Chapter 14: Transportation

A. INTRODUCTION

This chapter describes the transportation characteristics and potential impacts associated with the Proposed Actions, which involve zoning map and text amendments, City map amendments, and disposition of City-owned property (collectively, the "Proposed Actions") to implement the land use and zoning recommendations of the Gowanus Neighborhood Plan (the "Neighborhood Plan" or "Plan"). The Proposed Actions are intended to facilitate development patterns that meet the long-term vision of a thriving, inclusive, and more resilient Gowanus where existing and future residents and workers can participate in civic, cultural, and economic activities and where a wholly unique resource—the Gowanus Canal—can thrive and play an active role in that equitable and sustainable growth. The area subject to the Proposed Actions (the "Project Area") is generally bounded by Bond, Hoyt, and Smith Streets to the west; 3rd and 4th Avenues to the east, Huntington, 3rd, 7th, and 15th Streets to the south; and Warren, Baltic, and Pacific Streets to the north (see Figure 1-2 in Chapter 1, "Project Description"). The Proposed Actions would affect an approximately 81-block area of the Gowanus neighborhood of Brooklyn Community Districts 2 and 6.

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 2035. 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 by the 2035 analysis year, while potential sites are considered less likely to be developed over the same period. A total of 63 projected development sites were identified and are considered for the purposes of the transportation analyses (see Figure 1-2 in Chapter 1, "Project Description").

Table 14-1 shows the total anticipated No Action and With Action land uses on projected development sites that were considered for the purposes of the transportation analyses. For travel demand forecasting purposes, the amount of community facility, commercial and industrial development on projected development sites shown in **Table 14-1** has been increased by 15 percent compared to what was assumed for the RWCDS in order to estimate gross square footage.

As shown in **Table 14-1**, for the purposes of the transportation analyses it is assumed that the Proposed Actions would facilitate the incremental development of a net total of 8,495 dwelling units (DU), 896,748 square feet (sf) of commercial space, and 298,135 sf of community facility space on the 63 projected development sites (the "Proposed Project"). There would also be a net decrease of 328,418 sf of light industrial space, which includes wholesale/warehousing, storage, and manufacturing uses.

Table 14-1
2035 RWCDS No Action and With Action Land Uses
Assumed for the Transportation Analyses[1]

Land Use	No Action Condition	With Action Condition	Net Increment
Residential			
Residential	815 DU	9,310 DU	8,495 DU
Commercial			
Office	412,213 sf	883,015 sf	470,802 sf
Innovation Economy	0 sf	177,191 sf	177,191 sf
Local Retail	266,675 sf	580,370 sf	313,695 sf
Destination Retail	113,520 sf	23,144 sf	(90,376 sf)
Restaurant	0 sf	61,721 sf	61,721 sf
Supermarket	0 sf	41,400 sf	41,400 sf
Auto-Related	77,685 sf[2]	0 sf	(77,685 sf)
Hotel	54,870 sf 133 rooms	54,870 sf 133 rooms	0 sf 0 rooms
Total Commercial	***924,963 sf***	***1,821,711 sf***	***896,748 sf***
Industrial			
Light Industrial	144,918 sf	88,978 sf	(55,940 sf)
Warehouse	296,858 sf[3]	24,380 sf	(272,478 sf)
Total Industrial	**441,776 sf**	***113,358 sf***	***(328,418 sf)***
Community Facility			
Medical Office	209,553 sf	237,197 sf	27,644 sf
Non-Profit Office	0 sf	71,714 sf	71,714 sf
Public School	0 sf 0 seats	92,000 sf 500 seats	92,000 sf 500 seats
Community Center	27,941 sf	134,718 sf	106,777 sf
Total Community Facility	***237,494 sf***	***535,629 sf***	***298,135 sf***
Park			
Waterfront Park	0 acres	1.5 acres	1.5 acres
Parking			
Parking Spaces	2,156 spaces	1,940 spaces	(216 spaces)

Notes:

1 Numbers reflect a 15 percent increase in community facility, commercial and industrial development compared to the Proposed Actions' RWCDS in order to estimate gross square footage for travel demand forecasting purposes.

2 Excludes a total of 29,676 sf of space associated with vehicle storage in the No Action condition as this space would generate little if any independent travel demand.

3 Includes approximately 143,722 sf of self-storage uses.

This chapter describes in detail the existing transportation conditions in proximity to the Project Area. Future conditions in the year 2035 without the Proposed Actions (the No Action condition) are then determined, including additional transportation system demand and any changes expected by the year 2035. The increase in travel demand resulting from the Proposed Actions is then projected and added to the No Action condition to develop the 2035 future with the Proposed Actions (the With Action condition). Significant adverse impacts from project-generated trips are then identified and described in detail. Chapter 21, "Mitigation," discusses practicable measures to address these impacts.

B. PRINCIPAL CONCLUSIONS

A detailed transportation analysis was conducted and concludes that the Proposed Actions would result, as detailed below, in significant adverse impacts to: a) vehicular traffic at 43 intersections, b) four subway stairs and one fare array at one station, and c) pedestrians at nine sidewalks and five crosswalks.

TRAFFIC

Traffic conditions were evaluated for the weekday 7:45–8:45 a.m., 1:00–2:00 p.m. (midday), 4:30–5:30 p.m., and Saturday 3:00–4:00 p.m. peak hours at 60 intersections in the traffic study area where additional traffic resulting from the Proposed Actions would be most heavily concentrated. As summarized in **Tables 14-2 and 14-3**, the traffic impact analysis indicates the potential for significant adverse impacts at 43 intersections (31 signalized and 12 unsignalized) during one or more analyzed peak hours. Significant adverse impacts were identified to 58 lane groups at 36 intersections during the weekday AM peak hour, 29 lane groups at 23 intersections in the midday peak hour, 58 lane groups at 36 intersections in the PM peak hour, and 41 lane groups at 33 intersections during the Saturday peak hour. Chapter 21, "Mitigation," discusses potential measures to mitigate these significant adverse traffic impacts.

Table 14-2
Number of Impacted Intersections and Lane Groups by Peak Hour

	Peak Hour			
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
Impacted Lane Groups	58	29	58	41
Impacted Intersections	37	23	36	33

TRANSIT

SUBWAY

Subway Stations

The Proposed Actions would generate a net increment of approximately 5,823 and 6,430 new subway trips during the weekday AM and PM commuter peak hours, respectively. The analysis of subway station conditions focuses on four Metropolitan Transportation Authority (MTA) New York City Transit (NYCT) subway stations in proximity to the Project 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 following stations, three of which are served by F and G trains operating on the Culver Line, and one of which is served by R trains operating on the 4th Avenue Line:

- Bergen Street (F/G)
- Carroll Street (F/G)
- Smith-9th Streets (F/G)
- Union Street (R)

Table 14-3
Summary of Significantly Impacted Intersections

	Peak Hour			
Signalized Intersections	**Weekday AM**	**Weekday Midday**	**Weekday PM**	**Saturday**
Court Street & 4th Place	X		X	
Court Street & Hamilton Ave	X			
Smith Street & Union Street	X	X	X	X
Smith Street & 3rd Street	X	X	X	X
Smith Street & 9th Street	X	X		X
Smith Street & Hamilton Ave (WB)	X			X
Hoyt Street & Union Street	X	X	X	X
Bond Street & Baltic Street	X		X	X
Bond Street & Union Street	X		X	X
Bond Street & 3rd Street	X		X	X
Nevins Street & Union Street			X	
3rd Ave & Douglass Street			X	
3rd Ave & Union Street	X	X	X	X
3rd Ave & Carroll Street	X	X	X	X
3rd Ave & 1st Street	X	X	X	X
3rd Ave & 3rd Street	X	X	X	X
3rd Ave & 9th Street	X	X	X	X
3rd Ave & Prospect Ave	X	X	X	X
3rd Ave & 17th Street	X	X	X	
4th Ave & Union Street	X		X	X
4th Ave & Carroll Street				X
4th Ave & 3rd Street	X		X	X
4th Ave & 9th Street	X		X	X
4th Ave & Prospect Ave			X	
4th Ave & 17th Street	X	X	X	X
5th Ave & Union Street	X		X	X
Atlantic Ave & Bond Street	X	X	X	X
Atlantic Ave & Nevins Street	X	X	X	X
Atlantic Ave & Third Ave	X	X	X	X
Atlantic Ave & Fourth Ave	X	X	X	X
Atlantic Ave & Flatbush Ave	X		X	
Unsignalized Intersections				
Court Street & Luquer Street	X		X	X
Smith Street & 4th Place/5th Street	X	X	X	X
Smith Street & Luquer Street	X	X	X	X
Smith Street & Huntington Street	X	X	X	X
Hoyt Street & Sackett Street	X			
Hoyt Street & President Street	X			
Hoyt Street & 3rd Street	X			
Hoyt Street & 4th Street	X	X	X	X
Bond Street & Butler Street	X	X	X	X
Bond Street & Carroll Street	X	X	X	X
Nevins Street & DeGraw Street		X	X	X
Nevins Street & Carroll Street			X	X
Total Impacted Intersections	**37**	**23**	**36**	**33**

X - denotes intersection significantly impacted in peak hour.

As summarized in **Table 14-4**, in the With Action condition, a total of four street stairs and one fare array at the Union Street station would be significantly adversely impacted by project-generated demand in at least one peak hour.

Table 14-4
Summary of Significant Subway Station Impacts

Subway Station	Station Element	Impacted Time Period
Union Street (R)	Street Stair S2/P2	AM
	Street Stair S4/P4	AM
	Street Stair S1/P1	PM
	Street Stair S3/P3	PM
	Fare Array C010	AM

Subway Line Haul

The Project Area is served by 11 NYCT subway routes—the Nos. 2, 3, 4, and 5 trains operating along the Eastern Parkway Line; B and Q trains operating on the Brighton Line; D, N, and R trains operating on the 4th Avenue Line; and F and G trains operating along the Culver Line. The peak direction of travel is typically Manhattan-bound (northbound) in the AM peak hour and Brooklyn-bound (southbound) in the PM peak hour. (G trains are an exception, as they only operate between Brooklyn and Queens and do not enter Manhattan.)

In the With Action condition, northbound F trains are expected to be operating over capacity in the AM peak hour, and would experience an average incremental increase of 13.98 persons/car during this period, greater than the five persons/car *CEQR Technical Manual* impact threshold. As summarized in **Table 14-5**, northbound F service would therefore be considered significantly adversely impacted by the Proposed Actions in the AM peak hour. All other analyzed subway routes are projected to operate below capacity in the peak direction in both the AM and PM peak hours and would therefore not be significant adversely impacted by the Proposed Actions in either period.

Table 14-5
Summary of Significant Subway Line Haul Impacts

Route	Direction	Impacted Time Period
F	NB	AM

BUS

The Project Area is served by a total of 10 local bus routes, nine operated by NYCT and one operated by MTA Bus Company (MTA Bus). These include both local and limited stop (LTD) service on the B41 route, and the limited stop service on the B103 operated by MTA Bus. It is estimated that the Proposed Actions would generate a net total of approximately 399 and 492 incremental bus trips on these routes during the weekday AM and PM peak hours, respectively. Incremental demand is expected to meet or exceed the 50-trip (per direction) *CEQR Technical Manual* analysis threshold in the AM and/or PM peak hour at the maximum load points along three routes—the B37 and B57 operated by NYCT and the B103 LTD operated by MTA Bus. As these routes would continue to operate with available capacity in both the AM and PM peak hours

in the With Action condition, the Proposed Actions are not expected to result in significant adverse impacts to local bus service in either period.

PEDESTRIANS

The Proposed Actions would generate a net increment of approximately 2,801 walk-only trips in the weekday AM peak hour, 5,952 in the weekday midday, and 3,8312 in the weekday PM peak hour. Persons en route to and from subway station entrances and bus stops would add 6,222, 3,452, and 6,922 additional pedestrian trips to Project Area sidewalks and crosswalks during these same periods, respectively. Peak hour pedestrian conditions were evaluated at a total of 217 pedestrian elements where new trips generated by projected developments are expected to be most concentrated. These elements—81 sidewalks, 85 corner areas, and 51 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 14-6**, based on *CEQR Technical Manual* criteria, nine sidewalks and five crosswalks would be significantly adversely impacted by the Proposed Actions in one or more of the analyzed peak hours, and there would be no significant impacts to any corner areas. Chapter 21, "Mitigation," discusses potential measures to mitigate these significant adverse pedestrian impacts.

Table 14-6
Summary of Significant Pedestrian Impacts

Corridor/Intersection	Impacted Element	Peak Hour		
		AM	Midday	PM
Smith Street between 3rd and 4th Streets	East Sidewalk	X		X
Smith Street between 4th and 5th Streets	East Sidewalk	X		X
5th Street between Smith and Hoyt Streets	North Sidewalk		X	
Union Street between Bond Street and the Gowanus Canal	South Sidewalk	X	X	X
Bond Street between 2nd and 3rd Streets	East Sidewalk	X		X
3rd Avenue between Carroll and 1st Streets	West Sidewalk	X	X	X
3rd Street between the Gowanus Canal and Third Ave	North Sidewalk			X
4th Avenue between Union Street and Subway Entrance Stair	East Sidewalk	X		
4th Avenue between Union Street and Subway Entrance Stair	West Sidewalk			X
Smith Street at President Street	North Crosswalk	X		X
3rd Avenue at Union Street	North Crosswalk			X
	South Crosswalk			X
3rd Avenue at Carroll Street	South Crosswalk	X		X
4th Avenue at President Street	East Crosswalk	X		

VEHICULAR AND PEDESTRIAN SAFETY

Under the *Vision Zero Brooklyn Pedestrian Safety Action Plan*, much of the area north of Degraw Street and east of Smith Street is located within a "Priority Area," where safety issues were found to occur systematically at an area-wide level. Court Street and Atlantic, Flatbush, and 4th Avenues are identified as Priority Corridors, and the intersection of Flatbush and Atlantic Avenues is identified as a Priority Intersection.

Crash data for intersections in the traffic and pedestrian study areas were obtained from the New York City Department of Transportation (DOT) for the three-year period between January 1, 2015, and December 31, 2017 (the most recent three-year period for which data are available). During this period, a total of 548 reportable and non-reportable crashes, 128 pedestrian/bicyclist-related injury crashes, and one fatality occurred at analyzed study area intersections.

Under *CEQR Technical Manual* guidance, high crash locations are defined as those with 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurring in any consecutive 12 months of the most recent three-year period for which data are available. A review of the crash data identified two study area intersections as high crash locations. 4th Avenue at Union Street experienced seven pedestrian/bicyclist-related crashes in 2016 and five in 2017, and Hamilton Avenue at Court Street, which experienced five pedestrian/bicycle-related crashes in 2015 (see **Table 14-7**). Improvements to enhance pedestrian and cyclist safety have been implemented at both of these intersections, including high-visibility crosswalks, sidewalk extensions (to reduce pedestrian crossing distance) and a striped bicycle lane (on Court Street). Additional improvements that may warrant consideration at one or both locations could include improved street lighting and modifying the traffic signal timing plan to provide a leading pedestrian interval (LPI).

Table 14-7
High Crash Locations

Intersection	Total Pedestrian/Bicycle Injury Crashes			Total Crashes (Reportable +Non-Reportable)		
	2015	2016	2017	2015	2016	2017
4th Avenue at Union Street	3	7	5	7	17	8
Court Street at Hamilton Avenue	5	0	1	7	4	6

PARKING

The parking analysis documents changes in parking supply and utilization within a study area extending ¼-mile from projected development sites. Within this study area, there are a total of 16 off-street public parking lots and garages of which one is located on a projected development site and would be displaced by new development under the Proposed Actions.

The RWCDS assumes that a total of 1,940 accessory parking spaces would be provided on 24 of the projected development sites under the With Action condition, compared to approximately 2,156 accessory spaces that would be provided under the No Action condition. The total number of accessory spaces in the With Action condition conservatively assumes that up to 30 percent of new residential development would be designated as affordable and would therefore not include accessory parking.

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 2,214 spaces at off-street public parking facilities and on-street in the weekday midday period and 2,221 spaces during the overnight period. In addition, under the Proposed Actions, 120 spaces in one existing public parking facility located on a projected development site would be displaced, and no new public off-street parking capacity would be provided. Based on these changes in parking supply and demand, it is estimated that in the With Action condition there would be deficits of approximately 2,980 spaces of on-street and off-street public parking capacity within ¼-mile of projected development sites in the weekday midday period and 2,838 spaces during the overnight period. These deficits would reflect project demand not otherwise accommodated in accessory or off-street public parking facilities as well as demand displaced from existing parking facilities on projected development sites. While some drivers destined for the Project Area would potentially have to travel a greater distance (e.g., between ¼ and ½-mile) to find available parking in the midday, these shortfalls would not be considered a significant adverse impact based on *CEQR Technical Manual* criteria due to the magnitude of available alternative modes of transportation. 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 *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 Actions. According to the *CEQR Technical Manual*, if a proposed action is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (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 a 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, PM, and Saturday peak hours for the RWCDS. These estimates were then compared to the *CEQR Technical Manual* analysis thresholds to determine if a Level 2 screening and/or quantified operational analyses may be warranted. The travel demand assumptions used for the assessment are described in the following sections along with a detailed forecast of the travel demand that would be generated by the RWCDS.

BACKGROUND

Overall, the Project Area encompasses approximately 81 blocks and includes a total of 63 projected development sites (see Figure 1-2 in Chapter 1, "Project Description"). As shown in **Table 14-1**, under the RWCDS, the Proposed Actions would facilitate the incremental development of a net total of 8,495 DUs, 896,748 sf of commercial space, and 298,135 sf of community facility space on the Proposed Project. There would also be a net decrease of 328,418 sf of light industrial space that includes warehousing, storage and manufacturing uses.

TRANSPORTATION PLANNING FACTORS

The transportation planning factors used to forecast travel demand for the RWCDS land uses are summarized in **Table 14-8**. 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 2014 *City Environmental Quality Review (CEQR) Technical Manual*, factors developed for recent environmental reviews, American Community Survey (ACS) journey-to-work five-year (2013–2017) data, American Association of State Highway and Transportation Officials (AASHTO) Census Transportation Planning Products Program (CTPP) reverse journey-to-work five-year (2012–2016) data, data provided by DOT, 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 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 and Travel Demand Forecast* technical memorandum provided in Appendix G.

TRAVEL DEMAND FORECAST

The net incremental change in person and vehicle trips expected to result from the Proposed Actions by the 2035 analysis year was derived based on the net change in land uses shown in **Table 14-1** and the transportation planning factors shown in **Table 14-8**. **Table 14-9** shows an estimate of the net incremental change in peak hour person trips and vehicle trips (versus the No Action condition) that would occur in 2035 with implementation of the Proposed Actions. As shown in **Table 14-9**, under the RWCDS, the Proposed Actions would generate a net increase of approximately 10,340 person trips in the weekday AM peak hour, 10,204 in the weekday midday, 12,270 in the weekday PM peak hour, and 10,356 in the Saturday 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 1,287, 536, 1,320, and 714 (in and out combined) in the weekday AM, midday, PM, and Saturday peak hours, respectively. Peak hour subway trips would increase by a net total of 5,823, 3,057, 6,430, and 5,274 during these periods, respectively, while bus trips would increase by approximately 399, 395, 492, and 318, respectively. Lastly, walk-only trips would increase by 2,801, 5,952, 3,831, and 3,853 trips during the weekday AM, midday, PM, and Saturday peak hours, respectively.

Table 14-8
Transportation Planning Factors

Land Use:	Local Retail	Office	Residential	Destination Retail	Restaurant	Supermarket	Auto Repair
Trip Generation:	(1)	(1)	(1)	(1)	(9)	(1)	(3)
Weekday	205.0	18.0	8.075	78.2	179.5	175.0	19.42
Saturday	240.0 per 1,000 sf	3.9 per 1,000 sf	9.6 per DU	92.5 per 1,000 sf	195.8 per 1,000 sf	231.0 per 1,000 sf	19.42 per 1,000 sf
Temporal Distribution:	(1)	(1)	(1)	(1)	(9)	(1)	(3)
AM	3.0%	12.0%	10.0%	3.0%	3.0%	5.0%	13.2%
MD	19.0%	15.0%	5.0%	9.0%	13.0%	6.0%	11.0%
PM	10.0%	14.0%	11.0%	9.0%	10.0%	10.0%	14.2%
SAT	10.0%	17.0%	8.0%	11.0%	9.0%	9.0%	10.7%
Modal Splits:	(2)	(24) (4)	(5)	(20)	(3)	(2)	(3)
	All Periods	AM/PM/SAT MD	All Periods	AM/MD/PM SAT	All Periods	AM/MD/PM SAT	All Periods
Auto	11.0%	28.7% 2.0%	10.8%	59.0% 59.0%	30.0%	21.0% 14.0%	85.0%
Taxi	0.0%	4.9% 1.0%	0.4%	3.0% 5.0%	5.0%	3.0% 5.0%	5.0%
Subway/Railroad	3.0%	32.1% 7.0%	74.8%	18.0% 18.0%	15.0%	14.0% 8.0%	1.0%
Bus	2.0%	12.7% 7.0%	2.1%	15.0% 13.0%	15.0%	4.0% 6.0%	1.0%
School Bus	0.0%	0.0% 0.0%	0.0%	0.0% 0.0%	0.0%	0.0% 0.0%	0.0%
Walk/Other	84.0%	21.6% 83.0%	11.9%	5.0% 5.0%	35.0%	58.0% 67.0%	8.0%
Total	100.0%	100.0% 100.0%	100.0%	100.0% 100.0%	100.0%	100.0% 100.0%	100.0%
In/Out Splits:	(3)	(4)	(6)	(8)	(10)	(11,12)	(3)
	In Out	In Out	In Out	In Out	In Out	In Out	In Out
AM	50% 50%	94% 6%	24% 76%	61% 39%	50% 50%	57% 43%	65% 35%
MD	50% 50%	39% 61%	50% 50%	55% 45%	50% 50%	46% 54%	50% 50%
PM	50% 50%	5% 95%	61% 39%	47% 53%	67% 33%	47% 53%	50% 50%
SAT	55% 45%	60% 40%	45% 55%	55% 45%	50% 50%	51% 49%	50% 50%
Vehicle Occupancy:	(3)	(4)	(3,5,7)	(8)	(10)	(2)	(3)
			AM/PM MD/SAT	AM/MD/PM SAT		AM/MD/PM SAT	
Auto	2.00	1.26	1.12 1.57	2.00 2.70	2.20	1.58 1.90	1.30
Taxi	2.00	1.26	1.30 1.82	2.00 2.80	2.30	1.58 1.90	1.30
School Bus							
Truck Trip Generation:	(1)	(1)	(1)	(8)	(10)	(11)	(3)
Weekday	0.35	0.32	0.06	0.35	3.60	0.35	0.89
Saturday	0.04 per 1,000 sf	0.01 per 1,000 sf	0.02 per DU	0.02 per 1,000 sf	3.60 per 1,000 sf	0.04 per 1,000 sf	0.89 per 1,000 sf
Truck Temporal Distribution:	(1)	(1)	(1)	(8)	(10)	(11,12)	(3)
AM	8.0%	10.0%	12.0%	7.7%	0.0%	8.0%	14.0%
MD	11.0%	11.0%	9.0%	11.0%	6.0%	11.0%	9.0%
PM	2.0%	2.0%	2.0%	1.0%	1.0%	2.0%	1.0%
SAT	11.0%	11.0%	9.0%	11.0%	0.0%	11.0%	0.0%
Truck In/Out Splits:	In Out	In Out	In Out	In Out	In Out	In Out	In Out
All Periods	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 14-8 (cont'd)
Transportation Planning Factors

Land Use:	Innovation Economy		Light Industrial		Warehouse	Medical Office	School (Grade K-5 Students)		School Staff	Parents (Grades K-5 Students)	Community Center	Waterfront Park	
Trip Generation:	(13)		(3)		(15)	(16)	(21) (22)		(21)	(22)	(1)	(1)	(1)
Weekday	18.0		14.7		10.4	See note (16)	2.0		2.0	4.0	44.7	44.0	139.0
Saturday	3.9		2.2		3.6	39.0	0.0		0.0	0.0	26.1	62.0	196.0
	per 1,000 sf		per 1,000 sf		per 1,000 sf	per 1,000 sf	per Student		per Staff	per Parents	per 1,000 sf	per acre	per acre
Temporal Distribution:	(13)		(3)		(15)	(16)	(21)		(21)	(21)	(1)	(1)	(1)
AM	12.0%		13.2%		13.2%	11.0%	50.0%		50.0%	50.0%	4.0%	3.0%	3.0%
MD	15.0%		11.0%		11.0%	13.0%	0.0%		0.0%	0.0%	9.0%	5.0%	5.0%
PM	14.0%		14.2%		14.1%	9.0%	5.0%		50.0%	5.0%	5.0%	6.0%	6.0%
SAT	17.0%		10.7%		11.0%	17.0%	0.0%		0.0%	0.0%	9.0%	6.0%	6.0%
Modal Splits:	(13)		(14)	(4)	(14)	(16)	(23)		(14)	(23)	(17)	(18)	(18)
	AM/PM/SAT	MD	AM/PM/SAT	MD	All Periods	All Periods	AM/MD/SAT	PM	All Periods	All Periods	All Periods	All Periods	All Periods
Auto	28.7%	2.0%	32.2%	2.0%	32.2%	24.0%	21.7%	21.7%	32.2%	0.0%	5.0%	20.0%	20.0%
Taxi	4.9%	1.0%	0.8%	1.0%	0.8%	6.0%	0.0%	0.0%	0.8%	0.0%	1.0%	1.0%	1.0%
Subway/Railroad	32.1%	7.0%	40.3%	7.0%	40.3%	59.0%	5.7%	5.7%	40.3%	8.0%	3.0%	12.0%	12.0%
Bus	12.7%	7.0%	8.8%	7.0%	8.8%	9.0%	2.1%	2.1%	8.8%	3.0%	6.0%	11.0%	11.0%
School Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walk/Other	21.6%	83.0%	17.9%	83.0%	17.9%	2.0%	68.5%	68.5%	17.9%	89.0%	85.0%	56.0%	56.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
In/Out Splits:	(13)		(3)		(15)	(16)	(21)		(21)	(21)	(17)	(18,19)	(18,19)
	In	Out	In	Out	In Out	In Out	In	Out	In Out	In Out	In Out	In Out	In Out
AM	94.0%	6%	88%	12%	88% 12%	62% 38%	100%	0%	100% 0%	50% 50%	61% 39%	55% 45%	55% 45%
MD	39.0%	61%	50%	50%	50% 50%	47% 53%	100%	0%	100% 0%	50% 0%	55% 45%	50% 50%	50% 50%
PM	5.0%	95%	12%	88%	12% 88%	35% 65%	0%	100%	0% 100%	50% 50%	29% 71%	45% 55%	45% 55%
SAT	60.0%	40%	47%	53%	50% 50%	49% 51%	100%	0%	100% 0%	50% 0%	49% 51%	50% 50%	50% 50%
Vehicle Occupancy:	(13)		(3)		(15)	(16)	(21)		(21)		(17)	(18)	(18)
Auto	1.26		1.20		1.30	1.50	1.30		1.20	N/A	1.65	2.90	2.90
Taxi	1.26		1.20		1.30	1.50	1.30		1.20	N/A	1.40	3.00	3.00
School Bus							35.0						
Truck Trip Generation:	(13)		(3)		(15)	(3)	(21)				(17)	(18,19)	(18,19)
Weekday	0.32		0.67		0.67	0.29	0.03		N/A	N/A	0.29	0.01	0.01
Saturday	0.01		0.67		0.02	0.29	0.03		N/A	N/A	0.29	0.01	0.01
	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 1,000 sf	per 1,000 sf
Truck Temporal Distribution:	(13)		(3)		(15)	(3)	(21)				(17)	(18,19)	(18,19)
AM	10.0%		14.0%		14.0%	3.0%	9.6%		N/A	N/A	9.6%	6.0%	6.0%
MD	11.0%		9.0%		9.0%	11.0%	11.0%		N/A	N/A	11.0%	6.0%	6.0%
PM	2.0%		1.0%		1.0%	1.0%	1.0%		N/A	N/A	1.0%	1.0%	1.0%
SAT	11.0%		0.0%		9.0%	0.0%	0.0%		N/A	N/A	0.0%	6.0%	6.0%
Truck In/Out Splits:	In	Out	In	Out	In Out	In Out	In	Out	In Out	In Out	In Out	In Out	In Out
All Periods	50.0%	50.0%	50.0%	50.0%	50.0% 50.0%	50% 50%	50.0%	50.0%	N/A N/A	N/A N/A	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%

Notes:

(1) Based on data from the 2020 *City Environmental Quality Review* (CEQR) *Technical Manual* .

(2) Based on NYCDOT mode split and vehicle occupancy survey data.

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

(4) Based on data from the 2016 *25 Kent Avenue EAS* .

Based on American Community Survey journey-to-work 5-Year (2013-2017) data for Brooklyn Census Tracts 39, 71, 75, 77, 117, 119, 121, 129.01, 131, 133, 135, 137, 139 .

(5) 141.

(6) Based on NYCDOT citywide residential survey data.

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

(8) Based on data from the 2017 *East Harlem Rezoning FEIS* .

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

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

(11) Based on data from the 2017 Boulevard at Hylan Plaza Proposal FEIS.

(12) AM data is based on data from the 2014 *Astoria Cove Development FEIS* .

(13) Factors assumed to be similar to those used for the office use.

(14) Based on AASHTO CTPP reverse journey-to-work 5-Year (2012-2016) data for Brooklyn Census Tracts 39, 71, 75, 77, 117, 119, 121, 129.01, 131, 133, 135, 137, 139 and 14

(15) Based on data from the 2010 *Domino Sugar Rezoning FEIS* .

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

(17) Based on data from the 2007 *Jamaica Plan Rezoning FGEIS* .

(18) Based on data from the 2005 *Brooklyn Bridge Park FEIS* .

(19) Assumes Saturday person in/out splits; and truck trip generation rates and temporal distributions are similar to does applied to the weekday midday.

(20) Based on data from the 2017 Industry City Redevelopment FEIS.

(21) Based on data from the 2011 *Brownsville Ascend Charter School Assessment* .

(22) Assumes 5% absentee rate, and a student to parent ratio of 1 to 0.7 based on data from a November 2012 survey conducted at PS 35 in Queens.

(23) Based on data provided by NYCDOT.

(24) Based on NYCDCP ZED mode choice survey data.

Table 14-9
RWCDS Travel Demand Forecast

Land Use:	Local Retail		Office		Residential		Destination Retail		Restaurant		Supermarket		Auto Repair	
Size/Units:	313,695 gsf		542,516 gsf		8,495 DU		-90,376 gsf		61,721 gsf		41,400 gsf		-77,685 gsf	
Peak Hour Trips:														
AM	590		1,184		6,896		-212		340		368		-204	
Midday	3,676		1,472		3,452		-636		1,090		440		-170	
PM	1,942		1,374		7,568		-636		946		728		-218	
Saturday	2,272		372		6,550		-920		928		864		-166	
Person Trips:														
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	33	33	320	18	179	566	-76	-49	54	53	44	32	-115	-65
Taxi	0	0	56	1	3	17	-4	-3	10	10	6	4	-6	-3
Subway	5	5	358	22	1,248	3,925	-22	-15	25	25	30	22	0	0
Bus	3	3	144	8	32	106	-19	-13	24	24	8	6	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	254	254	241	16	196	624	-7	-4	58	57	125	91	-10	-5
Total	295	295	1,119	65	1,658	5,238	-128	-84	171	169	213	155	-131	-73
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	203	203	10	17	188	188	-206	-169	162	162	42	50	-74	-74
Taxi	0	0	2	7	3	3	-11	-8	30	30	6	8	-4	-4
Subway	58	58	44	62	1,300	1,300	-63	-52	83	83	28	32	0	0
Bus	38	38	44	63	33	33	-53	-43	83	83	8	10	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	1,539	1,539	474	749	202	202	-17	-14	187	187	118	138	-7	-7
Total	1,838	1,838	574	898	1,726	1,726	-350	-286	545	545	202	238	-85	-85
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	107	107	17	378	498	324	-176	-199	191	94	72	80	-96	-96
Taxi	0	0	1	64	14	5	-9	-10	32	14	10	12	-5	-5
Subway	33	33	21	423	3,460	2,215	-54	-61	95	46	48	54	0	0
Bus	16	16	8	164	95	59	-45	-50	95	46	14	14	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	815	815	17	281	546	352	-15	-17	224	109	198	226	-8	-8
Total	971	971	64	1,310	4,613	2,955	-299	-337	637	309	342	386	-109	###
SAT	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	137	108	66	46	319	389	-299	-244	141	141	62	58	-73	-73
Taxi	0	0	10	4	5	9	-25	-21	22	22	22	22	-4	-4
Subway	38	34	69	47	2,219	2,707	-92	-74	68	68	36	34	0	0
Bus	23	16	27	18	59	70	-66	-53	68	68	26	26	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	1,056	860	49	36	349	424	-25	-21	165	165	296	282	-6	-6
Total	1,254	1,018	221	151	2,951	3,599	-507	-413	464	464	442	422	-83	-83
Vehicle Trips :														
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	25	25	254	17	163	509	-39	-25	24	23	28	20	-87	-52
Taxi	0	0	46	1	3	17	-3	-2	0	0	4	4	-6	-3
Taxi (Balanced)	0	0	47	47	20	20	-5	-5	0	0	8	8	-9	-9
Truck	0	0	8	8	29	29	-1	-1	0	0	0	0	-4	-4
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25	25	309	72	212	558	-45	-31	24	23	36	28	-100	-65
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	108	108	10	16	123	123	-103	-85	73	73	28	32	-58	-58
Taxi	0	0	2	7	3	3	-6	-4	12	12	4	4	-4	-4
Taxi (Balanced)	0	0	9	9	6	6	-10	-10	24	24	8	8	-8	-8
Truck	3	3	8	8	19	19	-1	-1	8	8	0	0	-2	-2
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	111	111	27	33	148	148	-114	-96	105	105	36	40	-68	-68
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	60	60	16	299	447	292	-88	-100	86	42	46	50	-75	-75
Taxi	0	0	1	49	14	5	-5	-6	13	4	6	8	-5	-5
Taxi (Balanced)	0	0	50	50	19	19	-11	-11	17	17	14	14	-10	-10
Truck	0	0	0	0	1	1	0	0	0	0	0	0	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	60	60	66	349	467	312	-99	-111	103	59	60	64	-85	-85
SAT	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	75	61	52	38	206	250	-111	-91	65	65	32	30	-57	-57
Taxi	0	0	10	4	5	8	-9	-7	9	9	12	12	-4	-4
Taxi (Balanced)	0	0	14	14	13	13	-16	-16	18	18	24	24	-8	-8
Truck	0	0	0	0	3	3	0	0	0	0	0	0	0	0
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	75	61	66	52	222	266	-127	-107	83	83	56	54	-65	-65

Table 14-9 (cont'd)
RWCDS Travel Demand Forecast

Table 14-9 (cont'd)
RWCDS Travel Demand Forecast

Land Use: / Size/Units:	Innovation Economy 177,191 gsf		Light Industrial -55,940 gsf		Warehouse -272,478 gsf		Medical Office 27,644 gsf		School (Grade K-5 Students) 475 students 92,000 gsf		School Staff 44 staff		Parents (Grades K-5 Students) 228 parents		Community Center 106,777 gsf		Passive Waterfront Park 0.75 gsf 32,670 acres		Active Waterfront Park 0.75 gsf 32,670 acres		Total	
Peak Hour Trips:																						
AM	390		-108		-376		300		476		44		456		190		2		4		10,340	
Midday	484		-88		-312		356		0		0		0		432		2		6		10,204	
PM	454		-120		-404		250		48		44		46		240		2		6		12,270	
Saturday	130		-12		-112		184		0		0		0		252		4		10		10,356	
Person Trips:																						
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	107	4	-31	-3	-109	-16	44	27	103	0	14	0	0	0	7	5	0	0	0	0	574	605
Taxi	18	0	-1	0	-2	0	12	8	0	0	0	0	0	0	2	0	0	0	0	0	94	34
Subway	120	5	-39	-5	-131	-19	109	67	27	0	18	0	18	18	5	2	0	0	0	0	1,771	4,052
Bus	51	2	-10	-2	-30	-3	18	8	10	0	4	0	7	7	6	5	0	0	0	0	248	151
School Bus	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	10	0
Walk/Other	80	3	-17	0	-59	-7	4	3	326	0	8	0	203	203	98	60	1	1	2	2	1,503	1,298
Total	376	14	-98	-10	-331	-45	187	113	476	0	44	0	228	228	118	72	1	1	2	2	4,200	6,140
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	2	4	-1	-1	-50	-50	39	45	0	0	0	0	0	0	11	9	0	0	1	1	327	385
Taxi	0	1	0	0	0	0	9	12	0	0	0	0	0	0	2	2	0	0	0	0	37	51
Subway	12	22	-2	-2	-64	-64	97	111	0	0	0	0	0	0	7	7	0	0	0	0	1,500	1,557
Bus	12	22	-3	-3	-15	-15	17	18	0	0	0	0	0	0	14	11	0	0	0	0	178	217
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	163	246	-38	-38	-27	-27	3	5	0	0	0	0	0	0	202	167	1	1	2	2	2,802	3,150
Total	189	295	-44	-44	-156	-156	165	191	0	0	0	0	0	0	236	196	1	1	3	3	4,844	5,360
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	4	124	-4	-36	-16	-114	21	37	0	11	0	14	0	0	5	9	0	0	1	1	624	734
Taxi	0	22	0	-1	0	-2	6	9	0	0	0	0	0	0	0	2	0	0	0	0	49	110
Subway	5	143	-7	-41	-20	-143	51	97	0	3	0	18	2	2	2	5	0	0	0	0	3,636	2,794
Bus	1	60	-2	-9	-4	-32	8	17	0	1	0	4	1	1	5	9	0	0	0	0	192	300
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	3	92	-1	-19	-8	-65	1	3	0	33	0	8	20	20	61	142	1	1	2	2	1,856	1,975
Total	13	441	-14	-106	-48	-356	87	163	0	48	0	44	23	23	73	167	1	1	3	3	6,357	5,913
SAT	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	26	14	-4	-2	-19	-19	23	22	0	0	0	0	0	0	7	7	0	0	1	1	387	448
Taxi	2	0	0	0	0	0	4	4	0	0	0	0	0	0	2	2	0	0	0	0	38	38
Subway	27	19	-3	-1	-22	-22	55	55	0	0	0	0	0	0	5	5	0	0	1	1	2,401	2,873
Bus	6	5	-1	-1	-4	-4	8	10	0	0	0	0	0	0	7	8	0	0	1	1	154	164
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk/Other	19	12	0	0	-11	-11	1	2	0	0	0	0	0	0	104	105	2	2	2	2	2,001	1,852
Total	80	50	-8	-4	-56	-56	91	93	0	0	0	0	0	0	125	127	2	2	5	5	4,981	5,375
Vehicle Trips :																						
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	85	4	-27	-2	-84	-14	27	17	79	79	12	0	N/A	N/A	5	3	0	0	0	0	465	604
Taxi	16	0	-1	0	-2	0	8	5	0	0	0	0	N/A	N/A	2	0	0	0	0	0	67	22
Taxi (Balanced)	16	16	-1	-1	-2	-2	13	13	0	0	0	0	N/A	N/A	2	2	0	0	0	0	89	89
Truck	1	1	-1	-1	-15	-15	0	0	0	0	0	0	N/A	N/A	2	2	0	0	0	0	19	19
School Bus	0	0	0	0	0	0	0	0	1	1	0	0	N/A	N/A	0	0	0	0	0	0	1	1
Total	102	21	-29	-4	-101	-31	40	30	80	80	12	0	N/A	N/A	9	7	0	0	0	0	574	713
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	2	4	-1	-1	-39	-39	26	28	0	0	0	0	N/A	N/A	6	4	0	0	0	0	175	205
Taxi	0	1	0	0	0	0	6	7	0	0	0	0	N/A	N/A	2	2	0	0	0	0	19	28
Taxi (Balanced)	1	1	0	0	0	0	13	13	0	0	0	0	N/A	N/A	4	4	0	0	0	0	47	47
Truck	1	1	-1	-1	-7	-7	1	1	0	0	0	0	N/A	N/A	2	2	0	0	0	0	31	31
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	0	0	0	0
Total	4	6	-2	-2	-46	-46	40	42	0	0	0	0	N/A	N/A	12	10	0	0	0	0	253	283
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	4	98	-3	-30	-14	-89	13	26	8	8	0	12	N/A	N/A	3	4	0	0	0	0	503	597
Taxi	0	20	0	-1	0	-2	5	6	0	0	0	0	N/A	N/A	0	2	0	0	0	0	29	80
Taxi (Balanced)	20	20	-1	-1	-2	-2	11	11	0	0	0	0	N/A	N/A	2	2	0	0	0	0	109	109
Truck	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	0	0	1	1
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	0	0	0	0
Total	24	118	-4	-31	-16	-91	24	37	8	8	0	12	N/A	N/A	5	6	0	0	0	0	613	707
SAT	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	24	13	-4	-2	-17	-17	15	16	0	0	0	0	N/A	N/A	5	5	0	0	0	0	285	311
Taxi	2	0	0	0	0	0	3	2	0	0	0	0	N/A	N/A	2	2	0	0	0	0	30	26
Taxi (Balanced)	2	2	0	0	0	0	5	5	0	0	0	0	N/A	N/A	4	4	0	0	0	0	56	56
Truck	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	0	0	3	3
School Bus	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	0	0	0	0
Total	26	15	-4	-2	-17	-17	20	21	0	0	0	0	N/A	N/A	9	9	0	0	0	0	344	370

Notes:
70% internal and external linkage and pass-by credit applied to local retail use; 0% AM, 25% MD, 15% PM and 15% Saturday credit applied to restaurant use

The Proposed Actions may also generate some commuter rail trips via the Long Island Rail Road (LIRR). However, given that the majority of projected development sites are more than ½-mile from the LIRR's Atlantic Terminal (with some more than a mile away), the majority of these trips would likely start or end on another mode of transit. Therefore, commuter rail trips are conservatively included in the totals for the subway mode in the travel demand forecast shown in **Table 14-9**.

