East New York Rezoning Proposal
Chapter 13: Transportation

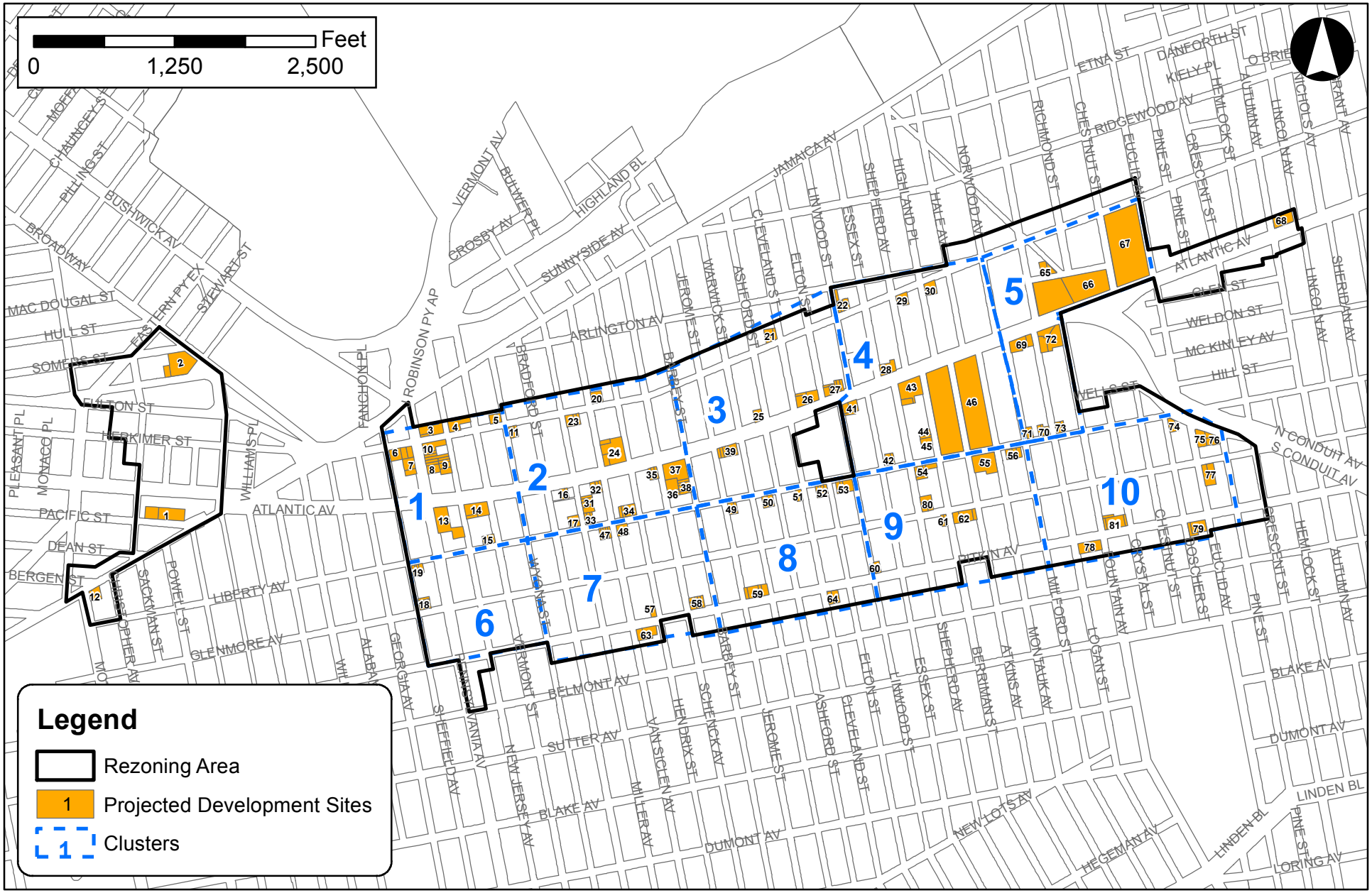
A. INTRODUCTION

This chapter describes the transportation characteristics and potential impacts associated with the Proposed Actions, which involve zoning map and text amendments for an approximately 190-block area in eastern Brooklyn. The rezoning area includes portions of the East New York, Cypress Hills, and Ocean Hill neighborhoods in Community Districts 5 and 16, generally extending to Broadway and Fulton Street on the north, Euclid and Lincoln avenues and Crescent Street on the east, Pitkin and Belmont avenues on the south, and Eastern Parkway Extension, Sackman Street, and Mother Gaston Boulevard on the west.

As described in detail in other sections of this EIS, the proposed rezoning is intended to facilitate vibrant, inclusive residential neighborhoods with a wide variety of local retail options, job opportunities, and attractive streets for residents, workers, and visitors. Opportunities for new housing, including affordable housing, along key corridors, particularly Atlantic Avenue, would provide more housing choices for current and future residents in this area. Along with zoning map changes, the Proposed Actions include amendments to the text of the Zoning Resolution to apply a new mandatory Inclusionary Housing Program (IHP) to portions of the rezoning area where zoning changes are promoting new housing. Additionally, the Proposed Actions include amendments to the Zoning Resolution to establish a new residential district for moderate residential density along transit corridors and to establish an Enhanced Commercial District within the rezoning area along Atlantic Avenue, Pitkin Avenue, and Fulton Street. Independent of the Proposed Actions, NYCDCP has also proposed a series of zoning text amendments to eliminate unnecessary obstacles to the creation of housing, especially affordable housing. These text amendments are expected to be in public review concurrent with the Proposed Actions and, when adopted, will affect the proposed zoning districts. Included in these actions is the elimination of off-street parking requirements for low-income housing or IHP units within areas that fall within a "Transit Zone" encompassing areas well served by transit and with low car ownership and auto commuting rates.

In order to assess the potential effects of the Proposed Actions, a reasonable worst case development scenario (RWCDS) for both "future without the proposed actions" (No-Action) and "future with the proposed actions" (With-Action) conditions are analyzed for an analysis year of 2030. To develop a reasonable estimate of future growth, likely development sites were identified and divided into two categories: projected development sites and potential development sites. The projected development sites are those considered more likely to be developed within the 15-year analysis period for the Proposed Actions (i.e., by the 2030 analysis year), while potential sites are considered less likely to be developed over the same period. A total of 80 projected development sites were identified and are considered for the purposes of the transportation analyses (see Figure 13-1). Table 13-1 shows the total anticipated No-Action and With-Action land uses on projected development sites in 2030 under the RWCDS. As shown in Table 13-1, under the RWCDS, the Proposed Actions would facilitate the incremental development of 6,312 dwelling units (DU), including 3,447 affordable DU; 557,290 sf of commercial uses; 457,870 sf of community facility uses (including a 1,000-seat PS/IS school); and 1,138 accessory parking spaces, as well as a net reduction of 27,035 sf of industrial uses.

This chapter describes in detail the existing transportation conditions in proximity to the rezoning area. Future conditions in the year 2030 without the Proposed Actions (the No-Action condition) are then determined, including additional transportation-system demand and any changes expected by the year 2030. The increase in travel demand resulting from the Proposed Actions is then projected and added to the No-Action condition to develop the 2030 future with the Proposed Action (the With-Action condition). Significant adverse impacts from project-generated trips are then identified and described in detail. Chapter 20, "Mitigation" addresses practicable measures to address these impacts.



East New York Rezoning Proposal

Figure 13-1
RWCDS Projected Development Sites

TABLE 13-1
2030 RWCDS No-Action and With-Action Land Uses

Land Use	No-Action Condition	With-Action Condition	Net Increment
Residential			
Market-Rate Residential	550 DU	3,415 DU	+ 2,865 DU
Affordable Residential	0 DU	3,447 DU	+ 3,447 DU
Total Residential	***566,224 sf (550 DU)***	***6,901,057 sf (6,862 DU)***	***+ 6,334,833 sf (6,312 DU)***
Commercial			
Local Retail	239,316 sf	893,952 sf	+ 654,636 sf
FRESH Supermarket	30,000 sf	60,000 sf	+ 30,000 sf
Restaurant	5,650 sf	64,550 sf	+ 58,900 sf
Auto-Related	128,365 sf	0 sf	- 128,365 sf
Hotel	97,551 sf	0 sf	- 97,551 sf
Office	75,992 sf	191,887 sf	+ 115,895 sf
Warehouse	73,170 sf	0 sf	-73,170 sf
Garage	3,055 sf	0 sf	- 3,055 sf
Total Commercial	**653,099 sf**	***1,210,389 sf***	***+ 557,290 sf***
Other Uses			
Industrial	125,886 sf	98,851 sf	- 27,035 sf
Community Facility	156,972 sf[1]	614,842 sf[2]	+ 457,870 sf
Total Floor Area	***1,502,180 sf***	***8,825,138 sf***	***+ 7,322,958 sf***
Parking			
Parking Spaces	1,304	2,442	+ 1,138

Notes:
[1] Includes 69,720 sf of house of worship uses, 49,138 sf of medical office uses, 28,302 of day care center uses and 9,812 sf of community center uses.
[2] Includes 77,593 sf of house of worship uses, 141,119 sf of medical office uses, 163,000 sf of school uses and 233,130 sf of community center uses.

B. PRINCIPAL CONCLUSIONS

Traffic

Traffic conditions were evaluated for the weekday 7:30-8:30 AM, 1-2 PM and 5-6 PM and Saturday 1-2 PM peak hours at 74 intersections in the traffic study area where additional traffic resulting from the Proposed Actions would be most heavily concentrated. As summarized in Table 13-2 and Table 13-3, the traffic impact analysis indicates the potential for significant adverse impacts at 47 intersections during one or more analyzed peak hours. Significant adverse impacts were identified to 58 lane groups at 40 intersections during the weekday AM peak hour, 36 lane groups at 23 intersections in the weekday midday peak hour, 63 lane groups at 40 intersections in the weekday PM peak hour and 37 lane groups at 25 intersections during the Saturday midday peak hour. Chapter 20, "Mitigation," discusses potential measures to mitigate these significant adverse traffic impacts.

TABLE 13-2
Number of Impacted Intersections and Lane Groups by Peak Hour

	Peak Hour			
	Weekday AM	**Weekday Midday**	**Weekday PM**	**Saturday Midday**
Impacted Lane Groups	58	36	63	37
Impacted Intersections	40	23	40	25

TABLE 13-3
Summary of Significantly Impacted Intersections

Signalized Intersection	Peak Hour			
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
Atlantic Ave & Rockaway Ave	X	X	X	
Atlantic Avenue & Eastern Pkwy	X		X	
Atlantic Ave & Georgia Ave	X	X	X	
Atlantic Ave & Pennsylvania Ave	X	X	X	X
Atlantic Ave & Miller Ave	X		X	
Atlantic Ave & Schenck Ave	X	X	X	X
Atlantic Ave & Warwick St	X	X	X	
Atlantic Ave & Elton St	X		X	
Atlantic Ave & Highland Pl	X	X	X	X
Atlantic Ave & Logan St	X	X	X	X
Atlantic Ave & Euclid Ave			X	
Altanitc Ave & Crescent St			X	
Atlantic Ave & Rockaway Blvd		X	X	X
Broadway & Rockaway Ave	X		X	X
Broadway & Eastern Pkwy	X	X	X	X
Bushwick Ave & Eastern Pkwy	X		X	
Fulton St & Van Sinderen Ave			X	
Fulton St & Pennsylvania Ave	X	X	X	
Fulton St & Miller Ave	X		X	
Fulton St & Highland Pl				X
Fulton St & Logan St	X	X	X	X
Fulton St & Euclid Ave	X		X	
Glenmore Ave & Pennsylvania Ave	X			
Bushwick Ave/Jamaica Ave & Pennsylvania Ave/Jackie Robinson Pkwy	X	X	X	X
Jamaica Ave & Highland Pl/Force Tube Ave	X	X	X	X
Jamaica Ave & Euclid Ave/Cypress Hill St	X	X	X	X
Liberty Ave & Pennsylvania Ave	X	X	X	X
Liberty Ave & Miller Ave	X	X	X	X
Liberty Ave & Schenck Ave	X			
Liberty Ave & Warwick St	X		X	X
Liberty Ave & Shepherd Ave	X		X	
Liberty Ave & Montauk Ave	X	X	X	X
Liberty Ave & Milford St	X		X	
Liberty Ave & Logan St	X	X	X	X
Liberty Ave & South Conduit Blvd	X	X	X	X
Liberty Ave & North Conduit Blvd		X	X	X
Pitkin Ave & Mother Gaston Blvd	X			
Pitkin Ave & Pennsylvania Ave	X	X	X	X
Pitkin Ave & South Conduit Blvd	X			X
Sutter Ave & Pennsylvania Ave	X			
Sutter Ave & Fountain Ave	X		X	
Unsignalized Intersection				
Arlington Ave & Jamaica Ave				X
Dinsmore Pl & Logan St	X	X	X	X
Fulton St & Elton St	X		X	X
Fulton St & Chestnut St	X	X	X	X
Glenmore Ave & Miller Ave	X		X	
Pitkin Ave & Elton St	X		X	
Total Impacted Intersections	**40**	**23**	**40**	**25**

X - denotes intersection significantly impacted in peak hour.

Transit

Subway

SUBWAY STATIONS

The Proposed Actions would generate a net increment of approximately 3,246 and 3,946 new subway trips during the weekday AM and PM commuter peak hours. The analysis of subway station conditions focuses on a total of eight New York City Transit (NYCT) subway stations in proximity to the rezoning area where incremental demand from the Proposed Actions would exceed the 200-trip *CEQR Technical Manual* analysis threshold in one or both peak hours. These include the Alabama Avenue, Cleveland Street, Norwood Avenue and Crescent Street stations served by J/Z trains operating on the Jamaica Line, and the Liberty Avenue, Van Siclen Avenue, Shepherd Avenue and Euclid Avenue stations served by A/C trains operating on the Fulton Street Line.

In the future with the Proposed Actions, the Euclid Avenue station on the Fulton Street Line and the Crescent Street station on the Jamaica Line would each have one stair operating at a marginal LOS D in at least one peak hour. However, none of these stairs would be considered significantly adversely impacted by incremental demand from the Proposed Actions based on *CEQR Technical Manual* criteria. All other stairs and fare arrays that would be used by new project-generated demand at the eight analyzed subway stations are projected to operate at acceptable levels of service (LOS C or better) in both the AM and PM peak hours in the With-Action condition. Therefore, the Proposed Actions are not expected to result in significant adverse subway station impacts.

SUBWAY LINE HAUL

Line haul is the volume of transit riders passing a defined point on a given transit route. Line haul is typically measured in the peak direction at the point where the trains carry the greatest number of passengers during the peak hour (the maximum load point) on each subway route. The rezoning area is served by a total of five NYCT subway routes, including A (express) and C (local) trains operating on the Fulton Street Line, J and Z trains operating on the Jamaica Line, and L trains operating on the Canarsie Line. The peak direction of travel on these lines is typically Manhattan-bound in the AM peak hour and Brooklyn or Queens-bound in the PM peak hour.

The greatest increases in incremental trips per subway car would occur on the J/Z trains, with an average of 9.15 southbound trips in the AM peak hour and 10.63 northbound trips in the PM. As southbound J/Z trains are also projected to exceed guideline capacity in the AM peak hour, they would be considered significantly adversely impacted in the AM based on *CEQR Technical Manual* impact criteria (refer to Table 13-4). Incremental increases in A-train ridership would average 5.58 northbound trips per car in the AM and 6.96 southbound trips in the PM. Since this route is not projected to exceed guideline capacity in the peak direction in either peak hour in the future with the Proposed Actions, these increases would not be considered significant. All other routes are expected to experience fewer than five incremental trips per car in the peak direction in each peak hour as a result of the Proposed Actions, and therefore would not be considered significantly impacted based on *CEQR Technical Manual* criteria.

TABLE 13-4
Summary of Significant Subway Line Haul Impacts

Route	Direction	Impacted Time Period
J/Z	Southbound	AM

Bus

The rezoning area is served by a total of ten MTA local bus routes—the B12, B13, B14, B20, B25, B83, Q24 and Q56 operated by NYCT, and the Q7 and Q8 operated by MTA Bus. The Proposed Actions would generate a total of approximately 983 and 1,445 incremental bus trips on these routes during the weekday AM and PM peak hours, respectively. A preliminary screening assessment concluded that new demand from the Proposed Actions would

exceed the 50-trip *CEQR Technical Manual* analysis threshold in the AM and/or PM peak hour at the maximum load points along the NYCT B13 and Q24 routes and the MTA Bus Q8 route.

Based on projected levels of bus service in the No-Action condition, the Proposed Actions would result in a capacity shortfall of 17 spaces on the westbound Q8 service in the PM peak hour. The B13 and Q24 routes would continue to operate with available capacity in both the AM and PM peak hours. Therefore, westbound Q8 service would be significantly adversely impacted in the PM peak hour based on *CEQR Technical Manual* criteria (refer to Table 13-5). The significant impact to Q8 service could be mitigated by increasing the number of westbound buses from 9 to 10 in the PM peak hour. The general policy of the MTA is to provide additional bus service where demand warrants, taking into account financial and operational constraints.

TABLE 13-5
Summary of Significant Local Bus Impacts

Route	Direction	Impacted Time Period
Q8	Westbound	PM

Pedestrians

The Proposed Actions would generate a net increment of approximately 2,448 walk/other trips in the weekday AM peak hour, 8,517 in the weekday midday, and 4,870 in the weekday PM. Persons en route to and from subway station entrances, bus stops and public parking lots would add approximately 4,279, 3,627, and 5,467 additional pedestrian trips to rezoning area sidewalks and crosswalks during these same periods, respectively. Weekday peak period pedestrian conditions were evaluated at a total of 204 representative pedestrian elements where new trips generated by projected developments are expected to be most concentrated. These elements—79 sidewalks, 58 corner areas and 67 crosswalks—are primarily located in the vicinity of major projected development sites and corridors connecting these sites to area subway station entrances and bus routes. As shown in Table 13-6, based on *CEQR Technical Manual* criteria, a total of four pedestrian elements would be significantly adversely impacted by the Proposed Actions, including one corner area in the weekday AM peak hour, one sidewalk and one crosswalk in the midday peak hour, and one sidewalk in the PM peak hour. As discussed in Chapter 20, "Mitigation," the significant adverse impacts to all four pedestrian elements impacted in the With-Action condition could be fully mitigated with corner/sidewalk extensions, removal of street furniture and/or widening crosswalks.

TABLE 13-6
Summary of Significant Pedestrian Impacts

		Peak Hour		
Corridor/Intersection	Impacted Element	Weekday AM	Weekday Midday	Weekday PM
Atlantic Ave, Logan St to Chestnut St	North Sidewalk		X	
Van Siclen Ave, Pitkin Ave to Glenmore Ave	East Sidewalk			X
Atlantic Ave/Euclid Ave	West Crosswalk		X	
Liberty Ave/Berriman St	Northeast Corner	X		

Vehicular and Pedestrian Safety

Portions of the East New York Rezoning Proposal traffic study area were identified in the *Vision Zero Brooklyn Pedestrian Safety Action Plan* as Priority Areas where safety issues were found to occur systematically at an area-wide level. Study area roadways identified as Priority Corridors include the following:

- Atlantic Avenue
- Broadway

- Bushwick Avenue
- Eastern Parkway Extension
- Fulton Street (west of Broadway)
- Liberty Avenue
- Livonia Avenue
- Pennsylvania Avenue
- Pitkin Avenue
- Rockaway Avenue

In addition, three study area intersections are identified as Priority Intersections:

- Pitkin Avenue and Pennsylvania Avenue
- Liberty Avenue and Wells Street/Euclid Avenue
- Sutter Avenue and Fountain Avenue

Accident data for the traffic and pedestrian study area intersections were obtained from the New York City Department of Transportation for the 3-year reporting period between January 1, 2011, and December 31, 2013. During this period, a total of 1,415 reportable and non-reportable accidents, seven fatalities, and 215 pedestrian/bicyclist-related injury accidents occurred at study area intersections. A review of the accident data identified seven intersections as high accident locations (defined as those with 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurring in any consecutive 12 months of the most recent 3-year period for which data are available). These intersections are listed in Table 13-7.

TABLE 13-7
Summary of High Pedestrian/Bicycle Accident Locations

	Total Pedestrian/Bicycle Injury Crashes			Total Crashes (Reportable +Non-Reportable)		
Intersection	**2011**	**2012**	**2013**	**2011**	**2012**	**2013**
Atlantic Ave/Pennsylvania Ave	5	1	0	38	44	37
Atlantic Ave/Logan St	5	8	1	38	35	20
Atlantic Ave/Rockaway Blvd/79th St/80th St	2	4	5	11	9	9
Fulton St/Pennsylvania Ave	4	6	4	13	13	16
Fulton St/Logan St/Force Tube Ave	2	1	5	4	2	7
Pennsylvania Ave/J. Robinson Pkwy/Bushwick Ave	2	1	1	58	56	46
Livonia Ave/Pennsylvania Ave	4	5	2	11	12	9

The New York City Department of Transportation's planned capital improvements to intersections along Atlantic Avenue are expected to include measures to improve pedestrian safety, such as the installation of high visibility crosswalks, new school crossing pavement markings and new sidewalk extensions, and the implementation of new turn prohibitions. Additional improvements that could be employed to increase pedestrian/bicyclist safety at high accident locations could include installation of pedestrian countdown signals, advance stop bars, and supplemental advance-warning signage (i.e., "Turning Vehicles Yield to Pedestrians").

Parking

The parking analyses document changes in the parking supply and utilization in the rezoning area and within a ¼-mile radius of the rezoning area under both No-Action and With-Action conditions. Given the large size of this parking study area, parking conditions are also assessed within a sub-area encompassing a ¼-mile radius around the three

largest projected development sites—sites 46, 66 and 67—to identify the potential for a localized parking shortfall where project-generated parking demand is expected to be most concentrated.

There are a total of five public parking lots within ¼-mile of the rezoning area including one municipal parking lot and four privately-operated public parking lots. All are located on the periphery of the rezoning area and are not within a convenient walking distance of most projected development sites. However, two of the privately-operated public parking lots are located on projected development sites 77 and 79 and would be displaced in both the No-Action and With-Action conditions (site 77), or only in the With-Action condition (site 79).

Under the With-Action RWCDS, it is assumed that up to 2,442 accessory parking spaces would be developed on projected development sites compared to the estimated 1,304 accessory spaces (including 355 spaces from existing uses and 949 spaces from new development) that would be present on projected development sites under the No-Action RWCDS. However, it is conservatively assumed that under the Proposed Actions, accessory parking would be waived for every development site where the number of required spaces would fall below the minimum number specified under zoning. Therefore, the parking analysis reflects the potential development of a total of 2,304 accessory parking spaces under the With-Action RWCDS.

After accounting for new parking demand and the number of required accessory spaces provided on a site-by-site basis under the RWCDS, it is estimated that compared to the No-Action condition, incremental parking demand from new development associated with the Proposed Actions would total approximately 245 spaces at off-street public parking facilities and on-street in the weekday midday period, and 713 spaces during the overnight period. The net incremental parking demand from projected development within the ¼-mile sub-area around sites 46, 66 and 67 would total approximately 192 spaces and 456 spaces during these same periods, respectively.

Under the Proposed Actions there would be sufficient on-street parking capacity within the overall parking study area in both the weekday midday and overnight periods to accommodate all new parking demand from projected development along with demand displaced from the existing parking lots on sites 77 and 79. There would also be sufficient on-street parking capacity within the ¼-mile sub-area around sites 46, 66 and 67 to accommodate projected overnight demand. During the weekday midday period, however, this sub-area would experience a localized parking shortfall of approximately 63 spaces. Although some drivers destined for locations in proximity to sites 46, 66 and 67 might have to travel a greater distance (i.e., between ¼-mile and ½-mile) to find available parking, this shortfall would not be considered a significant adverse impact based on *CEQR Technical Manual* criteria. Therefore, the Proposed Actions are not expected to result in significant adverse parking impacts during the weekday midday peak period for commercial and retail parking demand, nor during the overnight peak period for residential demand.

C. PRELIMINARY ANALYSIS METHODOLOGY

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

D. LEVEL 1 SCREENING ASSESSMENT

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

Background

Overall, the rezoning area encompasses approximately 475 acres and includes a total of 80 projected development sites (see Figure 13-1). As shown in Table 13-1, under the RWCDS, the Proposed Actions would facilitate the incremental development of 6,312 dwelling units (DU), including 3,447 affordable DU; 557,290 sf of commercial uses; 457,870 sf of community facility uses (including a 1,000-seat PS/IS school); and 1,138 accessory parking spaces; as well as a net reduction of 27,035 sf of industrial uses. For travel demand forecasting and trip assignment purposes, the projected development sites were grouped into a total of ten "clusters." These clusters were defined based on the rezoning area roadway network characteristics and the likely travel routes of vehicle trips to and from the development sites. Four projected development sites were considered "outliers" and treated as unique sites as they are not located in proximity to any of the identified clusters. The location of each cluster is shown in Figure 13-1, and the projected development sites included in each cluster are listed in Table 13-8.

TABLE 13-8
Transportation Analysis Development Clusters

Cluster	Projected Development Sites
1	3-10, 13-15
2	11, 16, 17, 20, 23, 24, 31-38
3	21, 25, 26, 27, 39
4	22, 28-30, 41-46
5	65-67, 69-73
6	18, 19
7	47, 48, 57, 58, 63
8	49-53, 59, 64
9	54-56, 60-62, 80
10	74-79, 81
Outlier Development Sites	
Site 1	
Site 2	
Site 12	
Site 68	

Transportation Planning Factors

The transportation planning factors used to forecast travel demand for the RWCDS land uses are summarized in Table 13-9. The trip generation rates, temporal distributions, modal splits, vehicle occupancies, and truck trip factors for each of the land uses were primarily based on those cited in the *CEQR Technical Manual*, factors developed for recent environmental reviews, 2009-2013 American Community Survey (ACS) journey-to-work data, data provided

by the New York City departments of Transportation (DOT) and City Planning (DCP), and data from other standard professional references. Factors are shown for the weekday AM and PM peak hours (typical peak periods for commuter travel demand) and the weekday midday and Saturday midday peak hours (typical peak periods for retail demand). Additional details on the transportation planning factors used for the travel demand forecast are presented in the *Transportation Planning Factors* technical memorandum provided in Appendix E.

Travel Demand Forecast

The net incremental change in person and vehicle trips expected to result from the Proposed Actions by the 2030 analysis year was derived based on the net change in land uses shown in Table 13-1 and the transportation planning factors shown in Table 13-9. Table 13-10 shows an estimate of the net incremental change in peak hour person trips and vehicle trips, respectively, (versus the No-Action condition) that would occur in 2030 with implementation of the Proposed Actions. As shown in Table 13-10, under the RWCDS, the Proposed Actions would generate a net increase of approximately 8,538 person trips in the weekday AM peak hour, 13,620 in the weekday midday, 12,254 in the weekday PM peak hour, and 12,456 in the Saturday midday peak hour. Peak hour vehicle trips (including auto, truck, and taxi trips balanced to reflect that some taxis arrive or depart empty) would increase by a net total of approximately 1,489, 1,018, 1,727, and 1,081 (in and out combined) in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. Peak hour subway trips would increase by a net total of approximately 3,246, 2,281, 3,946, and 3,466 during these periods, respectively, while bus trips would increase by approximately 983, 1,283, 1,445, and 1,361, respectively. Lastly, walk-only trips would increase by 2,448, 8,517, 4,870, and 5,780 trips during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

The Proposed Actions are not expected to generate substantial numbers of trips by the Long Island Rail Road (LIRR). As the LIRR's East New York station is located more than ½-mile from the majority of projected development sites (and therefore not within a convenient walking distance), any commuter rail trips generated by the Proposed Actions would likely start or end on another mode of transit (i.e., subway and bus) and are assumed to be reflected in the forecast for these modes. A qualitative discussion of commuter rail service at the LIRR's East New York station is provided in this EIS.

Table 13-11 shows the net incremental change in peak hour vehicle trips (auto, taxi, and truck) that would be generated by each development cluster and outlier site during the weekday AM, midday and PM and Saturday midday peak hours. As shown in Table 13-11, clusters 4 and 5 would generate the greatest number of new vehicle trips in all peak hours. Cluster 4 would account for approximately ten to 20 percent of the total vehicle trips generated by the Proposed Actions, and Cluster 5 would account for approximately 50 to 57 percent. Under the RWCDS, development of Cluster 2 and sites 12 and 68 would result in net decreases in vehicle trips during one or more peak hours due to anticipated changes in land uses (e.g., from auto-related and warehouse uses to residential and local retail uses).

Table 13-12 summarizes the number of additional trips that would be generated by the Proposed Actions during the weekday AM, midday and PM and Saturday midday peak hours by various modes of travel. Since these numbers of peak hour trips would exceed the *CEQR Technical Manual* analysis thresholds for vehicular traffic, transit and pedestrians, a Level 2 screening assessment was undertaken to identify specific locations where additional detailed analyses may be warranted.

E. LEVEL 2 SCREENING ASSESSMENT

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

TABLE 13-9
Transportation Planning Factors

Land Use:	Local Retail	Office	Residential (Market Rate)	Residential (Affordable)	Hotel	Light Industrial	Restaurant	Auto Repair	Auto Dealership	Warehouse	FRESH (Supermarket)	Pre-K (Student) (23)
Size/Units:	654,636 gsf	115,895 gsf	2,865 DU	3,447 DU	-243 Rooms	-27,035 gsf	58,900 gsf	-118,365 gsf	-10,000 gsf	-73,170 gsf	30,000 gsf	263 Students
Trip Generation:	(1)	(1)	(1)	(1)	(1)	(2)	(5)	(2)	(6)	(7)	(9,10)	(12)
Weekday	205	18.0	8.075	8.075	9.4	14.7	173.0	19.42	2.63	4.87	205	2
Saturday	240	3.9	9.600	9.600	9.4	2.2	139.0	19.42	2.63	1.68	271	0
	per 1,000 sf	per 1,000 sf	per DU	per DU	per room	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per Student
Temporal Distribution:	(1)	(1)	(1)	(1)	(1)	(2)	(5)	(2)	(6)	(7,8)	(9,11)	(12)
AM	3.0%	12.0%	10.0%	10.0%	8.0%	13.2%	1.0%	13.2%	12.0%	11.8%	3.0%	50.0%
MD	19.0%	15.0%	5.0%	5.0%	14.0%	11.0%	13.7%	11.0%	12.0%	11.0%	12.0%	0.0%
PM	10.0%	14.0%	11.0%	11.0%	13.0%	14.2%	7.7%	14.2%	9.0%	12.6%	10.0%	5.0%
SatMD	10.0%	17.0%	8.0%	8.0%	9.0%	10.7%	11.6%	10.7%	12.0%	10.6%	12.0%	0.0%
	(2)	(3) (20)	(4)	(4)	(2)	(3) (20)	(5)	(2)	(6)	(8)	(9)	(12)
Modal Splits:	All Periods	AM/PM/SAT MD	All Periods	All Periods	All Periods	AM/PM/SAT MD	All Periods	All Periods	All Periods	All Periods	All Periods	AM/MD/SAT PM
Auto	5.0%	45.3% 2.0%	30.7%	16.3%	30.1%	45.3% 2.0%	30.0%	85.0%	100.0%	51.0%	4.0%	15.0% 56.3%
Taxi	1.0%	0.4% 3.0%	0.9%	0.4%	12.3%	0.4% 3.0%	5.0%	5.0%	0.0%	2.0%	3.0%	0.0% 0.0%
Subway/Railroad	3.0%	26.9% 6.0%	54.3%	58.4%	18.8%	26.9% 6.0%	15.0%	1.0%	0.0%	28.0%	5.0%	3.3% 12.4%
Bus	6.0%	15.4% 6.0%	8.9%	17.9%	5.5%	15.4% 6.0%	15.0%	1.0%	0.0%	7.0%	5.0%	1.7% 6.4%
School Bus	0.0%	0.0% 0.0%	0.0%	0.0%	0.0%	0.0% 0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.0% 0.0%
Walk/Other	85.0%	12.0% 83.0%	5.2%	7.1%	33.3%	12.0% 83.0%	35.0%	8.0%	0.0%	12.0%	83.0%	25.0% 25.0%
	100.0%	100.0% 100%	100.0%	100.0%	100.0%	100.0% 100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0% 100.0%
	(2)	(2)	(2)	(2)	(2)	(2)	(5)	(2)	(6)	(8)	(9,11)	(12)
In/Out Splits:	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out
AM	50% 50%	96.0% 4.0%	15.0% 85.0%	15.0% 85.0%	41% 59%	88% 12%	94% 6%	65% 35%	67% 33%	88% 12%	45% 55%	100% 0%
MD	50% 50%	39.0% 61.0%	50.0% 50.0%	50.0% 50.0%	68% 32%	50% 50%	65% 35%	50% 50%	50% 50%	50% 50%	46% 54%	0% 0%
PM	50% 50%	5.0% 95.0%	70.0% 30.0%	70.0% 30.0%	59% 41%	12% 88%	65% 35%	50% 50%	15% 85%	12% 88%	47% 53%	0% 100%
Sat MD	55% 45%	60.0% 40.0%	50.0% 50.0%	50.0% 50.0%	56% 44%	47% 53%	63% 37%	50% 50%	50% 50%	50% 50%	46% 54%	0% 0%
			(2,4,19)	(2,4,19)								
Vehicle Occupancy:	(2)	(2,3)	AM/PM MD/SMD	AM/PM MD/SMD	(2)	(2)	(5)	(2)	(6)	(8)	(9,11)	(12)
Auto	2.00	1.12	1.065 1.49	1.064 1.49	1.60	1.20	2.2	1.30	1.30	1.30	1.65	1.30
Taxi	2.00	1.20	1.30 1.30	1.30 1.30	1.40	1.20	2.3	1.30	1.50	1.30	1.40	1.30
School Bus												35.00
Truck Trip Generation:	(1)	(1)	(1)	(1)	(21)	(2)	(5)	(2)	(6)	(8)	(9,11)	(15)
Weekday	0.35	0.32	0.06	0.06	0.06	0.67	3.60	0.89	0.15	0.67	0.35	0.03
Saturday	0.04	0.01	0.02	0.02	0.01	0.67	3.60	0.89	0.15	0.67	0.04	0.03
	per 1,000 sf	per 1,000 sf	per DU	per DU	per room	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per Student
	(1)	(1)	(1)	(1)	(21)	(2)	(5)	(2)	(6)	(8)	(9,11)	(15)
AM	8.0%	10.0%	12.0%	12.0%	12.0%	14.0%	6.0%	14.0%	9.6%	14.0%	10.0%	9.6%
MD	11.0%	11.0%	9.0%	9.0%	9.0%	9.0%	6.0%	9.0%	11.0%	9.0%	8.0%	11.0%
PM	2.0%	2.0%	2.0%	2.0%	2.0%	1.0%	1.0%	1.0%	1.0%	1.0%	5.0%	1.0%
Sat MD	11.0%	11.0%	9.0%	9.0%	9.0%	0.0%	0.0%	0.0%	11.0%	0.0%	10.0%	0.0%
	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out	In Out
AM/MD/PM	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%

TABLE 13-9 (continued)
Transportation Planning Factors

Land Use:	Pre-K (Staff) (23)	Pre-K (Parent) (23) (13,14)	Day Care Center	Community Center	House of Worship	Medical Office	PS/IS School (Grade K-4 Students)		PS/IS School (Grade 5-7 Students)		PS/IS School (Grade 8	PS/IS School (Staff)	PS/IS School (Parents) (13,14)
Size/Units:	24 Staff	46 Parents	-28,302 gsf	223,318 gsf	7,873 gsf	91,981 gsf	463 Students		318 Students		101 Students	82 Staff	122 Parents
Trip Generation:	(12)	(12)	(15)	(1)	(16)	(17)	(12)		(12)		(12)	(12)	(12)
Weekday	2	4	33	44.7	19.18	127	2		2		2	2	4
Saturday	0	0	2	26.1	21.83	127	0		0		0	0	0
	per Staff	per Student	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per Student		per Student		per Student	per Staff	per Student
Temporal Distribution:	(12), (22)	(12)	(15)	(1)	(16)	(17)	(12)		(12)		(12)	(12)	(12)
AM	50.0%	50.0%	16.0%	4.0%	7.9%	4.0%	50.0%		50.0%		50.0%	50.0%	50.0%
MD	0.0%	0.0%	5.0%	9.0%	4.0%	11.0%	0.0%		0.0%		0.0%	0.0%	0.0%
PM	5.0%	5.0%	19.0%	5.0%	7.2%	12.0%	5.0%		5.0%		5.0%	50.0%	5.0%
SatMD	0.0%	0.0%	12.0%	9.0%	15.8%	11.0%	0.0%		0.0%		0.0%	0.0%	0.0%
	(12)	(12)	(18)	(16)	(18)	(17)	(12)		(12)		(12)	(12)	(12)
Modal Splits:	All Periods	All Periods	All Periods	All Periods	All Periods	All Periods	AM/MD/SAT	PM	AM/MD/SAT	PM	All Periods	All Periods	All Periods
Auto	42.0%	0.0%	5.0%	5.0%	5.0%	30%	15.0%	56.3%	15.0%	30.0%	15.0%	42.0%	0.0%
Taxi	0.0%	0.0%	1.0%	1.0%	1.0%	2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subway/Railroad	39.0%	0.0%	3.0%	3.0%	3.0%	33%	3.3%	12.4%	6.7%	13.4%	40.0%	39.0%	0.0%
Bus	19.0%	0.0%	6.0%	6.0%	6.0%	18%	1.7%	6.4%	3.3%	6.6%	20.0%	19.0%	0.0%
School Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0%	55.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%
Walk/Other	0.0%	100.0%	85.0%	85.0%	85.0%	17%	25.0%	25.0%	50.0%	50.0%	25.0%	0.0%	100.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	(12)	(12)	(15)	(16)	(16)	(17)	(12)		(12)		(12)	(12)	(12)
In/Out Splits:	In Out	In Out	In Out	In Out	In Out	In Out	In	Out	In	Out	In Out	In Out	In Out
AM	100% 0%	50% 50%	53% 47%	61% 39%	54% 46%	89% 11%	100%	0%	100%	0%	100% 0%	100% 0%	50% 50%
MD	0% 0%	0% 0%	50% 50%	55% 45%	50% 50%	51% 49%	0%	0%	0%	0%	0% 0%	0% 0%	0% 0%
PM	0% 100%	50% 50%	47% 53%	29% 71%	52% 48%	48% 52%	0%	100%	0%	100%	0% 100%	0% 100%	50% 50%
Sat MD	0% 0%	0% 0%	47% 53%	49% 51%	71% 29%	41% 59%	0%	0%	0%	0%	0% 0%	0% 0%	0% 0%
						(17)							
Vehicle Occupancy:	(12)		(15)	(16)	(16)	Wkdy Sat	(12)		(12)		(12)	(12)	
Auto	1.20	N/A	1.65	1.65	1.65	1.50 2.60	1.30		1.30		1.30	1.20	N/A
Taxi	1.20	N/A	1.40	1.30	1.40	1.50 2.60	1.30		1.30		1.30	1.20	N/A
School Bus							35.00		35.00		35.00		
Truck Trip Generation:			(15)	(16)	(16)	(16)	(15)		(15)		(15)		
Weekday	N/A	N/A	0.07	0.29	0.29	0.29	0.03		0.03		0.03	N/A	N/A
Saturday	N/A	N/A	0.00	0.29	0.29	0.29	0.03		0.03		0.03	N/A	N/A
	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per 1,000 sf	per Student		per Student		per Student		
			(15)	(16)	(16)	(16)	(15)		(15)		(15)		
AM	N/A	N/A	9.6%	9.6%	9.6%	3.0%	9.6%		9.6%		9.6%	N/A	N/A
MD	N/A	N/A	11.0%	11.0%	11.0%	11.0%	11.0%		11.0%		11.0%	N/A	N/A
PM	N/A	N/A	1.0%	1.0%	1.0%	1.0%	1.0%		1.0%		1.0%	N/A	N/A
Sat MD	N/A	N/A	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%		0.0%	N/A	N/A
	In Out	In Out	In Out	In Out	In Out	In Out	In	Out	In	Out	In Out	In Out	In Out
AM/MD/PM	N/A N/A	N/A N/A	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0%	50.0%	50.0%	50.0%	50.0% 50.0%	N/A N/A	N/A N/A

TABLE 13-9 (continued)
Transportation Planning Factors

Notes:

(1) Based on data from *City Environmental Quality Review (CEQR) Technical Manual*, 2014.
(2) Based on data from *Broadway Triangle FEIS*, 2009.
(3) Based on AASHTO CTPP Reverse Journey to Work 5-Year data for tracts 365.02, 367, 908, 1144, 1146, 1150, 1152, 1166, 1168, 1170, 1172.01, 1174, 1178, 1184, 1192, 1194, 1196 and 1198.
(4) Based on ACS-PUMA data 2008-2012 Journey to Work 5-Year data for PUMA 2007.
(5) Based on data from *Brooklyn Bridge Park Project FEIS*, 2005.
(6) Based on data from *West 57th Street Rezoning FEIS*, 2001.
(7) Based on data from *ITE Trip Generation Handbook, 9th Edition,* Land Use Code 150 (Warehousing); Person Trip Rate=ITE Trip Rate x 1.3/0.95.
(8) Based on data from *Greenpoint-Williamsburg Rezoning FSEIS*, 2005.
(9) Based on data from *The Food Retail Expansion to Support Health (FRESH) Food Store Program*, 2009.
(10) Assumes a 32% increase in peak hour trips on Saturday; based on ratio between weekday and Saturday rates for supermarket use provided by the *CEQR Technical Manual*, 2014.
(11) Assumes for Saturday the same temporal distribution, modal split, directional split, and vehicle occupancy as the weekday midday.
(12) Based on data from Brownsville Ascend Charter School Assessment, 2011.
(13) Assumes a student to parent ratio of 1 to 0.7 based on data from a November 2012 survey conducted at PS 35 in Queens.
(14) Assumes 205 students attend the Pre-K only school, 72 attend the PS/IS school, and a 5% absentee rate. Parents are assumed for students in grade 5 and lower.
(15) Based on data from *No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS*, 2004.
(16) Based on data from *Jamaica Plan Rezoning FGEIS*, 2007.
(17) Based on data provided by NYCDOT.
(18) Community Center use modal splits applied to Day Care Center and House of Worship uses.
(19) Midday and Saturday vehicle occupancy determined by applying a multiplier (1.4) to the AM/PM rate.
(20) Based on data provided by NYCDCP.
(21) Based on data from the 2006 *Atlantic Yards Arena and Redevelopment FEIS.*
(22) PM temporal distribution for staff is assumed to be the same as for the students.
(23) Includes students from the proposed Pre-K facilities on Site 24 and Site 66.

TABLE 13-10
RWCDS Travel Demand Forecast

Land Use:	Local Retail		Office		Residential (Market Rate)		Residential (Affordable)		Hotel		Light Industrial		Restaurant		Auto Repair	
Size/Units:	654,636 gsf		115,895 gsf		2,865 DUs		3,447 DUs		-243 Rooms		-27,035 gsf		58,900 gsf		-118,365 gsf	
Peak Hour Trips:																
AM	1,222		248		2,330		2,798		-186		-54		80		-314	
MD	7,662		310		1,170		1,406		-324		-44		1,050		-264	
PM	4,042		288		2,560		3,076		-298		-58		590		-336	
Sat MD	4,722		74		2,214		2,662		-210		-8		714		-254	
Person Trips:																
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	30	30	106	5	107	607	69	388	-23	-33	-20	-3	24	1	-178	-96
Taxi	4	4	1	0	1	17	0	9	-9	-13	0	0	4	0	-11	-4
Subway/Railroad	16	16	63	3	189	1,080	246	1,391	-15	-21	-12	-3	10	0	0	0
Bus	39	39	37	2	31	177	76	424	-5	-6	-7	-2	10	0	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	522	522	30	1	19	102	28	167	-25	-36	-6	-1	30	1	-16	-9
Total	611	611	237	11	347	1,983	419	2,379	-77	-109	-45	-9	78	2	-205	-109
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	191	191	3	5	181	181	113	113	-66	-31	1	1	207	110	-113	-113
Taxi	40	40	4	6	3	3	1	1	-28	-13	-1	-1	34	19	-8	-8
Subway/Railroad	117	117	7	13	318	318	415	415	-41	-20	0	0	102	54	0	0
Bus	231	231	7	13	53	53	126	126	-13	-6	-1	-1	102	54	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	3,252	3,252	97	155	30	30	48	48	-72	-34	-21	-21	240	128	-11	-11
Total	3,831	3,831	118	192	585	585	703	703	-220	-104	-22	-22	685	365	-132	-132
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	102	102	7	123	551	235	351	149	-53	-38	-3	-23	115	62	-147	-147
Taxi	21	21	0	1	14	5	8	2	-22	-15	0	0	19	11	-8	-8
Subway/Railroad	62	62	5	73	977	419	1,258	540	-33	-23	-2	-14	58	31	0	0
Bus	121	121	2	41	159	68	387	165	-10	-7	-1	-8	58	31	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	1,715	1,715	2	34	93	39	152	64	-57	-40	-1	-6	133	72	-13	-13
Total	2,021	2,021	16	272	1,794	766	2,156	920	-175	-123	-7	-51	383	207	-168	-168
Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	128	105	18	14	339	339	216	216	-36	-28	-2	-2	135	79	-108	-108
Taxi	26	21	0	0	9	9	3	3	-15	-11	0	0	23	13	-8	-8
Subway/Railroad	79	63	11	8	604	604	781	781	-23	-17	-2	-2	69	39	0	0
Bus	156	128	8	5	98	98	236	236	-7	-5	-1	-1	69	39	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	2,209	1,807	6	4	57	57	95	95	-37	-31	1	1	155	93	-11	-11
Total	2,598	2,124	43	31	1,107	1,107	1,331	1,331	-118	-92	-4	-4	451	263	-127	-127
Vehicle Trips :																
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	18	18	94	5	102	571	67	365	-15	-21	-17	-4	11	0	-139	-74
Taxi	4	4	1	0	1	16	0	8	-7	-9	0	0	1	0	-11	-4
Taxi Balanced	8	8	1	1	17	17	8	8	-16	-16	0	0	1	1	-15	-15
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	8	8	2	2	10	10	11	11	0	0	-1	-1	7	7	-8	-8
Total	34	34	97	8	129	598	86	384	-31	-37	-18	-5	19	8	-162	-97
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	100	100	3	5	122	122	76	76	-41	-20	1	1	94	50	-88	-88
Taxi	24	24	4	5	3	3	1	1	-20	-9	-1	-1	15	9	-8	-8
Taxi Balanced	48	48	9	9	6	6	2	2	-29	-29	-2	-2	24	24	-16	-16
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	13	13	2	2	8	8	9	9	0	0	-1	-1	7	7	-3	-3
Total	161	161	14	16	136	136	87	87	-70	-49	-2	-2	125	81	-107	-107
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	55	55	7	109	518	224	330	140	-33	-23	-4	-19	52	28	-112	-112
Taxi	14	14	0	1	13	5	7	2	-15	-10	0	0	9	5	-8	-8
Taxi Balanced	28	28	1	1	18	18	9	9	-25	-25	0	0	14	14	-16	-16
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	1	1	0	0	1	1	1	1	0	0	0	0	1	1	0	0
Total	84	84	8	110	537	243	340	150	-58	-48	-4	-19	67	43	-128	-128
Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	67	57	16	12	226	226	145	145	-23	-18	-2	-2	61	35	-83	-83
Taxi	17	14	0	0	8	8	3	3	-10	-8	0	0	11	5	-8	-8
Taxi Balanced	31	31	0	0	16	16	6	6	-18	-18	0	0	16	16	-16	-16
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	1	1	2	2	0	0	0	0	0	0	0	0
Total	98	88	16	12	243	243	153	153	-41	-36	-2	-2	77	51	-99	-99

TABLE 13-10 (continued)
RWCDS Travel Demand Forecast

Land Use:	Auto Dealership		Warehouse		FRESH Supermarket		Pre-K (Student)		Pre-K (Staff)		Pre-K (Parent)		Day-Care Center		Community Center	
Size/Units:	-10,000 gsf		-73,170 gsf		30,000 gsf		263 students		24 staff		46 parents		-28,302 gsf		223,318 gsf	
Peak Hour Trips:																
AM	-4		-46		142		264		24		92		-150		400	
MD	-4		-44		556		0		0		0		-48		902	
PM	-4		-50		462		28		4		12		-178		502	
Sat MD	-4		-18		732		0		0		0		-8		528	
Person Trips:																
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	-3	-1	-22	-4	3	3	39	0	11	0	0	0	-4	-4	13	8
Taxi	0	0	0	0	2	3	0	0	0	0	0	0	-1	-1	2	1
Subway/Railroad	0	0	-11	-2	3	4	8	0	9	0	0	0	-2	-2	7	4
Bus	0	0	-2	0	3	4	4	0	4	0	0	0	-5	-4	15	10
School Bus	0	0	0	0	0	0	147	0	0	0	0	0	0	0	0	0
Walk/Other	0	0	-5	0	53	64	66	0	0	0	46	46	-67	-60	208	132
Total	-3	-1	-40	-6	64	78	264	0	24	0	46	46	-79	-71	245	155
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	-2	-2	-12	-12	10	12	0	0	0	0	0	0	-1	-1	25	21
Taxi	0	0	0	0	8	9	0	0	0	0	0	0	0	0	4	4
Subway/Railroad	0	0	-6	-6	13	15	0	0	0	0	0	0	-1	-1	15	13
Bus	0	0	-2	-2	13	15	0	0	0	0	0	0	-1	-1	30	24
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	0	0	-2	-2	212	249	0	0	0	0	0	0	-21	-21	422	344
Total	-2	-2	-22	-22	256	300	0	0	0	0	0	0	-24	-24	496	406
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	-1	-3	-4	-24	9	10	0	16	0	2	0	0	-4	-5	7	17
Taxi	0	0	0	0	6	7	0	0	0	0	0	0	-1	-1	1	3
Subway/Railroad	0	0	-2	-12	11	12	0	3	0	2	0	0	-3	-3	4	11
Bus	0	0	0	-3	11	12	0	2	0	0	0	0	-5	-6	9	22
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	0	0	0	-5	180	204	0	7	0	0	6	6	-71	-79	123	305
Total	-1	-3	-6	-44	217	245	0	28	0	4	6	6	-84	-94	144	358
Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	-2	-2	-6	-6	13	16	0	0	0	0	0	0	0	0	13	14
Taxi	0	0	0	0	10	12	0	0	0	0	0	0	0	0	2	2
Subway/Railroad	0	0	-3	-3	17	20	0	0	0	0	0	0	0	0	8	8
Bus	0	0	0	0	17	20	0	0	0	0	0	0	0	0	15	16
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	0	0	0	0	279	328	0	0	0	0	0	0	-4	-4	221	229
Total	-2	-2	-9	-9	336	396	0	0	0	0	0	0	-4	-4	259	269
Vehicle Trips :																
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	-2	-1	-17	-4	2	2	30	30	10	0	0	0	-2	-2	9	5
Taxi	0	0	0	0	2	2	0	0	0	0	0	0	-1	-1	2	1
Taxi Balanced	0	0	0	0	4	4	0	0	0	0	0	0	-2	-2	3	3
School Bus	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0
Truck	0	0	-3	-3	0	0	0	0	0	0	0	0	0	0	3	3
Total	-2	-1	-20	-7	6	6	36	36	10	0	0	0	-4	-4	15	11
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	-2	-2	-10	-10	6	7	0	0	0	0	0	0	-1	-1	15	13
Taxi	0	0	0	0	6	6	0	0	0	0	0	0	0	0	3	3
Taxi Balanced	0	0	0	0	12	12	0	0	0	0	0	0	0	0	6	6
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	-2	-2	0	0	0	0	0	0	0	0	0	0	3	3
Total	-2	-2	-12	-12	18	19	0	0	0	0	0	0	-1	-1	24	22
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	-1	-2	-4	-19	6	6	12	12	0	2	0	0	-2	-3	5	11
Taxi	0	0	0	0	4	5	0	0	0	0	0	0	-1	-1	1	2
Taxi Balanced	0	0	0	0	9	9	0	0	0	0	0	0	-2	-2	3	3
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-1	-2	-4	-19	15	15	12	12	0	2	0	0	-4	-5	8	14
Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	-2	-2	-6	-6	7	10	0	0	0	0	0	0	0	0	9	9
Taxi	0	0	0	0	7	9	0	0	0	0	0	0	0	0	2	2
Taxi Balanced	0	0	0	0	16	16	0	0	0	0	0	0	0	0	4	4
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-2	-2	-6	-6	23	26	0	0	0	0	0	0	0	0	13	13

TABLE 13-10 (continued)
RWCDS Travel Demand Forecast

Land Use:	House of Worship		Medical Office		PS/IS School Grades K-4 (Student)		PS/IS School Grades 5-7 (Student)		PS/IS School Grade 8 (Student)		PS/IS School (Staff)		PS/IS School (Parent)		Total	
Size/Units:	7,873 gsf		91,981 gsf		463 students		318 students		101 students		82 staff		122 parents			
Peak Hour Trips:																
AM	12		470		464		318		102		82		244		8,538	
MD	6		1,286		0		0		0		0		0		13,620	
PM	10		1,404		48		32		12		82		26		12,254	
Sat MD	26		1,286		0		0		0		0		0		12,456	
Person Trips:																
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	0	0	126	15	70	0	48	0	15	0	34	0	0	0	445	916
Taxi	0	0	8	1	0	0	0	0	0	0	0	0	0	0	1	17
Subway/Railroad	0	0	139	17	15	0	21	0	41	0	32	0	0	0	759	2,487
Bus	0	0	75	10	8	0	10	0	20	0	16	0	0	0	329	654
School Bus	0	0	0	0	255	0	80	0	0	0	0	0	0	0	482	0
Walk/Other	8	4	71	8	116	0	159	0	26	0	0	0	122	122	1,385	1,063
Total	8	4	419	51	464	0	318	0	102	0	82	0	122	122	3,401	5,137
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	0	0	195	189	0	0	0	0	0	0	0	0	0	0	732	664
Taxi	0	0	13	13	0	0	0	0	0	0	0	0	0	0	70	73
Subway/Railroad	0	0	216	208	0	0	0	0	0	0	0	0	0	0	1,155	1,126
Bus	0	0	119	113	0	0	0	0	0	0	0	0	0	0	664	619
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	3	3	112	108	0	0	0	0	0	0	0	0	0	0	4,289	4,228
Total	3	3	655	631	0	0	0	0	0	0	0	0	0	0	6,910	6,710
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	0	0	202	219	0	27	0	10	0	2	0	34	0	0	1,132	768
Taxi	0	0	14	15	0	0	0	0	0	0	0	0	0	0	52	41
Subway/Railroad	0	0	223	240	0	6	0	4	0	5	0	32	0	0	2,558	1,388
Bus	0	0	121	132	0	3	0	2	0	2	0	16	0	0	852	593
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	7	3	114	124	0	12	0	16	0	3	0	0	13	13	2,396	2,474
Total	7	3	674	730	0	48	0	32	0	12	0	82	13	13	6,990	5,264
Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	2	1	158	227	0	0	0	0	0	0	0	0	0	0	868	865
Taxi	0	0	10	15	0	0	0	0	0	0	0	0	0	0	60	56
Subway/Railroad	0	0	174	250	0	0	0	0	0	0	0	0	0	0	1,715	1,751
Bus	1	0	96	137	0	0	0	0	0	0	0	0	0	0	688	673
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	16	6	89	130	0	0	0	0	0	0	0	0	0	0	3,076	2,704
Total	19	7	527	759	0	0	0	0	0	0	0	0	0	0	6,407	6,049
Vehicle Trips :																
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	0	0	85	10	54	54	37	37	12	12	23	0	0	0	362	1,003
Taxi	0	0	5	1	0	0	0	0	0	0	0	0	0	0	-3	18
Taxi Balanced	0	0	6	6	0	0	0	0	0	0	0	0	0	0	15	15
School Bus	0	0	0	0	8	8	3	3	0	0	0	0	0	0	17	17
Truck	0	0	0	0	1	1	0	0	0	0	0	0	0	0	30	30
Total	0	0	91	16	63	63	40	40	12	12	23	0	0	0	424	1,065
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	0	0	131	127	0	0	0	0	0	0	0	0	0	0	406	380
Taxi	0	0	8	8	0	0	0	0	0	0	0	0	0	0	35	41
Taxi Balanced	0	0	16	16	0	0	0	0	0	0	0	0	0	0	76	76
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	2	2	1	1	1	1	0	0	0	0	0	0	40	40
Total	0	0	149	145	1	1	1	1	0	0	0	0	0	0	522	496
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	0	0	134	146	21	21	8	8	2	2	0	23	0	0	994	609
Taxi	0	0	9	10	0	0	0	0	0	0	0	0	0	0	33	25
Taxi Balanced	0	0	19	19	0	0	0	0	0	0	0	0	0	0	58	58
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Total	0	0	153	165	21	21	8	8	2	2	0	23	0	0	1,056	671
Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto (Total)	1	0	61	87	0	0	0	0	0	0	0	0	0	0	477	470
Taxi	0	0	4	5	0	0	0	0	0	0	0	0	0	0	34	30
Taxi Balanced	0	0	9	9	0	0	0	0	0	0	0	0	0	0	64	64
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Total	1	0	70	96	0	0	0	0	0	0	0	0	0	0	544	537

70% linked-trip credit applied to local retail use.
25% linked-trip credit applied to restaurant and FRESH (supermarket) uses.
Pre-K and PS/IS student absentee rate assumed to be 5%

TABLE 13-11
RWCDS Net Incremental Vehicle Trips by Cluster

Cluster/Site	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
1	107	126	181	125
2	189	-16	116	45
3	56	6	63	37
4	148	203	266	186
5	852	581	901	538
6	9	6	10	7
7	29	12	31	21
8	17	28	32	25
9	21	14	30	19
10	51	50	69	61
Site 1	22	8	28	12
Site 2	8	8	12	17
Site 12	-13	-4	-11	-10
Site 68	-7	-4	-1	-2
Total	**1,489**	**1,018**	**1,727**	**1,081**

TABLE 13-12
Summary of Net Incremental Trips Generated Under the RWCDS

Mode/Description	Trip Type	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
Auto/Taxi/Truck/School Bus	vehicle trips	1,489	1,018	1,727	1,081
Subway/Railroad	person trips	3,246	2,281	3,946	3,446
Local Bus	person trips	983	1,283	1,445	1,361
School Bus	person trips	482	0	0	0
Walk/Other	person trips	2,448	8,517	4,870	5,780

Vehicular Traffic

Based upon the projected development associated with the Proposed Actions, there would be 1,489 additional vehicle trips during the weekday AM peak hour, 1,018 during the midday peak hour, 1,727 during the PM peak hour, and 1,081 during the Saturday midday peak hour. These traffic volumes would exceed the *CEQR Technical Manual* threshold of 50 vehicles during the peak hours for Level 1 screening and, therefore, a Level 2 screening was performed to help identify intersections for detailed analysis.

The *CEQR Technical Manual* Level 2 screening threshold for detailed analysis is also 50 vehicles, but this threshold applies to individual intersections during the peak hours (rather than total trips generated). A preliminary assignment of peak hour traffic volumes was performed for the weekday AM and PM periods (the periods of highest overall demand) to identify the intersections that would potentially exceed the 50-trip threshold during these periods. In consultation with DCP and DOT, representative intersections most likely to be used by concentrations of action-generated vehicles traveling to and from the projected development sites were then selected for detailed analysis. Existing bottleneck locations and prevailing travel patterns in the study area were also taken into consideration. Figure 13-2 shows the locations of the 74 intersections (58 signalized and 16 unsignalized) that were selected for detailed analysis. Of these, 60 are located in proximity to projected development sites and are included within a primary study area, and 14 more distant intersections located along key access corridors are included within a secondary study area extending up to ½-mile from the primary study area. Given that the rezoning area extends



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Figure 13-2
Traffic Study Area and Analyzed Intersections

for over two miles in an east-west direction, the traffic study area includes many of the intersections along the primary east-west corridors providing access to projected development sites such as Fulton Street and Atlantic, Liberty and Pitkin avenues. As there are numerous north-south streets providing access to the rezoning area, northbound and southbound project-generated traffic is expected to be widely dispersed among multiple routes. Given the density of the street grid, traffic is also expected to become less concentrated (and therefore less likely to result in significant traffic impacts) with increasing distance from the rezoning area.

