedestrian

Table 15-61
2022 Build Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
					PMF	LOS
AM Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	1508	2.85	B
	31st Street between 30th Avenue and 30th Drive	East	8	1674	4.36	C
		West	6	1938	6.73	D
	30th Avenue between 31st Street and 32nd Street	South	10	1547	3.22	C
2	30th Avenue between 31st Street and 30th Street	North	10	1305	2.18	B
		South	13	2418	3.88	C
3	27th Avenue between 4th Street and 8th Street	North	6	442	1.53	B
		South	9	418	0.97	B
4	27th Avenue between 4th Street and 3rd Street	North	9	248	0.52	B
5	27th Avenue between 1st Street and 2nd Street	North	8	339	0.88	B
		South	10	989	2.06	B
	1st Street between 27th Avenue and 26th Avenue	East	9	295	0.68	B
		West	7	507	1.51	B
	1st Street between 27th Avenue and Astoria Boulevard	East	9	147	0.34	A
		West	8	503	1.31	B
6	21st Street between 41st Avenue and 40th Avenue	East	5	207	0.80	B
		West	6	723	2.39	B
Midday Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	896	1.70	B
	31st Street between 30th Avenue and 30th Drive	East	8	759	1.71	B
		West	6	729	2.53	B
	30th Avenue between 31st Street and 32nd Street	South	10	1152	2.07	B
2	30th Avenue between 31st Street and 30th Street	North	10	952	1.68	B
		South	13	1350	2.16	B
3	27th Avenue between 4th Street and 8th Street	North	6	1439	4.13	C
		South	9	593	1.37	B
4	27th Avenue between 4th Street and 3rd Street	North	9	531	1.23	B
5	27th Avenue between 1st Street and 2nd Street	North	8	514	1.34	B
		South	10	405	0.84	B
	1st Street between 27th Avenue and 26th Avenue	East	9	293	0.68	B
		West	7	493	1.47	B
	1st Street between 27th Avenue and Astoria Boulevard	East	9	248	0.57	B
		West	8	477	1.24	B
6	21st Street between 41st Avenue and 40th Avenue	East	5	203	0.81	B
		West	6	358	1.14	B
PM Peak Period						
1	31st Street between 30th Avenue and Newtown Avenue	West	11	1991	3.45	C
	31st Street between 30th Avenue and 30th Drive	East	8	1340	3.49	C
		West	6	2081	7.23	D
	30th Avenue between 31st Street and 32nd Street	South	10	1780	3.20	C
2	30th Avenue between 31st Street and 30th Street	North	10	1756	3.45	C
		South	13	1948	2.95	B
3	27th Avenue between 4th Street and 8th Street	North	6	1110	3.29	C
		South	9	509	1.05	B
4	27th Avenue between 4th Street and 3rd Street	North	9	443	1.03	B
5	27th Avenue between 1st Street and 2nd Street	North	8	966	2.52	B
		South	10	597	1.24	B
	1st Street between 27th Avenue and 26th Avenue	East	9	383	0.89	B
		West	7	662	1.97	B
	1st Street between 27th Avenue and Astoria Boulevard	East	9	241	0.56	B
		West	8	652	1.70	B
6	21st Street between 41st Avenue and 40th Avenue	East	5	423	1.69	B
		West	6	581	2.02	B

Table 15-62
2022 Build Condition Corner Analyis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS
1	30th Avenue and 31st Street	Northwest	165.9	A	217.8	A	142.9	A
		Southwest	109.6	A	199.7	A	122.4	A
		Southeast	132.9	A	186.4	A	145.1	A
3	27th Avenue and 8th Street	Southwest	201.0	A	99.6	A	125.0	A
		Southeast	192.02	A	99.6	A	110.24	A

Notes: SFP = square feet per pedestrian

Table 15-63
2022 Build Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles								
					AM Peak Period			Midday Peak Period			PM Peak Period		
					2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS
3	27th Avenue and 8th Street	South	50	13	298	137.1	A	486	82.4	A	376	103.0	A
		West	50	12	270	57.2	B	591	30.1	C	423	37.1	C

Notes: SFP = square feet per pedestrian

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