Table 14-10 shows the net incremental change in peak hour vehicle trips (auto, taxi, and truck) that would be generated by each projected development site during the weekday AM, midday, PM, and Saturday peak hours.[1] As shown in **Table 14-10**, Projected Development Site 47 would generate the greatest number of new vehicle trips in the weekday AM and PM peak hours, accounting for approximately 25 percent and 16 percent of the total incremental vehicle trips generated by the Proposed Actions in this period. Projected Development Site 46 would generate the greatest number of new vehicle trips in the weekday midday peak hour, accounting for approximately 20 percent of the total incremental demand in this period, while Projected Development Site 48 would generate the greatest number of new vehicle trips in the Saturday peak hour, accounting for approximately 15 percent of the total vehicle trips this period. Under the RWCDS, there would be net decreases in vehicle trips during one or more peak hours at 23 sites, due to reductions in destination retail, light industrial, warehouse, and auto repair uses in the With Action condition.

Table 14-11 summarizes the number of additional trips that would be generated by the Proposed Actions during the weekday AM, midday, PM, and Saturday 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 would be warranted.

[1] Detailed demand forecasts for each projected development site are provided in the *Transportation Planning Factors and Travel Demand Forecast Technical Memorandum* included in **Appendix G**.

Table 14-10
RWCDS Net Incremental Vehicle Trips by Projected Development Site

	Weekday Peak Hour			Saturday
	AM	MD	PM	Peak Hour
Site 1	-4	10	11	10
Site 2	17	16	17	12
Site 3	7	8	6	7
Site 4	14	15	13	12
Site 5	15	20	16	13
Site 6	0	2	-1	1
Site 7	18	4	15	4
Site 8	-2	-2	-4	-2
Site 9	1	-2	0	0
Site 10	-1	4	-1	3
Site 11	-10	-13	-11	-8
Site 12	30	10	30	17
Site 13	4	-4	5	4
Site 14	10	8	13	8
Site 15	22	19	24	28
Site 16	48	45	46	34
Site 17	12	12	11	4
Site 18	42	22	47	29
Site 19	27	24	38	21
Site 20	-4	-14	23	0
Site 21	-2	8	2	7
Site 22	0	6	18	24
Site 23	5	0	6	2
Site 24	2	12	10	15
Site 25	32	29	49	30
Site 26	28	12	30	11
Site 27	33	55	59	55
Site 28	81	22	85	44
Site 29	91	23	70	15
Site 30	-183	-172	-145	-117

	Weekday Peak Hour			Saturday
	AM	MD	PM	Peak Hour
Site 31	-38	-38	-26	-25
Site 32	2	4	1	3
Site 33	0	2	2	2
Site 34	-3	2	-1	3
Site 35	6	4	9	4
Site 36	6	2	7	4
Site 37	32	19	52	46
Site 38	-6	-4	-5	-6
Site 39	81	102	73	74
Site 40	37	25	48	28
Site 41	150	11	51	-17
Site 42	81	17	88	22
Site 43	12	25	25	23
Site 44	27	12	29	14
Site 45	1	0	2	2
Site 46	165	109	154	93
Site 47	325	90	208	100
Site 48	132	86	130	104
Site 49	-19	-12	-16	-11
Site 50	-52	-80	-41	-56
Site 51	4	4	6	4
Site 52	29	27	46	36
Site 53	-2	0	0	0
Site 54	0	2	2	4
Site 55	-5	-4	-6	-4
Site 56	-21	-18	-21	-16
Site 57	27	2	29	8
Site 58	8	-2	9	4
Site 59	9	-6	13	3
Site 60	2	4	2	3
Site 61	-3	-2	1	2
Site 62	-2	4	1	4
Site 63	-31	-30	-34	-24
Total	**1,287**	**536**	**1,320**	**714**

Table 14-11
Summary of Net Incremental Peak Hour Trips Generated Under the RWCDS

Mode/Description	Trip Type	Weekday AM	Weekday Midday	Weekday PM	Saturday
Auto/Taxi/Truck	vehicle trips	1,287	536	1,320	714
Subway	person trips	5,823	3,057	6,430	5,274
Local Bus	person trips	399	395	492	318
Walk/Other	person trips	2,801	5,952	3,831	3,853

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.

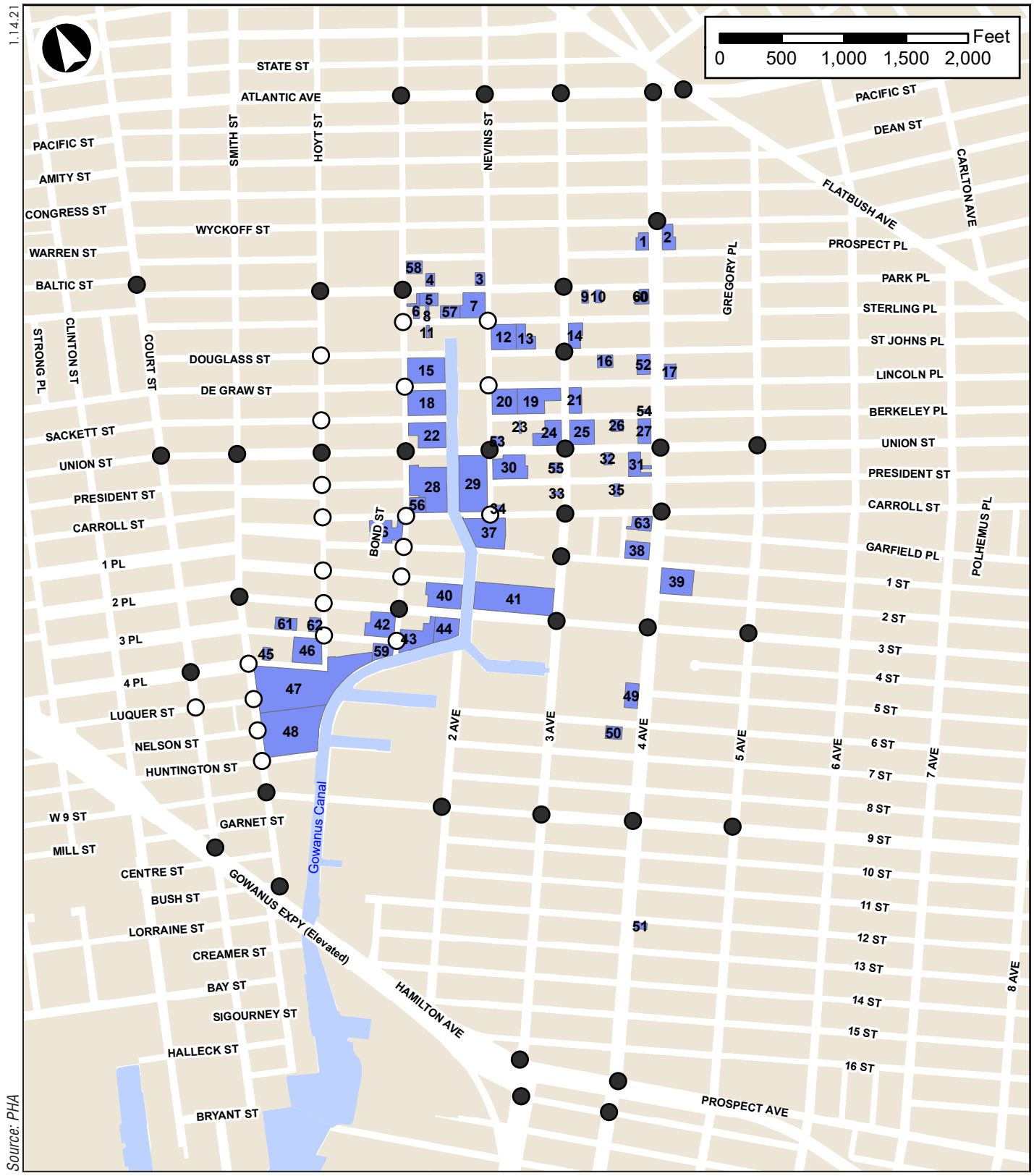
VEHICULAR TRAFFIC

Based on the amount of projected development associated with the Proposed Actions, there would be 1,287 additional vehicle trips during the weekday AM peak hour, 536 during the midday peak hour, 1,320 during the PM peak hour, and 714 during the Saturday peak hour. These traffic volumes would exceed the *CEQR Technical Manual* threshold of 50 peak hour vehicle trips for Level 1 screening and, therefore, a Level 2 screening was performed to help identify intersections for detailed analysis.

The *CEQR Technical Manual* Level 2 screening threshold for detailed analysis is also 50 vehicles, but this threshold applies to individual intersections during the peak hours (rather than total trips generated). Peak hour project increment traffic volumes were first assigned to the Project Area street network to identify the intersections that would potentially exceed the 50-trip threshold during one or more periods. In consultation with the Department of City Planning (DCP), 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 14-1** shows the locations of the 60 intersections (39 signalized and 21 unsignalized) that were selected for detailed analysis. Most of the analyzed intersections are located along north–south corridors providing direct access to projected development sites, including Bond Street and 3rd Avenue (10 intersections each), Hoyt Street (nine intersections), Smith Street and 4th Avenue (eight intersections each), and Nevins Street (five intersections). There are also five analyzed intersections along Court Street, three intersections along 5th Avenue, and one intersection each on 2nd and Flatbush Avenues.

TRANSIT

According to the general thresholds used by the 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



Projected Development Sites

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 14-1

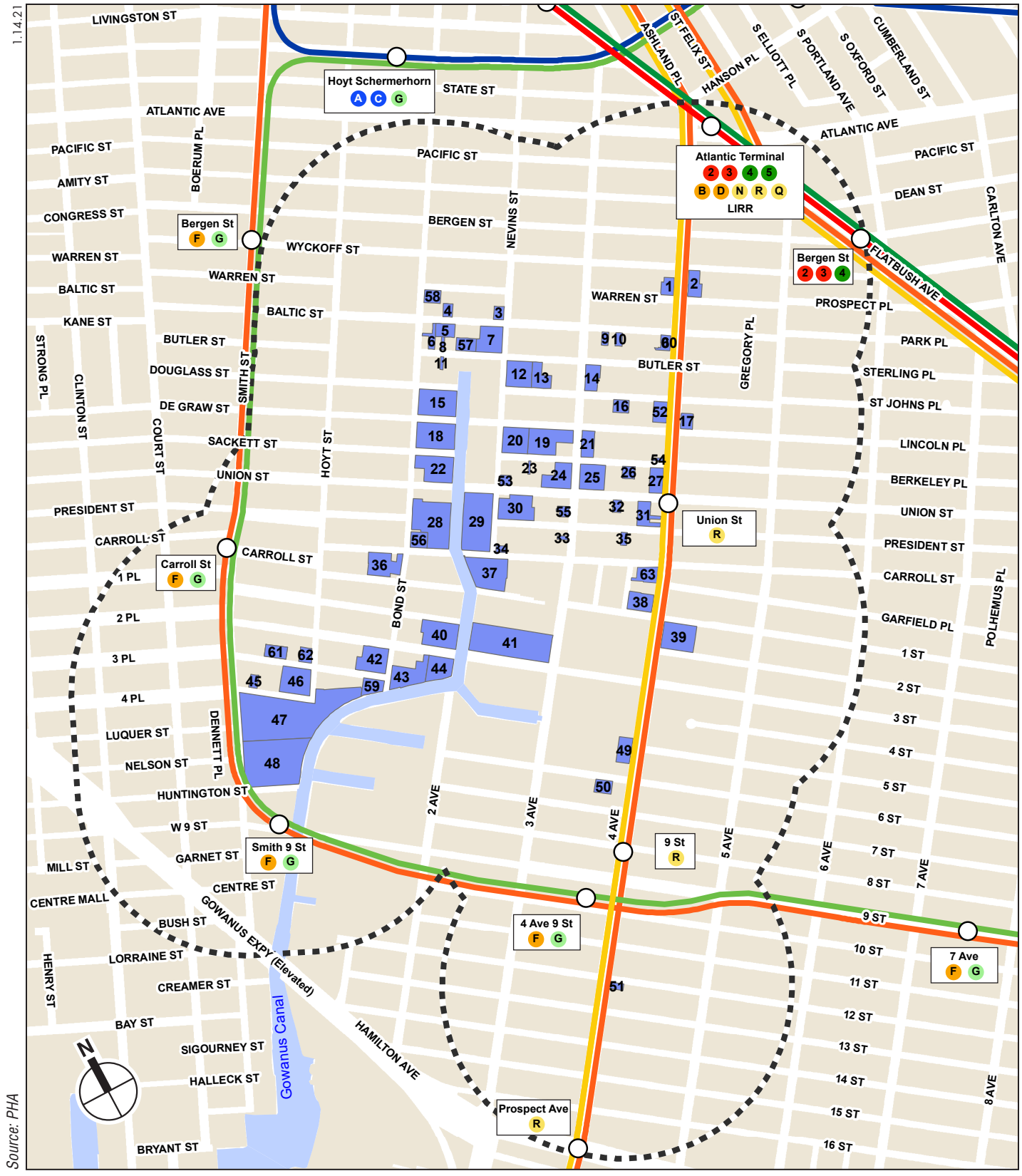
result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed bus or subway analysis would be warranted.

SUBWAY

Subway Stations

There are a total of seven NYCT subway stations or station complexes in proximity to projected development sites that are expected to experience new demand as a result of the Proposed Actions. These stations are presented in **Figure 14-2** and **Table 14-12**, along with the subway routes serving each facility. As shown in **Figure 14-2**, F and G subway trains operating on the Culver Line serve four stations to the west and south of the Project Area. These include the Bergen Street and Carroll Street stations (which are both below-grade beneath Smith Street), the Smith-9th Street station (which is on an elevated structure that crosses the Gowanus Canal), and the 4th Avenue-9th Street station (which is also on an elevated structure). R trains operating on the 4th Avenue Line serve an additional three stations on the eastern edge of the Project Area, all of which are located below-grade beneath 4th Avenue. These include the 4th Avenue-9th Street station, which is connected to the adjacent elevated station on the Culver Line, the Union Street station, and the Atlantic Avenue-Barclays Center station complex. This latter facility, located to the north of the Project Area, is comprised of three interconnected stations, one on the 4th Avenue Line (served by D, N, and R trains), one on the Eastern Parkway Line (served by 2, 3, 4, and 5 trains), and one on the Brighton Line (served by B and Q trains). The complex also incorporates the LIRR's Atlantic Terminal.

As shown in **Table 14-12**, under the RWCDS, the Proposed Actions would generate a net increment of approximately 5,823 and 6,430 subway trips during the weekday AM and PM commuter peak hours, respectively. Trips from each projected development site were assigned to the individual stations serving the Project Area based on their proximity, existing ridership patterns, and guidance from NYCT. **Table 14-12** 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 Project Area. As shown in **Table 14-12**, the highest number of peak hour subway trips are expected to occur at the Carroll Street (F/G) station on the Culver Line, which would experience an estimated 2,633 incremental trips (in and out combined) in the AM peak hour and 2,746 in the PM peak hour. The second highest number of trips would occur at the Union Street (R) station on the 4th Avenue Line, which would experience an estimated 2,168 incremental trips in the AM peak hour and 2,530 in the PM peak hour. The next highest number of trips would occur at the Smith-9th Streets (F/G) station on the Culver Line, which would experience an estimated 610 incremental trips in the AM peak hour and 653 in the PM peak hour. Lastly, the Bergen Street (F/G) station on the Culver Line would experience 286 and 306 trips in the AM and PM peak hours, respectively. All other stations are expected to experience 116 or fewer new trips in both the AM and PM peak hours.



Project Area Subway Stations

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 14-2

Table 14-12
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 Increment Person Trips:	4,200	6,140	10,340	6,357	5,913	12,270
Peak Hour Project Increment Subway Trips:	1,771	4,052	5,823	3,636	2,794	6,430
Subway Station Summary						
Atlantic Avenue-Barclays Center (2/3/4/5/B/D/N/Q/R)	32	72	104	67	49	116
Bergen Street (2/3/4)	10	24	34	26	15	41
Union Street (R)	475	1,693	2,168	1,562	968	2,530
4th Avenue-9th Street (F/G/R)	-54	42	-12	48	-10	38
Bergen Street (F/G)	98	188	286	164	142	306
Carroll Street (F/G)	1,022	1,611	2,633	1,395	1,351	2,746
Smith-9th Streets (F/G)	188	422	610	374	279	653
Total	**1,771**	**4,052**	**5,823**	**3,636**	**2,794**	**6,430**

The analysis of subway station conditions focuses on the four 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 14-12**, these are the Union Street station on the 4th Avenue Line and the Bergen Street, Carroll Street, and Smith-9th Streets station on the Culver Line. 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.

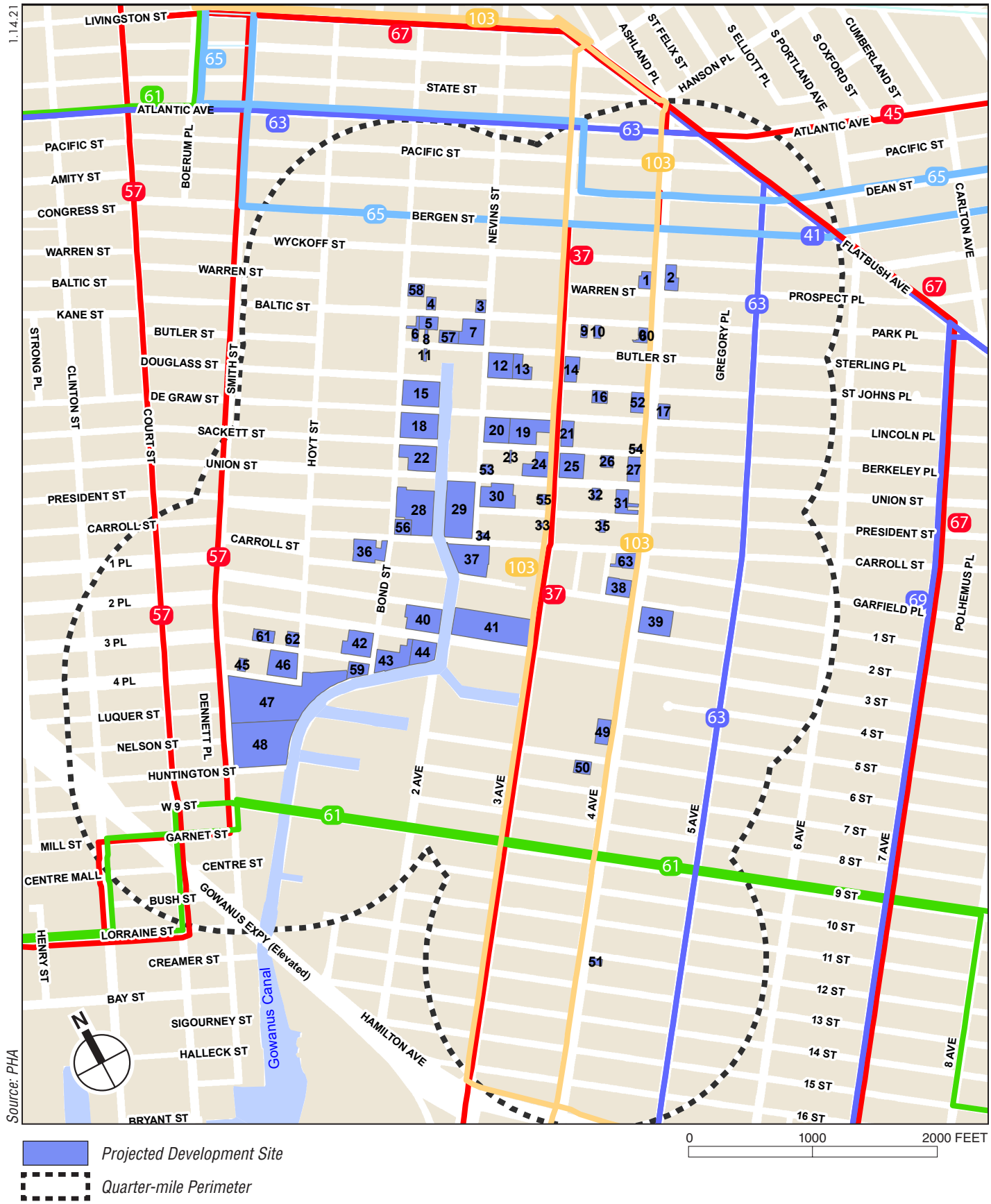
Subway Line Haul

As discussed above, the Project Area is currently served by a total of 11 NYCT subway routes, including the 2, 3, 4, 5, B, D, F, G, N, Q, and R. As the Proposed Actions are expected to generate 200 or more new peak hour subway trips in one direction on one or more of these lines, an analysis of subway line haul conditions is included in the EIS. The analysis uses existing maximum load point subway service and ridership data provided by NYCT to assess existing, future No Action, and future With Action conditions at the peak load points of each analyzed subway line during the weekday AM and PM peak hours.

BUS

A total of 10 local bus services are located within approximately ¼-mile of projected development sites; nine operated by NYCT and one operated by MTA Bus. These include both local and LTD service on the B41 route, and the limited stop service on the B103 operated by MTA Bus. The bus routes operating in proximity to the Project Area are shown in **Figure 14-3** and described in **Table 14-13**.

As shown in **Table 14-11**, projected development sites are expected to generate a total of approximately 399 and 492 incremental trips by local bus during the weekday AM and PM peak hours, respectively. These local bus trips were assigned to each route based on proximity to projected development sites. **Table 14-14** 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



Project Area Bus Routes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 14-3

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 14-14**, three routes are expected to potentially experience 50 or more new trips in one direction in one or both peak hours and are therefore analyzed in this EIS—the B37 and B57 operated by NYCT and the B103 LTD operated by MTA Bus.

Table 14-13
Bus Routes Serving the Project Area

Route	Operating Agency	Route Endpoints	Corridors Served in Proximity to the Rezoning Area
B37	NYCT	Bay Ridge – Boerum Hill	3rd Av
B41	NYCT	Kings Plaza – Downtown Brooklyn	Flatbush Av
B41 LTD	NYCT	Kings Plaza – Downtown Brooklyn	Flatbush Av
B45	NYCT	Downtown Brooklyn – Crown Heights	Atlantic Av/Flatbush Av
B57	NYCT	Red Hook – Maspeth, Queens	Smith St/Court St
B61	NYCT	Park Slope – Downtown Brooklyn	9th St
B63	NYCT	Bay Ridge – Cobble Hill	5th Av
B65	NYCT	Downtown Brooklyn – Crown Heights	Bergen St/Dean St
B67	NYCT	Kensington – Downtown Brooklyn	Flatbush Av/Atlantic Av
B103 LTD	MTA Bus	Canarsie – Downtown Brooklyn	3rd Av/4th Av

Table 14-14
Net Incremental Bus Trips by Route

Route	Direction	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
B37	NB	13	22	35	13	41	**54**
	SB	31	10	41	31	18	49
B41	NB	0	0	0	1	0	1
	SB	0	0	0	1	0	1
B41 LTD	NB	0	0	0	1	0	1
	SB	0	0	0	1	0	1
B45	EB	0	0	0	1	0	1
	WB	0	0	0	1	0	1
B57	EB	16	34	**50**	9	74	**83**
	WB	65	9	**74**	35	18	**53**
B61	NB	11	22	33	5	43	48
	SB	43	6	49	22	11	33
B63	NB	5	7	12	8	14	22
	SB	8	5	13	12	9	21
B65	EB	7	2	9	4	5	9
	WB	5	3	8	3	8	11
B67	NB	0	0	0	1	0	1
	SB	0	0	0	0	0	0
B103 LTD	EB	13	22	35	13	41	**54**
	WB	31	9	40	30	18	48
Total		248	151	399	192	300	492
Note: Bold - denotes greater than 50 incremental trips per direction.							

COMMUTER RAIL

As shown in **Figure 14-2**, the LIRR's Downtown Brooklyn terminus at Atlantic Terminal is located to the north of the Project Area at the intersection of Flatbush and Atlantic Avenues. The Proposed Actions are not expected to generate substantial numbers of trips by the LIRR and, as most projected development sites are not located within a convenient walking distance of Atlantic Terminal, most of these commuter rail trips would likely start or end on another mode of transit (i.e., subway and bus). Therefore, commuter rail trips are conservatively included in the totals for the subway mode for travel demand forecasting purposes.

PEDESTRIANS

Under *CEQR Technical Manual* criteria, detailed pedestrian analyses are generally warranted if a proposed action is projected to result in 200 or more peak hour pedestrians at any sidewalk, corner area, or crosswalk. As shown in **Table 14-9**, the Proposed Actions are expected to generate approximately 2,801 walk-only trips (in and out combined) in the weekday AM peak hour, 5,952 in the midday, 3,831 in the PM, and 3,853 in the Saturday peak hour. Persons en route to and from subway station entrances and bus stops would add approximately 6,222, 3,452, 6,922, and 5,592 additional pedestrian trips to sidewalks and crosswalks in the vicinity of the Project Area 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 and Saturday periods, pedestrian trips would tend to be more dispersed, as people travel throughout the area for lunch, shopping, and/or errands.

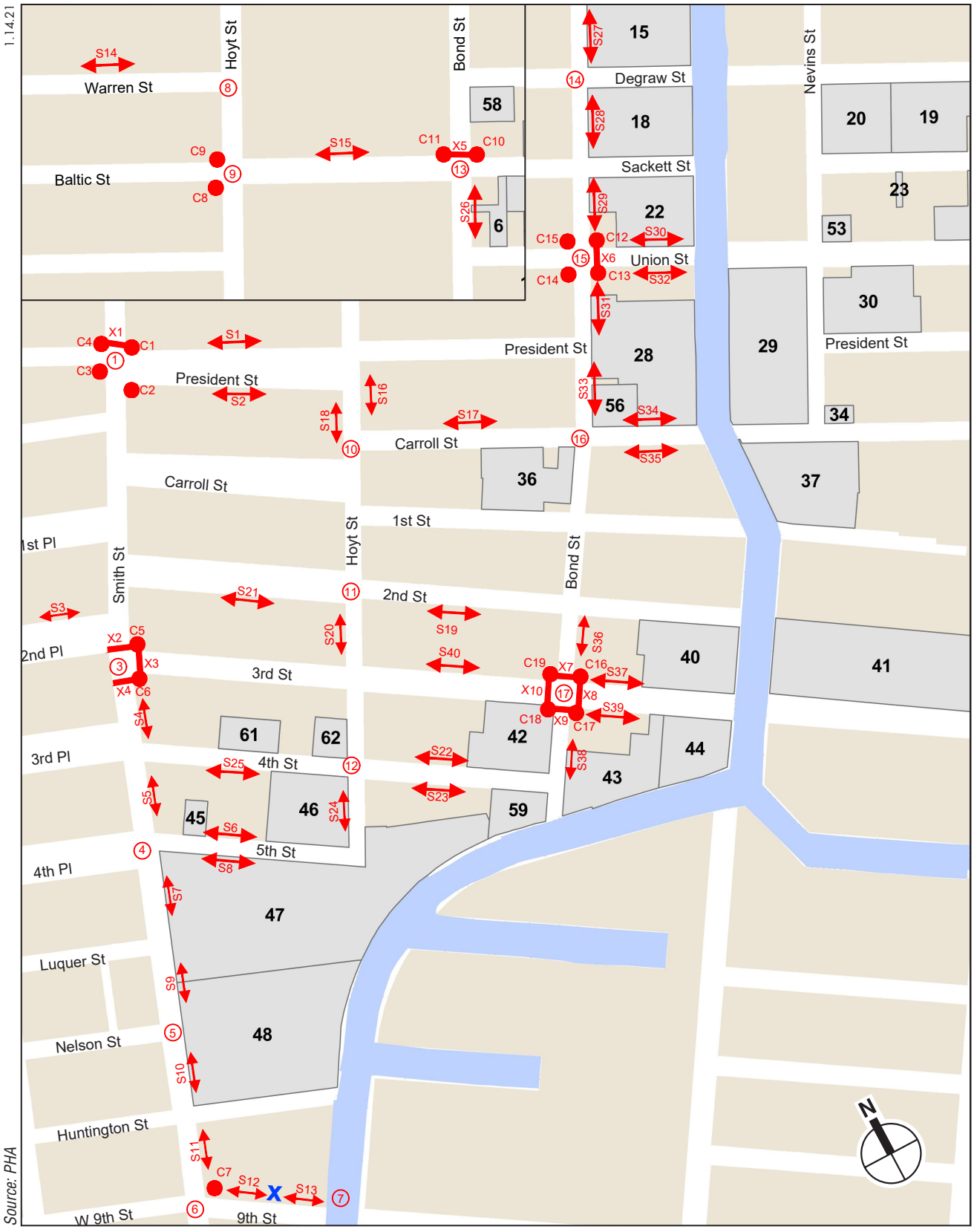
The analysis of pedestrian conditions focuses on representative pedestrian elements where new trips generated by projected developments are expected to be most concentrated. These elements—sidewalks, corner areas, and crosswalks—are primarily located in the vicinity of major projected development sites and along corridors connecting these sites to area subway station entrances and bus routes. As shown in **Figure 14-4**, they include a total of 81 sidewalks, 85 corner areas, and 51 crosswalks primarily located along the Smith Street, Bond Street, 3rd Avenue, and 4th Avenue corridors.

PARKING

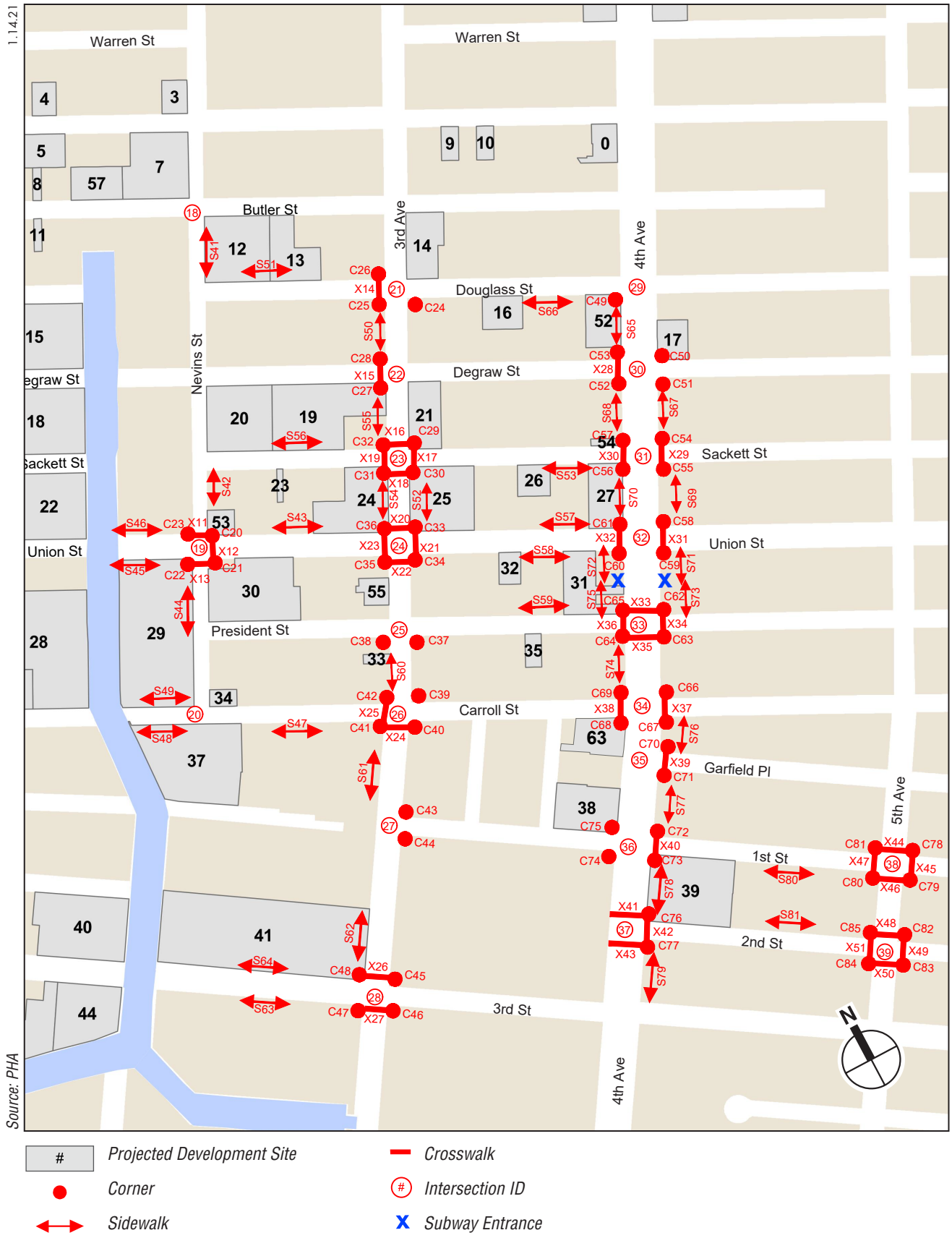
Parking demand from commercial and retail uses typically peaks in the weekday midday period and declines during the afternoon and evening. By contrast, residential demand typically peaks during the overnight period.

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 to document the existing supply and demand during each period.

The parking analysis documents changes in parking supply and utilization under both No Action and With Action conditions within a study area extending ¼-mile from projected development sites. Given that the Project Area extends approximately 1.4 miles north to south, the parking study area has been divided into three subareas. The parking analysis assesses conditions within the parking study area as a whole as well as localized conditions within each of the three subareas.



Analyzed Pedestrian Elements



Analyzed Pedestrian Elements

F. TRANSPORTATION ANALYSES METHODOLOGIES

TRAFFIC

ANALYSIS METHODOLOGY

The traffic analysis examines conditions in the weekday AM, midday, PM, and Saturday peak hours when the increased travel demand attributable to the Proposed Actions is expected to be the greatest. The peak hours selected for analysis are the weekday 7:45–8:45 a.m., 1:00–2:00 p.m. (midday) and 4:30–5:30 p.m. periods, and the 3:00-4:00 p.m. period on Saturday. 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) and were conducted using the Synchro 10 software application. 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 14-15 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 14-15
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*

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 January 2019. The methodology for assessing subway station pedestrian circulation elements (stairs, escalators, and passageways), and fare control elements (regular turnstiles, high entry/exit turnstiles [HEETs], and high exit turnstiles [HXTs]) compares existing and projected pedestrian volumes with the element's design capacity to yield a 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 7:45-8:45 a.m. and 5:30-6:30 p.m. (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 14-16** shows the *CEQR Technical Manual* level of service criteria for all subway station elements. As shown in **Table 14-16**, 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 14-16
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 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.

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 14-17** are reached or exceeded.

Table 14-17
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: 2014 *CEQR Technical Manual*		

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

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 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 Project Area in June 2019. Peak hours were determined by comparing rolling hourly averages, and the highest 15-minute volumes within the selected peak hours were used for analysis. Based on existing peak pedestrian volumes along major corridors in the study area, the peak hours selected for analysis include the weekday 8:00–9:00 a.m., 12:00–1:00 p.m. (midday), and 5:00–6:00 p.m. periods.

Peak 15-minute pedestrian flow conditions during the weekday AM, midday, and PM peak hours are analyzed using *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 14-18** defines the LOS criteria for pedestrian crosswalk/corner area and sidewalk conditions, as based on *Highway Capacity Manual* methodology.

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

Table 14-18
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: 2014 *CEQR Technical Manual*

SIGNIFICANT IMPACT CRITERIA

Sidewalks

The *CEQR Technical Manual* impact criteria for a non-Central Business District (CBD) location are used to identify significant adverse impacts due to the proposed 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 14-19**, 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 14-19**, 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 14-19
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: 2014 *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 14-20** 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 14-20**, 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.

Table 14-20
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: 2014 *CEQR Technical Manual*

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 crash locations. These are defined as locations with 48 or more total reportable and non-reportable crashes or where five or more pedestrian/bicyclist injury crashes have occurred in any consecutive 12 months of the most recent three-year period for which data are available. For these locations, crash trends would be identified to determine whether projected vehicular and

pedestrian traffic would further impact safety, or whether existing unsafe conditions could adversely impact the flow of the projected new trips. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic and pedestrian volumes, crash types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety should be identified and coordinated with 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 curbside spaces—that vehicular traffic destined to the project site or area would likely utilize. According to the *CEQR Technical Manual*, a ¼-mile radius around a project site is generally assumed as the distance that someone driving to the site would be willing to walk. The parking analyses therefore document changes in the parking supply and utilization within a ¼-mile radius of projected development sites. Given that the Project Area extends approximately 1.4 miles north to south, the parking study area has been divided into three subareas. The parking analyses assess conditions within the parking study area as a whole, as well as localized conditions within each of these three subareas under both No Action and With Action conditions.

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—is considered in making this determination.

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 Project Area is located within Zone 2 as shown in Map 16-2, the inability of the Proposed Actions or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant due to the magnitude of available alternative modes of transportation.

G. TRAFFIC

EXISTING CONDITIONS

STUDY AREA STREET NETWORK

As shown in **Figure 14-1**, the Project Area street network is a grid system interrupted by the Gowanus Canal and superblock developments. North–south corridors serving the Project Area include 2nd, 3rd, 4th, 5th, and Flatbush Avenues; and Court, Smith, Hoyt, Bond, and Nevins

Streets. The primary east–west corridors include Atlantic Avenue and the four local streets that cross the Gowanus Canal including Union, 3rd, 9th, and Carroll Streets. To the south of the Project Area are Hamilton Avenue, the elevated Gowanus Expressway and the Prospect Expressway.

The primary arterial within the Project Area, 4th Avenue, provides access between the Bay Ridge neighborhood to the south and Flatbush Avenue in Downtown Brooklyn to the north. Within the Project Area it typically operates with two to three moving lanes plus left-turn bays and parking in each direction. Northbound and southbound traffic is separated by a raised median protecting vents for the subway below. At its northern end, the short block between Flatbush and Atlantic Avenues operates one-way southbound with three moving lanes. Fourth Avenue is a DOT-designated local truck route, and MTA Bus B103 buses traverse the corridor in the southbound direction within the Project Area, as do NYCT B37 buses between Atlantic Avenue and Bergen Street.

Paralleling 4th Avenue to the east and to the west are 5th Avenue and 3rd Avenue, respectively, both of which also operate two-way and connect Bay Ridge with Flatbush Avenue in Downtown Brooklyn. In the vicinity of the Project Area, 5th Avenue typically operates with one moving lane plus curbside parking in each direction, and both moving lanes also function as shared bicycle lanes. NYCT B63 buses operate in both directions along 5th Avenue. Third Avenue typically operates with one moving lane plus curbside parking in each direction to the north of Carroll Street. There is also a striped bicycle lane between the southbound travel lane and the curb lane. To the south of Carroll Street, the roadway widens and the northbound and southbound lanes are separated by a striped median with left-turn bays. South of 3rd Street the roadway configuration changes again to include two northbound travel lanes along with a single southbound travel lane and the bicycle lane.