Transit

According to the general thresholds used by the Metropolitan Transportation Authority (MTA) and specified in the *CEQR Technical Manual*, detailed transit analyses are generally not required if a proposed action is projected to result in fewer than 200 peak hour rail or bus transit riders. If a proposed action would result in 50 or more bus passengers being assigned to a single bus line (in one direction), or if it would result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed bus or subway analysis would be warranted.

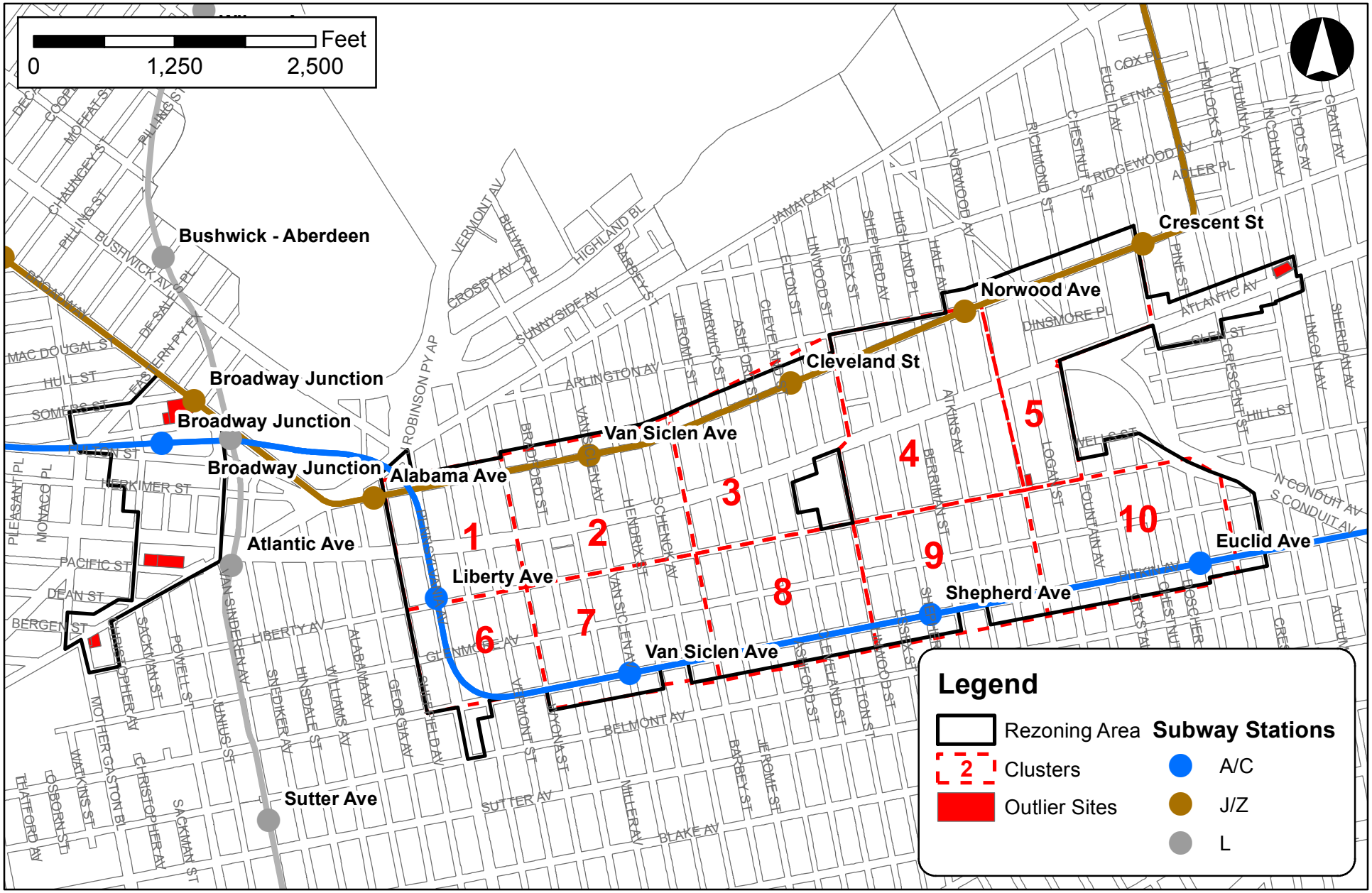
Subway

SUBWAY STATIONS

There are a total of thirteen New York City Transit (NYCT) subway stations within, or in close proximity to, the rezoning area. These stations are presented in Figure 13-3 and Table 13-13, along with the subway routes serving each facility. As shown in Figure 13-3, J and Z subway trains operating on the Jamaica Line serve six elevated stations above Broadway and Fulton Street in proximity to the northern portion of the rezoning area, including Broadway Junction, Alabama Avenue, Van Siclen Avenue, Cleveland Street, Norwood Avenue and Crescent Street. The below-ground Broadway Junction, Liberty Avenue, Van Siclen Avenue, Shepherd Avenue and Euclid Avenue stations on the Fulton Street Line are served by A and/or C trains and are generally located in proximity to the western and southern portions of the rezoning area beneath Fulton Street, Pennsylvania Avenue, and Pitkin Avenue. Lastly, L trains operating on the Canarsie Line serve two elevated stations above Van Sinderen Avenue at the western end of the rezoning area – Broadway Junction and Atlantic Avenue. As the Broadway Junction stations on the three subway lines serving the rezoning area are interconnected, they are considered as a single station complex.

As shown in Table 13-13, under the RWCDS, the Proposed Actions would generate a net increment of approximately 3,246 and 3,946 subway trips during the weekday AM and PM commuter peak hours, respectively. Trips from each development cluster or outlier site were assigned to the individual stations serving the rezoning area based on proximity to projected development sites and distribution data provided by NYCT. Table 13-13 shows the estimated net incremental subway trips expected to be generated by the Proposed Actions during the weekday AM and PM peak hours at each of the subway stations serving the rezoning area. As shown in Table 13-13, the highest number of peak hour subway trips are expected to occur at the Norwood Avenue (J/Z) station on the Jamaica Line which would experience approximately 659 incremental trips (in + out combined) in the AM peak hour and 772 in the PM peak hour. The highest number of trips on the Fulton Street Line would occur at the Shepherd Avenue (C) station which would experience an estimated 497 incremental trips in the AM peak hour and 651 in the PM.

The analysis of subway station conditions focuses on a total of eight subway stations at which incremental demand from the Proposed Actions would exceed the 200-trip *CEQR Technical Manual* analysis threshold in one or both peak hours. As shown in Table 13-13, these subway stations include:



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Figure 13-3
Rezoning Area Subway Stations

TABLE 13-13
RWCDS Net Incremental Peak Hour Subway Trips by Station

Subway Station	AM Peak Hour Trips			PM Peak Hour Trips		
	Into Project	Out of Project	Total	Into Project	Out of Project	Total
Project Summary						
Peak Hour Project-Generated Trips:	3,401	5,137	8,538	6,990	5,264	12,254
Peak Hour Project-Generated Subway Trips:	759	2,487	3,246	2,558	1,388	3,946
Subway Station Summary						
Broadway Junction (A/C/L/J/Z)	8	57	65	58	24	82
Alabama Avenue (J/Z)	37	108	145	131	77	208
Van Siclen Avenue (J/Z)	33	136	169	102	51	153
Cleveland Street (J)	40	188	228	180	90	270
Norwood Avenue (J/Z)	241	418	659	462	310	772
Crescent Street (J/Z)	140	448	588	490	278	768
Atlantic Avenue (L)	11	70	81	61	27	88
Liberty Avenue (C)	37	134	171	153	81	234
Van Siclen Avenue (C)	53	256	309	212	95	307
Shepherd Avenue (C)	102	395	497	425	226	651
Euclid Avenue (A/C)	57	277	334	284	129	413
Total	**759**	**2,487**	**3,246**	**2,558**	**1,388**	**3,946**

- Alabama Avenue (J/Z)
- Cleveland Street (J)
- Norwood Avenue (J/Z)
- Crescent Street (J/Z)
- Liberty Avenue (C)
- Van Siclen Avenue (C)
- Shepherd Avenue (C)
- Euclid Avenue (A/C)

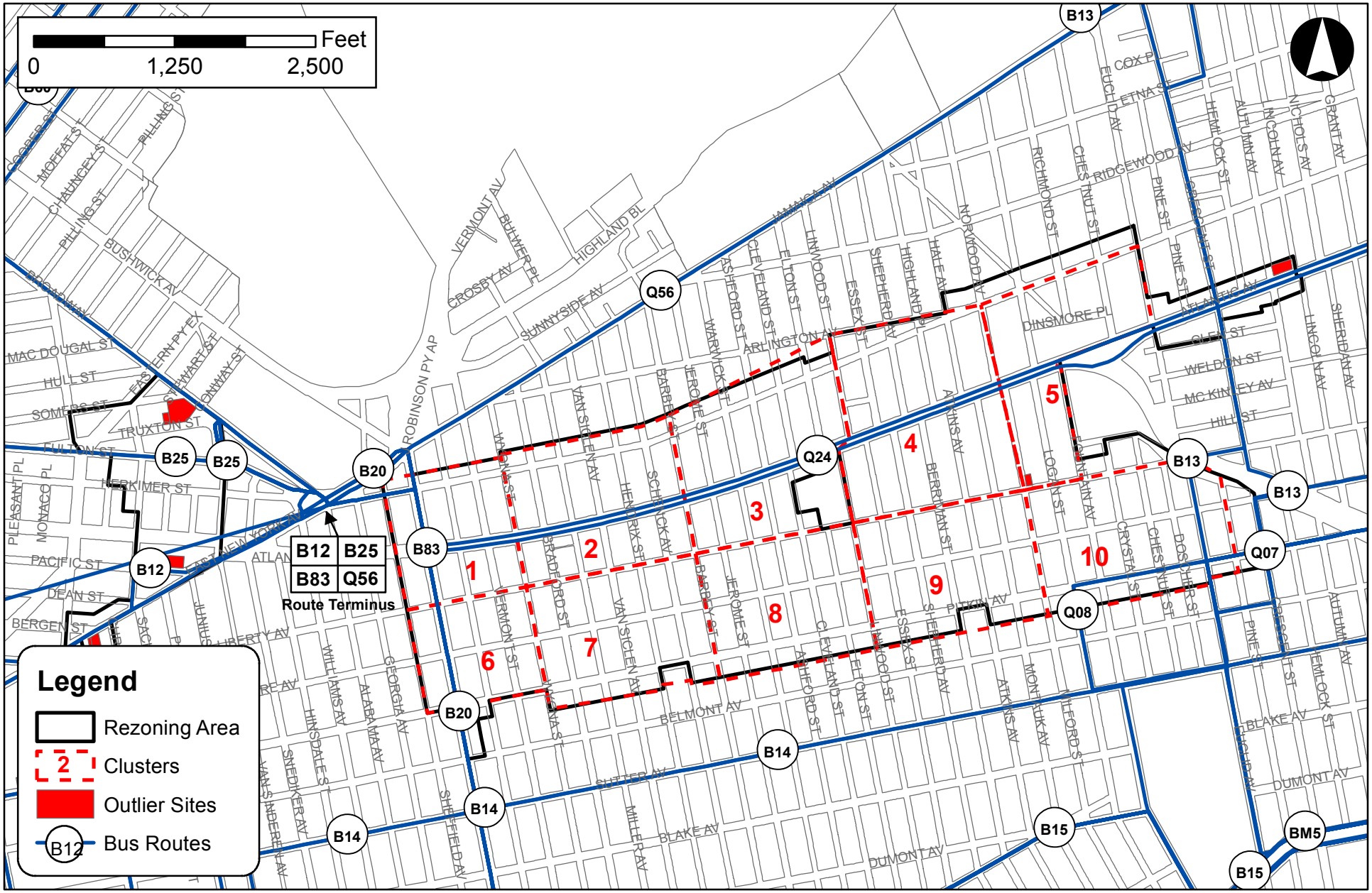
At each of these facilities, key circulation elements (e.g., stairs and fare arrays) expected to be used by concentrations of new demand from the Proposed Actions are analyzed.

SUBWAY LINE HAUL

As discussed above, the rezoning area is served by a total of five NYCT subway routes, including the A, C, J, L, and Z trains. As the Proposed Actions are expected to generate 200 or more new subway trips in one direction on one or more of these routes, an analysis of subway line haul conditions is included in this EIS. The analysis assesses existing, future No-Action, and future With-Action conditions at the maximum load points of the respective subway routes during the weekday AM and PM peak hours.

Bus

As shown in Figure 13-4, the rezoning area is served by a total of approximately ten MTA local bus routes; eight operated by NYCT and two operated by MTA Bus. The NYCT bus routes serving the rezoning area include the B12,



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Figure 13-4
Rezoning Area Bus Routes

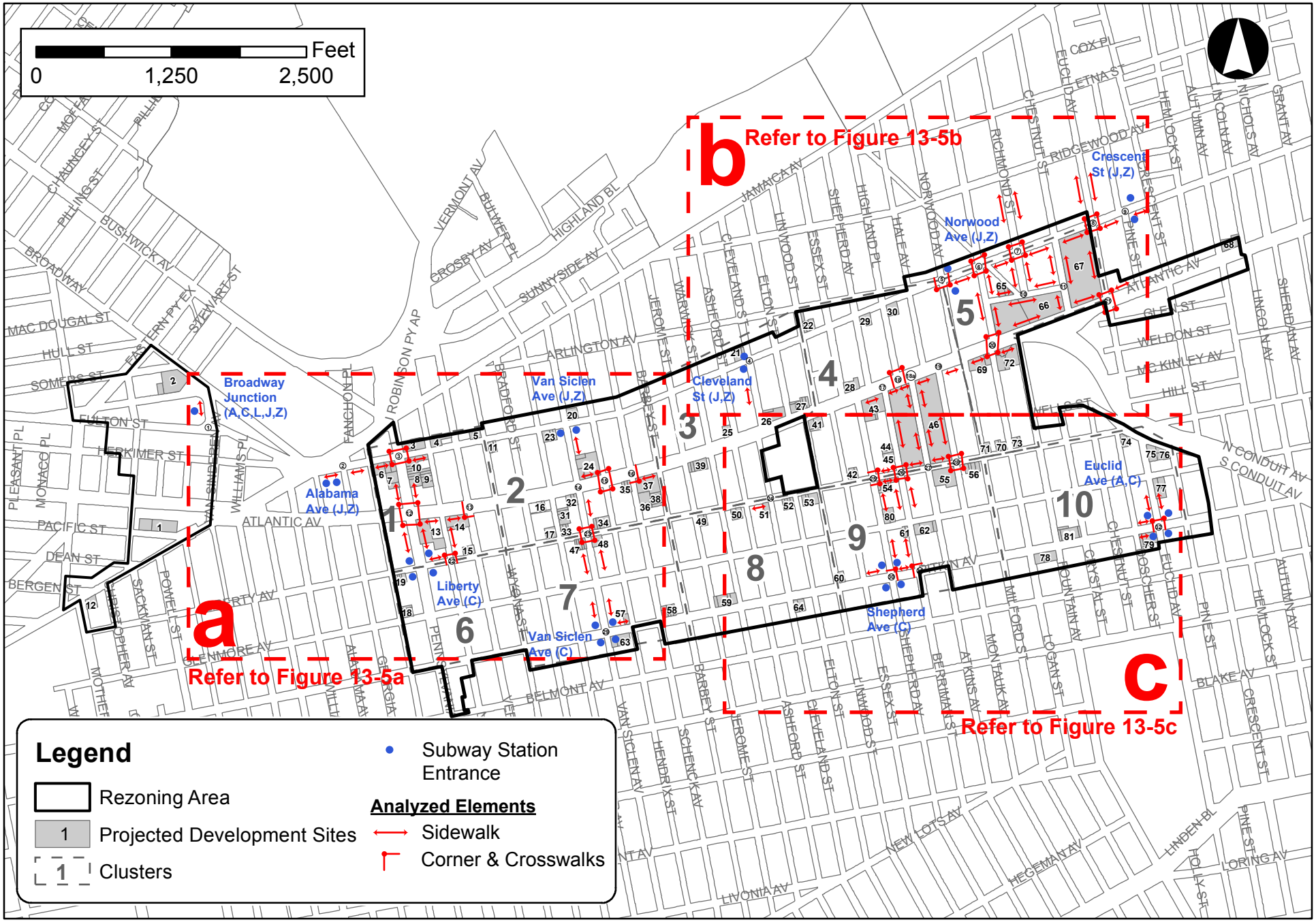
which runs along East New York Avenue in the rezoning area and connects to Prospect-Lefferts Gardens/Prospect Park (to the west); the B13, which runs along Crescent Street and Euclid Avenue in the rezoning area and connects to Bushwick (to the north) and Spring Creek (to the south); the B14 which runs along Sutter Avenue to the south of the rezoning area en route between Crown Heights and the Brooklyn General Mail Facility; the B20, which runs along Broadway and Pennsylvania Avenue in the rezoning area and connects to Ridgewood, Queens (to the north) and Spring Creek (to the south); the B25, which runs along Fulton Street in the rezoning area and connects to Fulton Landing (to the northwest); the B83, which runs along Jamaica and Pennsylvania avenues in the rezoning area and connects to Spring Creek (to the south); the Q24, which runs along Broadway and Atlantic avenues in the rezoning area and connects to Jamaica, Queens (to the east) and Bushwick (to the north); and the Q56, which runs along Broadway and Jamaica Avenue in the rezoning area and connects to Jamaica, Queens (to the east). The two MTA Bus local routes serving the rezoning area include the Q7, which runs along Pitkin Avenue through the rezoning area to a terminus at Euclid Avenue and connects to JFK International Airport to the southeast; and the Q8, which runs along Logan Street and Pitkin and Euclid avenues in the rezoning area and connects to Jamaica, Queens (to the northeast) and Spring Creek (to the south). The B12, B25, B83 and Q56 routes all terminate in the vicinity of the Broadway Junction subway station complex facilitating subway-bus transfers.

As shown in Table 13-12, projected development sites are expected to generate a total of approximately 983 and 1,445 incremental trips by bus during the weekday AM and PM peak hours, respectively. These local bus trips were assigned to each route based on proximity to individual projected development sites or clusters and current ridership patterns. Table 13-14 shows the anticipated numbers of new riders expected on each local bus route in the AM and PM peak hours. According to the general thresholds used by the MTA and specified in the *CEQR Technical Manual*, a detailed analysis of bus conditions is generally not required if a proposed action is projected to result in fewer than 50 peak hour trips being assigned to a single bus route (in one direction), as this level of new demand is considered unlikely to result in significant adverse impacts. As shown in Table 13-14, a total of three local bus routes are expected to experience 50 or more new trips in one direction in at least one peak hour and therefore require detailed analysis in this EIS – the B13 and Q24 routes operated by NYCT and the Q8 route operated by MTA Bus.

Pedestrians

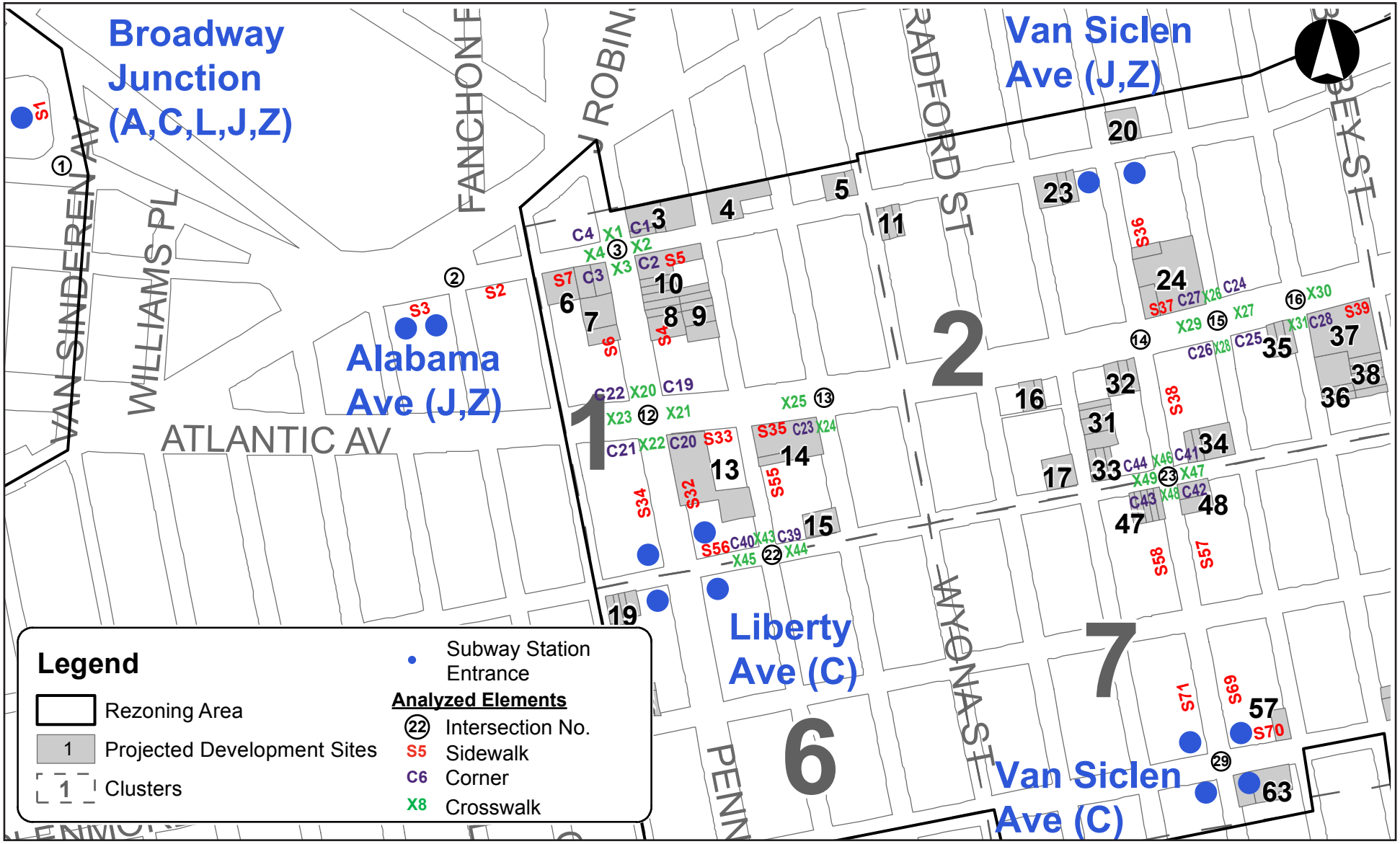
Under *CEQR Technical Manual* criteria, detailed pedestrian analyses are generally warranted if a proposed action is projected to result in 200 or more peak hour pedestrians at any sidewalk, corner reservoir area or crosswalk. As shown in Table 13-10, the Proposed Actions are expected to generate approximately 2,448 walk/other trips in the weekday AM peak hour, 8,517 in the midday, 4,870 in the PM, and 5,780 in the Saturday midday peak hour. Persons en route to and from subway station entrances, bus stops and public parking lots would add approximately 4,279, 3,627, 5,467 and 4,890 additional pedestrian trips to rezoning area sidewalks and crosswalks during these same periods, respectively. In the weekday AM and PM peak hours, new pedestrian trips would be most concentrated on sidewalks and crosswalks adjacent to projected development sites as well as along corridors connecting these sites to area subway station entrances. In the midday periods, pedestrian trips would tend to be more dispersed, as people travel throughout the area for lunch, shopping and/or errands.

The analysis of pedestrian conditions focuses on representative pedestrian elements where new trips generated by projected developments are expected to be most concentrated. These elements—sidewalks, corner areas and crosswalks—are primarily located in the vicinity of major projected development sites and corridors connecting these sites to area subway station entrances and bus routes. As shown in Figure 13-5, they include a total of 79 sidewalks, 58 corner reservoir areas, and 67 crosswalks primarily located along the Atlantic Avenue, Berriman Street, Euclid Avenue, Fulton Street, Liberty Avenue, Pennsylvania Avenue, Richmond Street, Shepherd Avenue and Van Siclen Avenue corridors.



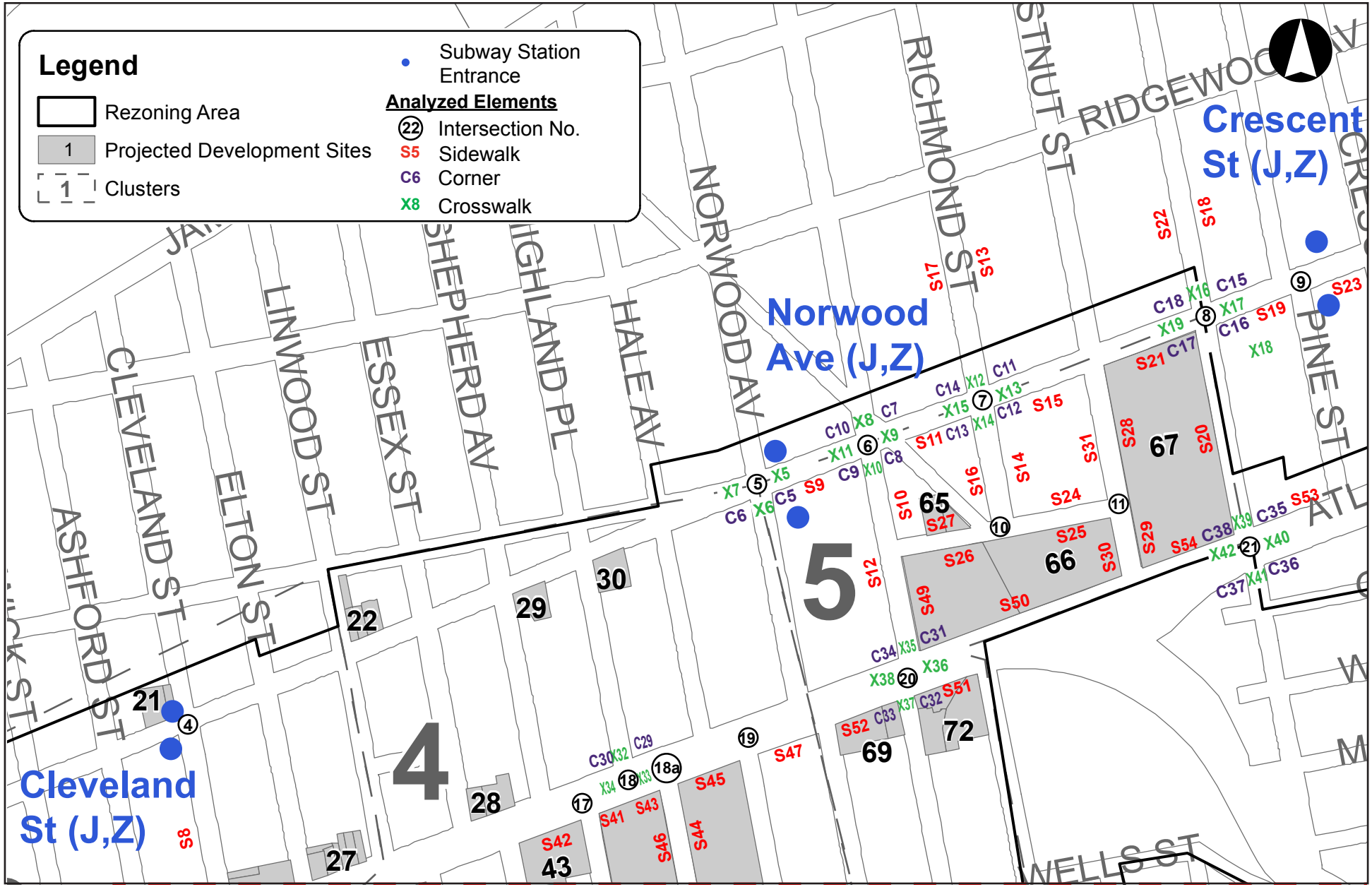
East New York Rezoning Proposal

Figure 13-5
Pedestrian Analysis Locations



East New York Rezoning Proposal

Figure 13-5a
Pedestrian Analysis Locations



East New York Rezoning Proposal

Figure 13-5b
Pedestrian Analysis Locations

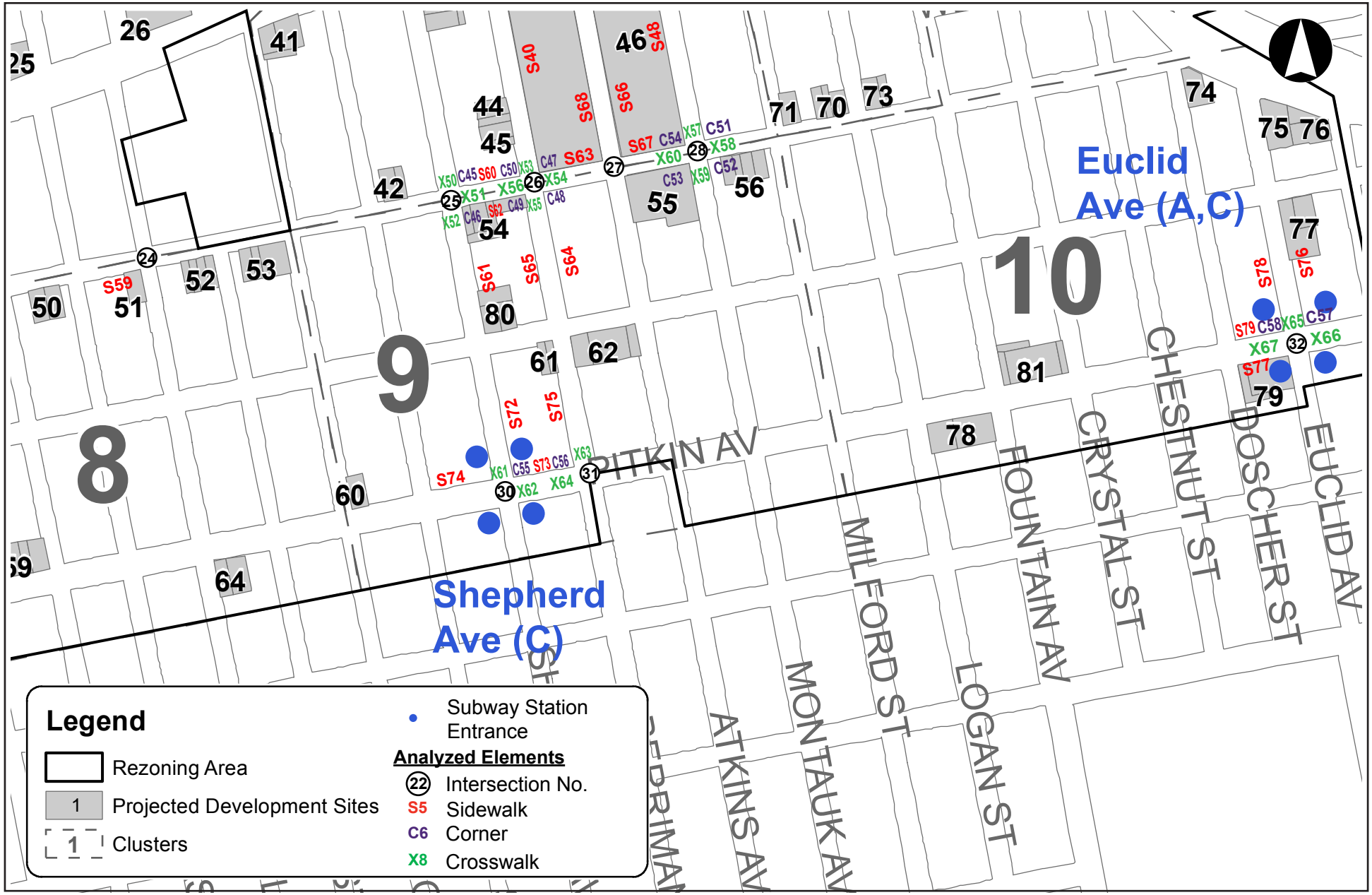


Figure 13-5c
Pedestrian Analysis Locations

TABLE 13-14
RWCDS Net Incremental Peak Hour Bus Trips by Route

Route	Direction	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
B12	EB	4	0	4	21	0	21
	WB	0	15	15	0	12	12
B13	NB	39	**57**	96	38	30	68
	SB	32	35	67	**85**	**67**	152
B14	EB	1	9	10	17	8	25
	WB	2	14	16	12	5	17
B20	NB	5	10	15	12	7	19
	SB	3	9	12	15	12	27
B25	EB	1	0	1	4	0	4
	WB	0	2	2	0	2	2
B83	NB	15	0	15	43	0	43
	SB	0	34	34	0	28	28
Q7	EB	0	17	17	0	4	4
	WB	1	0	1	10	0	10
Q8	EB	18	47	65	29	18	47
	WB	8	20	28	**59**	37	96
Q24	EB	**110**	**210**	320	**231**	**166**	397
	WB	**78**	**148**	226	**240**	**172**	412
Q56	EB	0	27	27	0	25	25
	WB	12	0	12	36	0	36
Total		329	654	983	852	593	1,445

Notes:
Bold - denotes greater than 50 incremental trips per direction.

Parking

Parking demand from commercial and retail uses typically peaks in the weekday midday period and declines during the afternoon and evening. By contrast, residential demand typically peaks during the overnight period.

It is anticipated that the on-site required accessory parking would not be sufficient to accommodate the overall incremental demand that would be generated by the Proposed Actions. As such, detailed existing on-street and off-street parking inventories for the weekday midday and overnight periods are provided in this EIS to document the existing supply and demand during each period. The parking analyses document changes in the parking supply and utilization in the rezoning area and within a ¼-mile radius of the rezoning area under both No-Action and With-Action conditions. Given the large size of the parking study area, localized parking conditions during the weekday midday and overnight periods are also assessed for a sub-area encompassing a ¼-mile radius around the three largest projected development sites (sites 46, 66 and 67).

F. TRANSPORTATION ANALYSES METHODOLOGIES

Traffic

Analysis Methodology

The traffic analysis examines conditions in the weekday AM, midday, and PM and Saturday midday peak hours when the increased travel demand attributable to the Proposed Actions is expected to be the greatest. The weekday peak

hours selected for analysis are 7:30-8:30 AM, 1-2 PM and 5-6 PM, and the Saturday peak hour is 1-2 PM. These peak hours were selected based on existing traffic volumes in the study area as reflected in automatic traffic recorder (ATR) count data.

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

The HCM methodology produces a volume-to-capacity (v/c) ratio for each signalized intersection approach. The v/c ratio represents the ratio of traffic volume on an approach to the approach's carrying capacity. A v/c ratio of less than 0.90 is generally considered indicative of non-congested conditions in dense urban areas; when higher than this value, the ratio reflects increasing congestion. At a v/c ratio between 0.95 and 1.0, near-capacity conditions are reached and delays can become substantial. Ratios of greater than 1.0 indicate saturated conditions with queuing. The HCM methodology also expresses the quality of traffic flow in terms of level of service (LOS), which is based on the amount of delay that a driver typically experiences at an intersection. Levels of service range from A, representing minimal delay (10 seconds or less per vehicle), to F, which represents long delays (greater than 80 seconds per vehicle).

For unsignalized intersections, the HCM methodology generally assumes that traffic on major streets is not affected by traffic flows on minor streets. Left turns from a major street are assumed to be affected by the opposing, or oncoming, traffic flow on that major street. Traffic on minor streets is affected by all conflicting movements. Similar to signalized intersections, the HCM methodology expresses the quality of traffic flow at unsignalized intersections in terms of LOS based on the amount of delay that a driver experiences. Level of service definitions used to characterize traffic flows at unsignalized intersections differ somewhat from those used for signalized intersections, primarily because drivers anticipate different levels of performance from the two different kinds of intersections. For Unsignalized intersections, LOS ranges from A, representing minimal delay (10 seconds or less per vehicle, as it is for signalized intersections), to F, which represents long delays (greater than 50 seconds per vehicle, compared to greater than 80 seconds per vehicle for signalized intersections).

Table 13-15 shows the LOS/delay relationship for signalized and unsignalized intersections using the HCM methodology. Levels of service A, B, and C generally represent highly favorable to fair levels of traffic flow. At LOS D, the influence of congestion becomes noticeable. LOS E is considered to be the limit of acceptable delay, and LOS F is considered to be unacceptable to most drivers. In these traffic impact analyses, a signalized lane grouping operating at LOS E or F or a v/c ratio of 0.90 or more is identified as congested. For unsignalized intersections, a movement with LOS E or F is also identified as congested.

TABLE 13-15
Intersection Level of Service Criteria

LOS	Description	Average Delay per Vehicle (seconds)	
		Signalized Intersections	Unsignalized Intersections
A	Satisfactory – Little/No Delay	Less than 10.1	Less than 10.1
B	Satisfactory – Minor Delay	10.1 to 20.0	10.1 to 15.0
C	Satisfactory – With Some Delay	20.1 to 35.0	15.1 to 25.0
D	Borderline Congestion	35.1 to 55.0	25.1 to 35.0
E	Marginally Acceptable Congestion	55.1 to 80.0	35.1 to 50.0
F	Unsatisfactory – Highly Congested	Greater than 80.0	Greater than 50.0

Source: *2000 Highway Capacity Manual*

Given the complexity of the intersection of Jamaica Avenue with Pennsylvania Avenue/Jackie Robinson Parkway/Bushwick Avenue, the capacity analyses for this intersection were performed by DOT using Synchro, Version 8. Synchro analysis utilizes the methodologies presented in the *Highway Capacity Manual* to determine the operating characteristics of an intersection.

Significant Impact Criteria

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

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

Transit

Analysis Methodology

SUBWAY STATIONS

To determine existing conditions at analyzed subway station elements, subway ridership data were collected at analyzed subway stations in February and March 2015. The methodology for assessing subway station pedestrian circulation elements (stairs, escalators, and passageways), fare control elements (regular turnstiles, high entry/exit turnstiles [HEETs], and high exit turnstiles) compares existing and projected pedestrian volumes with the element's design capacity to yield a volume-to-capacity (v/c) ratio. All analyses reflect pedestrian flow volumes over a 15-minute interval during each peak hour. Based on existing pedestrian volumes at area subway stations, the peak hours selected for the analysis of subway station conditions are 7:15-8:15 AM and 5:00-6:00 PM. (As noted previously, transit analyses typically focus on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the subway and bus systems is usually highest.)

Under *CEQR Technical Manual* guidelines, the capacity of a stairway or passageway is determined based on four factors: the NYCT guideline capacity, the effective width, and surging and counter-flow factors, if applicable. NYCT guideline capacity is ten passengers per minute per foot-width (pmf) for stairs and 15 pmf for passageways. The effective width of a stair or passageway is the actual width adjusted to reflect pedestrian avoidance of sidewalls and for center handrails, if present. A surging factor is applied to existing pedestrian volumes to reflect conditions where pedestrian flows tend to be concentrated (or surged) during shorter periods within the 15-minute analysis interval. This factor, which is based on the size of the station and the proximity of the pedestrian element to the station platforms, can reduce the calculated capacity by up to 25 percent. Lastly, a friction (or counter-flow) factor reducing calculated capacity by 10 percent is applied where opposing pedestrian flows use the same stair or passageway. (No friction factor is applied if the flow is all or predominantly in one direction.)

By contrast with stairways and passageways, under *CEQR Technical Manual* guidelines the capacity of an escalator or turnstile is determined based on only two factors: the NYCT guideline capacity for a 15-minute interval and a surging factor of up to 25 percent. Table 13-16 shows the *CEQR Technical Manual* level of service criteria for all

subway station elements. As shown in Table 13-16, six levels of service are defined with letters A through F. LOS A is representative of free flow conditions without pedestrian conflicts and LOS F depicts severe congestion and queuing.

TABLE 13-16
Level of Service Criteria for Subway Station Elements

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

Source: 2014 *CEQR Technical Manual*

SUBWAY LINE HAUL

Line haul capacity is based on the guideline capacity per subway car multiplied by the number of subway cars crossing the maximum load point in the peak hour. (Maximum guideline capacities established by NYCT for each car class are 110 passengers/car for a 51-foot subway car, 145 passengers/car for a 60-foot car, and 175 passengers/car for a 75-foot car.) The volume-to-capacity (v/c) ratio is determined by dividing the number of peak-hour passengers traveling through the maximum load point by the line haul capacity. (Maximum load point subway service and ridership data were provided by NYCT.) The subway line haul analysis focuses on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the subway system is usually highest.

BUS

The operating conditions for bus service are measured in terms of the number of passengers carried per bus at the maximum load point for each route. This is determined by dividing the peak hour passenger count by the number of buses during that hour. The bus load levels are compared with the NYCT loading guidelines of 54 passengers for a 40-foot standard bus and 85 passengers for a 60-foot articulated bus. The bus analyses focus on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the bus system is usually highest. Based on existing ridership patterns, the peak hour for bus demand is 7:30-8:30 AM and 5-6 PM.

Significant Impact Criteria

SUBWAY STATIONS

The *CEQR Technical Manual* identifies a significant impact for stairways and passageways in terms of the minimum width increment threshold (WIT) based on the minimum amount of additional capacity that would be required to restore conditions to either their No-Action v/c ratio or to a v/c ratio of 1.00 (LOS C/D), whichever is greater. Stairways that are substantially degraded in level of service or which experience the formation of extensive queues are classified as significantly impacted. Significant adverse stairway or passageway impacts are typically considered to have occurred once the thresholds shown in Table 13-17 are reached or exceeded.

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

TABLE 13-17
Significant Impact Thresholds for Stairways and Passageways

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

Source: *CEQR Technical Manual*

SUBWAY LINE HAUL

For subway line haul conditions*, CEQR Technical Manual* criteria specify that any increases in load levels that remain within practical capacity limits are generally not considered significant. However, significant adverse subway line haul impacts can occur if a proposed action is expected to generate an incremental increase averaging five or more riders per subway car on lines projected to carry loads at or exceeding guideline capacity. This is based on the general assumption that when subways are at or above practical capacity, the addition of even five or more riders per car is perceptible.

BUS

According to the *CEQR Technical Manual* and NYCT guidelines, additional bus service along a route is recommended when load levels exceed maximum capacity at the route's maximum load point. A significant impact is considered at the route's maximum load point where an increase in bus load levels would exceed the maximum capacity. NYCT's general policy is to provide additional bus service where demand warrants increased service, taking into account fiscal and operational constraints.

Pedestrians

Analysis Methodology

Data on peak period pedestrian flow volumes were collected along analyzed sidewalks, corner areas, and crosswalks in the vicinity of the rezoning area in February and March 2015. Peak hours were determined by comparing rolling hourly averages, and the highest 15-minute volumes within the selected peak hours were used for analysis. Based on existing peak pedestrian volumes along major corridors in the study area, the peak hours selected for analysis include the weekday 7:30-8:30 AM, 1-2 PM and 5-6 PM periods. As project increment pedestrian trips during the Saturday midday would generally have assignment patterns similar to those of the weekday midday but with lower overall volumes, significant adverse pedestrian impacts over and above those identified for the weekday midday are considered unlikely. The Saturday midday peak hour is therefore not analyzed for pedestrians.

Peak 15-minute pedestrian flow conditions during the weekday AM, midday and PM peak hours are analyzed using the *2000 Highway Capacity Manual* methodology and procedures outlined in the *CEQR Technical Manual*. Using this methodology, the congestion level of pedestrian facilities is determined by considering pedestrian volume, measuring the sidewalk or crosswalk width, determining the available pedestrian capacity and developing a ratio of volume flows to capacity conditions. The resulting ratio is then compared with LOS standards for pedestrian flow, which define a qualitative relationship at a certain pedestrian traffic concentration level. The evaluation of street crosswalks and corners is more complicated as these spaces cannot be treated as corridors due to the time incurred

waiting for traffic lights. To effectively evaluate these facilities a "time-space" analysis methodology is employed which takes into consideration the traffic light cycle at intersections.

LOS standards are based on the average area available per pedestrian during the analysis period, typically expressed as a 15-minute peak period. LOS grades from A to F are assigned, with LOS A representative of free flow conditions without pedestrian conflicts and LOS F depicting significant capacity limitations and inconvenience. Table 13-18 defines the LOS criteria for pedestrian crosswalk/corner area and sidewalk conditions, as based on the *Highway Capacity Manual* methodology.

TABLE 13-18
Pedestrian Crosswalk/Corner Area and Sidewalk Levels of Service Descriptions

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

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

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

Significant Impact Criteria

SIDEWALKS

The *CEQR Technical Manual* impact criteria for a non-CBD location are used to identify significant adverse impacts due to the proposed rezoning. These criteria define a significant adverse sidewalk impact to have occurred under platoon conditions if the average pedestrian space under the No-Action condition is greater than 44.3 square feet/pedestrian (sf/ped), and the average pedestrian space under the With-Action condition is 40.0 sf/ped or less (LOS D or worse). If the average pedestrian space under the With-Action condition is greater than 40.0 sf/ped (LOS C or better), the impact should not be considered significant. If the No-Action pedestrian space is between 6.4 and 44.3 sf/ped, a reduction in pedestrian space under the With-Action condition should be considered significant based on Table 13-19, which shows a sliding-scale that identifies what decrease in pedestrian space is considered a significant impact for a given pedestrian space value in the No-Action condition. If the reduction in pedestrian space is less than the value in Table 13-19, the impact is not considered significant. If the average pedestrian space under the No-Action condition is less than 6.4 sf/ped, then a reduction in pedestrian space greater than or equal to 0.3 sf/ped, under the With-Action condition, should be considered significant.

TABLE 13-19
Significant Impact Criteria for Sidewalks with Platooned Flow in a Non-CBD Location

No-Action Condition Pedestrian Flow (sf/ped)			With-Action Condition Pedestrian Flow Increment to be Considered a Significant Impact (sf/ped)
>44.3			With-Action Condition ≤ 40.0
43.5	to	44.3	Reduction ≥ 4.3
42.5	to	43.4	Reduction ≥ 4.2
41.6	to	42.4	Reduction ≥ 4.1
40.6	to	41.5	Reduction ≥ 4.0
39.7	to	40.5	Reduction ≥ 3.9
38.7	to	39.6	Reduction ≥ 3.8
37.8	to	38.6	Reduction ≥ 3.7
36.8	to	37.7	Reduction ≥ 3.6
35.9	to	36.7	Reduction ≥ 3.5
34.9	to	35.8	Reduction ≥ 3.4
34.0	to	34.8	Reduction ≥ 3.3
33.0	to	33.9	Reduction ≥ 3.2
32.1	to	32.9	Reduction ≥ 3.1
31.1	to	32.0	Reduction ≥ 3.0
30.2	to	31.0	Reduction ≥ 2.9
29.2	to	30.1	Reduction ≥ 2.8
28.3	to	29.1	Reduction ≥ 2.7
27.3	to	28.2	Reduction ≥ 2.6
26.4	to	27.2	Reduction ≥ 2.5
25.4	to	26.3	Reduction ≥ 2.4
24.5	to	25.3	Reduction ≥ 2.3
23.5	to	24.4	Reduction ≥ 2.2
22.6	to	23.4	Reduction ≥ 2.1
21.6	to	22.5	Reduction ≥ 2.0
20.7	to	21.5	Reduction ≥ 1.9
19.7	to	20.6	Reduction ≥ 1.8
18.8	to	19.6	Reduction ≥ 1.7
17.8	to	18.7	Reduction ≥ 1.6
16.9	to	17.7	Reduction ≥ 1.5
15.9	to	16.8	Reduction ≥ 1.4
15.0	to	15.8	Reduction ≥ 1.3
14.0	to	14.9	Reduction ≥ 1.2
13.1	to	13.9	Reduction ≥ 1.1
12.1	to	13.0	Reduction ≥ 1.0
11.2	to	12.0	Reduction ≥ 0.9
10.2	to	11.1	Reduction ≥ 0.8
9.3	to	10.1	Reduction ≥ 0.7
8.3	to	9.2	Reduction ≥ 0.6
7.4	to	8.2	Reduction ≥ 0.5
6.4	to	7.3	Reduction ≥ 0.4
<6.4			Reduction ≥ 0.3

Source: *CEQR Technical Manual*

CORNER AREAS AND CROSSWALKS

For non-CBD areas, *CEQR Technical Manual* criteria define a significant adverse corner area or crosswalk impact to have occurred if the average pedestrian space under the No-Action condition is greater than 26.6 sf/ped and, under the With-Action condition, the average pedestrian space decreases to 24 sf/ped or less (LOS D or worse). If the pedestrian space under the With-Action condition is greater than 24 sf/ped (LOS C or better), the impact should not be considered significant. If the average pedestrian space under the No-Action condition is between 5.1 and 26.6 sf/ped, a decrease in pedestrian space under the With- Action condition should be considered significant based on Table 13-20 which shows a sliding-scale that identifies what decrease in pedestrian space is considered a significant impact for a given amount of pedestrian space in the No-Action condition. If the decrease in pedestrian space is less than the value in Table 13-20, the impact is not considered significant. If the average pedestrian space under the No-Action condition is less than 5.1 sf/ped, then a decrease in pedestrian space greater than or equal to 0.2 sf/ped should be considered significant.

Vehicular and Pedestrian Safety Evaluation

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

Parking

Analysis Methodology

The parking analysis identifies the supply of on-street and off-street public parking near a proposed project and determines the extent to which the supply is utilized in existing conditions and in the future without and with a proposed action. The analysis considers anticipated changes in the study area's parking supply and demand, and compares project-generated parking demand with future parking availability to determine if a parking shortfall is likely to result. The displacement of existing parking capacity attributable to the proposed action or project is also considered. Typically, the analysis encompasses the parking facilities—public parking lots and garages and on-street curb spaces—that vehicular traffic destined to the project site or area would likely utilize. According to the *CEQR Technical Manual*, a ¼-mile radius around a project site is generally assumed as the distance that someone driving to the site would be willing to walk. The parking analyses therefore document changes in the parking supply and utilization in the rezoning area and within a ¼-mile radius of the rezoning area under both No-Action and With-Action conditions. Given the large size of the parking study area, localized parking conditions during the weekday midday and overnight periods are also assessed for a sub-area encompassing a ¼-mile radius around the three largest projected development sites (sites 46, 66 and 67).

Significant Impact Criteria

Should a proposed action generate the need for more parking than it provides, a shortfall of spaces may be considered significant. The availability of off-street and on-street parking spaces within a convenient walking distance (about ¼-mile) as well as the availability of alternative modes of transportation are considered in making this determination.

TABLE 13-20
Significant Impact Criteria for Corners and Crosswalks in a Non-CBD Location

No-Action Condition Pedestrian Space (sf/ped)	With-Action Condition Pedestrian Space Reduction to be Considered a Significant Impact (sf/ped)
> 26.6	With Action Condition ≤ 24.0
25.8 to 26.6	Reduction ≥ 2.6
24.9 to 25.7	Reduction ≥ 2.5
24.0 to 24.8	Reduction ≥ 2.4
23.1 to 23.9	Reduction ≥ 2.3
22.2 to 23.0	Reduction ≥ 2.2
21.3 to 22.1	Reduction ≥ 2.1
20.4 to 21.2	Reduction ≥ 2.0
19.5 to 20.3	Reduction ≥ 1.9
18.6 to 19.4	Reduction ≥ 1.8
17.7 to 18.5	Reduction ≥ 1.7
16.8 to 17.6	Reduction ≥ 1.6
15.9 to 16.7	Reduction ≥ 1.5
15.0 to 15.8	Reduction ≥ 1.4
14.1 to 14.9	Reduction ≥ 1.3
13.2 to 14.0	Reduction ≥ 1.2
12.3 to 13.1	Reduction ≥ 1.1
11.4 to 12.2	Reduction ≥ 1.0
10.5 to 11.3	Reduction ≥ 0.9
9.6 to 10.4	Reduction ≥ 0.8
8.7 to 9.5	Reduction ≥ 0.7
7.8 to 8.6	Reduction ≥ 0.6
6.9 to 7.7	Reduction ≥ 0.5
6.0 to 6.8	Reduction ≥ 0.4
5.1 to 5.9	Reduction ≥ 0.3
< 5.1	Reduction ≥ 0.2

Source: *CEQR Technical Manual*

Under *CEQR Technical Manual* guidelines, different criteria for determining significance are applied based on whether or not a proposed project is located in residential or commercial areas designated as Parking Zones 1 and 2 as shown in Map 16-2 (CEQR Parking Zones) in the *CEQR Technical Manual*. As the rezoning area is not located within these two zones, a parking shortfall that exceeds more than half the available on-street and off-street parking spaces within ¼-mile of the site can be considered significant. Additional factors that can be considered when determining whether such a shortfall is significant include: the availability and extent of transit in the area; the proximity of the project to such transit; any features of the project that are considered trip reduction or travel demand management (TDM) measures; travel modes of customers of area commercial businesses; and patterns of automobile usage by area residents. The sufficiency of parking within ½-mile (rather than ¼-mile) of the project site to accommodate the projected shortfall may also be considered.

G. TRAFFIC

Existing Conditions

Study Area Street Network

As shown in Figure 13-2, the study area street network is an irregular grid system. The primary streets providing access to the rezoning area include Atlantic, East New York, Jamaica, Pennsylvania and Pitkin avenues, North Conduit Boulevard, South Conduit Boulevard, Broadway, Eastern Parkway Extension, Fulton Street and the Jackie Robinson Parkway.

PRIMARY EAST-WEST CORRIDORS

Atlantic Avenue, the primary arterial within the rezoning area, runs east-west connecting downtown Brooklyn to the west with Jamaica, Queens and JFK International Airport (via Conduit Boulevard) to the east. Within most of the rezoning area, Atlantic Avenue has a width of 120 feet and operates with three moving lanes and a curbside lane in each direction. The north and south grid street approaches to Atlantic Avenue align to the west of Warwick Street but do not align to the east of Warwick Street. The presence of a raised center median limits north-south through movements across Atlantic Avenue. Intersections with through streets are signalized and include pedestrian crossings, whereas the non-through-street approaches to Atlantic Avenue are typically stop-controlled. There is also an uncontrolled pedestrian crossing of Atlantic Avenue at Jerome Street.

West of Georgia Avenue, the Atlantic Avenue mainline runs above-grade on a viaduct over the LIRR's East New York station for ten blocks to the Eastern Parkway Extension. Westbound and eastbound service roads, each with one moving lane plus a curbside lane, flank the viaduct to the north and south, respectively.

Paralleling Atlantic Avenue three blocks to the south is Pitkin Avenue, an 80-foot-wide two-way street that typically operates with one moving lane plus a curbside lane in each direction. Most intersections along Pitkin Avenue are signalized. Paralleling Atlantic Avenue one block to the north is Fulton Street, a 70-foot-wide, east-west street that operates two-way west of East New York Avenue and east of Highland Place, typically with one moving lane plus a curbside lane in each direction. The segment of Fulton street between East New York Avenue and Highland Place operates one-way eastbound as a couplet with westbound Arlington Avenue. This segment typically operates with one moving lane plus curbside lanes. Intersections along Fulton Street are controlled by a mix of traffic signals and stop-controls, with stop-controlled intersections more prevalent along the one-way segment of the corridor. Subway trains on NYCT's Jamaica Line operate on an elevated structure above the roadway to the east of Alabama Avenue.

To the north of Fulton Street is Jamaica Avenue, an approximately 40-foot-wide two-way arterial that runs in a northeasterly direction from an intersection with East New York Avenue, Fulton Street and Broadway to the city-line at Bellerose, Queens where it becomes Jericho Turnpike. It typically operates with one moving lane plus a curb lane in each direction, and intersections are a mix of signalized and stop-controlled. Broadway is an approximately 40-foot-wide street that continues in a northwesterly direction from Jamaica Avenue to Williamsburg, Brooklyn. Broadway operates with two westbound moving lanes plus curb lanes from Fulton Street to Truxton Street/Van Sinderen Avenue, and two-way with a single moving lane and a curb lane in each direction from that point west. Minor street approaches to Broadway are typically stop-controlled, with signals present at major intersections. The elevated structure of NYCT's Jamaica Line is located along the length of Broadway from the Williamsburg Bridge to Jamaica Avenue.

Approaching the study area from the southwest is East New York Avenue which runs from Jamaica Avenue to the Prospect Lefferts Gardens neighborhood. In proximity to the rezoning area it varies in width from 30 feet to 95 feet, and typically operates two-way with one moving lane plus a curbside lane in each direction except for a two-block segment between Sackman Street and Pacific/Junius streets which operates one-way eastbound. Most intersections in the vicinity of the study area are signalized. East New York Avenue crosses beneath Atlantic Avenue in an underpass from Pacific/Junius streets to Williams Avenue and Fulton Street.

The Eastern Parkway Extension, which also approaches the study area from the southwest, runs from Bushwick Avenue at the west end of the rezoning area to Grand Army Plaza. It is a two-way, 70-foot-wide roadway that typically operates with two moving lanes plus a curbside lane in each direction. A raised center median separates the eastbound and westbound travelways. Intersections in the vicinity of the study area are typically signalized.

At the eastern end of the rezoning area are westbound North Conduit Boulevard and eastbound South Conduit Boulevard (North Conduit Avenue and South Conduit Avenue in Queens) which connect Atlantic Avenue with the Belt Parkway. Each typically consists of an approximately 34-foot-wide roadway with three moving lanes in each direction, and they are separated by a wide planted median.

Liberty and Glenmore avenues are two additional east-west streets that parallel Atlantic Avenue on the south and provide primarily local access in the vicinity of the rezoning area. Liberty Avenue is a 35-foot-wide two-way street that typically operates with one moving lane plus a curbside lane in each direction. Intersections are a mix of signalized and stop-controlled. Glenmore Avenue is 30 feet in width and operates one-way westbound with one moving lane plus curbside parking lanes. The majority of intersections along Glenmore Avenue are stop-controlled.

PRIMARY NORTH-SOUTH CORRIDORS

As shown in Figure 13-2, Pennsylvania Avenue, a 60-foot wide, heavily trafficked two-way thoroughfare, is the primary north-south corridor in the vicinity of the rezoning area. It connects the Jackie Robinson Parkway to the north with Linden Boulevard and the Belt (Shore) Parkway to the south. Pennsylvania Avenue typically operates with two moving lanes plus a curb lane in each direction, and intersections are controlled by traffic signals. The Jackie Robinson Parkway is a limited-access roadway that extends approximately 5 miles from Jamaica and Pennsylvania avenues to the Kew Gardens interchange in Kew Gardens, Queens, where it meets the Grand Central Parkway and the Van Wyck Expressway (I-678). In addition to the terminus at Jamaica/Pennsylvania avenues, other interchanges in proximity to the study area include Exit 2 at Vermont Place and Exit 3 at Cypress Hills Street. Other north-south corridors in the vicinity of the rezoning area are typically narrow, one-directional streets providing local access.

OTHER TRANSPORTATION INFRASTRUCTURE

The western portion of the rezoning area is characterized by an irregular and complex street pattern and a substantial amount of railroad and rail transit infrastructure. Many of the primary streets serving the rezoning area intersect at this location (known as Broadway Junction), including Atlantic, Jamaica and East New York avenues, Fulton Street, Broadway, and the Jackie Robinson Parkway. As noted above, the Atlantic Avenue mainline runs above grade on a viaduct for ten blocks from the Eastern Parkway Extension to Georgia Avenue, and East New York Avenue crosses beneath this viaduct in an underpass from Pacific/Junius streets to Williams Avenue and Fulton Street. Between these two roadway structures is the Long Island Rail Road's East New York station served by trains operating to and from Atlantic Terminal in Downtown Brooklyn. NYCT's Atlantic Avenue subway station on the Canarsie Line is located on an elevated structure located directly above this roadway/rail crossing. Lastly, beneath these multiple layers of transportation infrastructure lies a tunnel for the LIRR's freight-only Bay Ridge Branch which is currently operated by the New York and Atlantic Railway. A portal for this tunnel is located just west of the intersection of East New York and Van Sinderen avenues.

BUS ROUTES

NYCT and MTA Bus routes primarily operate along portions of the following study area corridors:

- Atlantic Avenue (Q24)
- Broadway (B20, Q24)
- Crescent Street (B13)
- East New York Avenue (B12)
- Euclid Avenue (B13)
- Fountain Avenue (Q8)

- Fulton Street (B25)
- Jamaica Avenue (Q56)
- Pennsylvania Avenue (B20, B83)
- Pitkin Avenue (Q7, Q8)
- Rockaway Avenue (B60)
- Sutter Avenue (B14)

These bus routes are described in more detail below in Section H, "Transit."

TRUCK ROUTES

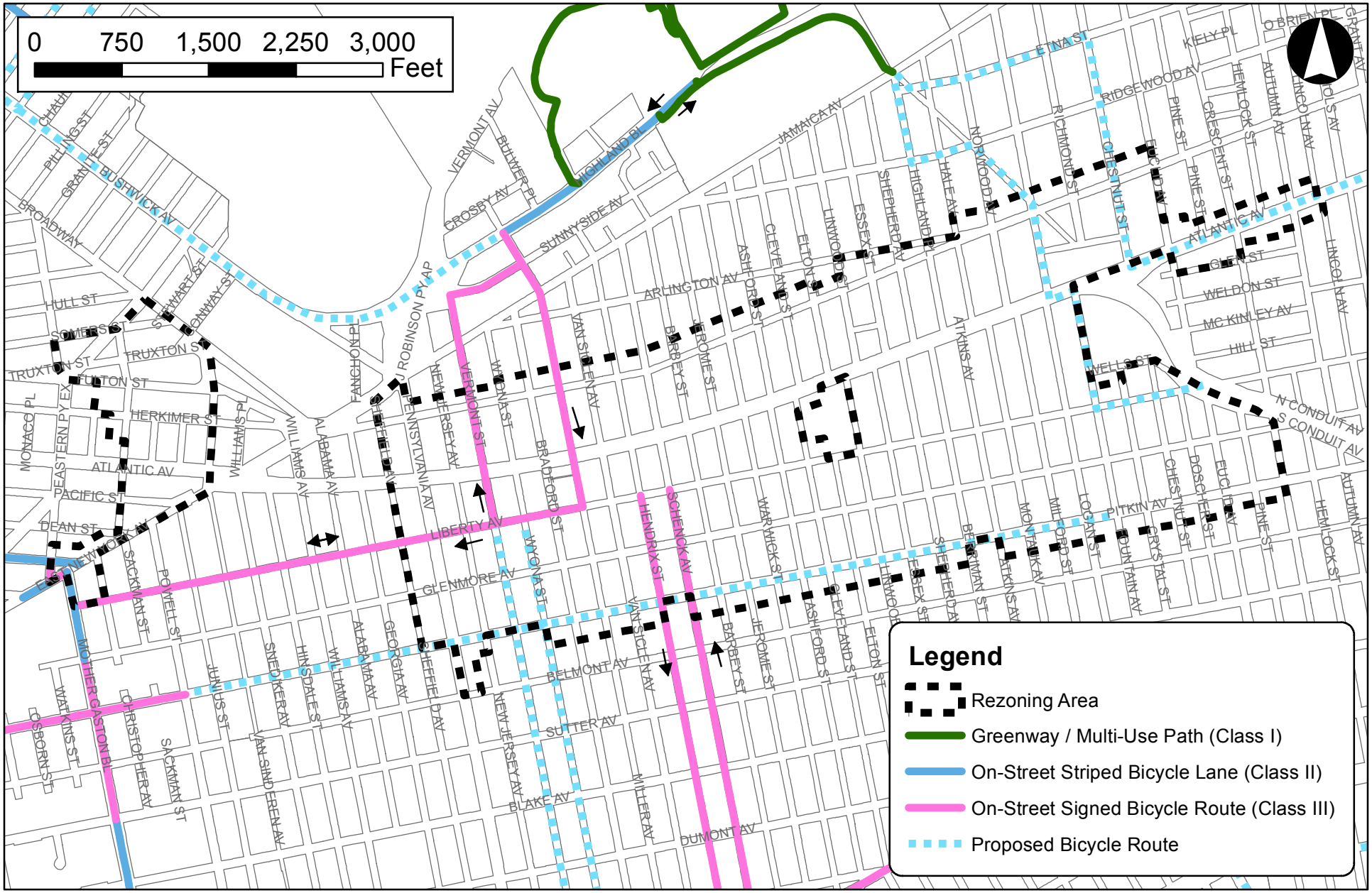
The City has established local and through truck routes to manage the flow of trucks and improve the quality of neighborhoods. The City defines a truck as "a vehicle which is designed for transportation of property, which has either of the following characteristics: two axles and six tires or three or more axles." Through trucks are defined as having neither an origin nor a destination within the Borough of Brooklyn. In proximity to the rezoning area, through truck routes have been designated along Atlantic, North Conduit Boulevard and South Conduit Boulevard. Local truck routes are designated routes for trucks that are intended for the purpose of delivery, loading, or providing service within the Borough of Brooklyn. Generally, trucks must travel on local truck routes to reach the intersection nearest their destinations. Designated local truck routes in the study area include:

- Broadway
- East New York Avenue (west of Rockaway Avenue)
- Fulton Street (between Pennsylvania and East New York Avenues)
- Herkimer Street (between Williams and Van Sinderen Avenues)
- Pennsylvania Avenue
- Jamaica Avenue (west of Pennsylvania Avenue)
- Rockaway Avenue (north of East New York Avenue)
- Van Sinderen Avenue (between Broadway and Herkimer Street)
- Williams Place (between Herkimer Street and Broadway)

BICYCLE LANES

As shown in Figure 13-6, within the study area, bike routes are located along the following roadways:

- Bergen Street (a westbound bike lane west of East New York Avenue)
- East New York Avenue (shared bike lanes west of Mother Gaston Boulevard)
- Liberty Avenue (shared bike lanes from Miller Avenue west to Mother Gaston Boulevard)
- Hendrix Street (a shared southbound bike lane south of Liberty Avenue)
- Miller Avenue (a shared southbound bike lane north of Liberty Avenue)
- Mother Gaston Boulevard (bike lanes between Livonia and Sutter Avenues and between Glenmore and East New York Avenues; shared bike lanes between Sutter and Glenmore Avenues)
- Pitkin Avenue (shared bike lanes west of Powell Avenue)
- Schenck Avenue (a shared northbound bike lane south of Liberty Avenue)
- St. Marks Avenue (an eastbound bike lane west of the Eastern Parkway Extension)
- Vermont Avenue (a shared northbound bike lane north of Liberty Avenue)



East New York Rezoning Proposal

Figure 13-6
Study Area Bicycle Routes

Potential bike routes have also been identified along Atlantic Avenue (east of Chestnut Street) and Pitkin Avenue (east of Powell Street). In addition, potential bike routes have been identified along portions of Chestnut Street, Euclid Avenue, Etna Street, Force Tube Avenue, Highland Place, Logan Street, and Ridgewood Avenue to connect existing protected bicycle paths in Highland Park with a potential bicycle path along North Conduit Boulevard.

Traffic Conditions

To establish the Existing conditions traffic network, an extensive traffic data collection program—including automatic traffic recorder (ATR) counts, turning movement counts, vehicle classification counts, and travel time and delay surveys—was undertaken in February and March 2015. Physical inventory data needed for operational analysis—e.g., the number of traffic lanes, lane widths, pavement markings, turn prohibitions, bus stops, and typical parking regulations—were collected in March 2015. Signal timing plans for signalized intersections within the study area were obtained from DOT. Figure 13-7 through Figure 13-10 show existing traffic volumes during weekday AM, midday, and PM and Saturday midday peak hours.

Intersection Capacity Analysis

Table 13-21 provides an overview of the levels of service that characterize existing "overall" intersection conditions during the weekday 7:30-8:30 AM, 1-2 PM (midday) and 5-6 PM peak hours, and Saturday 1-2 PM (midday) peak hour. The overall level of service of an intersection represents a weighted average of the individual lane groups' levels of service. "Overall" LOS E or F indicates that serious congestion exists—either one specific lane group at the intersection has severe delays or two or more lane groups at the intersection are at LOS E or F with substantial delays. As shown in Table 13-21, three analyzed intersections currently operate at LOS E in the weekday AM peak hour, and two in each of the weekday midday, PM and Saturday midday peak hours. Intersections operating at a marginally acceptable LOS D total nine in the weekday AM peak hour, three in the midday, nine in the PM and three in the Saturday midday peak hour. No analyzed intersection was found to currently operate at LOS F in any peak hour. A total of 42 individual lane groups out of the approximately 265 such lane groups analyzed are at LOS E or F in the weekday AM peak hour, 20 in the midday, 44 in the PM and 19 in the Saturday midday peak hour. Lane groups operating at a v/c ratio of 0.90 or greater total 36, 23, 36, and 22 during these same periods, respectively.

TABLE 13-21
Existing Intersection Levels of Service Summary

	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Midday Peak Hour
Overall LOS A/B/C	62	69	63	69
Overall LOS D	9	3	9	3
Overall LOS E	3	2	2	2
Overall LOS F	0	0	0	0
Lane Groups at v/c $\geq$ 0.90	36	23	36	22
No. of lane groups at LOS E or F of the approximately 265 analyzed	42	20	44	19

The volume-to-capacity ratios, delays and levels of service for those individual lane groups experiencing congestion in one or more peak hours under Existing conditions are shown in Table 13-22. A lane group is considered congested and is included in Table 13-22 if it operates at LOS E or F and/or with a v/c ratio of 0.90 or above. A v/c ratio of 1.00 or above reflects capacity conditions. As shown in Table 13-22, a total of 33 intersections (30 signalized and three stop-controlled) currently have at least one congested lane group in one or more peak hours. Atlantic Avenue has the greatest number of congested locations (12 intersections), followed by Liberty Avenue (six intersections) and Fulton Street (three intersections). A total of 15 intersections currently have one or more lane groups operating at capacity in the weekday AM peak hour, seven in the midday, 15 in the PM and ten in the Saturday midday peak hour. Overall, the data in Table 13-21 and Table 13-22 indicate that congestion at analyzed intersections is most evident during the weekday AM and PM commuter peak periods, and least evident during the weekday midday and Saturday

Existing AM Peak Hour Traffic Volumes



Existing AM Peak Hour Traffic Volumes



Existing AM Peak Hour Traffic Volumes



Existing Midday Peak Hour Traffic Volumes



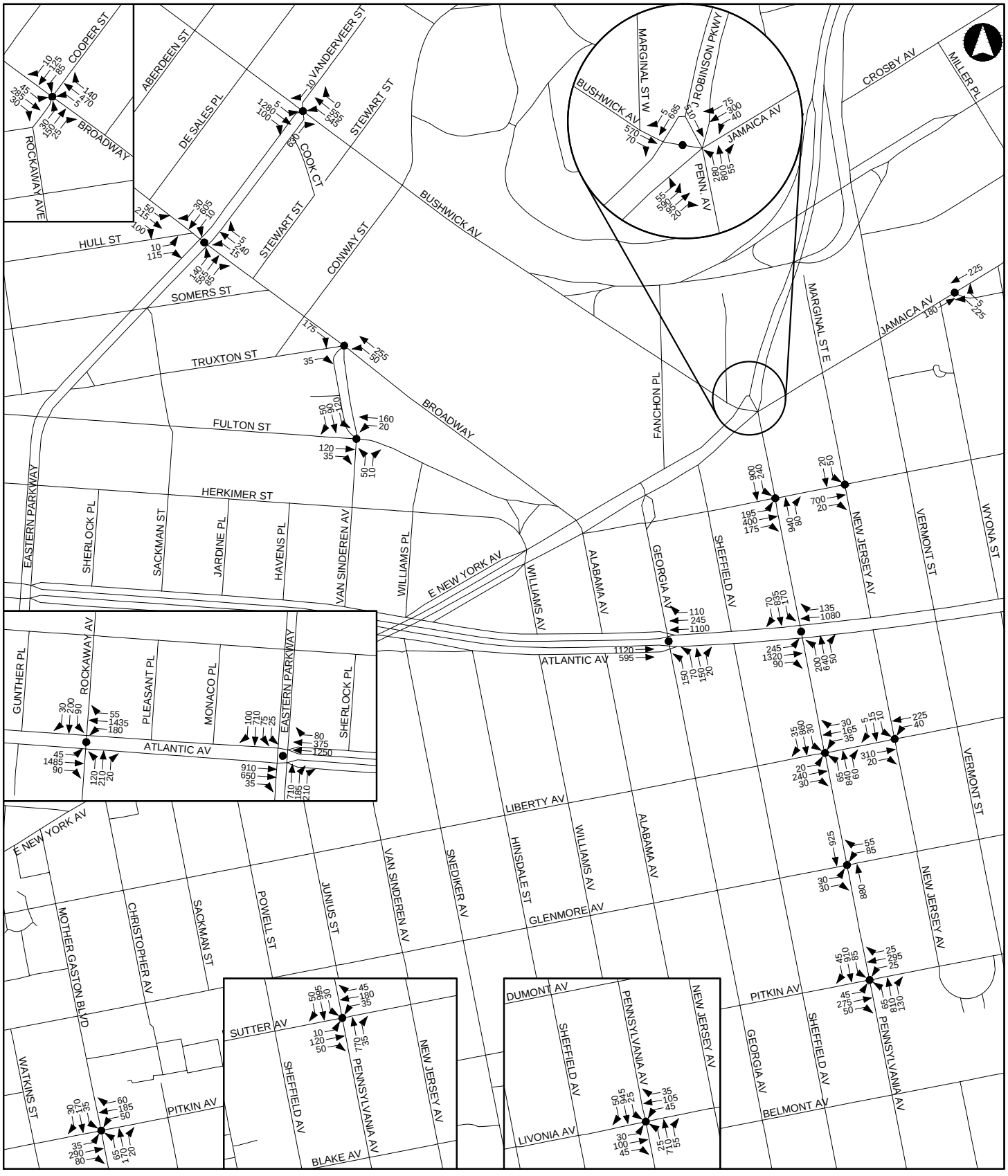
Existing Midday Peak Hour Traffic Volumes



Existing Midday Peak Hour Traffic Volumes



Existing PM Peak Hour Traffic Volumes



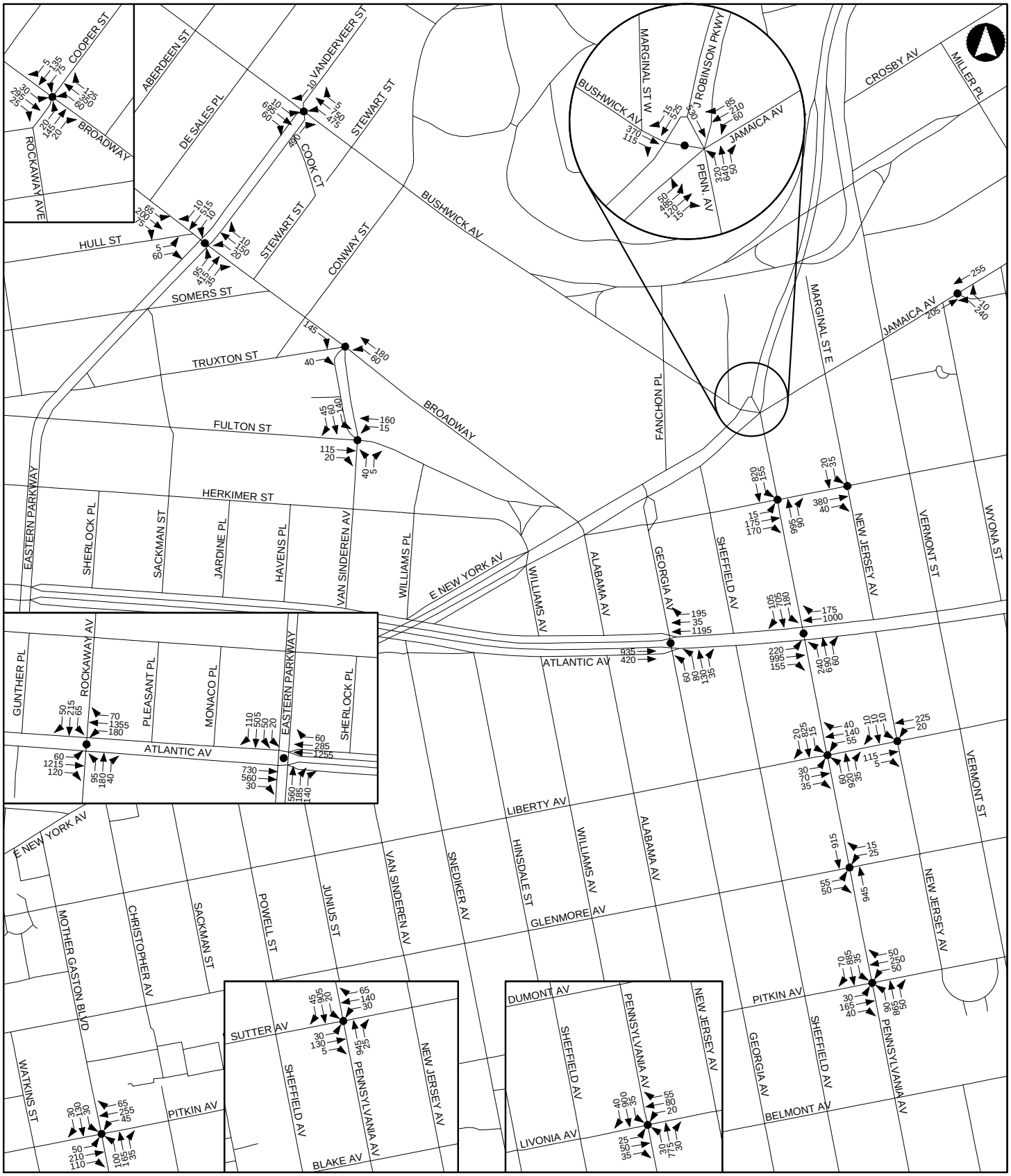
Existing PM Peak Hour Traffic Volumes



Existing PM Peak Hour Traffic Volumes



Existing Saturday Midday Peak Hour Traffic Volumes



Existing Saturday Midday Peak Hour Traffic Volumes



East New York Rezoning Proposal **Figure 13-10c**

Existing Saturday Midday Peak Hour Traffic Volumes



midday periods. V/c ratios, delays and levels of service for all lane groups at all analyzed intersections in all peak periods under existing conditions are provided in Table E-1 in Appendix E.

TABLE 13-22
Congested Lane Groups at Analyzed Intersections Under Existing Conditions

		Weekday AM				Weekday Midday				Weekday PM				Saturday Midday			
Signalized Intersection	**Approach**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
Atlantic Ave & Rockaway Ave	WB					L	0.91	61.6	E	L	1.03	106.6	F	L	0.98	88.5	F
		TR	1.02	60.0	E	TR	0.98	50.7	D								
	NB	LTR	1.05	94.2	F					LTR	1.03	89.4	F	LTR	1.04	95.3	F
	SB	LTR	0.90	71.7	E	LTR	0.98	71.8	E	LTR	1.04	103.7	F	LTR	1.05	104.2	F
Atlantic Avenue & Eastern Pkwy	WB-Main	T	0.90	36.4	D												
	SB					LTR	0.92	44.5	D	LTR	1.05	79.7	E	LTR	0.96	51.7	D
Atlantic Ave & Georgia Ave	NB	LTR	1.05	100.3	F	LTR	0.96	78.6	E	LTR	1.03	93.3	F				
Atlantic Ave & Pennsylvania Ave	EB					TR	0.95	48.8	D	T	1.05	73.4	E	TR	0.98	46.3	D
	WB	TR	0.95	47.2	D					TR	1.01	70.2	E	TR	0.98	52.4	D
	NB	L	1.05	107.1	F	L	1.05	118.0	F	L	1.05	104.9	F	L	1.02	79.9	E
		TR	1.05	88.8	F	TR	1.05	83.9	F								
	SB	L	0.80	79.1	E	L	1.00	107.8	F					L	1.01	98.7	F
		TR	1.05	88.5	F												
Atlantic Ave & Miller Ave	SB	LTR	0.85	59.4	E					LTR	0.96	76.4	E				
Atlantic Ave & Warwick St	SB									LTR	0.88	68.4	E				
Atlantic Ave & Elton St	EB									LT	0.98	37.4	D				
Atlantic Ave & Highland Pl	SB									LR	1.01	83.2	F				
Atlantic Ave & Logan St	EB									LTR	1.05	64.0	E	LTR	1.05	61.8	E
	WB	LTR	1.05	55.6	E					TR	0.90	25.6	C	LTR	1.05	55.9	E
	NB	LTR	0.94	75.7	E	LTR	1.05	107.3	F	LTR	0.96	79.7	E	LTR	0.96	63.8	E
	SB	LTR	1.05	111.3	F	LTR	1.05	110.3	F	LTR	1.05	107.9	F				
Atlantic Ave & Crescent St	SB									LTR	1.05	113.6	F				
Atlantic Ave & Eldert Ln	SB									LTR	0.75	55.1	E				
Atlantic Ave & Rockaway Blvd	EB					TR	1.05	70.4	E	TR	0.91	36.2	D	TR	0.98	50.9	D
	WB									L	1.05	105.5	F	L	1.05	96.2	F
	NB	L	0.86	69.8	E					L	0.95	105.7	F				
		TR	1.05	102.1	F					TR	0.94	78.1	E				
	SB									TR	0.89	63.8	E				
		LTR	1.05	101.6	F												
Broadway & Rockaway Ave	SB									LTR	0.82	55.7	E				
Broadway & Eastern Pkwy	EB	L	0.68	75.7	E												
		TR	0.82	59.7	E					TR	1.01	94.2	F				
	WB	LT	0.98	79.3	E												
	NB-Hull St	LR	0.50	61.3	E					LR	0.93	108.2	F				
Bushwick Ave & Eastern Pkwy	WB	L	0.97	49.1	D					L	1.05	87.6	F				
		TR	1.03	61.1	E												
	NB					R	1.05	89.2	F	R	1.00	80.1	F	R	1.05	88.8	F
	SB	R	0.21	63.3	E					R	0.19	61.5	E				
Fulton St & Pennsylvania Ave	NB	TR	0.99	60.2	E	TR	0.91	41.1	D	TR	0.92	47.7	D				
	SB									L	0.87	73.1	E				
Glenmore Ave & Pennsylvania Ave	WB	LR	1.05	102.6	F												
Bushwick Ave/Jamaica Ave &	EB-Bushwick									R	1.01	81.5	F				
Pennsylvania Ave/Jackie Robinson Pkwy	EB-Jamaica	TR	1.02	87.2	F	TR	1.04	94.2	F	TR	1.05	95.3	F	TR	1.04	82.1	F
	WB	L	1.06	135.8	F	L	1.05	127.7	F	L	1.04	129.6	F	L	1.01	109.2	F
	WB	T	1.03	126.6	F	T	1.05	126.4	F	T	1.04	129.6	F	T	1.05	120.4	F
	NB	L	1.05	106.0	F	L	1.00	93.3	F	L	0.81	59.8	E	L	0.87	55.0	E
	SB	TR	1.04	83.8	F	TR	0.89	59.4	E	TR	1.02	83.7	F				
Jamaica Ave & Highland Pl/	EB	LTR	1.04	69.5	E	LTR	1.03	70.0	E					LTR	1.05	70.9	E
Force Tube Ave										L	1.05	80.1	F				
	SB									TR	1.04	70.5	E				
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	1.05	64.3	E	LTR	0.90	32.6	C	LTR	1.04	60.4	E	LTR	0.98	46.4	D
Liberty Ave & Pennsylvania Ave	EB									LTR	0.89	66.0	E				
	WB					LTR	0.81	57.9	E	LTR	0.84	62.4	E				
	NB	LTR	0.92	32.2	C												
Liberty Ave & Hendrix St	SB													LTR	0.77	56.0	E
Liberty Ave & Warwick St	SB	LTR	0.89	64.0	E												
Liberty Ave & Logan St	SB	LR	1.05	118.4	F	LR	0.77	62.1	E	LR	1.05	122.7	F				
Liberty Ave & South Conduit Blvd	WB	L	0.99	82.8	F	L	1.05	118.9	F					L	1.05	101.2	F
Liberty Ave & North Conduit Blvd	WB	T	1.01	83.4	F												
										TR	1.05	101.3	F	TR	1.05	88.9	F
Livonia Ave & Pennsylvania Ave	EB	LTR	0.86	72.0	E												
	WB	LTR	1.05	100.8	F												
Pitkin Ave & Pennsylvania Ave	EB	TR	1.04	97.7	F					TR	0.86	61.3	E				
						LTR	0.99	85.8	F								
	SB	LTR	0.92	31.5	C	LTR	0.92	33.0	C	LTR	0.92	32.4	C				
Pitkin Ave & South Conduit Blvd	WB	L	0.83	60.9	E									L	1.05	112.7	F
Sutter Ave & Pennsylvania Ave	WB	LTR	1.05	103.0	F					LTR	0.79	55.1	E				
Unsignalized Intersection																	
Fulton St & Elton St	NB	TR	0.94	86.9	F					TR	0.83	73.9	F				
Fulton St & Chestnut St	NB	LTR	0.94	77.9	F					LTR	0.73	48.9	E				
Glenmore Ave & Miller Ave	SB	TR	0.75	43.0	E												

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

Future No-Action Traffic Growth

Between 2015 and 2030, it is expected that transportation demands in the vicinity of the rezoning area will increase due to long-term background growth as well as development that could occur pursuant to existing zoning. Development on projected development sites is expected to add a net total of approximately 428 dwelling units, 323,263 sf of commercial uses; 81,175 sf of industrial uses; 79,138 sf of community facility uses; and 839 accessory parking spaces.

In order to forecast future traffic conditions without the Proposed Actions (the No-Action condition), development on projected development sites and other developments listed in Table 2-4 in Chapter 2 were considered. The Future No-Action traffic volumes also reflect annual background growth rates of 0.50 percent per year for the 2015 through 2020 period and 0.25 percent for the 2020 through 2030 period. These background growth rates, recommended in the *CEQR Technical Manual* for projects in Brooklyn outside of the Downtown area, are applied to account for smaller projects and as-of-right developments not reflected in Table 2-4, and general increases in travel demand not attributable to specific development projects. Where new developments (excluding those on projected development sites) were found to generate relatively little new traffic through analyzed intersections, demand from these sites was also assumed to be reflected as part of general background growth. Figure 13-11 through Figure 13-14 show total No-Action traffic volumes during weekday AM, midday and PM and Saturday midday peak hours.

Changes to the Study Area Street Network

The 2015 through 2030 period will likely see the implementation of a number of physical and operational changes to the study area street system associated with DOT's Atlantic Avenue Improvement project and *Highland Park Traffic Study*, and mitigation for the planned Livonia Commons development project. Planned physical and operational changes that are reflected in the No-Action traffic network are discussed below.

ATLANTIC AVENUE IMPROVEMENT PROJECT

The New York City Department of Transportation (DOT) is proposing a capital project on Atlantic Avenue between Georgia Avenue and Conduit Boulevard as part of Mayor de Blasio's Vision Zero Great Streets initiative. This project aims to reduce crashes by working with the community to develop a design that includes a raised, planted, center median, pedestrian safety islands, left turn bays, turn restrictions, curb extensions, midblock crossings and an upgraded markings plan. As part of these improvements, signal timing plans will be revised, high visibility crosswalks will be installed, and all crosswalks and pedestrian ramps will be upgraded to Americans with Disabilities Act (ADA) standards. It is anticipated that implementation of these physical and operational improvements along Atlantic Avenue within the traffic study area would occur within the next three to five years (i.e., prior to the Proposed Actions' 2030 analysis year). While the final scope of this project is not yet finalized and is subject to community input and additional DOT analysis, the following improvements were assumed for this traffic analysis based on the initial conceptual design.

Pennsylvania Avenue

A new 30-foot-long sidewalk extension (bulb out) will be installed on Atlantic Avenue at the northwest corner of the intersection.

Vermont Street

The eastbound left-turn movement from Atlantic Avenue onto Vermont Street will be prohibited, and the Atlantic Avenue median will be shortened to accommodate installation of a new 75-foot-long westbound left-turn lane.

Van Siclen Avenue

A new no standing anytime curbside parking regulation will be implemented along eastbound Atlantic Avenue approaching Van Siclen Avenue.

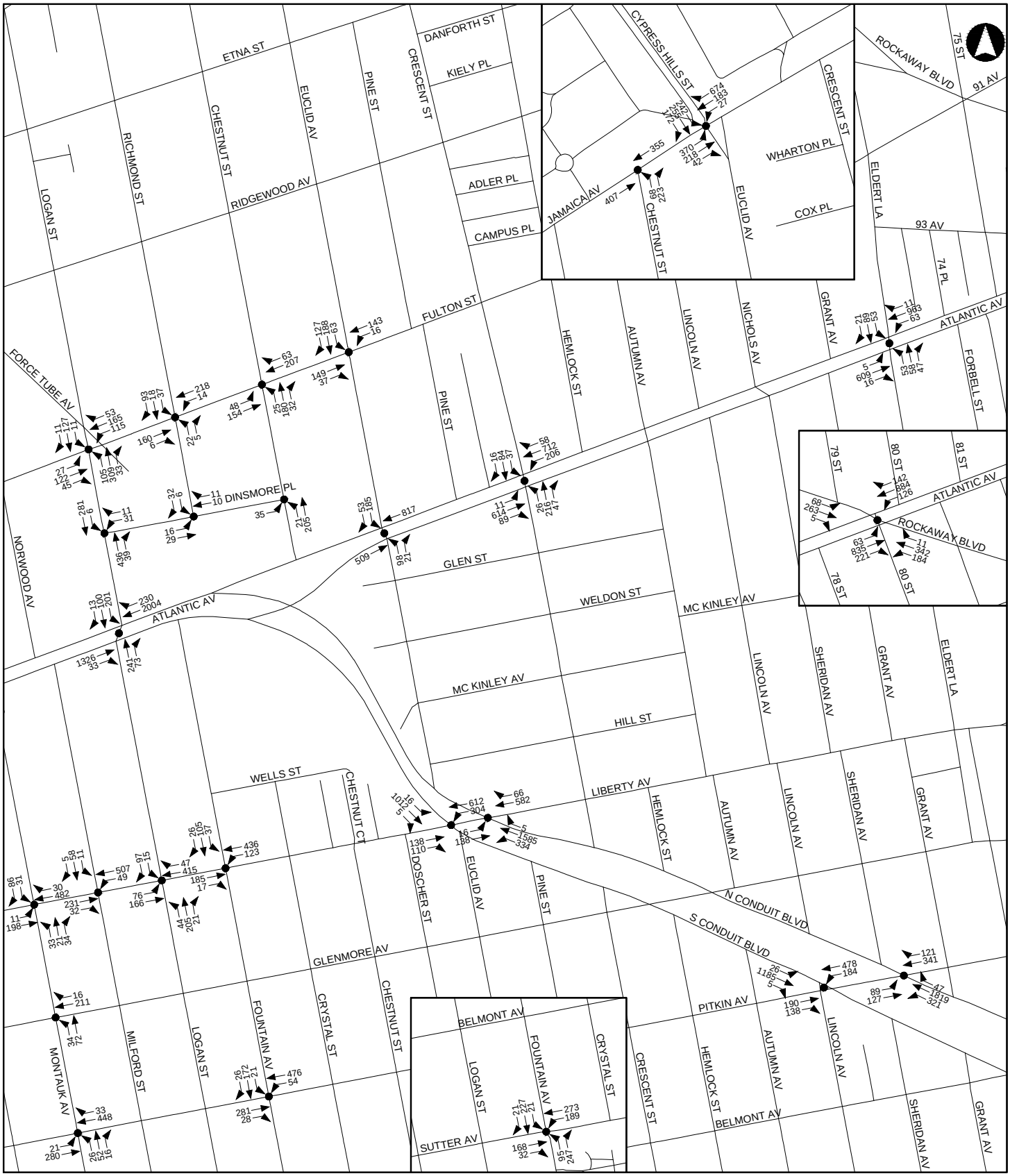
No-Action AM Peak Hour Traffic Volumes



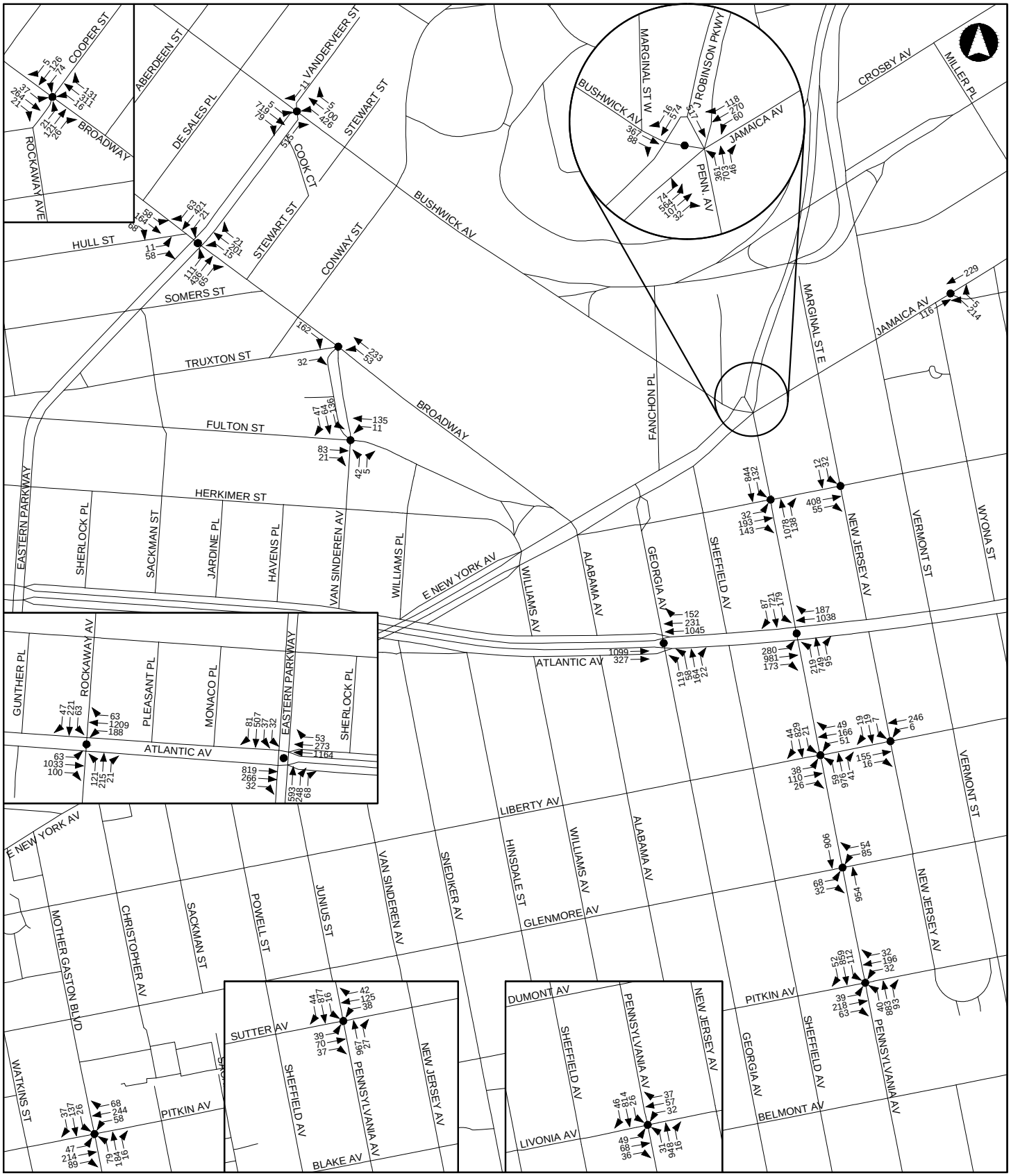
No-Action AM Peak Hour Traffic Volumes



No-Action AM Peak Hour Traffic Volumes



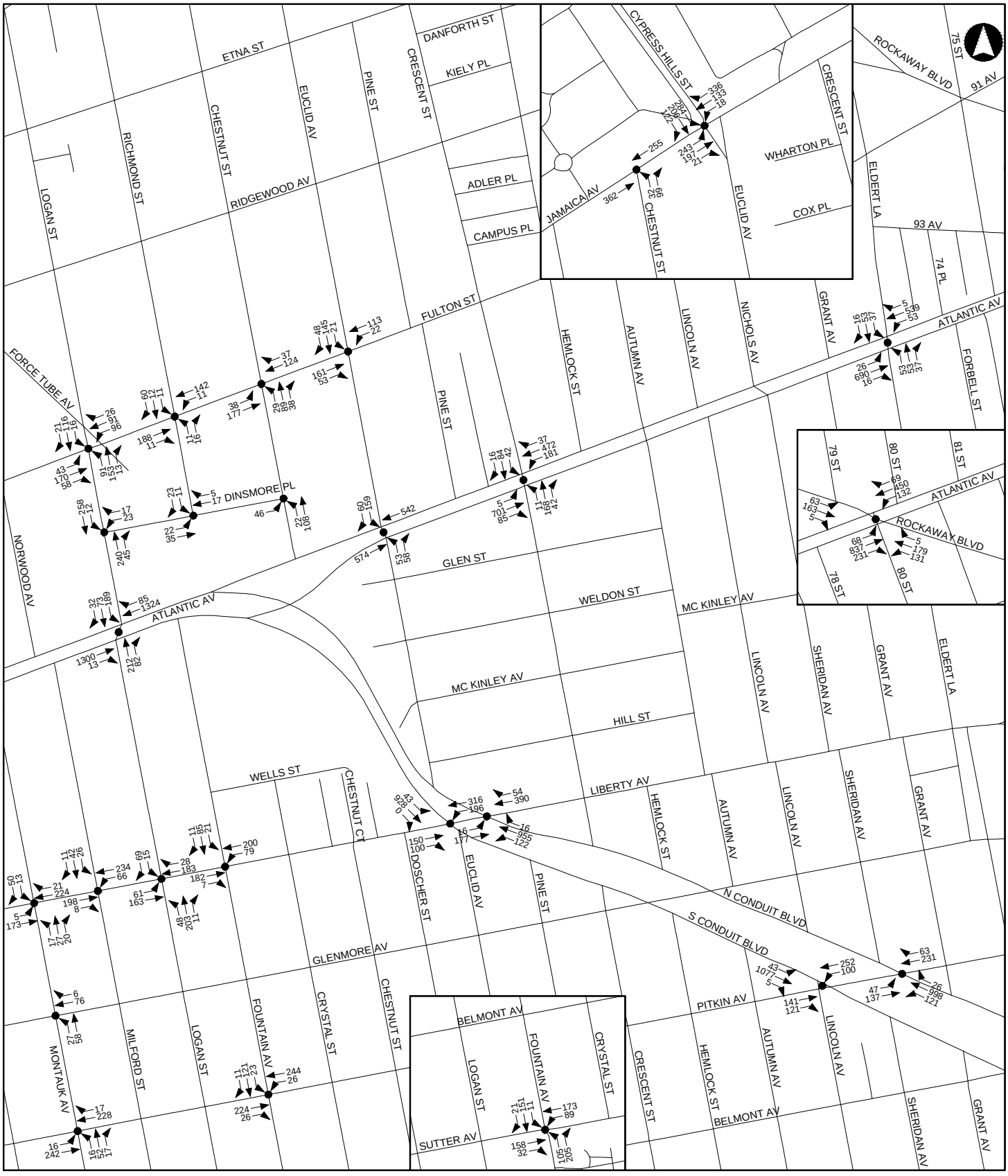
No-Action Midday Peak Hour Traffic Volumes



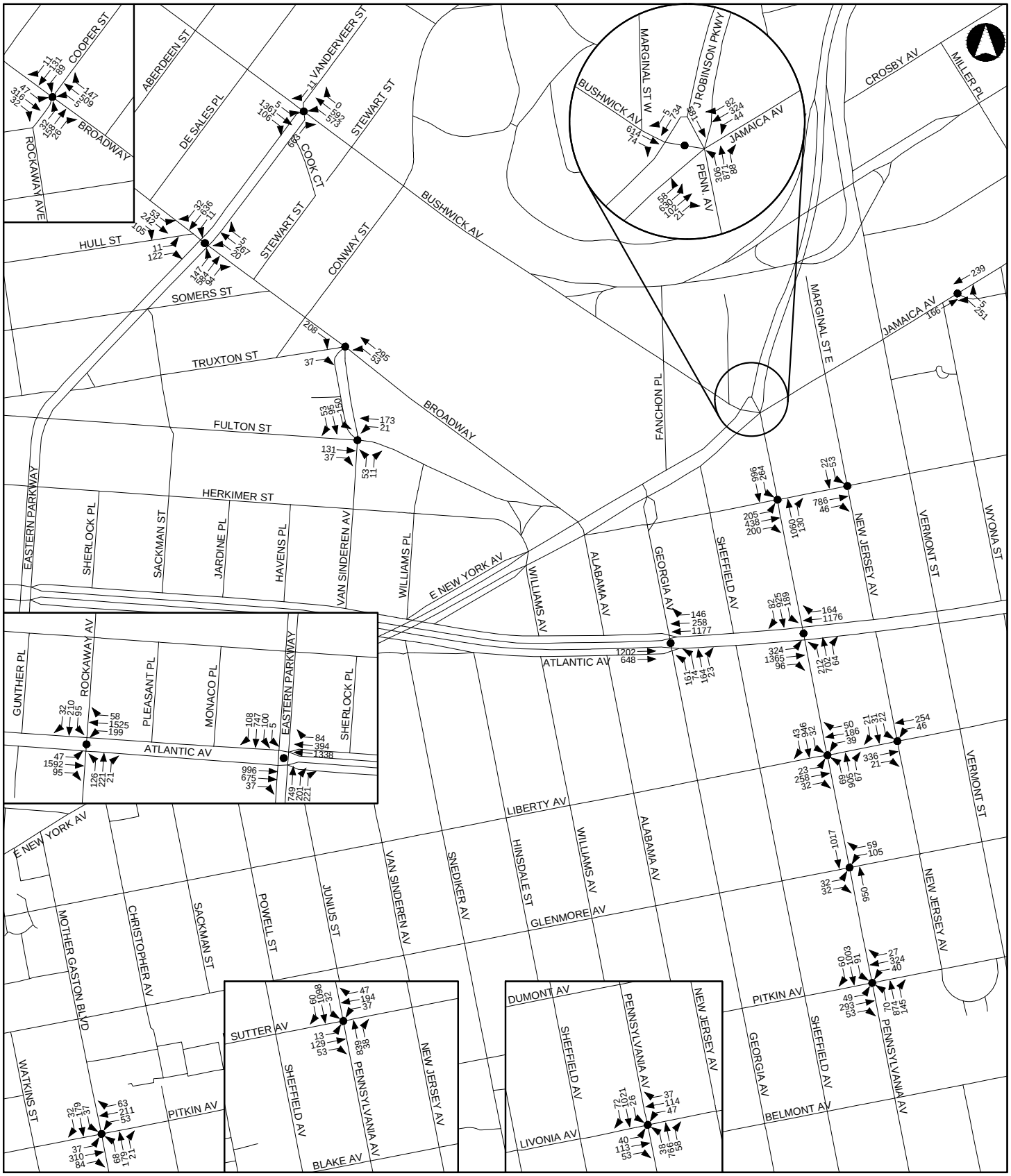
No-Action Midday Peak Hour Traffic Volumes



No-Action Midday Peak Hour Traffic Volumes



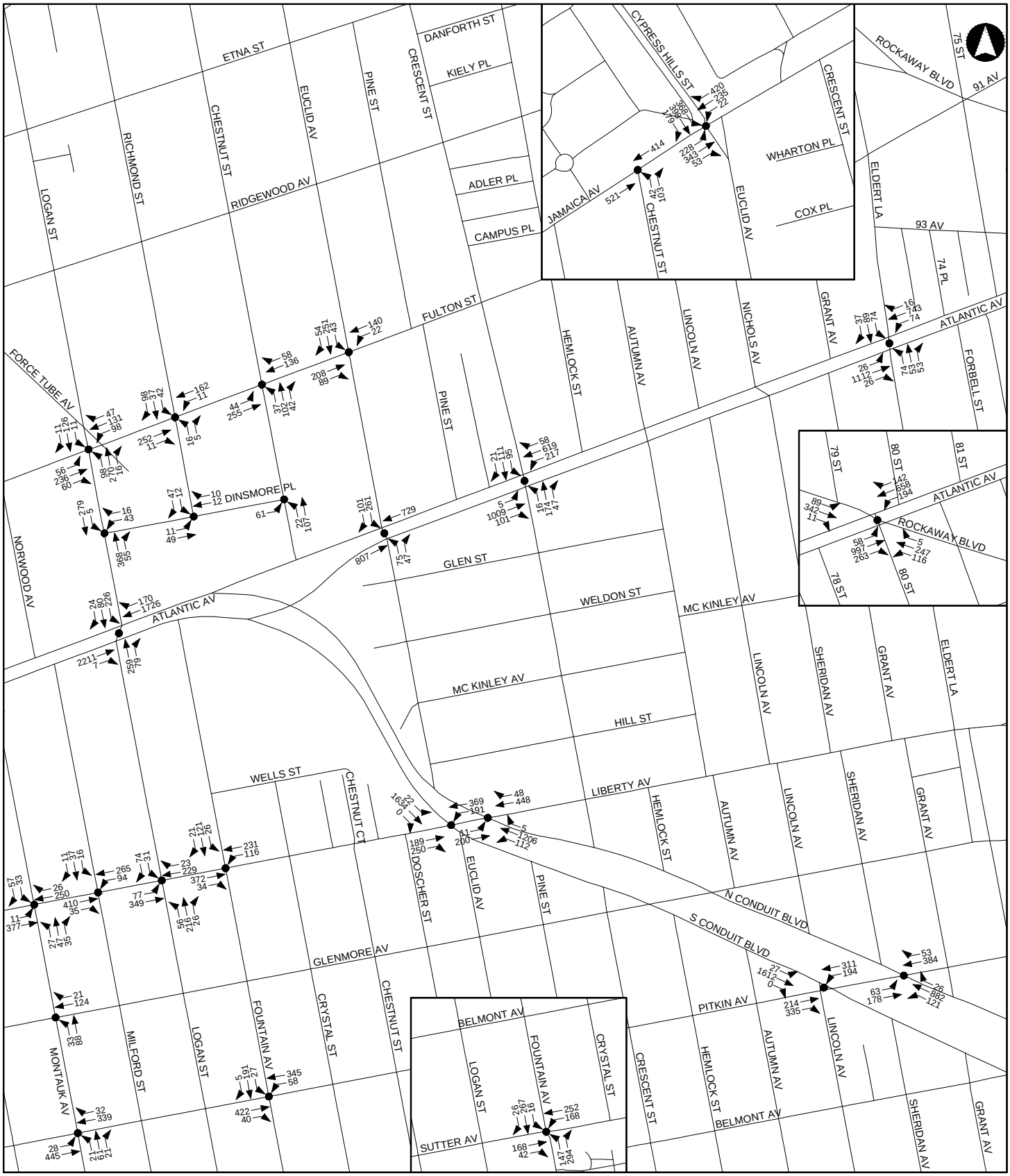
No-Action PM Peak Hour Traffic Volumes



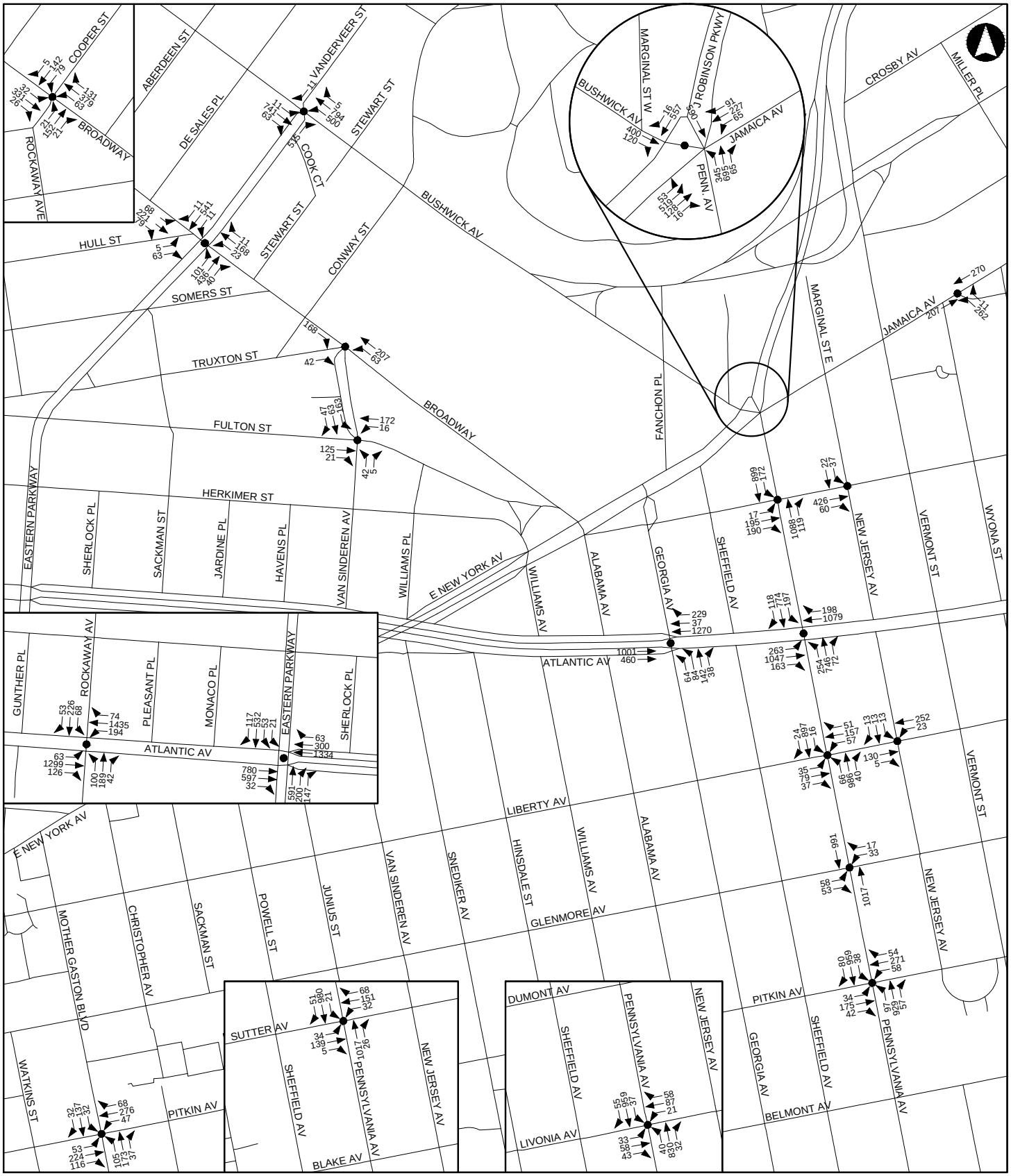
No-Action PM Peak Hour Traffic Volumes



No-Action PM Peak Hour Traffic Volumes



No-Action Saturday Midday Peak Hour Traffic Volumes



No-Action Saturday Midday Peak Hour Traffic Volumes



No-Action Saturday Midday Peak Hour Traffic Volumes



Hendrix Street

The raised median along Atlantic Avenue will be extended through the intersection. The southbound though and left-turn movements on Hendrix Street will be eliminated and all southbound traffic will turn right onto westbound Atlantic Avenue.

Warwick Street

The raised median on Atlantic Avenue will be shortened to accommodate installation of a new 120-foot-long westbound left-turn lane.

Cleveland Street

A new no standing anytime curbside parking regulation will be installed along westbound Atlantic Avenue approaching Cleveland Street.

Elton Street

The Atlantic Avenue median will be shortened to accommodate a new 140-foot-long eastbound left-turn lane.

Berriman Street

The raised Atlantic Avenue median will be extended through the intersection, the northbound left-turn from Berriman Street onto westbound Atlantic Avenue will be eliminated, and the traffic signal at this intersection and the crosswalks on Atlantic Avenue will be removed. The northbound approach on Berriman Street will be stop-controlled, with all traffic turning right onto eastbound Atlantic Avenue.

Highland Place

A new 120-foot-long eastbound left-turn lane will be installed on the Atlantic Avenue approach to Highland Place.

Logan Street

The northbound, eastbound and westbound left-turn movements will be prohibited at this intersection, and the northbound Logan Street approach will be restriped to provide a single 11-foot-wide travel lane in each direction plus a 9-foot-wide parking lane along the west curb. A 30-foot-long sidewalk bulb out will installed on Atlantic Avenue at the southwest corner of the intersection.

It should be noted that the analyses of No-Action and With-Action traffic conditions reflect the physical and operational improvements at Atlantic Avenue intersections outlined above. However, new signal timing plans associated with these improvements have not yet been finalized by DOT. At the Atlantic Avenue/Logan Street intersection, the green time currently allocated to the leading westbound phase was reallocated to the northbound/southbound phase as this green time would no longer be needed to accommodate westbound left-turns. At all other intersections along Atlantic Avenue, the current signal timing plans were utilized without modification for the analyses of future conditions. It is therefore anticipated that with updated traffic signal timing plans designed to complement the planned physical and operational changes, future traffic conditions would be improved compared to those reflected in the No-Action and With-Action traffic analyses.

HIGHLAND PARK TRAFFIC STUDY

In spring 2016, DOT plans to implement traffic improvements recommended in the *Highland Park Transportation Study* at two study area locations – along Georgia Avenue at Jamaica Avenue and Fulton Street, and at the Pennsylvania Avenue/Liberty Avenue intersection.

Georgia Avenue at Jamaica Avenue/Fulton Street

Westbound left-turns and eastbound right-turns from Jamaica Avenue onto Georgia Avenue will be prohibited, and Georgia Avenue will be converted from two-way to one-way northbound operation between Fulton Street and

Jamaica Avenue. The southwest curb of the traffic island flanking this block of Georgia Avenue on the west will be extended and the center median will be widened. The roadway will be restriped to include a left-turn lane and a bus-only though lane to the west of the median, and a bus-only through lane and a right-turn lane to the east of the median. A stop sign and crosswalk will be installed on the Fulton Street approach. (Although the intersections of Georgia Avenue with Jamaica Avenue and Fulton Street are not analyzed, traffic diversions associated with these improvements would likely affect nearby analyzed intersections.)

Pennsylvania Avenue and Liberty Avenue

A new northbound left-turn bay will be installed on Pennsylvania Avenue and a new signal phase will be provided for the northbound/southbound left-turn movement. An existing midblock bus stop on the southbound Pennsylvania Avenue approach will be relocated to the intersection to provide an additional southbound moving lane at midblock, and a new no parking 6 AM-8 PM regulation will be implemented along the west side of Pennsylvania Avenue south of Liberty Avenue to provide for two receiving lanes.

LIVONIA COMMONS

Minor signal timing adjustments are planned for the intersection of Pennsylvania and Livonia avenues to provide additional capacity to the eastbound/westbound movements during the weekday AM and PM peak periods.

Intersection Capacity Analysis

Table 13-23 shows a summary comparison of intersection levels of service for the Existing condition and the future No-Action condition with the street network changes and changes in traffic flows discussed above. As shown in Table 13-23, in the weekday AM peak hour, it is expected that nine analyzed intersections would operate at LOS E or F and 13 would operate at a marginally acceptable LOS D in the No-Action condition. This compares to three intersections operating at LOS E or F and nine at LOS D under Existing conditions. Fifty-three individual lane groups out of the approximately 265 such lane groups analyzed would operate at LOS E or F in the AM peak hour in the No-Action compared to 42 under Existing conditions. Fifty-one individual lane groups would operate with a v/c ratio of 0.90 or greater in the AM in the No-Action compared to 36 under Existing conditions.

TABLE 13-23
Intersection Level of Service Summary Comparison: Future No-Action vs. Existing Conditions

	Existing				No-Action			
	Weekday AM	Weekday MD	Weekday PM	Saturday Midday	Weekday AM	Weekday MD	Weekday PM	Saturday Midday
Overall LOS A/B/C	62	69	63	69	52	63	51	64
Overall LOS D	9	3	9	3	13	8	13	7
Overall LOS E	3	2	2	2	5	2	8	2
Overall LOS F	0	0	0	0	4	1	2	1
Lane Groups at v/c $\geq$ 0.90	36	23	36	22	51	29	60	33
No. of lane groups at LOS E or F of the approximately 265 analyzed	42	20	44	19	53	31	57	28

In the weekday midday peak hour, eight analyzed intersections would operate at LOS D, and three at LOS E or F in the No-Action condition compared to three intersections operating at LOS D and two at LOS E or F under Existing conditions. Thirty-one of the approximately 265 individual lane groups analyzed are expected to operate at LOS E or F in the midday peak hour in the No-Action, compared to 20 under existing conditions. Twenty-nine individual lane groups would operate with a v/c ratio of 0.90 or greater in the midday in the No-Action compared to 23 under Existing conditions.

In the weekday PM peak hour, 10 analyzed intersections would operate at LOS E or LOS F and 13 at a marginally acceptable LOS D in the No-Action condition. This compares to two intersections operating at LOS E or F and nine at LOS D in the PM under existing conditions. Fifty-seven individual lane groups out of the approximately 265 such lane groups analyzed would operate at LOS E or F in the PM peak hour in the No-Action compared to 44 under Existing

conditions. Sixty individual lane groups would operate with a v/c ratio of 0.90 or greater in the PM in the No-Action compared to 36 under Existing conditions.

Lastly, in the Saturday midday peak hour, seven analyzed intersections would operate at LOS D, and three at LOS E or F in the No-Action condition, compared to three operating at LOS D and two at LOS E or F under Existing conditions. Twenty-eight individual lane groups of the approximately 265 such lane groups analyzed would operate at LOS E or F in the Saturday midday peak hour in the No-Action compared to 19 under Existing conditions. Thirty-three individual lane groups would operate with a v/c ratio of 0.90 or greater in the Saturday midday in the No-Action compared to 22 under Existing conditions.

The volume-to-capacity ratios, delays and levels of service for those individual lane groups experiencing congestion in one or more peak hours under No-Action conditions are shown in Tables 13-24 through 13-27. As shown in Tables 13-24 through 13-27, a total of 41 intersections (38 signalized and three stop- controlled) will have at least one congested lane group in one or more peak hours in the No-Action condition, compared to 33 intersections (30 signalized and three stop-controlled) under Existing conditions. Atlantic Avenue will have 12 congested intersections (unchanged from Existing conditions), followed by Liberty Avenue with six intersections (six existing) and Fulton Street with eight intersections (three existing). A total of 23 intersections will have one or more lane groups operating at or over capacity in the weekday AM peak hour, 15 in the midday, 23 in the PM and 14 in the Saturday midday peak hour. This compares to 15, 7, 15 and 10 intersections operating at capacity during these same periods, respectively, under Existing conditions. V/c ratios, delays and levels of service for all lane groups at all analyzed intersections in all peak periods under No-Action conditions are provided in Table E-2 in Appendix E.