To the west of the Project Area are the couplet of northbound Smith Street and southbound Court Street. Smith Street runs from the Gowanus Canal to Fulton Street in Downtown Brooklyn, where it becomes Jay Street. In proximity to the Project Area, Smith Street typically operates with one moving lane that also functions as a shared bicycle lane, plus parking along both curbs. North of Atlantic Avenue, the roadway widens and operates with two moving lanes until reaching Schermerhorn Street where it becomes two-way with a single moving lane/shared bicycle lane, plus curbside parking in each direction. Northbound NYCT B57 buses traverse Smith Street north of 9th Street. Court Street runs from Cadman Plaza West in Downtown Brooklyn to the Gowanus Canal. In the vicinity of the Project Area it typically operates with one northbound moving lane plus parking along both curbs. A striped bicycle lane is provided between the moving lane and the parking lane along the east curb as far as Bergen Street where it transitions into a shared lane. At Pacific Street this shared lane transitions again to a striped bicycle lane adjacent to the east curb lane. Southbound NYCT B57 buses operate along Court Street in the vicinity of the Project Area.

Another north–south corridor of note is Flatbush Avenue (which becomes Flatbush Avenue Extension north of Fulton Street). This arterial roadway is located to the north of the Project Area and operates in a generally northwest–southeast direction from the Manhattan Bridge, through Brooklyn, to the Rockaways in Queens. It also serves as a secondary route to the Brooklyn Bridge. In the vicinity of the Project Area it typically operates with two to three moving lanes in each direction, plus left-turn lanes at key intersections. Curbside regulations typically prohibit parking along both sides of Flatbush Avenue, primarily during the peak periods, and left turns

are prohibited at some critical intersections in order to maximize roadway capacity. Flatbush Avenue traverses several complex intersections where one or more intersecting streets cross at oblique angles, a pattern characteristic of much of the downtown area. (The intersection of Flatbush Avenue with Atlantic Avenue is one such example.) Bus routes utilizing Flatbush Avenue in the vicinity of the Project Area include the B41, B45, B63, and B67, operated by NYCT, and the B103, operated by MTA Bus. Flatbush Avenue is a designated Through Truck Route north of Atlantic Avenue.

Other north-south corridors in proximity to the Project Area are discontinuous due to the presence of the Gowanus Canal. These include 2nd Avenue, which extends from the Gowanus Canal south to Hamilton Avenue and typically operates two-way with one moving lane plus curbside parking in each direction; Hoyt Street, which extends from Fulton Street in Downtown Brooklyn to 5th Street at the Gowanus Canal and typically operates with one southbound moving lane, parking along both curbs, and a striped bicycle lane (north of Douglass Street) or a shared bicycle lane (south of Douglass Street); Bond Street, which extends from the Gowanus Canal north to Fulton Street and typically operates with one northbound moving lane, a striped or shared bicycle lane, and parking along one or both curbs; and Nevins Street, which extends from Flatbush Avenue to Carroll Street and typically operates with one southbound moving lane that also functions as a shared bicycle lane south of Degraw Street, plus parking along both curbs.

Atlantic Avenue is the primary east–west arterial in the vicinity of the Project Area. It is located to the north of the Project Area and provides access to the Brooklyn-Queens Expressway (I-278) at its western end. West of 4th Avenue, it typically operates with two travel lanes plus a parking lane in each direction. To the east of 4th Avenue, the roadway widens and includes a raised median. Curbside parking is restricted at several locations during peak periods. NYCT local bus routes operating along Atlantic Avenue in proximity to the Project Area include the B45, B63, and B65, and the corridor is a designated Through Truck Route.

As noted above, four local streets in proximity to the Project Area provide east–west access across the Gowanus Canal. The northernmost of these is Union Street, which extends from the Columbia Street waterfront to Grand Army Plaza. From the waterfront to 3rd Avenue, Union Street operates one-way eastbound with one moving lane, a striped bicycle lane, and parking along both curbs. East of 3rd Avenue, Union Street becomes two-way with one moving lane plus curbside parking in each direction. To the south of Union Street is Carroll Street, which runs eastbound from Hoyt Street to Prospect Park West. A segment of Carroll Street also connects Smith Street to Hoyt Street; however, this segment ends at a T-intersection with Hoyt Street and there is no through access. Carroll Street typically operates with one moving lane plus parking along both curbs.

The next crossing of the Gowanus Canal is at 3rd Street, which operates two-way from Smith Street to 4th Avenue, and then continues one-way eastbound to Prospect Park West. The two-way segment of 3rd Street typically operates with one moving lane and a striped or shared bicycle lane in each direction plus parking along both curbs. To the east of 4th Avenue, the roadway narrows and operates with a single eastbound moving lane, a striped bicycle lane, and parking along both curbs.

Further to the south is the 9th Street/West 9th Street corridor, which extends from Prospect Park West to Columbia Street in Red Hook. From Prospect Park West to 3rd Avenue, the street typically operates two-way, with one moving lane, a striped bicycle lane, and curbside parking in each direction. There is also a striped median, and left-turn lanes are provided at many

intersections. West of 3rd Avenue the roadway narrows, the median ends, and the street typically operates with one moving lane and a striped or shared bicycle lane in each direction. Curbside parking is prohibited along some blocks. At Smith Street the roadway narrows again and becomes West 9th Street, which operates one-way westbound with a single moving lane and curbside parking. A striped bicycle lane occupies the north curb lane until Hamilton Avenue which West 9th Street crosses at an off-set intersection. The segment of 9th Street between 4th and Hamilton Avenues is a designated Local Truck Route, and NYCT B61 buses traverse the corridor east of Court Street.

Other east–west local streets in proximity to the Project Area typically operate one-way with one moving lane plus curbside parking. These streets primarily provide access to adjacent land uses, and many are discontinuous due to the Gowanus Canal.

To the south of the Project Area is Hamilton Avenue, an arterial roadway and designated Local Truck Route that runs between 3rd Avenue in Gowanus and Van Brunt Street in Red Hook. It typically operates with four moving lanes in each direction separated by wide median. Located within this median are support columns for the Gowanus Expressway (I-278), an east–west interstate highway that is carried on an elevated structure above Hamilton Avenue. To the west, the Gowanus Expressway provides access to the Verrazzano-Narrows Bridge and the Belt Parkway, while to the east it becomes the Brooklyn-Queens Expressway and provides access to the Hugh L. Carey (Brooklyn-Battery) Tunnel (I-478). In the vicinity of 3rd Avenue, the Gowanus Expressway also intersects with the Prospect Expressway (NY 27), a limited-access north–south roadway linking central Brooklyn to the Gowanus Expressway and Hugh L. Carey Tunnel. In the vicinity of the Project Area, there is an entrance ramp to the westbound Gowanus Expressway at 3rd Avenue, and an exit ramp from the northbound Prospect Expressway to Hamilton Avenue at 16th Street. Both the Gowanus Expressway and the Prospect Expressway are designated Through Truck Routes.

Bus Routes

MTA bus routes primarily operate along the following study area corridors:

- Court Street (B57)
- Smith Street (B57, B65)
- 3rd Avenue (B37, B103)
- 4th Avenue (B103)
- 5th Avenue (B63)
- Flatbush Avenue (B41, B41, B63, B67, B103)
- Atlantic Avenue (B63, B65)
- Bergen Street (B65)
- 9th Street (B61)

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." Trucks must generally travel on local truck routes to reach the intersection nearest their destinations. In proximity to the Project Area, local truck routes have been designated along 3rd and 4th Avenues, 9th Street, Bergen Street (east of 3rd Avenue), and Hamilton Avenue. Through trucks are defined as having neither an origin nor a destination within the Borough of Brooklyn. Designated through truck routes in proximity to the Project Area include Atlantic Avenue, Flatbush Avenue (north of Atlantic Avenue), and I-278.

Bicycle Lanes

As shown in **Figure 14-5**, streets within the Project Area and its proximity host an extensive network of bicycle lanes, the majority of which are conventional bicycle lanes or shared lanes. A protected bicycle path has also been installed along 9th Street east of 3rd Avenue, and 4th Avenue is a signed bicycle route, as is 2nd Place between Smith and Clinton Streets.

TRAFFIC CONDITIONS

To establish the existing conditions traffic network, an extensive traffic data collection program—including ATR counts, turning movement counts, and vehicle classification counts—was undertaken in May 2019. 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 June 2019. Signal timing plans for signalized intersections within the study area were obtained from DOT. **Figures 14-6 through 14-9** show existing traffic volumes during weekday AM, midday, PM, and Saturday peak hours.

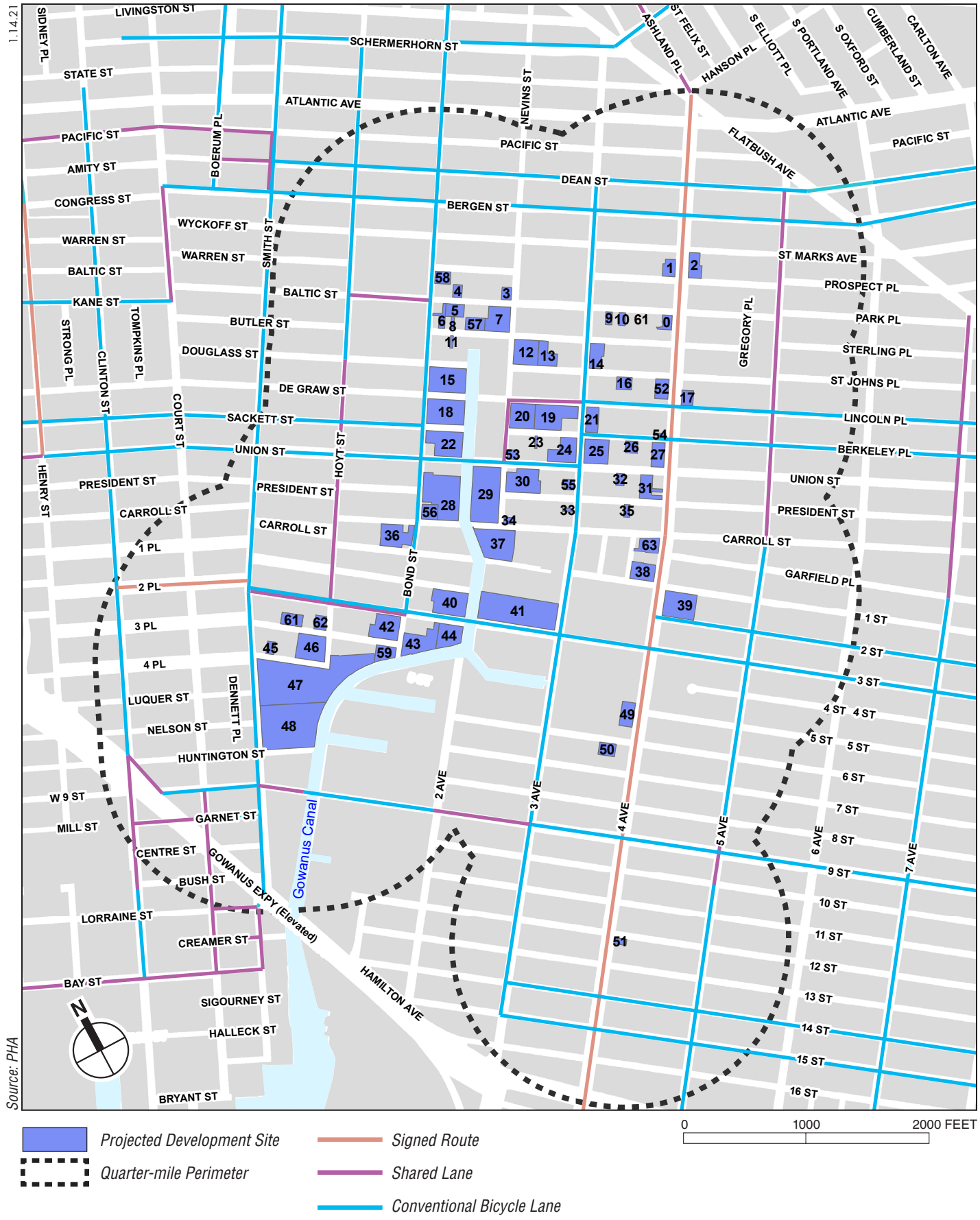
INTERSECTION CAPACITY ANALYSIS

The v/c ratios, delays, and levels of service for the individual lane groups experiencing congestion in one or more peak hours under existing conditions are shown in **Table 14-21**. A lane group is considered congested and is included in **Table 14-21** 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 14-21**, a total of 29 analyzed intersections (27 signalized and two unsignalized) currently have at least one congested lane group in one or more peak hours. Third Avenue has the greatest number of congested locations (nine intersections), followed by 4th Avenue (six intersections) and Smith Street and Atlantic Avenue (five intersections each). A total of seven intersections currently have one or more lane groups operating at or over capacity (v/c ratio $\geq$ 1.0) in the weekday AM peak hour, one in the midday, six in the PM, and 12 in the Saturday peak hour. Overall, the data in **Table 14-21** indicate that congestion at analyzed intersections is most evident during the weekday commuter peak periods and the Saturday peak period, and least evident during the weekday midday period. 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 G-1 in Appendix G.

THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO ACTION CONDITION)

CHANGES TO THE STUDY AREA STREET NETWORK

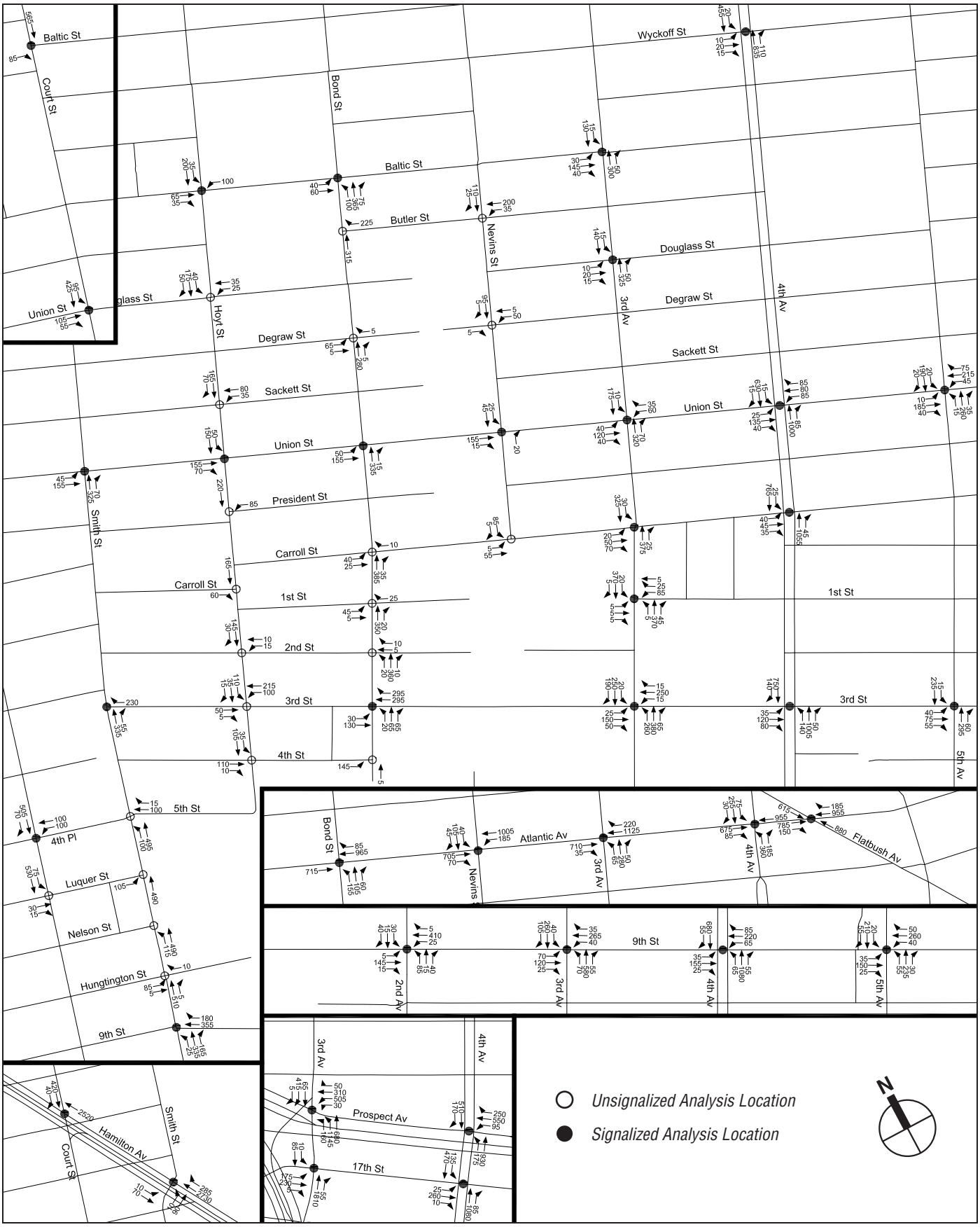
The 2019 through 2035 period will likely see the implementation of a number of physical and operational changes to the study area street system associated with DOT's 4th Avenue Safety Improvements project and the Brooklyn Waterfront Greenway project. Also considered were operational changes associated with No Action developments. Planned physical and operational changes that are reflected in the No Action traffic network are discussed below.



Study Area Bicycle Network

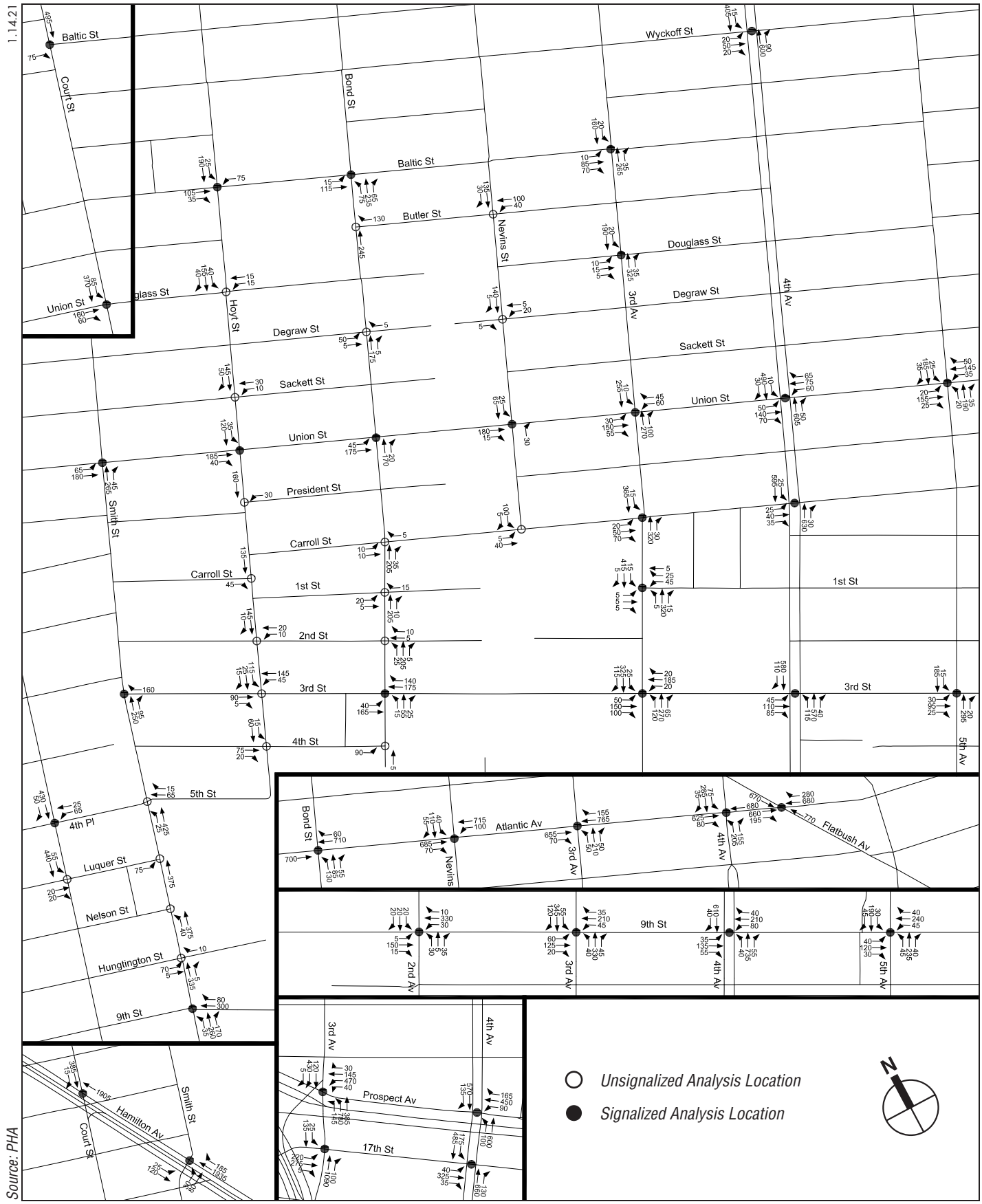
GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 14-5

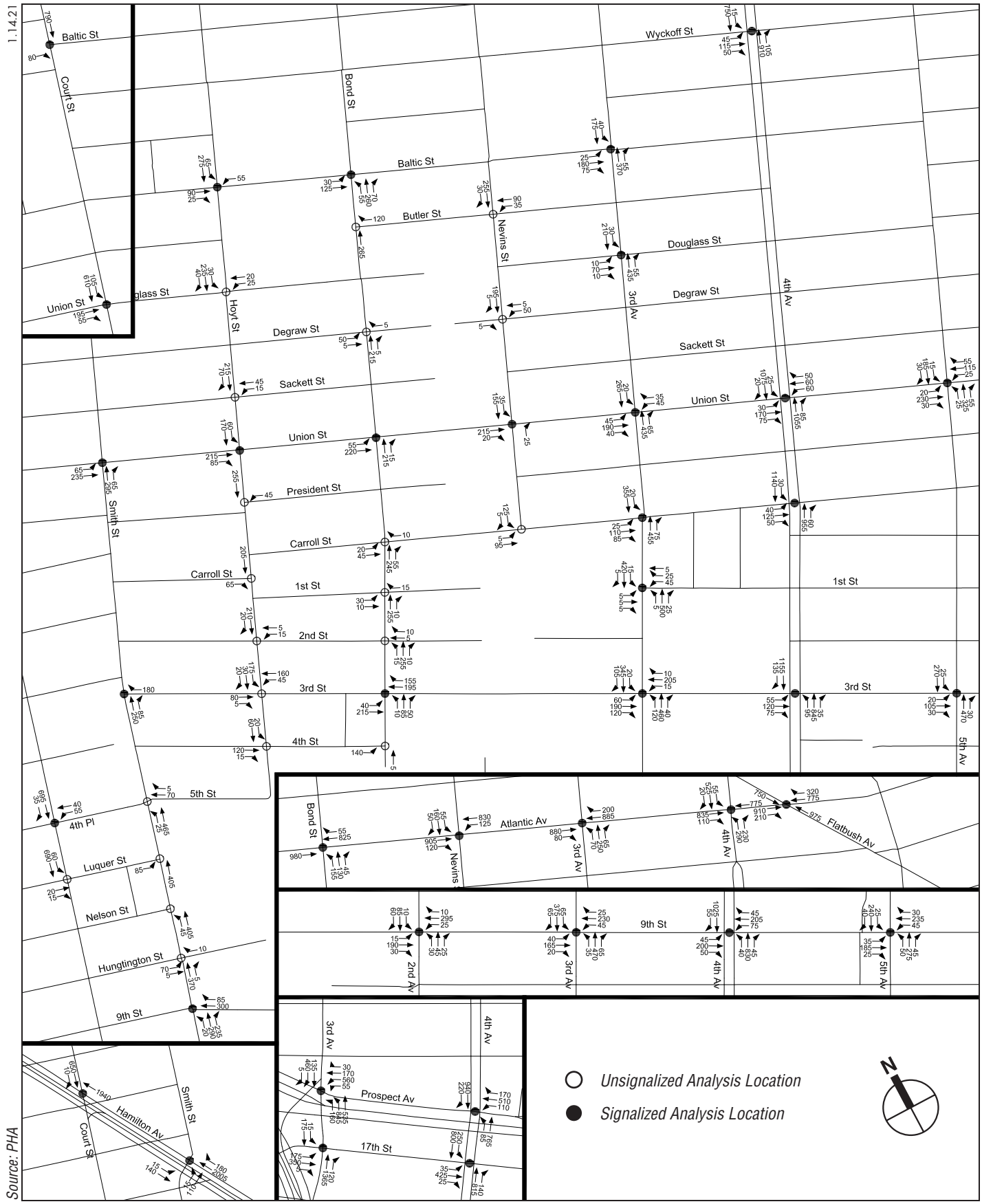


Existing AM Peak Hour Traffic Volumes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS **Figure 14-6**

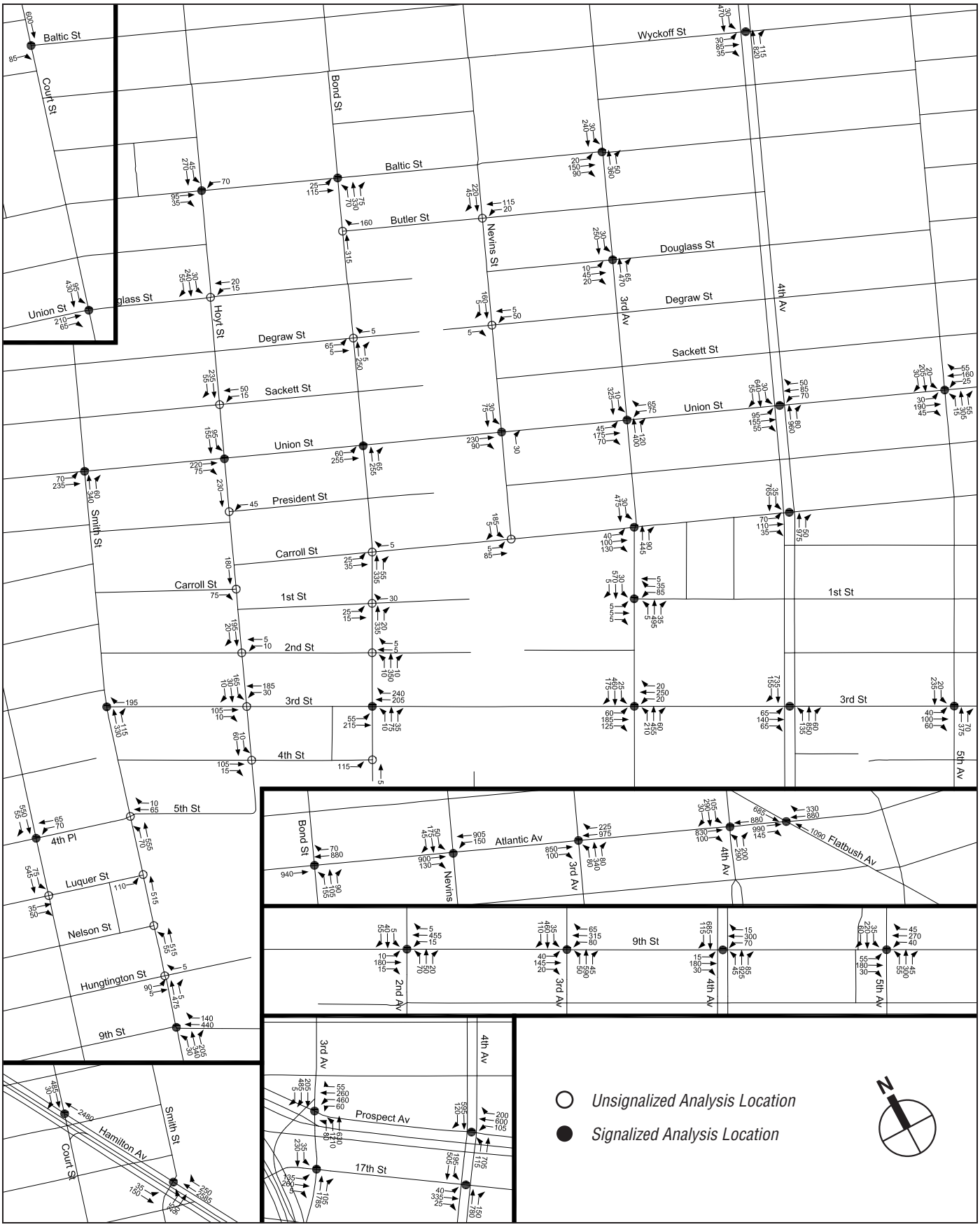


Existing Midday Peak Hour Traffic Volumes



Existing PM Peak Hour Traffic Volumes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS **Figure 14-8**



Source: PHA

1.14.21

Existing Saturday Peak Hour Traffic Volumes

Table 14-21
Congested Lane Groups at Analyzed Intersections Under Existing Conditions

Intersection	Approach	Lane Group	Existing AM v/c Ratio	Existing AM Delay (sec/veh)	Existing AM LOS	Existing Midday v/c Ratio	Existing Midday Delay (sec/veh)	Existing Midday LOS	Existing PM v/c Ratio	Existing PM Delay (sec/veh)	Existing PM LOS	Existing Saturday v/c Ratio	Existing Saturday Delay (sec/veh)	Existing Saturday LOS
Smith St & Union St	NB	TR	0.96	50.6	D							1.01	62.5	E
Smith St & 3rd St	WB	R	0.91	53.2	D									
	NB	TR										1.01	56.7	E
Smith St & Hamilton Ave WB	EB	L	0.70	78.9	E	0.79	76.0	E	0.83	79.9	E	0.91	91.0	F
	WB	TR	0.92	28.6	C									
Hoyt St & Union St	EB	TR	0.90	52.1	D				1.04	75.4	E	1.02	73.1	E
Bond St & Union St	EB	LT										0.90	26.2	C
Bond St & 3rd St	WB	TR	0.99	46.1	D									
3rd Ave & Baltic St	EB	LTR							0.62	69.8	E	0.57	67.1	E
3rd Ave & Douglass St	EB	LTR				0.13	58.5	E	0.34	80.1	F	0.24	69.8	E
3rd Ave & Union St	EB	LTR	0.77	91.3	F	0.88	92.0	F	1.05	156.0	F	1.05	153.9	F
	WB	LR	0.52	59.0	E	0.71	80.4	F	0.72	81.0	F	1.05	157.7	F
3rd Ave & Carroll St	EB	LTR	0.65	95.3	F	0.53	64.0	E	0.88	117.5	F	0.99	134.3	F
3rd Ave & 1st St/Driveway	EB	LTR	0.06	72.6	E				0.06	72.6	E	0.05	64.9	E
	WB	LTR	0.67	100.2	F	0.36	59.0	E	0.39	82.8	F	0.52	80.9	F
3rd Ave & 3rd St	EB	L	0.34	87.2	F	0.37	59.1	E	0.43	78.7	E	0.43	78.8	E
	EB	TR	0.72	99.4	F	0.78	76.4	E	0.98	128.4	F	1.05	147.3	F
	WB	LTR	1.05	154.3	F	0.76	75.5	E	0.91	114.1	F	1.05	101.3	F
	NB	L	0.85	56.6	E							1.05	123.0	F
3rd Ave & 9th St	EB	L	0.75	80.7	F									
	WB	TR	0.96	86.5	F	0.78	55.9	E	0.88	72.9	E	0.97	81.5	F
3rd Ave & Prospect Ave	WB	L	0.86	64.2	E				0.95	75.9	E	0.75	56.6	E
	WB	LT	1.05	115.6	F							0.73	61.5	E
	NB	LT							0.80	56.1	E	0.99	51.3	D
	SB (On-Ramp)	TR	0.95	82.3	F	0.82	56.3	E						
3rd Ave & 17th St	EB	LTR	0.73	58.5	E	0.83	62.7	E	0.80	59.1	E	0.69	57.4	E
	SB	L							0.06	85.9	F			
4th Ave & Union St	EB	LTR	0.84	56.5	E				0.99	85.5	F			
	WB	LTR	1.05	108.7	F				0.84	68.4	E			
4th Ave & Carroll St	EB	LTR							0.77	59.9	E			
	NB	TR										1.05	77.1	E
	SB	L										0.84	118.3	F
4th Ave & 3rd St	EB	LTR	0.87	62.4	E				1.00	81.3	F			
	NB	TR	0.93	31.8	C									
	SB	TR							0.90	31.4	C			
4th Ave & 9th St	EB	LT	0.83	63.9	E				0.93	75.1	E			
	NB	TR	0.98	45.6	D									
	SB	TR							0.93	43.6	D			
4th Ave & Prospect Ave	WB	LTR	1.02	76.1	E				1.05	91.3	F	0.95	62.5	E
4th Ave & 17th St	EB	LTR				0.92	58.6	E						
	NB	T				0.90	48.5	D						
5th Ave & 3rd St	EB	LTR										0.88	60.0	E
Atlantic Ave & Bond St	NB	LTR	1.04	94.8	F	1.01	84.5	F	1.05	101.8	F	1.05	102.2	F
Atlantic Ave & Nevins St	EB	TR							0.91	19.0	B	0.90	21.3	C
	WB	LT	1.05	44.0	D				1.05	68.6	E	1.05	62.0	E
	SB	TR							0.80	59.6	E	0.81	60.1	E
Atlantic Ave & 3rd Ave	WB	T	1.01	36.4	D									
Atlantic Ave & 4th Ave	NB	L	0.96	92.1	F				0.89	76.9	E	0.83	64.9	E
	NB	LR	0.98	106.2	F				0.90	89.8	F	0.77	71.0	E
	SB	LT	0.85	61.6	E									
Atlantic Ave & Flatbush Ave	WB	R				0.96	77.2	E	1.02	93.9	F	1.05	102.9	F
Smith St & 4th Pl/5th St	WB	TR	0.76	67.0	F									
Smith St & Luquer St	EB	L	0.66	52.3	F									

4th Avenue Safety Improvements

Building on the success of safety improvements implemented along 4th Avenue in 2012, DOT is planning additional capital improvements along the corridor that are expected to provide pedestrian refuge islands at intersections, shorter pedestrian crossings, improved visibility between pedestrians and motorists, and parking-protected bike lanes. Streetscape beautification measures are also to be included. Planned improvements reflected in the No Action traffic analysis include changes to lane striping and median configurations at the analyzed 9th Street, 17th Street, and Prospect Avenue intersections, and changes to signal timing at the 9th Street intersection.[2]

Brooklyn Waterfront Greenway

The Brooklyn Waterfront Greenway is a planned 14-mile pedestrian and bicycle route connecting communities along Brooklyn's waterfront. Separate paths for bicycles and pedestrians will be provided from Newtown Creek in north Brooklyn to the beginning of the Shore Parkway Greenway in Bay Ridge, creating a full 27-mile greenway along Brooklyn's waterfront. Planned signal timing changes at the Smith Street/Hamilton Avenue intersection associated with the Brooklyn Waterfront Greenway project are reflected in the No Action traffic analysis.

FUTURE NO ACTION TRAFFIC GROWTH

Between 2019 and 2035, it is expected that transportation demands in the vicinity of the Project 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 592 dwelling units, 573,142 sf of commercial uses,[3] 81,534 sf of warehouse uses,[4] and 228,494 sf of community facility uses. It is also expected that there would be a net decrease of 44,364 sf light industrial uses. As discussed previously, these numbers reflect a 15 percent increase in community facility, commercial and industrial development compared to the Proposed Actions' RWCDS in order to estimate gross square footage for travel demand forecasting purposes.

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 2-9 in Chapter 2, "Land Use, Zoning, and Public Policy," were considered. The Future No Action traffic volumes also reflect annual background growth rates of 0.5 percent per year for the 2019 through 2024 period and 0.25 percent for the 2024 through 2035 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 2-9, and general increases in travel demand not attributable to specific

[2] While improvements are also anticipated at additional analyzed intersections along the corridor as part of a later phase of this DOT project, they are not reflected in the analyses of future conditions as plans for the specific improvement measures were not yet finalized at the time of publication of the DEIS.

[3] Commercial total excludes a net decrease of 13,420 sf of space associated with vehicle storage as this space would generate little if any independent travel demand.

[4] Reflects a net decrease of 62,188 sf of warehouse space and a net increase of 143,722 sf of self-storage space.

development projects. **Figures 14-10 through 14-13** show total No Action traffic volumes during weekday AM, midday, PM, and Saturday peak hours.

INTERSECTION CAPACITY ANALYSIS

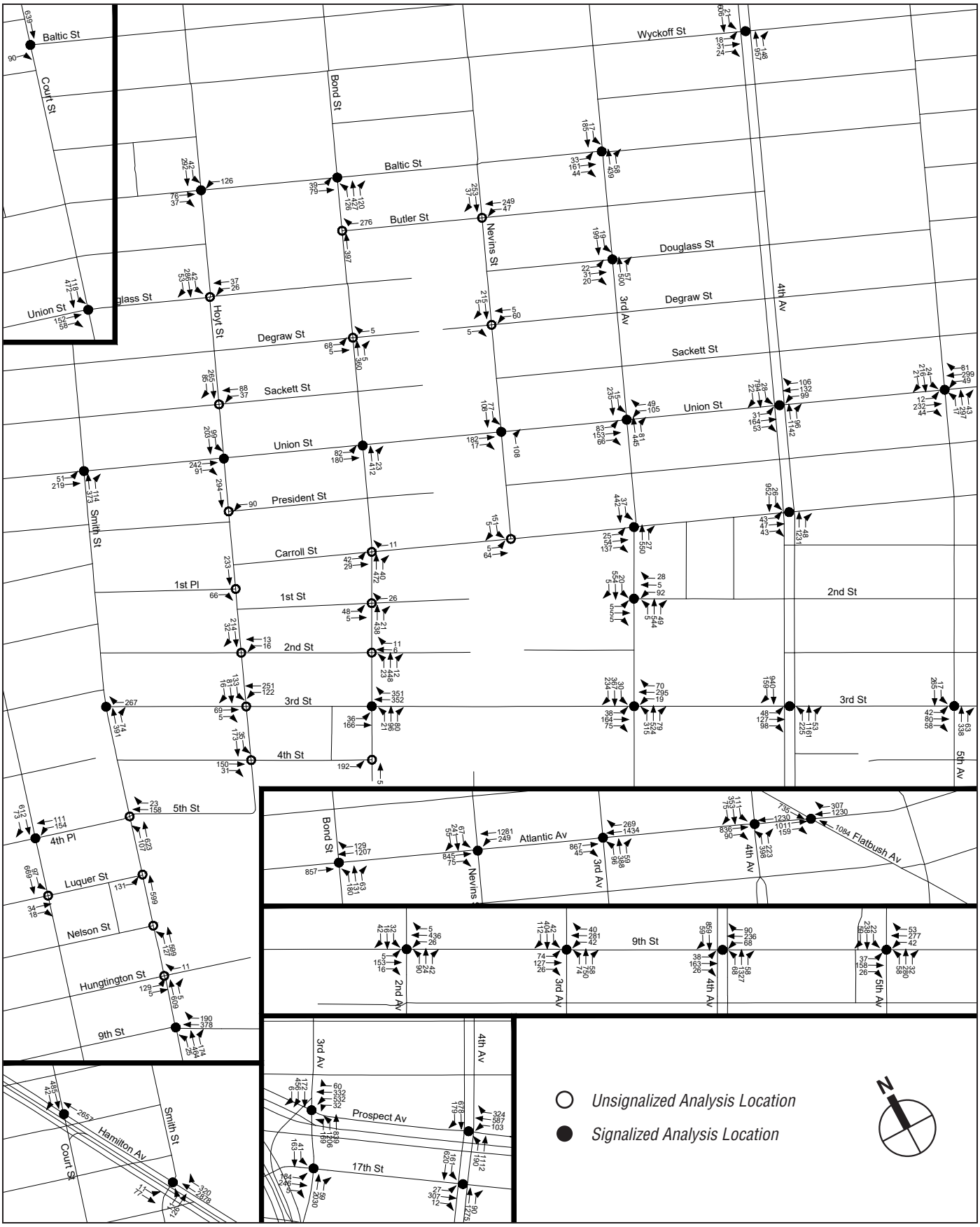
The v/c ratios, delays, and levels of service for those individual lane groups experiencing congestion in one or more peak hours under No Action conditions are shown in **Tables 14-22 through 14-25**. As shown in **Tables 14-22 through 14-25**, a total of 39 intersections (34 signalized and five unsignalized) would have at least one congested lane group in one or more peak hours in the No Action condition, compared to 29 intersections (27 signalized and two unsignalized) under existing conditions. Third Avenue would continue to have the most congested intersections with nine (the same as under existing conditions), followed by 4th Avenue and Smith Street with seven intersections each (compared to six and five, respectively, under existing conditions), and Atlantic Avenue with five intersections (unchanged from existing conditions). A total of 24 intersections would have one or more lane groups operating at or over capacity (v/c > 1.0) in the weekday AM peak hour, nine in the midday, 18 in the PM, and 19 in the Saturday peak hour. This compares to 7, 0, 6, and 12 intersections operating at or over 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 G-2 in Appendix G.