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

As shown in Table 13-11, based on projected development associated with the Proposed Actions, there would be a total of approximately 1,489, 1,018, 1,727, and 1,081 additional vehicle (auto, taxi, truck and school bus) trips during the weekday AM, midday and PM and Saturday midday peak hours, respectively. Auto and taxi trips were first assigned to various portals on the periphery of the rezoning area based on the locations of each projected development site cluster and outlier site and the anticipated origins and destinations of vehicle trips associated with the different uses projected for each site (e.g., commercial, residential, etc.). The origins/destinations of residential and non-retail commercial trips were determined based upon 2009-2013 ACS journey-to-work and reverse journey-to-work data, respectively. Retail trip origins/destinations were based on population density in proximity to the rezoning area. Auto and taxi trips were then assigned via the most direct routes between the portals and trip nodes located within each cluster or in proximity to an outlier development site. (Additional auto and taxi trip distribution data are provided in the *East New York Rezoning Transportation Planning Factors and Travel Demand Forecast Technical Memorandum* included in Appendix E.)

Truck trips en route to and from each cluster/outlier site were assigned to designated through and local truck routes and then to the most direct paths to and from trip nodes. The majority of truck trips were assigned to the through truck route along Atlantic Avenue as this corridor connects the rezoning area to both the Brooklyn-Queens expressway (I-278) to the west and the Van Wyck Expressway (I-678) to the east. Other truck routes in proximity to the rezoning area to which trips were assigned include Broadway Pennsylvania Avenue, North Conduit Boulevard and South Conduit Boulevard.

Figures 13-15 through 13-18 show the assignment of incremental vehicle trips (auto, taxi, truck and school bus) generated during the weekday AM, midday and PM and Saturday midday peak hours under the Proposed Actions. Figures 13-19 through 13-22 show the total weekday AM, midday and PM and Saturday midday traffic volumes in the 2030 future with the Proposed Actions. The volumes shown are the combination of the net incremental traffic generated by the Proposed Actions and the No-Action volumes. No changes to the study area street network are planned as part of the Proposed Actions.

AM Peak Hour Project Increment Traffic Volumes



AM Peak Hour Project Increment Traffic Volumes



AM Peak Hour Project Increment Traffic Volumes



Midday Peak Hour Project Increment Traffic Volumes



Midday Peak Hour Project Increment Traffic Volumes



Midday Peak Hour Project Increment Traffic Volumes



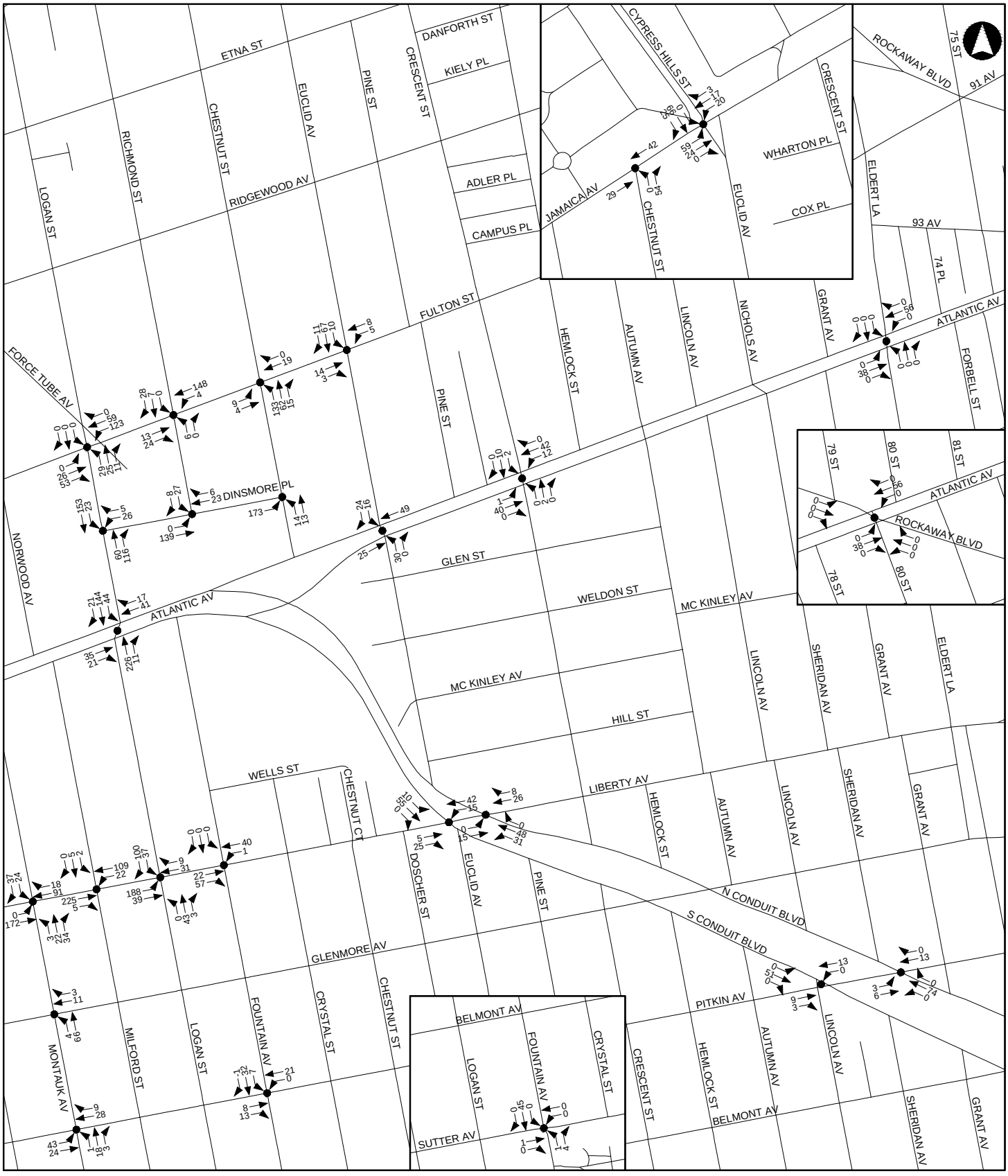
PM Peak Hour Project Increment Traffic Volumes



PM Peak Hour Project Increment Traffic Volumes



PM Peak Hour Project Increment Traffic Volumes



Saturday Midday Peak Hour Project Increment Traffic Volumes



Saturday Midday Peak Hour Project Increment Traffic Volumes



East New York Rezoning Proposal **Figure 13-18c**

Saturday Midday Peak Hour Project Increment Traffic Volumes



With-Action AM Peak Hour Traffic Volumes



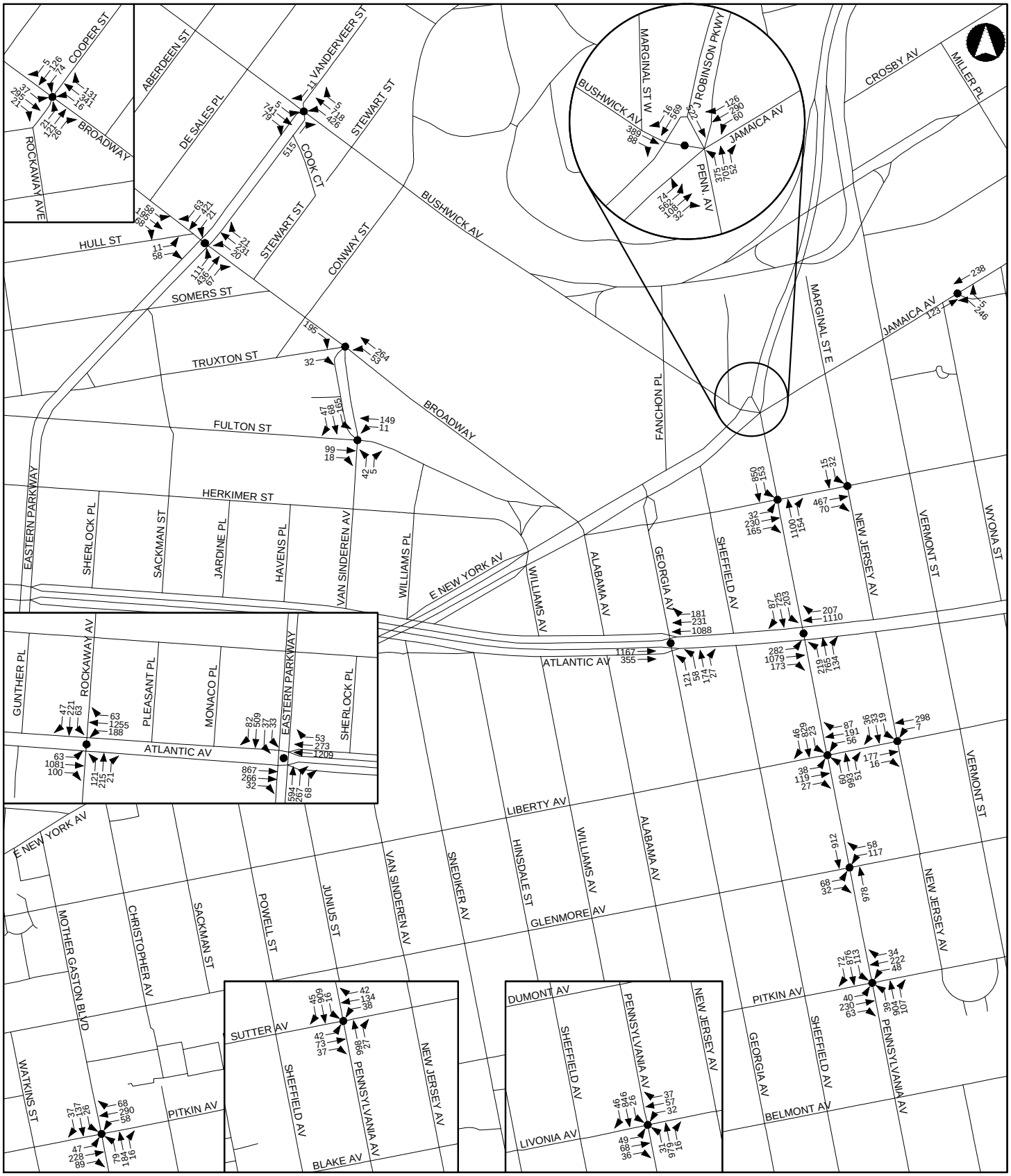
With-Action AM Peak Hour Traffic Volumes



With-Action AM Peak Hour Traffic Volumes



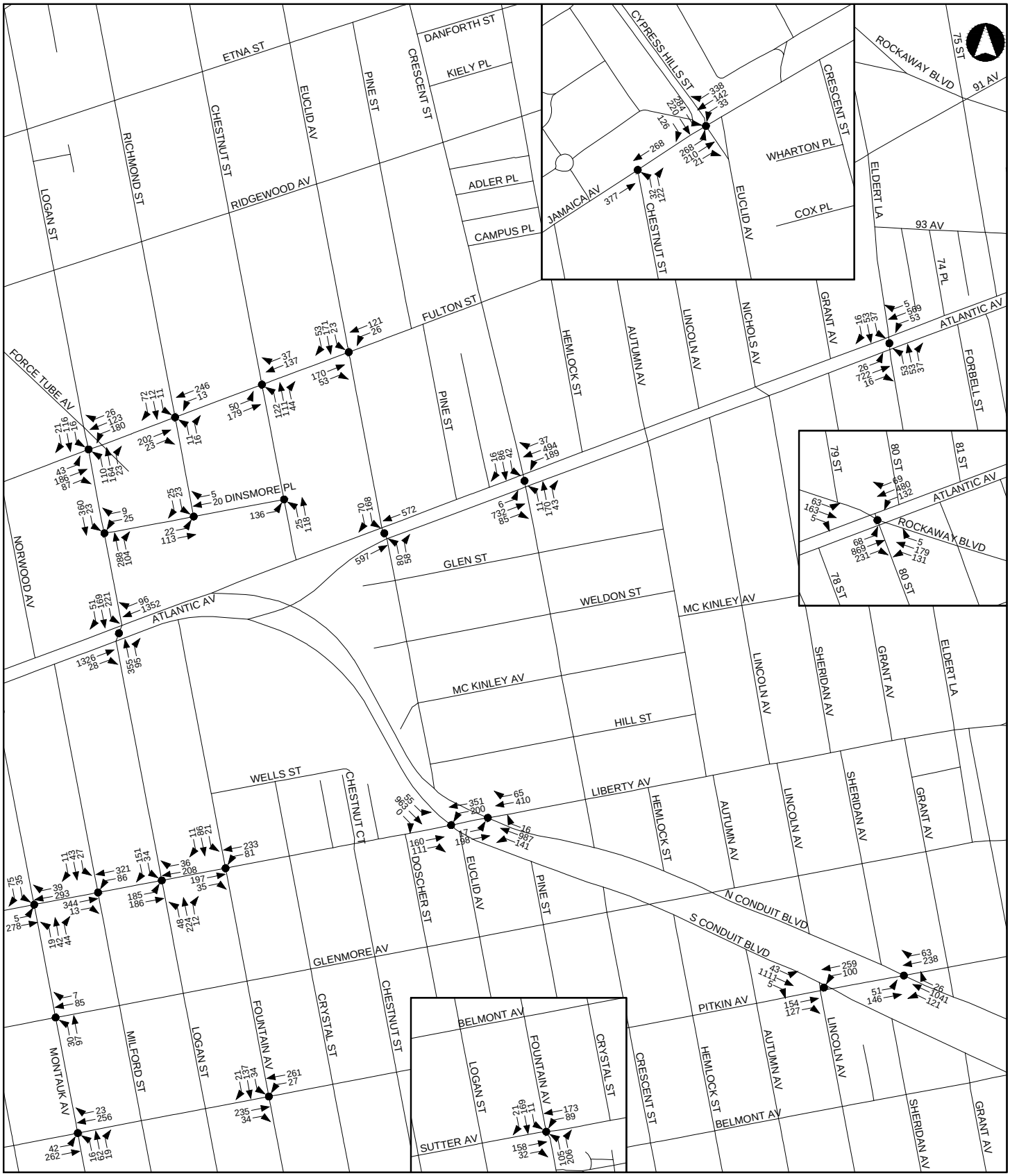
With-Action Midday Peak Hour Traffic Volumes



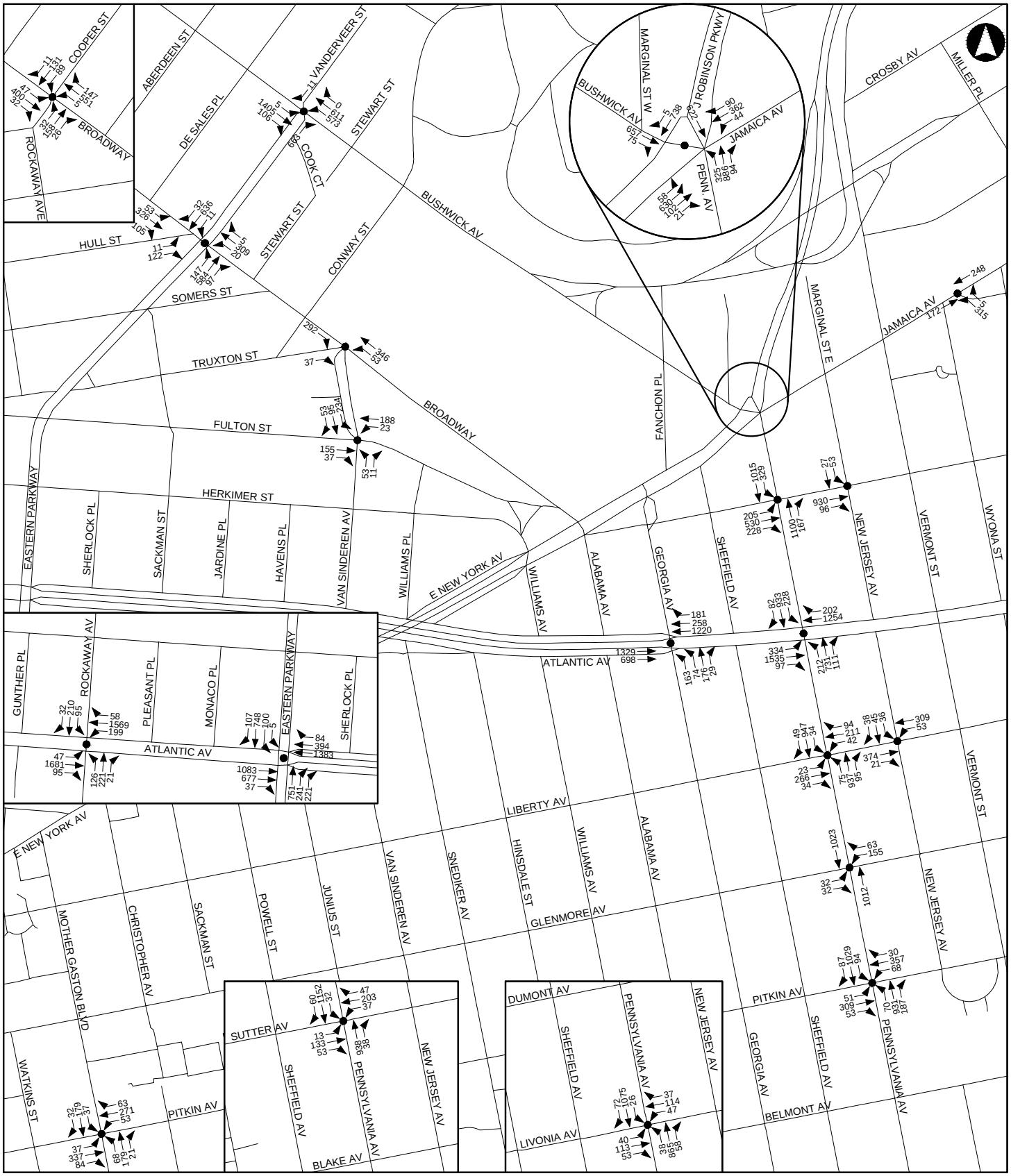
With-Action Midday Peak Hour Traffic Volumes



With-Action Midday Peak Hour Traffic Volumes



With-Action PM Peak Hour Traffic Volumes



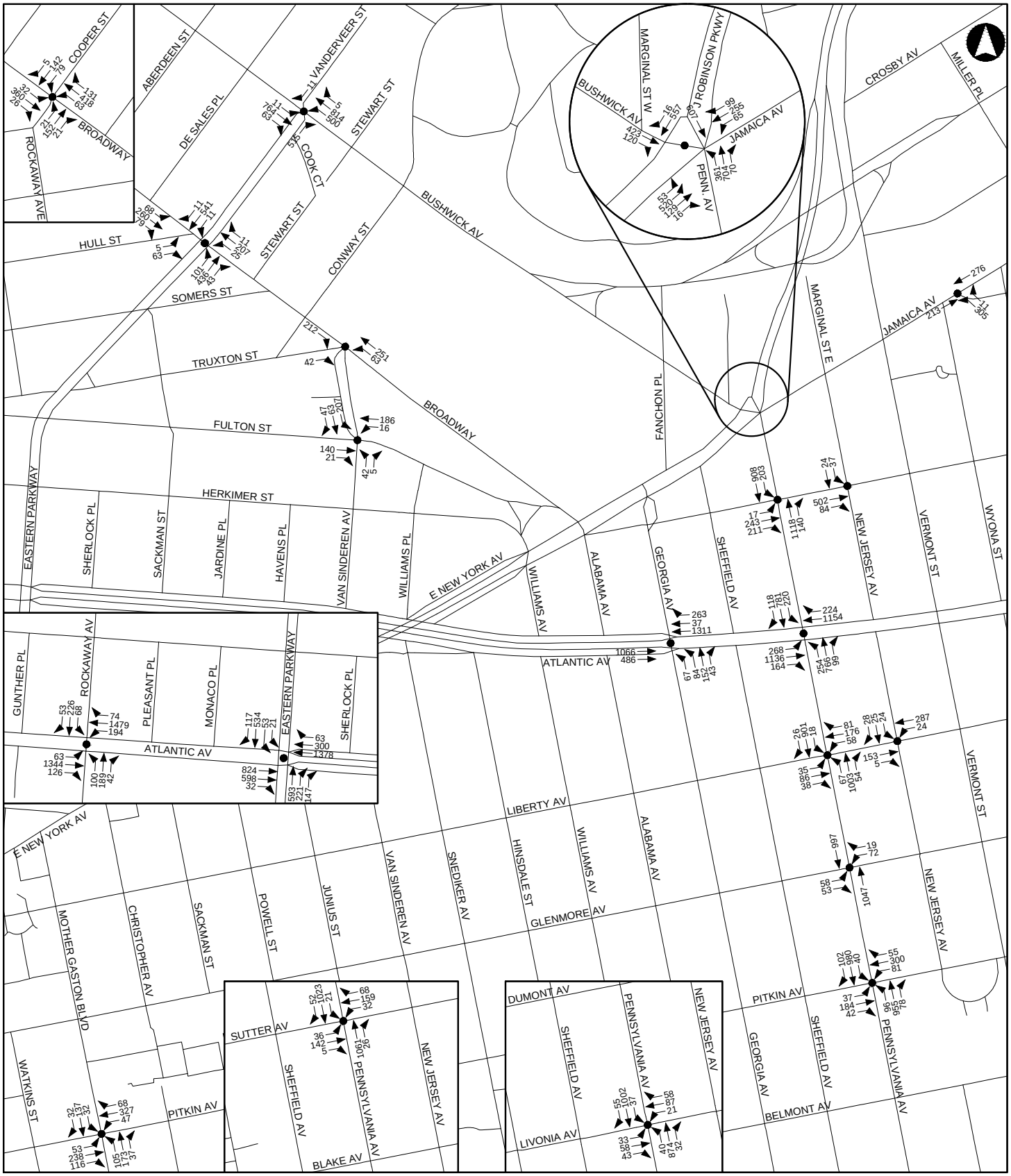
With-Action PM Peak Hour Traffic Volumes



With-Action PM Peak Hour Traffic Volumes



With-Action Saturday Midday Peak Hour Traffic Volumes



With-Action Saturday Midday Peak Hour Traffic Volumes



East New York Rezoning Proposal **Figure 13-22c**

With-Action Saturday Midday Peak Hour Traffic Volumes

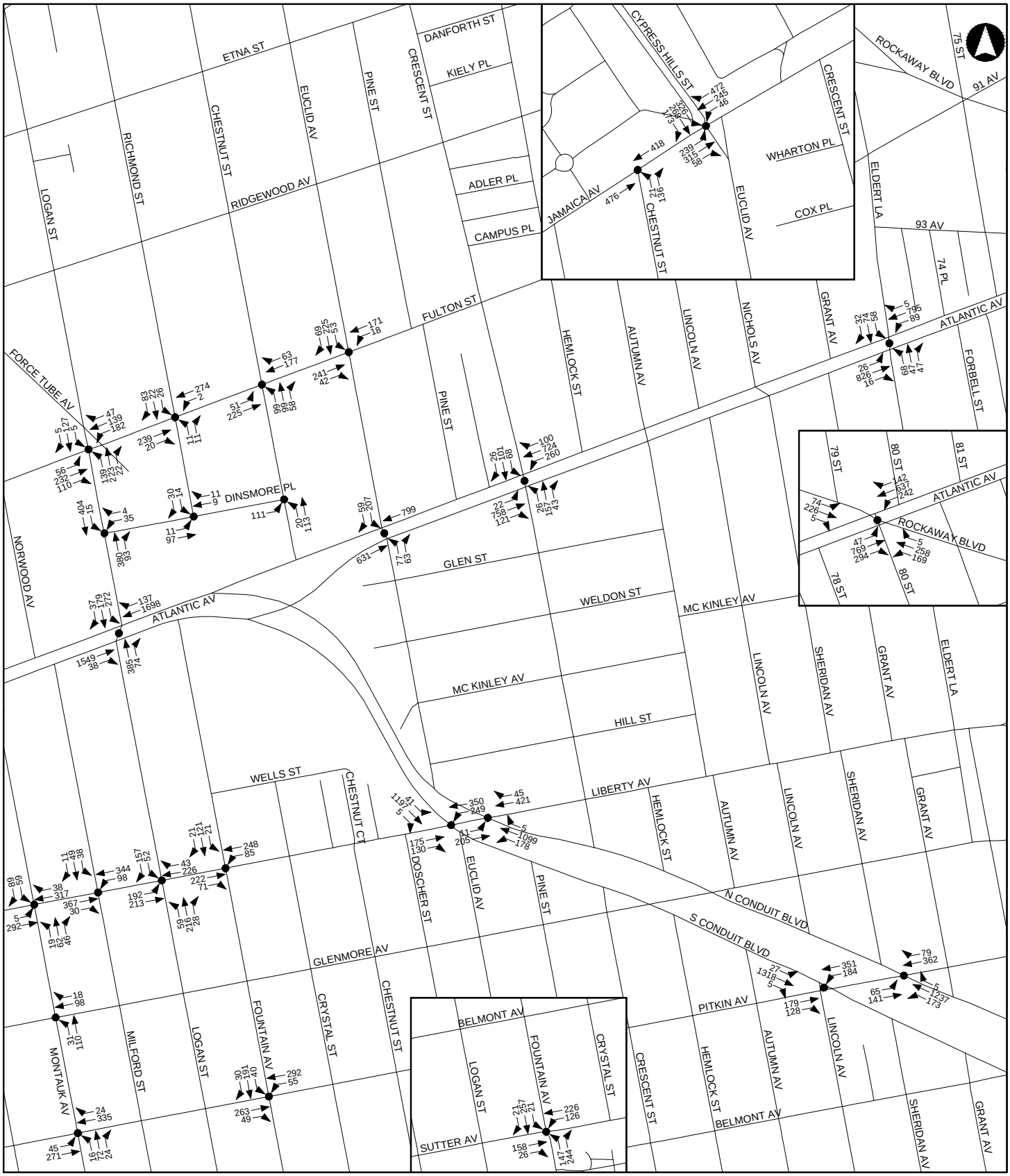


TABLE 13-24

Congested Lane Groups at Analyzed Intersections Under No-Action Conditions: Weekday AM Peak Hour

		Weekday AM Existing				Weekday AM No-Action			
Signalized Intersection	**Approach**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
Atlantic Ave & Rockaway Ave	WB	TR	1.02	60.0	E	TR	1.08	80.7	F
	NB	LTR	1.05	94.2	F	LTR	1.12	118.0	F
	SB	LTR	0.90	71.7	E	LTR	0.96	84.2	F
Atlantic Avenue & Eastern Pkwy	WB-Main	T	0.90	36.4	D	T	0.96	44.0	D
Atlantic Ave & Georgia Ave	NB	LTR	1.05	100.3	F	LTR	1.14	128.9	F
Atlantic Ave & Pennsylvania Ave	WB	TR	0.95	47.2	D	TR	1.02	63.2	E
	NB	L	1.05	107.1	F	L	1.11	124.9	F
		TR	1.05	88.8	F	TR	1.36	214.3	F
	SB	L	0.80	79.1	E	L	0.93	143.2	F
		TR	1.05	88.5	F	TR	1.14	120.7	F
Atlantic Ave & Miller Ave	SB	LTR	0.85	59.4	E	LTR	1.22	161.0	F
Atlantic Ave & Schenck Ave	NB	LTR	0.76	51.4	D	LTR	1.28	186.8	F
Atlantic Ave & Warwick St	SB	LTR	0.77	53.0	D	LTR	1.16	140.7	F
Atlantic Ave & Highland Pl	SB	LR	0.81	53.0	D	LR	0.87	58.6	E
Atlantic Ave & Logan St	WB	LTR	1.05	55.6	E	TR	0.95	36.4	D
	NB	LTR	0.94	75.7	E	TR	0.60	32.5	C
	SB	LTR	1.05	111.3	F	LTR	0.91	61.8	E
Atlantic Ave & Rockaway Blvd	NB	L	0.86	69.8	E	L	0.94	85.1	F
		TR	1.05	102.1	F	TR	1.11	121.5	F
	SB	LTR	1.05	101.6	F	LTR	1.16	142.4	F
Broadway & Eastern Pkwy	EB	L	0.68	75.7	E	L	0.98	154.2	F
		TR	0.82	59.7	E	TR	0.90	69.8	E
	WB	LT	0.98	79.3	E	LT	1.12	123.2	F
	NB	DefL	0.80	51.5	D	DefL	0.89	68.2	E
	NB-Hull St	LR	0.50	61.3	E	LR	0.53	62.8	E
Bushwick Ave & Eastern Pkwy	WB	L	0.97	49.1	D	L	1.05	71.3	E
		TR	1.03	61.1	E	TR	1.09	79.9	E
	SB	R	0.21	63.3	E	R	0.25	65.2	E
Fulton St & Van Sinderen Ave	NB	LR	0.51	30.0	C	LR	0.75	62.8	E
Fulton St & Pennsylvania Ave	NB	TR	0.99	60.2	E	TR	1.11	99.2	F
Fulton St & Miller Ave	SB	LT	0.65	31.0	C	LT	0.92	51.1	D
Fulton St & Logan St	NB	LTR	0.77	25.9	C	LTR	0.96	46.6	D
Fulton St & Euclid Ave	SB	LTR	0.85	35.4	C	LTR	0.93	46.3	D
Glenmore Ave & Pennsylvania Ave	WB	LR	1.05	102.6	F	LR	1.14	133.8	F
Bushwick Ave/Jamaica Ave &	EB-Jamaica	TR	1.02	87.2	F	TR	1.11	115.3	F
Pennsylvania Ave/Jackie Robinson Pkwy	WB	L	1.06	135.8	F	L	1.11	152.8	F
		T	1.03	126.6	F	T	1.11	150.9	F
	NB	L	1.05	106.0	F	L	1.16	142.9	F
	SB	TR	1.04	83.8	F	TR	1.11	105.1	F
Jamaica Ave & Highland Pl/Force Tube Ave	EB	LTR	1.04	69.5	E	LTR	1.12	97.5	F
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	1.05	64.3	E	LTR	1.18	112.2	F
Liberty Ave & Pennsylvania Ave	WB	LTR	0.78	54.4	D	LTR	0.91	70.5	E
	NB	LTR	0.92	32.2	C	L	0.45	17.0	B
						TR	0.74	24.3	C
Liberty Ave & Miller Ave	SB	LTR	0.65	42.6	D	LTR	0.93	66.7	E
Liberty Ave & Warwick St	SB	LTR	0.89	64.0	E	LTR	1.38	227.7	F
Liberty Ave & Logan St	SB	LR	1.05	118.4	F	LR	0.45	42.4	D
Liberty Ave & South Conduit Blvd	WB	L	0.99	82.8	F	L	1.09	110.4	F
		T	0.75	35.5	D	T	0.94	54.9	D
Liberty Ave & North Conduit Blvd	WB	T	1.01	83.4	F	T	1.25	168.0	F
Livonia Ave & Pennsylvania Ave	EB	LTR	0.86	72.0	E	LTR	1.09	127.7	F
	WB	LTR	1.05	100.8	F	LTR	1.08	107.0	F
Pitkin Ave & Mother Gaston Blvd	WB	LTR	0.87	42.0	D	LTR	0.95	55.3	E
Pitkin Ave & Pennsylvania Ave	EB	TR	1.04	97.7	F	TR	1.10	116.5	F
	WB	LTR	0.72	45.6	D	LTR	0.87	57.4	E
	SB	LTR	0.92	31.5	C	LTR	1.05	62.0	E
Pitkin Ave & South Conduit Blvd	WB	L	0.83	60.9	E	L	0.91	76.2	E
Pitkin Ave & North Conduit Blvd	EB	L	0.60	50.7	D	L	0.67	57.4	E
Sutter Ave & Pennsylvania Ave	EB	LTR	0.72	50.8	D	LTR	0.81	58.7	E
	WB	LTR	1.05	103.0	F	LTR	1.14	133.8	F
Unsignalized Intersection									
Fulton St & Elton St	NB	TR	0.94	86.9	F	TR	1.04	104.1	F
Fulton St & Chestnut St	NB	LTR	0.94	77.9	F	LTR	1.20	164.5	F
Glenmore Ave & Miller Ave	SB	TR	0.75	43.0	E	TR	1.08	114.5	F

TABLE 13-25
Congested Lane Groups at Analyzed Intersections Under No-Action Conditions
Weekday Midday Peak Hour

Signalized Intersection	Approach	Weekday Midday Existing				Weekday Midday No-Action			
		Lane Group	V/C Ratio	Delay (sec/veh)	LOS	Lane Group	V/C Ratio	Delay (sec/veh)	LOS
Atlantic Ave & Rockaway Ave	EB	TR	0.86	36.4	D	TR	0.92	41.6	D
	WB	L	0.91	61.6	E	L	0.98	91.2	F
		TR	0.98	50.7	D	TR	1.04	67.0	E
	NB	LTR	0.89	45.8	D	LTR	0.95	55.5	E
	SB	LTR	0.98	71.8	E	LTR	1.04	87.9	F
Atlantic Ave & Eastern Pkwy	SB	LTR	0.92	44.5	D	LTR	1.01	63.4	E
Atlantic Ave & Georgia Ave	NB	LTR	0.96	78.6	E	LTR	1.05	100.1	F
Atlantic Ave & Pennsylvania Ave	EB	TR	0.95	48.8	D	TR	1.02	63.7	E
	WB	TR	0.83	41.9	D	TR	0.92	48.6	D
	NB	L	1.05	118.0	F	L	1.24	188.2	F
		TR	1.05	83.9	F	TR	1.31	187.9	F
	SB	L	1.00	107.8	F	L	1.22	181.3	F
Atlantic Ave & Miller Ave	SB	LTR	0.63	44.2	D	LTR	0.82	55.6	E
Atlantic Ave & Schenck Ave	NB	LTR	0.50	39.8	D	LTR	1.19	148.1	F
Atlantic Ave & Logan St	NB	LTR	1.05	107.3	F	TR	0.66	34.8	C
	SB	LTR	1.05	111.5	F	LTR	1.01	86.1	F
Atlantic Ave & Rockaway Blvd	EB	TR	1.05	70.4	E	TR	1.09	84.4	F
Broadway & Eastern Pkwy	EB	TR	0.80	48.0	D	TR	0.88	57.6	E
Bushwick Ave & Eastern Pkwy	NB	R	1.05	89.2	F	R	1.11	107.5	F
Fulton St & Pennsylvania Ave	NB	TR	0.91	41.1	D	TR	1.00	58.5	E
Bushwick Ave/Jamaica Ave & Pennsylvania Ave/Jackie Robinson Pkwy	EB-Bushwick	R	0.79	51.1	D	R	0.85	55.2	E
	EB-Jamaica	TR	1.04	94.2	F	TR	1.11	118.1	F
	WB	L	1.05	127.7	F	L	1.14	156.4	F
		T	1.01	126.4	F	T	1.13	152.7	F
	NB	L	1.00	93.3	F	L	1.08	117.2	F
	SB	TR	0.89	59.4	E	TR	0.95	67.6	E
Jamaica Ave & Highland Pl/Force Tube Ave	EB	LTR	1.03	70.0	E	LTR	1.13	102.5	F
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	0.90	32.6	C	LTR	1.00	51.2	D
Liberty Ave & Pennsylvania Ave	EB	LTR	0.67	49.2	D	LTR	0.75	55.5	E
	WB	LTR	0.81	57.9	E	LTR	0.96	82.5	F
Liberty Ave & Warwick St	SB	LTR	0.56	40.2	D	LTR	0.84	57.0	E
Liberty Ave & Logan St	SB	LR	0.77	62.1	E	LR	0.35	39.6	D
Liberty Ave & South Conduit Blvd	WB	L	1.05	118.9	F	L	1.20	171.3	F
Liberty Ave & North Conduit Blvd	WB	TR	0.84	54.4	D	TR	1.04	93.2	F
Pitkin Ave & Pennsylvania Ave	EB	LTR	0.99	85.8	F	LTR	1.13	131.1	F
	SB	LTR	0.92	33.0	C	LTR	1.04	60.4	E

TABLE 13-26
Congested Lane Groups at Analyzed Intersections Under No-Action Conditions: Weekday PM Peak Hour

		Weekday PM Existing				Weekday PM No-Action			
Signalized Intersection	**Approach**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
Atlantic Ave & Rockaway Ave	EB	TR	0.87	37.6	D	TR	0.94	43.3	D
	WB	L	1.03	106.6	F	L	1.14	140.4	F
	NB	LTR	1.03	89.4	F	LTR	1.17	138.2	F
	SB	LTR	1.04	103.7	F	LTR	1.12	130.6	F
Atlantic Avenue & Eastern Pkwy	SB	LTR	1.05	79.7	E	LTR	1.16	117.9	F
Atlantic Ave & Georgia Ave	NB	LTR	1.03	93.3	F	LTR	1.11	121.3	F
Atlantic Ave & Pennsylvania Ave	EB	T	1.05	73.4	E	T	1.09	86.1	F
	WB	TR	1.01	70.2	E	TR	1.12	108.1	F
	NB	L	1.05	104.9	F	L	1.15	144.7	F
		TR	0.65	34.5	C	TR	0.96	59.7	E
	SB	L	0.76	38.7	D	L	0.94	85.6	F
		TR	0.87	44.8	D	TR	0.97	58.3	E
Atlantic Ave & Miller Ave	WB	LT	0.63	14.8	B	DefL	1.76	412.7	F
	SB	LTR	0.96	76.4	E	LTR	1.35	215.5	F
Atlantic Ave & Schenck Ave	NB	LTR	0.66	45.1	D	LTR	1.08	107.0	F
Atlantic Ave & Warwick St	WB	DefL	0.62	54.6	D	L	0.99	104.8	F
	SB	LTR	0.88	68.4	E	LTR	1.31	203.1	F
Atlantic Ave & Elton St	EB	LT	0.98	37.4	D	L	0.66	36.5	D
						T	0.76	17.4	B
Atlantic Ave & Highland Pl	SB	LR	1.01	83.2	F	LR	1.02	86.6	F
Atlantic Ave & Logan St	EB	LTR	1.05	64.0	E	TR	0.90	31.6	C
	WB	TR	0.90	25.6	C	TR	0.85	29.7	C
	NB	LTR	0.96	79.7	E	TR	0.61	32.5	C
	SB	LTR	1.05	107.9	F	LTR	0.99	79.5	E
Atlantic Ave & Crescent St	WB	DefL	0.46	15.3	B	DefL	0.90	45.0	D
	SB	LTR	1.05	113.6	F	LTR	1.15	146.5	F
Atlantic Ave & Eldert Ln	SB	LTR	0.75	55.1	E	LTR	0.80	60.5	E
Atlantic Ave & Rockaway Blvd	EB	TR	0.91	36.2	D	TR	0.93	38.2	D
	WB	L	1.05	105.5	F	L	1.14	137.9	F
	NB	L	0.95	105.7	F	L	1.13	163.6	F
		TR	0.94	78.1	E	TR	0.98	88.8	F
	SB	TR	0.89	63.8	E	TR	0.94	71.9	E
Broadway & Rockaway Ave	WB	LTR	0.85	33.2	C	LTR	0.91	40.4	D
	SB	LTR	0.82	55.7	E	LTR	0.89	65.2	E
Broadway & Eastern Pkwy	EB	TR	1.01	94.2	F	TR	1.11	124.4	F
	WB	LT	0.71	48.7	D	LT	0.97	84.3	F
	NB	LTR	0.89	39.9	D	LTR	0.96	50.6	D
	NB-Hull St	LR	0.93	108.2	F	LR	0.99	123.2	F
Bushwick Ave & Eastern Pkwy	WB	L	1.05	87.6	F	L	1.14	120.4	F
	NB	R	1.00	80.1	F	R	1.05	95.2	F
	SB	R	0.19	61.5	E	R	0.23	63.0	E
Fulton St & Pennsylvania Ave	NB	TR	0.92	47.7	D	TR	1.08	87.9	F
	SB	L	0.87	73.1	E	L	0.97	92.6	F
		T	0.87	32.7	C	T	0.96	45.1	D
Fulton St & Miller Ave	EB	TR	0.87	30.2	C	TR	0.95	41.0	D
	SB	LT	0.68	32.0	C	LT	0.96	58.0	E
Bushwick Ave/Jamaica Ave &	EB-Bushwick	R	1.01	81.5	F	R	1.09	104.7	F
Pennsylvania Ave/Jackie Robinson Pkwy	EB-Jamaica	TR	1.05	95.3	F	TR	1.12	119.8	F
	WB	L	1.04	129.6	F	L	1.22	189.4	F
		T	1.04	129.6	F	T	1.23	194.1	F
	NB	L	0.81	59.8	E	L	0.89	69.1	E
	SB	TR	1.02	83.7	F	TR	1.10	108.5	F
Jamaica Ave & Highland Pl/	EB	LTR	0.85	32.1	C	LTR	0.94	44.1	D
Force Tube Ave	SB	L	1.05	80.1	F	L	1.16	120.1	F
		TR	1.04	70.5	E	TR	1.13	99.6	F
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	1.04	60.4	E	LTR	1.20	118.6	F
Liberty Ave & Pennsylvania Ave	EB	LTR	0.89	66.0	E	LTR	0.97	82.3	F
	WB	LTR	0.84	62.4	E	LTR	1.04	104.5	F
Liberty Ave & Miller Ave	SB	LTR	0.68	43.5	D	LTR	1.04	94.4	F
Liberty Ave & Warwick St	SB	LTR	0.82	54.8	D	LTR	1.25	174.3	F
Liberty Ave & Logan St	NB	LTR	0.75	52.9	D	LTR	0.82	58.0	E
	SB	LR	1.05	122.7	F	LR	0.50	44.7	D
Liberty Ave & South Conduit Blvd	WB	T	0.77	53.0	D	T	1.12	125.7	F
Liberty Ave & North Conduit Blvd	WB	TR	1.05	101.3	F	TR	1.36	221.1	F
Pitkin Ave & Pennsylvania Ave	EB	TR	0.86	61.3	E	TR	0.92	70.2	E
	NB	LTR	0.86	25.6	C	LTR	1.00	47.9	D
	SB	LTR	0.92	32.4	C	LTR	1.08	72.8	E
Pitkin Ave & South Conduit Blvd	EB	R	0.84	51.4	D	R	0.90	59.0	E
Sutter Ave & Pennsylvania Ave	WB	LTR	0.79	55.1	E	LTR	0.86	61.8	E
Sutter Ave & Fountain Ave	NB	L	0.74	53.1	D	L	0.85	67.7	E
Unsignalized Intersection									
Fulton St & Elton St	NB	TR	0.83	73.9	F	TR	0.99	112.8	F
Fulton St & Chestnut St	NB	LTR	0.73	48.9	E	LTR	1.05	123.3	F

TABLE 13-27
Congested Lane Groups at Analyzed Intersections Under No-Action Conditions: Saturday Midday Peak Hour

Signalized Intersection	Approach	Saturday Midday Existing				Saturday Midday No-Action			
		Lane Group	V/C Ratio	Delay (sec/veh)	LOS	Lane Group	V/C Ratio	Delay (sec/veh)	LOS
Atlantic Ave & Rockaway Ave	WB	L	0.98	88.5	F	L	1.10	127.8	F
	NB	LTR	1.04	95.3	F	LTR	1.11	117.3	F
	SB	LTR	1.05	104.2	F	LTR	1.11	123.3	F
Atlantic Ave & Eastern Pkwy	SB	LTR	0.96	51.7	D	LTR	1.06	76.8	E
Atlantic Ave & Pennsylvania Ave	EB	TR	0.98	46.3	D	TR	1.03	59.5	E
	WB	TR	0.98	52.4	D	TR	1.07	77.7	E
	NB	L	1.02	79.9	E	L	1.13	120.8	F
		TR	0.86	37.5	D	TR	1.25	154.8	F
	SB	L	1.01	98.7	F	L	1.10	113.5	F
		TR	0.83	35.3	D	TR	0.92	42.6	D
Atlantic Ave & Schenck Ave	NB	LTR	0.52	30.8	C	LTR	1.20	142.6	F
Atlantic Ave & Highland Pl	EB	LT	0.69	14.9	B	L	1.12	140.4	F
Atlantic Ave & Logan St	EB	LTR	1.05	61.8	E	TR	0.85	28.5	C
	WB	LTR	1.05	55.9	E	TR	0.99	44.9	D
	NB	LTR	0.96	63.8	E	TR	0.51	18.3	B
Atlantic Ave & Rockaway Blvd	EB	TR	0.98	50.9	D	TR	1.00	56.5	E
	WB	L	1.05	96.2	F	L	1.11	114.2	F
Broadway & Rockaway Ave	SB	LTR	0.72	27.2	D	LTR	0.91	36.3	D
Broadway & Eastern Pkwy	EB	TR	0.86	53.2	D	TR	0.94	65.7	E
Bushwick Ave & Eastern Pkwy	NB	R	1.05	88.8	F	R	1.10	106.4	F
Fulton St & Highland Pl	EB	TR	0.88	27.4	C	TR	0.96	38.1	D
Bushwick Ave/Jamaica Ave & Pennsylvania Ave/Jackie Robinson Pkwy	EB-Jamaica	TR	1.04	82.1	F	TR	1.11	106.3	F
	WB	L	1.01	109.2	F	L	1.09	133.2	F
		T	1.05	120.4	F	T	1.13	146.6	F
	NB	L	0.87	55.0	E	L	0.94	66.7	E
	SB	TR	0.86	47.5	D	TR	0.92	53.7	D
Jamaica Ave & Highland Pl/Force Tube Ave	EB	LTR	1.05	70.9	E	LTR	1.13	99.2	F
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	0.98	46.4	D	LTR	1.09	78.3	E
Liberty Ave & Pennsylvania Ave	WB	LTR	0.82	49.1	D	LTR	0.94	65.6	E
Liberty Ave & Hendrix St	SB	LTR	0.77	56.0	E	LTR	0.32	38.3	D
Liberty Ave & Warwick St	SB	LTR	0.64	35.7	D	LTR	0.97	69.3	E
Liberty Ave & South Conduit Blvd	WB	L	1.05	101.2	F	L	1.18	149.3	F
Liberty Ave & North Conduit Blvd	WB	TR	1.05	88.9	F	TR	1.30	182.2	F
Pitkin Ave & Pennsylvania Ave	WB	LTR	0.88	53.1	D	LTR	1.01	78.8	E
	NB	LTR	0.86	22.0	C	LTR	0.98	38.5	D
Pitkin Ave & South Conduit Blvd	WB	L	1.05	112.7	F	L	1.20	163.4	F
Unsignalized Intersection									
Fulton St & Chestnut St	NB	LTR	0.44	24.8	C	LTR	0.58	35.9	E

Table 13-28 shows a summary comparison of intersection levels of service for future No-Action and With-Action conditions, and an overview of the number of significant adverse traffic impacts that would occur in the future with the Proposed Actions based on the *CEQR Technical Manual* impact criteria discussed previously in Section F, "Transportation Analysis Methodologies." As shown in Table 13-28, in the weekday AM peak hour, the number of intersections that are projected to operate at overall LOS E or F would total 20, versus nine under the No-Action condition. Overall, 40 of the 74 analyzed intersections would have significant adverse impacts in the AM peak hour. The number of lane groups projected to operate at LOS E or F in the AM would total 77 versus 53 in the No-Action condition. Sixty-eight individual lane groups would operate with a v/c ratio of 0.90 or greater in the AM in the With-Action condition, compared to 51 in the No-Action condition.

TABLE 13-28
Intersection Level of Service Summary Comparison: Future With-Action vs. No-Action Conditions

	No-Action				With-Action			
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
Overall LOS A/B/C	52	63	51	64	36	57	39	55
Overall LOS D	13	8	13	7	18	10	12	11
Overall LOS E	5	2	8	2	8	3	8	6
Overall LOS F	4	1	2	1	12	4	15	2
Total number of intersections with significant impacts	----	----	----	----	40	23	40	25
Lane Groups at v/c $\geq$ 0.90	51	29	60	33	68	35	80	44
No. of lane groups at LOS E or F of the approximately 265 analyzed	53	31	57	28	77	45	81	38

In the weekday midday peak hour, seven intersections are projected to operate at overall LOS E or F with the Proposed Actions versus three under the No-Action. Overall, 23 of the 74 analyzed intersections would have significant adverse impacts in the weekday midday. The number of lane groups projected to operate at LOS E or F in the midday would total 45 in the With-Action condition, compared to 31 in the No-Action condition. Thirty-five individual lane groups would operate with a v/c ratio of 0.90 or greater in the midday in the With-Action condition, compared to 29 in the No-Action condition.

In the weekday PM peak hour, the number of intersections that are projected to operate at overall LOS E or F would total 23 compared to ten in the No-Action condition. Overall, 40 of the 74 analyzed intersections would have significant adverse impacts in the weekday PM. The number of lane groups projected to operate at LOS E or F would total 81, compared to 57 in the No-Action condition. Eighty individual lane groups would operate with a v/c ratio of 0.90 or greater in the PM in the With-Action condition, compared to 60 in the No-Action condition.

Lastly, in the Saturday midday peak hour, eight intersections are projected to operate at overall LOS E or F with the Proposed Actions, compared to three in the No-Action condition. Overall, 25 of the 74 analyzed intersections would have significant adverse impacts in the Saturday midday. The number of lane groups projected to operate at LOS E or F would total 38, compared to 28 in the No-Action condition. Forty-four individual lane groups would operate with a v/c ratio of 0.90 or greater in the Saturday midday in the With-Action condition, compared to 33 in the No-Action condition.

The volume-to-capacity ratios, delays and levels of service for those individual lane groups experiencing congestion in one or more peak hours under With-Action conditions are shown in Tables 13-29 through 13-32. Lane groups with significant adverse impacts are highlighted. As shown in Tables 13-29 through 13-32, a total of 56 intersections (46 signalized and 10 stop-controlled) would have at least one congested lane group in one or more peak hours in the With-Action condition, compared to 41 intersections (38 signalized and three stop-controlled) under No-Action conditions.

Significant adverse impacts were identified at 58 lane groups at 40 intersections during the weekday AM peak hour, 36 lane groups at 23 intersections in the weekday midday peak hour, 63 lane groups at 40 intersections in the weekday PM peak hour, and 37 lane groups at 25 intersections during the Saturday midday peak hour. V/c ratios, delays and levels of service for all lane groups at all analyzed intersections in all peak periods under With-Action conditions are provided in Table E-3 in Appendix E. Potential measures to mitigate the significant adverse traffic impacts identified in Tables 13-29 through 13-32 are discussed in Chapter 20, “Mitigation.”

TABLE 13-29
Congested Lane Groups at Analyzed Intersections Under With-Action Conditions: Weekday AM Peak Hour

Signalized Intersection	Approach	Weekday AM No-Action				Weekday AM With-Action			
		Lane Group	V/C Ratio	Delay (sec/veh)	LOS	Lane Group	V/C Ratio	Delay (sec/veh)	LOS
Atlantic Ave & Rockaway Ave	WB	L	0.87	52.1	D	L	0.89	57.2	E
		TR	1.08	80.7	F	TR	1.14	102.7	F
	NB	LTR	1.12	118.0	F	LTR	1.12	118.0	F
	SB	LTR	0.96	84.2	F	LTR	0.96	84.2	F
Atlantic Avenue & Eastern Pkwy	WB-Main	T	0.96	44.0	D	T	1.03	61.0	E
Atlantic Ave & Georgia Ave	NB	LTR	1.14	128.9	F	LTR	1.19	147.7	F
Atlantic Ave & Pennsylvania Ave	WB	TR	1.02	63.2	E	TR	1.15	110.1	F
	NB	L	1.11	124.9	F	L	1.11	121.4	F
		TR	1.36	214.3	F	TR	1.44	248.6	F
	SB	L	0.93	143.2	F	L	1.06	214.2	F
		TR	1.14	120.7	F	TR	1.16	127.4	F
Atlantic Ave & Miller Ave	SB	LTR	1.22	161.0	F	LTR	1.32	204.0	F
Atlantic Ave & Schenck Ave	NB	LTR	1.28	186.8	F	LTR	1.49	273.8	F
Atlantic Ave & Warwick St	WB	L	0.79	54.5	D	L	0.85	64.2	E
	SB	LTR	1.16	140.7	F	LTR	1.22	163.1	F
Atlantic Ave & Elton St	EB	L	0.56	30.5	C	L	0.79	63.5	E
Atlantic Ave & Highland Pl	EB	L	0.63	37.6	D	L	0.86	78.3	E
	SB	LR	0.87	58.6	E	LR	0.90	61.7	E
Atlantic Ave & Logan St	WB	TR	0.95	36.4	D	TR	0.99	42.9	D
	NB	TR	0.60	32.5	C	TR	0.96	63.0	E
	SB	LTR	0.91	61.8	E	LTR	2.06	524.8	F
Altanitc Ave & Crescent St	NB	LTR	0.78	52.5	D	LTR	0.82	55.3	E
Atlantic Ave & Rockaway Blvd	EB	TR	0.87	35.7	D	TR	0.91	39.6	D
	NB	L	0.94	85.1	F	L	0.94	85.1	F
		TR	1.11	121.5	F	TR	1.11	121.5	F
	SB	LTR	1.16	142.4	F	LTR	1.16	142.4	F
Broadway & Rockaway Ave	WB	LTR	0.85	33.8	C	LTR	0.99	57.1	E
Broadway & Eastern Pkwy	EB	L	0.98	154.2	F	L	0.98	154.2	F
		TR	0.90	69.8	E	TR	0.98	85.3	F
	WB	LT	1.12	123.2	F	LT	1.58	316.3	F
	NB	DefL	0.89	68.2	E	DefL	0.90	70.2	E
	NB-Hull St	LR	0.53	62.8	E	LR	0.53	62.8	E
Bushwick Ave & Eastern Pkwy	WB	L	1.05	71.3	E	L	1.05	73.4	E
		TR	1.09	79.9	E	TR	1.12	91.8	F
	SB	R	0.25	65.2	E	R	0.25	65.2	E
Fulton St & Van Sinderen Ave	NB	LR	0.75	62.8	E	LR	0.72	58.8	E
Fulton St & Pennsylvania Ave	NB	TR	1.11	99.2	F	TR	1.18	127.6	F
Fulton St & Miller Ave	SB	LT	0.92	51.1	D	LT	0.96	58.5	E
Fulton St & Logan St	WB	LTR	0.80	26.5	C	LTR	1.25	147.6	F
	NB	LTR	0.96	46.6	D	LTR	1.19	121.4	F
Fulton St & Euclid Ave	SB	LTR	0.93	46.3	D	LTR	1.02	66.6	E
Glenmore Ave & Pennsylvania Ave	WB	LR	1.14	133.8	F	LR	1.36	221.3	F
Bushwick Ave/Jamaica Ave & Pennsylvania Ave/Jackie Robinson Pkwy	EB-Jamaica	TR	1.11	115.3	F	TR	1.13	123.3	F
	WB	L	1.11	152.8	F	L	1.37	250.5	F
		T	1.11	150.9	F	T	1.35	239.4	F
	NB	L	1.16	142.9	F	L	1.22	166.2	F
	SB	TR	1.11	105.1	F	TR	1.10	104.7	F

Shading denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

TABLE 13-29 (continued)
Congested Lane Groups at Analyzed Intersections Under With-Action Conditions: Weekday AM Peak Hour

Signalized Intersection	Approach	Weekday AM No-Action				Weekday AM With-Action			
		Lane Group	V/C Ratio	Delay (sec/veh)	LOS	Lane Group	V/C Ratio	Delay (sec/veh)	LOS
Jamaica Ave & Highland Pl/Force Tube Ave	EB	LTR	1.12	97.5	F	LTR	1.20	128.4	F
Jamaica Ave & Chestnut Street	NB	LR	0.70	26.5	C	LR	0.90	42.8	D
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	1.18	112.2	F	LTR	1.54	263.0	F
Liberty Ave & Pennsylvania Ave	WB	LTR	0.91	70.5	E	LTR	1.05	103.5	F
Liberty Ave & Miller Ave	SB	LTR	0.93	66.7	E	LTR	1.21	153.7	F
Liberty Ave & Schenck Ave	WB	TR	0.89	29.9	C	TR	1.02	55.8	E
	NB	LTR	0.68	49.2	D	LTR	0.79	56.1	E
Liberty Ave & Warwick St	WB	LT	0.85	29.1	C	LT	1.04	66.0	E
	SB	LTR	1.38	227.7	F	LTR	1.48	271.4	F
Liberty Ave & Linwood St	WB	LT	0.78	23.8	C	LT	0.95	41.3	D
Liberty Ave & Shepherd Ave	WB	LT	0.84	27.9	C	LT	0.98	49.1	D
Liberty Ave & Montauk Ave	SB	LR	0.45	37.8	D	LR	0.68	48.7	D
Liberty Ave & Milford St	WB	LT	0.82	27.5	C	LT	1.03	63.8	E
Liberty Ave & Logan St	EB	LT	0.42	11.7	B	LT	0.99	60.1	E
	NB	LTR	0.77	54.1	D	LTR	0.83	59.4	E
	SB	LR	0.45	42.4	D	LR	1.09	126.2	F
Liberty Ave & South Conduit Blvd	WB	L	1.09	110.4	F	L	1.16	138.6	F
		T	0.94	54.9	D	T	0.96	58.7	E
Liberty Ave & North Conduit Blvd	WB	T	1.25	168.0	F	T	1.25	168.0	F
Livonia Ave & Pennsylvania Ave	EB	LTR	1.09	127.7	F	LTR	1.09	127.7	F
	WB	LTR	1.08	107.0	F	LTR	1.08	107.0	F
	NB	LTR	0.88	27.3	C	LTR	0.94	34.3	C
Pitkin Ave & Mother Gaston Blvd	EB	LTR	0.89	46.0	D	LTR	0.95	57.8	E
	WB	LTR	0.95	55.3	E	LTR	1.10	96.1	F
Pitkin Ave & Pennsylvania Ave	EB	TR	1.10	116.5	F	TR	1.12	123.1	F
	WB	LTR	0.87	57.4	E	LTR	(a)	180.6	F
	SB	LTR	1.05	62.0	E	LTR	1.16	103.8	F
Pitkin Ave & South Conduit Blvd	WB	L	0.91	76.2	E	L	0.94	83.3	F
Pitkin Ave & North Conduit Blvd	EB	L	0.67	57.4	E	L	0.68	57.6	E
Sutter Ave & Pennsylvania Ave	EB	LTR	0.81	58.7	E	LTR	0.81	59.0	E
	WB	LTR	1.14	133.8	F	LTR	1.16	140.2	F
Sutter Ave & Fountain Ave	NB	L	0.54	40.5	D	L	0.63	47.7	D
Unsignalized Intersection									
Dinsmore Place & Logan St	WB	LR	0.19	22.7	C	LR	9.42	4403.0	F
Fulton St & Elton St	NB	TR	1.10	135.6	F	TR	1.50	295.5	F
Fulton St & Chestnut St	NB	LTR	1.04	104.1	F	LTR	2.28	620.1	F
Glenmore Ave & Miller Ave	SB	TR	1.08	114.5	F	TR	1.48	267.5	F
Liberty Ave & Essex St	NB	LTR	0.33	30.1	D	LTR	0.46	45.1*	E
Pitkin Ave & Elton St	NB	LTR	0.33	25.4	D	LTR	0.42	32.6	D

(a) Approach would operate as separate defacto left-turn and through-right lane groups in With-Action condition, both of which would be congested in the AM. Approach delay and LOS shown to permit comparison with the No-Action Condition.
Shading denotes a significant adverse impact based on *CEQR Technical Manual* criteria.
* - Not a significant adverse impact as lane group volume would be less than 90 PCEs in all peak hours in the With-Action Condition.

TABLE 13-30
Congested Lane Groups at Analyzed Intersections Under With-Action Conditions: Weekday Midday Peak Hour

		Weekday Midday No-Action				Weekday Midday With-Action			
Signalized Intersection	**Approach**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
Atlantic Ave & Rockaway Ave	EB	TR	0.92	41.6	D	TR	0.96	46.8	D
	WB	L	0.98	91.2	F	L	0.98	89.7	F
		TR	1.04	67.0	E	TR	1.08	79.7	E
	NB	LTR	0.95	55.5	E	LTR	0.95	55.5	E
	SB	LTR	1.04	87.9	F	LTR	1.04	87.9	F
Atlantic Ave & Eastern Pkwy	SB	LTR	1.01	63.4	E	LTR	1.02	65.9	E
Atlantic Ave & Georgia Ave	NB	LTR	1.05	100.1	F	LTR	1.10	116.4	F
Atlantic Ave & Pennsylvania Ave	EB	TR	1.02	63.7	E	TR	1.11	96.1	F
	WB	TR	0.92	48.6	D	TR	1.00	63.8	E
	NB	L	1.24	188.2	F	L	1.27	198.3	F
		TR	1.31	187.9	F	TR	1.46	250.9	F
	SB	L	1.22	181.3	F	L	1.54	295.6	F
		TR	0.82	41.2	D	TR	1.00	66.8	E
Atlantic Ave & Miller Ave	WB	(a)				DefL	1.05	114.4	F
	SB	LTR	0.82	55.6	E	LTR	0.83	56.5	E
Atlantic Ave & Schenck Ave	NB	LTR	1.19	148.1	F	LTR	1.28	184.9	F
Atlantic Ave & Warwick St	WB	L	0.76	50.1	D	L	0.84	63.2	E
Atlantic Ave & Highland Pl	EB	L	0.69	39.6	D	L	0.89	73.3	E
Atlantic Ave & Logan St	NB	TR	0.66	34.8	C	TR	1.03	83.9	F
	SB	LTR	1.01	86.1	F	LTR	2.04	516.8	F
Atlantic Ave & Rockaway Blvd	EB	TR	1.09	84.4	F	TR	1.13	97.2	F
Broadway & Eastern Pkwy	EB	TR	0.88	57.6	E	TR	0.99	79.6	E
	WB	LT	0.69	38.8	D	LT	0.86	52.6	D
Bushwick Ave & Eastern Pkwy	NB	R	1.11	107.5	F	R	1.11	107.5	F
Fulton St & Pennsylvania Ave	NB	TR	1.00	58.5	E	TR	1.05	72.1	E
Fulton St & Logan St	WB	LTR	0.56	16.2	B	LTR	1.06	77.3	E
Bushwick Ave/Jamaica Ave &	EB-Jamaica	R	0.85	55.2	E	TR	0.89	59.5	E
Pennsylvania Ave/Jackie Robinson Pkwy	EB-Jamaica	TR	1.11	118.1	F	TR	1.11	117.6	F
	WB	L	1.14	156.4	F	L	1.20	178.4	F
		T	1.13	152.7	F	T	1.21	180.7	F
	NB	L	1.08	117.2	F	L	1.13	132.3	F
	SB	TR	0.95	67.6	E	TR	0.94	66.2	E
Jamaica Ave & Highland Pl/Force Tube Ave	EB	LTR	1.13	102.5	F	LTR	1.15	109.4	F
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	1.00	51.2	D	LTR	1.13	93.8	F
Liberty Ave & Pennsylvania Ave	EB	LTR	0.75	55.5	E	LTR	0.85	67.8	E
	WB	LTR	0.96	82.5	F	LTR	1.22	167.8	F
Liberty Ave & Miller Ave	SB	LTR	0.75	48.2	D	LTR	0.83	54.0	D
Liberty Ave & Warwick St	SB	LTR	0.84	57.0	E	LTR	0.87	60.5	E
Liberty Ave & Montauk Ave	SB	LR	0.24	32.7	C	LR	0.58	45.3	D
Liberty Ave & Logan St	NB	LTR	0.74	52.8	D	LTR	0.80	57.3	E
	SB	LR	0.35	39.6	D	LR	0.80	62.2	E
Liberty Ave & South Conduit Blvd	WB	L	1.20	171.3	F	L	1.33	223.4	F
Liberty Ave & North Conduit Blvd	WB	TR	1.04	93.2	F	TR	1.12	119.2	F
Pitkin Ave & Pennsylvania Ave	EB	LTR	1.13	131.1	F	LTR	1.25	178.1	F
	SB	LTR	1.04	60.4	E	LTR	1.10	81.5	F
Unsignalized Intersection									
Atlantic Ave & Montauk Ave	NB	R	0.11	13.2	B	R	0.35	35.4*	E
Dinsmore Place & Logan St	WB	LR	0.15	19.5	C	LR	0.71	171.7	F
Fulton St & Chestnut St	NB	LTR	0.56	28.2	D	LTR	1.59	324.1	F
Liberty Ave & Atkins Ave	SB	LTR	0.07	16.0	C	LTR	0.43	67.9*	F

(a) WB approach functions as a combined left-through lane group in the No-Action condition, and separate through and defacto left-turn lane groups in the With-Action condtion. Approach would not be impacted based on *CEQR TM* criteria.

Shading denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

* - Not a significant adverse impact as lane group volume would be less than 90 PCEs in all peak hours in the With-Action Condition.

TABLE 13-31
Congested Lane Groups at Analyzed Intersections Under With-Action Conditions: Weekday PM Peak Hour

		Weekday PM No-Action				Weekday PM With-Action			
Signalized Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	Lane Group	V/C Ratio	Delay (sec/veh)	LOS
Atlantic Ave & Rockaway Ave	EB	TR	0.94	43.3	D	TR	0.99	51.8	D
	WB	L	1.14	140.4	F	L	1.14	140.9	F
	NB	LTR	1.17	138.2	F	LTR	1.17	138.2	F
	SB	LTR	1.12	130.6	F	LTR	1.12	130.6	F
Atlantic Avenue & Eastern Pkwy	NB	R	0.86	49.0	D	R	0.94	61.2	E
	SB	LTR	1.16	117.9	F	LTR	1.16	118.4	F
Atlantic Ave & Georgia Ave	NB	LTR	1.11	121.3	F	LTR	1.17	140.8	F
Atlantic Ave & Pennsylvania Ave	EB	T	1.09	86.1	F	T	1.22	141.5	F
	WB	TR	1.12	108.1	F	TR	1.24	154.8	F
	NB	L	1.15	144.7	F	L	1.16	147.1	F
		TR	0.96	59.7	E	TR	1.10	99.0	F
	SB	L	0.94	85.6	F	L	1.27	179.1	F
		TR	0.97	58.3	E	TR	0.98	60.6	E
Atlantic Ave & Miller Ave	WB	DefL	1.76	412.7	F	DefL	3.17	1039.0	F
	SB	LTR	1.35	215.5	F	LTR	1.44	252.4	F
Atlantic Ave & Schenck Ave	NB	LTR	1.08	107.0	F	LTR	1.33	207.1	F
Atlantic Ave & Warwick St	EB	TR	0.89	28.3	C	TR	0.99	41.4	D
	WB	L	0.99	104.8	F	L	1.02	114.0	F
	SB	LTR	1.31	203.1	F	LTR	1.38	232.4	F
Atlantic Ave & Elton St	EB	L	0.66	36.5	D	L	0.95	90.3	F
		T	0.76	17.4	B	T	1.10	73.9	E
Atlantic Ave & Highland Pl	EB	L	0.72	45.5	D	L	0.89	79.1	E
		T	0.86	22.3	C	T	0.97	34.7	C
	SB	LR	1.02	86.6	F	LR	1.19	146.6	F
Atlantic Ave & Logan St	EB	TR	0.90	31.6	C	TR	0.94	34.6	C
	NB	TR	0.61	32.5	C	TR	1.04	82.0	F
	SB	LTR	0.99	79.5	E	LTR	2.36	660.4	F
Atlantic Ave & Euclid Ave	SB	L	0.71	47.3	D	L	0.83	58.0	E
Atlantic Ave & Crescent St	WB	DefL	0.90	45.0	D	DefL	0.98	96.4	F
	SB	LTR	1.15	146.5	F	LTR	1.20	164.0	F
Atlantic Ave & Eldert Ln	SB	LTR	0.80	60.5	E	LTR	0.80	60.5	E
Atlantic Ave & Rockaway Blvd	EB	TR	0.93	38.2	D	TR	0.95	42.0	D
	WB	L	1.14	137.9	F	L	1.19	159.4	F
	NB	L	1.13	163.6	F	L	1.13	163.6	F
		TR	0.98	88.8	F	TR	0.98	88.8	F
	SB	TR	0.94	71.9	E	TR	0.94	71.9	E
Broadway & Rockaway Ave	WB	LTR	0.91	40.4	D	LTR	0.97	49.6	D
	SB	LTR	0.89	65.2	E	LTR	0.89	65.2	E
Broadway & Eastern Pkwy	EB	L	0.36	40.6	D	L	0.46	47.4	D
		TR	1.11	124.4	F	TR	1.35	218.4	F
	WB	LT	0.97	84.3	F	LT	1.60	333.4	F
	NB	LTR	0.96	50.6	D	LTR	0.96	51.4	D
	NB-Hull St	LR	0.99	123.2	F	LR	0.99	123.2	F
Bushwick Ave & Eastern Pkwy	WB	L	1.14	120.4	F	L	1.16	127.9	F
	NB	R	1.05	95.2	F	R	1.05	95.2	F
	SB	R	0.23	63.0	E	R	0.23	63.0	E
Fulton St & Van Sinderen Ave	SB	LTR	0.62	42.2	D	LTR	0.79	50.7	D
Fulton St & Pennsylvania Ave	NB	TR	1.08	87.9	F	TR	1.17	121.0	F
	SB	L	0.97	92.6	F	L	1.21	170.1	F
		T	0.96	45.1	D	T	0.98	49.0	D

Shading denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

TABLE 13-31 (continued)
Congested Lane Groups at Analyzed Intersections Under With-Action Conditions: Weekday PM Peak Hour

		Weekday PM No-Action				Weekday PM With-Action			
Unsignalized Intersection	**Approach**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
Fulton St & Miller Ave	EB	TR	0.95	41.0	D	TR	1.15	102.3	F
	SB	LT	0.95	58.0	E	LT	0.95	56.2	E
Fulton St & Highland Pl	EB	TR	0.87	26.5	C	TR	0.98	43.1	D
Fulton St & Logan St	EB	LTR	0.75	21.8	C	LTR	0.95	43.5	D
	WB	LTR	0.69	20.5	C	LTR	1.51	258.7	F
	NB	LTR	0.76	25.6	C	LTR	0.90	38.4	D
Fulton St & Euclid Ave	SB	LTR	0.48	20.2	C	LTR	1.04	72.2	E
Bushwick Ave/Jamaica Ave &	EB-Bushwick	R	1.09	104.7	F	R	1.16	130.7	F
Pennsylvania Ave/Jackie Robinson Pkwy	EB-Jamaica	TR	1.12	119.8	F	TR	1.12	119.8	F
	WB	L	1.22	189.4	F	L	1.35	240.6	F
		T	1.23	194.1	F	T	1.36	243.1	F
	NB	L	0.89	69.1	E	L	0.95	79.6	E
	SB	TR	1.10	108.5	F	TR	1.10	110.5	F
Jamaica Ave & Highland Pl/	EB	LTR	0.94	44.1	D	LTR	0.99	55.3	E
Force Tube Ave	SB	L	1.16	120.1	F	L	1.16	120.1	F
		TR	1.13	99.6	F	TR	1.25	146.7	F
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	1.20	118.6	F	LTR	1.46	231.3	F
Liberty Ave & Pennsylvania Ave	EB	LTR	0.97	82.3	F	LTR	1.05	102.2	F
	WB	LTR	1.04	104.5	F	LTR	1.34	217.2	F
Liberty Ave & Miller Ave	SB	LTR	1.04	94.4	F	LTR	1.19	147.7	F
Liberty Ave & Warwick St	SB	LTR	1.25	174.3	F	LTR	1.33	206.3	F
Liberty Ave & Shepherd Ave	SB	LTR	0.49	38.6	D	LTR	0.77	51.7	D
Liberty Ave & Montauk Ave	SB	LR	0.37	35.7	D	LR	0.81	63.2	E
Liberty Ave & Milford St	EB	TR	0.59	17.8	B	TR	0.90	34.5	C
	WB	LT	0.70	23.2	C	LT	1.22	143.4	F
Liberty Ave & Logan St	EB	LT	0.54	13.3	B	LT	1.15	104.8	F
	NB	LTR	0.82	58.0	E	LTR	0.92	71.8	E
	SB	LR	0.50	44.7	D	LR	1.23	178.6	F
Liberty Ave & South Conduit Blvd	WB	L	0.75	54.8	D	L	0.82	62.6	E
	WB	T	1.12	125.7	F	T	1.25	174.9	F
Liberty Ave & North Conduit Blvd	WB	TR	1.36	221.1	F	TR	1.46	263.4	F
Pitkin Ave & Pennsylvania Ave	EB	TR	0.92	70.2	E	TR	0.96	77.7	E
	WB	LTR	0.66	42.8	D	LTR	0.91	62.9	E
	NB	LTR	1.00	47.9	D	LTR	1.11	85.5	F
	SB	LTR	1.08	72.8	E	LTR	1.19	117.7	F
Pitkin Ave & South Conduit Blvd	EB	R	0.90	59.0	E	R	0.91	60.1	E
Sutter Ave & Pennsylvania Ave	WB	LTR	0.86	61.8	E	LTR	0.88	64.9	E
Sutter Ave & Fountain Ave	NB	L	0.85	67.7	E	L	0.95	90.2	F
Unsignalized Intersection									
Dinsmore Place & Logan St	WB	LR	0.27	23.3	C	LR	4.31	1794.0	F
Fulton St & New Jersey Ave	SB	LT	0.37	27.7	D	LT	0.79	98.6*	F
Fulton St & Elton St	NB	TR	0.99	112.8	F	TR	1.24	200.8	F
Fulton St & Chestnut St	NB	LTR	1.05	123.3	F	LTR	3.01	962.2	F
Glenmore Ave & Miller Ave	SB	TR	0.71	25.4	D	TR	0.86	39.2	E
Liberty Ave & Essex St	NB	LTR	0.27	27.1	D	LTR	0.60	65.4*	F
Liberty Ave & Atkins Ave	SB	LTR	0.11	26.8	D	LTR	0.84	212.1*	F
Pitkin Ave & Elton St	NB	LTR	0.44	29.4	D	LTR	0.65	49.6	E

Shading denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

* - Not a significant adverse impact as lane group volume would be less than 90 PCEs in all peak hours in the With- Action Condition.

TABLE 13-32

Congested Lane Groups at Analyzed Intersections Under With-Action Conditions: Saturday Midday Peak Hour

		Saturday Midday No-Action				Saturday Midday With-Action			
Signalized Intersection	**Approach**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**Lane Group**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
Atlantic Ave & Rockaway Ave	WB	L	1.10	127.8	F	L	1.10	128.1	F
	NB	LTR	1.11	117.3	F	LTR	1.11	117.3	F
	SB	LTR	1.11	123.3	F	LTR	1.11	123.3	F
Atlantic Ave & Eastern Pkwy	WB-Main	T	0.89	28.5	C	T	0.92	31.1	C
	SB	LTR	1.06	76.8	E	LTR	1.06	78.1	E
Atlantic Ave & Pennsylvania Ave	EB	TR	1.03	59.5	E	TR	1.12	90.3	F
	WB	TR	1.07	77.7	E	TR	1.18	120.8	F
	NB	L	1.13	120.8	F	L	1.15	126.2	F
		TR	1.25	154.8	F	TR	1.30	176.0	F
	SB	L	1.10	113.5	F	L	1.23	163.4	F
		TR	0.92	42.6	D	TR	0.93	44.6	D
Atlantic Ave & Miller Ave	WB	(a)				DefL	1.20	161.8	F
Atlantic Ave & Schenck Ave	NB	LTR	1.20	142.6	F	LTR	1.35	202.6	F
Atlantic Ave & Highland Pl	EB	L	1.12	140.4	F	L	1.30	208.1	F
	SB	LR	0.83	42.3	D	LR	0.89	48.4	D
Atlantic Ave & Logan St	WB	TR	0.99	44.9	D	TR	1.03	55.9	E
	SB	LTR	0.84	37.0	D	LTR	1.51	268.4	F
Atlantic Ave & Rockaway Blvd	EB	TR	1.00	56.5	E	TR	1.03	63.3	E
	WB	L	1.11	114.2	F	L	1.11	114.4	F
Broadway & Rockaway Ave	WB	LTR	0.91	36.3	D	LTR	0.97	47.2	D
Broadway & Eastern Pkwy	EB	TR	0.94	65.7	E	TR	1.06	96.4	F
	WB	LT	0.57	34.3	C	LT	0.80	49.1	D
Bushwick Ave & Eastern Pkwy	WB	TR	0.87	26.4	D	TR	0.90	28.5	C
	NB	R	1.10	106.4	F	R	1.10	106.4	F
Fulton St & Pennsylvania Ave	NB	TR	0.86	25.9	C	TR	0.90	29.4	C
Fulton St & Highland Pl	EB	TR	0.96	38.1	D	TR	1.02	52.6	D
Fulton St & Logan St	WB	LTR	0.65	18.9	B	LTR	1.14	104.2	F
Bushwick Ave/Jamaica Ave & Pennsylvania Ave/Jackie Robinson Pkwy	EB-Jamaica	TR	1.11	106.3	F	TR	1.11	107.5	F
	WB	L	1.09	133.2	F	L	1.19	166.9	F
		T	1.13	146.6	F	T	1.24	184.4	F
	NB	L	0.94	66.7	E	L	0.98	76.1	E
	SB	TR	0.92	53.7	D	TR	0.92	53.7	D
Jamaica Ave & Highland Pl/Force Tube Ave	EB	LTR	1.13	99.2	F	LTR	1.17	115.6	F
Jamaica Ave & Euclid Ave/Cypress Hill St	EB	LTR	1.09	78.3	E	LTR	1.29	157.8	F
Liberty Ave & Pennsylvania Ave	WB	LTR	0.94	65.6	E	LTR	1.11	113.5	F
Liberty Ave & Miller Ave	SB	LTR	0.74	39.0	D	LTR	0.85	48.0	D
Liberty Ave & Warwick St	SB	LTR	0.97	69.3	E	LTR	1.02	82.5	F
Liberty Ave & Montauk Ave	SB	LR	0.44	31.0	C	LR	0.95	83.6	F
Liberty Ave Logan St	EB	LT	0.46	14.7	B	LT	0.95	48.6	D
Liberty Ave & South Conduit Blvd	WB	L	1.18	149.3	F	L	1.31	197.9	F
		T	0.87	48.9	D	T	0.93	59.3	E
Liberty Ave & North Conduit Blvd	WB	TR	1.30	182.2	F	TR	1.37	213.8	F
Pitkin Ave & Pennsylvania Ave	EB	LTR	0.76	43.4	D	LTR	0.83	50.3	D
	WB	LTR	1.01	78.8	E	LTR	1.27	173.0	F
	NB	LTR	0.98	38.5	D	LTR	1.04	53.7	D
Pitkin Ave & South Conduit Blvd	WB	L	1.20	163.4	F	L	1.26	191.3	F
Unsignalized Intersection									
Arlington Ave & Jamaica Ave	NB	LR	0.65	25.5	D	LR	0.77	34.0	D
Atlantic Ave & Atkins Ave	NB	R	0.01	12.0	B	R	0.09	62.1*	F
Atlantic Ave & Montauk Ave	NB	R	0.18	13.8	B	R	0.59	56*	F
Dinsmore Place & Logan St	WB	LR	0.17	23.0	C	LR	1.02	277.9	F
Fulton St & Elton St	NB	TR	0.57	31.6	D	TR	0.67	41.3	E
Fulton St & Chestnut St	NB	LTR	0.58	35.9	E	LTR	1.88	467.2	F

(a) WB approach functions as a combined left-through lane group in the No-Action condition, and separate through and defacto left-turn lane groups in the With-Action condtion. Approach would not be impacted based on *CEQR TM* criteria.

Shading denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

* - Not a significant adverse impact as lane group volume would be less than 90 PCEs in all peak hours in the With-Action Condition.

As noted previously, the analyses of No-Action and With-Action traffic conditions reflect physical and operational improvements at Atlantic Avenue intersections planned by DOT. However, new signal timing plans associated with these improvements have not yet been finalized by DOT. At the Atlantic Avenue/Logan Street intersection, the green time currently allocated to the leading westbound phase was reallocated to the northbound/southbound phase as this green time would no longer be needed to accommodate westbound left-turns. At all other intersections along Atlantic Avenue, the current signal timing plans were assumed without modification for the analyses of future conditions. It is therefore likely that with updated traffic signal timing plans designed to complement the planned physical and operational changes along Atlantic Avenue, there would be fewer impacted intersections along this corridor than are identified in this impact analysis.

H. TRANSIT

Existing Conditions

Subway Service

SUBWAY STATIONS

As discussed above in Section E, "Level 2 Screening Assessment," project-generated trips at eight subway stations are expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold in the weekday AM and/or PM peak hours. As shown in Table 13-13, these are the Alabama Avenue, Cleveland Street, Norwood Avenue, and Crescent Street stations on the Jamaica Line, and the Liberty Avenue, Van Siclen Avenue, Shepherd Avenue, and Euclid Avenue stations on the Fulton Street Line. In proximity to the rezoning area, the Jamaica Line stations are all located on an elevated structure above Fulton Street, and the Fulton Street Line stations are all located below-grade beneath Pitkin Avenue with the exception of the Liberty Avenue station, which is located beneath Pennsylvania Avenue.

<u>Alabama Avenue (J/Z)</u>

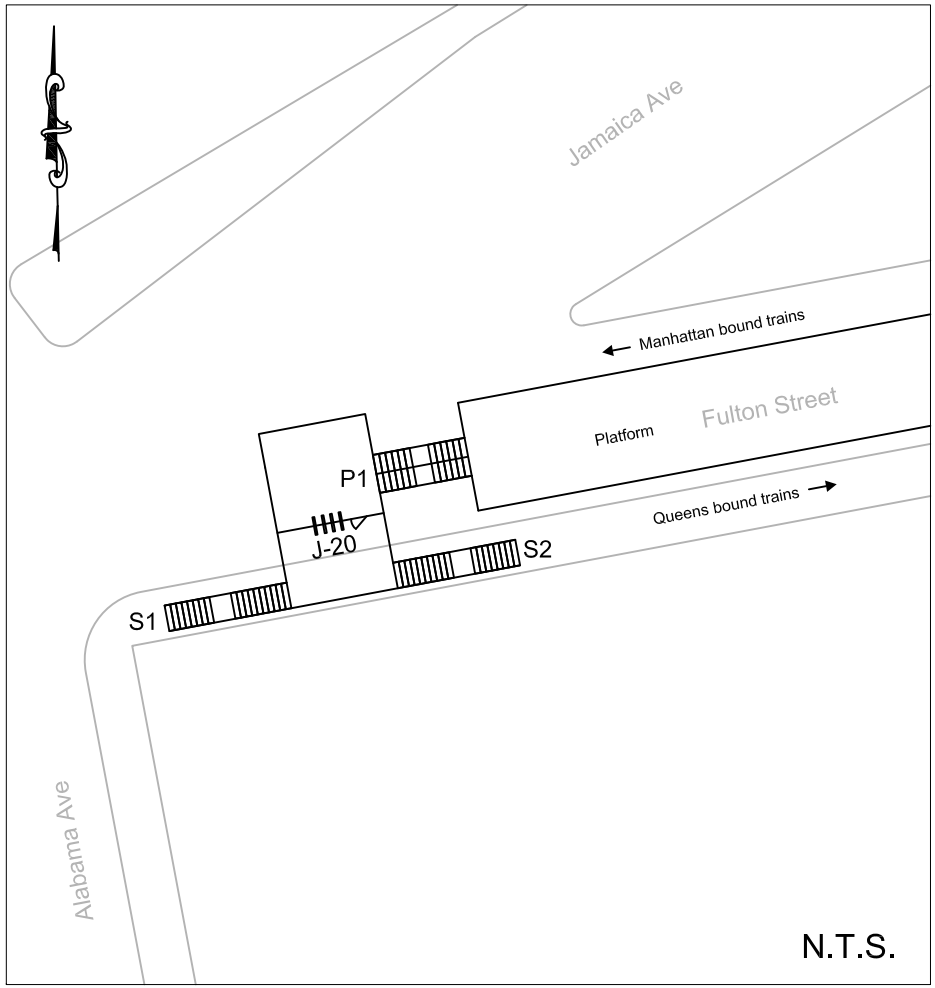
The Alabama Avenue station is served by J trains (at all times) and Z trains (weekday rush hours only) operating on the Jamaica Line. As shown in Figure 13-23, access from street level up to an intermediate mezzanine level is provided by two stairs located on the south side of Fulton Street east of Alabama Avenue – west-facing stair S1 and east-facing stair S2. A fare array (J20) consisting of three turnstiles is located on this mezzanine level, and stair P1 connects the mezzanine to the west end of the station's single island platform. As all projected development sites in proximity to this station are located to the east, all of the demand from these sites is expected to use east-facing stair S2 along with stair P1, and these two stairs are therefore included in the analysis. As shown in Tables 13-33 and 13-34, both of these stairs at the Alabama Avenue station currently operate at an uncongested LOS A in both the AM and PM peak hours, as does fare array J20.

<u>Cleveland Street (J)</u>

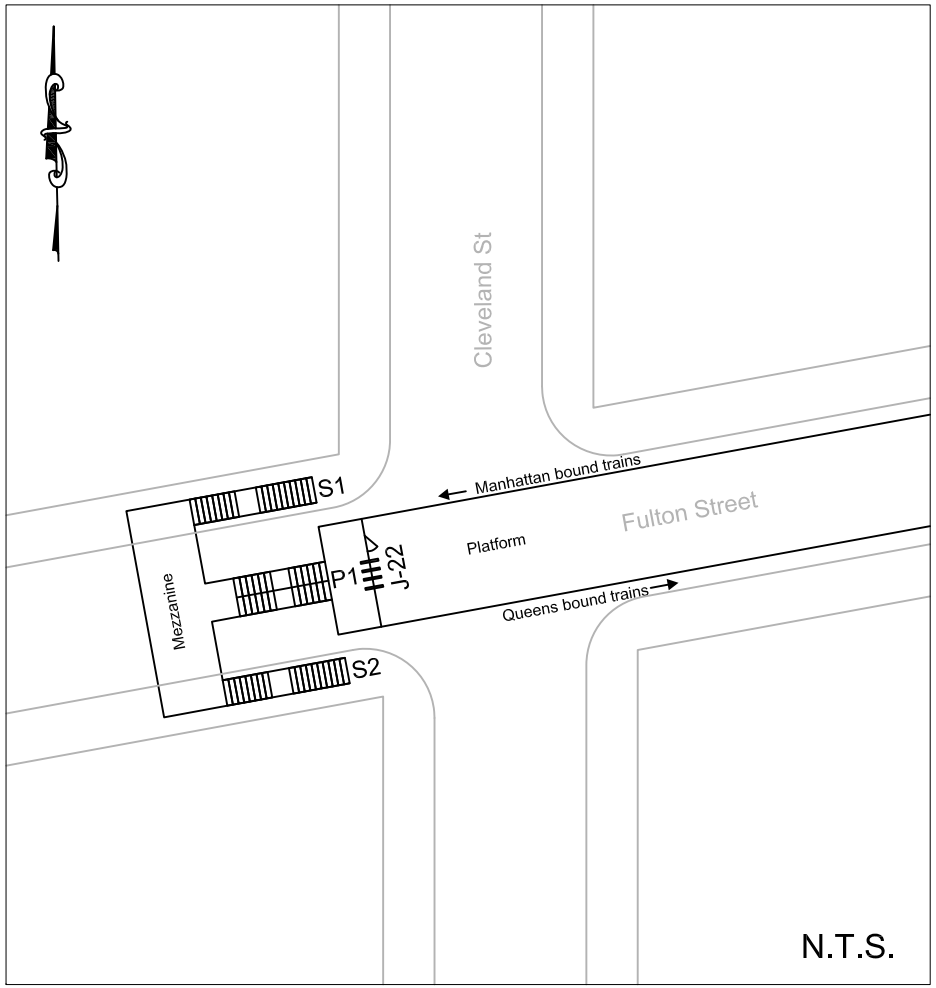
The Cleveland Street station is served by J trains operating on the Jamaica Line. As shown in Figure 13-23, access from street level up to an intermediate mezzanine level is provided by two stairs located at the northwest and southwest corners of Fulton and Cleveland Streets (stairs S1 and S2, respectively). Stair P1 provides access from the mezzanine level to a fare array (J22) consisting of three turnstiles located at the west end of the station's single island platform. As shown in Tables 13-33 and 13-34, all three stairs at the Cleveland Street station currently operate at an uncongested LOS A or B in both the AM and PM peak hours, as does fare array J22.

<u>Norwood Avenue (J/Z)</u>

The Norwood Avenue station on the Jamaica Line is served by Z trains during weekday rush hours and J trains at other times. As shown in Figure 13-23, access from street level up to an intermediate mezzanine level is provided by two stairs located at the northeast and southeast corners of Fulton Street and Norwood Avenue (stairs S1 and S2,



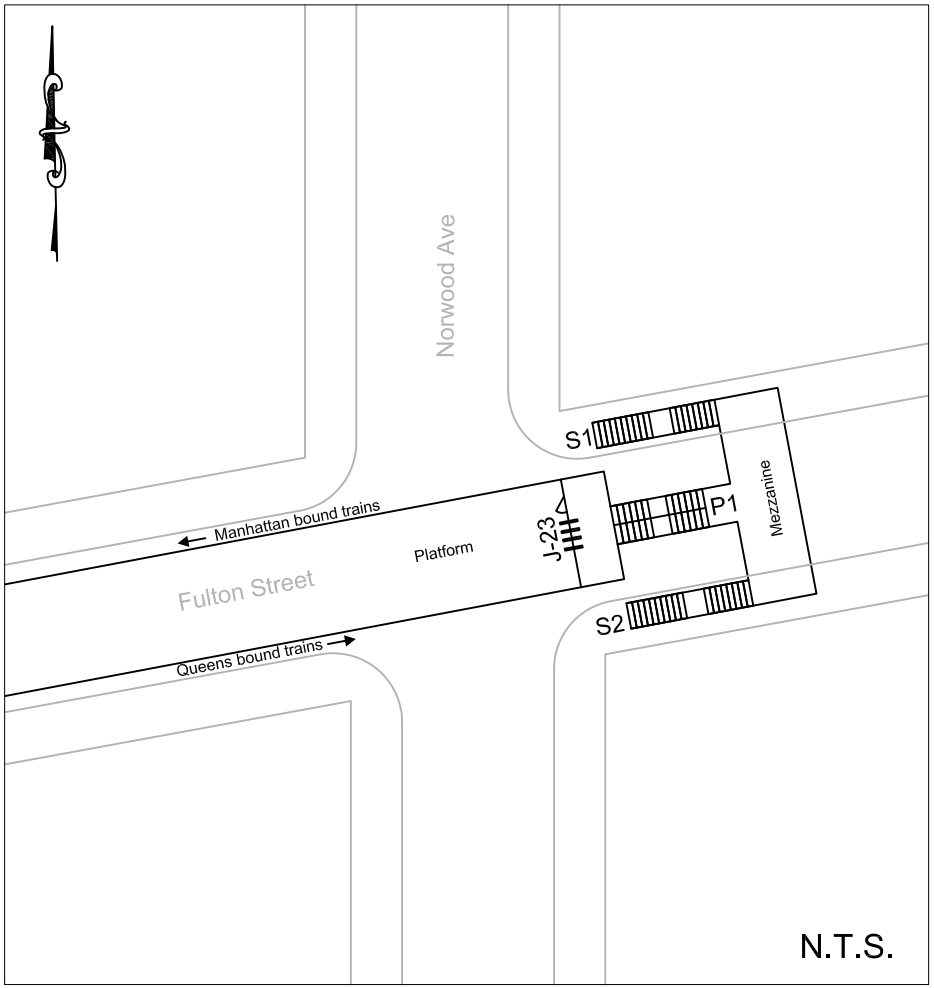
Alabama Ave (J/Z)



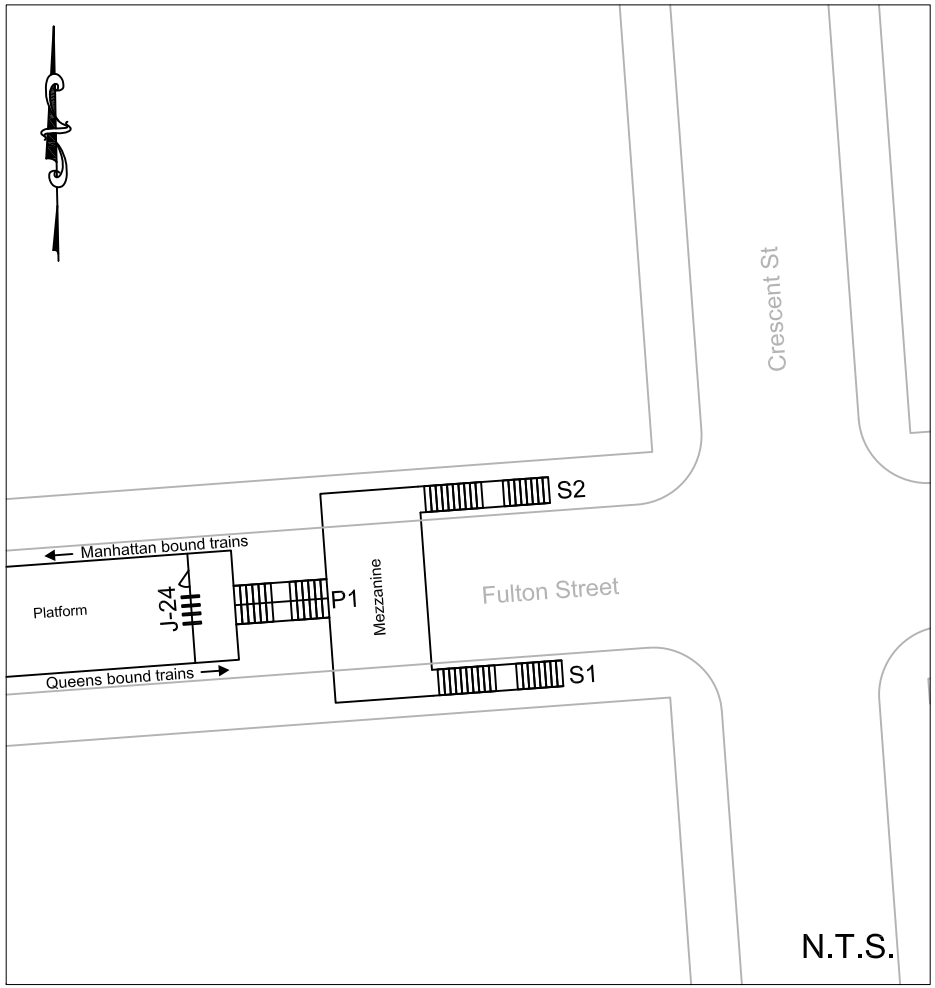
Cleveland St (J/Z)

East New York Rezoning Proposal

Figure 13-23a
Jamaica Line Subway Stations



Norwood Ave (J/Z)



Crescent St (J/Z)

respectively). Stair P1 provides access from the mezzanine level to a fare array (J23) consisting of three turnstiles located at the east end of the station's single island platform.

TABLE 13-33
Existing Conditions Stair Analysis at Jamaica Line Subway Stations

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	Alabama Ave (J/Z)	S2	4.4	3.4	262	126	1.00	0.80	0.9	0.28	A
		P1	5.8	4.6	350	279	1.00	0.75	0.9	0.37	A
	Cleveland St (J/Z)	S1	4.4	3.4	451	62	1.00	0.80	0.9	0.36	A
		S2	4.4	3.4	313	110	1.00	0.80	0.9	0.31	A
		P1	5.8	4.6	764	172	1.00	0.75	0.9	0.50	B
	Norwood Ave (J/Z)	S2	4.5	3.5	414	184	1.00	0.80	0.9	0.43	A
		P1	6.6	5.4	981	277	1.00	0.75	0.9	0.58	B
	Crescent St (J/Z)	S1	4.5	3.5	357	80	1.00	0.80	0.9	0.30	A
		P1	6.7	5.5	804	175	1.00	0.75	0.9	0.44	A
PM	Alabama Ave (J/Z)	S2	4.4	3.4	178	129	1.00	0.80	0.9	0.23	A
		P1	5.8	4.6	246	261	1.00	0.75	0.9	0.30	A
	Cleveland St (J/Z)	S1	4.4	3.4	92	298	1.00	0.80	0.9	0.32	A
		S2	4.4	3.4	207	342	1.00	0.80	0.9	0.43	A
		P1	5.8	4.6	299	640	1.00	0.75	0.9	0.59	B
	Norwood Ave (J/Z)	S2	4.5	3.5	102	213	1.00	0.80	0.9	0.24	A
		P1	6.6	5.4	207	497	1.00	0.75	0.9	0.38	A
	Crescent St (J/Z)	S1	4.5	3.5	101	428	1.00	0.80	0.9	0.42	A
		P1	6.7	5.5	220	788	1.00	0.75	0.9	0.54	B

TABLE 13-34
Existing Conditions Fare Array Analysis at Jamaica Line Subway Stations

Peak Hour	Station	Fare Array ID	Control Element	Quantity	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					System Entries	System Exits	System Entries	System Exits			
AM	Alabama Ave (J/Z)	J-20	Two-Way Turnstile	3	350	279	1.0	0.75	0.9	0.16	A
	Cleveland St (J/Z)	J-22	Two-Way Turnstile	3	764	172	1.0	0.75	0.9	0.25	A
	Norwood Ave (J/Z)	J-23	Two-Way Turnstile	3	981	277	1.0	0.75	0.9	0.34	A
	Crescent St (J/Z)	J-24	Two-Way Turnstile	3	804	175	1.0	0.75	0.9	0.26	A
PM	Alabama Ave (J/Z)	J-20	Two-Way Turnstile	3	246	261	1.0	0.75	0.9	0.13	A
	Cleveland St (J/Z)	J-22	Two-Way Turnstile	3	299	640	1.0	0.75	0.9	0.24	A
	Norwood Ave (J/Z)	J-23	Two-Way Turnstile	3	207	497	1.0	0.75	0.9	0.18	A
	Crescent St (J/Z)	J-24	Two-Way Turnstile	3	220	788	1.0	0.75	0.9	0.25	A

As all projected development sites in proximity to this station are located to the south, all of the demand from these sites is expected to use stair S2 on the south side of Fulton Street along with stair P1, and these two stairs are

therefore included in the analysis. As shown in Tables 13-33 and 13-34, both of these stairs and fare array J23 at the Norwood Avenue station currently operate at an uncongested LOS A or B in both the AM and PM peak hours.

Crescent Street (J/Z)

The Crescent Street station on the Jamaica Line is served by J trains (at all times) and Z trains (weekday rush hours only). As shown in Figure 13-23, access from street level up to an intermediate mezzanine level is provided by two stairs located at the southwest and northwest corners of Fulton and Crescent Streets (stairs S1 and S2, respectively). Stair P1 provides access from the mezzanine level to a fare array (J24) consisting of three turnstiles located at the east end of the station's single island platform. As all projected development sites in proximity to this station are located to the south, all of the demand from these sites is expected to use stair S1 on the south side of Fulton Street along with stair P1, and these two stairs are therefore included in the analysis. As shown in Tables 13-33 and 13-34, fare array J24 and both analyzed stairs at the Crescent Street station currently operate at an uncongested LOS A or B in both the AM and PM peak hours.

Liberty Avenue (C)

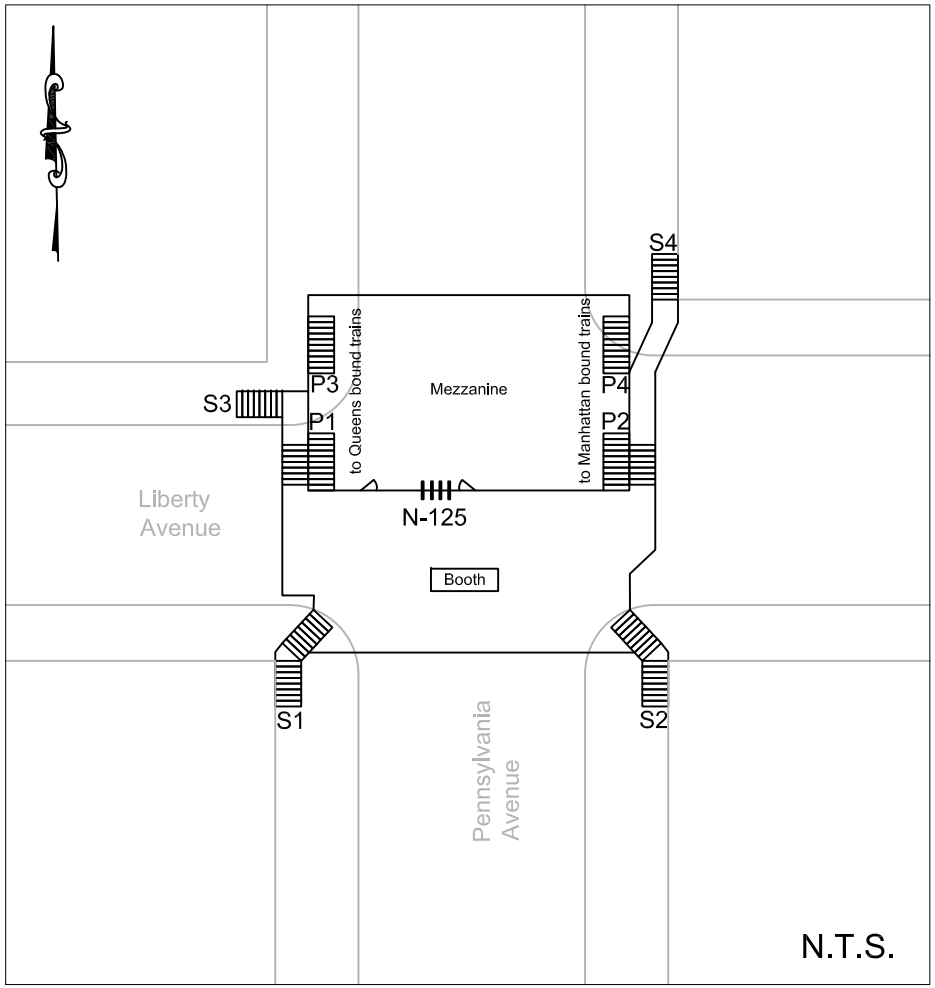
The Liberty Avenue station on the Fulton Street Line has two side platforms served by C local trains. (A trains provide service at this station during late night hours when C trains do not operate.) As shown in Figure 13-24, four stairs (S1 through S4) located at the four corners of the Pennsylvania Avenue/Liberty Avenue intersection provide access from street-level down to a mezzanine level with a fare array (N-125) consisting of three turnstiles. As all projected development sites in proximity to this subway station are located to the north or west, all project-generated demand is expected to occur on stairs S1, S3, and S4 at the southwest, northwest, and northeast corners of the intersection, and these stairs are therefore included in the analysis. Also analyzed are stairs P1 and P3, which provide access from the mezzanine level down to the southbound (Queens-bound) platform, and stairs P2 and P4, which provide access to the northbound (Manhattan-bound) platform. As shown in Tables 13-35 and 13-36, fare array N-125 and all seven analyzed stairs at the Liberty Avenue station currently operate at an uncongested LOS A in both the AM and PM peak hours.

Van Siclen Avenue (C)

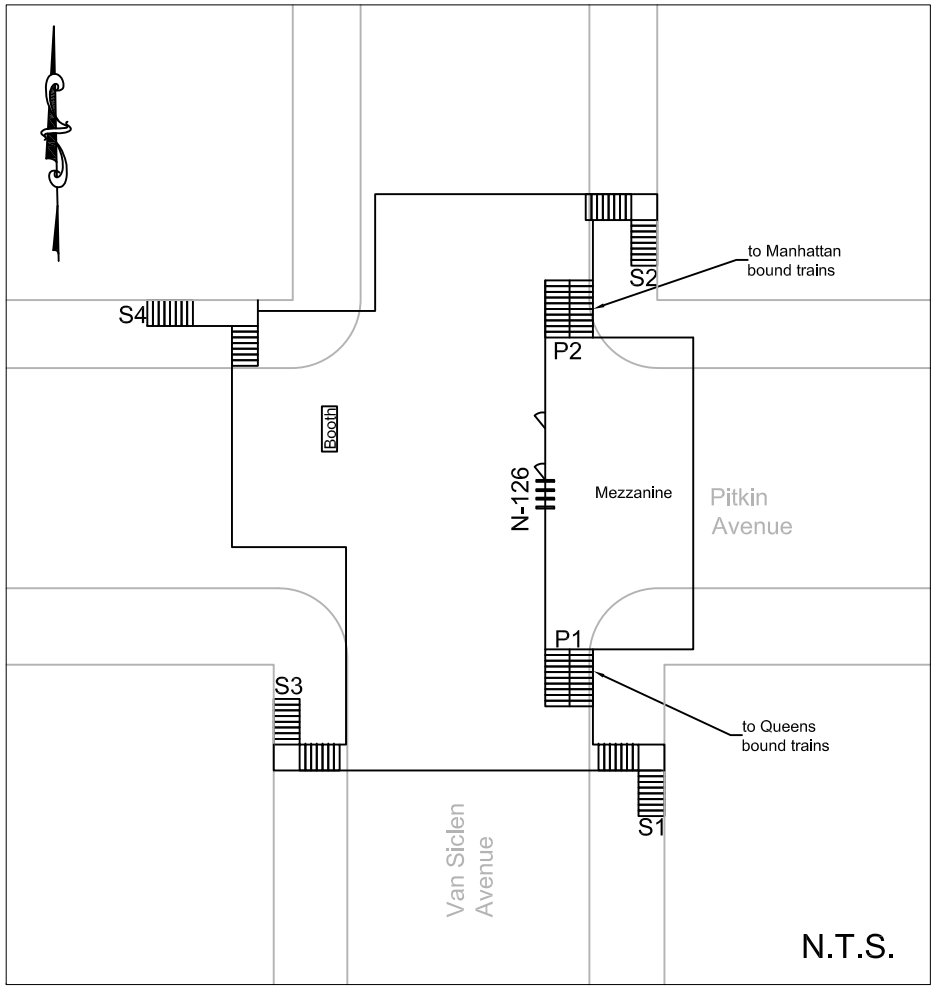
The Van Siclen Avenue station on the Fulton Street Line has two side platforms served by C local trains. (A trains provide service during late night hours when C trains do not operate.) As shown in Figure 13-24, stairs S1 through S4 (located at the four corners of the Pitkin Avenue/Van Siclen Avenue intersection) provide access from street-level down to a mezzanine level with a fare array (N-126) consisting of three turnstiles. Demand from projected development sites is expected to use stairs S1, S2, and S4 at the southeast, northeast, and northwest corners of the intersection, respectively, and these stairs are therefore included in the analysis. Also analyzed are stairs P1 and P2 which provide access from the mezzanine level down to the southbound (Queens-bound) platform and northbound (Manhattan-bound) platform, respectively. As shown in Tables 13-35 and 13-36, fare array N-126 and all five analyzed stairs at the Van Siclen Avenue station currently operate at an uncongested LOS A in both the AM and PM peak hours.

Shepherd Avenue (C)

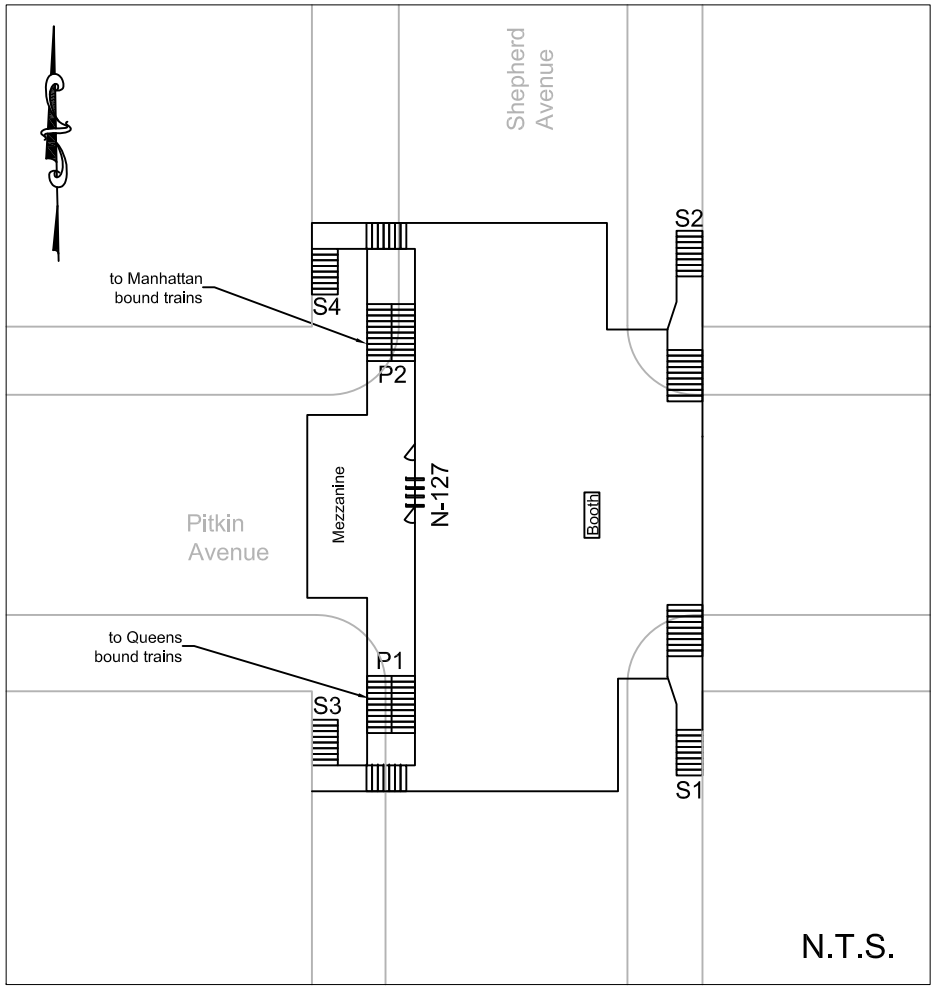
The Shepherd Avenue station on the Fulton Street Line has two side platforms served by C local trains. (A trains provide service during late night hours when C trains do not operate.) As shown in Figure 13-24, stairs S1 through S4 (located at the four corners of the Pitkin Avenue/Shepherd Avenue intersection) provide access from street-level down to a mezzanine level with a fare array (N-127) consisting of three turnstiles. Demand from projected development sites is expected to use stairs S2, S3, and S4 at the northeast, southwest, and northwest corners of the intersection, respectively, and these stairs are therefore included in the analysis. Also analyzed are stairs P1 and P2 which provide access from the mezzanine level down to the southbound (Queens-bound) platform and northbound (Manhattan-bound) platform, respectively. As shown in Tables 13-35 and 13-36, fare array N-127 and all five analyzed stairs at the Shepherd Avenue station currently operate at an uncongested LOS A in both the AM and PM peak hours.



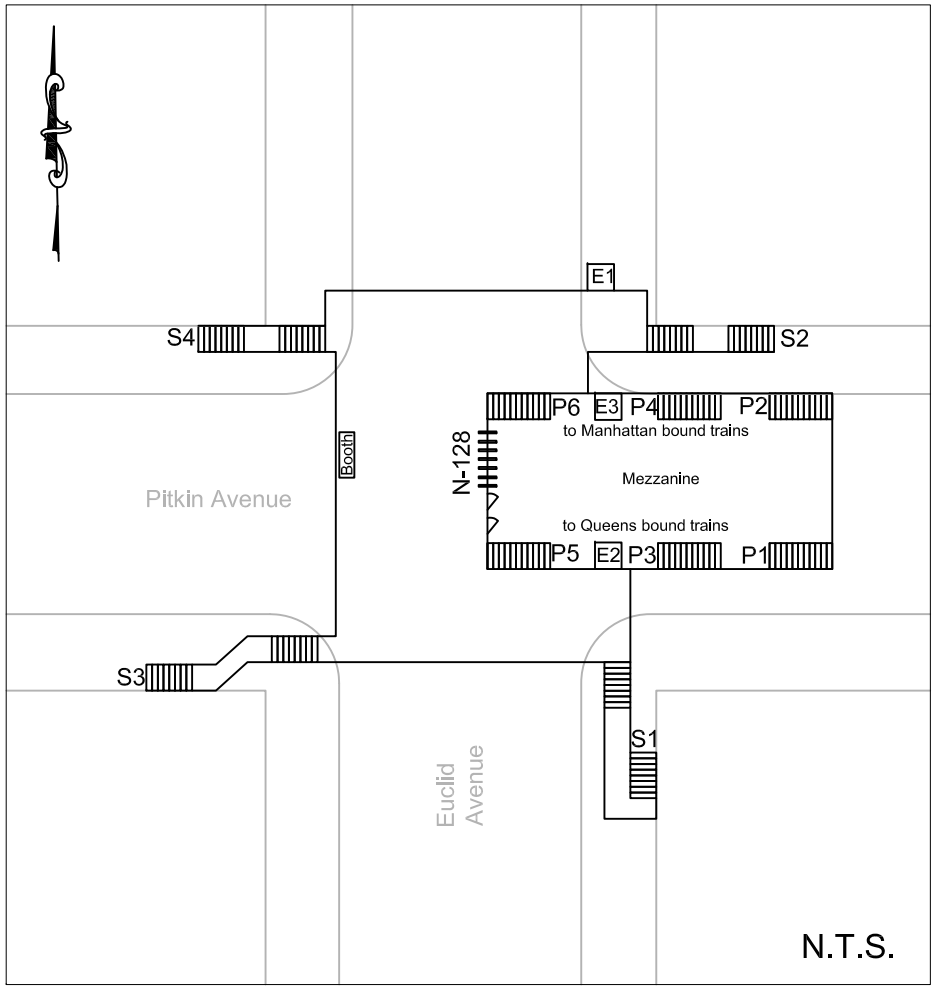
Liberty Ave (C)



Van Siclen Ave (C)



Shepherd Ave (C)



Euclid Ave (A/C)

East New York Rezoning Proposal

Figure 13-24b
Fulton Street Line Subway Stations

TABLE 13-35
Existing Conditions Stair Analysis at Fulton Street Line Subway Stations

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	Liberty Ave (C)	S1	5.4	4.4	104	118	0.80	1	0.9	0.13	A
		S3	3.4	2.4	52	23	0.80	1.0	0.9	0.08	A
		S4	5.5	4.5	9	67	0.80	1.0	0.9	0.04	A
		P1	4.6	3.6	93	22	0.75	1.0	0.9	0.09	A
		P2	4.6	3.6	15	221	0.75	1.0	0.9	0.16	A
		P3	5.3	4.3	80	3	0.75	1.0	1	0.05	A
		P4	4.6	3.6	67	258	0.75	1.0	0.9	0.22	A
	Van Siclen Ave (C)	S1	4.5	3.5	103	146	0.80	1.0	0.9	0.18	A
		S2	4.4	3.4	47	188	0.80	1.0	0.9	0.17	A
		S4	5.4	4.4	15	66	0.80	1.0	0.9	0.05	A
		P1	10.9	9.7	177	50	0.75	1.0	0.9	0.07	A
		P2	11	9.8	101	553	0.75	1.0	0.9	0.16	A
	Shepherd Ave (C)	S2	4.5	3.5	122	184	0.80	1.0	0.9	0.22	A
		S3	4.4	3.4	18	174	0.80	1.0	0.9	0.13	A
		S4	4.4	3.4	9	83	0.80	1.0	0.9	0.06	A
		P1	11.8	10.6	189	57	0.75	1.0	0.9	0.07	A
		P2	12.1	10.9	64	698	0.75	1.0	0.9	0.17	A
	Euclid Ave (A/C)	S2	4.4	3.4	96	263	0.80	1.0	0.9	0.26	A
		S3	4.4	3.4	128	654	0.80	1.0	0.9	0.55	B
		S4	4.5	3.5	141	324	0.80	1.0	0.9	0.33	A
		P1	5.5	4.5	177	19	0.75	1.0	0.9	0.13	A
		P2	5.5	4.5	15	221	0.75	1.0	0.9	0.12	A
		P3	4.5	3.5	30	153	0.75	1.0	0.9	0.13	A
		P4	4.7	3.7	16	486	0.75	1.0	1	0.29	A
		P5	5.3	4.3	234	41	0.75	1.0	0.9	0.19	A
		P6	4.4	3.4	53	1,426	0.75	1.0	1	0.92	C
PM	Liberty Ave (C)	S1	5.4	4.4	97	60	0.80	1.0	0.9	0.10	A
		S3	3.4	2.4	24	16	0.80	1.0	0.9	0.05	A
		S4	5.5	4.5	35	32	0.80	1.0	0.9	0.04	A
		P1	4.6	3.6	123	33	0.75	1.0	0.9	0.12	A
		P2	4.6	3.6	7	97	0.75	1.0	0.9	0.07	A
		P3	5.3	4.3	92	16	0.75	1.0	0.9	0.08	A
		P4	4.6	3.6	10	98	0.75	1.0	0.9	0.07	A
	Van Siclen Ave (C)	S1	4.5	3.5	133	34	0.80	1.0	0.9	0.13	A
		S2	4.4	3.4	93	57	0.80	1.0	0.9	0.12	A
		S4	5.4	4.4	50	14	0.80	1.0	0.9	0.04	A
		P1	10.9	9.7	516	45	0.75	1.0	0.9	0.18	A
		P2	11	9.8	22	143	0.75	1.0	0.9	0.04	A
	Shepherd Ave (C)	S2	4.5	3.5	89	45	0.80	1.0	0.9	0.10	A
		S3	4.4	3.4	58	29	0.80	1.0	0.9	0.07	A
		S4	4.4	3.4	36	53	0.80	1.0	0.9	0.07	A
		P1	11.8	10.6	346	40	0.75	1.0	0.9	0.11	A
		P2	12.1	10.9	43	164	0.75	1.0	0.9	0.05	A
	Euclid Ave (A/C)	S2	4.4	3.4	188	111	0.80	1.0	0.9	0.24	A
		S3	4.4	3.4	380	169	0.80	1.0	0.9	0.44	A
		S4	4.5	3.5	167	62	0.80	1.0	0.9	0.18	A
		P1	5.5	4.5	335	12	0.75	1.0	1	0.21	A
		P2	5.5	4.5	7	54	0.75	1.0	0.9	0.03	A
		P3	4.5	3.5	306	29	0.75	1.0	0.9	0.29	A
		P4	4.7	3.7	9	139	0.75	1.0	0.9	0.09	A
		P5	5.3	4.3	663	20	0.75	1.0	1	0.44	A
		P6	4.4	3.4	36	404	0.75	1.0	0.9	0.31	A

TABLE 13-36
Existing Conditions Fare Array Analysis at Fulton Street Line Subway Stations

Peak Hour	Station	Fare Array ID	Control Element	Quantity	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					System Entries	System Exits	System Entries	System Exits			
AM	Liberty Ave (C)	N-125	Two-Way Turnstile	3	504	255	1.0	0.8	0.9	0.20	A
	Van Siclen Ave (C)	N-126	Two-Way Turnstile	3	603	278	1.0	0.8	0.9	0.23	A
	Shepherd Ave (C)	N-127	Two-Way Turnstile	3	755	253	1.0	0.8	0.9	0.26	A
	Euclid Ave (C)	N-128	Two-Way Turnstile	6	2,346	525	1.0	0.8	0.9	0.38	A
PM	Liberty Ave (C)	N-125	Two-Way Turnstile	3	244	232	1.0	0.8	0.9	0.12	A
	Van Siclen Ave (C)	N-126	Two-Way Turnstile	3	188	538	1.0	0.8	0.9	0.17	A
	Shepherd Ave (C)	N-127	Two-Way Turnstile	3	204	389	1.0	0.8	0.9	0.14	A
	Euclid Ave (C)	N-128	Two-Way Turnstile	6	658	1,356	1.0	0.8	0.9	0.24	A

Euclid Avenue (A/C)

The Euclid Avenue station has two island platforms served by both A (express) and C (local) trains operating on the Fulton Street Line. As shown in Figure 13-24, stairs S1 through S4 (located at the four corners of the Pitkin Avenue/Euclid Avenue intersection) provide access from street-level down to a mezzanine level with a fare array (N-128) consisting of six turnstiles. Demand from projected development sites is expected to use stairs S2, S3, and S4 at the northeast, southwest, and northwest corners of the intersection, respectively, and these stairs are therefore included in the analysis. Also analyzed are stairs P1, P3, and P5, which provide access from the mezzanine level down to the southbound (Queens-bound) platform, and stairs P2, P4, and P6, which provide access to the northbound (Manhattan-bound) platform. As shown in Tables 13-35 and 13-36, fare array N-128 and all analyzed stairs at the Euclid Avenue station currently operate at an uncongested LOS A or B in both the AM and PM peak hours with the exception of platform stair P6, which operates at an acceptable LOS C in the AM.