THE FUTURE WITH THE PROPOSED ACTIONS (WITH ACTION CONDITIONS)

CHANGES TO THE STUDY AREA STREET NETWORK

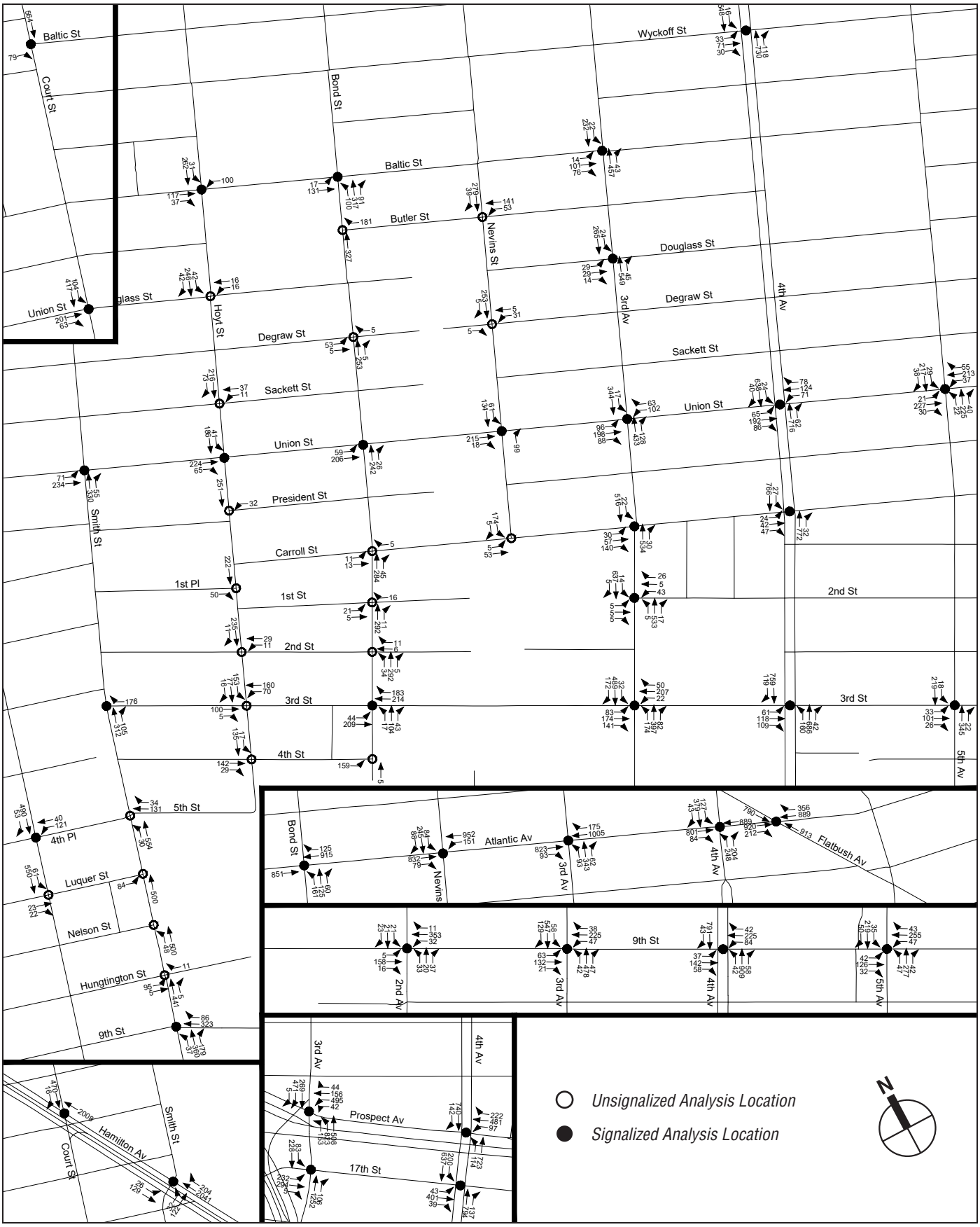
As discussed in Chapter 1, Project Description," the Proposed Actions would include the mapping of new public streets to coordinate private and public improvements and to provide access to new mixed-use developments and neighborhood open space. As shown in **Figure 14-14**, these new public streets would include an extension of Hoyt Street south to intersect a new eastward extension of Nelson Street and an extension of Luquer Street to the east to intersect the new extension of Hoyt Street. For traffic analysis purposes it is assumed that operation of these new street segments would be consistent with the existing street network; i.e., that the new segment of Hoyt Street would operate one-way southbound, and that the new segments of Luquer and Nelson streets would operate one-way eastbound and westbound, respectively.

In addition to the mapping of new streets, it is also anticipated that under the Proposed Actions, the segment of 7th Street between Smith Street and the Gowanus Canal would be demapped. This mapped street segment is not currently used by through traffic.

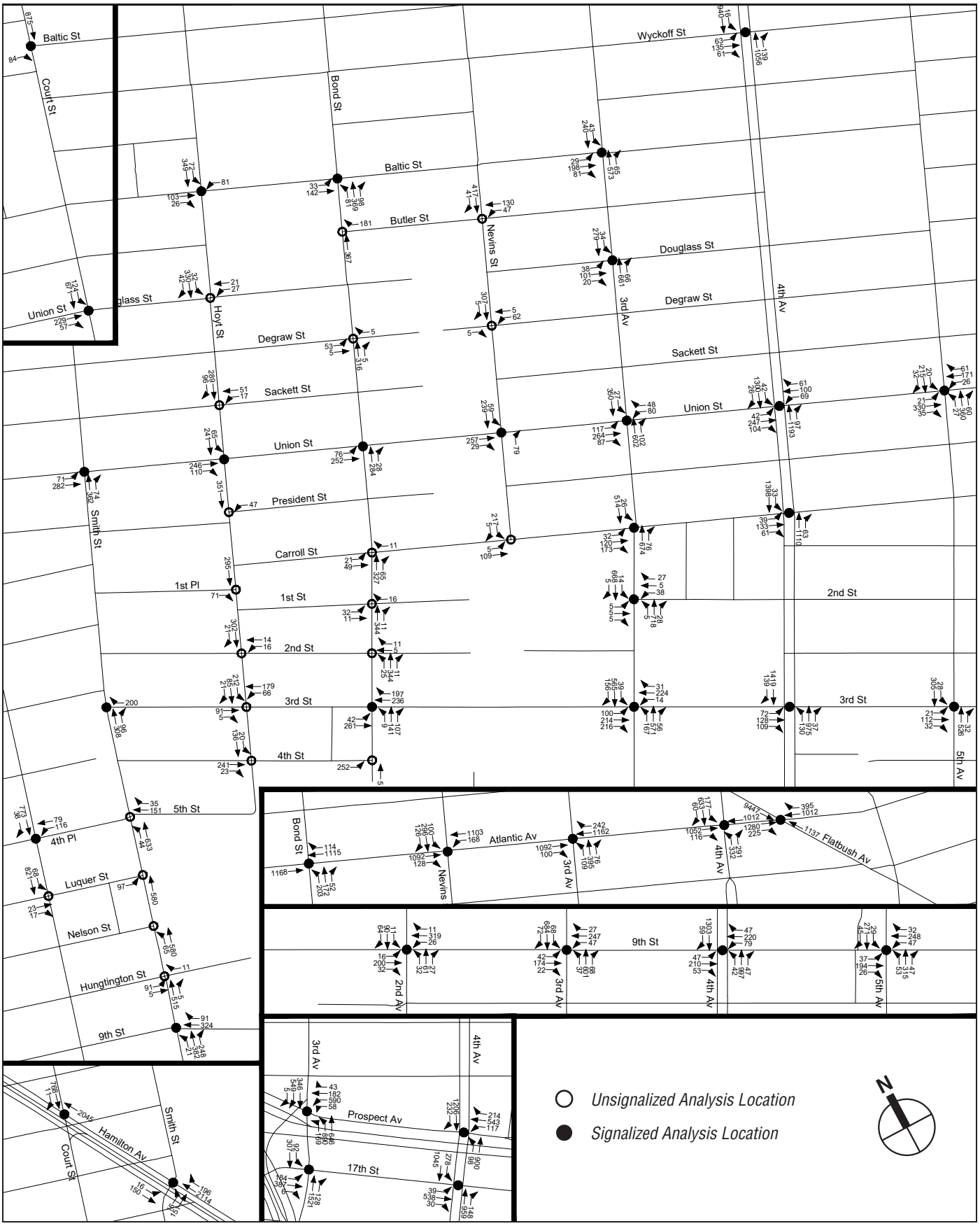


No Action AM Peak Hour Traffic Volumes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS **Figure 14-10**

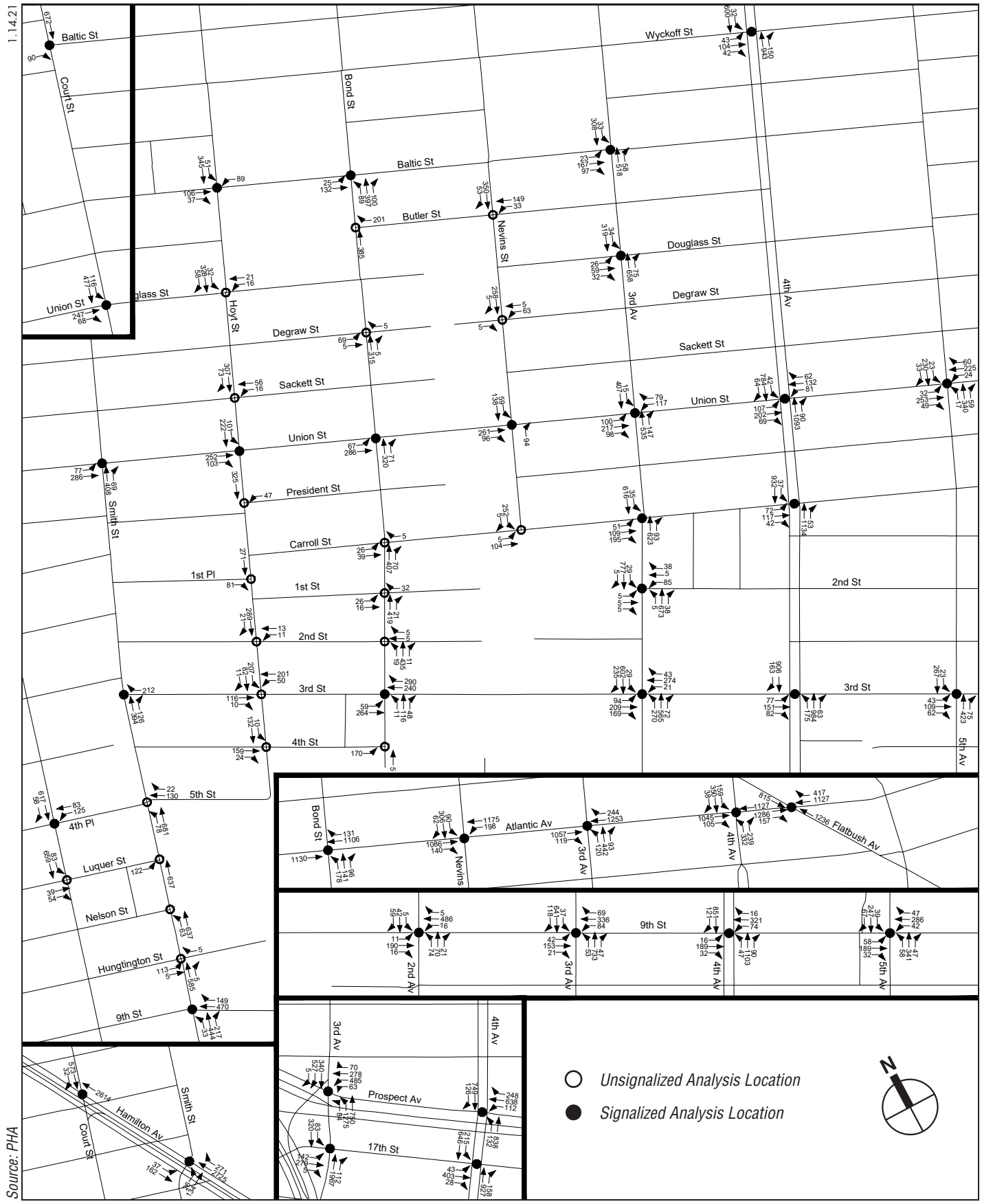


No Action Midday Peak Hour Traffic Volumes



No Action PM Peak Hour Traffic Volumes

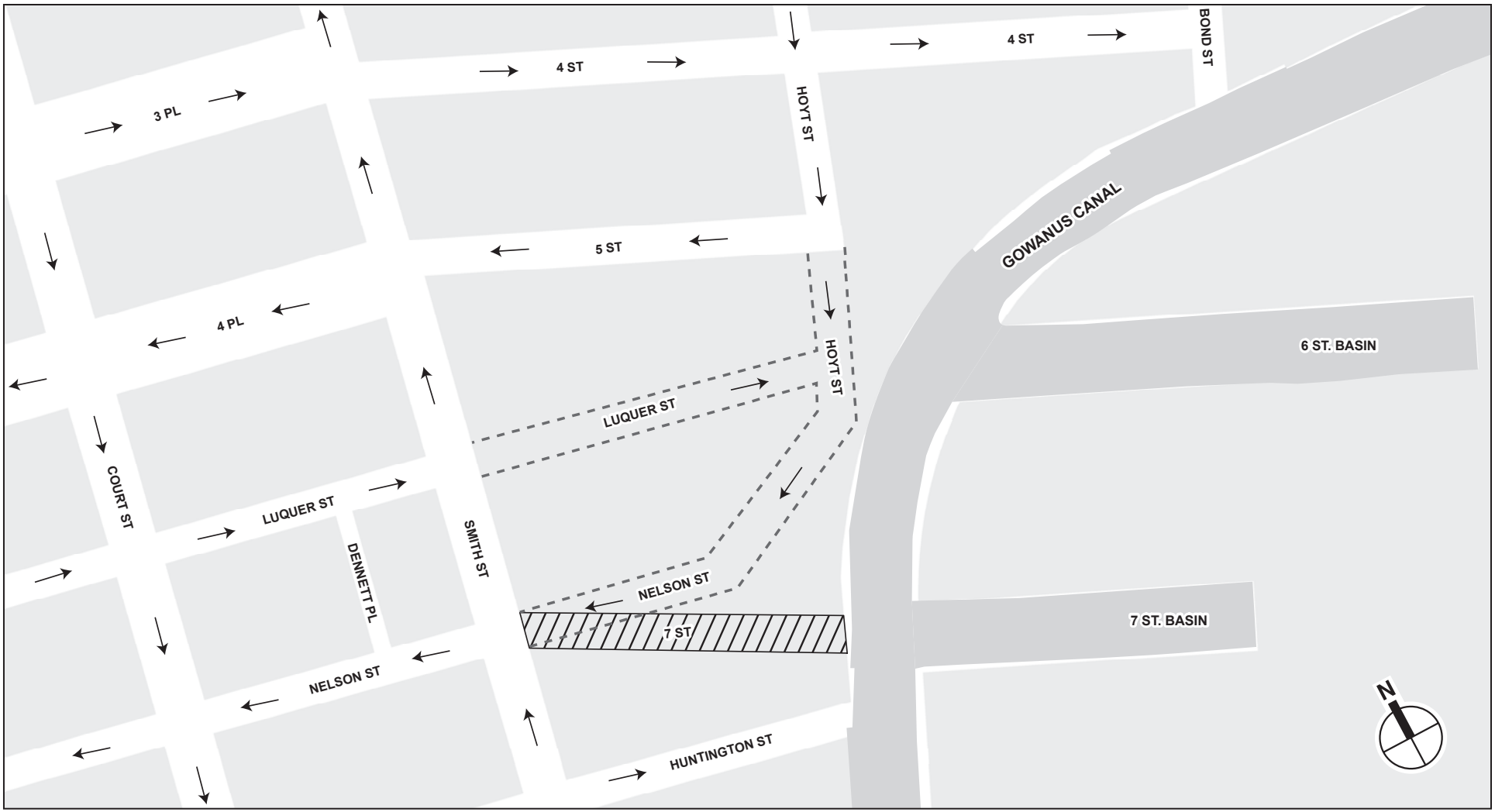
GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS **Figure 14-12**



No Action Saturday Peak Hour Traffic Volumes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS **Figure 14-13**

1.14.21



Source: PHA

Street Network Changes Under the Proposed Actions

Table 14-22
Congested Lane Groups at Analyzed Intersections Under No Action Conditions—Weekday AM Peak Hour

			Existing AM			No Action AM		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Court St & 4th Pl	WB	TR	0.66	24.1	C	0.90	43.9	D
Smith St & Union St	NB	TR	0.96	50.6	D	1.24	144.6	F
Smith St & 3rd St	WB	R	0.91	53.2	D	1.09	98.7	F
	NB	TR	0.88	32.3	C	1.07	73.2	E
Smith St & 9th St	WB	R	0.88	52.1	D	0.94	62.2	E
	NB	LT	0.80	28.5	C	1.07	78.3	E
Smith St & Hamilton Ave WB	EB	L	0.70	78.9	E	0.73	86.2	F
	WB	TR	0.92	28.6	C	1.06	65.7	E
Hoyt St & Union St	EB	TR	0.90	52.1	D	1.41	221.4	F
Bond St & Baltic St	NB	LTR	0.83	22.8	C	1.11	84.4	F
Bond St & Union St	EB	LT	0.70	14.5	B	0.94	16.1	B
Bond St & 3rd St	WB	TR	0.99	46.1	D	1.25	138.2	F
3rd Ave & Union St	EB	LTR	0.77	91.3	F	1.37	272.7	F
	WB	LR	0.52	59.0	E	1.07	115.2	F
3rd Ave & Caroll St	EB	LTR	0.65	95.3	F	1.17	204.1	F
3rd Ave & 1st St/Driveway	EB	LTR	0.06	72.6	E	0.06	72.6	E
	WB	LTR	0.67	100.2	F	0.77	111.0	F
3rd Ave & 3rd St	EB	L	0.34	87.2	F	0.90	188.9	F
	EB	TR	0.72	99.4	F	0.91	123.6	F
	WB	LTR	1.05	154.3	F	1.86	479.7	F
	NB	L	0.85	56.6	E	1.48	281.5	F
	SB	TR	0.66	19.5	B	0.90	34.0	C
3rd Ave & 9th St	EB	L	0.75	80.7	F	0.89	109.9	F
	WB	TR	0.96	86.5	F	1.03	104.3	F
3rd Ave & Prospect Ave	WB	L	0.86	64.2	E	0.91	69.5	E
	WB	LT	1.05	115.6	F	1.13	140.9	F
	NB	LT	0.88	29.2	C	0.94	33.7	C
	SB (On-Ramp)	TR	0.95	82.3	F	1.05	106.6	F
3rd Ave & 17th St	EB	LTR	0.73	58.5	E	0.77	60.7	E
4th Ave & St. Marks Pl	NB	TR	0.79	36.9	D	0.94	49.0	D
4th Ave & Union St	EB	LTR	0.84	56.5	E	1.13	102.5	F
	WB	LTR	1.05	108.7	F	1.50	284.0	F
4th Ave & Carroll St	NB	TR	0.81	22.7	C	0.94	34.1	C
4th Ave & 3rd St	EB	LTR	0.87	62.4	E	1.03	89.9	F
	NB	L	0.71	28.8	C	1.47	263.3	F
	NB	TR	0.93	31.8	C	1.07	67.7	E
	SB	TR	0.77	25.8	C	0.95	40.2	D
4th Ave & 9th St	EB	LT	0.83	63.9	E	0.94	84.1	F
	NB	TR	0.98	45.6	D	1.15	100.8	F
4th Ave & Prospect Ave	WB	LTR	1.02	76.1	E	1.08	86.9	F
4th Ave & 17th St	NB	T	0.80	26.3	C	0.95	39.1	D
	SB	L	0.72	40.8	D	1.02	84.4	F
5th Ave & Union St	WB	LTR	0.77	32.3	C	0.97	57.9	E
Atlantic Ave & Bond St	WB	TR	0.84	20.8	C	1.08	62.5	E
	NB	LTR	1.04	94.8	F	1.22	157.5	F
Atlantic Ave & Nevins St	WB	LT	1.05	44.0	D	1.47	226.2	F
	SB	TR	0.54	41.1	D	1.04	100.9	F
Atlantic Ave & 3rd Ave	EB	TR	0.72	53.6	D	0.91	62.3	E
	WB	T	1.01	36.4	D	1.29	150.9	F
Atlantic Ave & 4th Ave	WB	T	0.84	10.8	B	1.08	48.4	D
	NB	L	0.96	92.1	F	1.07	119.6	F
	NB	LR	0.98	106.2	F	1.15	158.6	F
	NB	R	0.57	52.5	D	0.69	59.5	E
	SB	LT	0.85	61.6	E	1.22	162.2	F
Atlantic Ave & Flatbush Ave	EB	T	0.74	29.5	C	0.96	38.3	D
	WB	T	0.77	32.1	C	0.99	54.5	D
	WB	R	0.67	45.1	D	1.12	124.9	F
Court St & Luquer St	EB	TR	0.25	26.7	D	0.37	37.1	E
Smith St & 4th Pl/5th St	WB	TR	0.76	67.0	F	1.78	440.8	F
Smith St & Luquer St	EB	L	0.66	52.3	F	1.12	170.4	F
Smith St & Huntington St	EB	LT	0.42	28.6	D	0.96	113.9	F
Hoyt St & Sackett St	WB	LT	0.43	23.7	C	0.67	47.5	E

Shading denotes lane groups which are not congested in the Existing condition but are shown for comparison purposes.

Table 14-23
Congested Lane Groups at Analyzed Intersections Under No Action Conditions—Weekday Midday Peak Hour

			Existing Midday			No Action Midday		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Smith St & Union St	NB	TR	0.80	28.4	C	0.99	56.1	E
Smith St & 3rd St	NB	TR	0.84	28.6	C	0.97	47.4	D
Smith St & Hamilton Ave WB	EB	L	0.79	76.0	E	0.57	57.3	E
	WB	TR	0.71	22.3	C	0.92	42.1	D
Hoyt St & Union St	EB	TR	0.71	33.2	C	0.95	54.1	D
3rd Ave & Douglass St	EB	LTR	0.13	58.5	E	0.34	63.8	E
3rd Ave & Union St	EB	LTR	0.88	92.0	F	1.81	445.6	F
	WB	LR	0.71	80.4	F	1.37	268.3	F
3rd Ave & Caroll St	EB	LTR	0.53	64.0	E	0.96	111.5	F
3rd Ave & 1st St/Driveway	WB	LTR	0.36	59.0	E	0.39	60.2	E
3rd Ave & 3rd St	EB	L	0.37	59.1	E	0.79	98.4	F
	EB	TR	0.78	76.4	E	1.13	157.5	F
	WB	LTR	0.76	75.5	E	1.31	232.6	F
	NB	L	0.43	29.4	C	1.15	159.2	F
	SB	TR	0.67	26.9	C	1.04	61.3	E
3rd Ave & 9th St	WB	TR	0.78	55.9	E	0.84	62.0	E
	NB	TR	0.68	27.3	C	0.94	50.4	D
	SB	TR	0.76	31.3	C	1.10	93.5	F
3rd Ave & Prospect Ave	NB	LT	0.85	43.9	D	0.91	47.8	D
	SB (On-Ramp)	TR	0.82	56.3	E	0.90	64.6	E
3rd Ave & 17th St	EB	LTR	0.83	62.7	E	0.89	67.6	E
	SB	L	0.22	49.7	D	0.73	59.9	E
4th Ave & Carroll St	NB	TR	0.75	35.8	D	0.92	48.2	D
4th Ave & 3rd St	NB	L	0.56	23.2	C	0.99	82.4	F
	SB	TR	0.73	30.5	C	0.92	43.6	D
4th Ave & 9th St	SB	TR	0.75	36.6	D	0.97	56.9	E
4th Ave & 17th St	EB	LTR	0.92	58.6	E	1.10	107.7	F
	NB	T	0.90	48.5	D	1.08	91.9	F
Atlantic Ave & Bond St	WB	TR	0.66	10.0	A	0.92	15.0	B
	NB	LTR	1.01	84.5	F	1.29	182.4	F
Atlantic Ave & Nevins St	EB	TR	0.78	22.2	C	0.94	34.7	C
	WB	LT	0.87	28.4	C	1.36	188.6	F
	SB	TR	0.68	43.7	D	1.38	226.7	F
Atlantic Ave & 3rd Ave	NB	LTR	0.53	39.2	D	0.87	55.2	E
Atlantic Ave & 4th Ave	WB	T	0.71	12.3	B	0.93	20.8	C
	NB	LR	0.55	50.5	D	0.71	60.6	E
	SB	LT	0.76	50.8	D	1.14	129.0	F
Atlantic Ave & Flatbush Ave	WB	R	0.96	77.2	E	1.22	163.3	F
Smith St & 4th Pl/5th St	WB	TR	0.23	16.1	C	1.21	189.8	F
Smith St & Huntington St	EB	LT	0.17	13.3	B	0.73	68.6	F
	WB	R	0.02	10.4	B	0.11	37.5	E

Shading denotes lane groups which are not congested in the Existing condition but are shown for comparison purposes.

Table 14-24
Congested Lane Groups at Analyzed Intersections Under No Action Conditions—Weekday PM Peak Hour

			Existing PM			No Action PM		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Smith St & Union St	NB	TR	0.85	33.2	C	1.02	65.6	E
Smith St & 3rd St	NB	TR	0.75	22.2	C	0.93	39.7	D
Smith St & Hamilton Ave WB	EB	L	0.83	79.9	E	0.84	84.5	F
Hoyt St & Union St	EB	TR	1.04	75.4	E	1.28	163.8	F
Bond St & Baltic St	NB	LTR	0.63	14.3	B	0.94	35.4	D
Bond St & Union St	EB	LT	0.81	16.0	B	0.99	21.9	C
Nevins St & Union St	SB	LT	0.58	23.2	C	0.92	48.7	D
3rd Ave & Baltic St	EB	LTR	0.62	69.8	E	0.70	74.7	E
3rd Ave & Douglass St	EB	LTR	0.34	80.1	F	0.63	92.5	F
3rd Ave & Union St	EB	LTR	1.05	156.0	F	2.14	617.2	F
	WB	LR	0.72	81.0	F	1.50	295.3	F
3rd Ave & Caroll St	EB	LTR	0.88	117.5	F	1.47	322.6	F
	NB	TR	0.66	14.8	B	0.93	28.7	C
3rd Ave & 1st St/Driveway	EB	LTR	0.06	72.6	E	0.06	72.7	E
	WB	LTR	0.39	82.8	F	0.39	83.2	F
3rd Ave & 3rd St	EB	L	0.43	78.7	E	0.86	127.2	F
	EB	TR	0.98	128.4	F	1.56	352.5	F
	WB	LTR	0.91	114.1	F	2.11	591.1	F
	NB	L	0.47	34.1	C	1.45	286.7	F
	SB	TR	0.66	26.6	C	1.05	69.3	E
3rd Ave & 9th St	WB	TR	0.88	72.9	E	0.94	83.9	F
	NB	TR	0.76	27.3	C	0.94	45.7	D
	SB	TR	0.64	21.7	C	1.07	80.7	F
3rd Ave & Prospect Ave	WB	L	0.95	75.9	E	1.00	87.3	F
	WB	LT	0.56	53.7	D	0.60	55.2	E
	NB	LT	0.80	56.1	E	0.85	58.4	E
	SB (On-Ramp)	TR	0.80	52.3	D	0.95	70.0	E
3rd Ave & 17th St	EB	LTR	0.80	59.1	E	0.87	64.6	E
	SB	L	0.06	85.9	F	0.37	93.3	F
4th Ave & Union St	EB	LTR	0.99	85.5	F	1.51	280.3	F
	WB	LTR	0.84	68.4	E	1.37	239.9	F
4th Ave & 3rd St	EB	LTR	1.00	81.3	F	1.28	170.3	F
	NB	L	0.49	21.7	C	0.89	83.1	F
	SB	TR	0.90	31.4	C	1.08	74.2	E
4th Ave & 9th St	EB	LT	0.93	75.1	E	1.02	96.9	F
	WB	L	0.59	50.5	D	0.66	56.5	E
	NB	L	0.33	39.4	D	0.45	58.8	E
	SB	TR	0.93	43.6	D	1.17	116.4	F
4th Ave & Prospect Ave	WB	LTR	1.05	91.3	F	1.07	94.6	F
	SB	T	0.69	27.4	C	0.95	46.2	D
4th Ave & 17th St	NB	T	0.89	43.0	D	1.05	75.0	E
	SB	L	0.78	39.3	D	0.94	49.9	D
5th Ave & Union St	NB	LTR	0.83	35.7	D	0.92	46.6	D
5th Ave & 3rd St	NB	TR	0.84	31.7	C	0.94	44.6	D
Atlantic Ave & Bond St	WB	TR	0.73	24.6	C	1.04	48.2	D
	NB	LTR	1.05	101.8	F	1.35	217.6	F
Atlantic Ave & Nevins St	EB	TR	0.91	19.0	B	1.08	52.2	D
	WB	LT	1.05	68.6	E	1.51	262.4	F
	SB	TR	0.80	59.6	E	1.63	341.8	F
Atlantic Ave & 3rd Ave	EB	TR	0.81	16.8	B	1.00	27.8	C
	WB	T	0.75	26.7	C	0.98	37.3	D
	NB	LTR	0.60	38.5	D	0.90	55.5	E
Atlantic Ave & 4th Ave	EB	T	0.88	27.3	C	1.11	76.0	E
	WB	T	0.83	19.3	B	1.09	64.3	E
	NB	L	0.89	76.9	E	1.02	105.8	F
	NB	LR	0.90	89.8	F	1.13	154.5	F
	NB	R	0.54	49.8	D	0.68	56.8	E
	SB	LT	0.86	50.7	D	1.39	225.9	F
Atlantic Ave & Flatbush Ave	EB	T	0.75	14.1	B	1.06	46.8	D
	WB	R	1.02	93.9	F	1.27	183.6	F
Smith St & 4th Pl/5th St	WB	TR	0.27	19.3	C	1.26	205.9	F
Smith St & Luquer St	EB	L	0.28	19.0	C	0.52	37.8	E
Smith St &Huntington St	EB	LT	0.22	16.3	C	0.58	46.0	E

Shading denotes lane groups which are not congested in the Existing condition but are shown for comparison purposes.

Table 14-25
Congested Lane Groups at Analyzed Intersections Under No Action Conditions—Saturday Peak Hour

			Existing Saturday			No Action Saturday		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Smith St & Union St	NB	TR	1.01	62.5	E	1.20	128.5	F
Smith St & 3rd St	NB	TR	1.01	56.7	E	1.21	125.5	F
Smith St & 9th St	NB	LT	0.74	24.7	C	0.95	45.4	D
Smith St & Hamilton Ave WB	EB	L	0.91	91.0	F	0.92	96.2	F
	WB	TR	0.88	29.6	C	0.99	47.2	D
Hoyt St & Union St	EB	TR	1.02	73.1	E	1.27	161.3	F
Bond St & Baltic St	NB	LTR	0.69	15.8	B	0.90	28.9	C
Bond St & Union St	EB	LT	0.90	26.2	C	1.02	30.1	C
Bond St & 3rd St	WB	TR	0.69	16.5	B	0.91	32.6	C
2nd Ave & 9th St	WB	TR	0.85	30.3	C	0.91	37.0	D
3rd Ave & Baltic St	EB	LTR	0.57	67.1	E	0.65	71.1	E
3rd Ave & Douglass St	EB	LTR	0.24	69.8	E	0.40	74.8	E
3rd Ave & Union St	EB	LTR	1.05	153.9	F	1.68	410.8	F
	WB	LR	1.05	157.7	F	1.50	337.2	F
3rd Ave & Caroll St	EB	LTR	0.99	134.3	F	1.34	260.5	F
	NB	TR	0.69	13.3	B	0.91	21.4	C
	SB	LT	0.69	31.8	C	1.11	110.2	F
3rd Ave & 1st St/Driveway	EB	LTR	0.05	64.9	E	0.05	64.9	E
	WB	LTR	0.52	80.9	F	0.56	83.5	F
3rd Ave & 3rd St	EB	L	0.43	78.8	F	0.81	119.1	F
	EB	TR	1.05	147.3	F	1.39	281.0	F
	WB	LTR	1.05	101.3	F	1.80	413.7	F
	NB	L	1.05	123.0	F	2.99	970.4	F
	NB	TR	0.80	48.8	D	1.01	84.7	F
	SB	TR	0.86	30.4	C	1.16	112.3	F
3rd Ave & 9th St	WB	TR	0.97	81.5	F	1.04	98.6	F
	SB	TR	0.84	36.5	D	1.10	95.3	F
3rd Ave & Prospect Ave	WB	L	0.75	56.6	E	0.80	58.8	E
	WB	LT	0.73	61.5	E	0.79	65.3	E
	NB	LT	0.99	51.3	D	1.09	81.1	F
	SB (On-Ramp)	TR	0.79	52.1	D	0.86	57.8	E
3rd Ave & 17th St	EB	LTR	0.69	57.4	E	0.73	59.1	E
			0.28	48.3	D	0.66	65.9	E
4th Ave & Union St	EB	LTR	0.70	18.8	B	0.91	23.3	C
	SB	L	0.39	36.6	D	0.74	81.6	F
	SB	TR	0.74	34.6	C	0.90	45.2	D
4th Ave & Carroll St	NB	TR	1.05	77.1	E	1.22	144.3	F
	SB	L	0.84	118.3	F	0.90	133.4	F
	SB	T	0.75	35.5	D	0.92	47.0	D
4th Ave & 3rd St	NB	L	0.69	33.1	C	1.12	129.4	F
	NB	TR	0.84	28.9	C	0.97	44.6	D
	SB	TR	0.83	35.0	C	0.98	54.7	D
4th Ave & 9th St	NB	TR	0.89	37.3	D	1.01	57.2	E
	SB	TR	0.83	44.9	D	1.07	85.9	F
4th Ave & Prospect Ave	WB	LTR	0.95	62.5	E	0.96	62.9	E
4th Ave & 17th St	EB	LTR	0.89	54.4	D	1.06	91.8	F
	NB	T	0.83	40.7	D	0.98	61.0	E
	SB	L	0.78	42.8	D	0.98	71.6	E
5th Ave & 3rd St	EB	LTR	0.88	60.0	E	0.94	71.6	E
	NB	TR	0.81	30.0	C	0.91	40.1	D
Atlantic Ave & Bond St	NB	LTR	1.05	102.2	F	1.24	169.7	F
Atlantic Ave & Nevins St	EB	TR	0.90	21.3	C	1.07	53.4	D
	WB	LT	1.05	62.0	E	1.48	244.3	F
	SB	TR	0.81	60.1	E	1.34	218.1	F
Atlantic Ave & 3rd Ave	EB	TR	0.76	16.6	B	0.94	20.9	C
	WB	T	0.78	14.9	B	1.01	28.2	C
	NB	LTR	0.75	46.1	D	1.01	77.6	E
Atlantic Ave & 4th Ave	EB	T	0.77	33.0	C	0.97	39.2	D
	WB	T	0.88	20.4	C	1.13	78.3	E
	NB	L	0.83	64.9	E	0.95	93.1	F
	NB	LR	0.77	71.0	E	0.94	99.2	F
	SB	LT	0.79	52.0	D	1.08	105.8	F
Atlantic Ave & Flatbush Ave	EB	T	0.76	19.6	B	0.99	34.5	C
	WB	R	1.05	102.9	F	1.34	211.0	F
Court St & Luquer St	EB	TR	0.41	28.6	D	0.56	42.3	E
Smith St & 4th Pl/5th St	WB	TR	0.37	28.7	D	1.53	343.0	F
Smith St & Luquer St	EB	L	0.33	19.6	C	0.56	37.2	E
Smith St & Huntington St	EB	LT	0.34	21.9	C	0.80	80.9	F

Shading denotes lane groups which are not congested in the Existing condition but are shown for comparison purposes.

FUTURE WITH ACTION TRAFFIC GROWTH

As shown in **Table 14-11**, based on projected development associated with the Proposed Actions, there would be a net total of approximately 1,287, 536, 1,320, and 714 additional vehicle trips (auto, taxi, and truck) during the weekday AM, midday, PM, and Saturday peak hours, respectively. The assignments of auto and taxi trips to the street network in proximity to the Project Area are based on the locations of each projected development 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 used for the assignments of residential trips are based on AASHTO CTPP five-year journey-to-work data sourced from the 2012–2016 ACS, while the origins/destinations of office, innovation economy, and industrial uses were based on AASHTO CTPP five-year reverse journey-to-work data, sourced from the 2012–2016 ACS. Origins/destinations for uses that generate mostly local trips, including local retail, auto repair/service, restaurant, supermarket, community center, and waterfront park uses, were based on population density in proximity to the Project Area and surrounding neighborhoods within a ½-mile radius. Origins/destinations for the destination retail and medical office uses were based on population density in proximity to the Project Area and surrounding neighborhoods within a two-mile radius.

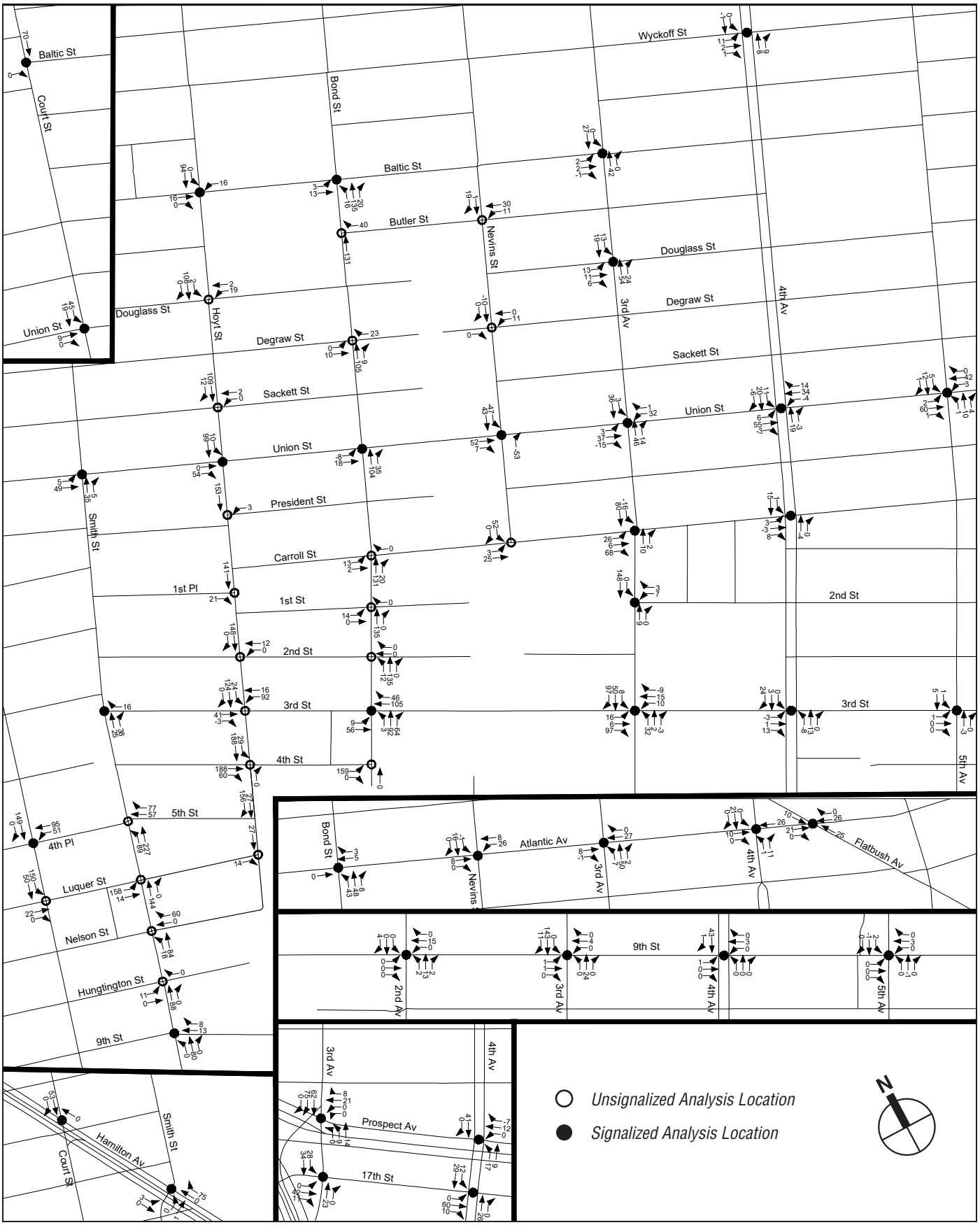
Using the origin/destination distributions, auto and taxi trips were assigned to various portals on the periphery of the Project Area and from there via the most direct route to each projected development site. Although some project-generated auto demand is expected to park at off-street public parking facilities in the area, all auto trips were assigned directly to their respective projected development sites. This can be considered a conservative approach with respect to the traffic impact analysis as it concentrates project traffic at analyzed intersections in proximity to the Project Area rather than dispersing it to outlying public parking facilities. Additional auto and taxi trip distribution data are provided in the *Gowanus Neighborhood Rezoning Transportation Planning Factors and Travel Demand Forecast Technical Memorandum* included in Appendix G.