SUBWAY LINE HAUL

Line haul is the volume of transit riders passing a defined point on a given transit route. For subway routes in New York City to and from Brooklyn, line haul is typically measured either at East River bridge and tunnel crossings or at the actual maximum load point on each subway route (the point where the trains carry the greatest number of passengers during the peak hour). As discussed above, the rezoning area is served by a total of five NYCT subway routes, including A (express) and C (local) trains operating on the Fulton Street Line, J and Z trains operating on the Jamaica Line, and L trains operating on the Canarsie Line. The peak direction of travel on these lines is typically Manhattan-bound in the AM peak hour and Brooklyn or Queens-bound in the PM peak hour. During weekday rush hours, J and Z trains provide skip-stop service, with some stations served by J trains, some stations served by Z trains, and some stations served by both. J/Z skip-stop service operates towards Manhattan from about 7:45 AM to 8:45 AM and from Manhattan from about 5 PM to 6 PM. J trains run express between Myrtle Avenue and Marcy Avenue in the peak direction during middays and rush hours and serve all stations at other times. Maximum load point data for 2013-2014 for all analyzed subway routes were provided by NYCT and were grown by 0.50 percent to account for any increases in demand during the 2014-2015 period.

Table 13-37 shows existing line haul conditions in the peak direction at the maximum load points for each subway route during the AM and PM peak hours. As shown in Table 13-37, all routes currently operate below capacity in the

peak direction in each peak hour. The greatest demand occurs on L trains which carry an estimated 22,119 passengers (0.98 v/c ratio) in the peak northbound direction in the AM peak hour and 17,171 passengers (0.94 v/c ratio) in the peak southbound direction in the PM peak hour.

TABLE 13-37
Existing Subway Line Haul Analysis

Peak Hour	Route	Direction	Maximum Load Point (leaving station)	Average Trains per Hour[1]	Average Cars per Hour[1]	Average Passengers per Hour[1]	Average Passengers per Car[1]	Guideline Passengers per Car[2]	V/C Ratio [3]
AM	A	NB	Hoyt-Schermerhorn Streets	17.9	143.2	18,262	128	175	0.73
	C	NB	Hoyt-Schermerhorn Streets	7.9	63.2	7,413	117	145	0.81
	J/Z	SB	Marcy Av	12.2	97.6	11,646	119	135	0.88
	L	NB	Bedford Av	19.4	155.2	22,119	143	145	0.98
PM	A	SB	Jay St-MetroTech	15.4	123.2	13,543	110	175	0.63
	C	SB	Jay St-MetroTech	6.4	51.2	4,169	81	115	0.71
	J/Z	NB	Essex St	11.0	88.0	6,699	76	135	0.56
	L	SB	14th St-Union Sq	15.7	125.6	17,171	137	145	0.94

Notes:
1 Based on 2014 ridership and train throughput data from NYCT. Passenger volumes grown by 0.5 percent to account for growth in demand during the 2014 to 2015 period.
2 Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.
3 Volume to guideline capacity ratio.

Bus Service

As shown in Figure 13-4 and Table 13-14, the rezoning area is served by a total of ten MTA local bus routes. These include the B12, B13, B14, B20, B25, B83, Q24, and Q56 (operated by NYCT), and the Q7 and Q8 (operated by MTA Bus). A brief overview of these local bus services is provided below.

B12

NYCT's B12 route provides 24-hour service daily between Alabama/East New York Avenues in East New York and Ocean/Parkside Avenues in Flatbush, Brooklyn. In proximity to the rezoning area, B12 buses operate primarily along East New York Avenue.

B13

NYCT's B13 route provides daily service between Wycoff/DeKalb Avenues in Bushwick, Brooklyn and the Gateway Center Mall in Spring Creek, Brooklyn, generally from 4:15 AM to 1:30 AM. In proximity to the rezoning area, B13 buses operate primarily along Crescent Street and Euclid Avenue.

B14

NYCT's B14 route provides 24-hour service daily between the Brooklyn General Mail Facility near Spring Creek, Brooklyn and the Utica Avenue subway station in Crown Heights, Brooklyn. In proximity to the rezoning area, B14 buses operate primarily along Sutter Avenue.

B20

NYCT's B20 route provides daily service between the Brooklyn General Mail Facility near Spring Creek, Brooklyn and Forest/67th Avenues in Ridgewood, Queens, with some buses terminating their runs at Broadway Junction/Van Sinderen Avenue in East New York. Service is generally provided from 5:00 AM to 1:30 AM. In proximity to the rezoning area, B20 buses operate primarily along Broadway and Pennsylvania and Jamaica Avenues.

B25

NYCT's B25 route provides 24-hour service daily between Broadway Junction/Alabama Avenue in East New York and Front Street at Fulton Landing, Brooklyn. In proximity to the rezoning area, B25 buses operate primarily along Fulton Street.

B83

NYCT's B83 route provides daily service between Broadway Junction/Van Sinderen Avenue in East New York and the Gateway Center Mall in Spring Creek, Brooklyn. On weekdays, service is generally provided from 4:30 AM to 1:30 AM. In proximity to the rezoning area, B83 buses operate primarily along Pennsylvania Avenue, Jamaica Avenue, and Fulton Street.

Q7

The Q7 route, operated by MTA Bus, provides daily service between the Euclid Avenue (A/C) subway station in East New York and 148th Street/South Cargo Road at JFK International Airport. Service is generally provided from 4:45 AM to 1:00 AM. In proximity to the rezoning area, Q7 buses operate primarily along segments of Crescent Street and Pitkin, Euclid, and Belmont Avenues.

Q8

The Q8 route, operated by MTA Bus, provides daily service between Gateway Center Mall North in Spring Creek, Brooklyn and the 165th Street Bus Terminal in Jamaica, Queens. Service is generally provided between the hours of 4:30 AM and 12:30 AM. In proximity to the rezoning area, Q8 buses operate primarily along segments of Fountain, Logan, Pitkin, and Euclid Avenues.

Q24

NYCT's Q24 route provides 24-hour service daily between Archer Avenue/168th Street in Jamaica, Queens and Patchen/Lafayette Avenues in Bushwick, Brooklyn. In proximity to the rezoning area, Q24 buses operate along Broadway and Atlantic Avenue.

Q56

NYCT's Q56 route provides 24-hour service daily between and 171st Street/Jamaica Avenue in Jamaica, Queens and Broadway Junction in East New York. In proximity to the rezoning area, Q56 buses operate primarily along Jamaica Avenue.

As shown in Table 13-14, of the ten bus routes operating in proximity to the rezoning area, three are expected to experience 50 or more new trips in one direction in one or both peak hours and are therefore analyzed in this EIS. These include the B13, Q8, and Q24. Table 13-38 shows the existing number of buses and ridership at the maximum load point in each direction for each of these local bus routes in the AM and PM peak hours. As shown in Table 13-38, all three of these local bus routes currently operate with available capacity at their maximum load points in the AM and PM peak hours with the exception of eastbound Q8 buses, which operate with a deficit of 95 spaces at their maximum load point in the AM peak hour.

TABLE 13-38
Existing Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	Peak Hour Passengers[1]	Average Passengers per Bus	Available Capacity[2]
AM	B13	NB	Euclid Av & Sutter Av	5	205	41	65
		SB	Euclid Av & Sutter Av	4	125	31	91
	Q8	EB	101st Av & 133rd St	10	635	64	-95
		WB	101st Av & 121st St	8	269	34	163
	Q24	EB	Archer Av & Sutphin Blvd	7	284	41	94
		WB	Atlantic Av & Lefferts Blvd	6	200	33	124
PM	B13	NB	Euclid Av & Sutter Av	5	79	16	191
		SB	Euclid Av & Sutter Av	5	181	36	89
	Q8	EB	101st Av & Lefferts Blvd	10	223	22	317
		WB	101st Av & Cresskill Pl	9	458	51	28
	Q24	EB	Atlantic Av & Lefferts Blvd	6	215	36	109
		WB	Jamaica Av & Queens Blvd	6	223	37	101

Notes:
[1] Based on most currently available data from NYCT/MTA Bus.
[2] Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

LIRR Commuter Rail Service

In addition to subway and bus transit, the rezoning area is served by commuter rail trains operated by MTA Long Island Rail Road (LIRR). LIRR trains traveling between Atlantic Terminal in Downtown Brooklyn and the railroad's hub in Jamaica, Queens, operate through the rezoning area in a tunnel beneath Atlantic Avenue. The nearest LIRR station in proximity to the rezoning area is the East New York station at Atlantic and Van Sinderen Avenues. At this location, the tracks rise to grade (with the Atlantic Avenue mainline roadway elevated overhead) to serve two side platforms. On weekdays, approximately 55 trains serve this station in each direction, including approximately six trains in the peak Brooklyn-bound direction during the 8-9 AM peak hour and a similar number in the peak Jamaica-bound direction in the 5-6 PM peak hour.

At Jamaica, connections are available to all LIRR branches with the exception of the Port Washington Branch. Connections are also available to the AirTrain to JFK International Airport and to E, J, and Z subway trains.

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

Between 2015 and 2030, it is expected that subway and bus demands in the vicinity of the rezoning area will increase due to long-term background growth as well as development that could occur pursuant to existing zoning. In order to forecast future transit conditions without the Proposed Actions (the No-Action condition), development on projected development sites and developments listed in Table 2-4 in Chapter 2, "Land Use, Zoning, and Public Policy," were considered. The Future No-Action subway and bus volumes reflect annual background growth rates of 0.50 percent per year for the 2015 through 2020 period and 0.25 percent for the 2020 through 2030 period. These background growth rates, recommended in the *CEQR Technical Manual* for projects in Brooklyn outside of the Downtown area, are applied to account for smaller projects and as-of-right developments not reflected in Table 2-4 and general increases in travel demand not attributable to specific development projects.

Subway Service

SUBWAY STATIONS

Under No-Action conditions, demand at all analyzed subway stations is expected to increase as a result of new development and/or background growth. NYCT has indicated that there are currently no plans for modifications to pedestrian circulation elements at any of the analyzed subway stations.

Tables 13-39 through 13-42 show the results of the analysis of No-Action AM and PM peak hour conditions at the eight analyzed subway stations. As shown in Tables 13-39 through 13-42, all analyzed stairs and fare arrays at these stations would continue to operate at an uncongested LOS A or B in both peak hours with the exception of the heavily-used Manhattan-bound platform stair P6 at the Euclid Avenue station (one of three stairs to this platform and the closest to the fare array), which would continue to operate at an acceptable LOS C in the AM peak hour.

TABLE 13-39
No-Action Stair Analysis at Jamaica Line Subway Stations

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	Alabama Ave (J/Z)	S2	4.4	3.4	281	154	1.00	0.80	0.9	0.32	A
		P1	5.8	4.6	374	315	1.00	0.75	0.9	0.40	A
	Cleveland St (J/Z)	S1	4.4	3.4	475	65	1.00	0.80	0.9	0.38	A
		S2	4.4	3.4	333	117	1.00	0.80	0.9	0.32	A
		P1	5.8	4.6	808	182	1.00	0.75	0.9	0.53	B
	Norwood Ave (J/Z)	S2	4.5	3.5	473	233	1.00	0.80	0.9	0.51	B
		P1	6.6	5.4	1,069	331	1.00	0.75	0.9	0.65	B
	Crescent St (J/Z)	S1	4.5	3.5	375	84	1.00	0.80	0.9	0.32	A
		P1	6.7	5.5	845	184	1.00	0.75	0.9	0.47	B
PM	Alabama Ave (J/Z)	S2	4.4	3.4	213	146	1.00	0.80	0.9	0.27	A
		P1	5.8	4.6	285	284	1.00	0.75	0.9	0.34	A
	Cleveland St (J/Z)	S1	4.4	3.4	97	314	1.00	0.80	0.9	0.33	A
		S2	4.4	3.4	220	363	1.00	0.80	0.9	0.46	B
		P1	5.8	4.6	316	677	1.00	0.75	0.9	0.62	B
	Norwood Ave (J/Z)	S2	4.5	3.5	169	270	1.00	0.80	0.9	0.33	A
		P1	6.6	5.4	280	568	1.00	0.75	0.9	0.45	A
	Crescent St (J/Z)	S1	4.5	3.5	106	450	1.00	0.80	0.9	0.44	A
		P1	6.7	5.5	231	828	1.00	0.75	0.9	0.57	B

TABLE 13-40
No-Action Fare Array Analysis at Jamaica Line Subway Stations

Peak Hour	Station	Fare Array ID	Control Element	Quantity	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					System Entries	System Exits	System Entries	System Exits			
AM	Alabama Ave (J/Z)	J-20	Two-Way Turnstile	3	374	315	1.0	0.75	0.9	0.18	A
	Cleveland St (J/Z)	J-22	Two-Way Turnstile	3	808	182	1.0	0.75	0.9	0.27	A
	Norwood Ave (J/Z)	J-23	Two-Way Turnstile	3	1,069	331	1.0	0.75	0.9	0.37	A
	Crescent St (J/Z)	J-24	Two-Way Turnstile	3	845	184	1.0	0.75	0.9	0.28	A
PM	Alabama Ave (J/Z)	J-20	Two-Way Turnstile	3	285	284	1.0	0.75	0.9	0.15	A
	Cleveland St (J/Z)	J-22	Two-Way Turnstile	3	316	677	1.0	0.75	0.9	0.25	A
	Norwood Ave (J/Z)	J-23	Two-Way Turnstile	3	280	568	1.0	0.75	0.9	0.21	A
	Crescent St (J/Z)	J-24	Two-Way Turnstile	3	231	828	1.0	0.75	0.9	0.26	A

TABLE 13-41
No-Action Stair Analysis at Fulton Street Line Subway Stations

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	Liberty Ave (C)	S1	5.4	4.4	109	124	0.80	1	0.9	0.14	A
		S3	3.4	2.4	56	24	0.80	1.0	0.9	0.09	A
		S4	5.5	4.5	19	73	0.80	1.0	0.9	0.05	A
		P1	4.6	3.6	104	23	0.75	1.0	0.9	0.10	A
		P2	4.6	3.6	16	233	0.75	1.0	0.9	0.16	A
		P3	5.3	4.3	89	3	0.75	1.0	1	0.06	A
		P4	4.6	3.6	70	273	0.75	1.0	0.9	0.24	A
	Van Siclen Ave (C)	S1	4.5	3.5	108	154	0.80	1.0	0.9	0.19	A
		S2	4.4	3.4	60	209	0.80	1.0	0.9	0.19	A
		S4	5.4	4.4	24	73	0.80	1.0	0.9	0.06	A
		P1	10.9	9.7	204	54	0.75	1.0	0.9	0.08	A
		P2	11	9.8	107	596	0.75	1.0	0.9	0.18	A
	Shepherd Ave (C)	S2	4.5	3.5	149	289	0.80	1.0	0.9	0.32	A
		S3	4.4	3.4	19	183	0.80	1.0	0.9	0.14	A
		S4	4.4	3.4	10	91	0.80	1.0	0.9	0.07	A
		P1	11.8	10.6	220	64	0.75	1.0	0.9	0.08	A
		P2	12.1	10.9	68	830	0.75	1.0	0.9	0.20	A
	Euclid Ave (A/C)	S2	4.4	3.4	102	281	0.80	1.0	0.9	0.28	A
		S3	4.4	3.4	136	690	0.80	1.0	0.9	0.58	B
		S4	4.5	3.5	158	346	0.80	1.0	0.9	0.36	A
		P1	5.5	4.5	191	20	0.75	1.0	0.9	0.14	A
		P2	5.5	4.5	16	233	0.75	1.0	0.9	0.13	A
		P3	4.5	3.5	33	161	0.75	1.0	0.9	0.13	A
		P4	4.7	3.7	17	514	0.75	1.0	1	0.30	A
		P5	5.3	4.3	252	43	0.75	1.0	0.9	0.21	A
		P6	4.4	3.4	56	1,508	0.75	1.0	1	0.97	C
PM	Liberty Ave (C)	S1	5.4	4.4	102	63	0.80	1.0	0.9	0.10	A
		S3	3.4	2.4	25	18	0.80	1.0	0.9	0.05	A
		S4	5.5	4.5	43	46	0.80	1.0	0.9	0.05	A
		P1	4.6	3.6	133	35	0.75	1.0	0.9	0.14	A
		P2	4.6	3.6	7	109	0.75	1.0	0.9	0.08	A
		P3	5.3	4.3	99	17	0.75	1.0	0.9	0.08	A
		P4	4.6	3.6	11	109	0.75	1.0	0.9	0.08	A
	Van Siclen Ave (C)	S1	4.5	3.5	141	36	0.80	1.0	0.9	0.14	A
		S2	4.4	3.4	123	80	0.80	1.0	0.9	0.16	A
		S4	5.4	4.4	67	29	0.80	1.0	0.9	0.06	A
		P1	10.9	9.7	580	48	0.75	1.0	0.9	0.20	A
		P2	11	9.8	25	183	0.75	1.0	0.9	0.05	A
	Shepherd Ave (C)	S2	4.5	3.5	181	88	0.80	1.0	0.9	0.21	A
		S3	4.4	3.4	61	30	0.80	1.0	0.9	0.07	A
		S4	4.4	3.4	42	58	0.80	1.0	0.9	0.08	A
		P1	11.8	10.6	451	44	0.75	1.0	0.9	0.14	A
		P2	12.1	10.9	49	213	0.75	1.0	0.9	0.06	A
	Euclid Ave (A/C)	S2	4.4	3.4	202	119	0.80	1.0	0.9	0.25	A
		S3	4.4	3.4	402	180	0.80	1.0	0.9	0.47	B
		S4	4.5	3.5	183	78	0.80	1.0	0.9	0.20	A
		P1	5.5	4.5	355	13	0.75	1.0	1	0.23	A
		P2	5.5	4.5	7	58	0.75	1.0	0.9	0.03	A
		P3	4.5	3.5	325	30	0.75	1.0	0.9	0.31	A
		P4	4.7	3.7	9	151	0.75	1.0	0.9	0.10	A
		P5	5.3	4.3	705	21	0.75	1.0	1	0.47	B
		P6	4.4	3.4	38	436	0.75	1.0	0.9	0.33	A

TABLE 13-42
No-Action Fare Array Analysis at Fulton Street Line Subway Stations

Peak Hour	Station	Fare Array ID	Control Element	Quantity	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					System Entries	System Exits	System Entries	System Exits			
AM	Liberty Ave (C)	N-125	Two-Way Turnstile	3	533	279	1.0	0.8	0.9	0.21	A
	Van Siclen Ave (C)	N-126	Two-Way Turnstile	3	650	311	1.0	0.8	0.9	0.25	A
	Shepherd Ave (C)	N-127	Two-Way Turnstile	3	894	288	1.0	0.8	0.9	0.31	A
	Euclid Ave (C)	N-128	Two-Way Turnstile	6	2,479	564	1.0	0.8	0.9	0.41	A
PM	Liberty Ave (C)	N-125	Two-Way Turnstile	3	269	250	1.0	0.8	0.9	0.13	A
	Van Siclen Ave (C)	N-126	Two-Way Turnstile	3	232	606	1.0	0.8	0.9	0.20	A
	Shepherd Ave (C)	N-127	Two-Way Turnstile	3	257	500	1.0	0.8	0.9	0.18	A
	Euclid Ave (C)	N-128	Two-Way Turnstile	6	706	1,442	1.0	0.8	0.9	0.26	A

SUBWAY LINE HAUL

Table 13-43 shows the anticipated line haul conditions at the maximum load points on the five subway routes serving the rezoning area in the 2030 No-Action condition. The data in Table 13-43 reflect both background growth for the 2015 through 2030 period and the addition of demand from new development within the rezoning area and its proximity. As shown in Table 13-43, one line is projected to be operating above capacity in 2030 without the Proposed Actions – northbound L trains in the AM (1.04 v/c ratio). In addition, southbound L trains will be operating essentially at capacity in the PM peak hour with a v/c ratio of 0.99. The greatest demand will continue to occur on peak direction L trains in both peak hours.

TABLE 13-43
No-Action Subway Line Haul Analysis

Peak Hour	Route	Direction	Maximum Load Point (leaving station)	Average Trains per Hour	Average Cars per Hour	Average Passengers per Hour (1)	Average Passengers per Car	Guideline Passengers per Car (2)	V/C Ratio (3)
AM	A	NB	Hoyt-Schermerhorn Streets	17.9	143.2	19,262	135	175	0.77
	C	NB	Hoyt-Schermerhorn Streets	7.9	63.2	7,848	124	145	0.86
	J/Z	SB	Marcy Av	12.2	97.6	12,396	127	135	0.94
	L	NB	Bedford Av	19.4	155.2	23,447	151	145	1.04
PM	A	SB	Jay St-MetroTech	15.4	123.2	14,291	116	175	0.66
	C	SB	Jay St-MetroTech	6.4	51.2	4,460	87	115	0.76
	J/Z	NB	Essex St	11.0	88.0	7,202	82	135	0.61
	L	SB	14th St-Union Sq	15.7	125.6	18,050	144	145	0.99

Notes:
1 No-Action passenger volumes reflect demand from No-Action development plus background growth rates of 0.5% per year for the 2015-2020 period and 0.25% per year for the 2020-2030 period as per *CEQR Technical Manual* guidelines.
2 Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.
3 Volume to guideline capacity ratio.

LIRR Commuter Rail Service

It is anticipated that by 2030 the LIRR's East Side Access (ESA) project will have been completed (by 2023), allowing LIRR trains to serve a new terminal beneath Metro-North's Grand Central Terminal. This will provide LIRR passengers with direct access to the East Midtown area of Manhattan without the need for a bus or subway transfer or a walk to or from Penn Station on the west side of Manhattan. Data from the MTA/LIRR East Side Access FEIS indicate that LIRR ridership between Atlantic Terminal and Jamaica will decrease compared to conditions without ESA. Some of this projected decline in LIRR ridership will likely be offset by increased demand resulting from new development in Downtown and other areas of Brooklyn, and general background growth during the 2015 through 2030 period. It is also anticipated that service patterns to and from Atlantic Terminal as well as intermediate stops such as East New York will be adjusted to accommodate operational needs at the LIRR's Jamaica hub resulting from ESA.

Bus Service

Demand on the local bus services operating in the vicinity of the rezoning area is expected to increase during the 2015 through 2030 period as a result of background growth as well as demand from new development. As shown in Table 13-44, existing levels of bus service will not be sufficient to provide adequate supply to meet the projected demand in the 2030 No-Action condition on the eastbound Q8 route in the AM peak hour. Based on a loading guideline of 54 passengers per standard bus, an additional three standard buses per hour would be needed (for a total of 13) in the eastbound direction in the AM peak hour to accommodate projected No-Action demand. It should also be noted that westbound Q8 buses are expected to be operating essentially at capacity (i.e., an available capacity of one passenger) in the PM peak hour in the No-Action condition.

As a general policy, the MTA (NYCT and MTA Bus) provides additional bus service where demand warrants, taking into account financial and operational constraints. Based on ongoing passenger monitoring programs, comprehensive service plans would be generated to respond to specific, known needs with capital and/or operational improvements where fiscally and operationally practicable. The MTA's capital program is developed on a five-year cycle; through this program, expansion of bus services would be provided as needs are determined. It is therefore anticipated that in the No-Action condition, MTA Bus would increase service frequency on the Q8 route to address its capacity shortfall on this route in the eastbound direction in the AM peak hour.

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

Subway Service

SUBWAY STATIONS

As shown in Table 13-13, the Proposed Actions are expected to generate a net total of 3,246 and 3,946 new subway trips in the AM and PM peak hours, respectively. Based on proximity to projected development sites and trip assignment patterns provided by NYCT, the highest numbers of new peak hour subway trips at Jamaica Line stations are expected to occur at the Norwood Avenue station which would experience 659 new trips in the AM peak hour and 772 in the PM peak hour. The Shepherd Avenue station would experience the highest number of new trips on the Fulton Street Line, with 497 in the AM peak hour and 651 in the PM peak hour.

Tables 13-45 through 13-48 show conditions at stairs and fare arrays at the eight analyzed subway stations on the Jamaica and Fulton Street lines in the future with the Proposed Actions. As shown in Tables 13-46 and 13-48, all analyzed fare arrays are projected to operate at an uncongested LOS A or B in both peak hours in the With-Action condition and would therefore not be significantly adversely impacted by the Proposed Actions based on *CEQR Technical Manual* criteria. As shown in Tables 13-45 and 13-47, under With-Action conditions one stair at the Euclid Avenue station on the Fulton Street Line and one stair at the Crescent Street station on the Jamaica Line are projected to operate at LOS D in one or both peak hours. Conditions at these two stairs are discussed below. All other analyzed stairs are projected to operate at an acceptable LOS C or better in both the AM and PM peak hours, and would therefore not be significantly adversely impacted by project-generated demand.

TABLE 13-44
No-Action Local Bus Analysis

Peak Hour[1]	Route	Direction	Maximum Load Point	Peak Hour Passengers	No-Action Conditions with Current Service Levels			No-Action Conditions with Potential Service Adjustments		
					Peak Hour Buses[1]	Average Passengers per Bus	Available Capacity[2]	Peak Hour Buses[1]	Average Passengers per Bus	Available Capacity[2]
AM	B13	NB	Euclid Av & Sutter Av	220	5	44	50	5	44	50
		SB	Euclid Av & Sutter Av	133	4	33	83	4	33	83
	Q8	EB	101st Av & 133rd St	671	10	67	-131	13	52	31
		WB	101st Av & 121st St	284	8	36	148	8	36	148
	Q24	EB	Archer Av & Sutphin Blvd	300	7	43	78	7	43	78
		WB	Atlantic Av & Lefferts Blvd	216	6	36	108	6	36	108
PM	B13	NB	Euclid Av & Sutter Av	85	5	17	185	5	17	185
		SB	Euclid Av & Sutter Av	199	5	40	71	5	40	71
	Q8	EB	101st Av & Lefferts Blvd	236	10	24	304	10	24	304
		WB	101st Av & Cresskill Pl	485	9	54	1	9	54	1
	Q24	EB	Atlantic Av & Lefferts Blvd	238	6	40	86	6	40	86
		WB	Jamaica Av & Queens Blvd	238	6	40	86	6	40	86

Notes:
[1] Based on most currently available data from NYCT/MTA Bus.
[2] Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

TABLE 13-45
With-Action Stair Analysis at Jamaica Line Subway Stations

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS	WIT (in.)	WIT Impact Threshold (in.)
					Up	Down	Up	Down	Up	Down					
AM	Alabama Ave (J/Z)	S2	4.4	3.4	108	37	389	191	1.00	0.80	0.9	0.43	A	-	-
		P1	5.8	4.6	108	37	482	352	1.00	0.75	0.9	0.49	B	-	-
	Cleveland St (J/Z)	S1	4.4	3.4	24	5	499	70	1.00	0.80	0.9	0.40	A	-	-
		S2	4.4	3.4	164	35	497	152	1.00	0.80	0.9	0.47	B	-	-
		P1	5.8	4.6	188	40	996	222	1.00	0.75	0.9	0.66	B	-	-
	Norwood Ave (J/Z)	S2	4.5	3.5	418	241	891	474	1.00	0.80	0.9	0.98	C	-	-
		P1	6.6	5.4	418	241	1,487	572	1.00	0.75	0.9	0.97	C	-	-
	Crescent St (J/Z)	S1	4.5	3.5	448	140	823	224	1.00	0.80	0.9	0.73	C	-	-
		P1	6.7	5.5	448	140	1,293	324	1.00	0.75	0.9	0.74	C	-	-
PM	Alabama Ave (J/Z)	S2	4.4	3.4	77	131	290	277	1.00	0.80	0.9	0.43	A	-	-
		P1	5.8	4.6	77	131	362	415	1.00	0.75	0.9	0.46	B	-	-
	Cleveland St (J/Z)	S1	4.4	3.4	12	23	109	337	1.00	0.80	0.9	0.36	A	-	-
		S2	4.4	3.4	78	157	298	520	1.00	0.80	0.9	0.64	B	-	-
		P1	5.8	4.6	90	180	406	857	1.00	0.75	0.9	0.79	C	-	-
	Norwood Ave (J/Z)	S2	4.5	3.5	310	462	479	732	1.00	0.80	0.9	0.92	C	-	-
		P1	6.6	5.4	310	462	590	1,030	1.00	0.75	0.9	0.85	C	-	-
	Crescent St (J/Z)	S1	4.5	3.5	278	490	384	940	1.00	0.80	0.9	1.03	D	1.4	8.00
		P1	6.7	5.5	278	490	509	1,318	1.00	0.75	0.9	0.97	C	-	-

TABLE 13-46
With-Action Fare Array Analysis at Jamaica Line Subway Stations

Peak Hour	Station	Fare Array ID	Control Element	Quantity	Peak Hour Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					System Entries	System Exits	System Entries	System Exits	System Entries	System Exits			
AM	Alabama Ave (J/Z)	J-20	Two-Way Turnstile	3	108	37	482	352	1.0	0.8	0.9	0.21	A
	Cleveland St (J/Z)	J-22	Two-Way Turnstile	3	188	40	996	222	1.0	0.8	0.9	0.32	A
	Norwood Ave (J/Z)	J-23	Two-Way Turnstile	3	418	241	1,487	572	1.0	0.8	0.9	0.54	B
	Crescent St (J/Z)	J-24	Two-Way Turnstile	3	448	140	1,293	324	1.0	0.8	0.9	0.43	A
PM	Alabama Ave (J/Z)	J-20	Two-Way Turnstile	3	77	131	362	415	1.0	0.8	0.9	0.19	A
	Cleveland St (J/Z)	J-22	Two-Way Turnstile	3	90	180	406	857	1.0	0.8	0.9	0.30	A
	Norwood Ave (J/Z)	J-23	Two-Way Turnstile	3	310	462	590	1,030	1.0	0.8	0.9	0.39	A
	Crescent St (J/Z)	J-24	Two-Way Turnstile	3	278	490	509	1,318	1.0	0.8	0.9	0.44	A

TABLE 13-47
With-Action Stair Analysis at Fulton Street Line Subway Stations

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS	WIT (in.)	WIT Impact Threshold (in.)
					Up	Down	Up	Down	Up	Down					
AM	Liberty Ave (C)	S1	5.4	4.4	1	32	110	156	0.80	1	0.9	0.16	A	-	-
		S3	3.4	2.4	2	6	58	30	0.80	1.0	0.9	0.10	A	-	-
		S4	5.5	4.5	34	96	53	169	0.80	1.0	0.9	0.12	A	-	-
		P1	4.6	3.6	19	5	123	28	0.75	1.0	0.9	0.12	A	-	-
		P2	4.6	3.6	0	59	16	292	0.75	1.0	0.9	0.20	A	-	-
		P3	5.3	4.3	17	1	106	4	0.75	1.0	1.0	0.07	A	-	-
		P4	4.6	3.6	1	69	71	342	0.75	1.0	0.9	0.28	A	-	-
	Van Siclen Ave (C)	S1	4.5	3.5	4	20	112	174	0.80	1.0	0.9	0.21	A	-	-
		S2	4.4	3.4	34	173	94	382	0.80	1.0	0.9	0.34	A	-	-
		S4	5.4	4.4	15	63	39	136	0.80	1.0	0.9	0.10	A	-	-
		P1	10.9	9.7	51	10	255	64	0.75	1.0	0.9	0.10	A	-	-
		P2	11	9.8	2	246	109	842	0.75	1.0	0.9	0.24	A	-	-
	Shepherd Ave (C)	S2	4.5	3.5	85	308	234	597	0.80	1.0	0.9	0.59	B	-	-
		S3	4.4	3.4	1	10	20	193	0.80	1.0	0.9	0.15	A	-	-
		S4	4.4	3.4	16	77	26	168	0.80	1.0	0.9	0.14	A	-	-
		P1	11.8	10.6	98	16	318	80	0.75	1.0	0.9	0.11	A	-	-
		P2	12.1	10.9	4	379	72	1209	0.75	1.0	0.9	0.28	A	-	-
	Euclid Ave (A/C)	S2	4.4	3.4	6	55	108	336	0.80	1.0	0.9	0.32	A	-	-
		S3	4.4	3.4	7	60	143	750	0.80	1.0	0.9	0.63	B	-	-
		S4	4.5	3.5	44	162	202	508	0.80	1.0	0.9	0.50	B	-	-
		P1	5.5	4.5	22	1	213	21	0.75	1.0	0.9	0.16	A	-	-
		P2	5.5	4.5	0	27	16	260	0.75	1.0	0.9	0.14	A	-	-
		P3	4.5	3.5	4	8	37	169	0.75	1.0	0.9	0.14	A	-	-
		P4	4.7	3.7	0	61	17	575	0.75	1.0	1.0	0.34	A	-	-
		P5	5.3	4.3	30	2	282	45	0.75	1.0	0.9	0.23	A	-	-
		P6	4.4	3.4	1	178	57	1686	0.75	1.0	1.0	1.08	D	3.4	8.0
PM	Liberty Ave (C)	S1	5.4	4.4	28	8	130	71	0.80	1.0	0.9	0.13	A	-	-
		S3	3.4	2.4	6	3	31	21	0.80	1.0	0.9	0.06	A	-	-
		S4	5.5	4.5	119	70	162	116	0.80	1.0	0.9	0.17	A	-	-
		P1	4.6	3.6	83	2	216	37	0.75	1.0	0.9	0.21	A	-	-
		P2	4.6	3.6	3	39	10	148	0.75	1.0	0.9	0.10	A	-	-
		P3	5.3	4.3	63	1	162	18	0.75	1.0	0.9	0.13	A	-	-
		P4	4.6	3.6	4	39	15	148	0.75	1.0	0.9	0.11	A	-	-
	Van Siclen Ave (C)	S1	4.5	3.5	19	8	160	44	0.80	1.0	0.9	0.16	A	-	-
		S2	4.4	3.4	145	64	268	144	0.80	1.0	0.9	0.32	A	-	-
		S4	5.4	4.4	47	23	114	52	0.80	1.0	0.9	0.10	A	-	-
		P1	10.9	9.7	203	4	783	52	0.75	1.0	0.9	0.26	A	-	-
		P2	11	9.8	8	91	33	274	0.75	1.0	0.9	0.08	A	-	-
	Shepherd Ave (C)	S2	4.5	3.5	336	185	517	273	0.80	1.0	0.9	0.61	B	-	-
		S3	4.4	3.4	10	4	71	34	0.80	1.0	0.9	0.08	A	-	-
		S4	4.4	3.4	79	37	121	95	0.80	1.0	0.9	0.17	A	-	-
		P1	11.8	10.6	408	9	859	53	0.75	1.0	0.9	0.26	A	-	-
		P2	12.1	10.9	17	217	66	430	0.75	1.0	0.9	0.11	A	-	-
	Euclid Ave (A/C)	S2	4.4	3.4	54	19	256	138	0.80	1.0	0.9	0.31	A	-	-
		S3	4.4	3.4	58	20	460	200	0.80	1.0	0.9	0.53	B	-	-
		S4	4.5	3.5	172	90	355	168	0.80	1.0	0.9	0.40	A	-	-
		P1	5.5	4.5	68	1	423	14	0.75	1.0	1.0	0.27	A	-	-
		P2	5.5	4.5	1	11	8	69	0.75	1.0	0.9	0.04	A	-	-
		P3	4.5	3.5	63	2	388	32	0.75	1.0	0.9	0.37	A	-	-
		P4	4.7	3.7	2	28	11	179	0.75	1.0	0.9	0.12	A	-	-
		P5	5.3	4.3	142	2	847	23	0.75	1.0	1.0	0.56	B	-	-
		P6	4.4	3.4	8	85	46	521	0.75	1.0	0.9	0.40	A	-	-

TABLE 13-48
With-Action Fare Array Analysis at Fulton Street Line Subway Stations

Peak Hour	Station	Fare Array ID	Control Element	Quantity	Peak Hour Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					System Entries	System Exits	System Entries	System Exits	System Entries	System Exits			
AM	Liberty Ave (C)	N-125	Two-Way Turnstile	3	134	37	667	316	1.0	0.8	0.9	0.26	A
	Van Siclen Ave (C)	N-126	Two-Way Turnstile	3	256	53	906	364	1.0	0.8	0.9	0.33	A
	Shepherd Ave (C)	N-127	Two-Way Turnstile	3	395	102	1,289	390	1.0	0.8	0.9	0.44	A
	Euclid Ave (C)	N-128	Two-Way Turnstile	6	277	57	2,756	621	1.0	0.8	0.9	0.45	A
PM	Liberty Ave (C)	N-125	Two-Way Turnstile	3	81	153	350	403	1.0	0.8	0.9	0.19	A
	Van Siclen Ave (C)	N-126	Two-Way Turnstile	3	95	211	327	817	1.0	0.8	0.9	0.27	A
	Shepherd Ave (C)	N-127	Two-Way Turnstile	3	226	425	483	925	1.0	0.8	0.9	0.34	A
	Euclid Ave (C)	N-128	Two-Way Turnstile	6	14	17	720	1,459	1.0	0.8	0.9	0.26	A

Crescent Street Station (J/Z)

As shown in Table 13-45, stair S1 at the southwest corner of Fulton and Crescent streets is projected to operate at an acceptable LOS C in the AM peak hour and at LOS D with a v/c ratio of 1.03 in the PM peak hour. As the width increment threshold needed to restore conditions to acceptable levels would total 1.4 inches, less than the eight-inch *CEQR Technical Manual* impact threshold shown in Table 13-16, this stair would not be considered significantly adversely impacted by project-generated demand in the PM.

Euclid Avenue Station (C)

As shown in Table 13-47, stair P6 (connecting the station's mezzanine level to the platform for Manhattan-bound trains) is projected to operate at an uncongested LOS A in the PM peak hour and at LOS D with a v/c ratio of 1.08 in the AM peak hour. As the width increment threshold needed to restore conditions to acceptable levels would total 3.4 inches, less than the eight-inch *CEQR Technical Manual* impact threshold shown in Table 13-16, this stair would not be considered significantly adversely impacted by project-generated demand in the AM peak hour.

SUBWAY LINE HAUL

Table 13-49 shows line haul conditions on the subway routes serving the rezoning area in the future with the Proposed Actions. As shown in Table 13-49, the greatest increases in incremental trips per subway car would occur on the J/Z trains, with an average of 9.15 southbound trips in the AM peak hour and 10.63 northbound trips in the PM. As southbound J/Z trains are also projected to exceed guideline capacity in the AM peak hour (1.01 v/c ratio), they would be considered significantly adversely impacted in the AM based on *CEQR Technical Manual* impact criteria. Incremental increases in A-train ridership would average 5.58 northbound trips per car in the AM and 6.96 southbound trips in the PM. Since this route is not projected to exceed guideline capacity in the peak direction in either peak hour in the future with the Proposed Actions, these increases would not be considered significant. All other routes are expected to experience fewer than five incremental trips per car in the peak direction in each peak hour as a result of the Proposed Actions, and therefore would not be considered significantly impacted based on *CEQR Technical Manual* criteria.

TABLE 13-49
With-Action Subway Line Haul Analysis

Peak Hour	Route	Direction	Maximum Load Point (leaving station)	Average Trains per Hour	Average Cars per Hour	Guideline Passengers per Car[2]	2030 No-Action Condition			2030 With Action Condition			
							Average Passengers per Hour[1]	Average Passengers per Car	V/C Ratio [3]	Average Passengers per Hour	Average Passengers per Car	V/C Ratio [3]	Average Additional Passengers per Car
AM	A	NB	Hoyt-Schermerhorn Streets	17.9	143.2	175	19,262	135	0.77	20,061	140	0.80	5.58
	C	NB	Hoyt-Schermerhorn Streets	7.9	63.2	145	7,848	124	0.86	8,106	128	0.88	4.08
	J/Z	SB	Marcy Av	12.2	97.6	135	12,396	127	0.94	13,289	136	1.01	9.15*
	L	NB	Bedford Av	19.4	155.2	145	23,447	151	1.04	23,676	153	1.05	1.48
PM	A	SB	Jay St-MetroTech	15.4	123.2	175	14,291	116	0.66	15,148	123	0.70	6.96
	C	SB	Jay St-MetroTech	6.4	51.2	115	4,460	87	0.76	4,676	91	0.79	4.22
	J/Z	NB	Essex St	11.0	88.0	135	7,202	82	0.61	8,137	92	0.68	10.63
	L	SB	14th St-Union Sq	15.7	125.6	145	18,050	144	0.99	18,280	146	1.00	1.83

Notes:

[1] No-Action passenger volumes reflect demand from No-Action development plus background growth rates of 0.5 percent per year for the 2015-2020 period and 0.25% per year for the 2020-2030 period as per *CEQR Technical Manual* guidelines.

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

[3] Volume to guideline capacity ratio.

***** denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

Bus Service

As shown in Table 13-13, projected development sites are expected to generate a net total of approximately 983 and 1,445 new trips on the local bus services operating in proximity to the rezoning area during the weekday AM and PM peak hours, respectively. As shown in Table 13-50, demand on the B13 route is expected to increase by approximately 35 northbound trip and 32 southbound trips at the maximum load points in the AM peak hour and by 34 northbound and 61 southbound trips in the PM. Demand on the Q8 route is expected to increase by approximately 14 eastbound trips and three westbound trips at the maximum load points in the AM peak hour, and by five eastbound and 18 westbound trips in the PM. Demand on the Q24 route is expected to increase by approximately 37 eastbound trips and 37 westbound trips at the maximum load points in the AM peak hour and by 78 eastbound and 43 westbound trips in the PM.

TABLE 13-50
With-Action Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	No-Action Available Capacity[2]	Project Increment	Available Capacity w/Proposed Actions[2]
AM	B13	NB	Euclid Av & Sutter Av	5	50	35	15
		SB	Euclid Av & Sutter Av	4	83	32	51
	Q8	EB	101st Av & 133rd St	13	31	14	17
		WB	101st Av & 121st St	8	148	3	145
	Q24	EB	Archer Av & Sutphin Blvd	7	78	37	41
		WB	Atlantic Av & Lefferts Blvd	6	108	37	71
PM	B13	NB	Euclid Av & Sutter Av	5	185	34	151
		SB	Euclid Av & Sutter Av	5	71	61	10
	Q8	EB	101st Av & Lefferts Blvd	10	304	5	299
		WB	101st Av & Cresskill Pl	9	1	18	-17 *
	Q24	EB	Atlantic Av & Lefferts Blvd	6	86	78	8
		WB	Jamaica Av & Queens Blvd	6	86	43	43

Notes:
[1] Assumes service levels adjusted to address capacity shortfalls in the No-Action condition.
[2] Available capacity based on MTA loading guidelines of 54 passengers per standard bus.
* Denotes a significant adverse impact.

As shown in Table 13-50, based on projected levels of bus service in the No-Action condition, the Proposed Actions would result in a capacity shortfall of 17 spaces on the westbound Q8 service in the PM peak hour. Therefore, westbound Q8 service would be significantly adversely impacted in the PM peak hour based on *CEQR Technical Manual* criteria. As discussed in Chapter 20, "Mitigation," the significant impact to Q8 service could be mitigated by increasing the number of westbound buses from nine to ten in the PM peak hour.

LIRR Commuter Rail Service

As noted previously, the Proposed Actions are not expected to generate substantial numbers of new LIRR trips in either the weekday AM or PM commuter peak periods. As the LIRR's East New York station is more than a ½-mile from the majority of projected development sites (and therefore not within a convenient walking distance), any commuter rail trips generated by the Proposed Actions are expected to start or end on another mode of transit (i.e., subway and bus) and are assumed to be reflected in the forecast for these modes. Increased demand on the LIRR as a result of the Proposed Actions is not expected to result in significant adverse impacts to LIRR line haul capacity in either the weekday AM or PM commuter peak periods.

I. PEDESTRIANS

Existing Conditions

The rezoning area is generally characterized by relatively light to moderate pedestrian flows during peak periods, with the greatest demand typically found along corridors providing access to area subway stations and bus routes and along retail corridors. As discussed previously in Section E, "Level 2 Screening Assessment," the analysis of pedestrian conditions focuses on representative pedestrian elements where new trips generated by projected developments are expected to be most concentrated. These elements—sidewalks, corner areas and crosswalks—are primarily located in the vicinity of major projected development sites and corridors connecting these sites to area subway station entrances and bus routes. As shown in Figure 13-5, they include a total of 79 sidewalks, 58 corner reservoir areas, and 67 crosswalks primarily located along the Atlantic Avenue, Berriman Street, Euclid Avenue, Fulton Street, Liberty Avenue, Pennsylvania Avenue, Richmond Street, Shepherd Avenue, and Van Siclen Avenue corridors.

Sidewalks

The highest pedestrian flows at analyzed sidewalks within the study area are generally found in the vicinity of subway station entrances along Fulton Street and Van Sinderen, Van Siclen, and Pitkin Avenues. As shown in Table 13-51, analyzed sidewalks within the study area vary in width from as narrow as five feet, to up to 26 feet. Fifteen-foot-wide sidewalks are common along Atlantic Avenue, while 18-foot-wide sidewalks can be found along Fulton Street, a major retail corridor. Features typically present along study area sidewalks that can reduce the effective width available for pedestrian flow include street furniture such as sign posts, traffic signal and lamp posts, fire hydrants, and planted strips, as well as larger installations such as building stoops and subway stairs. Columns supporting the elevated structure of NYCT's Jamaica subway line are present at curbside along sidewalks on Fulton Street east of Alabama Avenue.

Table 13-51 shows the existing peak hour pedestrian volumes, average pedestrian space in square feet per pedestrian (sf/ped), and platoon-adjusted levels of service at analyzed sidewalks. (Data are not provided for three locations where sidewalks are currently closed to pedestrian flow—the west sidewalk on Euclid Avenue between Atlantic Avenue and Fulton Street, the south sidewalk on Dinsmore Place between Richmond and Chestnut Streets, and the west sidewalk on Chestnut Street between Atlantic Avenue and Dinsmore Place.) As shown in Table 13-51, all analyzed sidewalks currently operate at an uncongested LOS A or B in all peak hours with the exception of the east sidewalk on Van Siclen Avenue between Pitkin and Glenmore Avenues and the north sidewalk on Pitkin Avenue between Doscher Street and Euclid Avenue, both of which currently operate at an acceptable LOS C in the AM and PM, and the south sidewalk on Pitkin Avenue between Doscher Street and Euclid Avenue, which operates at LOS C in the AM peak hour.

Crosswalks

Study area intersections are a mix of signalized and stop controlled, and the signalized intersections generally include pedestrian signals. The majority of crosswalks feature standard striping, although high visibility striping is typically present near schools and at busy intersections along corridors such as Fulton Street and Pennsylvania Avenue. Analyzed crosswalks generally range from ten to 15 feet in width. Table 13-52 shows the peak hour volumes, average pedestrian space (in sf/ped), and levels of service at analyzed crosswalks. As shown in Table 13-52, all analyzed crosswalks currently operate at an uncongested LOS A in the weekday AM, midday, and PM peak hours.

TABLE 13-51
Existing Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM
S1	Van Sinderen Avenue between Fulton and Truxton Streets	West	25.8	15.8	767	515	1,117	260.8	388.6	183.4	B	B	B
S2	Fulton Street between Georgia and Sheffield Avenues	South	15	9.0	192	176	244	593.9	696.5	525.7	A	A	B
S3	Fulton Street between Alabama and Georgia Avenues	South	14.5	5.0	240	185	341	273.7	342.3	211.1	B	B	B
S4	Pennsylvania Avenue between Atlantic Avenue and Fulton Street	East	19.8	7.0	29	61	56	3097.0	1454.1	1841.4	A	A	A
S5	Fulton Street between Pennsylvania and New Jersey Avenues	South	15	9.2	58	51	53	2010.0	2428.8	2199.6	A	A	A
S6	Pennsylvania Avenue between Atlantic Avenue and Fulton Street	West	19.8	12.1	46	52	104	3333.3	2985.5	1658.6	A	A	A
S7	Fulton Street between Sheffield and Pennsylvania Avenues	South	14.5	8.5	81	63	71	1329.7	1709.7	1517.0	A	A	A
S8	Cleveland Street between Atlantic Avenue and Fulton Street	West	10	4.5	122	38	126	537.4	1500.6	452.5	A	A	B
S9	Fulton Street between Norwood Avenue and Logan Streets	South	18	7.0	298	245	411	327.3	361.9	234.5	B	B	B
S10	Logan Street between Dinsmore Place and Fulton Street	East	12	3.0	78	54	87	542.1	703.9	436.8	A	A	B
S11	Fulton Street between Logan and Richmond Streets	South	18	11.0	109	122	167	1406.7	1142.5	876.4	A	A	A
S12	Logan Street between Atlantic Avenue and Fulton Street	West	18	5.5	115	93	146	621.1	805.6	542.9	A	A	A
S13	Richmond Street between Fulton Street and Ridgewood Avenue	East	12.5	3.5	56	29	75	791.9	1529.3	591.3	A	A	A
S14	Richmond Street between Disnmore Place and Fulton Street	East	17.5	7.0	40	22	40	2217.6	4032.0	2217.6	A	A	A
S15	Fulton Street between Richmond and Chestnut Streets	South	18	8.0	77	71	110	1316.5	1427.8	921.5	A	A	A
S16	Richmond Street between Disnmore Place and Fulton Street	West	18	5.0	5	8	6	12672.0	7920.0	10560.0	A	A	A
S17	Richmond Street between Fulton Street and Ridgewood Avenue	West	12.5	3.5	71	41	168	624.6	1081.7	263.8	A	A	B
S18	Euclid Avenue between Fulton Street and Ridgewood Avenue	East	11.5	2.5	182	64	133	173.8	494.9	267.8	B	B	B
S19	Fulton Street between Euclid Avenue and Pine Street	South	18	7.5	108	88	127	923.9	1188.0	785.7	A	A	A
S20	Euclid Avenue between Atlantic Avenue and Fulton Street[1]	West	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S21	Fulton Street between Chestnut Street and Euclid Avenue	South	9	2.5	54	61	85	586.6	519.2	395.9	A	B	B
S22	Euclid Avenue between Fulton Street and Ridgewood Avenue	West	13	4.0	40	23	58	1314.7	2203.8	873.9	A	A	A
S23	Fulton Street between Pine and Crescent Streets	South	19	7.0	555	386	696	181.5	255.4	127.0	B	B	B
S24	Dinsmore Place between Richmond and Chestnut Streets	North	10	3.5	11	9	8	4032.0	4928.0	5544.0	A	A	A
S25	Dinsmore Place between Richmond and Chestnut Streets[1]	South	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S26	Dinsmore Place between Logan and Richmond Streets	South	15	9.5	16	25	7	7524.0	4815.3	17197.7	A	A	A
S27	Dinsmore Place between Logan and Richmond Streets	North	8	2.5	7	16	12	4978.3	1980.0	2640.0	A	A	A
S28	Chestnut Street between Dinsmore Place and Fulton Street	East	17.7	6.5	3	11	1	27456.0	7488.0	82368.0	A	A	A
S29	Chestnut Street between Atlantic Avenue and Dinsmore Place	East	16.4	6.1	1	5	6	77299.2	15459.8	12883.2	A	A	A
S30	Chestnut Street between Atlantic Avenue and Dinsmore Place[1]	West	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 13-51 (continued)
Existing Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM
S31	Chestnut Street between Disnmore Place and Fulton Street	West	18	8.9	7	4	5	16111.5	28195.2	22556.2	A	A	A
S32	Pennsylvania Avenue between Liberty and Atlantic Avenues	East	12	4.8	62	41	36	981.0	1483.5	1689.6	A	A	A
S33	Atlantic Avenue between Pennsylvania and New Jersey Avenues	South	15	5.5	13	54	45	5361.2	1355.2	1548.8	A	A	A
S34	Pennsylvania Avenue between Liberty and Atlantic Avenues	West	12.2	4.7	27	15	8	2316.1	3970.5	7444.8	A	A	A
S35	Atlantic Avenue between New Jersey Avenue and Vermont Street	South	15	7.2	61	72	118	1495.7	1267.2	889.1	A	A	A
S36	Van Siclen Avenue between Atlantic Avenue and Fulton Street	East	15	4.0	95	57	95	546.8	889.2	533.5	A	A	A
S37	Atlantic Avenue between Van Siclen Avenue and Hendrix Street	North	14.5	3.8	100	56	88	475.1	848.5	539.9	B	A	A
S38	Van Siclen Avenue between Liberty and Atlantic Avenues	East	10	4.0	24	14	16	2112.0	3620.6	3168.0	A	A	A
S39	Atlantic Avenue between Schenck Avenue and Barbey Street	South	15.5	6.8	35	17	43	2443.9	5031.5	1989.2	A	A	A
S40	Berriman Street between Liberty and Atlantic Avenues	East	8	2.0	45	17	38	563.1	1490.8	666.9	A	A	A
S41	Atlantic Avenue between Berriman Street and Highland Place	South	15	5.5	46	29	36	1515.1	2403.3	1936.0	A	A	A
S42	Atlantic Avenue between Shepherd Avenue and Berriman Street	South	15	3.5	82	119	82	540.8	386.5	540.8	A	B	A
S43	Atlantic Avenue between Highland Place and Atkins Avenue	South	15	7.0	33	25	25	2688.0	3548.1	3548.1	A	A	A
S44	Atkins Avenue south of Atlantic Avenue	East	8	4.0	8	5	9	6336.0	10137.6	5632.0	A	A	A
S45	Atlantic Avenue between Atkins and Montauk Avenues	South	14.5	6.5	23	28	56	3581.2	2941.7	1470.8	A	A	A
S46	Atkins Avenue south of Atlantic Avenue	West	8	5.0	1	1	1	63360.0	63360.0	63360.0	A	A	A
S47	Atlantic Avenue between Montauk Avenue and Milford Street	South	14.5	9.5	24	40	43	5016.0	3009.6	2799.6	A	A	A
S48	Montauk Avenue between Liberty and Atlantic Avenues	West	11	2.5	12	4	12	2640.0	7920.0	2640.0	A	A	A
S49	Logan Street between Atlantic Avenue and Dinsmore Place	East	16	3.0	64	40	37	593.9	950.3	1027.4	A	A	A
S50	Atlantic Avenue between Logan and Chestnut Streets	North	5	3.0	54	1	21	703.9	38016.0	1810.3	A	A	A
S51	Atlantic Avenue between Logan Street and Fountain Avenue	South	15	9.5	43	32	24	2904.6	3762.0	5016.0	A	A	A
S52	Atlantic Avenue between Milford and Logan Streets	South	15	7.5	46	33	30	2066.1	2880.0	3722.4	A	A	A
S53	Atlantic Avenue between Euclid Avenue and Pine Street	North	12	3.0	17	16	13	2236.2	2376.0	2924.3	A	A	A
S54	Atlantic Avenue between Chestnut Street and Euclid Avenue	North	15	8.0	18	21	12	5632.0	4827.4	8448.0	A	A	A
S55	New Jersey Avenue between Liberty and Atlantic Avenues	East	5.9	1.2	17	26	30	894.4	584.8	506.8	A	A	B
S56	Liberty Avenue between Pennsylvania and New Jersey Avenues	North	11.3	4.5	53	44	38	1075.9	1296.0	1500.6	A	A	A
S57	Van Siclen Avenue between Glenmore and Liberty Avenues	East	14.5	6.8	42	21	50	2036.5	4073.1	1774.8	A	A	A
S58	Van Siclen Avenue between Glenmore and Liberty Avenues	West	15	6.0	33	14	14	2390.4	5430.8	5430.8	A	A	A
S59	Liberty Avenue between Ashford and Cleveland Streets	South	10.5	3.5	58	32	40	764.6	1386.0	1108.8	A	A	A
S60	Liberty Avenue between Shepherd Avenue and Berriman Street	North	7.5	2.5	138	56	135	229.3	622.2	255.0	B	A	B

TABLE 13-51 (continued)
Existing Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM
S61	Shepherd Avenue between Glenmore and Liberty Avenues	East	11.5	4.0	88	28	50	611.9	1810.3	1013.7	A	A	A
S62	Liberty Avenue between Shepherd Avenue and Berriman Street	South	11	5.5	118	41	75	590.6	1699.9	929.2	A	A	A
S63	Liberty Avenue between Berriman Street and Atkins Avenue	North	7.5	2.0	42	31	46	603.3	878.8	550.9	A	A	A
S64	Berriman Street between Glenmore and Liberty Avenues	East	15	7.0	246	16	112	360.4	5544.0	791.9	B	A	A
S65	Berriman Street between Glenmore and Liberty Avenues	West	11.5	6.0	12	15	19	6336.0	5068.8	4001.7	A	A	A
S66	Atkins Avenue north of Liberty Avenue	East	8	4.0	4	1	3	12672.0	50688.0	16896.0	A	A	A
S67	Liberty Avenue between Atkins and Montauk Avenues	North	11.5	4.5	63	26	51	905.1	2193.2	1118.1	A	A	A
S68	Atkins Avenue north of Liberty Avenue	West	8	3.0	6	3	18	6336.0	12672.0	2112.0	A	A	A
S69	Van Siclen Avenue between Pitkin and Glenmore Avenues	East	13.5	3.5	770	479	1,019	56.7	96.7	42.3	C	B	C
S70	Pitkin Avenue between Van Siclen Avenue and Hendrix Street	North	15	5.0	251	135	217	252.2	563.1	291.8	B	A	B
S71	Van Siclen Avenue between Pitkin and Glenmore Avenues	West	12.5	6.0	99	61	102	767.9	1246.4	745.3	A	A	A
S72	Shepherd Avenue between Pitkin and Glenmore Avenues	East	14.5	2.5	166	87	156	224.0	414.1	215.5	B	B	B
S73	Pitkin Avenue between Shepherd Avenue and Berriman Street	North	14.5	9.0	117	40	126	1084.4	3243.2	905.1	A	A	A
S74	Pitkin Avenue between Essex Street and Shepherd Avenue	North	13	8.5	133	45	87	809.8	2393.6	1238.0	A	A	A
S75	Berriman Street between Pitkin and Glenmore Avenues	West	11	1.5	17	3	12	1118.1	6336.0	1584.0	A	A	A
S76	Euclid Avenue between Pitkin and Glenmore Avenues	East	6	3.5	129	135	86	365.2	336.6	515.6	B	B	B
S77	Pitkin Avenue between Doscher Street and Euclid Avenue	North	14	2.5	465	224	420	75.1	158.8	75.7	C	B	C
S78	Euclid Avenue between Pitkin and Glenmore Avenues	West	15	7.5	27	42	53	2992.0	2262.8	1793.2	A	A	A
S79	Pitkin Avenue between Doscher Street and Euclid Avenue	South	16	3.5	664	249	323	62.6	186.7	136.9	C	B	B

Notes:

1. Sidewalk closed to pedestrians under Existing conditions.

TABLE 13-52
Existing Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM	AM	MD	PM
Fulton Street and Pennsylvania Avenue	X1	North	37	20	56	750.2	1104.4	432.5	A	A	A
	X2	East	22	24	25	1272.6	1273.4	868.5	A	A	A
	X3	South	72	61	69	371.2	314.3	379.8	A	A	A
	X4	West	24	45	51	1323.0	894.5	619.2	A	A	A
Fulton Street and Norwood Avenue	X5	East	36	48	64	537.4	423.6	298.0	A	A	A
	X6	South	206	214	342	161.3	159.2	89.4	A	A	A
	X7	West	40	45	86	475.9	432.1	215.4	A	A	A
Fulton Street and Logan Street	X8	North	153	136	257	187.8	219.0	114.7	A	A	A
	X9	East	43	19	24	513.4	1265.7	927.4	A	A	A
	X10	South	111	118	159	297.6	275.1	200.7	A	A	A
	X11	West	49	53	67	479.5	461.8	382.5	A	A	A
Fulton Street and Richmond Street	X12	North	106	98	168	477.4	531.3	290.5	A	A	A
	X13	East	32	34	47	804.6	771.5	616.8	A	A	A
	X14	South	81	90	119	555.4	500.5	410.6	A	A	A
	X15	West	21	22	29	1127.5	1168.6	816.1	A	A	A
Fulton Street and Euclid Avenue	X16	North	159	134	220	293.9	347.0	219.9	A	A	A
	X17	East	49	23	47	442.7	995.1	494.9	A	A	A
	X18	South	75	82	117	535.0	475.2	307.9	A	A	A
	X19	West	17	12	25	1374.6	2256.4	1017.9	A	A	A
Atlantic Avenue and Pennsylvania Avenue	X20	North	9	43	21	3146.0	502.7	841.5	A	A	A
	X21	East	69	80	74	176.6	292.6	321.2	A	A	A
	X22	South	33	31	34	996.7	869.3	714.1	A	A	A
	X23	West	64	87	73	142.7	261.1	302.9	A	A	A
Atlantic Avenue and Vermont Street	X24	South	15	39	42	3888.5	1286.9	1399.1	A	A	A
	X25	West	28	25	21	636.9	1277.9	980.0	A	A	A
Atlantic Avenue and Hendrix Street	X26	North	105	46	57	427.7	1043.2	793.9	A	A	A
	X27	East	18	14	15	532.4	715.6	626.5	A	A	A
	X28	South	31	22	30	1532.3	2127.0	1563.7	A	A	A
	X29	West	48	19	31	216.0	541.2	354.2	A	A	A
Atlantic Avenue and Schenck Avenue	X30	East	61	14	16	222.8	1050.4	863.1	A	A	A
	X31	South	40	26	38	1361.3	1993.7	1398.4	A	A	A
Atlantic Avenue and Highland Place	X32	North	93	70	92	602.5	747.7	658.4	A	A	A
	X33	East	8	11	7	1368.0	1527.6	1573.1	A	A	A
	X34	West	17	14	19	935.1	1576.8	836.5	A	A	A
Atlantic Avenue and Logan Street	X35	North	25	26	21	1540.9	1656.0	1898.0	A	A	A
	X36	East	58	19	24	193.4	536.9	461.0	A	A	A
	X37	South	26	21	6	1618.6	2149.3	7133.6	A	A	A
	X38	West	31	33	44	442.0	370.4	305.3	A	A	A
Atlantic Avenue and Euclid Avenue	X39	North	21	24	20	2492.0	2179.8	2844.6	A	A	A
	X40	East	35	24	28	358.9	517.7	396.9	A	A	A
	X41	South	2	3	4	24211.6	16138.1	12100.9	A	A	A
	X42	West	5	3	8	2017.0	3496.2	1224.0	A	A	A
Liberty Avenue and New Jersey Avenue	X43	North	38	43	45	1211.3	1071.0	1030.4	A	A	A
	X44	East	17	16	26	972.0	1033.2	629.5	A	A	A
	X45	West	19	26	20	869.2	634.3	825.5	A	A	A
Liberty Avenue and Van Siclen Avenue	X46	North	22	22	27	2096.9	2065.1	1670.9	A	A	A
	X47	East	33	22	45	654.8	992.1	509.5	A	A	A
	X48	South	17	12	15	2997.0	4487.6	3397.7	A	A	A
	X49	West	31	18	33	638.0	1214.3	603.9	A	A	A

TABLE 13-52 (continued)
Existing Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM	AM	MD	PM
Liberty Avenue and Shepherd Avenue	X50	North	127	43	106	418.7	1308.3	506.6	A	A	A
	X51	East	99	25	52	264.6	1100.4	507.9	A	A	A
	X52	South	258	37	56	178.5	1407.6	862.6	A	A	A
Liberty Avenue and Berriman Street	X53	North	87	29	60	450.4	1401.2	666.7	A	A	A
	X54	East	96	12	41	192.6	1646.5	469.3	A	A	A
	X55	South	354	20	59	132.8	2474.8	834.6	A	A	A
	X56	West	43	9	24	415.5	2084.7	772.5	A	A	A
Liberty Avenue and Montauk Avenue	X57	North	69	21	39	791.2	2841.6	1417.0	A	A	A
	X58	East	23	13	15	810.7	1468.0	1274.6	A	A	A
	X59	South	91	15	37	530.3	3255.0	1320.7	A	A	A
	X60	West	18	8	13	958.3	2275.9	1369.2	A	A	A
Pitkin Avenue and Shepherd Avenue	X61	North	51	74	68	897.6	591.8	600.0	A	A	A
	X62	East	70	40	73	269.9	482.7	261.0	A	A	A
Pitkin Avenue and Berriman Street	X63	North	124	49	117	336.3	901.1	370.1	A	A	A
	X64	West	33	8	18	621.6	2629.7	1134.6	A	A	A
Pitkin Avenue and Euclid Avenue	X65	North	159	117	170	255.2	355.9	268.7	A	A	A
	X66	East	117	113	117	155.8	165.7	153.2	A	A	A
	X67	West	103	82	109	171.5	218.4	168.3	A	A	A

Corner Areas

Table 13-53 shows the peak hour volumes, average pedestrian space (in sf/ped) and levels of service at analyzed corner areas. As shown in Table 13-53, all of the analyzed corner areas currently operate at an uncongested LOS A in the weekday AM, midday, and PM peak hours.

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

Pedestrian volumes along analyzed sidewalks, crosswalks, and corner areas are expected to increase during the 2015 through 2030 period as a result of background growth as well as demand from new development. In determining future No-Action pedestrian volumes, development on projected development sites pursuant to existing zoning was considered, as was demand from other No-Action development projects (see Table 2-4 in Chapter 2, "Land Use, Zoning, and Public Policy"). Traffic and pedestrian mitigation measures associated with these development projects were also considered. Changes to the study area street system planned by DOT as part of the Atlantic Avenue Improvements project are also reflected in the No-Action analysis. As described above in Section G, "Traffic," these include new vehicular turn prohibitions, the installation of sidewalk extensions at Pennsylvania Avenue and Logan Street, and the installation of high visibility crosswalks along much of the Atlantic Avenue corridor within the study area. In addition, the planned closure of the existing crosswalks on Atlantic Avenue at Berriman Street is expected to increase pedestrian flow on the nearby Atlantic Avenue crosswalks at Highland Place. It should be noted, however, that the new signal timing plans associated with these improvements have not yet been finalized by DOT. At the Atlantic Avenue/Logan Street intersection, the green time currently allocated to the leading westbound phase was reallocated to the northbound/southbound phase as this green time would no longer be needed to accommodate westbound left-turns. At all other intersections along Atlantic Avenue, the current signal timing plans for Atlantic Avenue intersections were assumed for the analyses of future pedestrian conditions. It is anticipated that with updated traffic signal timing plans designed to complement the planned physical and operational changes, future crosswalk and corner conditions would potentially be better than those reflected in the No-Action and With-Action pedestrian analyses.

TABLE 13-53
Existing Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Fulton Street and Pennsylvania Avenue	C1	NE	2889.2	4273.4	2165.5	A	A	A
	C2	SE	1963.1	2185.3	2115.7	A	A	A
	C3	SW	1858.1	1709.2	1582.1	A	A	A
	C4	NW	3789.0	3067.3	1938.8	A	A	A
Fulton Street and Norwood Avenue	C5	SE	327.9	359.5	225.3	A	A	A
	C6	SW	478.2	471.0	287.6	A	A	A
Fulton Street and Logan Street	C7	NE	491.8	577.3	342.4	A	A	A
	C8	SE	583.2	641.3	442.2	A	A	A
	C9	SW	1031.1	975.9	738.5	A	A	A
	C10	NW	740.4	846.5	559.7	A	A	A
Fulton Street and Richmond Street	C11	NE	1335.4	1498.2	833.0	A	A	A
	C12	SE	1466.5	1450.4	1080.4	A	A	A
	C13	SW	2104.9	1838.5	1526.3	A	A	A
	C14	NW	698.2	877.9	534.0	A	A	A
Fulton Street and Euclid Avenue	C15	NE	489.5	786.9	454.8	A	A	A
	C16	SE	1382.2	1792.0	1134.9	A	A	A
	C17	SW	803.9	786.8	495.1	A	A	A
	C18	NW	805.7	972.4	580.4	A	A	A
Atlantic Avenue and Pennsylvania Avenue	C19	NE	2945.7	1468.1	2060.4	A	A	A
	C20	SE	438.7	396.9	358.0	A	A	A
	C21	SW	1334.7	1098.7	1079.9	A	A	A
	C22	NW	2373.8	1312.0	1646.4	A	A	A
Atlantic Avenue and Vermont Street	C23	SW	2127.1	1102.1	917.7	A	A	A
Atlantic Avenue and Hendrix Street	C24	NE	1067.5	1803.1	1769.3	A	A	A
	C25	SE	2545.0	3290.3	2656.8	A	A	A
	C26	SW	1096.2	2137.9	1476.4	A	A	A
	C27	NW	673.2	1566.7	1228.0	A	A	A
Atlantic Avenue and Schenck Avenue	C28	SE	1265.9	3113.5	2335.5	A	A	A
Atlantic Avenue and Highland Place	C29	NE	2283.3	3265.7	2692.5	A	A	A
	C30	NW	1956.8	2843.6	2054.0	A	A	A
Atlantic Avenue and Logan Street	C31	NE	655.7	1778.7	1573.8	A	A	A
	C32	SE	1560.2	3115.7	4049.1	A	A	A
	C33	SW	1798.2	1866.5	1999.0	A	A	A
	C34	NW	2115.5	1875.7	1863.2	A	A	A
Atlantic Avenue and Euclid Avenue	C35	NE	2338.7	2728.5	2648.9	A	A	A
	C36	SE	2493.8	3030.5	2713.2	A	A	A
	C37	SW	21670.7	24764.9	11557.7	A	A	A
	C38	NW	4892.2	4714.0	4810.3	A	A	A
Liberty Avenue and New Jersey Avenue	C39	NE	1040.3	871.6	697.7	A	A	A
	C40	NW	819.8	776.4	868.2	A	A	A
Liberty Avenue and Van Siclen Avenue	C41	NE	1078.1	1456.4	898.2	A	A	A
	C42	SE	1300.8	2114.2	1228.8	A	A	A
	C43	SW	1765.2	2909.0	1843.7	A	A	A
	C44	NW	805.9	995.9	691.1	A	A	A

TABLE 13-53 (continued)
Existing Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Liberty Avenue and Shepherd Avenue	C45	NE	346.3	1148.9	541.5	A	A	A
	C46	SE	430.4	2300.9	1389.3	A	A	A
Liberty Avenue and Berriman Street	C47	NE	122.5	549.5	244.3	A	A	A
	C48	SE	217.4	3145.3	921.2	A	A	A
	C49	SW	256.8	2668.0	1149.9	A	A	A
	C50	NW	531.0	1525.9	816.0	A	A	A
Liberty Avenue and Montauk Avenue	C51	NE	1067.2	2950.0	1874.7	A	A	A
	C52	SE	409.0	1763.7	925.9	A	A	A
	C53	SW	771.4	2760.0	1765.8	A	A	A
	C54	NW	499.9	1622.4	807.3	A	A	A
Pitkin Avenue and Shepherd Avenue	C55	NE	630.6	971.3	614.3	A	A	A
Pitkin Avenue and Berriman Street	C56	NW	530.9	1609.0	635.1	A	A	A
Pitkin Avenue and Euclid Avenue	C57	NE	874.2	1036.4	835.1	A	A	A
	C58	NW	520.6	664.3	507.5	A	A	A

Sidewalks

Table 13-54 shows the No-Action peak hour pedestrian volumes, average pedestrian space and platoon-adjusted levels of service at analyzed sidewalks. As shown in Table 13-54, all analyzed sidewalks are expected to operate at an acceptable LOS C or better in all peak hours with the exception of the east sidewalk on Van Siclen Avenue between Pitkin and Glenmore Avenues, which is expected to operate at a marginal LOS D in the weekday PM peak hour and LOS C in the AM and midday. By comparison, all analyzed sidewalks currently operate at LOS C or better in all periods under existing conditions.

Crosswalks

Table 13-55 shows the peak hour volumes, average pedestrian space, and levels of service at analyzed crosswalks in the No-Action condition. As shown in Table 13-55, all analyzed crosswalks are expected to operate at an uncongested LOS A in all peak hours in the No-Action condition.

Corner Areas

Table 13-56 shows the peak hour volumes, average pedestrian space, and levels of service at analyzed corner areas in the No-Action condition. As shown in Table 13-56, all analyzed corner areas are expected to continue to operate at an uncongested LOS A in all peak hours, unchanged from the existing condition.

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

The Proposed Actions would generate new pedestrian demand on analyzed sidewalks, crosswalks, and corner areas by 2030. This new demand would include trips made solely by walking, as well as pedestrian trips en route to and from subway station entrances, bus stops, and off-street public parking lots. Pedestrian trips generated by the Proposed Actions are expected to be most concentrated in proximity to projected development sites and along corridors connecting these sites to area transit services.

TABLE 13-54
No-Action Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM
S1	Van Sinderen Avenue between Fulton and Truxton Streets	West	25.8	15.8	848	618	1,243	235.9	323.8	164.8	B	B	B
S2	Fulton Street between Georgia and Sheffield Avenues	South	15.0	9.0	235	221	325	485.2	554.7	394.6	B	A	B
S3	Fulton Street between Alabama and Georgia Avenues	South	14.5	5.0	283	227	401	232.0	278.9	179.4	B	B	B
S4	Pennsylvania Avenue between Atlantic Avenue and Fulton Street	East	19.8	7.0	52	89	189	1727.1	996.6	545.5	A	A	A
S5	Fulton Street between Pennsylvania and New Jersey Avenues	South	15.0	9.2	77	74	103	1514.0	1673.9	1131.8	A	A	A
S6	Pennsylvania Avenue between Atlantic Avenue and Fulton Street	West	19.8	12.1	59	72	143	2598.8	2156.2	1197.9	A	A	A
S7	Fulton Street between Sheffield and Pennsylvania Avenues	South	14.5	8.5	122	108	156	882.8	997.3	690.4	A	A	A
S8	Cleveland Street between Atlantic Avenue and Fulton Street	West	10.0	4.5	134	44	200	489.3	1296.0	284.9	B	A	B
S9	Fulton Street between Norwood Avenue and Logan Streets	South	18.0	7.0	398	406	580	244.9	218.2	166.0	B	B	B
S10	Logan Street between Dinsmore Place and Fulton Street	East	12.0	3.0	116	139	159	364.4	273.3	238.9	B	B	B
S11	Fulton Street between Logan and Richmond Streets	South	18.0	11.0	121	156	192	1267.2	893.5	762.2	A	A	A
S12	Logan Street between Atlantic Avenue and Fulton Street	West	18.0	5.5	204	305	320	399.0	413.8	324.7	B	B	B
S13	Richmond Street between Fulton Street and Ridgewood Avenue	East	12.5	3.5	65	61	98	682.3	727.0	452.5	A	A	B
S14	Richmond Street between Disnmore Place and Fulton Street	East	17.5	7.0	54	80	76	1642.6	1108.8	1167.1	A	A	A
S15	Fulton Street between Richmond and Chestnut Streets	South	18.0	8.0	87	102	132	1165.2	993.8	767.9	A	A	A
S16	Richmond Street between Disnmore Place and Fulton Street	West	18.0	5.0	17	64	40	3727.0	989.9	1584.0	A	A	A
S17	Richmond Street between Fulton Street and Ridgewood Avenue	West	12.5	3.5	81	73	195	547.5	607.5	227.2	A	A	B
S18	Euclid Avenue between Fulton Street and Ridgewood Avenue	East	11.5	2.5	201	112	167	157.3	282.7	213.2	B	B	B
S19	Fulton Street between Euclid Avenue and Pine Street	South	18.0	7.5	123	130	158	811.3	804.1	631.5	A	A	A
S20	Euclid Avenue between Atlantic Avenue and Fulton Street	West	18.0	7.5	20	71	35	4752.0	1338.6	2715.4	A	A	A
S21	Fulton Street between Chestnut Street and Euclid Avenue	South	18.0	11.5	76	151	140	1917.4	1025.4	1105.9	A	A	A
S22	Euclid Avenue between Fulton Street and Ridgewood Avenue	West	13.0	4.0	54	78	95	973.8	666.0	533.5	A	A	A
S23	Fulton Street between Pine and Crescent Streets	South	19.0	7.0	591	443	755	170.4	222.5	117.0	B	B	B
S24	Dinsmore Place between Richmond and Chestnut Streets	North	10.0	3.5	16	15	16	2772.0	2956.8	2772.0	A	A	A
S25	Dinsmore Place between Richmond and Chestnut Streets	South	15.0	9.5	34	84	61	3540.7	1433.1	1973.5	A	A	A
S26	Dinsmore Place between Logan and Richmond Streets	South	15.0	9.5	38	97	50	3168.0	1241.0	2407.7	A	A	A
S27	Dinsmore Place between Logan and Richmond Streets	North	8.0	2.5	24	36	37	1452.0	879.9	856.2	A	A	A
S28	Chestnut Street between Dinsmore Place and Fulton Street	East	17.7	6.5	35	154	83	2353.3	534.8	992.3	A	A	A
S29	Chestnut Street between Atlantic Avenue and Dinsmore Place	East	16.4	6.1	8	24	12	9662.4	3220.8	6441.6	A	A	A
S30	Chestnut Street between Atlantic Avenue and Dinsmore Place	West	17.7	14.7	42	146	93	4435.2	1275.8	2003.0	A	A	A

TABLE 13-54 (continued)
No-Action Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM
S31	Chestnut Street between Disnmore Place and Fulton Street	West	18.0	8.9	18	55	37	6265.6	2050.5	3048.1	A	A	A
S32	Pennsylvania Avenue between Liberty and Atlantic Avenues	East	12.0	4.8	75	58	52	810.9	1048.7	1169.7	A	A	A
S33	Atlantic Avenue between Pennsylvania and New Jersey Avenues	South	15.0	5.5	24	75	182	2904.0	975.7	382.8	A	A	B
S34	Pennsylvania Avenue between Liberty and Atlantic Avenues	West	12.2	4.7	33	24	21	1895.0	2481.6	2836.1	A	A	A
S35	Atlantic Avenue between New Jersey Avenue and Vermont Street	South	15.0	7.2	80	92	286	1140.4	991.7	366.7	A	A	B
S36	Van Siclen Avenue between Atlantic Avenue and Fulton Street	East	15.0	4.0	124	109	148	418.9	464.9	342.3	B	B	B
S37	Atlantic Avenue between Van Siclen Avenue and Hendrix Street	North	14.5	3.8	126	99	128	377.0	479.9	371.1	B	B	B
S38	Van Siclen Avenue between Liberty and Atlantic Avenues	East	10.0	4.0	35	33	52	1448.2	1536.0	974.7	A	A	A
S39	Atlantic Avenue between Schenck Avenue and Barbey Street	South	15.5	6.8	46	33	124	1859.4	2592.0	689.7	A	A	A
S40	Berriman Street between Liberty and Atlantic Avenues	East	8.0	2.0	105	67	110	241.1	378.1	230.2	B	B	B
S41	Atlantic Avenue between Berriman Street and Highland Place	South	15.0	5.5	116	153	146	600.7	455.4	477.3	A	B	B
S42	Atlantic Avenue between Shepherd Avenue and Berriman Street	South	15.0	3.5	118	176	132	375.7	261.2	333.3	B	B	B
S43	Atlantic Avenue between Highland Place and Atkins Avenue	South	15.0	7.0	106	170	149	836.8	521.7	595.2	A	B	A
S44	Atkins Avenue south of Atlantic Avenue	East	8.0	4.0	30	41	39	1689.6	1236.2	1299.7	A	A	A
S45	Atlantic Avenue between Atkins and Montauk Avenues	South	14.5	6.5	79	180	165	1042.6	460.0	502.1	A	B	B
S46	Atkins Avenue south of Atlantic Avenue	West	8.0	5.0	23	37	31	2754.8	1712.4	2043.8	A	A	A
S47	Atlantic Avenue between Montauk Avenue and Milford Street	South	14.5	9.5	73	194	147	1649.1	620.4	818.9	A	A	A
S48	Montauk Avenue between Liberty and Atlantic Avenues	West	11.0	2.5	39	36	49	812.2	879.9	646.4	A	A	A
S49	Logan Street between Atlantic Avenue and Dinsmore Place	East	16.0	3.0	102	200	130	372.6	189.8	292.2	B	B	B
S50	Atlantic Avenue between Logan and Chestnut Streets	North	5.0	3.0	98	185	125	387.8	205.2	303.9	B	B	B
S51	Atlantic Avenue between Logan Street and Fountain Avenue	South	15.0	9.5	86	189	127	1452.3	644.8	947.8	A	A	A
S52	Atlantic Avenue between Milford and Logan Streets	South	15.0	7.5	104	194	146	913.8	489.8	764.8	A	B	A
S53	Atlantic Avenue between Euclid Avenue and Pine Street	North	12.0	3.0	37	97	59	1027.4	391.8	644.3	A	B	A
S54	Atlantic Avenue between Chestnut Street and Euclid Avenue	North	15.0	8.0	75	281	158	1351.6	360.6	641.5	A	B	A
S55	New Jersey Avenue between Liberty and Atlantic Avenues	East	5.9	1.2	25	40	42	608.2	380.0	361.9	A	B	B
S56	Liberty Avenue between Pennsylvania and New Jersey Avenues	North	11.3	4.5	70	69	55	814.6	826.4	1036.7	A	A	A
S57	Van Siclen Avenue between Glenmore and Liberty Avenues	East	14.5	6.8	59	50	85	1449.7	1710.7	1044.0	A	A	A
S58	Van Siclen Avenue between Glenmore and Liberty Avenues	West	15.0	6.0	50	41	46	1577.6	1854.4	1652.8	A	A	A
S59	Liberty Avenue between Ashford and Cleveland Streets	South	10.5	3.5	63	36	44	703.9	1232.0	1007.9	A	A	A
S60	Liberty Avenue between Shepherd Avenue and Berriman Street	North	7.5	2.5	166	86	169	190.6	405.1	203.6	B	B	B

TABLE 13-54 (continued)
No-Action Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM
S61	Shepherd Avenue between Glenmore and Liberty Avenues	East	11.5	4.0	139	57	104	387.3	889.2	487.3	B	A	B
S62	Liberty Avenue between Shepherd Avenue and Berriman Street	South	11.0	5.5	145	74	107	480.5	941.8	651.3	B	A	A
S63	Liberty Avenue between Berriman Street and Atkins Avenue	North	7.5	2.0	100	105	128	253.2	259.3	197.7	B	B	B
S64	Berriman Street between Glenmore and Liberty Avenues	East	15.0	7.0	302	56	171	293.5	1584.0	518.6	B	A	B
S65	Berriman Street between Glenmore and Liberty Avenues	West	11.5	6.0	38	45	55	2000.8	1689.6	1382.4	A	A	A
S66	Atkins Avenue north of Liberty Avenue	East	8.0	4.0	26	37	34	1949.5	1408.0	1490.8	A	A	A
S67	Liberty Avenue between Atkins and Montauk Avenues	North	11.5	4.5	111	94	122	513.6	606.5	467.3	B	A	B
S68	Atkins Avenue north of Liberty Avenue	West	8.0	3.0	28	39	49	1357.7	974.7	775.8	A	A	A
S69	Van Siclen Avenue between Pitkin and Glenmore Avenues	East	13.5	3.5	825	531	1,104	52.7	87.1	38.8	C	C	D
S70	Pitkin Avenue between Van Siclen Avenue and Hendrix Street	North	15.0	5.0	276	153	243	229.3	496.8	286.6	B	B	B
S71	Van Siclen Avenue between Pitkin and Glenmore Avenues	West	12.5	6.0	119	91	138	638.8	835.5	550.9	A	A	A
S72	Shepherd Avenue between Pitkin and Glenmore Avenues	East	14.5	2.5	246	130	240	151.0	277.0	139.9	B	B	B
S73	Pitkin Avenue between Shepherd Avenue and Berriman Street	North	14.5	9.0	171	68	186	741.9	1907.8	613.1	A	A	A
S74	Pitkin Avenue between Essex Street and Shepherd Avenue	North	13.0	8.5	144	49	97	747.9	2198.2	1110.4	A	A	A
S75	Berriman Street between Pitkin and Glenmore Avenues	West	11.0	1.5	39	15	35	487.3	1267.2	543.0	B	A	A
S76	Euclid Avenue between Pitkin and Glenmore Avenues	East	6.0	3.5	144	150	99	327.1	302.9	447.9	B	B	B
S77	Pitkin Avenue between Doscher Street and Euclid Avenue	North	14.0	2.5	496	244	448	70.3	145.7	70.8	C	B	C
S78	Euclid Avenue between Pitkin and Glenmore Avenues	West	15.0	7.5	31	47	58	3065.8	2022.1	1638.6	A	A	A
S79	Pitkin Avenue between Doscher Street and Euclid Avenue	South	16.0	3.5	712	276	360	61.4	168.4	122.8	C	B	B

TABLE 13-55
No-Action Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM	AM	MD	PM
Fulton Street and Pennsylvania Avenue	X1	North	50	45	75	554.0	487.9	319.5	A	A	A
	X2	East	37	52	46	724.0	557.4	419.7	A	A	A
	X3	South	101	84	108	261.6	223.0	238.5	A	A	A
	X4	West	33	55	63	960.4	732.3	500.0	A	A	A
Fulton Street and Norwood Avenue	X5	East	46	91	92	419.6	221.6	205.9	A	A	A
	X6	South	233	266	394	140.5	125.7	75.7	A	A	A
	X7	West	42	47	90	452.0	413.1	205.0	A	A	A
Fulton Street and Logan Street	X8	North	160	143	270	177.6	202.2	106.4	A	A	A
	X9	East	53	55	47	416.5	449.0	479.0	A	A	A
	X10	South	147	161	223	218.3	196.9	139.2	A	A	A
	X11	West	67	135	121	333.9	169.5	198.1	A	A	A
Fulton Street and Richmond Street	X12	North	111	103	177	455.7	505.4	275.5	A	A	A
	X13	East	40	66	68	641.6	395.3	424.3	A	A	A
	X14	South	85	94	125	527.0	478.3	390.2	A	A	A
	X15	West	28	53	50	833.6	484.4	466.6	A	A	A
Fulton Street and Euclid Avenue	X16	North	179	195	265	260.9	249.8	181.8	A	A	A
	X17	East	60	60	70	359.8	379.5	332.1	A	A	A
	X18	South	93	156	167	428.9	246.6	213.7	A	A	A
	X19	West	32	80	69	717.2	333.3	365.4	A	A	A
Atlantic Avenue and Pennsylvania Avenue	X20	North	17	59	34	1586.4	347.0	451.6	A	A	A
	X21	East	86	98	94	131.5	233.6	246.7	A	A	A
	X22	South	42	44	49	779.3	607.4	492.0	A	A	A
	X23	West	72	100	84	114.0	217.6	252.5	A	A	A
Atlantic Avenue and Vermont Street	X24	South	19	50	53	2590.0	846.1	942.1	A	A	A
	X25	West	35	34	28	532.5	918.6	732.1	A	A	A
Atlantic Avenue and Hendrix Street	X26	North	113	50	64	396.9	958.9	706.3	A	A	A
	X27	East	22	16	18	472.0	649.8	577.3	A	A	A
	X28	South	42	26	51	1182.1	1883.0	972.0	A	A	A
	X29	West	61	31	55	169.2	330.5	199.4	A	A	A
Atlantic Avenue and Schenck Avenue	X30	East	66	18	20	205.3	823.6	688.4	A	A	A
	X31	South	50	30	54	943.3	1500.5	852.3	A	A	A
Atlantic Avenue and Highland Place	X32	North	118	150	147	469.3	334.6	401.7	A	A	A
	X33	East	24	42	33	441.1	392.6	313.1	A	A	A
	X34	West	112	94	79	139.8	242.4	199.4	A	A	A
Atlantic Avenue and Logan Street	X35	North	66	180	126	579.7	240.4	317.2	A	A	A
	X36	East	111	240	168	386.6	166.4	248.5	A	A	A
	X37	South	60	159	94	753.7	294.1	487.9	A	A	A
	X38	West	83	151	148	361.7	188.8	203.2	A	A	A
Atlantic Avenue and Euclid Avenue	X39	North	45	113	77	1159.2	457.9	742.8	A	A	A
	X40	East	44	36	40	281.4	339.6	270.6	A	A	A
	X41	South	17	65	43	2842.6	738.6	1119.9	A	A	A
	X42	West	36	124	90	275.5	82.6	106.3	A	A	A
Liberty Avenue and New Jersey Avenue	X43	North	47	51	58	978.2	901.7	797.2	A	A	A
	X44	East	20	22	31	824.3	748.1	519.0	A	A	A
	X45	West	22	30	23	747.1	546.5	702.3	A	A	A
Liberty Avenue and Van Siclen Avenue	X46	North	31	40	46	1482.6	1150.3	974.2	A	A	A
	X47	East	48	25	78	447.9	871.3	290.8	A	A	A
	X48	South	19	16	19	2680.7	3356.9	2680.7	A	A	A
	X49	West	45	21	60	437.0	1039.9	329.6	A	A	A

TABLE 13-55 (continued)
No-Action Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM	AM	MD	PM
Liberty Avenue and Shepherd Avenue	X50	North	138	63	121	384.8	891.1	442.9	A	A	A
	X51	East	138	28	93	186.9	976.2	278.6	A	A	A
	X52	South	277	62	73	165.4	842.5	659.3	A	A	A
Liberty Avenue and Berriman Street	X53	North	128	61	111	303.0	661.5	355.4	A	A	A
	X54	East	163	38	120	110.5	515.5	156.7	A	A	A
	X55	South	394	44	90	118.6	1121.3	544.8	A	A	A
	X56	West	67	23	52	263.3	809.7	352.1	A	A	A
Liberty Avenue and Montauk Avenue	X57	North	94	63	76	577.5	936.9	718.5	A	A	A
	X58	East	37	39	37	481.8	477.8	503.4	A	A	A
	X59	South	111	49	65	433.8	991.7	749.9	A	A	A
	X60	West	32	40	36	514.1	444.1	481.8	A	A	A
Pitkin Avenue and Shepherd Avenue	X61	North	54	78	71	848.1	522.6	574.5	A	A	A
	X62	East	74	42	77	254.6	458.5	246.2	A	A	A
Pitkin Avenue and Berriman Street	X63	North	158	51	154	262.0	885.0	279.7	A	A	A
	X64	West	35	8	19	584.6	2626.7	1072.3	A	A	A
Pitkin Avenue and Euclid Avenue	X65	North	169	123	182	239.9	338.4	250.8	A	A	A
	X66	East	124	119	124	146.8	157.1	144.3	A	A	A
	X67	West	112	87	118	156.2	205.2	154.8	A	A	A

TABLE 13-56
No-Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Fulton Street and Pennsylvania Avenue	C1	NE	2015.5	1954.3	1479.7	A	A	A
	C2	SE	1325.9	1346.6	1270.1	A	A	A
	C3	SW	1313.8	1290.4	1091.9	A	A	A
	C4	NW	2815.3	2133.5	1541.2	A	A	A
Fulton Street and Norwood Avenue	C5	SE	290.9	275.0	191.9	A	A	A
	C6	SW	427.3	393.0	254.4	A	A	A
Fulton Street and Logan Street	C7	NE	454.1	471.7	304.6	A	A	A
	C8	SE	464.8	438.8	322.6	A	A	A
	C9	SW	724.7	572.4	475.5	A	A	A
	C10	NW	669.2	610.8	471.4	A	A	A
Fulton Street and Richmond Street	C11	NE	1226.8	1175.6	744.6	A	A	A
	C12	SE	1329.6	1131.0	942.3	A	A	A
	C13	SW	1900.9	1428.2	1284.8	A	A	A
	C14	NW	644.8	697.2	468.8	A	A	A
Fulton Street and Euclid Avenue	C15	NE	440.6	549.2	380.7	A	A	A
	C16	SE	1151.8	926.0	813.1	A	A	A
	C17	SW	571.9	300.3	287.4	A	A	A
	C18	NW	673.4	540.3	425.6	A	A	A
Atlantic Avenue and Pennsylvania Avenue	C19	NE	2236.4	1195.6	1584.3	A	A	A
	C20	SE	804.6	721.0	641.8	A	A	A
	C21	SW	1163.7	927.2	912.4	A	A	A
	C22	NW	2859.7	1586.5	1955.1	A	A	A
Atlantic Avenue and Vermont Street	C23	SW	1796.9	893.5	777.2	A	A	A
Atlantic Avenue and Hendrix Street	C24	NE	972.5	1660.1	1573.8	A	A	A
	C25	SE	1945.2	2839.8	1755.6	A	A	A
	C26	SW	845.7	1541.9	858.2	A	A	A
	C27	NW	594.7	1267.9	927.7	A	A	A
Atlantic Avenue and Schenck Avenue	C28	SE	1093.8	2522.6	1675.6	A	A	A
Atlantic Avenue and Highland Place	C29	NE	1680.3	1380.8	1544.9	A	A	A
	C30	NW	973.3	1018.1	1045.9	A	A	A
Atlantic Avenue and Logan Street	C31	NE	356.5	171.5	250.2	A	A	A
	C32	SE	743.6	287.6	451.1	A	A	A
	C33	SW	1160.6	546.6	698.2	A	A	A
	C34	NW	938.3	440.6	534.9	A	A	A
Atlantic Avenue and Euclid Avenue	C35	NE	1467.7	873.3	1152.9	A	A	A
	C36	SE	1678.5	1098.6	1297.7	A	A	A
	C37	SW	3191.0	892.7	1257.0	A	A	A
	C38	NW	1559.2	520.0	775.8	A	A	A
Liberty Avenue and New Jersey Avenue	C39	NE	818.6	654.1	545.3	A	A	A
	C40	NW	672.3	656.8	673.8	A	A	A
Liberty Avenue and Van Siclen Avenue	C41	NE	770.3	1013.0	537.2	A	A	A
	C42	SE	990.2	1753.6	777.2	A	A	A
	C43	SW	1298.3	2129.7	1029.6	A	A	A
	C44	NW	554.3	669.4	388.1	A	A	A

TABLE 13-56 (continued)
No-Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Liberty Avenue and Shepherd Avenue	C45	NE	286.7	899.9	407.1	A	A	A
	C46	SE	369.3	1638.7	911.6	A	A	A
Liberty Avenue and Berriman Street	C47	NE	67.5	227.7	99.1	A	A	A
	C48	SE	175.2	1264.4	458.0	A	A	A
	C49	SW	220.4	1328.0	688.1	A	A	A
	C50	NW	353.8	749.7	424.4	A	A	A
Liberty Avenue and Montauk Avenue	C51	NE	747.2	974.0	885.6	A	A	A
	C52	SE	315.4	552.2	476.7	A	A	A
	C53	SW	591.3	891.8	867.4	A	A	A
	C54	NW	323.7	436.2	358.3	A	A	A
Pitkin Avenue and Shepherd Avenue	C55	NE	491.1	751.5	470.5	A	A	A
Pitkin Avenue and Berriman Street	C56	NW	432.0	1528.7	497.5	A	A	A
Pitkin Avenue and Euclid Avenue	C57	NE	826.4	985.5	786.1	A	A	A
	C58	NW	485.9	628.8	472.2	A	A	A

As shown in Table 13-10, the Proposed Actions are expected to generate a net total of approximately 2,448 walk trips in the weekday AM peak hour, 8,517 in the midday, and 4,870 in the PM peak hour. Persons en route to and from subway station entrances, bus stops and public parking lots would add approximately 4,279, 3,627, 5,467 and 4,890 additional pedestrian trips to rezoning area sidewalks and crosswalks during these same periods, respectively. These pedestrian volumes were added to the projected No-Action volumes to generate the With-Action pedestrian volumes for analysis.

Under the With-Action RWCDS, the building footprint of any new development along Fulton Street within the rezoning area would be required to be setback by five feet. The With-Action sidewalk and corner analyses therefore reflect wider sidewalk widths compared to the No-Action condition at three locations on the south side of Fulton Street adjacent to projected development sites—between Pennsylvania and New Jersey Avenues, between Sheffield and Pennsylvania Avenues, and between Chestnut Street and Euclid Avenue.

Anticipated conditions and significant adverse impacts at analyzed sidewalks, crosswalks, and corner areas in the future with the Proposed Actions are shown in Table 13-57 through Table 13-59. As discussed below, there would be a total of one impacted corner area in the weekday AM peak hour, one impacted sidewalk and one impacted crosswalk in the midday peak hour, and one impacted sidewalk in the PM peak hour. Chapter 20, "Mitigation" addresses practicable measures to address these impacts.

As noted previously, the new signal timing plans associated with the planned improvements to intersections along the Atlantic Avenue corridor have not yet been finalized by DOT. At the Atlantic Avenue/Logan Street intersection, the green time currently allocated to the leading westbound phase was reallocated to the northbound/southbound phase as this green time would no longer be needed to accommodate westbound left-turns. At all other intersections along Atlantic Avenue, the current signal timing plans were assumed without modification for the analyses of future pedestrian conditions. It is anticipated that with updated traffic signal timing plans designed to complement the planned physical and operational changes, future crosswalk and corner conditions would potentially be better than those reflected in the With-Action pedestrian analysis.

TABLE 13-57
With-Action Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Project Increment			Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
S1	Van Sinderen Avenue between Fulton and Truxton Streets	West	25.8	15.8	186	186	246	1,034	804	1,489	193.4	248.8	137.4	B	B	B
S2	Fulton Street between Georgia and Sheffield Avenues	South	15.0	9.0	169	200	257	404	421	582	282.1	291.0	220.2	B	B	B
S3	Fulton Street between Alabama and Georgia Avenues	South	14.5	5.0	169	190	249	452	417	650	145.1	151.6	110.4	B	B	B
S4	Pennsylvania Avenue between Atlantic Avenue and Fulton Street	East	19.8	7.0	91	195	184	143	284	373	628.0	312.2	276.3	A	B	B
S5	Fulton Street between Pennsylvania and New Jersey Avenues	South	20.0	14.2	75	160	143	152	234	246	1183.8	817.0	731.4	A	A	A
S6	Pennsylvania Avenue between Atlantic Avenue and Fulton Street	West	19.8	12.1	51	111	99	110	183	242	1393.9	907.8	712.7	A	A	A
S7	Fulton Street between Sheffield and Pennsylvania Avenues	South	19.5	13.5	183	248	291	305	356	447	560.8	480.4	382.6	A	B	B
S8	Cleveland Street between Atlantic Avenue and Fulton Street	West	10.0	4.5	149	100	174	283	144	374	231.5	395.9	152.1	B	B	B
S9	Fulton Street between Norwood Avenue and Logan Streets	South	18.0	7.0	727	576	801	1,125	982	1,381	86.1	89.7	69.1	C	C	C
S10	Logan Street between Dinsmore Place and Fulton Street	East	12.0	3.0	363	221	311	479	360	470	87.7	105.1	80.2	C	B	C
S11	Fulton Street between Logan and Richmond Streets	South	18.0	11.0	35	124	72	156	280	264	982.8	497.7	554.3	A	B	A
S12	Logan Street between Atlantic Avenue and Fulton Street	West	18.0	5.5	533	480	578	737	785	898	125.3	138.6	106.9	B	B	B
S13	Richmond Street between Fulton Street and Ridgewood Avenue	East	12.5	3.5	49	77	51	114	138	149	388.9	321.2	297.5	B	B	B
S14	Richmond Street between Disnmore Place and Fulton Street	East	17.5	7.0	44	56	40	98	136	116	905.1	652.2	764.6	A	A	A
S15	Fulton Street between Richmond and Chestnut Streets	South	18.0	8.0	35	124	72	122	226	204	830.9	448.4	496.8	A	B	B
S16	Richmond Street between Disnmore Place and Fulton Street	West	18.0	5.0	33	64	45	50	128	85	1267.2	494.9	745.3	A	B	A
S17	Richmond Street between Fulton Street and Ridgewood Avenue	West	12.5	3.5	26	39	30	107	112	225	414.4	395.9	196.8	B	B	B
S18	Euclid Avenue between Fulton Street and Ridgewood Avenue	East	11.5	2.5	49	133	77	250	245	244	126.3	128.9	145.7	B	B	B
S19	Fulton Street between Euclid Avenue and Pine Street	South	18.0	7.5	603	585	803	726	715	961	137.1	145.8	103.3	B	B	B
S20	Euclid Avenue between Atlantic Avenue and Fulton Street	West	18.0	7.5	438	594	653	458	665	688	207.2	142.5	137.7	B	B	B
S21	Fulton Street between Chestnut Street and Euclid Avenue	South	23.0	16.5	423	556	598	499	707	738	418.9	314.1	300.8	B	B	B
S22	Euclid Avenue between Fulton Street and Ridgewood Avenue	West	13.0	4.0	63	141	87	117	219	182	449.4	237.0	278.3	B	B	B
S23	Fulton Street between Pine and Crescent Streets	South	19.0	7.0	607	517	788	1,198	960	1,543	83.6	102.3	56.5	C	B	C
S24	Dinsmore Place between Richmond and Chestnut Streets	North	10.0	3.5	38	36	53	54	51	69	821.3	869.6	642.7	A	A	A
S25	Dinsmore Place between Richmond and Chestnut Streets	South	15.0	9.5	708	224	385	742	308	446	161.9	390.7	269.7	B	B	B
S26	Dinsmore Place between Logan and Richmond Streets	South	15.0	9.5	414	146	231	452	243	281	266.1	495.3	428.3	B	B	B
S27	Dinsmore Place between Logan and Richmond Streets	North	8.0	2.5	282	141	211	306	177	248	113.4	178.7	127.3	B	B	B
S28	Chestnut Street between Dinsmore Place and Fulton Street	East	17.7	6.5	461	608	629	496	762	712	165.7	107.6	115.2	B	B	B
S29	Chestnut Street between Atlantic Avenue and Dinsmore Place	East	16.4	6.1	410	490	561	418	514	573	184.6	150.0	134.5	B	B	B
S30	Chestnut Street between Atlantic Avenue and Dinsmore Place	West	17.7	14.7	241	276	297	283	422	390	658.1	441.3	477.5	A	B	B

TABLE 13-57 (continued)
With-Action Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Project Increment			Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
S31	Chestnut Street between Disnmore Place and Fulton Street	West	18.0	8.9	93	58	39	111	113	76	1016.0	998.0	1483.9	A	A	A
S32	Pennsylvania Avenue between Liberty and Atlantic Avenues	East	12.0	4.8	63	122	118	138	180	170	440.6	337.8	357.6	B	B	B
S33	Atlantic Avenue between Pennsylvania and New Jersey Avenues	South	15.0	5.5	55	164	128	79	239	310	882.2	306.0	224.6	A	B	B
S34	Pennsylvania Avenue between Liberty and Atlantic Avenues	West	12.2	4.7	15	37	37	48	61	58	1302.8	976.3	1026.8	A	A	A
S35	Atlantic Avenue between New Jersey Avenue and Vermont Street	South	15.0	7.2	148	313	287	228	405	573	400.0	225.0	182.8	B	B	B
S36	Van Siclen Avenue between Atlantic Avenue and Fulton Street	East	15.0	4.0	155	116	154	279	225	302	185.9	225.0	167.5	B	B	B
S37	Atlantic Avenue between Van Siclen Avenue and Hendrix Street	North	14.5	3.8	148	254	188	274	353	316	173.1	134.2	150.0	B	B	B
S38	Van Siclen Avenue between Liberty and Atlantic Avenues	East	10.0	4.0	88	55	94	123	88	146	412.0	575.9	347.0	B	A	B
S39	Atlantic Avenue between Schenck Avenue and Barbey Street	South	15.5	6.8	81	138	92	127	171	216	673.4	500.1	395.9	A	B	B
S40	Berriman Street between Liberty and Atlantic Avenues	East	8.0	2.0	178	265	287	283	332	397	88.9	75.6	63.3	C	C	C
S41	Atlantic Avenue between Berriman Street and Highland Place	South	15.0	5.5	208	450	388	324	603	534	214.9	115.1	130.1	B	B	B
S42	Atlantic Avenue between Shepherd Avenue and Berriman Street	South	15.0	3.5	181	467	373	299	643	505	148.0	70.8	87.2	B	C	C
S43	Atlantic Avenue between Highland Place and Atkins Avenue	South	15.0	7.0	199	444	375	305	614	524	290.6	145.3	169.6	B	B	B
S44	Atkins Avenue south of Atlantic Avenue	East	8.0	4.0	56	135	113	86	176	152	589.3	287.8	333.3	A	B	B
S45	Atlantic Avenue between Atkins and Montauk Avenues	South	14.5	6.5	194	567	415	273	747	580	301.5	109.9	141.9	B	B	B
S46	Atkins Avenue south of Atlantic Avenue	West	8.0	5.0	56	135	113	79	172	144	802.0	368.2	439.9	A	B	B
S47	Atlantic Avenue between Montauk Avenue and Milford Street	South	14.5	9.5	178	551	381	251	745	528	479.5	161.3	227.8	B	B	B
S48	Montauk Avenue between Liberty and Atlantic Avenues	West	11.0	2.5	89	166	147	128	202	196	247.3	156.5	161.3	B	B	B
S49	Logan Street between Atlantic Avenue and Dinsmore Place	East	16.0	3.0	342	350	336	444	550	466	85.0	68.3	80.9	C	C	C
S50	Atlantic Avenue between Logan and Chestnut Streets	North	5.0	3.0	359	796	627	457	981	752	82.5	37.3	49.5	C	**D** *	C
S51	Atlantic Avenue between Logan Street and Fountain Avenue	South	15.0	9.5	200	370	334	286	559	461	436.6	215.1	260.9	B	B	B
S52	Atlantic Avenue between Milford and Logan Streets	South	15.0	7.5	269	675	521	373	869	667	254.6	108.9	167.1	B	B	B
S53	Atlantic Avenue between Euclid Avenue and Pine Street	North	12.0	3.0	180	276	226	217	373	285	174.9	101.4	133.0	B	B	B
S54	Atlantic Avenue between Chestnut Street and Euclid Avenue	North	15.0	8.0	340	640	494	415	921	652	244.1	109.6	155.1	B	B	B
S55	New Jersey Avenue between Liberty and Atlantic Avenues	East	5.9	1.2	54	104	102	79	144	144	192.2	105.1	105.1	B	B	B
S56	Liberty Avenue between Pennsylvania and New Jersey Avenues	North	11.3	4.5	98	130	153	168	199	208	339.3	286.4	274.0	B	B	B
S57	Van Siclen Avenue between Glenmore and Liberty Avenues	East	14.5	6.8	129	69	130	188	119	215	454.9	718.7	412.6	B	A	B
S58	Van Siclen Avenue between Glenmore and Liberty Avenues	West	15.0	6.0	83	48	85	133	89	131	593.0	854.2	580.3	A	A	A
S59	Liberty Avenue between Ashford and Cleveland Streets	South	10.5	3.5	8	38	22	71	74	66	624.6	599.3	671.9	A	A	A
S60	Liberty Avenue between Shepherd Avenue and Berriman Street	North	7.5	2.5	53	128	121	219	214	290	144.3	162.5	118.3	B	B	B

TABLE 13-57 (continued)
With-Action Sidewalk Conditions

No.	Location		Total Width (ft.)	Effective Width (ft.)	Peak Hour Project Increment			Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Platoon-Adjusted Level of Service		
					AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
S61	Shepherd Avenue between Glenmore and Liberty Avenues	East	11.5	4.0	219	234	306	358	291	410	150.1	173.9	123.2	B	B	B
S62	Liberty Avenue between Shepherd Avenue and Berriman Street	South	11.0	5.5	135	202	198	280	276	305	248.7	252.3	228.3	B	B	B
S63	Liberty Avenue between Berriman Street and Atkins Avenue	North	7.5	2.0	174	357	317	274	462	445	91.9	59.2	56.8	B	C	C
S64	Berriman Street between Glenmore and Liberty Avenues	East	15.0	7.0	110	175	177	412	231	348	215.0	383.9	254.7	B	B	B
S65	Berriman Street between Glenmore and Liberty Avenues	West	11.5	6.0	80	167	145	118	212	200	644.3	358.5	380.0	A	B	B
S66	Atkins Avenue north of Liberty Avenue	East	8.0	4.0	57	138	122	83	175	156	610.6	289.5	324.8	A	B	B
S67	Liberty Avenue between Atkins and Montauk Avenues	North	11.5	4.5	146	333	293	257	427	415	221.6	126.6	127.4	B	B	B
S68	Atkins Avenue north of Liberty Avenue	West	8.0	3.0	57	138	122	85	177	171	447.1	214.5	222.1	B	B	B
S69	Van Siclen Avenue between Pitkin and Glenmore Avenues	East	13.5	3.5	129	66	128	954	597	1,232	45.3	77.3	34.5	C	C	**D** *
S70	Pitkin Avenue between Van Siclen Avenue and Hendrix Street	North	15.0	5.0	77	55	88	353	208	331	179.2	365.4	210.3	B	B	B
S71	Van Siclen Avenue between Pitkin and Glenmore Avenues	West	12.5	6.0	82	41	81	201	132	219	378.1	575.9	347.0	B	A	B
S72	Shepherd Avenue between Pitkin and Glenmore Avenues	East	14.5	2.5	250	239	363	496	369	603	74.3	97.1	54.8	C	B	C
S73	Pitkin Avenue between Shepherd Avenue and Berriman Street	North	14.5	9.0	153	123	180	324	191	366	391.5	679.1	311.4	B	A	B
S74	Pitkin Avenue between Essex Street and Shepherd Avenue	North	13.0	8.5	65	63	89	209	112	186	515.3	961.7	579.0	B	A	A
S75	Berriman Street between Pitkin and Glenmore Avenues	West	11.0	1.5	138	129	173	177	144	208	106.9	131.6	90.8	B	B	B
S76	Euclid Avenue between Pitkin and Glenmore Avenues	East	6.0	3.5	92	101	120	236	251	219	199.4	180.8	202.3	B	B	B
S77	Pitkin Avenue between Doscher Street and Euclid Avenue	North	14.0	2.5	92	101	111	588	345	559	59.0	102.8	56.4	C	B	C
S78	Euclid Avenue between Pitkin and Glenmore Avenues	West	15.0	7.5	60	59	79	91	106	137	1044.3	896.5	693.6	A	A	A
S79	Pitkin Avenue between Doscher Street and Euclid Avenue	South	16.0	3.5	164	147	227	876	423	587	49.6	109.6	74.8	C	B	C

Notes:

***** denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

TABLE 13-58
With-Action Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Project Increment			Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
Fulton Street and Pennsylvania Avenue	X1	North	31	42	26	81	87	101	340.2	250.7	236.4	A	A	A
	X2	East	35	78	53	72	130	99	355.5	211.0	161.1	A	A	A
	X3	South	102	84	55	203	168	163	125.4	107.3	153.4	A	A	A
	X4	West	28	50	32	61	105	95	516.6	382.3	329.5	A	A	A
Fulton Street and Norwood Avenue	X5	East	54	43	25	100	134	117	191.7	149.8	161.3	A	A	A
	X6	South	142	133	90	375	399	484	84.1	81.7	59.7	A	A	B
	X7	West	2	2	2	44	49	92	431.3	396.2	200.4	A	A	A
Fulton Street and Logan Street	X8	North	81	91	53	241	234	323	117.3	122.2	88.6	A	A	A
	X9	East	68	45	38	121	100	85	180.9	244.4	260.4	A	A	A
	X10	South	325	134	102	472	295	325	60.4	93.8	78.0	A	A	A
	X11	West	107	87	51	174	222	172	123.5	99.8	134.6	A	A	A
Fulton Street and Richmond Street	X12	North	26	89	53	137	192	230	368.9	269.2	211.8	A	A	A
	X13	East	36	33	25	76	99	93	337.5	262.7	309.9	A	A	A
	X14	South	28	101	59	113	195	184	372.0	226.3	258.6	A	A	A
	X15	West	27	41	31	55	94	81	422.3	269.0	273.8	A	A	A
Fulton Street and Euclid Avenue	X16	North	65	192	132	244	387	397	192.0	124.7	120.1	A	A	A
	X17	East	10	33	19	70	93	89	308.1	243.4	258.1	A	A	A
	X18	South	636	254	147	729	410	314	50.0	87.6	111.5	B	A	A
	X19	West	34	107	88	66	187	157	345.7	146.3	157.1	A	A	A
Atlantic Avenue and Pennsylvania Avenue	X20	North	18	92	63	35	151	97	737.8	130.7	146.4	A	A	A
	X21	East	51	105	72	137	203	166	78.0	106.5	130.7	A	A	A
	X22	South	15	82	59	57	126	108	572.9	209.5	220.8	A	A	A
	X23	West	23	61	45	95	161	129	86.2	135.0	163.6	A	A	A
Atlantic Avenue and Vermont Street	X24	South	20	94	53	39	144	106	1252.3	287.6	465.0	A	A	A
	X25	West	19	100	73	54	134	101	346.2	234.8	199.4	A	A	A
Atlantic Avenue and Hendrix Street	X26	North	25	90	33	138	140	97	323.8	337.2	463.6	A	A	A
	X27	East	11	47	19	33	63	37	314.2	163.9	280.1	A	A	A
	X28	South	72	79	30	114	105	81	428.4	460.4	606.7	A	A	A
	X29	West	46	96	50	107	127	105	94.8	80.0	103.2	A	A	A
Atlantic Avenue and Schenck Avenue	X30	East	8	45	30	74	63	50	181.3	241.6	267.8	A	A	A
	X31	South	59	68	27	109	98	81	436.0	453.7	565.9	A	A	A
Atlantic Avenue and Highland Place	X32	North	165	177	118	283	327	265	189.5	148.1	219.3	A	A	A
	X33	East	56	171	116	80	213	149	129.6	75.1	63.3	A	A	A
	X34	West	51	206	156	163	300	235	95.4	74.4	65.4	A	A	A
Atlantic Avenue and Logan Street	X35	North	286	420	258	352	600	384	102.7	66.5	98.2	A	A	A
	X36	East	164	535	371	275	775	539	153.0	48.7	73.6	A	B	A
	X37	South	132	353	211	192	512	305	228.4	85.1	142.4	A	A	A
	X38	West	195	335	207	278	486	355	103.2	56.2	82.1	A	B	A
Atlantic Avenue and Euclid Avenue	X39	North	72	395	307	117	508	384	441.9	97.1	146.4	A	A	A
	X40	East	43	125	93	87	161	133	138.5	74.2	78.9	A	A	A
	X41	South	41	145	85	58	210	128	828.5	224.2	371.9	A	A	A
	X42	West	131	381	270	167	505	360	56.4	18.6	24.1	B	**D** *	C
Liberty Avenue and New Jersey Avenue	X43	North	58	48	28	105	99	86	432.6	460.5	534.9	A	A	A
	X44	East	8	39	24	28	61	55	581.3	262.4	285.1	A	A	A
	X45	West	7	32	21	29	62	44	553.8	256.6	356.6	A	A	A
Liberty Avenue and Van Siclen Avenue	X46	North	10	45	23	41	85	69	1118.3	527.3	646.8	A	A	A
	X47	East	112	32	22	160	57	100	129.6	378.4	224.7	A	A	A
	X48	South	8	38	17	27	54	36	1883.9	984.6	1410.8	A	A	A
	X49	West	51	28	14	96	49	74	200.6	437.7	265.5	A	A	A

TABLE 13-58 (continued)
With-Action Crosswalk Conditions

Intersection	Crosswalk		Peak Hour Project Increment			Peak Hour Volumes			Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM	AM	MD	PM	AM	MD	PM
Liberty Avenue and Shepherd Avenue	X50	North	25	117	72	163	180	193	324.7	307.6	275.1	A	A	A
	X51	East	111	66	47	249	94	140	97.4	277.3	174.0	A	A	A
	X52	South	25	115	70	302	177	143	151.5	291.3	330.9	A	A	A
Liberty Avenue and Berriman Street	X53	North	134	186	117	262	247	228	144.4	157.8	169.3	A	A	A
	X54	East	162	149	93	325	187	213	52.4	100.4	85.5	B	A	A
	X55	South	120	118	73	514	162	163	89.3	299.8	297.9	A	A	A
	X56	West	92	101	63	159	124	115	107.4	146.6	156.0	A	A	A
Liberty Avenue and Montauk Avenue	X57	North	44	215	155	138	278	231	390.3	204.6	229.3	A	A	A
	X58	East	15	116	93	52	155	130	320.5	109.6	128.9	A	A	A
	X59	South	47	190	139	158	239	204	302.7	198.1	234.7	A	A	A
	X60	West	38	167	120	70	207	156	222.9	79.3	101.7	A	A	A
Pitkin Avenue and Shepherd Avenue	X61	North	4	14	8	58	92	79	788.1	475.8	515.9	A	A	A
	X62	East	3	12	8	77	54	85	241.0	353.1	221.5	A	A	A
Pitkin Avenue and Berriman Street	X63	North	23	22	12	181	73	166	226.9	613.3	255.0	A	A	A
	X64	West	4	17	10	39	25	29	523.2	839.2	701.0	A	A	A
Pitkin Avenue and Euclid Avenue	X65	North	6	20	14	175	143	196	231.6	290.7	232.7	A	A	A
	X66	East	5	15	10	129	134	134	140.3	137.8	133.2	A	A	A
	X67	West	9	25	16	121	112	134	137.5	157.1	134.7	A	A	A

Notes:

***** denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

TABLE 13-59
With-Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Fulton Street and Pennsylvania Avenue	C1	NE	1162.5	860.2	902.1	A	A	A
	C2	SE	627.0	523.8	638.4	A	A	A
	C3	SW	620.9	563.5	606.0	A	A	A
	C4	NW	1663.6	1203.9	1121.1	A	A	A
Fulton Street and Norwood Avenue	C5	SE	190.7	193.1	159.7	A	A	A
	C6	SW	281.6	279.0	214.3	A	A	A
Fulton Street and Logan Street	C7	NE	277.3	298.7	242.5	A	A	A
	C8	SE	173.5	253.7	224.9	A	A	A
	C9	SW	211.4	272.6	235.2	A	A	A
	C10	NW	409.7	395.1	381.8	A	A	A
Fulton Street and Richmond Street	C11	NE	902.6	714.6	590.6	A	A	A
	C12	SE	910.8	621.7	679.2	A	A	A
	C13	SW	1280.2	740.2	852.4	A	A	A
	C14	NW	508.3	415.7	357.4	A	A	A
Fulton Street and Euclid Avenue	C15	NE	369.3	321.2	285.3	A	A	A
	C16	SE	256.1	399.7	493.6	A	A	A
	C17	SW	84.1	114.6	142.2	A	A	A
	C18	NW	461.0	261.3	256.7	A	A	A
Atlantic Avenue and Pennsylvania Avenue	C19	NE	1306.8	554.8	780.9	A	A	A
	C20	SE	511.9	280.3	329.0	A	A	A
	C21	SW	914.0	510.7	574.7	A	A	A
	C22	NW	1927.0	793.1	1041.3	A	A	A
Atlantic Avenue and Vermont Street	C23	SW	986.0	280.7	353.5	A	A	A
Atlantic Avenue and Hendrix Street	C24	NE	774.5	641.1	989.8	A	A	A
	C25	SE	818.4	665.8	983.5	A	A	A
	C26	SW	394.2	370.6	488.3	A	A	A
	C27	NW	406.8	322.8	493.8	A	A	A
Atlantic Avenue and Schenck Avenue	C28	SE	662.3	693.2	888.0	A	A	A
Atlantic Avenue and Highland Place	C29	NE	699.9	483.2	684.9	A	A	A
	C30	NW	510.9	392.1	473.3	A	A	A
Atlantic Avenue and Logan Street	C31	NE	109.7	42.5	70.4	A	B	A
	C32	SE	269.0	83.3	137.1	A	A	A
	C33	SW	353.7	163.6	253.6	A	A	A
	C34	NW	235.1	132.4	197.5	A	A	A
Atlantic Avenue and Euclid Avenue	C35	NE	634.6	185.8	262.9	A	A	A
	C36	SE	790.6	322.4	455.5	A	A	A
	C37	SW	746.8	219.9	331.1	A	A	A
	C38	NW	428.7	109.3	163.4	A	A	A
Liberty Avenue and New Jersey Avenue	C39	NE	413.0	313.3	351.4	A	A	A
	C40	NW	313.2	288.4	312.2	A	A	A
Liberty Avenue and Van Siclen Avenue	C41	NE	308.6	440.7	389.1	A	A	A
	C42	SE	379.8	632.8	510.4	A	A	A
	C43	SW	587.5	793.6	685.5	A	A	A
	C44	NW	295.9	295.4	282.9	A	A	A

TABLE 13-59 (continued)
With-Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Liberty Avenue and Shepherd Avenue	C45	NE	195.4	331.5	266.1	A	A	A
	C46	SE	263.0	531.3	490.2	A	A	A
Liberty Avenue and Berriman Street	C47	NE	22.9	42.7	43.3	**D** *	B	B
	C48	SE	114.0	287.7	255.6	A	A	A
	C49	SW	147.9	320.4	341.3	A	A	A
	C50	NW	157.1	176.3	196.0	A	A	A
Liberty Avenue and Montauk Avenue	C51	NE	514.4	230.4	274.0	A	A	A
	C52	SE	220.6	113.6	138.8	A	A	A
	C53	SW	370.4	181.4	233.6	A	A	A
	C54	NW	183.6	84.5	100.7	A	A	A
Pitkin Avenue and Shepherd Avenue	C55	NE	346.8	466.7	313.8	A	A	A
Pitkin Avenue and Berriman Street	C56	NW	336.4	757.5	367.0	A	A	A
Pitkin Avenue and Euclid Avenue	C57	NE	802.5	889.4	744.4	A	A	A
	C58	NW	419.1	474.1	379.8	A	A	A

Notes:
***** denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

Sidewalks

Table 13-55 shows the incremental change in peak hour pedestrian volumes attributable to the proposed rezoning and the total With-Action pedestrian volumes, average pedestrian space, and platoon-adjusted levels of service at analyzed sidewalks. Also identified in Table 13-57 are those sidewalks that are expected to be significantly adversely impacted in one or more peak hours based on the *CEQR Technical Manual* criteria shown in Table 13-19 in Section F. As shown in Table 13-57, there would be significant adverse impacts at two of the 79 analyzed sidewalks: the north sidewalk on Atlantic Avenue between Logan and Chestnut Streets in the midday peak hour and the east sidewalk on Van Siclen Avenue between Pitkin and Glenmore Avenues in the PM peak hour.