Truck trips were assigned to designated local truck routes and then to the most direct paths to and from each projected development site. The majority of truck trips were assigned to Flatbush and Atlantic Avenues, the Prospect Expressway, and I-278, all of which are Through Truck Routes, along with the Local Truck Routes along 3rd and 4th Avenues, 9th Street, and Hamilton Avenue.

Figures 14-15 through 14-18 show the assignment of incremental vehicle trips (auto, taxi, and truck) generated during the weekday AM, midday, PM, and Saturday peak hours under the Proposed Actions. **Figures 14-19 through 14-22** show the total weekday AM, midday, PM, and Saturday traffic volumes in the 2035 With Action condition. The volumes shown are the combination of the net incremental traffic generated by the Proposed Actions and the No Action volumes.

INTERSECTION CAPACITY ANALYSIS

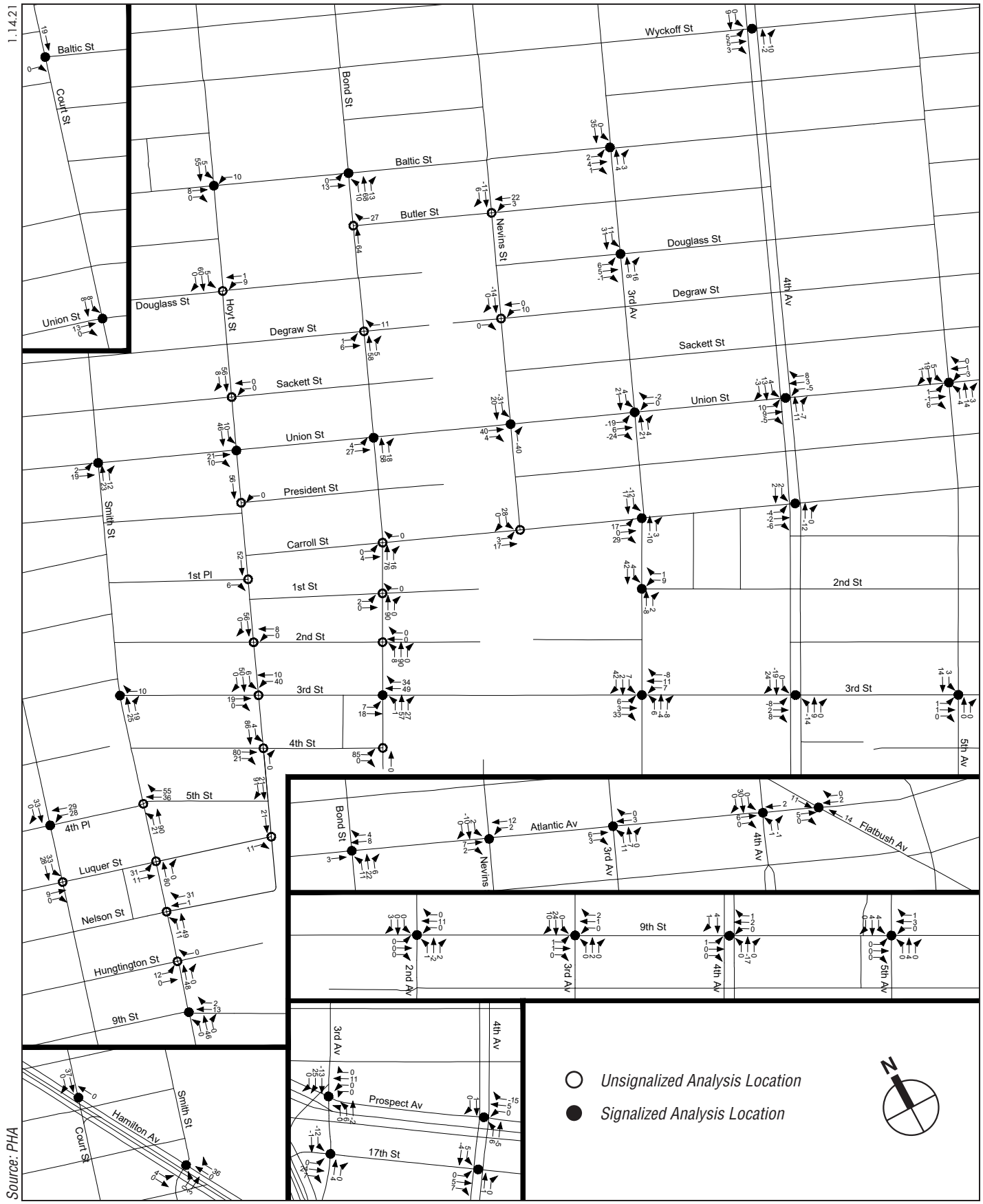
The v/c ratios, delays, and levels of service for those individual lane groups experiencing congestion in one or more peak hours under With Action conditions are shown in **Tables 14-26 through 14-29**. Lane groups with significant adverse impacts are highlighted. As shown in **Tables 14-26 through 14-29**, a total of 52 intersections (35 signalized and 17 unsignalized) would have at least one congested lane group in one or more peak hours in the With Action condition, compared to 39 (34 signalized and five unsignalized) in the No Action condition.



AM Peak Hour
Project Increment Traffic Volumes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

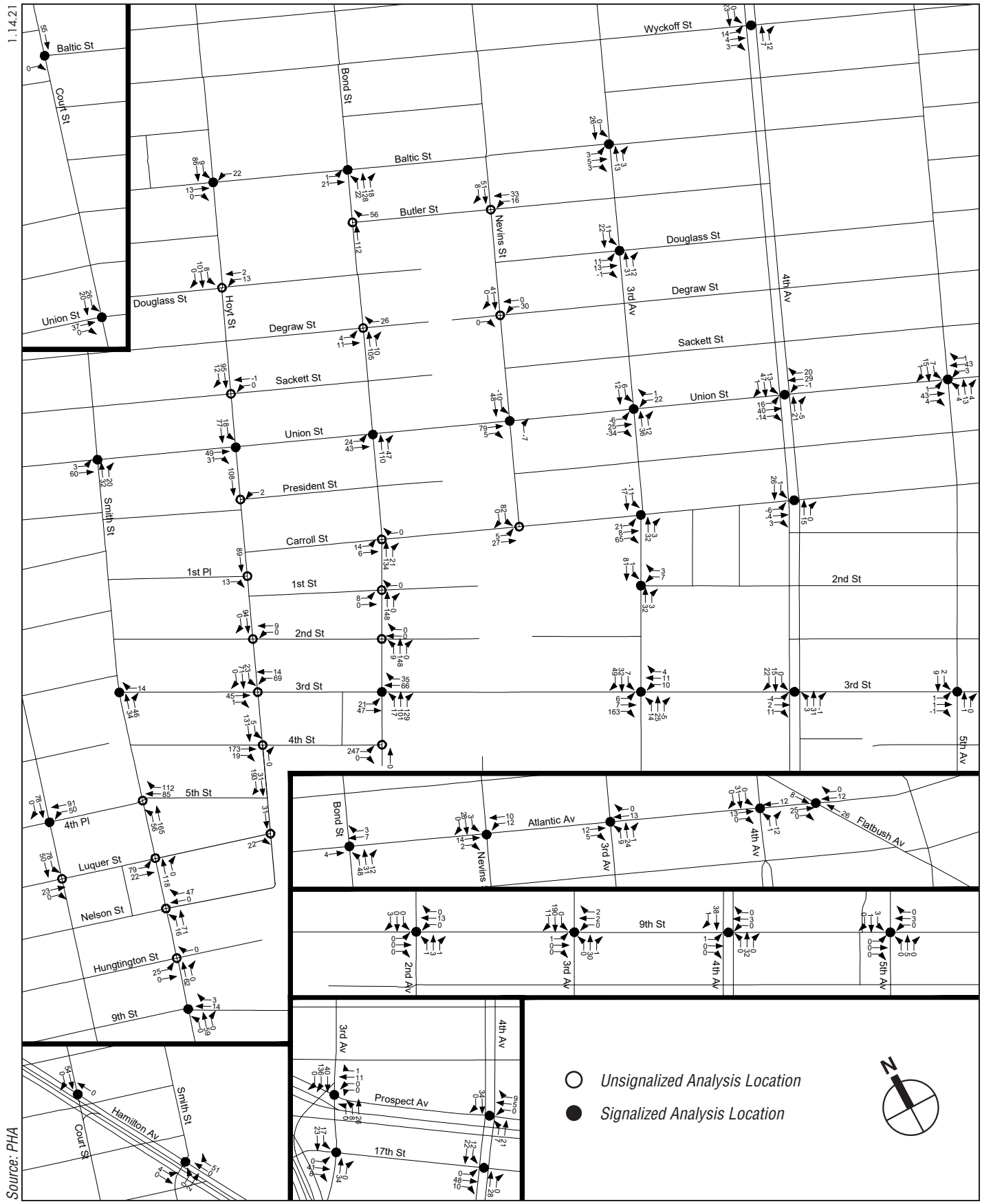
Figure 14-15



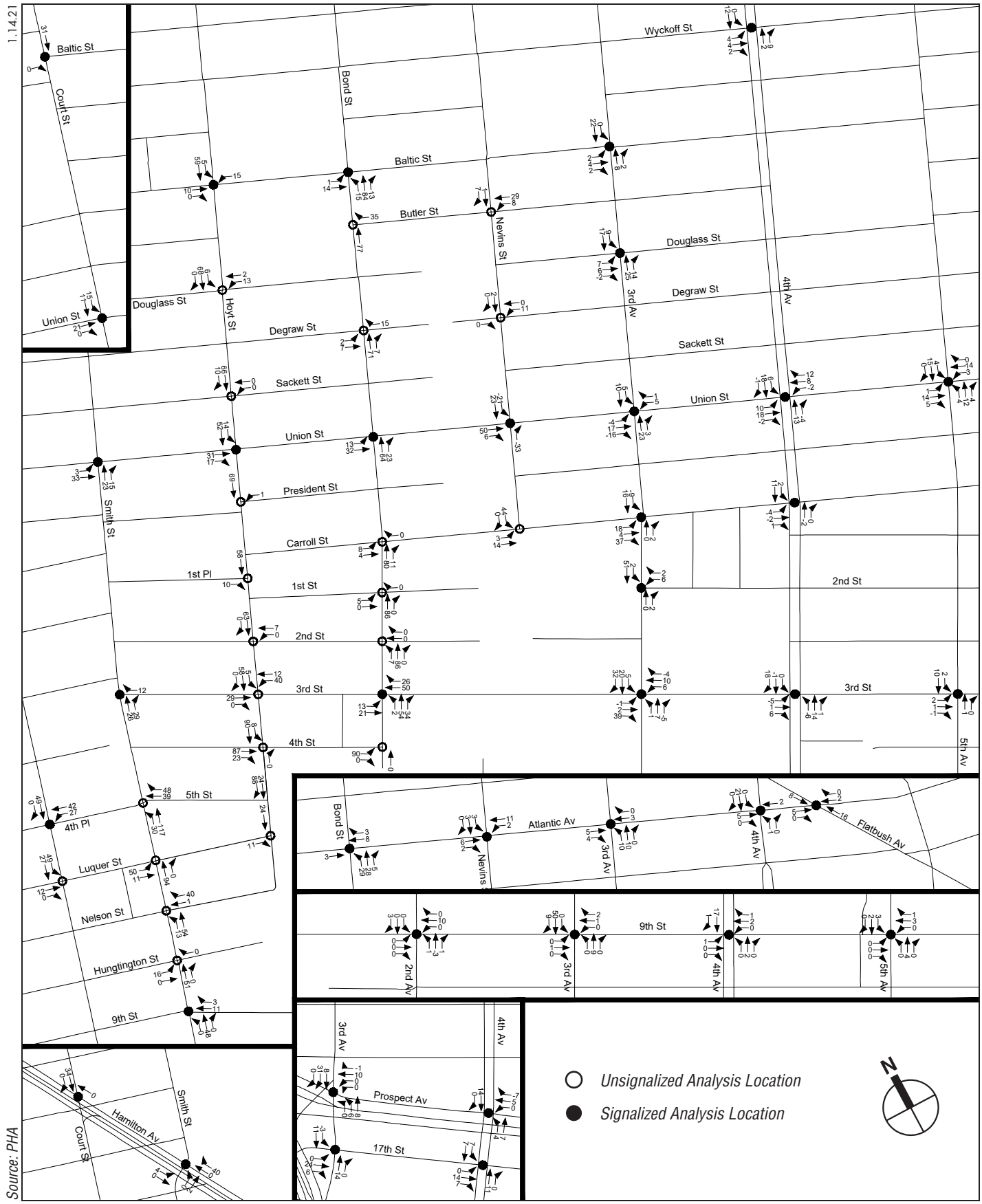
Midday Peak Hour
Project Increment Traffic Volumes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 14-16



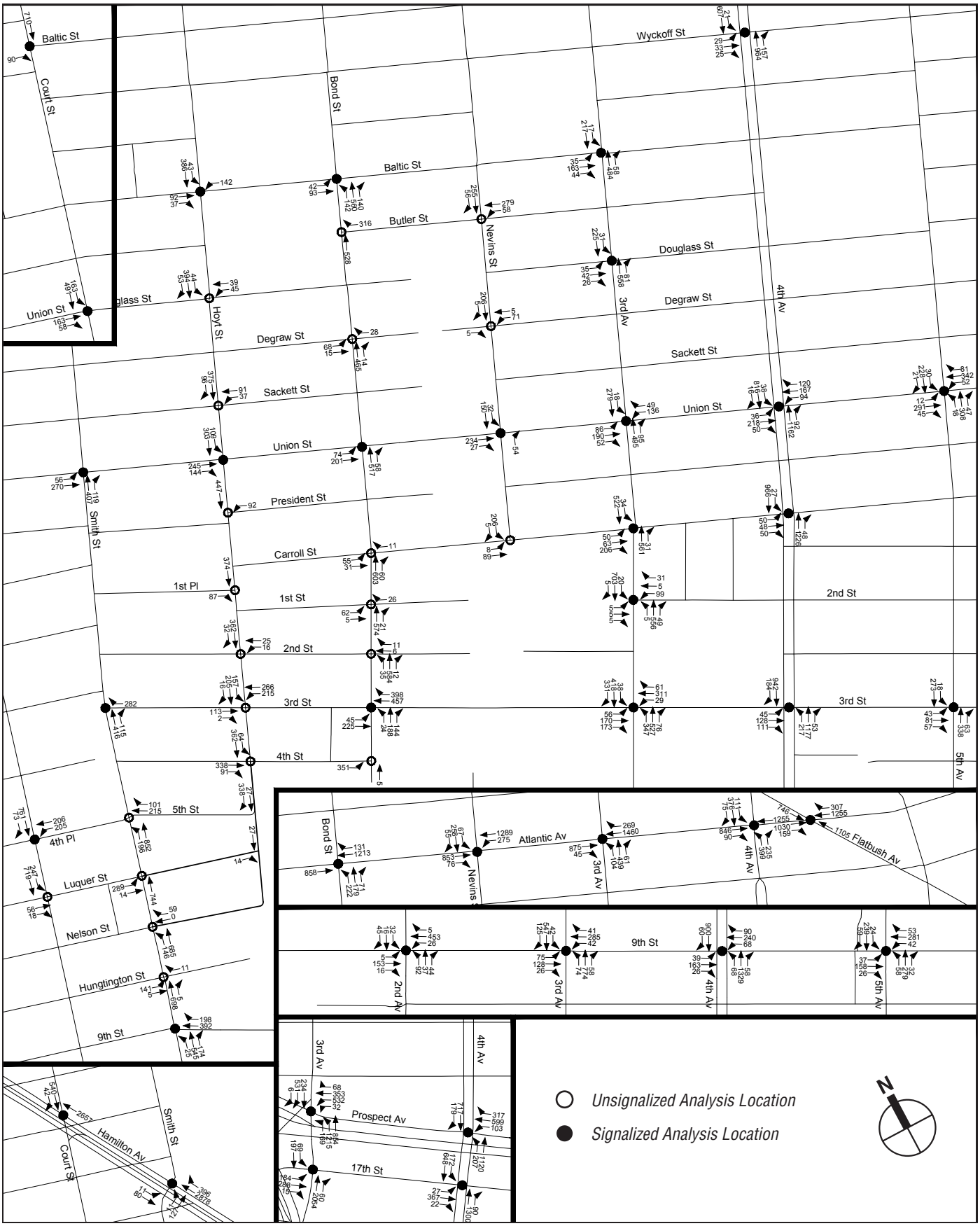
PM Peak Hour
Project Increment Traffic Volumes



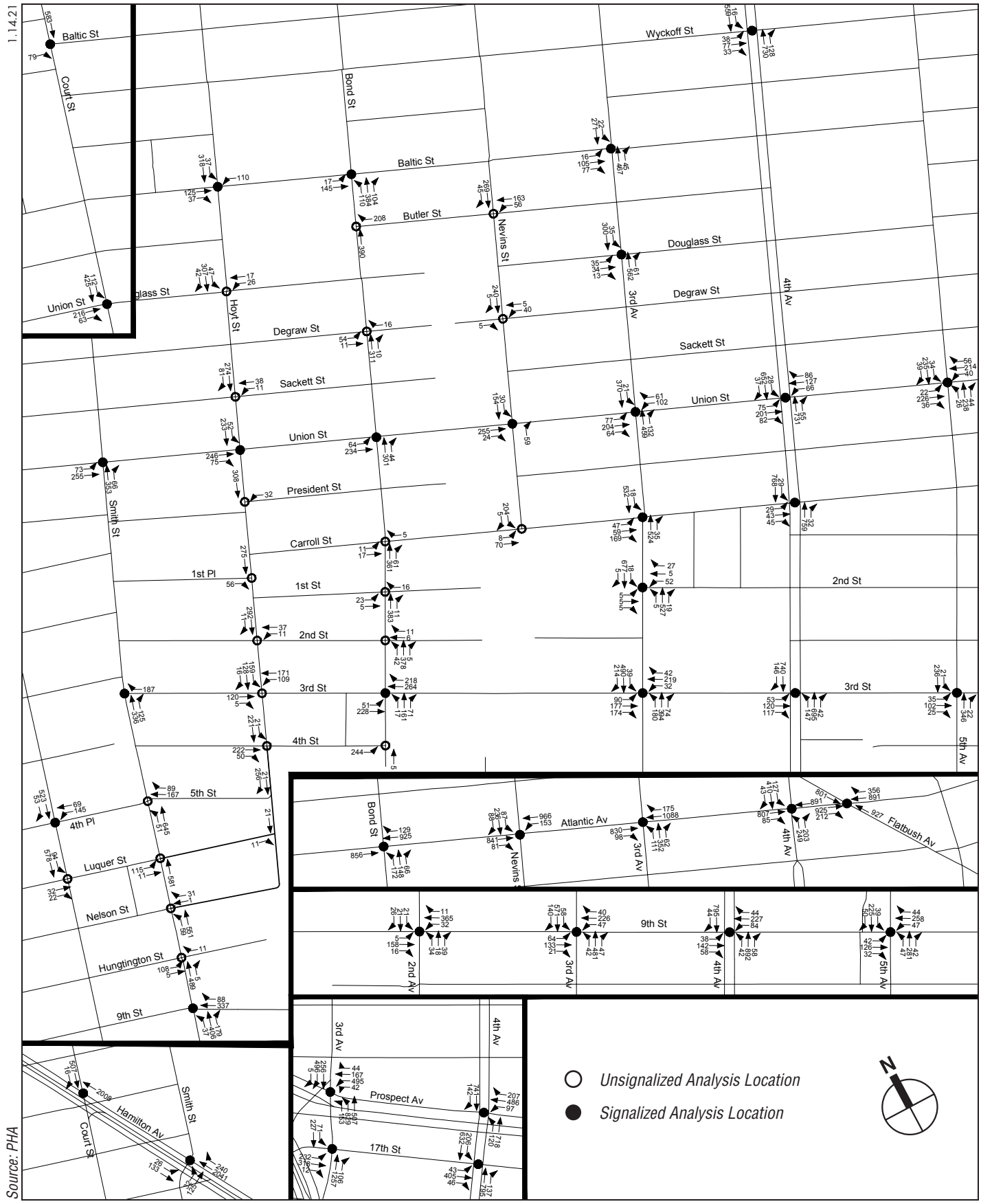
Saturday Peak Hour
Project Increment Traffic Volumes

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

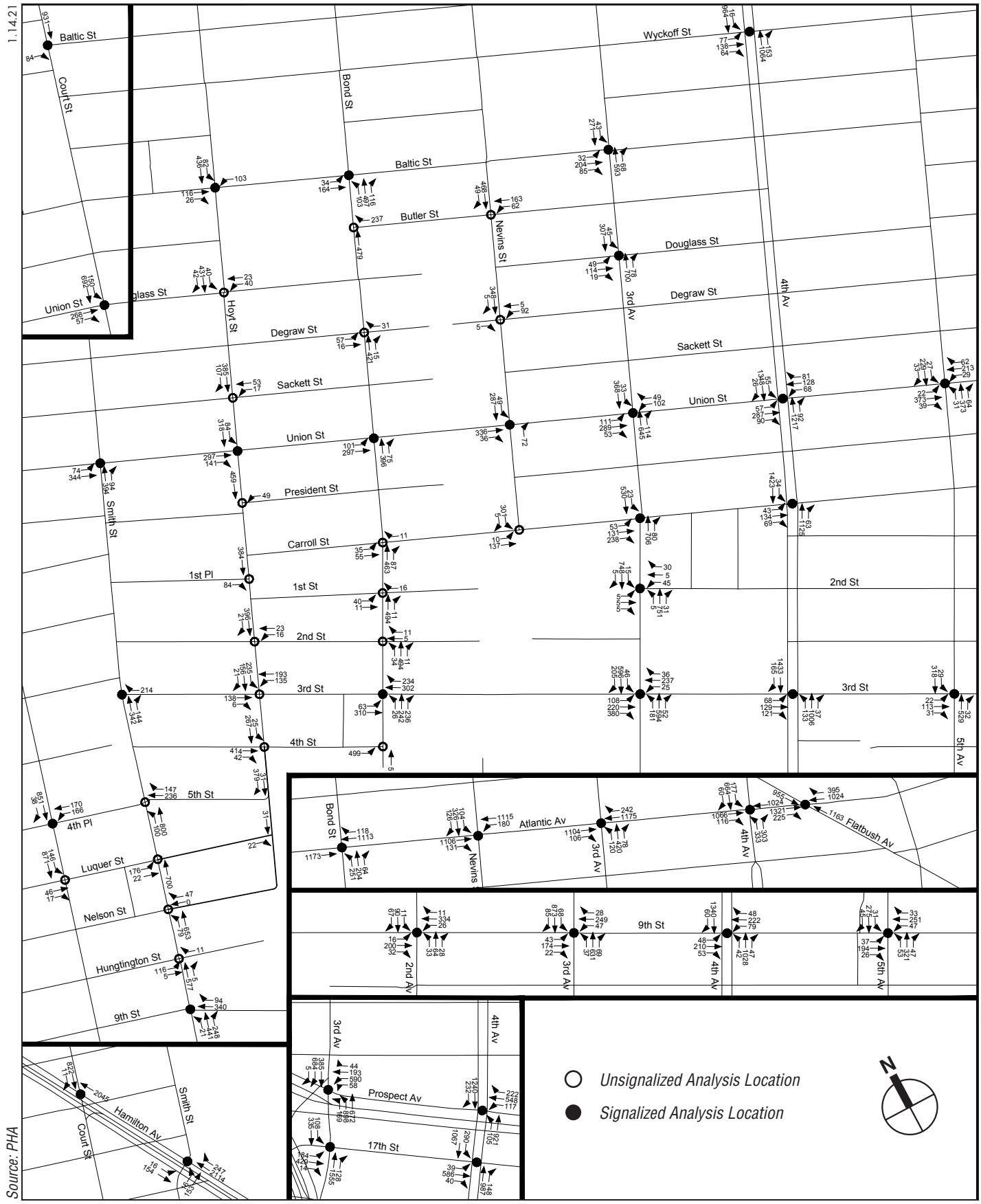
Figure 14-18



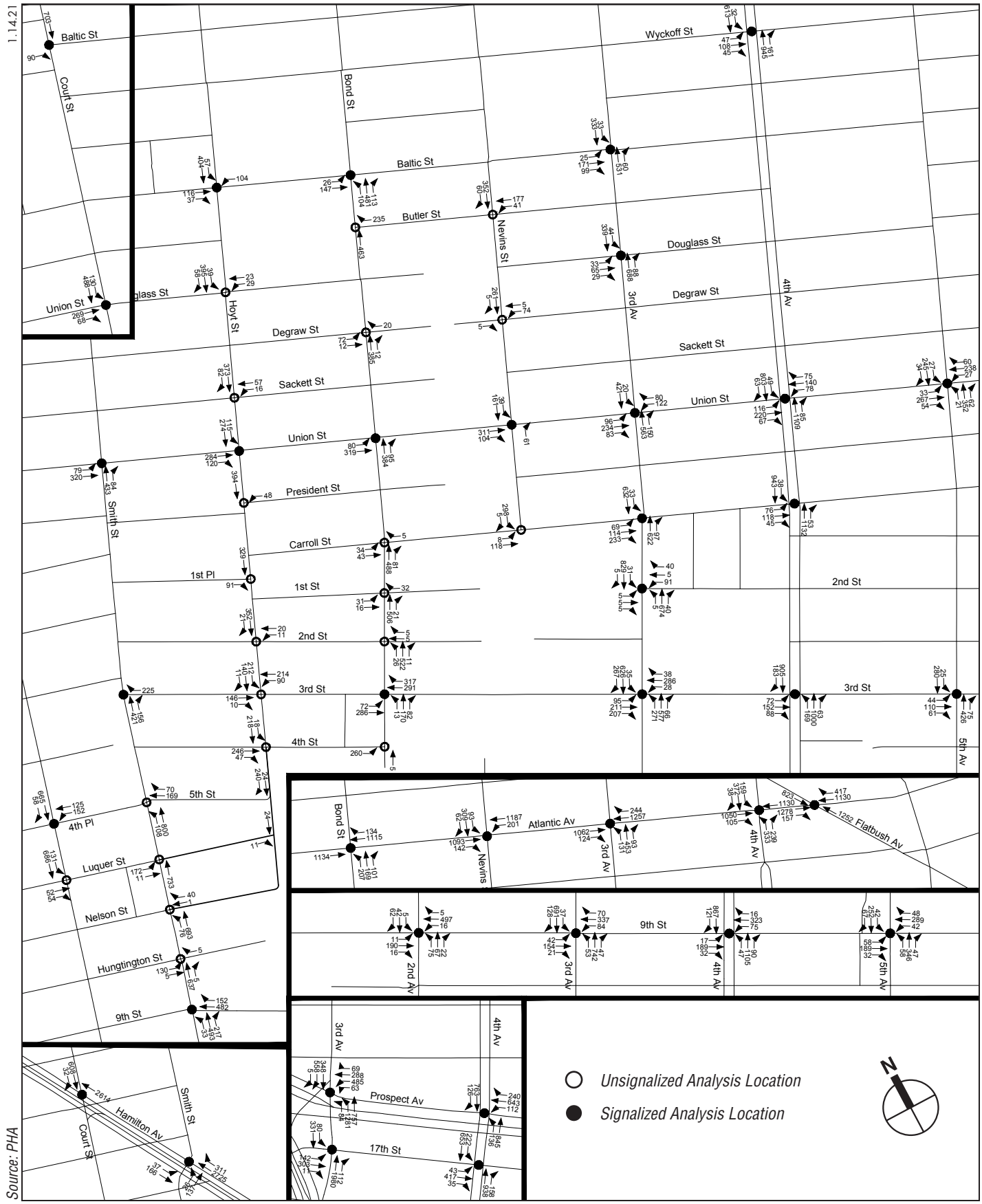
With Action AM Peak Hour Traffic Volumes



With Action Midday Peak Hour Traffic Volumes



With Action PM Peak Hour Traffic Volumes



With Action Saturday Peak Hour Traffic Volumes

Table 14-26
Congested Lane Groups at Analyzed Intersections Under With Action Conditions—Weekday AM Peak Hour

			No Action AM			With Action AM		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Court St & 4th Pl	WB	TR	0.90	43.9	D	1.40	215.9	F
Court St & Hamilton Ave WB	SB	TR	0.83	52.4	D	0.91	60.2	E
Smith St & Union St	NB	TR	1.24	144.6	F	1.37	197.2	F
Smith St & 3rd St	WB	R	1.09	98.7	F	2.24	598.5	F
	NB	TR	1.07	73.2	E	1.37	194.6	F
Smith St & 9th St	WB	R	0.94	62.2	E	0.98	68.5	E
	NB	LT	1.07	78.3	E	1.25	143.9	F
Smith St & Hamilton Ave WB	EB	L	0.73	86.2	F	0.75	89.1	F
	WB	TR	1.06	65.7	E	1.09	78.5	E
Hoyt St & Union St	EB	TR	1.41	221.4	F	1.82	401.3	F
	SB	LT	0.69	18.1	B	0.92	36.7	D
Bond St & Baltic St	NB	LTR	1.11	84.4	F	1.43	214.6	F
Bond St & Union St	EB	LT	0.94	16.1	B	1.00	25.7	C
	NB	TR	0.75	20.6	C	1.04	45.7	D
Bond St & 3rd St	EB	LT	0.55	14.6	B	1.42	228.2	F
	WB	TR	1.25	138.2	F	1.82	389.3	F
	NB	LTR	0.58	22.9	C	1.19	129.5	F
3rd Ave & Union St	EB	LTR	1.37	272.7	F	1.47	314.1	F
	WB	LR	1.07	115.2	F	1.51	306.2	F
	NB	TR	0.76	41.8	D	0.87	53.1	D
3rd Ave & Caroll St	EB	LTR	1.17	204.1	F	2.22	600.0+	F
3rd Ave & 1st St/Driveway	EB	LTR	0.06	72.6	E	0.07	72.8	E
	WB	LTR	0.77	111.0	F	1.02	167.9	F
3rd Ave & 3rd St	EB	L	0.90	188.9	F	1.33	327.6	F
	EB	TR	0.91	123.6	F	1.58	374.0	F
	WB	LTR	1.86	479.7	F	4.60	600.0+	F
	NB	L	1.48	281.5	F	2.63	600.0+	F
	SB	TR	0.90	34.0	C	1.17	117.2	F
3rd Ave & 9th St	EB	L	0.89	109.9	F	0.93	119.7	F
	WB	TR	1.03	104.3	F	1.04	107.6	F
	SB	TR	0.80	29.9	C	1.03	67.1	E
3rd Ave & Prospect Ave	WB	L	0.91	69.5	E	0.91	69.5	E
	WB	LT	1.13	140.9	F	1.20	167.3	F
	NB	LT	0.94	33.8	C	0.95	34.4	C
	SB (On-Ramp)	TR	1.05	106.6	F	1.22	167.8	F
3rd Ave & 17th St	EB	LTR	0.77	60.7	E	0.87	68.4	E
	SB	L	0.42	46.2	D	0.72	61.4	E
4th Ave & St. Marks Pl	NB	TR	0.94	49.0	D	0.96	52.4	D
4th Ave & Union St	EB	LTR	1.13	102.5	F	1.45	244.8	F
	WB	LTR	1.50	284.0	F	1.86	441.5	F
4th Ave & Caroll St	NB	TR	0.94	34.1	C	0.94	34.2	C
4th Ave & 3rd St	EB	LTR	1.03	89.9	F	1.09	90.0	F
	NB	L	1.47	263.3	F	1.46	262.7	F
	NB	TR	1.07	67.7	E	1.08	72.1	E
	SB	TR	0.95	40.2	D	0.98	46.0	D
4th Ave & 9th St	EB	LT	0.94	84.1	F	0.96	88.7	F
	NB	TR	1.15	100.8	F	1.15	100.8	F

Table 14-26 (cont'd)
Congested Lane Groups at Analyzed Intersections
Under With Action Conditions—Weekday AM Peak Hour

			No Action AM			With Action AM		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
4th Ave & Prospect Ave	WB	LTR	1.08	86.9	F	1.06	88.3	F
4th Ave & 17th St	EB	LTR	0.63	45.4	D	0.76	50.8	D
	NB	T	0.95	39.1	D	0.97	42.5	D
	SB	L	1.02	84.4	F	1.13	115.9	F
5th Ave & Union St	WB	LTR	0.97	57.9	E	1.07	85.9	F
Atlantic Ave & Bond St	WB	TR	1.08	62.5	E	1.09	65.2	E
	NB	LTR	1.22	157.5	F	1.53	287.9	F
Atlantic Ave & Nevins St	WB	LT	1.47	226.2	F	1.51	248.7	F
	SB	TR	1.04	100.9	F	1.09	116.7	F
Atlantic Ave & 3rd Ave	EB	TR	0.91	62.3	E	0.92	62.8	E
	WB	T	1.29	150.9	F	1.32	162.3	F
	NB	LTR	0.82	46.0	D	0.90	53.6	D
Atlantic Ave & 4th Ave	WB	T	1.08	48.4	D	1.10	57.1	E
	NB	L	1.07	119.6	F	1.07	120.7	F
	NB	LR	1.15	158.6	F	1.19	172.6	F
	NB	R	0.69	59.5	E	0.73	62.1	E
	SB	LT	1.22	162.2	F	1.26	180.4	F
Atlantic Ave & Flatbush Ave	EB	T	0.96	38.3	D	0.98	41.2	D
	WB	T	0.99	54.5	D	1.01	59.7	E
	WB	R	1.12	124.9	F	1.12	124.9	F
Court St & Luquer St	EB	TR	0.37	37.1	E	1.13	231.8	F
Smith St & 4th Pl/5th St	WB	TR	1.78	440.8	F	10.00+	600.0+	F
Smith St & Luquer St	EB	L	1.12	170.4	F	4.71	600.0+	F
Smith St & Nelson St	WB	TR	**Does Not Exist In No Action**			4.83	600.0+	F
Smith St & Huntington St	EB	LT	0.96	113.9	F	10.00+	600.0+	F
	WB	R	0.05	18.9	C	2.33	600.0+	F
Hoyt St & Sackett St	WB	LT	0.67	47.5	E	0.97	118.0	F
Hoyt St & President St	WB	L	0.31	20.1	C	0.64	56.5	F
Hoyt St & 2nd St	WB	LT	0.09	15.3	C	0.33	39.5	E
Hoyt St & 3rd St	WB	LT	-	14.9	B	-	38.8	E
Hoyt St & 4th St	EB	TR	0.42	16.6	C	2.74	600.0+	F
Bond St & Butler St	WB	R	0.71	31.1	D	1.31	201.4	F
Bond St & Degraw St	EB	LT	0.24	18.5	C	0.49	39.7	E
Bond St & Caroll St	EB	LT	0.41	32.8	D	1.42	345.9	F
Bond St & 1st St	EB	LT	0.27	24.9	C	0.52	49.1	E
Bond St & 4th St	NB	T	0.02	15.0	C	0.05	35.5	E

Shading denotes significant adverse impact.

+ denotes V/C ratio over 10.00 and Delay over 600.

Table 14-27
Congested Lane Groups at Analyzed Intersections Under With Action Conditions—Weekday Midday Peak Hour

			No Action Midday			With Action Midday		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Smith St & Union St	NB	TR	0.99	56.1	E	1.10	88.6	F
Smith St & 3rd St	WB	R	0.55	22.5	C	1.04	95.1	F
	NB	TR	0.97	47.4	D	1.27	153.5	F
Smith St & 9th St	NB	LT	0.87	34.5	C	0.96	49.2	D
Smith St & Hamilton Ave WB	EB	L	0.57	57.3	E	0.58	57.9	E
	WB	TR	0.92	42.1	D	0.94	44.1	D
Hoyt St & Union St	EB	TR	0.95	54.1	D	1.13	104.0	F
Bond St & Baltic St	NB	LTR	0.75	22.9	C	0.91	36.9	D
Bond St & 3rd St	WB	TR	0.67	16.5	B	0.94	39.1	D
3rd Ave & Douglass St	EB	LTR	0.34	63.8	E	0.42	66.8	E
3rd Ave & Union St	EB	LTR	1.81	445.6	F	1.61	357.9	F
	WB	LR	1.37	268.3	F	1.52	335.4	F
3rd Ave & Caroll St	EB	LTR	0.96	111.5	F	1.60	357.9	F
3rd Ave & 1st St/Driveway	WB	LTR	0.39	60.2	E	0.53	67.6	E
3rd Ave & 3rd St	EB	L	0.79	98.4	F	0.93	130.1	F
	EB	TR	1.13	157.5	F	1.40	268.0	F
	WB	LTR	1.31	232.6	F	1.73	414.8	F
	NB	L	1.15	159.2	F	1.46	286.9	F
	SB	TR	1.04	61.3	E	1.22	130.3	F
3rd Ave & 9th St	WB	TR	0.84	62.0	E	0.85	63.0	E
	NB	L	0.49	33.7	C	0.60	47.3	D
	NB	TR	0.94	50.4	D	0.94	51.0	D
	SB	TR	1.10	93.5	F	1.15	114.7	F
3rd Ave & Prospect Ave	NB	LT	0.91	47.8	D	0.92	48.0	D
	SB (On-Ramp)	TR	0.90	64.6	E	0.95	72.5	E
3rd Ave & 17th St	EB	LTR	0.89	67.6	E	0.94	75.4	E
4th Ave & Caroll St	NB	TR	0.92	48.2	D	0.91	47.8	D
4th Ave & 3rd St	NB	L	0.99	82.4	F	0.92	65.0	E
	SB	TR	0.92	43.6	D	0.94	47.4	D
4th Ave & 9th St	SB	TR	0.97	56.9	E	0.97	57.3	E
4th Ave & 17th St	EB	LTR	1.10	107.7	F	1.13	118.5	F
	NB	T	1.08	91.9	F	1.08	92.3	F
Atlantic Ave & Bond St	WB	TR	0.92	15.0	B	0.93	15.4	B
	NB	LTR	1.29	182.4	F	1.43	241.1	F
Atlantic Ave & Nevins St	EB	TR	0.94	34.7	C	0.95	35.6	D
	WB	LT	1.36	188.6	F	1.38	199.1	F
	SB	TR	1.38	226.7	F	1.34	210.9	F
Atlantic Ave & 3rd Ave	NB	LTR	0.87	55.2	E	0.90	59.4	E
Atlantic Ave & 4th Ave	WB	T	0.93	20.8	C	0.93	21.0	C
	NB	LR	0.71	60.6	E	0.71	60.6	E
	SB	LT	1.14	129.0	F	1.19	147.4	F
Atlantic Ave & Flatbush Ave	WB	R	1.22	163.3	F	1.22	163.3	F
Smith St & 4th Pl/5th St	WB	TR	1.21	189.8	F	10.00+	600.0+	F
Smith St & Luquer St	EB	L	0.37	25.3	D	0.82	75.9	F
Smith St & Nelson St	WB	TR	Does Not Exist In No Action			0.76	183.1	F
Smith St & Huntington St	EB	LT	0.73	68.6	F	10.00+	600.0+	F
	WB	R	0.11	37.5	E	1.17	600.0+	F
Hoyt St & 4th St	EB	TR	0.64	33.4	D	2.14	582.2	F
Bond St & Butler St	WB	R	0.44	19.3	C	0.70	39.0	E
Bond St & Caroll St	EB	LT	0.07	14.7	B	0.30	50.4	F
Bond St & 4th St	NB	T	0.02	20.1	C	0.08	59.7	F
Nevins St & Degraw St	WB	LT	0.13	17.2	C	0.40	46.7	E

Shading denotes significant adverse impact.

+ denotes V/C ratio over 10.00 and Delay over 600.