Crosswalks

Table 13-58 shows the incremental change in peak hour pedestrian volumes attributable to the proposed rezoning and the total With-Action pedestrian volumes, average pedestrian space, and levels of service at analyzed crosswalks. Also identified in Table 13-58 are crosswalks that are expected to be significantly adversely impacted in one or more peak hours based on the *CEQR Technical Manual* criteria shown in Table 13-20 in Section F. As shown in Table 13-58, there would be a significant adverse impact in the midday peak hour at one of the 67 analyzed crosswalks—the west crosswalk on Atlantic Avenue at Euclid Avenue.

Corner Areas

Table 13-56 shows the incremental change in peak hour pedestrian volumes attributable to the proposed rezoning and the total With-Action pedestrian volumes, average pedestrian space, and levels of service at analyzed corner areas. Also identified in Table 13-59 are those corner areas that are expected to be significantly adversely impacted in one or more peak hours based on the *CEQR Technical Manual* criteria shown in Table 13-20 in Section F. As shown in Table 13-59, there would be a significant adverse impact at one of the 58 analyzed corner areas—the northeast corner at Liberty Avenue at Berriman Street in the AM peak hour.

J. VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

Recent DOT Initiatives

Vision Zero Brooklyn Pedestrian Safety Action Plan

The City's Vision Zero initiative seeks to eliminate all deaths from traffic crashes regardless of whether on foot, bicycle, or inside a motor vehicle. In an effort to drive these fatalities down, DOT and NYPD developed a set of five plans, each of which analyzes the unique conditions of one New York City borough and recommends actions to address the borough's specific challenges to pedestrian safety. These plans pinpoint the conditions and characteristics of pedestrian fatalities and severe injuries; they also identify priority corridors, intersections, and areas that disproportionately account for pedestrian fatalities and severe injuries, prioritizing them for safety interventions. The plans outline a series of recommended actions comprised of engineering, enforcement, and education measures that intend to alter the physical and behavioral conditions on City streets that lead to pedestrian fatality and injury.

The *Vision Zero Brooklyn Pedestrian Safety Action Plan* was released on February 19, 2015. Portions of the East New York Rezoning Proposal traffic study area were identified as Priority Areas where safety issues were found to occur systematically at an area-wide level. These include most of the traffic study area to the west of Barbey Street and south of Broadway and Atlantic Avenue, as well as most of the traffic study area south of Atlantic Avenue between Linwood Street and Lincoln Avenue. The following roadways are identified as Priority Corridors along their entire length within the traffic study area (unless otherwise noted):

- Atlantic Avenue
- Broadway
- Bushwick Avenue
- Eastern Parkway Extension
- Fulton Street (west of Broadway)
- Liberty Avenue
- Livonia Avenue
- Pennsylvania Avenue
- Pitkin Avenue
- Rockaway Avenue

In addition, three study area intersections are identified as Priority Intersections:

- Pitkin Avenue and Pennsylvania Avenue
- Liberty Avenue and Wells Street/Euclid Avenue
- Sutter Avenue and Fountain Avenue

In April 2014, Atlantic Avenue from the East River to Woodhaven, Queens was designated as the first of a planned 25 "arterial slow zones" under the Vision Zero initiative, and its speed limit was reduced to 25 miles an hour. Additional actions recommended in the *Vision Zero Brooklyn Pedestrian Safety Action Plan* to enhance pedestrian safety in Brooklyn are summarized below.

<u>Engineering and Planning</u>

- Implement at least 50 Vision Zero safety engineering improvements at Priority Corridors, Intersections, and Areas citywide, informed by community input

- Expand exclusive pedestrian crossing time, install expanded speed limit signage, and modify signal timing to reduce off-speak speeding on Priority Corridors and Intersections where feasible
- Expand community outreach and engagement with regard to Priority Corridors, Intersections, and Areas
- Install additional lighting under elevated trains and around other key transit stops
- Install 60 new speed bumps in Brooklyn annually
- Develop additional Neighborhood Slow Zones in Priority Areas
- Coordinate with MTA to ensure bus operations contribute to a safe pedestrian environment
- Expand a bicycle network in Brooklyn that improves safety for all road users
- Proactively design for pedestrian safety in high-growth areas in Brooklyn

Enforcement

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

Education and Awareness Campaigns

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

Atlantic Avenue Improvements

DOT is advancing plans for capital improvements to the Atlantic Avenue corridor from Pennsylvania Avenue to Logan Street. Planned measures that will improve pedestrian safety are expected to include the installation of ADA-compliant, high visibility crosswalks and upgraded, ADA-compliant pedestrian ramps at all pedestrian crossings along the corridor, renewal of stop bars, and the installation of new school crossing pavement markings at selected locations. New 30-foot-long sidewalk extensions will be installed on Atlantic Avenue at the northwest corner at Pennsylvania Avenue and the southwest corner at Logan Street. One or more turning movements will be prohibited at the intersections of Atlantic Avenue with Vermont, Hendrix, and Logan Streets, likely reducing the potential for conflicts between pedestrians and turning vehicles at these locations. Lastly, the existing pedestrian crossing on Atlantic Avenue at Berriman Street will be eliminated, with all pedestrian crossings consolidated at the nearby signalized intersection at Highland Place.

Study Area High Accident Locations

Accident data for intersections in the traffic and pedestrian study areas were obtained from DOT for the three-year period between January 1, 2011 and December 31, 2013. The data quantify the total number of reportable (involving a fatality, injury, or more than $1,000 in property damage) and non-reportable accidents as well as the total number of accidents involving injuries to pedestrians or bicyclists. During the three-year reporting period, a total of 1,415 reportable and non-reportable accidents, seven fatalities, and

215 pedestrian/bicyclist-related injury accidents occurred at study area intersections. Table 13-60 provides details of accident characteristics by intersection during the 2011 to 2013 period, as well as a breakdown of pedestrian and bicycle accidents by year and location.

TABLE 13-60
Summary of Motor Vehicle Accident Data 2011-2013

Intersection		Pedestrian Injury Crashes			Bicycle Injury Crashes			Total Pedestrian/Bicycle Injury Crashes			Total Crashes (Reportable + Non-Reportable)		
		2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
Arlington Av	Jamaica Av/Wyona St	0	1	0	0	0	0	0	1	0	2	4	0
Atlantic Av	Rockaway Av	4	1	2	0	0	0	4	1	2	16	17	22
	Eastern Pkwy Ext	2	0	1	2	0	3	4	0	4	33	30	32
	Georgia Av	3	0	1	0	0	2	3	0	3	19	10	19
	Pennsylvania Av	3	1	0	2	0	0	**5**	1	0	38	44	37
	Vermont St	0	0	1	0	0	0	0	0	1	11	7	6
	Miller Av	0	0	1	0	0	0	0	0	1	6	7	5
	Hendrix St	0	0	2	0	0	2	0	0	4	4	4	7
	Schenck Av	0	0	0	1	0	0	1	0	0	6	5	4
	Warwick St	0	1	2	0	1	0	0	2	2	6	11	13
	Ashford St	0	0	0	0	0	1	0	0	1	1	2	2
	Elton St	0	0	0	0	0	0	0	0	0	0	0	5
	Highland Pl	2	0	0	0	0	0	2	0	0	6	4	9
	Atkins Av	0	0	0	1	0	0	1	0	0	1	0	0
	Montauk Av	0	2	0	0	0	0	0	2	0	0	2	0
	Logan St	5	7	1	0	1	0	**5**	**8**	1	38	35	20
	Euclid Av	2	1	2	0	1	0	2	2	2	5	3	4
	Crescent St	2	1	3	0	1	0	2	2	3	20	26	20
	Eldert La	2	0	1	0	0	0	2	0	1	6	5	8
	Rockaway Blvd/79th St/80th St	1	4	5	1	0	0	2	4	**5**	11	9	9
Broadway	Cooper St	0	0	2	0	0	0	0	0	2	0	2	7
	Eastern Pkwy Ext	0	1	0	0	0	0	0	1	0	7	4	4
	Van Sinderen Av/Truxton St	0	0	0	0	0	1	0	0	1	1	2	2
Bushwick Av	Eastern Pkwy/Vanderveer St	0	0	0	0	1	0	0	1	0	24	12	4
Dinsmore Pl	Logan St	0	0	0	0	0	0	0	0	0	1	0	0
	Richmond St	0	0	0	0	0	0	0	0	0	0	0	0
Fulton St	Van Sinderen Av	0	0	0	0	1	0	0	1	0	0	1	0
	Pennsylvania Av	4	5	3	0	1	1	4	**6**	4	13	13	16
	New Jersey Av	0	0	1	0	0	0	0	0	1	1	0	1
	Miller Av	0	0	0	0	0	0	0	0	0	4	1	2
	Elton St	0	0	1	0	0	0	0	0	1	0	0	1
	Highland Pl	0	0	0	0	0	0	0	0	0	2	1	1
	Logan St/Force Tube Av	2	0	3	0	1	2	2	1	**5**	4	2	7
	Richmond St	0	0	1	0	0	0	0	0	1	1	1	2
	Chestnut St	0	1	0	0	0	1	0	1	1	4	2	4
	Euclid Av	0	0	0	1	0	0	1	0	0	3	0	3
Glenmore Av	Pennsylvania Av	1	0	2	0	0	1	1	0	3	3	4	6
	Miller Av	0	0	0	0	0	0	0	0	0	0	1	1
	Montauk Av	0	0	0	1	0	0	1	0	0	1	0	5
Jamaica Av	Pennsylvania Av/J. Robinson Pkwy/Bushwick Av	1	0	1	1	1	0	2	1	1	**58**	**56**	46
	Highland Pl/Force Tube Av	0	2	0	0	2	1	0	4	1	6	8	6
	Chestnut St	0	0	0	0	0	0	0	0	0	2	1	1
	Euclid Av/Cypress Hills St	0	2	0	1	0	0	1	2	0	20	12	7
Liberty Av	Pennsylvania Av	2	3	0	0	1	0	2	4	0	14	10	7
	New Jersey Av	0	0	0	0	2	1	0	2	1	1	3	2
	Miller Av	0	0	0	0	0	0	0	0	0	0	2	4
	Van Siclen Av	0	0	0	0	0	0	0	0	0	3	0	1
	Hendrix St	0	1	0	0	0	0	0	1	0	3	2	3
	Schenck Av	1	0	0	0	0	0	1	0	0	2	1	0
	Warwick St	0	1	1	0	0	0	0	1	1	1	3	3
	Elton St	0	1	1	0	0	0	0	1	1	4	1	1
	Linwood St	0	0	0	0	0	0	0	0	0	0	2	0
	Essex St	0	0	2	0	0	1	0	0	3	0	1	7
	Shepherd Av	0	0	0	0	0	0	0	0	0	1	0	0
	Berriman St	0	1	0	0	0	0	0	1	0	0	2	1
	Atkins Av	0	0	0	0	0	0	0	0	0	0	1	2
	Montauk Av	0	0	0	0	0	0	0	0	0	0	0	3
	Milford St	0	0	0	0	0	0	0	0	0	1	0	0
	Logan St	0	0	0	0	0	0	0	0	0	4	3	0
	Fountain Av	0	0	0	0	0	0	0	0	0	7	1	0
	S. Conduit Blvd/Euclid Av	1	3	0	0	0	0	1	3	0	6	14	1
	N. Conduit Blvd	0	1	0	0	0	0	0	1	0	1	1	1

TABLE 13-60 (continued)
Summary of Motor Vehicle Accident Data 2011-2013

Intersection		Pedestrian Injury Crashes			Bicycle Injury Crashes			Total Pedestrian/Bicycle Injury Crashes			Total Crashes (Reportable + Non-Reportable)		
		2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
Livonia Av	Pennsylvania Av	4	5	2	0	0	0	4	**5**	2	11	12	9
Pitkin Av	Mother Gaston Blvd	1	2	0	1	1	0	2	3	0	6	6	5
	Pennsylvania Av	2	0	1	1	0	2	3	0	3	17	16	24
	Hendrix St	0	1	0	2	0	0	2	1	0	2	2	1
	Warwick St	1	0	0	0	0	1	1	0	1	3	0	3
	Elton St	0	0	1	0	0	0	0	0	1	1	1	1
	Shepherd Av	1	0	0	0	0	0	1	0	0	2	0	0
	Berriman St	0	0	0	0	0	0	0	0	0	1	0	4
	Montauk Av	0	1	0	0	1	0	0	2	0	1	3	1
	Fountain Av	0	0	0	0	0	0	0	0	0	4	2	2
	Euclid Av	2	0	0	0	0	1	2	0	1	2	2	1
	S. Conduit Blvd/Lincoln Av	1	2	0	0	0	0	1	2	0	4	6	3
	N. Conduit Blvd	0	0	1	0	0	0	0	0	1	0	1	2
Sutter Av	Pennsylvania Av	2	2	3	0	0	0	2	2	3	10	9	9
	Fountain Av	4	2	2	0	1	0	4	3	2	7	3	5

Source: NYCDOT
Notes:
5 denotes high accident location based on *CEQR Technical Manual* guidelines.

According to the *CEQR Technical Manual*, a high accident location is one where there were 48 or more reportable and non-reportable accidents or five or more pedestrian/bicyclist-related accidents in any consecutive 12 months within the most recent three-year period for which data are available. One intersection in the traffic and pedestrian study area had 48 or more crashes in a consecutive 12 month period during the most recent three-year period for which data are available, and an additional six intersections had five or more pedestrian/bicyclist-related accidents within a consecutive 12-month period. These intersections, identified as high accident locations in Table 13-60, are the following:

- Atlantic Avenue and Logan Street
- Atlantic Avenue and Pennsylvania Avenue
- Atlantic Avenue/Rockaway Boulevard/79th Street/80th Street
- Fulton Street and Logan Street/Force Tube Avenue
- Fulton Street and Pennsylvania Avenue
- Jamaica Avenue and Pennsylvania Avenue/Jackie Robinson Parkway/Bushwick Avenue
- Livonia Avenue/Pennsylvania Avenue

None of these intersections (nor any within the traffic study area) are located within a designated Seniors Pedestrian Focus Area (SPFA), which were identified by DOT based on the density of senior pedestrian (age 65+) crashes resulting in fatalities or severe injuries in a five-year period, as well as variables such as senior trip generators, concentrations of senior centers, and senior housing locations.

The seven high accident intersections are discussed below. A discussion of potential measures to enhance pedestrian safety at intersections in proximity to the 1,000-seat PS/IS proposed for site 66 under the With-Action RWCDS is also provided.

Atlantic Avenue and Logan Street

With the Proposed Actions, this intersection would likely experience increases in pedestrian volumes on all four crosswalks and increases in the numbers of turning vehicles potentially conflicting with pedestrians on all four crosswalks. In addition, it should be noted that under the With-Action RWCDS a 1,000-seat PS/IS would be located on projected development site 66 at the northeast corner of this intersection. The proposed school would serve students residing within a subdistrict located north of Atlantic Avenue, and pickup/drop-off activity is expected to primarily occur on the north side of the site along Dinsmore Place east of Richmond Street. Pedestrian trips by

students and parents traversing the Atlantic Avenue/Logan Street intersection are therefore expected to be concentrated on the north crosswalk, with few trips crossing to and from the south side of Atlantic Avenue.

Of the 13 pedestrian-related accidents that occurred from 2011 to 2013, two involved pedestrians crossing against the signal. In general, however, there were no prevailing trends identified as the primary causes of recorded accidents at this intersection. Geometric and operational characteristics affecting pedestrian safety at this intersection include a relatively long (roughly 104-foot) crossing distance on Atlantic Avenue. The intersection is signalized and is equipped with pedestrian signals with countdown clocks, and standard crosswalks on all four legs. As described previously, the Atlantic Avenue Improvements project includes a number of measures expected to improve pedestrian safety at this intersection. These include prohibiting the northbound, eastbound, and westbound left-turn movements, thereby substantially reducing the number of turning vehicles conflicting with pedestrians, replacing the existing standard crosswalks with high visibility crosswalks, and installing an approximately six-foot-wide by 30-foot-long sidewalk bulb out on Atlantic Avenue at the southwest corner of the intersection, thereby reducing the crossing distance for pedestrians crossing Atlantic Avenue on the west crosswalk. Given the potential development of a PS/IS school at this location as part of the Proposed Actions, additional measures would likely be employed to enhance safety, such as the installation of additional school crossing pavement markings and signage. Typically, as the design is advanced on a school project, NYCDOT-School Safety is consulted in developing appropriate pedestrian safety measures.

Atlantic Avenue and Pennsylvania Avenue

With the Proposed Actions, this intersection would likely experience increases in pedestrian volumes on all four crosswalks and increases in the numbers of turning vehicles potentially conflicting with pedestrians on the north, east, and south crosswalks. Based on a review of accident data, no prevailing trends were identified as the primary causes of recorded accidents at this intersection.

Of the four pedestrian-related accidents that occurred from 2011 to 2013, two did not occur at the crosswalks. Geometric and operational characteristics affecting safety at this intersection include a relatively long (roughly 90-foot) crossing distance on Atlantic Avenue. This intersection is signalized and includes pedestrian signals, standard crosswalks on all four legs, a double left-turn lane and protected signal phase on the eastbound approach, and an advance stop bar on the northbound approach. Westbound left-turns are prohibited. As described previously, the Atlantic Avenue Improvements project includes several measures expected to improve pedestrian safety at this intersection. These include replacing the existing standard crosswalks on the north, east, and west legs of the intersection with high visibility crosswalks and the installation of a new approximately six-foot-wide by 30-foot-long sidewalk bulb out on Atlantic Avenue at the northwest corner of the intersection, thereby shortening the crossing distance for pedestrians crossing Atlantic Avenue on the west crosswalk.

Atlantic Avenue/Rockaway Boulevard/79th Street/80th Street

Given its distance from the rezoning area (approximately 0.5 miles from the nearest projected development site), this intersection is expected to experience little increase in pedestrian volume with the Proposed Actions. Project-increment traffic is expected to be comprised predominantly of through-trips along Atlantic Avenue with little increase in the numbers of turning vehicles potentially conflicting with pedestrians. Of the 11 pedestrian accidents and one bicycle-related accident that occurred from 2011 to 2013, six did not occur at a crosswalk and one involved a pedestrian on the sidewalk. In general, there were no prevailing trends identified as the primary causes of recorded accidents at this intersection.

Geometric and operational characteristics affecting safety at this intersection include its skewed geometry and overall complexity (four streets intersect in close proximity), and the relatively long (up to 150 feet) crossing distances on Atlantic Avenue. This intersection is signalized and includes pedestrian signals and high visibility crosswalks on Atlantic Avenue and Rockaway Boulevard and standard crosswalks on 79th Street and 80th Street. Potential Measures to improve pedestrian safety at this intersection could include the installation of high visibility crosswalks on 79th Street and 80th Street and the installation of additional "Turning Vehicles Yield to Pedestrians" signage.

Fulton Street and Logan Street/Force Tube Avenue

With the Proposed Actions, this intersection would likely experience increases in pedestrian volumes primarily on the east, west, and south crosswalks, and increases in the numbers of turning vehicles potentially conflicting with pedestrians on the south, east, and west crosswalks. Included in this increased pedestrian and vehicular demand would be new trips by students and parents en route to and from the 1,000-seat PS/IS school that would be developed under the With-Action RWCDS on projected development site 66 located one block to the south at Logan Street and Dinsmore Place.

Of the six pedestrian-related accidents that occurred from 2011 to 2013, three involved pedestrians crossing against the signal, one did not occur at the crosswalks, and one involved a person entering or exiting an auto. Geometric and operational characteristics affecting safety at this intersection include a somewhat irregular geometry resulting from the diagonal orientation of Force Tube Avenue with respect to the street grid and obstructed sightlines due to the presence of columns supporting the overhead subway structure. The intersection is signalized and is equipped with pedestrian signals as well as high visibility crosswalks on all legs. Given the potential development of a PS/IS school one block to the south under the Proposed Actions, potential measures to improve pedestrian safety at this intersection could include the installation of school crossing pavement markings and signage along with "Cross Only on Pedestrian Signal" signage. As noted previously, as the design is advanced on a school project, NYCDOT-School Safety is typically consulted in developing appropriate pedestrian safety measures.

Fulton Street and Pennsylvania Avenue

With the Proposed Actions, this intersection would likely experience increases in pedestrian volumes primarily on the all four crosswalks and increases in the numbers of turning vehicles potentially conflicting with pedestrians on the east and south crosswalks. Of the 12 pedestrian-related accidents that occurred from 2011 to 2013, one involved a pedestrian crossing against the signal and one did not occur at the intersection. In general, however, there were no prevailing trends identified as the primary causes of recorded accidents at this intersection. Geometric and operational characteristics affecting safety at this intersection include obstructed sightlines due to the presence of columns supporting the overhead subway structure. The intersection is signalized and is equipped with pedestrian signals with countdown clocks as well as standard crosswalks on all legs. Potential measures to improve pedestrian safety at this intersection could include the installation of "Turning Vehicles Yield to Pedestrians" signage.

Pennsylvania Avenue/Jackie Robinson Parkway/Bushwick Avenue

Although there were only three or fewer pedestrian/bicycle injury accidents in any one year during the 2011 to 2013 period, this intersection is considered a high accident location based on the total numbers of reportable and non-reportable accidents that occurred in 2011 and 2012 (58 and 56, respectively). The intersection is signalized and is equipped with pedestrian signals with countdown clocks. Standard crosswalks are present on all legs of the intersection with the exception of the Jackie Robinson Parkway approach where no pedestrian crossing is provided. With the Proposed Actions, this intersection would experience increases in the numbers of vehicles traversing the intersection. No prevailing trends were identified as the primary causes of recorded accidents; however, a key factor likely contributing to the high accident rate is the complexity of the intersection, which has five widely-spaced approach legs all with two-way flow. Turn prohibitions have been implemented for some movements on both the Bushwick Avenue and Jackie Robinson Parkway approaches (likely to reduce the number of conflicting movements).

Dinsmore Place/Fulton Street at Logan, Richmond, and Chestnut Streets

As discussed previously, the With-Action RWCDS includes the development of a 1,000-seat PS/IS school on projected development site 66 bounded by Atlantic Avenue on the south, Dinsmore Place on the north, Chestnut Street on the east, and Logan Street on the west (refer to Figure 13-5). Students attending this school would reside in a subdistrict located north of Atlantic Avenue. It is anticipated that pickup and drop-off activity by both autos and school buses would primarily occur along the south side of Dinsmore Place between Richmond and Chestnut Streets. New pedestrian trips by students, parents, and staff are also expected to be most concentrated along sidewalks and crosswalks at intersections along Dinsmore Place and Fulton Street at Logan, Richmond, and Chestnut Streets. Dinsmore Place is currently a two-block-long, two-way local street that is stop-controlled approaching Logan Street.

The southbound Richmond Street approach to Dinsmore Place is also stop-controlled, as is the Dinsmore Place approach to Chestnut Street. There are currently no crosswalks at any of these three T-intersections. Potential measures to improve pedestrian safety at these three stop-controlled intersections could include the installation of all-way stop-control, high visibility crosswalks and school crossing pavement markings and signage. As discussed in Chapter 20, "Mitigation," signalization of the Dinsmore Place/Logan Street intersection is recommended as part of the Proposed Actions' traffic mitigation plan. Signalization of additional intersections as well as geometric changes may also be considered if warranted based on projected future traffic and pedestrian volumes.

It is anticipated that new pedestrian and vehicle trips associated with the proposed school would also be concentrated at the intersections of Fulton Street with Logan Street/Force Tube Avenue (discussed previously), Richmond Street, and Chestnut Street. The Fulton Street/Richmond Street intersection is signalized with school crosswalks and pedestrian signals on all approaches. Potential measures to improve pedestrian safety at this intersection could include the installation of school crossing pavement markings and signage. The Fulton Street/Chestnut Street intersection is currently stop-controlled on the Chestnut Street approach with crosswalks provided on the north and south legs of the intersection. Potential measures to improve pedestrian safety at this stop-controlled intersection could include the installation high visibility crosswalks and school crossing pavement markings and signage. In addition, as discussed in Chapter 20, "Mitigation," signalization of the Fulton Street/Chestnut Street intersection is recommended as part of the Proposed Actions' traffic mitigation plan. As noted previously, as the design is advanced on a school project, NYCDOT-School Safety is typically consulted in developing appropriate pedestrian safety measures.

Livonia Avenue/Pennsylvania Avenue

Given its distance from the rezoning area (approximately 0.6 miles from the nearest projected development site), this intersection is expected to experience little increase in pedestrian volume with the Proposed Actions. Project-increment traffic is expected to be comprised predominantly of through-trips along Pennsylvania Avenue with little increase in the numbers of turning vehicles potentially conflicting with pedestrians. Of the 11 pedestrian accidents that occurred from 2011 to 2013, only four involved pedestrians crossing with the signal. Two accidents involved pedestrians on the sidewalk and one involved a person entering or exiting a parked car. Six of the accidents occurred at night indicating that poor nighttime visibility may be a contributing factor.

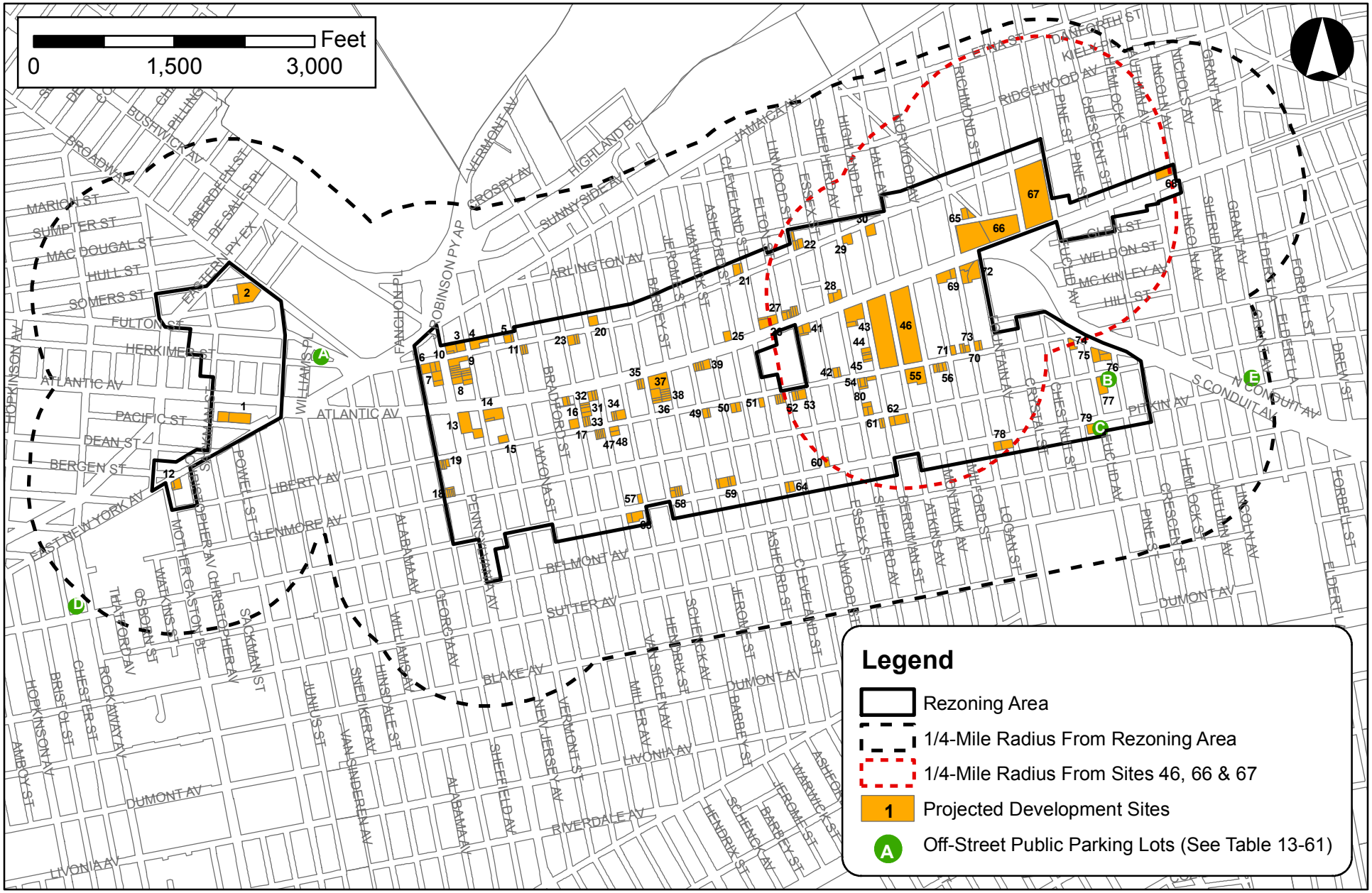
Geometric and operational characteristics affecting safety at this intersection include obstructed sightlines due to the presence of columns and stairways for the Pennsylvania Avenue subway station on a structure overhead. The intersection is signalized, and is equipped with pedestrian signals and high visibility crosswalks on all approaches. Sidewalk bulb outs installed at the corners along Pennsylvania Avenue provide additional pedestrian circulation space and reduced crossing distances. It should also be noted that there is a public school (P.S. 13) on the southeast corner of the intersection, and a school crossing guard is typically located at this intersection at the start and end of the school day. The former Thomas Jefferson High School (now comprised of four small individual schools) is located one block to the north. Potential measures to improve pedestrian safety at this intersection could include improving street lighting and installing "Turning Vehicles Yield to Pedestrians" signage.

K. PARKING

Existing Conditions

Off-Street Parking

Off-street public parking facilities were inventoried during March 2015, and a total of five public parking lots were identified within a ¼-mile of the rezoning area, including one municipal parking lot and four privately-operated public parking lots. Figure 13-25 shows the locations of these off-street public parking lots and Table 13-61 provides a summary of their names, addresses, license numbers, capacities, and estimated weekday midday and overnight utilization. As shown in Figure 13-25, two of the privately-operated public parking lots—lots B and C in Table 13-61—



East New York Rezoning Proposal

Figure 13-25

Locations of Existing Off-Street Public Parking Lots

are located on projected development sites 77 and 79, respectively. In general, however, the five public parking lots are located on the periphery of the rezoning area and are not within a convenient walking distance of the majority of projected development sites. None of the five parking facilities are located within the parking analysis sub-area encompassing a ¼-mile radius around projected development sites 46, 66, and 67.

TABLE 13-61
Existing Off-Street Public Parking Facilities in the Study Area

Map ID	Name	Address	License No.	Hours of Operation	Licensed Capacity	Weekday Midday		Weekday Overnight	
						Estimated Utilization[1]	Available Capacity[2]	Estimated Utilization	Available Capacity
A	Herkermer Parking, Inc.	2488 Fulton St	1189221	6A-7P, M-F	100	90%	10	CLOSED	CLOSED
B	Good Luck Parking	447 Euclid Av	1347707	7A-7P, M-F	142	45%	78	CLOSED	CLOSED
C	M&V Parking	2702 Pitkin Av	365559	7A-6P, M-F	90	65%	32	CLOSED	CLOSED
D	Pitkin Parking, Inc.	402 Rockaway Av	1347212	24 Hours	75	100%	0	60%	30
E	Grant Ave Municipal Parking Field	Pitkin Av btwn Sheridan Av and Eldert Ln	N/A	8A-10P, M-F	203	95%	10	CLOSED	CLOSED
				Total:	**610**	**79%**	**130**	**60%**	**30**

Notes:
[1] Based on PHA field surveys (March 2015).
[2] Assumes lot is fully utilized at 98 percent of licensed capacity as per *CEQR Technical Manual* guidelines.
N/A – data not applicable or not available.

Field observations and interviews with parking attendants were conducted to determine the utilization levels of each parking facility during the midday (noon to 2:00 p.m.) and overnight periods on a typical weekday. As shown in Table 13-61, the five parking lots have a combined capacity of 610 spaces during the weekday midday and 75 spaces during the overnight period when all but lot D are closed. During the weekday midday period, approximately 79 percent of spaces are utilized, leaving a residual supply of 130 available parking spaces. During the overnight period, approximately 60 percent of spaces are utilized at lot D, leaving a residual supply of approximately 30 available parking spaces.

On-Street Parking

An inventory of existing parking regulations within a ¼-mile radius of the rezoning area was compiled from field data and on-line sources in February and March 2015. Curbside parking regulations for all block faces within the study area are shown in Figure E-1 and listed in accompanying Table E-4 in Appendix E. On-street public parking is generally governed by alternate-side-of-the-street regulations to facilitate street cleaning, with more restrictive regulations in place at locations where additional traffic flow capacity is needed, especially during the weekday daytime hours. One-hour and/or two-hour metered public parking is present primarily along portions of Fulton Street east of Arlington Avenue, Atlantic Avenue in the vicinity of Pennsylvania Avenue, Liberty Avenue east of North Conduit Boulevard, Pitkin and Belmont Avenues west of Pennsylvania Avenue, and Rockaway Avenue in the vicinity of Pitkin Avenue. Based on existing curbside parking regulations, and taking into account curb space obstructed by curb cuts, fire hydrants, and other impediments, there are a total of approximately 18,860 legal curbside parking spaces during the weekday midday period and 23,235 spaces during the overnight period within the rezoning area and a ¼-mile radius around it. Legal curbside spaces within a subarea encompassing a ¼-mile radius around projected developments sites 46, 66, and 67 (the three largest sites) total approximately 3,732 and 5,196 during these same periods, respectively. The higher numbers of parking spaces during the overnight period reflect the more restrictive parking regulations in effect during daytime hours.

Based on data collected during field surveys conducted in March 2015, on-street parking within the overall study area is approximately 78 percent utilized during the weekday midday period and approximately 63 percent utilized during the overnight period. Approximately 4,208 and 8,634 on-street parking spaces are currently available within the overall study area during each of these periods, respectively. On-street parking within a ¼-mile of projected development sites 46, 66, and 67 is approximately 90 percent utilized during the weekday midday period and

approximately 63 percent utilized during the overnight period. Approximately 356 and 1,904 on-street parking spaces are currently available within this subarea during each of these periods, respectively.

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

Between 2015 and 2030, it is expected that parking demand in the vicinity of the rezoning area will increase due to long-term background growth as well as development that could occur pursuant to existing zoning. As none of the No-Action residential development on projected development sites would be designated affordable through the IHP under the RWCDS, the forecast of parking demand generated by residential development on projected development sites in the No-Action condition is based on 2008-2015 5-year ACS auto ownership data for market-rate residential uses. Parking demands from all other uses were derived from the forecasts of daily auto trips from these uses.

An estimated 949 new on-site accessory parking spaces would be developed on projected development sites under the No-Action RWCDS. Parking demand not otherwise accommodated by this on-site accessory parking is expected to total approximately 220 spaces in the weekday midday and approximately 150 spaces in the overnight period. This demand would be accommodated either on-street or in off-street public parking lots. (It should be noted that, to be conservative, these totals do not include any credit for parking demand from existing uses on projected development sites that would be eliminated under the No-Action RWCDS.) Within the subarea encompassing a ¼-mile radius around sites 46, 66, and 67, there would be a total of approximately 789 new accessory spaces provided on projected development sites. These spaces would accommodate all but 26 spaces of demand from new development in the weekday midday and all but 16 spaces during the overnight period.

The forecast of future No-Action parking conditions also considers potential demand from the eight developments not on projected development sites that are listed in Table 2-4 in Chapter 2, "Land Use, Zoning, and Public Policy," and reflects annual background growth rates of 0.50 percent per year for the 2015 through 2020 period and 0.25 percent per year for the 2020 through 2030 period. These background growth rates, recommended in the *CEQR Technical Manual* for projects in Brooklyn outside of the Downtown area, are applied to account for smaller projects and as-of-right developments not reflected in Table 2-4, and general increases in parking demand not attributable to specific development projects.

Off-Street Parking

A total of 15 projected development sites are located in proximity to one or more of the five existing study area public parking lots. New development is expected to occur on five of these sites (projected development sites 1, 2, 70, 71, and 77) under the No-Action RWCDS. Only the development on projected development site 1 would include accessory parking, and no new off-street public parking capacity is expected to be developed in the No-Action condition. In addition, the 142 spaces in the existing public parking lot on projected development site 77 (lot B in Table 13-61) are expected to be displaced as a result of new development that would occur on this site in the absence of the Proposed Actions. As shown in Table 13-62, based on the increased demand and changes in the parking supply under the No-Action RWCDS, weekday midday off-street public parking utilization within the overall parking study area is expected to increase to 119 percent of capacity, with a total deficit of 88 spaces during this period. These 88 autos will therefore need to be accommodated on-street. During the overnight period, utilization is expected to increase to 63 percent of capacity at the one public parking lot open 24-hours (lot D in Table 13-61), with a total of 28 parking spaces remaining available during this period. As noted previously, none of the five existing study area public parking lots are located within the parking analysis subarea encompassing a ¼-mile radius around projected development sites 46, 66, and 67.

TABLE 13-62
No-Action Off-Street Public Parking Capacity, Demand and Utilization
Within ¼-Mile of the Rezoning Area

	Weekday Midday	Weekday Overnight[4]
Capacity		
Existing Licensed Capacity	610	75
Capacity Displaced by No-Action Developments[1]	142	0
Total No-Action Capacity	468	75
Demand		
Existing Demand	480	45
Demand From Background Growth[2]	25	2
Projected Demand from No-Action Developments[3]	51	0
Total No-Action Demand	556	47
Utilization		
No-Action Utilization	119%	63%
No-Action Off-Street Parking Surplus/(Deficit)	(88)	28

Notes:
[1] Reflects displacement of the existing public parking lot on projected development site 77.
[2] Reflects annual background growth rates of 0.50 percent per year for the 2015 through 2020 period and 0.25 percent for the 2020 through 2030 period.
[3] Includes demand from No-Action developments on projected development sites 2, 70, and 77 not accommodated by on-site accessory parking. Other No-Action developments in the vicinity of the rezoning area are not expected to add demand at existing off-street public lots.
[4] Only the 75-space public parking lot D is currently open overnight.

On-Street Parking

It is anticipated that sidewalk extensions and changes to curbside parking regulations and lane striping associated with the Atlantic Avenue Improvements project and the *Highland Park Traffic Study* (described previously in Section G) will result in a net decrease of approximately nine on-street parking spaces within the overall parking study area during the weekday midday and overnight periods. Consequently, as shown in Table 13-63, on-street parking capacity within a ¼-mile of the rezoning area is expected to total approximately 18,851 and 23,226 spaces during these same periods, respectively. After accounting for background growth and demand from new development not otherwise accommodated by accessory parking or in off-street public parking lots, the demand for on-street parking within the overall study area is expected to increase to 15,809 spaces in the weekday midday period and 15,752 spaces in the overnight period. Overall, Table 13-63 shows that in the future without the Proposed Actions, on-street parking within a ¼-mile of the rezoning area is expected to be approximately 84 percent utilized in the weekday midday (versus 78 percent in the existing condition) and 68 percent utilized in the overnight period (versus 63 percent under existing conditions). Approximately 3,042 and 7,474 on-street parking spaces would remain available within the overall study area during each of these periods, respectively, in the No-Action condition.

Within the subarea encompassing projected development sites 46, 66, and 67, street configuration changes associated with the Atlantic Avenue Improvements project will result in a net decrease of approximately four on-street parking spaces during the weekday midday and overnight periods. Consequently, as shown in Table 13-63, in the No-Action condition on-street parking capacity within the subarea is expected to total approximately 3,728 and 5,192 spaces during these same periods, respectively. The demand for on-street parking within the subarea is expected to increase to 3,597 spaces in the weekday midday period and 3,511 spaces in the overnight period. Overall, Table 13-63 shows that in the future without the Proposed Actions, on-street parking within a ¼-mile of projected development sites 46, 66, and 67 is expected to be approximately 96 percent utilized in the weekday midday (versus 90 percent in the existing condition) and 68 percent utilized in the overnight period (versus 63 percent under existing conditions). Approximately 131 and 1,681 on-street parking spaces would remain available within the parking analysis subarea during each of these periods, respectively, in the No-Action condition.

TABLE 13-63
No-Action On-Street Parking Capacity, Demand and Utilization

Parking Analysis Study Area (1/4-Mile Radius From the Rezoning Area)	**Weekday Midday**	**Weekday Overnight**
Capacity		
Existing Capacity	18,860	23,235
Net Change in No-Action On-Street Parking Supply[1]	(9)	(9)
Total No-Action Capacity	18,851	23,226
Demand		
Existing Demand[2]	14,652	14,601
Demand From Background Growth[3]	750	747
No-Action Demand From Projected Development Sites[4]	169	150
Demand From Other No-Action Developments[5]	150	254
Off-Street Public Parking Deficit[6]	88	0
Total No-Action Demand	15,809	15,752
Utilization		
No-Action Utilization	84%	68%
No-Action On-Street Parking Surplus/(Deficit)	3,042	7,474
Parking Analysis Sub-Area (1/4-Mile Radius From Sites 46, 66, and 67)	**Weekday Midday**	**Weekday Overnight**
Capacity		
Existing Capacity	3,732	5,196
Net Change in No-Action On-Street Parking Supply[1]	(4)	(4)
Total No-Action Capacity	3,728	5,192
Demand		
Existing Demand[2]	3,376	3,292
Demand From Background Growth[3]	173	168
No-Action Demand From Projected Development Sites[4]	24	16
Demand From Other No-Action Developments[5]	24	35
Off-Street Public Parking Deficit[7]	0	0
Total No-Action Demand	3,597	3,511
Utilization		
No-Action Utilization	96%	68%
No-Action On-Street Parking Surplus/(Deficit)	131	1,681

Notes:
[1] Reflects changes in curbside parking regulations associated with the Atlantic Avenue Improvements project and the *Highland Park Traffic Study.*
[2] Based on PHA March 2015 field surveys.
[3] Reflects annual background growth rates of 0.50 percent per year for the 2015 through 2020 period and 0.25 percent for the 2020 through 2030 period.
[4] Includes demand from No-Action developments on projected development sites not otherwise accommodated by on-site accessory parking or in off-street public parking lots.
[5] Includes demand from No-Action developments not on projected development sites. Excludes demand that would be accommodated in the approximately 195 accessory parking spaces that would be developed on these sites, none of which are located in proximity to off-street public parking lots.
[6] Reflects excess demand for off-street public parking, including demand displaced from the existing public parking lot on projected development site 77 in the No-Action condition.
[7] No off-street public parking facilities are located within the parking analysis sub-area.

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

No new off-street public parking spaces would be provided under the Proposed Actions, and development on projected development sites 77 and 79 would displace a total of 232 existing spaces in the two public parking lots currently located on these sites—lots B and C in Table 13-61, respectively. As the 142 parking spaces on projected development site 77 would be similarly displaced in the No-Action condition, there would be a net incremental displacement of 90 parking spaces attributable to the Proposed Actions. As the two displaced public parking lots are only open during daytime hours, there would be no change from the existing off-street public parking capacity in the overnight period in the With-Action condition.

Table 13-64 shows the hourly net incremental change in parking demand for each land use under the Proposed Actions compared to the No-Action condition. The forecast of parking demand generated by the affordable residential component of the Proposed Actions' RWCDS is based on 2008-2012 5-year ACS data on average vehicles per household for affordable units in PUMA[1] 4007, which encompasses a significant portion of the rezoning area. Parking demand from the market rate residential component is similarly derived from ACS data. Parking demands from all other uses are derived from the forecasts of daily auto trips from these uses. Estimates of future parking utilization account for net reductions in demand associated with No-Action land uses displaced from projected development sites under the RWCDS.

As shown in Table 13-64, parking demand generated by the various commercial, retail, and community facility uses that would be developed under the Proposed Actions would typically peak during the midday hours, whereas residential parking demand would typically peak during the overnight period. The net decreases in hotel, auto repair, and warehouse parking demand shown in Table 13-64 reflect net reductions in these land uses within the rezoning area under the With-Action RWCDS. Overall, development associated with the Proposed Actions would generate a total demand of approximately 1,403 parking spaces in the weekday midday (1-2 PM) period and 2,405 spaces in the overnight period. Demand would peak at 2,565 spaces between 7 PM and 8 PM. These net totals should be considered conservative as they do not reflect any credit for parking demand from existing uses on projected development sites that would be eliminated under the With-Action RWCDS.

Under the With-Action RWCDS, it is assumed that up to 2,442 accessory parking spaces would be developed on projected development sites compared to the estimated 1,304 accessory spaces (including 355 spaces from existing uses and 949 spaces from new development) that would be present on projected development sites under the No-Action RWCDS. However, to be conservative it is assumed that accessory parking would be waived for every development site where the number of required spaces would fall below the minimum number specified under zoning. Therefore, the parking analysis reflects the potential development of a total of 2,304 accessory parking spaces under the With-Action RWCDS.

After accounting for new parking demand and the number of required accessory spaces provided on a site-by-site basis under the RWCDS (see Table E-5 in Appendix E), it is estimated that compared to the No-Action condition, incremental parking demand from new development associated with the Proposed Actions would total approximately 245 spaces at off-street public parking facilities and on-street in the weekday midday period and 713 spaces during the overnight period. The net incremental parking demand from projected development within the ¼-mile subarea around sites 46, 66, and 67 would total approximately 192 spaces and 456 spaces during these same periods, respectively.

[1] Public Use Microdata Area.

TABLE 13-64
With-Action RWCDS Net Incremental Weekday Hourly Parking Accumulation by Land Use

	Local Retail	Office	Residential[1]		Hotel[2]	Light Industrial	Restaurant[3]	Auto Repair	Warehouse[4]	FRESH Supermarket[5]	Pre-K & PS/IS School (staff)[6]	Community Facility			Total Demand
			Market Rate	Affordable								Community Center[7]	House of Worship[7]	Medical Office[8]	
12-1 AM	0	0	1,731	769	-95	0	0	0	0	0	0	0	0	0	2,405
1-2	0	0	1,759	781	-95	0	0	0	0	0	0	0	0	0	2,445
2-3	0	0	1,759	781	-95	0	0	0	0	0	0	0	0	0	2,445
3-4	0	0	1,759	781	-95	0	0	0	0	0	0	0	0	0	2,445
4-5	0	0	1,759	781	-95	0	0	0	0	0	0	0	0	0	2,445
5-6	0	0	1,713	757	-95	0	0	0	0	0	0	0	0	0	2,375
6-7	0	0	1,510	632	-95	0	0	0	0	0	0	0	0	0	2,047
7-8	3	9	1,206	438	-91	1	0	-1	-2	1	0	6	1	0	1,571
8-9	3	121	723	145	-86	10	12	-11	-8	1	37	11	2	95	1,055
9-10	22	204	673	141	-80	17	27	-33	-14	1	37	7	2	197	1,201
10-11	49	208	647	148	-73	19	45	-35	-15	1	37	6	2	239	1,278
11-12	71	199	650	156	-68	17	85	-27	-13	2	37	6	5	189	1,309
12-1 PM	77	198	640	153	-63	18	153	-14	-12	2	37	8	5	159	1,361
1-2	77	196	642	155	-82	18	204	-14	-12	1	37	11	5	165	1,403
2-3	81	220	690	194	-78	19	97	-17	-14	1	37	14	6	143	1,393
3-4	77	216	862	304	-82	20	61	-17	-14	1	32	16	7	165	1,648
4-5	63	144	1,098	440	-81	15	27	-5	-11	2	31	13	8	123	1,867
5-6	55	18	1,397	619	-90	3	56	-5	-4	2	0	6	8	106	2,171
6-7	26	1	1,580	722	-91	0	145	-1	-1	3	0	4	8	0	2,396
7-8	16	0	1,664	763	-92	0	205	0	0	1	0	3	5	0	2,565
8-9	6	0	1,736	792	-95	0	121	0	0	1	0	0	2	0	2,563
9-10	0	0	1,744	793	-96	0	38	0	0	0	0	0	0	0	2,479
10-11	0	0	1,711	766	-95	0	0	0	0	0	0	0	0	0	2,382
11-12	0	0	1,703	757	-95	0	0	0	0	0	0	0	0	0	2,365

Notes:

Parking accumulation patterns based on data from 2009 *Broadway Triangle FEIS* unless otherwise noted.

[1] Reflects auto ownership rates of 0.22 autos/household for affordable units and 0.58 for market rate units based on 2008-2012 ACS-PUMS data.

[2] Hotel parking accumulation pattern modified from *Broadway Triangle FEIS* data to reflect the hotel temporal distribution cited in the *CEQR Technical Manual*.

[3] Restaurant parking accumulation pattern based on data from 2005 *Brooklyn Bridge Park EIS*.

[4] Warehouse parking accumulation pattern based on data from 2009 *North Tribeca Rezoning FEIS*.

[5] FRESH supermarket parking accumulation pattern based on data from *The Food Retail Expansion to Support Health (FRESH) Food Store Program* (2009).

[6] Pre-K and PS/IS school staff parking accumulation pattern based on data from the 2011 *Brownsville Ascend Charter School Assessment*.

[7] Community center and house of worship parking accumulation patterns based on data from the 2007 *Jamaica Plan Rezoning FGEIS*.

[8] Medical office parking accumulation pattern based on data provided by NYCDOT.

Off-Street Parking

A comparison of estimated No-Action and With-Action parking demand and capacity at study area off-street public parking facilities is provided in Table 13-65. Under the Proposed Actions, the existing 90-space off-street public parking lot on projected development site 79 would be displaced, and no new public parking capacity would be provided on any projected development site. As noted previously, parking capacity during the overnight period would not be affected as the existing parking lot on site 79 is currently closed during the overnight hours. As the nearest remaining off-street public parking—the Grant Avenue Municipal Parking Field—is located more than ¼-mile from projected development site 79, it is expected that the daytime demand displaced from this existing parking lot would likely park on-street.

TABLE 13-65
With-Action Off-Street Public Parking Capacity, Demand and Utilization

	Weekday Midday	Weekday Overnight[4]
Capacity		
No-Action Capacity[1]	468	75
Capacity Displaced by With-Action Development[2]	(90)	0
Total With-Action Capacity	378	75
Demand		
No-Action Demand	556	47
Incremental Demand from With-Action Developments[3]	(15)	0
Total With-Action Demand	541	47
Utilization		
With-Action Utilization	143%	63%
With-Action Off-Street Parking Surplus/(Deficit)	(163)	28

Notes:
[1] Reflects displacement of existing 142-space public parking lot on projected development site 77 in the No-Action condition.
[2] Reflects displacement of existing 90-space public parking lot on projected development site 79 in the With-Action condition.
[3] Includes demand from projected development sites 2, 6, and 7 which are located within ¼-mile of off-street public parking facilities and would generate demand exceeding the supply of on-site accessory parking. The numbers reflect the net incremental change compared to the No-Action RWCDS.
[4] Only the 75-space public parking lot D is currently open overnight.

As shown in Table 13-65, compared to the No-Action RWCDS, development associated with Proposed Actions would result in a demand for 15 fewer off-street public parking spaces within the overall parking study area in the weekday midday period, resulting in a total midday demand of approximately 541 spaces in the With-Action condition. There would be no net change in demand during the overnight period as there are no projected development sites in proximity to the one off-street public parking lot that is open overnight. Off-street public parking utilization in the weekday midday period is expected to increase to approximately 143 percent of capacity (versus 119 percent in the No-Action), with a total deficit of 163 spaces during this period (versus 88 in the No-Action). These 163 autos would therefore likely need to be accommodated on-street. During the overnight period, utilization is expected to remain at 63 percent of capacity at the one public parking lot open 24-hours (lot D in Table 13-59), with a total of 28 parking spaces remaining available during this period. As noted previously, none of the five existing study area public parking lots are located within the subarea encompassing a ¼-mile radius around projected development sites 46, 66, and 67.

As discussed in Section F, "Transportation Analysis Methodologies," under *CEQR Technical Manual* guidelines, potential significant adverse parking impacts are determined based on the combined availability of both off-street and on-street public parking spaces within a study area, as well as other factors. The ability of the on-street parking supply to accommodate the excess off-street public parking demand in the weekday midday period is assessed below as part of the discussion of on-street parking conditions with the Proposed Actions.

On-Street Parking

As shown in Table 13-66, compared to the No-Action RWCDS, development associated with the Proposed Actions and the displacement of the existing parking lot on site 79 would result in a net increase in study area on-street public parking demand of approximately 335 spaces in the weekday midday period and 713 spaces in the overnight period. On-street parking demand within the overall study area would total approximately 16,144 spaces in the weekday midday and 16,465 spaces in the overnight period. This would include excess demand for off-street public parking that could not be accommodated at the three public parking lots remaining in the study area in the With-Action condition. Overall, on-street parking utilization within a ¼-mile of the rezoning area would increase from 84 percent of capacity in the No-Action condition to 86 percent with the Proposed Actions in the weekday midday period, and from 68 percent of capacity to 71 percent of capacity in the overnight period. A total of approximately 2,707 and 6,761 on-street parking spaces would remain available during these two periods, respectively, within a ¼-mile of the rezoning area in the future with the Proposed Actions.

Within the ¼-mile subarea around projected development sites 46, 66, and 67, development associated with the Proposed Actions would result in a net increase in on-street parking demand of approximately 194 spaces in the weekday midday period and 456 spaces in the overnight period compared to the No-Action RWCDS. As shown in Table 13-66, in the With-Action condition the demand for on-street parking within the subarea is therefore expected to increase to 3,791 spaces in the weekday midday period and 3,967 spaces in the overnight period. Consequently, on-street parking within ¼-mile of projected development sites 46, 66, and 67 is expected to operate over-capacity at 102 percent utilization in the weekday midday (versus 96 percent in the No-Action condition), but would be only 76 percent utilized in the overnight period (versus 68 percent under No-Action conditions). There would be a deficit of approximately 63 on-street parking spaces in the weekday midday period, while 1,125 spaces would remain available within the subarea overnight. Although some drivers destined for locations in proximity to sites 46, 66, and 67 might have to travel a greater distance (i.e., between a ¼-mile and a ½-mile of the sites) to find available parking in the weekday midday, the 63-space shortfall in on-street parking capacity would not be considered a significant adverse impact based on *CEQR Technical Manual* criteria as (1) it would not exceed more than half the available on-street and off-street parking spaces within the subarea (a total of approximately 4,106 spaces in the midday); and (2) the subarea is well served by public transit including three local bus routes and three subway stations on two lines. (Refer to parking impact criteria in Section F, "Transportation Analysis Methodologies.")

In summary, under the Proposed Actions there would be sufficient on-street parking capacity within a ¼-mile of the rezoning area in both the weekday midday and overnight periods to accommodate all new parking demand from projected development along with demand displaced from the existing parking lots on sites 77 and 79. There would also be sufficient on-street parking capacity within the ¼-mile subarea around sites 46, 66, and 67 to accommodate projected overnight demand, although there would be shortfall of 63 spaces in the weekday midday period. While some drivers destined for locations in proximity to sites 46, 66, and 67 would potentially have to travel a greater distance to find available parking in the midday, this shortfall would not be considered a significant adverse impact based on *CEQR Technical Manual* criteria. Therefore, the Proposed Actions are not expected to result in significant adverse parking impacts during the weekday midday peak period for commercial and retail parking demand, nor during the overnight peak period for residential demand.

TABLE 13-66
With-Action On-Street Parking Capacity, Demand and Utilization

Parking Analysis Study Area (1/4-Mile Radius From the Rezoning Area)	Weekday Midday	Weekday Overnight
Capacity		
No-Action Capacity	18,851	23,226
Net Change in With-Action On-Street Parking Supply[1]	0	0
Total With-Action Capacity	18,851	23,226
Demand		
No-Action Demand	15,809	15,752
Incremental Demand From Proposed Actions[2]	335	713
Total With-Action Demand	16,144	16,465
Utilization		
With-Action Utilization	86%	71%
With-Action On-Street Parking Surplus/(Deficit)	2,707	6,761
Parking Analysis Sub-Area (1/4-Mile Radius From the Sites 46, 66, and 67)	**Weekday Midday**	**Weekday Overnight**
Capacity		
No-Action Capacity	3,728	5,192
Net Change in With-Action On-Street Parking Supply[1]	0	0
Total With-Action Capacity	3,728	5,192
Demand		
No-Action Demand	3,597	3,511
Incremental Demand From Proposed Actions[3]	194	456
Total With-Action Demand	3,791	3,967
Utilization		
With-Action Utilization	102%	76%
With-Action On-Street Parking Surplus/(Deficit)	(63)	1,225

Notes:
[1] No changes to on-street parking supply are anticipated as a result of the Proposed Actions.
[2] Includes demand from With-Action developments on projected development sites not otherwise accommodated by on-site accessory parking or in off-street public parking lots, and demand displaced from the existing public parking lot on projected development site 79 in the With-Action condition.
[3] Includes demand from With-Action developments on projected development sites not otherwise accommodated by on-site accessory parking or in off-street public parking lots.