Table 14-28
Congested Lane Groups at Analyzed Intersections Under With Action Conditions—Weekday PM Peak Hour

			No Action PM			With Action PM		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Court St & 4th Pl	WB	TR	0.65	26.5	C	1.11	100.8	F
Smith St & Union St	EB	TR	0.79	21.0	C	0.93	31.7	C
	NB	TR	1.02	65.6	E	1.20	126.9	F
Smith St & 3rd St	WB	R	0.71	30.3	C	1.57	305.0	F
	NB	TR	0.93	39.7	D	1.26	150.9	F
Smith St & 9th St	NB	LT	0.79	27.5	C	0.90	37.5	D
Smith St & Hamilton Ave WB	EB	L	0.84	84.5	F	0.86	87.3	F
Hoyt St & Union St	EB	TR	1.28	163.8	F	1.74	361.5	F
Bond St & Baltic St	NB	LTR	0.94	35.4	D	1.25	138.8	F
Bond St & Union St	EB	LT	0.99	21.9	C	1.30	145.7	F
Bond St & 3rd St	WB	TR	0.75	19.3	B	1.08	77.4	E
	NB	LTR	0.73	28.4	C	1.76	373.8	F
Nevins St & Union St	SB	LT	0.92	48.7	D	1.07	87.5	F
3rd Ave & Baltic St	EB	LTR	0.70	74.7	E	0.74	76.9	E
3rd Ave & Douglass St	EB	LTR	0.63	92.5	F	0.76	102.5	F
3rd Ave & Union St	EB	LTR	2.15	600.0+	F	2.08	587.8	F
	WB	LR	1.50	295.3	F	2.06	545.7	F
3rd Ave & Carroll St	EB	LTR	1.47	322.6	F	2.51	600.0+	F
	NB	TR	0.93	28.7	C	0.99	39.3	D
3rd Ave & 1st St/Driveway	EB	LTR	0.06	72.7	E	0.07	72.9	E
	WB	LTR	0.39	83.2	F	0.54	92.5	F
	NB	LTR	0.86	17.6	B	0.90	15.5	B
	SB	TR	0.82	29.7	C	0.92	45.6	D
3rd Ave & 3rd St	EB	L	0.86	127.2	F	1.05	180.4	F
	EB	TR	1.56	352.5	F	2.80	600.0+	F
	WB	LTR	2.11	591.1	F	4.71	600.0+	F
	NB	L	1.45	286.7	F	2.54	600.0+	F
	SB	TR	1.05	69.3	E	1.24	140.6	F
3rd Ave & 9th St	WB	TR	0.94	83.9	F	0.96	88.6	F
	NB	L	0.34	21.8	C	0.87	121.5	F
	NB	TR	0.94	45.7	D	0.98	54.7	D
	SB	TR	1.07	80.7	E	1.35	195.1	F
3rd Ave & Prospect Ave	WB	L	1.00	87.3	F	1.00	87.3	F
	WB	LT	0.60	55.2	E	0.64	56.7	E
	NB	LT	0.85	58.4	E	0.86	58.8	E
	SB (On-Ramp)	TR	0.95	70.0	E	1.18	142.8	F
3rd Ave & 17th St	EB	LTR	0.87	64.6	E	0.94	74.6	E
	SB	L	0.37	93.3	F	0.44	93.7	F
4th Ave & Union St	EB	LTR	1.51	280.3	F	1.82	418.8	F
	WB	LTR	1.37	239.9	F	1.65	358.7	F
4th Ave & 3rd St	EB	LTR	1.28	170.3	F	1.35	202.1	F
	NB	L	0.89	83.1	F	0.91	89.6	F
	SB	TR	1.08	74.2	E	1.12	87.5	F

Table 14-28 (cont'd)
Congested Lane Groups at Analyzed Intersections Under With Action Conditions—Weekday PM Peak Hour

			No Action PM			With Action PM		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
4th Ave & 9th St	EB	LT	1.02	96.9	F	1.04	102.8	F
	WB	L	0.66	56.5	E	0.66	56.5	E
	NB	L	0.45	58.8	E	0.45	60.0	E
	SB	TR	1.17	116.4	F	1.20	129.9	F
4th Ave & Prospect Ave	WB	LTR	1.07	94.6	F	1.09	101.0	F
	SB	T	0.95	46.2	D	0.98	51.4	D
4th Ave & 17th St	EB	LTR	0.89	54.4	D	0.98	68.2	E
	NB	T	1.05	75.0	E	1.08	85.3	F
	SB	L	0.94	49.9	D	1.01	62.9	E
5th Ave & Union St	EB	LTR	0.80	32.9	C	0.90	43.4	D
	NB	LTR	0.92	46.6	D	0.98	58.7	E
5th Ave & 3rd St	NB	TR	0.94	44.6	D	0.95	45.1	D
Atlantic Ave & Bond St	WB	TR	1.04	48.2	D	1.05	51.5	D
	NB	LTR	1.35	217.6	F	1.65	345.9	F
Atlantic Ave & Nevins St	EB	TR	1.08	52.2	D	1.09	57.5	E
	WB	LT	1.51	262.4	F	1.54	272.5	F
	SB	TR	1.63	341.8	F	1.72	380.7	F
Atlantic Ave & 3rd Ave	EB	TR	1.00	27.8	C	1.02	32.9	C
	WB	T	0.98	37.3	D	1.00	39.5	D
	NB	LTR	0.90	55.5	E	0.95	63.5	E
Atlantic Ave & 4th Ave	EB	T	1.11	76.0	E	1.12	81.6	F
	WB	T	1.09	64.3	E	1.10	69.2	E
	NB	L	1.02	105.8	F	1.03	106.7	F
	NB	LR	1.13	154.5	F	1.17	166.6	F
	NB	R	0.68	56.8	E	0.71	58.4	E
	SB	LT	1.39	225.9	F	1.43	245.3	F
Atlantic Ave & Flatbush Ave	EB	T	1.06	46.8	D	1.08	55.7	E
	WB	R	1.27	183.6	F	1.27	183.6	F
Court St & Luquer St	EB	TR	0.28	32.3	D	0.77	111.4	F
Smith St & 4th Pl/5th St	WB	TR	1.26	205.9	F	10.00+	600.0+	F
Smith St & Luquer St	EB	L	0.52	37.8	E	1.75	423.2	F
Smith St & Nelson St	WB	TR	**Does Not Exist In No Action**			1.79	600.0+	F
Smith St & Huntington St	EB	LT	0.58	46.0	E	10.00+	600.0+	F
	WB	R	0.06	20.4	C	1.31	600.0+	F
Hoyt St & 4th St	EB	TR	0.60	23.0	C	1.93	463.3	F
Bond St & Butler St	WB	R	0.49	21.4	C	1.01	98.4	F
Bond St & Carroll St	EB	LT	0.22	16.9	C	0.95	138.0	F
Bond St & 4th St	NB	T	0.02	18.8	C	0.09	64.6	F
Nevins St & Degraw St	WB	LT	0.22	17.0	C	0.62	49.2	E
Nevins St & Carroll St	SB	LR	0.36	13.0	B	0.78	36.5	E

Shading denotes significant adverse impact.

+ denotes V/C ratio over 10.00 and Delay over 600.

Table 14-29
Congested Lane Groups at Analyzed Intersections Under With Action Conditions—Saturday Peak Hour

			No Action Saturday			With Action Saturday		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
Smith St & Union St	NB	TR	1.20	128.5	F	1.33	180.3	F
Smith St & 3rd St	WB	R	0.69	28.5	C	1.43	243.7	F
	NB	TR	1.21	125.5	F	1.47	238.0	F
Smith St & 9th St	NB	LT	0.95	45.4	D	1.04	68.6	E
Smith St & Hamilton Ave WB	EB	L	0.92	96.2	F	0.94	100.0	F
	WB	TR	0.99	47.2	D	1.00	51.3	D
Hoyt St & Union St	EB	TR	1.27	161.3	F	1.48	249.7	F
Bond St & Baltic St	NB	LTR	0.90	28.9	C	1.09	76.4	E
Bond St & Union St	EB	LT	1.02	30.1	C	1.19	98.9	F
Bond St & 3rd St	EB	LT	0.64	16.1	B	0.90	37.5	D
	WB	TR	0.91	32.6	C	1.23	131.8	F
2nd Ave & 9th St	WB	TR	0.91	37.0	D	0.93	39.6	D
3rd Ave & Baltic St	EB	LTR	0.65	71.1	E	0.67	72.4	E
3rd Ave & Douglass St	EB	LTR	0.40	74.8	E	0.46	77.3	E
3rd Ave & Union St	EB	LTR	1.68	410.8	F	1.66	399.7	F
	WB	LR	1.50	337.2	F	1.68	415.7	F
	NB	TR	0.81	39.6	D	0.89	48.4	D
3rd Ave & Caroll St	EB	LTR	1.34	260.5	F	1.95	530.5	F
	NB	TR	0.91	21.4	C	0.94	23.8	C
	SB	LT	1.11	110.2	F	1.01	79.3	E
3rd Ave & 1st St/Driveway	EB	LTR	0.05	64.9	E	0.05	65.1	E
	WB	LTR	0.56	83.5	F	0.69	94.3	F
	NB	LTR	0.89	16.7	B	0.90	16.7	B
	SB	TR	0.89	28.6	C	0.95	35.3	D
3rd Ave & 3rd St	EB	L	0.81	119.1	F	0.75	108.5	F
	EB	TR	1.39	281.0	F	1.67	402.0	F
	WB	LTR	1.80	413.7	F	3.16	600.0+	F
	NB	L	2.99	600.0+	F	4.58	600.0+	F
	NB	TR	1.01	84.7	F	1.01	86.9	F
	SB	TR	1.16	112.3	F	1.29	167.3	F
3rd Ave & 9th St	WB	TR	1.04	98.6	F	1.04	101.4	F
	NB	L	0.64	50.1	D	1.05	163.9	F
	SB	TR	1.10	95.3	F	1.19	128.8	F
3rd Ave & Prospect Ave	WB	L	0.80	58.8	E	0.80	58.8	E
	WB	LT	0.79	65.3	E	0.81	67.7	E
	NB	LT	1.09	81.1	F	1.10	83.6	F
	SB (On-Ramp)	TR	0.86	57.8	E	0.91	64.0	E
3rd Ave & 17th St	EB	LTR	0.73	59.1	E	0.79	62.0	E
	SB	L	0.66	65.9	E	0.64	64.3	E
4th Ave & Union St	EB	LTR	0.91	23.3	C	1.02	40.4	D
	SB	L	0.74	81.6	F	0.87	108.7	F
	SB	TR	0.90	45.2	D	0.93	48.8	D
4th Ave & Caroll St	NB	TR	1.22	144.3	F	1.23	146.4	F
	SB	L	0.90	133.4	F	0.96	151.1	F
	SB	T	0.92	47.0	D	0.93	48.5	D
4th Ave & 3rd St	NB	L	1.11	129.4	F	1.11	128.6	F
	NB	TR	0.97	44.6	D	0.98	48.5	D
	SB	TR	0.98	54.7	D	1.01	62.3	E

Table 14-29 (cont'd)
Congested Lane Groups at Analyzed Intersections Under With Action Conditions—Saturday Peak Hour

			No Action Saturday			With Action Saturday		
Intersection	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
4th Ave & 9th St	NB	TR	1.01	57.2	E	1.01	57.7	E
	SB	TR	1.07	85.9	F	1.09	92.7	F
4th Ave & Prospect Ave	WB	LTR	0.96	62.9	E	0.95	62.1	E
4th Ave & 17th St	EB	LTR	1.06	91.8	F	1.11	108.3	F
	NB	T	0.98	61.0	E	1.00	63.9	E
	SB	L	0.97	71.6	E	1.03	83.6	F
5th Ave & Union St	NB	LTR	0.89	43.3	D	0.95	52.7	D
5th Ave & 3rd St	EB	LTR	0.94	71.6	E	0.95	73.2	E
	NB	TR	0.91	40.1	D	0.91	40.3	D
Atlantic Ave & Bond St	WB	TR	0.89	21.6	C	0.90	21.9	C
	NB	LTR	1.24	169.7	F	1.42	243.5	F
Atlantic Ave & Nevins St	EB	TR	1.07	53.4	D	1.08	55.9	E
	WB	LT	1.48	244.3	F	1.50	252.2	F
	SB	TR	1.34	218.1	F	1.36	223.2	F
Atlantic Ave & 3rd Ave	EB	TR	0.94	20.9	C	0.95	21.5	C
	WB	T	1.01	28.2	C	1.01	28.8	C
	NB	LTR	1.01	77.6	E	1.04	86.1	F
Atlantic Ave & 4th Ave	EB	T	0.97	39.2	D	0.97	39.3	D
	WB	T	1.13	78.3	E	1.13	79.4	E
	NB	L	0.95	93.1	F	0.95	83.8	F
	NB	LR	0.94	99.2	F	0.94	99.2	F
	SB	LT	1.08	105.8	F	1.11	116.8	F
Atlantic Ave & Flatbush Ave	EB	T	0.99	34.5	C	1.00	35.1	D
	WB	R	1.34	211.0	F	1.34	211.0	F
Court St & Luquer St	EB	TR	0.56	42.3	E	0.82	88.8	F
Smith St & 4th Pl/5th St	WB	TR	1.53	343.0	F	10.00+	600.0+	F
Smith St & Luquer St	EB	L	0.56	37.2	E	1.24	203.8	F
Smith St & Nelson St	WB	TR	**Does Not Exist In No Action**			1.13	319.9	F
Smith St & Huntington St	EB	LT	0.80	80.9	F	5.19	600.0+	F
	WB	R	0.03	22.8	C	0.45	418.0	F
Hoyt St & 4th St	EB	TR	0.47	18.8	C	1.18	144.2	F
Bond St & Butler St	WB	R	0.53	23.3	C	0.94	80.4	F
Bond St & Caroll St	EB	LT	0.30	24.4	C	1.01	179.9	F
Bond St & 1st St	EB	LT	0.19	21.4	C	0.35	37.8	E
Nevins St & Degraw St	WB	LT	0.23	18.1	C	0.54	46.2	E
Nevins St & Caroll St	SB	LR	0.60	21.9	C	1.10	113.8	F

Shading denotes significant adverse impact.

+ denotes V/C ratio over 10.00 and Delay over 600.

The traffic impact analysis indicates the potential for significant adverse impacts at 43 intersections (31 signalized and 12 unsignalized) during one or more analyzed peak hours. Significant adverse impacts were identified to 58 lane groups at 37 intersections during the weekday AM peak hour, 29 lane groups at 23 intersections in the weekday midday peak hour, 58 lane groups at 36 intersections in the weekday PM peak hour, and 41 lane groups at 33 intersections during the Saturday peak hour. V/c ratios, delays, and levels of service for all lane groups at all analyzed intersections in all peak periods are provided in Table G-3 in Appendix G. Potential measures to mitigate the significant adverse traffic impacts identified in **Tables 14-26 through 14-29** are discussed in Chapter 21, "Mitigation."

H. TRANSIT

EXISTING CONDITIONS

SUBWAY SERVICE

Subway Stations

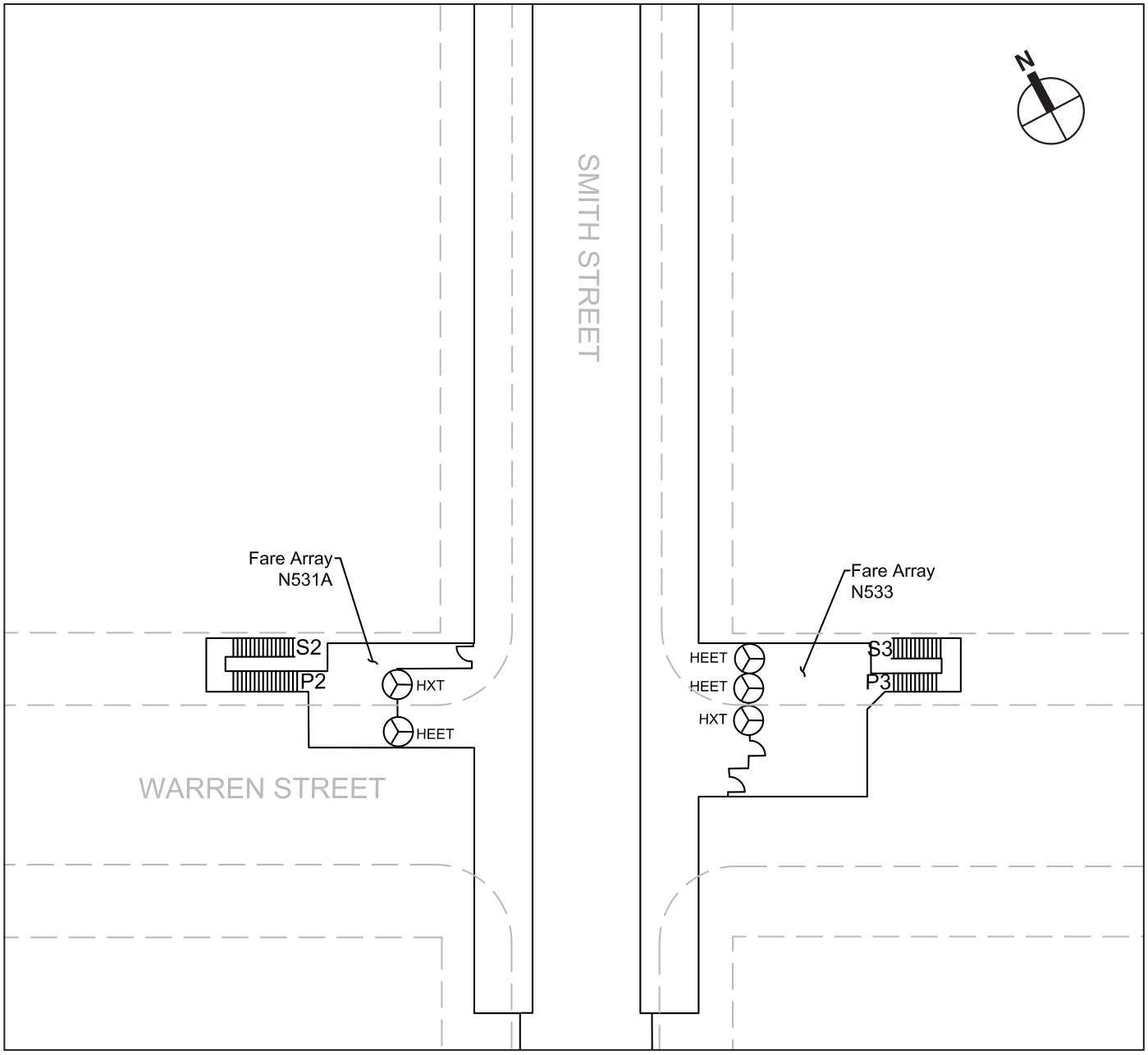
As discussed above in Section E, "Level 2 Screening Assessment," project-generated subway trips at the Bergen Street (F/G), Carroll Street (F/G), and Smith-9th Streets (F/G) stations on the Culver Line and the Union Street (R) station on the 4th Avenue Line are expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold in the weekday AM and/or PM peak hours. The Smith-9th Streets station is located on an elevated structure while the remaining three stations are located below-grade.

Bergen Street Subway Station (F/G)

The Bergen Street subway station is located beneath Smith Street and consists of two tracks, each served by a side platform with same-level fare control areas at each end. There is no connection between the two platforms within the station. The station also has a lower "express" level with two side platforms that are currently not in service. The tracks on this level also do not see regular service.

Based on the locations of projected development sites, incremental demand from the Proposed Actions is expected to be concentrated at entrance stairs and fare arrays at the station's southern end at Warren Street. As shown in **Figure 14-23**, stair S3/P3 located at the northeast corner of Warren and Smith Streets provides access to the south end of the northbound (Manhattan-bound) platform via fare array N533 which consists of two high entry/exit turnstiles (HEETs) and a single high exit turnstile (HXT). Stair S2/P2 located at the northwest corner of Warren and Smith Streets provides access to the south end of the southbound (Coney Island-bound) platform via fare array N531A which consists of one HEET and one HXT.

Full-time fare arrays are also located at the north end of each platform. Two stairs at the northeast and southeast corners of Bergen and Smith Streets provide access to the northbound platform via a fare array consisting of a 24-hour fare booth and three turnstiles. In addition, two stairs at the northwest and southwest corners at Bergen Street provide access to the southbound platform via a fare array with four turnstiles and two HEETs. As few, if any, trips generated by the Proposed Actions are expected to enter/exit the station at Bergen Street, significant adverse impacts are not expected to occur, and these station elements are not included for analysis.



Source: PHA

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

NOT TO SCALE

Bergen Street (F/G) Subway Station

Figure 14-23

As shown in **Tables 14-30 and 14-31**, all analyzed stairs and fare arrays at the Bergen Street subway station currently operate at an uncongested LOS A or B in both the AM and PM peak hours.

Carroll Street Subway Station (F/G)

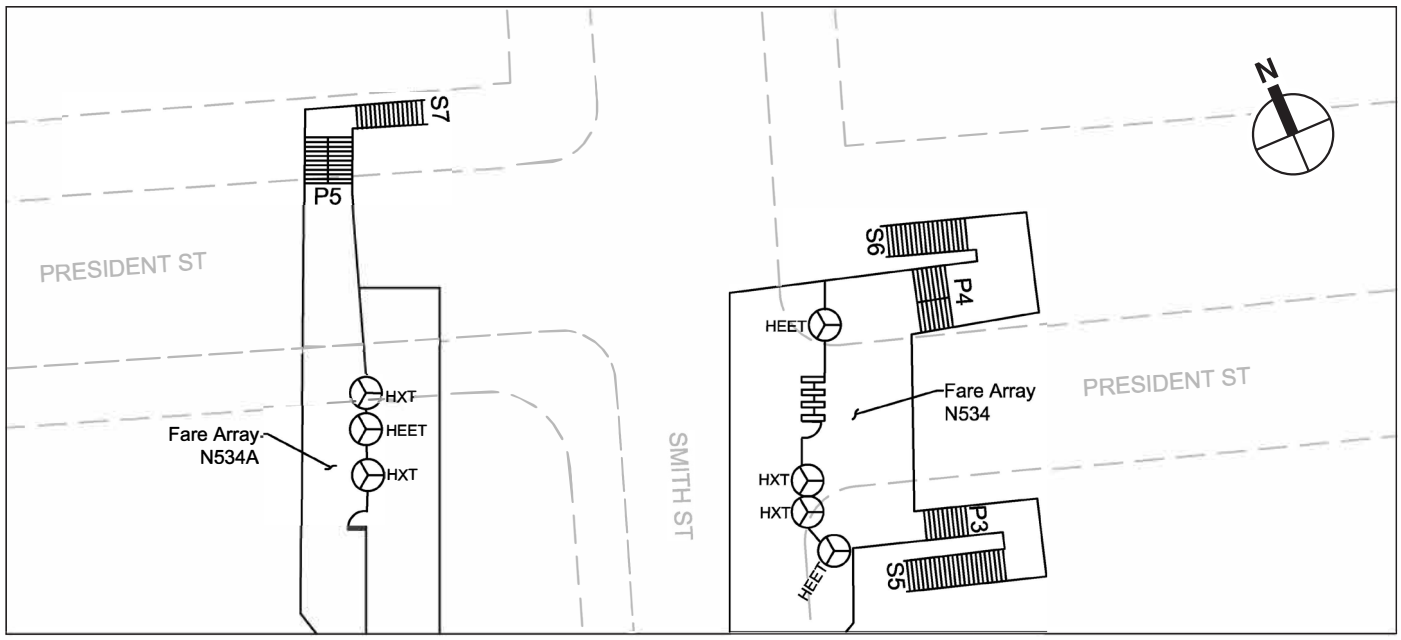
The Carroll Street subway station is located beneath Smith Street and consists of two side platforms serving the local tracks on the Culver Line. (Two express tracks also run through the station but do not see regular service.) As shown in **Figure 14-24**, a 24-hour fare booth and a fare array (N535) consisting of three turnstiles is located on a mezzanine level at the south end of the station. In addition, two HEETs are located to the east of the main fare array. Access between the mezzanine and street levels is provided by stairs S4, M3, and M2, which connect to the southeast corner of 2nd and Smith Streets, and stair S3 located within the building at the northwest corner of 2nd Place and Smith Street. Two stairs provide access between the mezzanine and each platform—stairs M2 and P2 to the northbound (Manhattan-bound) platform and stairs M1 and P1 to the southbound (Coney Island-bound) platform. Un-staffed platform-level fare control areas are also located at the north end of both the northbound and southbound platforms—fare array N534 with three turnstiles, two HEETs, and two HXTs at the northbound platform; and fare array N534A with one HEET and two HXTs at the southbound platform. Access between the street and the north end of the northbound platform is provided by two stairs, S6 and S5, located at the northeast and southeast corners of President and Smith Streets, respectively. A single stair (S7) on the northwest corner of the intersection provides access to the southbound platform.

As shown in **Tables 14-30 and 14-31**, all analyzed stairs and fare arrays at the Carroll Street subway station currently operate at an uncongested LOS A or B in both the AM and PM peak hours.

Smith-9th Streets Subway Station (F/G)

The Smith-9th Streets subway station is located on an elevated structure above the Gowanus Canal and consists of two side platforms serving the local tracks on the Culver Line. (Two express tracks also run through the station but do not see regular service.) As shown in **Figure 14-25**, Access from the street is via a headhouse located on 9th Street containing a 24-hour fare booth and a fare array (N536) consisting of four turnstiles. Three escalators (E348, E313, and E314) and a stair (ML4-6) provide access up to a landing from which three more escalators (ES349, ES315, and ES316) and a stair (ML1-3) provide access up to a mezzanine level. Two escalators in each set typically operate in the up direction and one in the down direction. A single stair connects the mezzanine to the western end of each of the station's two platforms (stair M3/4 to the northbound platform and stair M1/2 to the southbound platform). This station underwent a full reconstruction in 2011–2013.

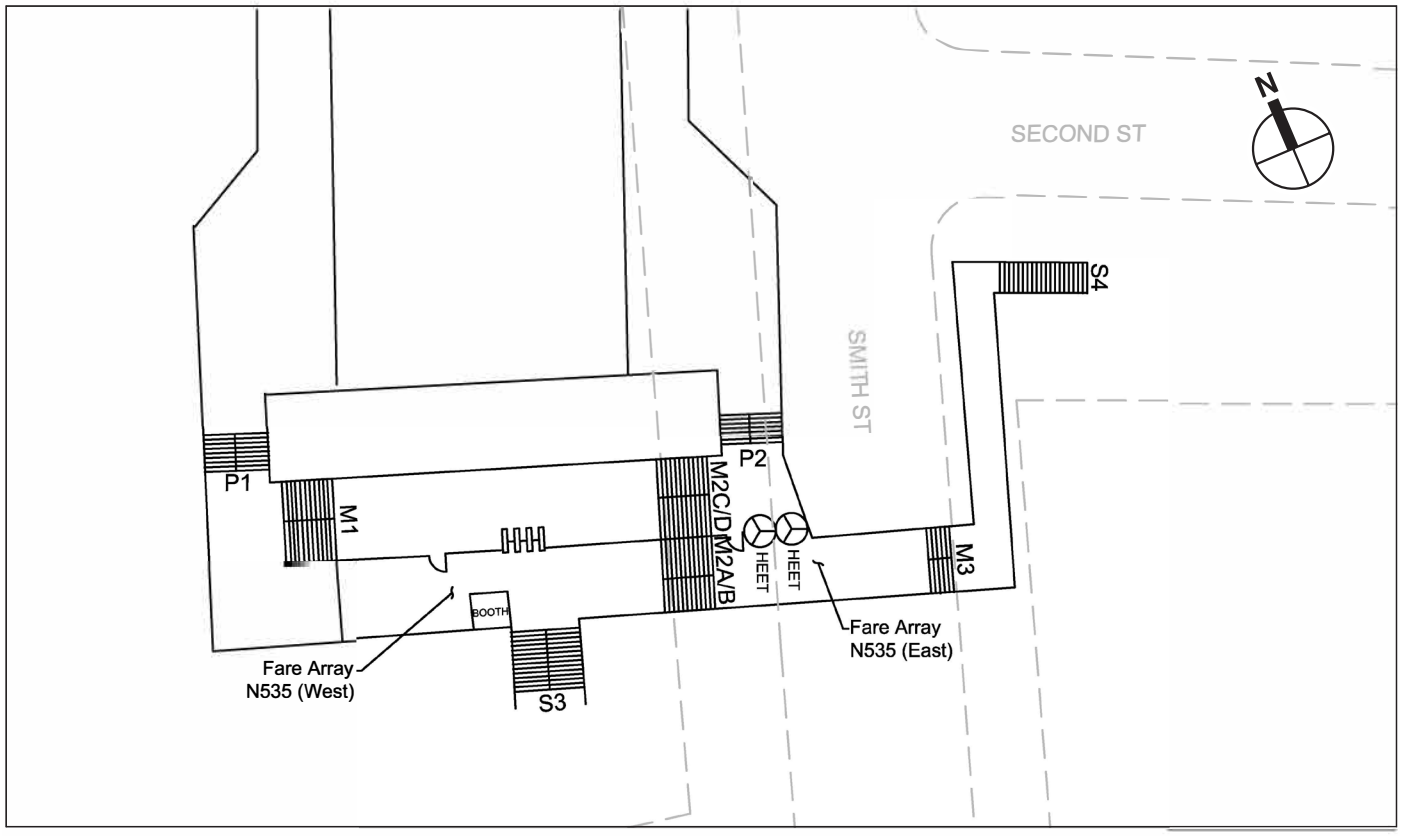
As shown in **Tables 14-30 through 14-32**, all analyzed stairs, escalators, and fare arrays at the Smith-9th Streets station currently operate at an uncongested LOS A in both the AM and PM peak hours.



Source: PHA

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

NOT TO SCALE

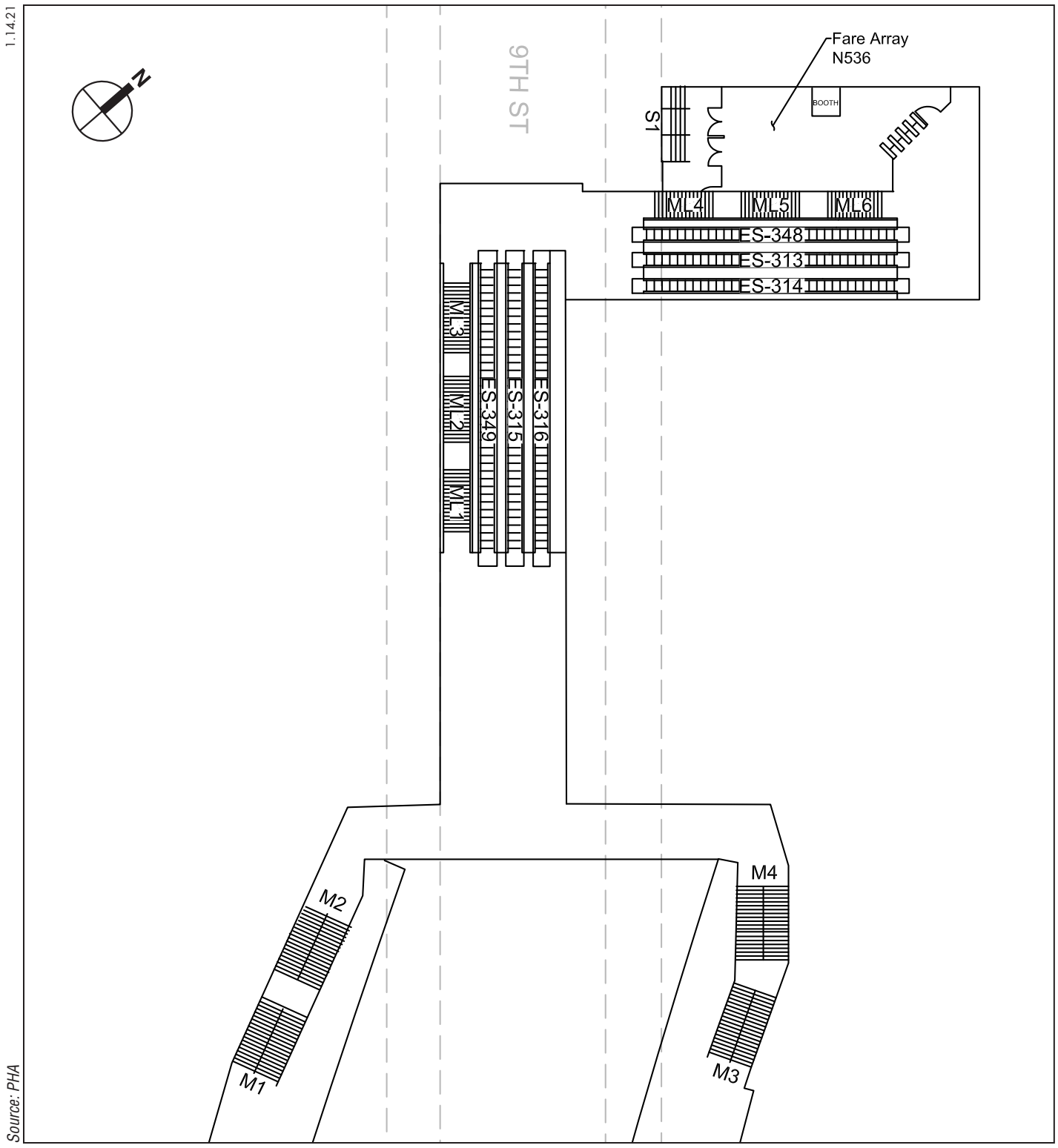


Source: PHA

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

NOT TO SCALE

Carroll Street (F/G) Subway Station



Smith-9th Streets (F/G) Subway Station

Table 14-30
Existing Conditions Subway Station Stair Analysis

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	Bergen Street (F/G)	S2/P2	5.00	4.00	722	152	0.75	1.00	0.90	0.65	B
		S3/P3	5.00	4.00	268	747	0.75	1.00	0.90	0.64	B
	Carroll Street (F/G)	S3	13.00	11.75	1,087	948	0.80	1.00	0.90	0.45	A
		S4	5.00	4.00	48	288	0.90	1.00	0.90	0.20	A
		S5	6.00	5.00	61	369	0.75	1.00	0.90	0.21	A
		S6	5.00	4.00	106	742	0.75	1.00	0.90	0.51	B
		S7	5.00	4.00	288	136	0.75	1.00	0.90	0.30	A
		M1	13.25	12.00	685	105	0.75	1.00	0.90	0.20	A
		M2A/B	13.00	11.75	235	49	0.80	1.00	0.90	0.07	A
		M2C/D	13.33	12.08	175	833	0.75	1.00	0.90	0.20	A
		M3	12.58	11.33	48	288	0.80	1.00	0.90	0.07	A
		P1	12.00	10.75	685	105	0.75	1.00	0.90	0.22	A
		P2	11.67	10.42	406	1,100	0.75	1.00	0.90	0.37	A
		P3	6.00	5.00	61	369	0.75	1.00	0.90	0.21	A
		P4	9.50	8.25	106	742	0.75	1.00	0.90	0.25	A
		P5	10.58	9.33	288	136	0.75	1.00	0.90	0.13	A
	Smith-9th Street (F/G)	S1	16.00	14.50	575	692	1.00	0.80	0.90	0.23	A
		ML1-6	5.60	4.60	6	134	0.75	1.00	1.00	0.06	A
		M1/2	9.33	8.08	93	448	0.75	1.00	0.90	0.16	A
		M3/4	9.33	8.08	508	206	0.75	1.00	0.90	0.25	A
	Union Street (R)	S1/P1	4.50	3.50	103	49	1.00	0.75	0.90	0.11	A
		S2/P2	4.00	3.00	169	308	1.00	0.75	0.90	0.45	A
		S3/P3	4.50	3.50	83	21	1.00	0.75	0.90	0.07	A
		S4/P4	4.67	3.67	121	319	1.00	0.75	0.90	0.35	A
PM	Bergen Street (F/G)	S2/P2	5.00	4.00	640	93	0.75	1.00	0.90	0.55	B
		S3/P3	5.00	4.00	70	205	0.75	1.00	0.90	0.17	A
	Carroll Street (F/G)	S3	13.00	11.75	683	486	0.80	1.00	0.90	0.26	A
		S4	5.00	4.00	49	71	0.90	1.00	0.90	0.07	A
		S5	6.00	5.00	100	40	0.75	1.00	0.90	0.08	A
		S6	5.00	4.00	256	40	0.75	1.00	0.90	0.22	A
		S7	5.00	4.00	709	116	0.75	1.00	0.90	0.61	B
		M1	13.25	12.00	768	104	0.75	1.00	0.90	0.22	A
		M2A/B	13.00	11.75	17	54	0.80	1.00	0.90	0.01	A
		M2C/D	13.33	12.08	107	358	0.75	1.00	0.90	0.10	A
		M3	12.58	11.33	49	71	0.80	1.00	0.90	0.03	A
		P1	12.00	10.75	768	104	0.75	1.00	0.90	0.24	A
		P2	11.67	10.42	124	395	0.75	1.00	0.90	0.12	A
		P3	6.00	5.00	100	40	0.75	1.00	0.90	0.08	A
		P4	9.50	8.25	256	40	0.75	1.00	0.90	0.11	A
		P5	10.58	9.33	709	116	0.75	1.00	0.90	0.26	A
	Smith-9th Street (F/G)	S1	16.00	14.50	373	427	1.00	0.80	0.90	0.14	A
		ML1-6	5.60	4.60	8	61	0.75	1.00	0.90	0.04	A
		M1/2	9.33	8.08	106	356	0.75	1.00	0.90	0.14	A
		M3/4	9.33	8.08	287	70	0.75	1.00	0.90	0.13	A
	Union Street (R)	S1/P1	4.50	3.50	444	123	1.00	0.75	0.90	0.40	A
		S2/P2	4.00	3.00	30	86	1.00	0.75	0.90	0.11	A
		S3/P3	4.50	3.50	449	120	1.00	0.75	0.90	0.40	A
		S4/P4	4.67	3.67	50	105	1.00	0.75	0.90	0.12	A

Table 14-31
Existing Conditions Subway Station Fare Array Analysis

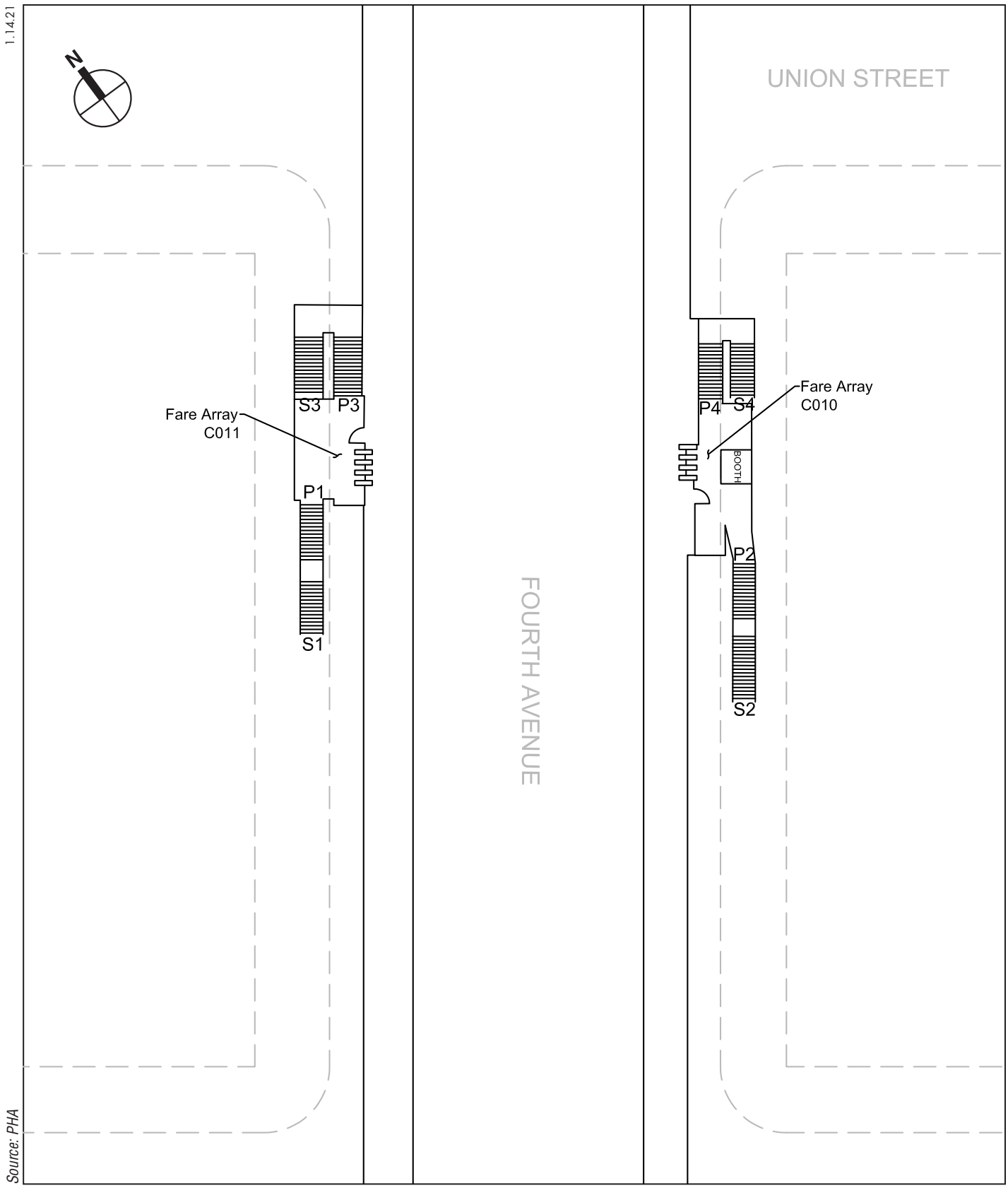
Peak Hour	Station	Control Area	Control Elements			Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
			Turnstile	HEET	HXT	System Entries	System Exits	System Entries	System Exits			
AM	Bergen Street (F/G)	N531A	0	1	1	152	722	1.00	0.75	0.90	0.51	B
		N533	0	2	1	747	268	1.00	0.75	0.90	0.58	B
	Carroll Street (F/G)	N534	3	2	2	1,111	167	1.00	0.75	0.90	0.24	A
		N534A	0	1	2	136	288	1.00	0.75	0.90	0.27	A
		N535 (West)	3	0	0	899	852	1.00	0.75	0.90	0.45	A
		N535 (East)	0	2	0	337	283	1.00	0.75	0.90	0.35	A
	Smith-9th Street (F/G)	N536	4	0	0	575	692	1.00	0.8	0.90	0.24	A
	Union Street (R)	C010	3	0	0	1,177	290	1.00	0.75	0.90	0.39	A
		C011	3	0	0	70	186	1.00	0.75	0.90	0.06	A
PM	Bergen Street (F/G)	N531A	0	1	1	93	640	1.00	0.75	0.90	0.40	A
		N533	0	2	1	205	70	1.00	0.75	0.90	0.16	A
	Carroll Street (F/G)	N534	3	2	2	290	356	1.00	0.75	0.90	0.10	A
		N534A	0	1	2	116	709	1.00	0.75	0.90	0.36	A
		N535 (West)	3	0	0	432	815	1.00	0.75	0.90	0.31	A
		N535 (East)	0	2	0	125	77	1.00	0.75	0.90	0.12	A
	Smith-9th Street (F/G)	N536	4	0	0	373	427	1.00	0.8	0.90	0.15	A
	Union Street (R)	C010	3	0	0	291	80	1.00	0.75	0.90	0.10	A
		C011	3	0	0	243	893	1.00	0.75	0.90	0.28	A

Table 14-32
Existing Conditions Escalator Analysis at the Smith-9th Streets Subway Station

Peak Period	Escalator	Tread Width	Feet per Minute	Guideline Capacity	Peak Hour Volumes	Surging Factor	V/C Ratio	LOS
AM	ES-314/316 (Down)	32"	90	750	558	0.75	0.31	A
	ES-313/315 (Up)	32"	90	750	285	1.00	0.12	A
	ES-348/349 (Up)	32"	90	750	285	1.00	0.12	A
PM	ES-314/316 (Down)	32"	90	750	366	0.75	0.2	A
	ES-313/315 (Up)	32"	90	750	183	1.00	0.08	A
	ES-348/349 (Up)	32"	90	750	183	1.00	0.08	A

Union Street Subway Station (R)

As shown in **Figure 14-26**, the Union Street subway station is located beneath 4th Avenue and consists of two side platforms serving the local tracks on the 4th Avenue Line. The station is served by R trains during daytime and evening hours and D, N and R trains during the late night (midnight-6:00 a.m.) period. (D and N trains operate on the express tracks during daytime and evening hours.) A platform-level fare control area is located near the center of each platform between Union and President Streets. Access to the northbound (Manhattan-bound) platform is controlled by fare array C010 with a 24-hour fare booth and three turnstiles. Access from street-level is provided by two stairs located midblock along the east side of 4th Avenue (S2/P2 and



Union Street (R) Subway Station

S4/P4). Fare array C011, also consisting of three turnstiles, controls access between two midblock stairs on the west side of 4th Avenue (S1/P1 and S3/P3) and the southbound (Brooklyn-bound) platform.

As shown in **Tables 14-30 and 14-31**, all analyzed stairs and fare arrays at the Union Street station currently operate at an uncongested LOS A in both the AM and PM peak hours.

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 previously, a total of 11 NYCT subway routes operate in proximity to the Project Area, including the 2, 3, 4, 5, B, D, F, G, N, Q, and R. All of these routes cross the East River, with the exception of the G train (which travels between Brooklyn and Queens and does not enter Manhattan). The peak direction of travel is typically Manhattan-bound in the AM peak period and Brooklyn-bound in the PM. For the G train, the peak direction of travel in Brooklyn is typically Brooklyn-bound during the AM peak hour and Queens-bound during the PM peak hour.

The analysis of existing subway line haul conditions is based on maximum load point capacity and ridership data for 2018 provided by NYCT. The ridership data were grown by 0.5 percent to account for any increases in demand during the 2018 to 2019 period.

Table 14-33 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. Based on guidance from NYCT, the Nos. 2 and 3 routes are analyzed as a combined express service, as are the Nos. 4 and 5 routes. As shown in **Table 14-33**, all routes currently operate below capacity in the peak direction in both periods; however, in the AM peak hour, northbound F trains operate close to capacity with a v/c ratio of 0.94. Southbound Q trains have the highest v/c ratio in the PM peak hour—0.74.

BUS SERVICE

The Project Area is served by a total of 10 local bus routes, nine operated by NYCT and one operated by MTA Bus. These include both local and LTD service on the B41 route, and the limited stop service on the B103 operated by MTA Bus. The bus routes operating in proximity to the Project Area are shown in **Figure 14-3** and listed in **Table 14-13**.

As shown in **Table 14-14**, three bus routes are expected to potentially experience 50 or more new trips in one direction in one or both peak hours and are therefore analyzed in this EIS—the B37 and B57 operated by NYCT and the B103 LTD operated by MTA Bus. Service on these local routes is provided by 40-foot standard buses. **Table 14-34** shows the existing number of buses and ridership at the maximum load point in each direction for both services in the weekday AM and PM peak hours. As shown in **Table 14-34**, based on MTA loading guidelines, the B37 and B57 routes currently operate with available capacity in each direction during the weekday AM and PM peak hours, as does the B103 LTD in each direction in the PM peak hour. However, in the AM peak hour B103 LTD buses currently operate with available capacity in the eastbound direction, but experience a capacity shortfall of 12 seats in the westbound direction.

Table 14-33
Existing Conditions Subway Line Haul Analysis

Peak Period	Route	Direction	Maximum Load Point (leaving station)	Average Trains Per Hour (1)	Average Cars Per Hour	Average Passengers Per Hour (2)	Average Passengers Per Car	Guideline Passengers Per Car (3)	V/C Ratio (4)
AM	2/3	NB	Nevins St	18.2	182	14,624	80	110	0.73
	4/5	NB	Borough Hall	21.3	213	18,192	85	110	0.78
	F	NB	Bergen St	12.6	126	15,990	127	135	0.94
	G	NB	Bergen St	8.6	34	2,380	69	145	0.48
	B	NB	DeKalb Av	10.1	81	8,232	102	175	0.58
	D	NB	Atlantic Av-Barclays Ctr	10.0	80	10,455	131	155	0.84
	N	NB	Atlantic Av-Barclays Ctr	9.9	99	9,744	98	125	0.79
	Q	NB	DeKalb Av	9.8	98	10,219	104	145	0.72
	R	NB	Union St	10.4	83	7,809	94	155	0.61
PM	2/3	SB	Wall St	18.0	180	9,961	55	110	0.50
	4/5	SB	Bowling Green	21.1	211	14,197	67	110	0.61
	F	SB	Jay St-MetroTech	13.0	130	10,636	82	135	0.61
	G	SB	Clinton-Washington Avs	8.0	32	2,970	93	145	0.64
	B	SB	Grand St	8.9	71	8,048	113	175	0.65
	D	SB	Grand St	9.5	76	8,004	105	175	0.60
	N	SB	Canal St	9.8	98	8,415	86	145	0.59
	Q	SB	Canal St	9.7	97	10,360	107	145	0.74
	R	SB	Jay St-MetroTech	10.0	80	7,078	88	155	0.57

Notes:

(1) Trains per hour based on 2018 scheduled trains per hour.

(2) Based on 2016-2017 ridership data from NYCT. Passenger volumes grown by 0.5 percent/year to account for growth in demand during the 2017 to 2019 period.

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

(4) Volume to guideline capacity ratio.

Table 14-34
Existing Conditions 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	B37	NB	3rd Ave/ 44th St	4	92	23	124
		SB	3rd Ave/ 65th St	4	110	28	106
	B57	EB	Flushing Av/ Marcy Av	4	134	34	82
		WB	Flushing Av/ Thornton St	6	201	34	123
	B103 LTD	EB	Cortelyou Rd/ East 18th St	7	223	32	155
		WB	Ave H/ East 56th St	23	1,254	55	-12
PM	B37	NB	3rd Ave/ 20th St	4	69	17	147
		SB	3rd Ave/ Senator St	5	111	22	159
	B57	EB	Flushing Av/ Clermont Av	6	194	32	130
		WB	Court St/ Warren St	6	164	27	160
	B103 LTD	EB	Ave H/ New York Ave	17	674	40	244
		WB	Ave H/ East 56th St	9	287	32	199

Notes:
[1] Based on NYCT 2018 ridership data. Passenger volumes grown by 0.5 percent/year to account for growth in demand from 2018 to 2019.
[2] Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

LONG ISLAND RAIL ROAD COMMUTER RAIL SERVICE

Commuter rail trains operated by the LIRR connect Downtown Brooklyn to the railroad's hub at Jamaica, Queens and points on Long Island via Atlantic Terminal located to the north of the Project Area at the intersection of Flatbush and Atlantic Avenues (see **Figure 14-2**). 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.

On weekdays there are approximately 135 LIRR arrivals and departures (combined) at this terminus, including seven arrivals in the 8:00–9:00 a.m. hour and eight departures in the 5:00–6:00 p.m. hour. As most projected development sites are not located within a convenient walking distance of Atlantic Terminal, most commuter rail trips generated by the Proposed Actions would likely start or end on another mode of transit (i.e., subway and bus).

THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO ACTION CONDITION)

Between 2019 and 2035, it is expected that subway and bus demands in the vicinity of the Project 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 2-9 in Chapter 2, "Land Use, Zoning, and Public Policy," were considered. The Future No Action subway station and bus volumes reflect annual background growth rates of 0.5 percent per year for the 2019 through 2024 period and 0.25 percent for the

2024 through 2035 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 2-9 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. The results of the analysis of No Action AM and PM peak hour conditions at the Bergen Street, Carroll Street, and Smith-9th Streets stations on the Culver Line and the Union Street station on the 4th Avenue Line are shown in **Tables 14-35 through 14-37** and discussed below.

Bergen Street Subway Station (F/G)

All analyzed stairs and fare arrays at the Bergen Street station are expected to operate at an acceptable LOS C or better in both the AM and PM peak hours in the No Action condition.

Carroll Street Subway Station (F/G)

All analyzed stairs and fare arrays at the Carroll Street station are expected to operate at an uncongested LOS B or better in both the AM and PM peak hours in the No Action condition.

Smith-9th Streets Subway Station (F/G)

All analyzed stairs, escalators and fare arrays at the Smith-9th Streets station are expected to continue to operate at an uncongested LOS A in both the AM and PM peak hours in the No Action condition.

Union Street Subway Station (R)

All analyzed stairs and fare arrays at the Union Street station are expected to operate at an acceptable LOS C or better in both the AM and PM peak hours in the No Action condition.

Subway Line Haul

Table 14-38 shows anticipated 2035 No Action line haul conditions at the maximum load points on the eleven subway routes operating in proximity to the Project Area. The data in **Table 14-38** reflect both background growth for the 2019 through 2035 period and the addition of demand from new development within the Project Area and its proximity.

As shown in **Table 14-38**, in the No Action condition, F trains are expected to operate at capacity in the AM peak hour with a v/c ratio of 1.00 in the peak northbound direction compared to a v/c ratio of 0.94 under existing conditions. All other analyzed subway routes are expected to continue to operate below capacity with a v/c ratio of 0.91 or less in the peak direction in both the AM and PM peak hours.

BUS SERVICE

Demand on the local bus services operating in the vicinity of the Project Area is expected to increase during the 2019 through 2035 period as a result of background growth as well as demand from new development. As shown in **Table 14-39**, existing levels of bus service are not expected to be sufficient to provide adequate supply to meet the projected demand in the 2035 No Action condition on the westbound B103 LTD service in the AM peak hour. Based on a loading guideline of 54 passengers per standard bus, two additional westbound B103 LTD buses would be needed in the AM peak hour (for a total of 25 buses) in order to accommodate projected demand.

Table 14-35
No Action Subway Station Stair Analysis

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
					Up	Down	Up	Down			
AM	Bergen Street (F/G)	S2/P2	5.00	4.00	842	170	0.75	1.00	0.90	0.75	C
		S3/P3	5.00	4.00	317	880	0.75	1.00	0.90	0.75	C
	Carroll Street (F/G)	S3	13.00	11.75	1,176	1,002	0.80	1.00	0.90	0.49	B
		S4	5.00	4.00	141	325	0.90	1.00	0.90	0.28	A
		S5	6.00	5.00	64	390	0.75	1.00	0.90	0.22	A
		S6	5.00	4.00	130	795	0.75	1.00	0.90	0.56	B
		S7	5.00	4.00	344	145	0.75	1.00	0.90	0.35	A
		M1	13.25	12.00	836	116	0.75	1.00	0.90	0.24	A
		M2A/B	13.00	11.75	266	54	0.80	1.00	0.90	0.08	A
		M2C/D	13.33	12.08	238	881	0.75	1.00	0.90	0.23	A
		M3	12.58	11.33	141	325	0.80	1.00	0.90	0.10	A
		P1	12.00	10.75	836	116	0.75	1.00	0.90	0.26	A
		P2	11.67	10.42	481	1,212	0.75	1.00	0.90	0.41	A
		P3	6.00	5.00	64	390	0.75	1.00	0.90	0.22	A
		P4	9.50	8.25	130	795	0.75	1.00	0.90	0.27	A
		P5	10.58	9.33	344	145	0.75	1.00	0.90	0.15	A
	Smith-9th Street (F/G)	S1	16.00	14.50	614	826	1.00	0.80	0.90	0.26	A
		ML1-6	5.60	4.60	6	155	1.00	0.75	1.00	0.10	A
		M1/2	9.33	8.08	99	540	1.00	0.75	0.90	0.23	A
		M3/4	9.33	8.08	543	246	1.00	0.75	0.90	0.25	A
	Union Street (R)	S1/P1	4.50	3.50	306	76	0.75	1.00	0.90	0.32	A
		S2/P2	4.00	3.00	249	795	0.75	0.90	0.90	0.94	C
		S3/P3	4.50	3.50	303	40	0.75	1.00	0.90	0.30	A
		S4/P4	4.67	3.67	234	822	0.75	0.90	0.90	0.77	C
PM	Bergen Street (F/G)	S2/P2	5.00	4.00	754	137	0.75	1.00	0.90	0.66	B
		S3/P3	5.00	4.00	83	306	0.75	1.00	0.90	0.24	A
	Carroll Street (F/G)	S3	13.00	11.75	886	549	0.80	1.00	0.90	0.33	A
		S4	5.00	4.00	102	220	0.90	1.00	0.90	0.19	A
		S5	6.00	5.00	105	154	0.75	1.00	0.90	0.14	A
		S6	5.00	4.00	271	183	0.75	1.00	0.90	0.32	A
		S7	5.00	4.00	759	135	0.75	1.00	0.90	0.66	B
		M1	13.25	12.00	852	176	0.75	1.00	0.90	0.25	A
		M2A/B	13.00	11.75	30	78	0.80	1.00	0.90	0.02	A
		M2C/D	13.33	12.08	137	425	0.75	1.00	0.90	0.12	A
		M3	12.58	11.33	102	220	0.80	1.00	0.90	0.07	A
		P1	12.00	10.75	852	176	0.75	1.00	0.90	0.28	A
		P2	11.67	10.42	136	593	0.75	1.00	0.90	0.17	A
		P3	6.00	5.00	105	154	0.75	1.00	0.90	0.14	A
		P4	9.50	8.25	271	183	0.75	1.00	0.90	0.15	A
		P5	10.58	9.33	759	135	0.75	1.00	0.90	0.28	A
	Smith-9th Street (F/G)	S1	16.00	14.50	513	462	1.00	0.80	0.90	0.17	A
		ML1-6	5.60	4.60	8	66	1.00	0.75	0.90	0.05	A
		M1/2	9.33	8.08	148	385	1.00	0.75	0.90	0.19	A
		M3/4	9.33	8.08	386	76	1.00	0.75	0.90	0.14	A
	Union Street (R)	S1/P1	4.50	3.50	645	223	0.75	1.00	0.90	0.72	C
		S2/P2	4.00	3.00	50	330	0.75	0.90	0.90	0.34	A
		S3/P3	4.50	3.50	608	213	0.75	1.00	0.90	0.68	B
		S4/P4	4.67	3.67	70	398	0.75	0.90	0.90	0.34	A

Table 14-36
No Action Subway Station Fare Array Analysis

Peak Hour	Station	Fare Array	Control Elements			Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
			Turnstile	HEET	HXT	System Entries	System Exits	System Entries	System Exits			
AM	Bergen Street (F/G)	N531A	0	1	1	170	842	1.00	0.75	0.90	0.59	B
		N533	0	2	1	880	317	1.00	0.75	0.90	0.69	B
	Carroll Street (F/G)	N534	3	2	2	1,185	194	1.00	0.75	0.90	0.25	A
		N534A	0	1	2	145	344	1.00	0.75	0.90	0.29	A
		N535 (West)	3	0	0	951	937	1.00	0.75	0.90	0.49	B
		N535 (East)	0	2	0	375	380	1.00	0.75	0.90	0.42	A
	Smith-9th Street (F/G)	N536	4	0	0	614	826	1.00	0.8	0.90	0.27	A
	Union Street (R)	C010	3	0	0	1,617	483	1.00	0.75	0.90	0.56	B
		C011	3	0	0	116	609	1.00	0.75	0.90	0.18	A
PM	Bergen Street (F/G)	N531A	0	1	1	137	754	1.00	0.75	0.90	0.51	B
		N533	0	2	1	306	83	1.00	0.75	0.90	0.23	A
	Carroll Street (F/G)	N534	3	2	2	337	376	1.00	0.75	0.90	0.11	A
		N534A	0	1	2	135	759	1.00	0.75	0.90	0.40	A
		N535 (West)	3	0	0	511	880	1.00	0.75	0.90	0.35	A
		N535 (East)	0	2	0	258	108	1.00	0.75	0.90	0.22	A
	Smith-9th Street (F/G)	N536	4	0	0	513	462	1.00	0.8	0.90	0.18	A
	Union Street (R)	C010	3	0	0	728	120	1.00	0.75	0.90	0.23	A
		C011	3	0	0	436	1,253	1.00	0.75	0.90	0.42	A

Table 14-37
No Action Escalator Analysis at the Smith-9th Streets Subway Station

Peak Period	Escalator	Tread Width	Feet per Minute	Guideline Capacity	Peak Hour Volumes	Surging Factor	V/C Ratio	LOS
AM	ES-314/316 (Down)	32"	90	750	671	0.75	0.37	A
	ES-313/315 (Up)	32"	90	750	305	1.00	0.13	A
	ES-348/349 (Up)	32"	90	750	305	1.00	0.13	A
PM	ES-314/316 (Down)	32"	90	750	396	0.75	0.22	A
	ES-313/315 (Up)	32"	90	750	253	1.00	0.11	A
	ES-348/349 (Up)	32"	90	750	253	1.00	0.11	A

Table 14-38
No Action Subway Line Haul Analysis

Peak Period	Route	Direction	Maximum Load Point (leaving station)	Average Trains Per Hour (1)	Average Cars Per Hour	Average Passengers Per Hour (2)	Average Passengers Per Car	Guideline Passengers Per Car (3)	V/C Ratio (4)
AM	2/3	NB	Nevins St	18.2	182	15,708	86	110	0.78
	4/5	NB	Borough Hall	21.3	213	19,529	92	110	0.83
	F	NB	Bergen St	12.6	126	17,087	136	135	1.00
	G	NB	Bergen St	8.6	34	2,543	74	145	0.51
	B	NB	DeKalb Av	10.1	81	8,793	109	175	0.62
	D	NB	Atlantic Av-Barclays Ctr	10.0	80	11,262	141	155	0.91
	N	NB	Atlantic Av-Barclays Ctr	9.9	99	10,494	106	125	0.85
	Q	NB	DeKalb Av	9.8	98	10,915	111	145	0.77
	R	NB	Union St	10.4	83	8,666	104	155	0.67
PM	2/3	SB	Wall St	18.0	180	10,731	60	110	0.54
	4/5	SB	Bowling Green	21.1	211	15,275	72	110	0.66
	F	SB	Jay St-MetroTech	13.0	130	11,407	88	135	0.65
	G	SB	Clinton-Washington Avs	8.0	32	3,185	100	145	0.69
	B	SB	Grand St	8.9	71	8,607	121	175	0.69
	D	SB	Grand St	9.5	76	8,643	114	175	0.65
	N	SB	Canal St	9.8	98	9,092	93	145	0.64
	Q	SB	Canal St	9.7	97	11,077	114	145	0.79
	R	SB	Jay St-MetroTech	10.0	80	7,820	98	155	0.63

Notes:

(1) Trains per hour based on 2018 scheduled trains per hour.

(2) No Action passenger volumes reflect demand from No Action development plus background growth rates of 0.5 percent/year for the 2019-2024 period and 0.25 percent/year for the 2024-2035 period as per *CEQR Technical Manual* guidance.

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

(4) Volume to guideline capacity ratio.

Table 14-39
No Action Local Bus Analysis

Peak Hour[1]	Route	Direction	Maximum Load Point	Peak Hour Passengers[1]	No Action Conditions with Current Service Levels			No Action Conditions with Potential Service Adjustments		
					Peak Hour Buses[2]	Average Passengers per Bus	Available Capacity[3]	Peak Hour Buses	Average Passengers per Bus	Available Capacity[3]
AM	B37	NB	3rd Ave/ 44th St	132	4	33	84	4	33	84
		SB	3rd Ave/ 65th St	127	4	32	89	4	32	89
	B57	EB	Flushing Av/ Marcy Av	145	4	36	71	4	36	71
		WB	Flushing Av/ Thornton St	226	6	38	98	6	38	98
	B103 LTD	EB	Cortelyou Rd/ East 18th St	251	7	36	127	7	36	127
		WB	Ave H/ East 56th St	1,321	23	57	-79	25	53	29
PM	B37	NB	3rd Ave/ 20th St	99	4	25	117	4	25	117
		SB	3rd Ave/ Senator St	147	5	29	123	5	29	123
	B57	EB	Flushing Av/ Clermont Av	222	6	37	102	6	37	102
		WB	Court St/ Warren St	180	6	30	144	6	30	144
	B103 LTD	EB	Ave H/ New York Ave	719	17	42	199	17	42	199
		WB	Ave H/ East 56th St	302	9	34	184	9	34	184

Notes:

[1] No Action passenger volumes reflect demand from No Action development plus background growth rates of 0.5 percent/year for the 2019-2024 period and 0.25 percent/year for the 2024-2035 period as per *CEQR Technical Manual* guidance.

[2] Based on most currently available data from NYCT.

[3] Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

As a general policy, the MTA provides additional bus service where demand warrants, taking into account financial and operational constraints. Based on ongoing passenger monitoring programs, comprehensive service plans would be generated to respond to specific, known needs with capital and/or operational improvements where fiscally and operationally practicable. The MTA's capital program is developed on a five-year cycle; through this program, expansion of bus services would be provided as needs are determined. It is therefore anticipated that in the No Action condition, the MTA would increase service frequency on the westbound B103 LTD in the AM peak hour to address its capacity shortfall.

Long Island Rail Road Commuter Rail Service

It is anticipated that by 2035 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 Brooklyn and other areas, and general background growth during the 2019 through 2035 period. It is also anticipated that service patterns to and from Atlantic Terminal will be adjusted to accommodate operational needs at the LIRR's Jamaica hub resulting from ESA.

THE FUTURE WITH THE PROPOSED ACTIONS (WITH ACTION CONDITION)

SUBWAY SERVICE

Subway Stations

As shown in **Table 14-12**, the Proposed Actions are expected to generate a net total of approximately 5,823 and 6,430 new subway trips in the weekday AM and PM peak hours, respectively. Based on proximity to projected development sites, the highest number of peak hour subway trips are expected to occur at the Carroll Street (F/G) station, which would experience an estimated 2,633 incremental trips (in and out combined) in the AM peak hour and 2,746 in the PM peak hour. The second highest number of trips would occur at the Union Street (R) station which would experience an estimated 2,168 incremental trips in the AM peak hour and 2,530 in the PM peak hour. The Smith-9th Streets (F/G) station would experience 610 and 653 trips during these same periods, respectively, and the Bergen Street (F/G) station would experience 286 and 306 trips, respectively. All other subway stations/station complexes in proximity to the Project Area are expected to experience 116 or fewer new trips in both the AM and PM peak hours.

AM and PM peak hour conditions at the Bergen Street, Carroll Street, Smith-9th Streets, and Union Street stations in the With Action condition are shown in **Tables 14-40 through 14-42** and discussed below.

Bergen Street Subway Station (F/G)

In the With Action condition, all analyzed stairs and fare arrays at the Bergen Street station are expected to operate at an acceptable LOS C or better in both the AM and PM peak hours. No significant adverse impacts are therefore anticipated to occur at this station as a result of the Proposed Actions based on the *CEQR Technical Manual* impact criteria previously described in Section F, "Transportation Analyses Methodologies."

Table 14-40
With Action Subway Station Stair Analysis

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS		WIT	Impact Threshold
					Up	Down	Up	Down	Up	Down						
AM	Bergen Street (F/G)	S2/P2	5.00	4.00	68	19	910	189	0.75	1.00	0.90	0.81	C		- - -	- - -
		S3/P3	5.00	4.00	29	169	346	1,049	0.75	1.00	0.90	0.87	C		- - -	- - -
	Carroll Street (F/G)	S3	13.00	11.75	477	599	1,653	1,601	0.80	1.00	0.90	0.72	C		- - -	- - -
		S4	5.00	4.00	303	417	444	742	0.90	1.00	0.90	0.72	C		- - -	- - -
		S5	6.00	5.00	38	270	102	660	0.75	1.00	0.90	0.37	A		- - -	- - -
		S6	5.00	4.00	35	265	165	1,060	0.75	1.00	0.90	0.74	C		- - -	- - -
		S7	5.00	4.00	169	59	513	204	0.75	1.00	0.90	0.51	B		- - -	- - -
		M1	13.25	12.00	546	102	1,382	218	0.75	1.00	0.90	0.40	A		- - -	- - -
		M2A/B	13.00	11.75	121	50	387	104	0.80	1.00	0.90	0.12	A		- - -	- - -
		M2C/D	13.33	12.08	234	531	472	1,412	0.75	1.00	0.90	0.39	A		- - -	- - -
		M3	12.58	11.33	303	417	444	742	0.80	1.00	0.90	0.27	A		- - -	- - -
		P1	12.00	10.75	546	102	1,382	218	0.75	1.00	0.90	0.44	A		- - -	- - -
		P2	11.67	10.42	234	914	715	2,126	0.75	1.00	0.90	0.68	B		- - -	- - -
		P3	6.00	5.00	38	270	102	660	0.75	1.00	0.90	0.37	A		- - -	- - -
		P4	9.50	8.25	35	265	165	1,060	0.75	1.00	0.90	0.36	A		- - -	- - -
		P5	10.58	9.33	169	59	513	204	0.75	1.00	0.90	0.22	A		- - -	- - -
	Smith-9th Street (F/G)	S1	16.00	14.50	422	188	1,036	1,014	1.00	0.80	0.90	0.37	A		- - -	- - -
		ML1-6	5.60	4.60	0	28	6	183	1.00	0.75	1.00	0.11	A		- - -	- - -
		M1/2	9.33	8.08	42	132	141	672	1.00	0.75	0.90	0.30	A		- - -	- - -
		M3/4	9.33	8.08	380	56	923	302	1.00	0.75	0.90	0.38	A		- - -	- - -
	Union Street (R)	S1/P1	4.50	3.50	168	71	474	147	0.75	1.00	0.90	0.51	B		- - -	- - -
		S2/P2	4.00	3.00	84	635	333	1,430	0.75	0.90	0.90	1.57	E	*	20.47	3.00
		S3/P3	4.50	3.50	165	98	468	138	0.75	1.00	0.90	0.50	B		- - -	- - -
		S4/P4	4.67	3.67	59	890	293	1,712	0.75	0.90	0.90	1.45	E	*	19.74	4.00
PM	Bergen Street (F/G)	S2/P2	5.00	4.00	148	43	902	180	0.75	1.00	0.90	0.80	C		- - -	- - -
		S3/P3	5.00	4.00	16	100	99	406	0.75	1.00	0.90	0.31	A		- - -	- - -
	Carroll Street (F/G)	S3	13.00	11.75	515	573	1,401	1,122	0.80	1.00	0.90	0.57	B		- - -	- - -
		S4	5.00	4.00	353	396	455	616	0.90	1.00	0.90	0.65	B		- - -	- - -
		S5	6.00	5.00	26	135	131	289	0.75	1.00	0.90	0.21	A		- - -	- - -
		S6	5.00	4.00	26	132	297	315	0.75	1.00	0.90	0.41	A		- - -	- - -
		S7	5.00	4.00	473	115	1,232	250	0.75	1.00	0.90	1.10	D		4.56	7.00
		M1	13.25	12.00	781	291	1,633	467	0.75	1.00	0.90	0.51	B		- - -	- - -
		M2A/B	13.00	11.75	119	74	149	152	0.80	1.00	0.90	0.07	A		- - -	- - -
		M2C/D	13.33	12.08	250	446	387	871	0.75	1.00	0.90	0.27	A		- - -	- - -
		M3	12.58	11.33	353	396	455	616	0.80	1.00	0.90	0.24	A		- - -	- - -
		P1	12.00	10.75	781	291	1,633	467	0.75	1.00	0.90	0.57	B		- - -	- - -
		P2	11.67	10.42	87	678	223	1,271	0.75	1.00	0.90	0.35	A		- - -	- - -
		P3	6.00	5.00	26	135	131	289	0.75	1.00	0.90	0.21	A		- - -	- - -
		P4	9.50	8.25	26	132	297	315	0.75	1.00	0.90	0.20	A		- - -	- - -
		P5	10.58	9.33	473	115	1,232	250	0.75	1.00	0.90	0.47	B		- - -	- - -
	Smith-9th Street (F/G)	S1	16.00	14.50	279	374	792	836	1.00	0.80	0.90	0.29	A		- - -	- - -
		ML1-6	5.60	4.60	0	56	8	122	1.00	0.75	0.90	0.09	A		- - -	- - -
		M1/2	9.33	8.08	84	337	232	722	1.00	0.75	0.90	0.34	A		- - -	- - -
		M3/4	9.33	8.08	195	37	581	113	1.00	0.75	0.90	0.21	A		- - -	- - -
	Union Street (R)	S1/P1	4.50	3.50	567	125	1,212	348	0.75	1.00	0.90	1.30	D	*	12.61	5.00
		S2/P2	4.00	3.00	62	306	112	636	0.75	0.90	0.90	0.66	B		- - -	- - -
		S3/P3	4.50	3.50	840	165	1,448	378	0.75	1.00	0.90	1.53	E	*	22.18	3.00
		S4/P4	4.67	3.67	95	371	165	769	0.75	0.90	0.90	0.68	B		- - -	- - -

Notes:
WIT - Width Increment Threshold
* - Denotes a significant adverse impact per 2014 *CEQR Technical Manual* criteria.

Table 14-41
With Action Subway Station Fare Array Analysis

Peak Hour	Station	Fare Array	Control Elements			Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS
			Turnstile	HEET	HXT	System Entries	System Exits	System Entries	System Exits	System Entries	System Exits			
AM	Bergen Street (F/G)	N531A	0	1	1	19	68	189	910	1.00	0.75	0.90	0.64	B
		N533	0	2	1	169	29	1,049	346	1.00	0.75	0.90	0.81	C
	Carroll Street (F/G)	N534	3	2	2	535	73	1,720	267	1.00	0.75	0.90	0.37	A
		N534A	0	1	2	59	169	204	513	1.00	0.75	0.90	0.42	A
		N535 (West)	3	0	0	595	440	1,546	1,377	1.00	0.75	0.90	0.76	C
		N535 (East)	0	2	0	421	340	796	720	1.00	0.75	0.90	0.85	C
	Smith-9th Street (F/G)	N536	4	0	0	422	188	1,036	1,014	1.00	0.8	0.90	0.38	A
	Union Street (R)	C010	3	0	0	1,525	143	3,142	626	1.00	0.75	0.90	1.02	D *
		C011	3	0	0	169	333	285	942	1.00	0.75	0.90	0.30	A
PM	Bergen Street (F/G)	N531A	0	1	1	43	148	180	902	1.00	0.75	0.90	0.63	B
		N533	0	2	1	100	16	406	99	1.00	0.75	0.90	0.30	A
	Carroll Street (F/G)	N534	3	2	2	267	52	604	428	1.00	0.75	0.90	0.17	A
		N534A	0	1	2	115	473	250	1,232	1.00	0.75	0.90	0.69	B
		N535 (West)	3	0	0	607	618	1,118	1,498	1.00	0.75	0.90	0.67	B
		N535 (East)	0	2	0	362	250	620	358	1.00	0.75	0.90	0.58	B
	Smith-9th Street (F/G)	N536	4	0	0	279	374	792	836	1.00	0.8	0.90	0.30	A
	Union Street (R)	C010	3	0	0	677	157	1,405	277	1.00	0.75	0.90	0.45	A
		C011	3	0	0	290	1,407	726	2,660	1.00	0.75	0.90	0.84	C

Notes:
* - Denotes a significant adverse impact per 2014 *CEQR Technical Manual* criteria.

Table 14-42
With Action Escalator Analysis at the Smith-9th Streets Subway Station

Peak Period	Escalator	Tread Width	Feet per Minute	Guideline Capacity	Project Increment	Peak Hour Volumes	Surging Factor	V/C Ratio	LOS
AM	ES-314/316 (Down)	32"	90	750	160	831	0.75	0.46	B
	ES-313/315 (Up)	32"	90	750	211	516	1.00	0.21	A
	ES-348/349 (Up)	32"	90	750	211	516	1.00	0.21	A
PM	ES-314/316 (Down)	32"	90	750	318	714	0.75	0.40	A
	ES-313/315 (Up)	32"	90	750	140	393	1.00	0.16	A
	ES-348/349 (Up)	32"	90	750	140	393	1.00	0.16	A

Carroll Street Subway Station (F/G)

In the With Action condition, all analyzed stairs and fare arrays at the Carroll Street station are projected to operate at an acceptable LOS C or better in both the AM and PM peak hours with the exception of street stair S7 which would operate at a marginal LOS D in the PM peak hour. However, stair S7 would not be considered significantly adversely impacted based on the *CEQR Technical Manual* impact criteria. Therefore, no significant adverse impacts are anticipated to occur at the Carroll Street subway station as a result of the Proposed Actions.

Smith-9th Streets Subway Station (F/G)

In the With Action condition, all analyzed stairs, escalators, and fare arrays at the Smith-9th Streets station are expected to operate at an uncongested LOS B or better in both the AM and PM

peak hours. No significant adverse impacts are therefore anticipated to occur at this station as a result of the Proposed Actions based on *CEQR Technical Manual* impact criteria.

Union Street Subway Station (R)

As shown in **Table 14-40,** a total of four stairs at the Union Street station would be significantly adversely impacted by project-generated demand in either the AM or PM peak hour based on the impact criteria in **Table 14-16**. These would include street stairs S2/P2 and S4/P4 to the Manhattan-bound platform which would both operate at LOS E and be significantly adversely impacted in the AM peak hour, and street stairs S1/P1 and S3/P3 to the southbound (Coney Island-bound) platform which would operate at LOS D and LOS E, respectively, and be significantly adversely impacted in the PM peak hour. Stairs S2/P2 and S4/P4 would operate at an uncongested LOS B in the PM peak hour, as would stairs S1/P1 and S3/P3 in the AM peak hour.

In the With-Action condition, Brooklyn-bound fare array C011 is projected to operate at an acceptable LOS A and C in the AM and PM peak hours, respectively, whereas Manhattan-bound fare array C010 is projected to operate at LOS D (with a v/c ratio of 1.02) in the AM and LOS A in the PM. The degradation to LOS D in the AM at fare array C010 from LOS B in the No Action would be considered a significant adverse impact based on the *CEQR Technical Manual* impact criteria previously described in Section F, "Transportation Analyses Methodologies."

Potential mitigation for the significant adverse impacts to four stairs and the Manhattan-bound fare array at the Union Street subway station are discussed in Chapter 21, "Mitigation."

Subway Line Haul

Table 14-43 shows line haul conditions on the subway routes serving the Project Area in the With Action condition. As shown in **Table 14-43**, in the With Action condition, F trains are expected to operate over capacity in the AM peak hour with a v/c ratio of 1.11 in the peak northbound direction, and below capacity in the PM peak hour with a v/c ratio of 0.73 in the peak southbound direction. This compares to v/c ratios of 1.00 northbound in the AM and 0.65 southbound in the PM under No Action conditions. As northbound F trains would be operating over capacity and would experience an average incremental increase of 13.98 persons/car in the AM, greater than the five persons/car *CEQR Technical Manual* impact threshold, northbound F service would be considered significantly adversely impacted by the Proposed Actions in the AM peak hour. All other analyzed subway routes are projected to operate below capacity in the peak direction in both the AM and PM peak hours and would therefore not be significant adversely impacted by the Proposed Actions in either period.

Table 14-43
With Action Subway Line Haul Analysis

Peak Period	Route	Direction	Maximum Load Point (leaving station)	Average Trains Per Hour (1)	Average Cars Per Hour	Project Increment	Average Passengers Per Hour	Average Passengers Per Car	Guideline Passengers Per Car (2)	V/C Ratio (3)	Average Additional Passengers per Car
AM	2/3	NB	Nevins St	18.2	182	71	15,779	87	110	0.79	0.39
	4/5	NB	Borough Hall	21.3	213	76	19,605	92	110	0.84	0.36
	F	NB	Bergen St	12.6	126	1,761	18,848	150	135	1.11	13.98
	G	NB	Bergen St	8.6	34	263	2,806	82	145	0.56	7.65
	B	NB	DeKalb Av	10.1	81	3	8,796	109	175	0.62	0.04
	D	NB	Atlantic Av-Barclays Ctr	10.0	80	205	11,467	143	155	0.92	2.56
	N	NB	Atlantic Av-Barclays Ctr	9.9	99	189	10,683	108	125	0.86	1.91
	Q	NB	DeKalb Av	9.8	98	3	10,918	111	145	0.77	0.03
	R	NB	Union St	10.4	83	1,536	10,202	123	155	0.79	18.46
PM	2/3	SB	Wall St	18.0	180	59	10,790	60	110	0.54	0.33
	4/5	SB	Bowling Green	21.1	211	65	15,340	73	110	0.66	0.31
	F	SB	Jay St-MetroTech	13.0	130	1,379	12,786	98	135	0.73	10.61
	G	SB	Clinton-Washington Avs	8.0	32	389	3,574	112	145	0.77	12.16
	B	SB	Grand St	8.9	71	0	8,607	121	175	0.69	0.00
	D	SB	Grand St	9.5	76	188	8,831	116	175	0.66	2.47
	N	SB	Canal St	9.8	98	175	9,267	95	145	0.65	1.79
	Q	SB	Canal St	9.7	97	0	11,077	114	145	0.79	0.00
	R	SB	Jay St-MetroTech	10.0	80	860	8,680	109	155	0.70	10.75

Notes:

(1) Trains per hour based on 2018 scheduled trains per hour.

(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.

(4) Volume to guideline capacity ratio.

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

BUS SERVICE

As shown in **Table 14-14**, projected development sites are expected to generate a net total of approximately 399 and 492 new trips on the bus services operating in proximity to the Project Area during the weekday AM and PM peak hours, respectively. As shown in **Table 14-44**, demand on the B37 route is expected to increase by approximately nine northbound trips and five southbound trips at the maximum load points in the AM peak hour and by 12 northbound trips and nine southbound trips in the PM. Demand on the B57 is expected to increase by approximately 17 eastbound trips and 26 westbound trips at the maximum load points in the AM peak hour, and by 52 eastbound and 35 westbound trips in the PM. Lastly, demand on the B103 LTD is expected to increase by approximately nine eastbound trips at the maximum load point in the AM peak hour, and by four eastbound trips in the PM. With these incremental increases in demand, all three analyzed bus routes would continue to operate with available capacity at their maximum load points in both directions in both the AM and PM peak hours. Therefore, based on *CEQR Technical Manual* impact criteria, no significant adverse impacts to bus service are expected to occur as a result of the Proposed Actions.

Table 14-44
With Action Conditions 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	B37	NB	3rd Ave/44th St	4	84	9	75
		SB	3rd Ave/65th St	4	89	5	84
	B57	EB	Flushing Av/Marcy Av	4	71	17	54
		WB	Flushing Av/Thornton St	6	98	26	72
	B103 LTD	EB	Cortelyou Rd/ East 18th St	7	127	9	118
		WB	Ave H/East 56th St	25	29	0	29
PM	B37	NB	3rd Ave/20th St	4	117	12	105
		SB	3rd Ave/Senator St	5	123	9	114
	B57	EB	Flushing Av/Clermont Av	6	102	52	50
		WB	Court St/Warren St	6	144	35	109
	B103 LTD	EB	Ave H/New York Ave	17	199	4	195
		WB	Ave H/East 56th St	9	184	0	184

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.

LONG ISLAND RAIL ROAD 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 most projected development sites are not located within a convenient walking distance of Atlantic Terminal, most 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. 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

Much of the Project Area is characterized by relatively light to moderate pedestrian flows during peak periods with the exception of major retail corridors and corridors providing access to area subway stations and bus routes. 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 along corridors connecting these sites to area transit services. As shown in **Figure 14-4**, they include a total of 81 sidewalks, 51 crosswalks, and 85 corner areas primarily located along the Smith Street, Bond Street, 3rd Avenue, and 4th Avenue corridors.

SIDEWALKS

Data from pedestrian counts conducted in June 2019 indicate that the highest pedestrian flows at analyzed sidewalks within the study area are generally found along corridors providing access to subway station entrances, including along 4th Avenue in the vicinity of the Union Street subway station, and along 9th Street in the vicinity of the Smith-9th Streets subway station. As shown in **Table 14-45**, analyzed sidewalks typically range from 10 to 14 feet in width, with some wider sidewalks (i.e., up to 17 feet in width) present along 3rd and 4th Avenues. 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 tree pits, as well as larger installations such as subway stairs.

Table 14-45 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. As shown in **Table 14-45**, all analyzed sidewalks currently operate at an acceptable LOS C or better in all peak hours.

CROSSWALKS

Study area intersections are a mix of signalized and stop controlled, and the signalized intersections generally include pedestrian signals. The majority of crosswalks in the area feature high visibility striping and analyzed crosswalks generally range from 11 to 16 feet in width. **Table 14-46** shows the peak hour volumes, average pedestrian space (in sf/ped), and levels of service at analyzed crosswalks. As shown in **Table 14-46**, all analyzed crosswalks currently operate at an acceptable LOS C or better in all peak hours.

CORNER AREAS

Table 14-47 shows the peak hour volumes, average pedestrian space (in sf/ped) and levels of service at analyzed corner areas. As shown in **Table 14-47**, all of the analyzed corner areas currently operate at an uncongested LOS A in the weekday AM, midday, PM, and Saturday 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 2019 through 2035 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 2-9 in Chapter 2, "Land Use, Zoning, and Public Policy"). Conditions on analyzed sidewalks, crosswalks, and corner areas in the No Action condition are discussed below.

Table 14-45
Existing Sidewalk Conditions

No.	Location		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	President St betw. Smith St & Hoyt St	North	6.0	297	96	208	217.4	762.2	370.0	B	A	B
S2	President St betw. Smith St & Hoyt St	South	4.0	350	99	160	151.7	441.5	281.0	B	B	B
S3	2nd Pl betw. Court St & Smith St	North	7.0	35	42	28	2,534.4	2,138.4	2,534.4	A	A	A
S4	Smith St betw. 3rd St & 4th St	East	4.0	144	95	124	272.6	513.4	378.0	B	B	B
S5	Smith St betw. 4th St & 5th St	East	2.5	107	67	57	247.7	413.6	618.2	B	B	A
S6	5th St betw. Smith St & Hoyt St	North	1.0	37	20	17	265.2	562.2	791.9	B	A	A
S7	Smith St betw. 4th Pl & Luquer St	East	6.0	28	43	22	1,968.7	1,834.5	2,376.0	A	A	A
S8	5th St betw. Smith St & Hoyt St	South	5.5	2	2	1	21,780.0	21,780.0	21,780.0	A	A	A
S9	Smith St betw. Luquer St & Nelson St	East	6.0	23	28	20	2,644.6	2,376.0	2,376.0	A	A	A
S10	Smith St betw. Nelson St & Huntington St	East	7.0	35	15	24	1,837.4	5,544.0	2,310.0	A	A	A
S11	Smith St betw. Huntington St & 9th St	East	6.2	66	26	40	1,175.5	2,455.2	1,448.5	A	A	A
S12	9th St betw. Smith St & Subway entrance	North	6.5	804	448	591	116.1	174.4	142.5	B	B	B
S13	9th St betw. Subway entrance & Gowanus Canal	North	4.0	164	169	133	316.6	318.5	395.3	B	B	B
S14	Warren St betw. Smith St & Hoyt St	North	3.0	198	200	168	201.3	192.2	231.7	B	B	B
S15	Baltic St betw. Hoyt St & Bond St	North	7.0	94	49	80	920.0	1,855.5	1,150.3	A	A	A
S16	Hoyt St betw. President St & Carroll St	East	2.5	69	26	30	367.2	989.9	831.5	B	A	A
S17	Carroll St betw. Hoyt St & Bond St	North	3.0	122	57	75	303.6	566.8	538.5	B	A	A
S18	Hoyt St betw. President St & Carroll St	West	2.5	161	81	104	218.7	366.5	319.7	B	B	B
S19	2nd St betw. Hoyt St & Bond St	South	3.0	95	35	42	440.1	746.7	791.9	B	A	A
S20	Hoyt St betw. 2nd St & 3rd St	West	2.5	46	15	34	619.7	1,663.2	896.8	A	A	A
S21	2nd St betw. Smith St & Hoyt St	South	4.4	255	68	101	264.9	871.1	496.7	B	A	B
S22	4th St betw. Hoyt St & Bond St	North	4.0	10	11	12	5,068.8	3,974.4	3,960.0	A	A	A
S23	4th St betw. Hoyt St & Bond St	South	6.5	12	32	20	6,435.0	2,863.6	3,243.2	A	A	A
S24	Hoyt St betw. 4th St & 5th St	West	8.0	2	8	7	15,840.0	10,612.8	10,499.7	A	A	A
S25	4th St betw. Smith St & Hoyt St	South	2.5	14	20	11	1,980.0	1,405.8	1,980.0	A	A	A
S26	Bond St betw. Baltic St & Butler St	East	4.5	95	69	116	592.7	743.7	411.6	A	A	B
S27	Bond St betw. Douglass St & Degraw St	East	3.5	73	35	54	463.1	1,156.3	811.0	B	A	A
S28	Bond St betw. Degraw St & Sackett St	East	3.0	78	44	53	475.1	745.1	744.1	B	A	A
S29	Bond St betw. Sackett St & Union St	East	2.5	77	49	54	354.7	549.5	615.9	B	A	A
S30	Union St betw. Bond St & Gowanus Canal	North	4.0	90	64	94	584.2	881.0	633.5	A	A	A
S31	Bond St betw. Union St & President St	East	5.5	62	33	69	1,152.2	1,821.6	1,148.9	A	A	A
S32	Union St betw. Bond St & Gowanus Canal	South	1.5	98	58	189	125.6	331.7	116.4	B	B	B
S33	Bond St betw. President St & Carroll St	East	3.0	47	38	69	738.0	850.3	626.6	A	A	A
S34	Carroll St betw. Bond St & Gowanus Canal	North	6.0	61	30	69	1,324.3	2,977.9	1,033.0	A	A	A
S35	Carroll St betw. Bond St & Gowanus Canal	South	7.0	105	33	97	644.1	2,520.0	925.8	A	A	A
S36	Bond St betw. 2nd St & 3rd St	East	1.5	41	38	66	393.9	537.6	284.2	B	A	B
S37	3rd St betw. Bond St & Gowanus Canal	North	5.0	77	72	118	822.8	989.9	496.6	A	A	B
S38	Bond St betw. 3rd St & 4th St	East	4.0	8	11	11	5,306.4	3,974.4	2,649.6	A	A	A
S39	3rd St betw. Bond St & Gowanus Canal	South	6.5	51	80	97	1,292.0	1,068.2	827.9	A	A	A
S40	3rd St betw. Hoyt St & Bond St	North	2.5	119	48	65	282.7	709.4	414.1	B	A	B
S41	Nevins St betw. Butler St & Douglass St	East	7.0	31	26	38	2,503.7	2,516.1	1,984.1	A	A	A
S42	Nevins St betw. Sackett St & Union St	East	2.5	37	29	53	663.5	1,106.0	470.6	A	A	B
S43	Union St betw. Nevins St & 3rd Ave	North	7.0	72	51	82	1,324.4	1,543.6	987.0	A	A	A
S44	Nevins St betw. Union St & President St	West	4.5	28	6	27	2,240.2	5,280.0	1,610.4	A	A	A
S45	Union St betw. Gowanus Canal & Nevins St	South	12.5	91	51	187	1,261.9	3,036.0	730.5	A	A	A

Table 14-45 (cont'd)
Existing Sidewalk Conditions

No.	Location		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
S46	Union St betw. Gowanus Canal & Nevins St	North	6.5	105	69	112	804.0	1,223.5	717.0	A	A	A
S47	Carroll St betw. Nevins St & 3rd Ave	South	3.0	109	54	63	339.9	659.9	497.7	B	A	B
S48	Carroll St betw. Gowanus Canal & Nevins St	South	10.5	94	34	53	1,433.1	3,766.6	2,196.7	A	A	A
S49	Carroll St betw. Gowanus Canal & Nevins St	North	7.5	89	30	97	987.7	2,970.0	869.5	A	A	A
S50	3rd Ave betw. Douglass St & Degraw St	West	6.0	24	54	64	2,376.0	1,073.5	1,128.6	A	A	A
S51	Douglass St betw. Nevins St & 3rd Ave	North	7.0	31	27	66	1,251.8	2,505.0	991.1	A	A	A
S52	3rd Ave betw. Sackett St & Union St	East	5.0	59	59	87	1,100.7	1,100.7	710.0	A	A	A
S53	Sackett St betw. 3rd Ave & 4th Ave	South	5.5	11	16	21	4,356.0	3,103.6	2,738.0	A	A	A
S54	3rd Ave betw. Sackett St & Union St	West	7.0	30	39	70	1,848.0	1,990.1	1,267.2	A	A	A
S55	3rd Ave betw. Degraw St & Sackett St	West	7.0	29	22	36	2,294.0	3,477.6	2,125.2	A	A	A
S56	Sackett St betw. Nevins St & 3rd Ave	North	8.5	30	24	32	3,051.8	3,758.7	2,398.3	A	A	A
S57	Union St betw. 3rd Ave & 4th Ave	North	5.0	67	45	54	827.4	1,161.6	1,158.6	A	A	A
S58	Union St betw. 3rd Ave & 4th Ave	South	5.0	124	117	249	549.2	473.7	232.0	A	B	B
S59	President St betw. 3rd Ave & 4th Ave	South	2.5	95	129	155	291.6	248.4	176.0	B	B	B
S60	3rd Ave betw. President St & Carroll St	West	2.0	57	69	109	494.5	358.0	220.6	B	B	B
S61	3rd Ave betw. Carroll St & 1st St	West	1.0	38	67	80	304.1	207.8	171.9	B	B	B
S62	3rd Ave betw. 1st St & 3rd St	West	4.0	56	74	86	791.9	830.5	545.1	A	A	A
S63	3rd St betw. Gowanus Canal & 3rd Av	South	5.0	125	346	264	468.7	198.9	266.8	B	B	B
S64	3rd St betw. Gowanus Canal & 3rd Av	North	3.0	54	34	62	739.1	1,313.7	659.1	A	A	A
S65	4th Ave betw. Douglass St & Degraw St	West	9.5	151	172	249	986.5	708.6	519.6	A	A	B
S66	Douglass St betw. 3rd Ave & 4th Ave	South	3.0	27	34	72	985.5	796.6	422.3	A	A	B
S67	4th Ave betw. Degraw St & Sackett St	East	4.5	373	128	189	133.4	412.0	312.9	B	B	B
S68	4th Ave betw. Degraw St & Sackett St	West	10.5	161	207	300	909.0	626.6	498.9	A	A	B
S69	4th Ave betw. Sackett St & Union St	East	8.5	466	187	276	228.0	676.7	414.5	B	A	B
S70	4th Ave betw. Sackett St & Union St	West	10.5	181	279	330	781.0	518.5	398.0	A	B	B
S71	4th Ave betw. Union St & Subway entrance	East	6.5	993	390	556	97.9	232.1	170.0	B	B	B
S72	4th Ave betw. Union St & Subway entrance	West	5.5	356	404	758	200.4	191.6	111.0	B	B	B
S73	4th Ave betw. Subway entrance & President St	East	8.0	1290	380	481	86.8	303.3	236.9	C	B	B
S74	4th Ave betw. President St & Carroll St	West	3.5	422	328	525	92.7	143.3	88.1	B	B	C
S75	4th Ave betw. Subway entrance & President St	West	10.0	304	479	755	437.6	271.0	175.9	B	B	B
S76	4th Ave betw. Carroll St & Garfield Pl	East	9.0	397	155	263	305.1	809.3	417.3	B	A	B
S77	4th Ave betw. Garfield Pl & 1st St	East	4.0	422	173	275	121.2	329.5	204.8	B	B	B
S78	4th Ave betw. 1st St & 2nd St	East	10.0	283	125	203	425.3	1,064.4	608.5	B	A	A
S79	4th Ave betw. 2nd St & 3rd St	East	8.5	355	150	223	250.1	798.8	452.7	B	A	B
S80	1st St betw. 4th Ave & 5th Ave	South	3.5	37	43	72	928.9	1,070.1	600.5	A	A	A
S81	2nd St betw. 4th Ave & 5th Ave	North	2.5	56	49	102	551.5	662.6	298.8	A	A	B

Table 14-46
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
Smith St & President St	X1	North	337	158	291	31.5	76.8	39.3	C	A	C
Smith St & 3rd St	X2	North	125	47	76	152.3	409.8	263.3	A	A	A
	X3	East	138	101	128	167.8	191.9	169.7	A	A	A
	X4	South	154	62	144	179.2	421.6	179.0	A	A	A
Bond St & Baltic St	X5	North	52	39	53	316.9	728.3	380.4	A	A	A
Bond St & Union St	X6	East	52	22	47	561.2	1,124.6	559.6	A	A	A
Bond St & 3rd St	X7	North	63	56	69	411.1	630.3	458.0	A	A	A
	X8	East	19	25	33	909.2	815.4	502.4	A	A	A
	X9	South	54	68	87	564.5	540.8	423.2	A	A	A
	X10	West	20	20	28	438.5	495.7	333.0	A	A	A
Nevins St & Union St	X11	North	71	52	79	719.8	1,002.3	718.6	A	A	A
	X12	East	31	24	39	426.1	604.4	415.9	A	A	A
	X13	West	52	48	144	736.6	994.6	286.2	A	A	A
3rd Ave & Douglass St	X14	West	68	59	75	439.8	813.7	622.5	A	A	A
3rd Ave & Degraw St	X15	West	42	43	61	762.4	736.7	649.8	A	A	A
3rd Ave & Sackett St	X16	North	18	23	28	1,175.3	503.1	388.3	A	A	A
	X17	East	59	47	76	585.4	687.7	449.4	A	A	A
	X18	South	20	15	26	791.6	482.4	445.3	A	A	A
	X19	West	54	47	91	543.2	752.5	420.0	A	A	A
3rd Ave & Union St	X20	North	52	58	64	361.2	248.8	193.3	A	A	A
	X21	East	52	57	102	708.9	691.6	361.7	A	A	A
	X22	South	119	91	166	146.9	157.3	62.2	A	A	A
	X23	West	51	43	77	745.6	896.3	581.7	A	A	A
3rd Ave & Carroll St	X24	South	111	48	65	82.6	200.2	136.2	A	A	A
	X25	West	74	66	63	677.4	665.1	647.7	A	A	A
3rd Ave & 3rd St	X26	North	50	44	53	429.0	597.0	588.1	A	A	A
	X27	South	100	179	138	169.9	124.3	182.3	A	A	A
4th Ave & Douglass St	X28	West	130	144	210	357.3	274.0	309.0	A	A	A
4th Ave & Sackett St	X29	East	324	152	214	139.3	251.3	218.4	A	A	A
	X30	West	174	251	268	345.9	188.5	234.7	A	A	A
4th Ave & Union St	X31	East	555	221	329	87.4	156.3	162.3	A	A	A
	X32	West	236	258	411	207.2	109.6	117.6	A	A	A
4th Ave & President St	X33	North	228	143	269	63.7	254.1	51.5	A	A	B
	X34	East	664	271	391	50.4	107.7	113.5	B	A	A
	X35	South	189	117	187	68.4	244.6	64.5	A	A	A
	X36	West	392	359	599	145.1	102.2	81.0	A	A	A
4th Ave & Carroll St	X37	East	437	159	297	125.3	243.5	192.0	A	A	A
	X38	West	248	151	250	168.6	209.5	191.0	A	A	A
4th Ave & Garfield Pl	X39	East	359	136	250	141.5	247.2	206.1	A	A	A
4th Ave & 1st St	X40	East	308	124	209	141.4	281.2	276.4	A	A	A
4th Ave & 2nd St	X41	North	23	12	14	382.9	3,078.8	826.5	A	A	A
	X42	East	287	114	188	163.7	393.0	329.2	A	A	A
	X43	South	21	12	13	555.0	2,267.8	764.7	A	A	A
5th Ave & 1st St	X44	North	95	43	96	233.9	461.6	228.3	A	A	A
	X45	East	230	201	230	181.6	216.4	172.9	A	A	A
	X46	South	83	54	77	258.4	442.6	258.4	A	A	A
	X47	West	276	261	349	164.0	180.7	130.6	A	A	A
5th Ave & 2nd St	X48	North	65	56	61	206.9	318.6	222.4	A	A	A
	X49	East	243	210	243	201.2	260.5	194.6	A	A	A
	X50	South	83	41	66	156.1	423.9	248.7	A	A	A
	X51	West	278	270	342	151.5	168.3	167.8	A	A	A

Table 14-47
Existing Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Smith St & President St	C1	NE	77.5	169.9	113.7	A	A	A
	C2	SE	118.1	282.8	218.5	A	A	A
	C3	SW	149.6	330.2	201.9	A	A	A
	C4	NW	131.3	255.9	108.0	A	A	A
Smith St & 3rd St	C5	NE	677.5	1,020.9	857.3	A	A	A
	C6	SE	377.2	634.4	368.3	A	A	A
Smith St & 9th St	C7	NE	93.7	141.3	117.8	A	A	A
Hoyt St & Baltic St	C8	SW	157.6	168.1	131.1	A	A	A
	C9	NW	329.9	276.9	267.2	A	A	A
Bond St & Baltic St	C10	NE	574.1	707.1	481.0	A	A	A
	C11	NW	465.3	643.1	463.5	A	A	A
Bond St & Union St	C12	NE	435.1	661.6	459.9	A	A	A
	C13	SE	342.7	550.3	255.4	A	A	A
	C14	SW	169.4	317.1	244.8	A	A	A
	C15	NW	478.9	910.4	678.3	A	A	A
Bond St & 3rd St	C16	NE	566.8	706.3	490.9	A	A	A
	C17	SE	862.4	783.4	571.1	A	A	A
	C18	SW	859.1	875.8	628.0	A	A	A
	C19	NW	629.9	900.1	515.9	A	A	A
Nevins St & Union St	C20	NE	532.7	741.5	558.5	A	A	A
	C21	SE	794.0	940.0	400.7	A	A	A
	C22	SW	1,401.5	1,899.4	637.4	A	A	A
	C23	NW	1,228.6	1,600.9	1,086.6	A	A	A
3rd Ave & Douglass St	C24	SE	580.7	590.9	554.8	A	A	A
	C25	SW	740.2	805.8	724.6	A	A	A
	C26	NW	833.9	1,259.6	657.1	A	A	A
3rd Ave & Degraw St	C27	SW	2,077.1	1,775.0	1,331.9	A	A	A
	C28	NW	1,072.8	824.9	872.9	A	A	A
3rd Ave & Sackett St	C29	NE	1,455.5	1,623.6	996.9	A	A	A
	C30	SE	987.3	926.4	665.6	A	A	A
	C31	SW	901.9	1,066.3	651.0	A	A	A
	C32	NW	1,626.2	1,873.6	1,070.6	A	A	A
3rd Ave & Union St	C33	NE	516.1	521.0	376.7	A	A	A
	C34	SE	382.0	533.6	246.2	A	A	A
	C35	SW	657.5	906.7	434.3	A	A	A
	C36	NW	1,558.2	1,639.7	1,158.4	A	A	A
3rd Ave & President St	C37	SE	665.4	875.2	711.6	A	A	A
	C38	SW	1,048.0	1,309.5	955.2	A	A	A
3rd Ave & Carroll St	C39	NE	138.4	197.2	159.9	A	A	A
	C40	SE	359.9	533.2	440.4	A	A	A
	C41	SW	413.5	680.6	551.7	A	A	A
	C42	NW	634.6	875.5	690.5	A	A	A

Table 14-47 (cont'd)
Existing Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
3rd Ave 1st St	C43	NE	622.8	1,182.8	689.5	A	A	A
	C44	SE	995.3	1,759.1	1,251.0	A	A	A
3rd Ave 3rd St	C45	NE	651.7	921.0	731.4	A	A	A
	C46	SE	482.9	272.4	498.1	A	A	A
	C47	SW	315.8	178.1	235.7	A	A	A
	C48	NW	920.8	1,059.0	887.3	A	A	A
4th Ave & Douglass St	C49	SW	775.1	684.0	521.4	A	A	A
4th Ave & Degraw St	C50	NE	343.0	887.2	592.8	A	A	A
	C51	SE	294.5	768.7	491.0	A	A	A
	C52	SW	582.0	634.7	449.1	A	A	A
	C53	NW	639.2	706.9	479.8	A	A	A
4th Ave & Sackett St	C54	NE	246.6	469.2	318.4	A	A	A
	C55	SE	272.5	599.3	395.6	A	A	A
	C56	SW	420.3	290.9	258.3	A	A	A
	C57	NW	528.1	358.4	343.4	A	A	A
4th Ave & Union St	C58	NE	207.4	480.5	295.1	A	A	A
	C59	SE	110.7	236.0	157.8	A	A	A
	C60	SW	389.0	392.8	227.6	A	A	A
	C61	NW	424.5	398.8	262.7	A	A	A
4th Ave & President St	C62	NE	104.2	284.7	201.0	A	A	A
	C63	SE	129.9	311.4	226.1	A	A	A
	C64	SW	127.2	143.4	78.2	A	A	A
	C65	NW	187.5	205.6	108.5	A	A	A
4th Ave & Carroll St	C66	NE	178.0	514.8	254.1	A	A	A
	C67	SE	176.9	575.1	345.6	A	A	A
	C68	SW	283.0	672.7	406.0	A	A	A
	C69	NW	221.6	452.2	269.8	A	A	A
4th Ave & Garfield Pl	C70	NE	292.7	785.8	402.9	A	A	A
	C71	SE	323.0	852.7	443.1	A	A	A
4th Ave & 1st St	C72	NE	432.6	1,326.5	835.0	A	A	A
	C73	SE	371.2	957.6	661.7	A	A	A
	C74	SW	565.1	1,168.7	885.0	A	A	A
	C75	NW	395.9	798.9	590.6	A	A	A
4th Ave & 2nd St	C76	NE	287.2	897.8	556.6	A	A	A
	C77	SE	364.2	945.4	718.8	A	A	A
5th Ave & 1st St	C78	NE	347.9	499.2	345.3	A	A	A
	C79	SE	320.0	431.8	322.6	A	A	A
	C80	SW	272.8	329.4	222.8	A	A	A
	C81	NW	289.7	358.2	232.6	A	A	A
5th Ave & 2nd St	C82	NE	163.9	231.1	167.6	A	A	A
	C83	SE	137.3	225.0	166.0	A	A	A
	C84	SW	231.5	326.3	285.3	A	A	A
	C85	NW	275.0	322.0	280.6	A	A	A

SIDEWALKS

Table 14-48 shows the No Action peak hour pedestrian volumes, average pedestrian space, and platoon-adjusted levels of service at analyzed sidewalks. As shown in **Table 14-48**, all analyzed sidewalks are projected to operate at an acceptable LOS C or better in all peak hours.

CROSSWALKS

Table 14-49 shows the peak hour volumes, average pedestrian space, and levels of service at analyzed crosswalks in the No Action condition. As shown in **Table 14-49**, all analyzed crosswalks are expected to operate at an acceptable LOS C or better in all peak hours in the No Action condition.

CORNER AREAS

Table 14-50 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 14-50**, all analyzed corner areas are expected to continue to operate at an uncongested LOS A in all peak hours.

THE FUTURE WITH THE PROPOSED ACTIONS (WITH ACTION CONDITION)

As discussed in Chapter 1, Project Description," the Proposed Actions would include the mapping of new public streets to coordinate private and public improvements and to provide access to new mixed-use developments and neighborhood open space. As shown in **Figure 14-14**, these new public streets would include an extension of Hoyt Street south to intersect a new eastward extension of Nelson Street, and an extension of Luquer Street to the east to intersect the new extension of Hoyt Street. These new street segments are reflected in the assignment of incremental pedestrian trips associated with the Proposed Actions. It should also be noted that under the Proposed Actions new 40-foot-wide public walkways would be developed along the shore of the Gowanus Canal (see **Figure 14-14**). To be conservative with respect to the analysis of potential impacts to analyzed pedestrian elements, incremental pedestrian trips were assumed to primarily utilize sidewalks, corners and crosswalks for access to and from projected development sites in proximity to these shorefront public walkways.

Incremental pedestrian demand generated by the Proposed Actions by 2035 would include trips made solely by walking, as well as pedestrian trips en route to and from subway station entrances and bus stops. Pedestrian trips generated by the Proposed Actions are expected to be most concentrated in proximity to projected development sites and along corridors connecting these sites to area transit services.

As shown in **Table 14-11**, the Proposed Actions are expected to generate a net total of approximately 2,801 walk-only trips in the weekday AM peak hour, 5,952 in the midday peak hour, and 3,831 in the PM peak hour. Persons en route to and from subway station entrances and bus stops would add approximately 6,222, 3,452, and 6,922 additional pedestrian trips to Project 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.

Table 14-48
No Action Sidewalk Conditions

No.	Location		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	President St betw. Smith St & Hoyt St	North	6.0	375	105	236	172.0	696.9	326.0	B	A	B
S2	President St betw. Smith St & Hoyt St	South	4.0	412	130	184	128.8	336.1	244.3	B	B	B
S3	2nd Pl betw. Court St & Smith St	North	7.0	83	111	93	1,068.7	809.1	763.0	A	A	A
S4	Smith St betw. 3rd St & 4th St	East	4.0	212	256	245	185.0	190.3	191.1	B	B	B
S5	Smith St betw. 4th St & 5th St	East	2.5	135	124	99	196.3	223.3	355.8	B	B	B
S6	5th St betw. Smith St & Hoyt St	North	1.0	92	240	144	106.2	45.7	92.9	B	C	B
S7	Smith St betw. 4th Pl & Luquer St	East	6.0	102	395	200	540.3	199.4	261.2	A	B	B
S8	5th St betw. Smith St & Hoyt St	South	5.5	38	166	87	1,146.3	262.2	250.1	A	B	B
S9	Smith St betw. Luquer St & Nelson St	East	6.0	77	230	130	789.9	289.1	365.4	A	B	B
S10	Smith St betw. Nelson St & Huntington St	East	7.0	156	471	268	412.1	176.3	206.6	B	B	B
S11	Smith St betw. Huntington St & 9th St	East	6.2	251	457	352	308.9	139.3	164.3	B	B	B
S12	9th St betw. Smith St & Subway entrance	North	6.5	952	524	755	97.9	149.0	111.3	B	B	B
S13	9th St betw. Subway entrance & Gowanus Canal	North	4.0	230	453	270	225.7	118.4	194.5	B	B	B
S14	Warren St betw. Smith St & Hoyt St	North	3.0	311	300	280	127.9	127.9	138.8	B	B	B
S15	Baltic St betw. Hoyt St & Bond St	North	7.0	200	205	232	432.3	443.4	396.5	B	B	B
S16	Hoyt St betw. President St & Carroll St	East	2.5	126	62	50	200.9	415.0	498.9	B	B	B
S17	Carroll St betw. Hoyt St & Bond St	North	3.0	137	85	90	270.4	380.0	448.7	B	B	B
S18	Hoyt St betw. President St & Carroll St	West	2.5	221	136	135	159.1	218.1	246.2	B	B	B
S19	2nd St betw. Hoyt St & Bond St	South	3.0	146	120	175	286.2	217.6	189.8	B	B	B
S20	Hoyt St betw. 2nd St & 3rd St	West	2.5	137	130	125	207.9	191.6	243.7	B	B	B
S21	2nd St betw. Smith St & Hoyt St	South	4.4	380	163	291	177.6	363.3	172.1	B	B	B
S22	4th St betw. Hoyt St & Bond St	North	4.0	33	113	64	1,536.0	386.7	742.4	A	B	A
S23	4th St betw. Hoyt St & Bond St	South	6.5	56	270	136	1,378.9	339.2	476.8	A	B	B
S24	Hoyt St betw. 4th St & 5th St	West	8.0	78	322	173	406.0	263.5	424.7	B	B	B
S25	4th St betw. Smith St & Hoyt St	South	2.5	71	206	128	390.3	136.1	169.8	B	B	B
S26	Bond St betw. Baltic St & Butler St	East	4.5	204	137	189	275.8	374.5	252.5	B	B	B
S27	Bond St betw. Douglass St & Degraw St	East	3.5	143	47	72	236.3	861.0	608.2	B	A	A
S28	Bond St betw. Degraw St & Sackett St	East	3.0	155	71	77	238.9	461.7	512.1	B	B	B
S29	Bond St betw. Sackett St & Union St	East	2.5	166	108	106	164.3	249.1	313.6	B	B	B
S30	Union St betw. Bond St & Gowanus Canal	North	4.0	171	118	137	307.4	477.8	434.6	B	B	B
S31	Bond St betw. Union St & President St	East	5.5	115	61	95	621.1	985.4	834.5	A	A	A
S32	Union St betw. Bond St & Gowanus Canal	South	1.5	195	118	255	62.5	162.8	86.0	C	B	C
S33	Bond St betw. President St & Carroll St	East	3.0	180	59	101	192.4	547.6	428.0	B	A	B
S34	Carroll St betw. Bond St & Gowanus Canal	North	6.0	129	82	113	626.1	1,089.4	630.7	A	A	A
S35	Carroll St betw. Bond St & Gowanus Canal	South	7.0	171	61	126	395.4	1,363.2	718.4	B	A	A
S36	Bond St betw. 2nd St & 3rd St	East	1.5	117	129	179	137.7	158.1	104.3	B	B	B
S37	3rd St betw. Bond St & Gowanus Canal	North	5.0	261	460	453	242.5	154.6	129.0	B	B	B
S38	Bond St betw. 3rd St & 4th St	East	4.0	62	272	143	684.6	160.4	203.5	A	B	B
S39	3rd St betw. Bond St & Gowanus Canal	South	6.5	116	235	194	568.0	363.5	413.8	A	B	B
S40	3rd St betw. Hoyt St & Bond St	North	2.5	206	160	167	163.1	212.6	160.9	B	B	B
S41	Nevins St betw. Butler St & Douglass St	East	7.0	88	175	131	881.9	373.7	575.5	A	B	A
S42	Nevins St betw. Sackett St & Union St	East	2.5	82	80	83	299.2	400.8	300.4	B	B	B
S43	Union St betw. Nevins St & 3rd Ave	North	7.0	120	92	113	794.6	855.6	716.2	A	A	A
S44	Nevins St betw. Union St & President St	West	4.5	45	49	58	1,393.9	646.4	749.6	A	A	A
S45	Union St betw. Gowanus Canal & Nevins St	South	12.5	185	104	247	620.7	1,488.8	553.0	A	A	A

Table 14-48 (cont'd)
No Action Sidewalk Conditions

No.	Location		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
S46	Union St betw. Gowanus Canal & Nevins St	North	6.5	187	124	156	451.4	680.8	514.7	B	A	B
S47	Carroll St betw. Nevins St & 3rd Ave	South	3.0	167	86	96	221.7	414.3	326.5	B	B	B
S48	Carroll St betw. Gowanus Canal & Nevins St	South	10.5	164	88	92	821.4	1,455.3	1,265.4	A	A	A
S49	Carroll St betw. Gowanus Canal & Nevins St	North	7.5	161	98	146	545.9	909.1	577.6	A	A	A
S50	3rd Ave betw. Douglass St & Degraw St	West	6.0	88	226	170	647.9	256.3	424.8	A	B	B
S51	Douglass St betw. Nevins St & 3rd Ave	North	7.0	54	111	122	718.6	609.3	536.1	A	A	A
S52	3rd Ave betw. Sackett St & Union St	East	5.0	120	211	179	541.1	307.6	345.0	A	B	B
S53	Sackett St betw. 3rd Ave & 4th Ave	South	5.5	51	130	85	939.5	381.8	676.4	A	B	A
S54	3rd Ave betw. Sackett St & Union St	West	7.0	103	171	155	538.2	453.8	572.2	A	B	A
S55	3rd Ave betw. Degraw St & Sackett St	West	7.0	100	168	128	665.2	455.3	597.6	A	B	A
S56	Sackett St betw. Nevins St & 3rd Ave	North	8.5	88	122	85	1,040.3	739.3	902.8	A	A	A
S57	Union St betw. 3rd Ave & 4th Ave	North	5.0	130	169	125	426.3	309.1	500.4	B	B	B
S58	Union St betw. 3rd Ave & 4th Ave	South	5.0	461	433	528	147.4	127.6	109.0	B	B	B
S59	President St betw. 3rd Ave & 4th Ave	South	2.5	135	179	204	205.1	178.9	133.5	B	B	B
S60	3rd Ave betw. President St & Carroll St	West	2.0	107	145	167	263.3	170.1	143.8	B	B	B
S61	3rd Ave betw. Carroll St & 1st St	West	1.0	157	284	264	72.9	48.0	51.2	C	C	C
S62	3rd Ave betw. 1st St & 3rd St	West	4.0	216	386	362	205.1	158.9	129.1	B	B	B
S63	3rd St betw. Gowanus Canal & 3rd Av	South	5.0	160	498	338	366.2	138.0	208.3	B	B	B
S64	3rd St betw. Gowanus Canal & 3rd Av	North	3.0	206	363	367	193.5	122.6	110.9	B	B	B
S65	4th Ave betw. Douglass St & Degraw St	West	9.5	190	313	340	784.0	389.3	380.5	A	B	B
S66	Douglass St betw. 3rd Ave & 4th Ave	South	3.0	53	135	133	502.0	200.4	228.4	B	B	B
S67	4th Ave betw. Degraw St & Sackett St	East	4.5	465	267	305	106.8	197.3	193.7	B	B	B
S68	4th Ave betw. Degraw St & Sackett St	West	10.5	197	300	374	742.9	432.3	400.1	A	B	B
S69	4th Ave betw. Sackett St & Union St	East	8.5	574	334	399	185.3	378.8	286.6	B	B	B
S70	4th Ave betw. Sackett St & Union St	West	10.5	250	403	430	565.4	358.9	305.4	A	B	B
S71	4th Ave betw. Union St & Subway entrance	East	6.5	1341	736	845	72.2	122.7	111.6	C	B	B
S72	4th Ave betw. Union St & Subway entrance	West	5.5	655	743	1056	108.6	103.8	80.0	B	B	C
S73	4th Ave betw. Subway entrance & President St	East	8.0	1629	666	748	68.4	172.8	152.1	C	B	B
S74	4th Ave betw. President St & Carroll St	West	3.5	491	422	633	79.5	111.2	72.8	C	B	C
S75	4th Ave betw. Subway entrance & President St	West	10.0	559	788	1066	237.8	164.5	124.4	B	B	B
S76	4th Ave betw. Carroll St & Garfield Pl	East	9.0	572	290	436	211.6	432.5	251.6	B	B	B
S77	4th Ave betw. Garfield Pl & 1st St	East	4.0	596	292	439	85.5	195.0	128.0	C	B	B
S78	4th Ave betw. 1st St & 2nd St	East	10.0	404	207	315	297.8	642.7	392.1	B	A	B
S79	4th Ave betw. 2nd St & 3rd St	East	8.5	381	174	247	233.0	688.6	408.7	B	A	B
S80	1st St betw. 4th Ave & 5th Ave	South	3.5	96	91	133	357.9	505.6	325.0	B	B	B
S81	2nd St betw. 4th Ave & 5th Ave	North	2.5	112	86	157	275.6	377.4	193.9	B	B	B

Table 14-49
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
Smith St & President St	X1	North	355	166	307	29.7	72.7	37.1	C	A	C
Smith St & 3rd St	X2	North	131	49	80	135.6	383.0	241.8	A	A	A
	X3	East	146	107	134	155.2	178.9	160.0	A	A	A
	X4	South	163	65	152	169.1	401.5	169.4	A	A	A
Bond St & Baltic St	X5	North	55	41	56	300.0	690.7	358.5	A	A	A
Bond St & Union St	X6	East	55	24	49	526.6	1,025.2	531.4	A	A	A
Bond St & 3rd St	X7	North	67	59	73	354.9	567.1	411.3	A	A	A
	X8	East	20	27	35	854.7	738.5	440.8	A	A	A
	X9	South	57	72	91	534.4	510.4	404.5	A	A	A
	X10	West	21	21	29	419.8	467.6	320.7	A	A	A
Nevins St & Union St	X11	North	75	55	84	681.2	946.2	675.6	A	A	A
	X12	East	33	25	41	327.5	500.7	354.0	A	A	A
	X13	West	55	51	151	694.3	933.1	270.5	A	A	A
3rd Ave & Douglass St	X14	West	72	62	79	414.8	774.3	590.3	A	A	A
3rd Ave & Degraw St	X15	West	44	45	65	722.3	698.6	605.4	A	A	A
3rd Ave & Sackett St	X16	North	18	25	30	1,167.1	453.2	357.7	A	A	A
	X17	East	63	49	80	536.5	640.0	413.3	A	A	A
	X18	South	21	15	28	754.1	478.4	409.8	A	A	A
	X19	West	57	49	96	515.4	721.0	397.4	A	A	A
3rd Ave & Union St	X20	North	54	61	68	326.6	207.5	155.6	A	A	A
	X21	East	54	61	107	675.8	631.9	336.5	A	A	A
	X22	South	125	96	175	128.8	131.5	50.5	A	A	B
	X23	West	54	45	81	704.1	855.0	552.3	A	A	A
3rd Ave & Carroll St	X24	South	117	50	69	69.3	167.5	108.7	A	A	A
	X25	West	78	70	66	642.1	626.5	616.3	A	A	A
3rd Ave & 3rd St	X26	North	53	46	56	375.0	536.8	526.2	A	A	A
	X27	South	105	188	146	156.9	113.8	158.5	A	A	A
4th Ave & Douglass St	X28	West	137	152	221	331.8	253.8	290.0	A	A	A
4th Ave & Sackett St	X29	East	341	160	225	131.6	236.8	206.0	A	A	A
	X30	West	183	265	283	328.6	178.2	221.9	A	A	A
4th Ave & Union St	X31	East	585	233	347	81.4	144.1	150.7	A	A	A
	X32	West	249	272	433	195.0	102.3	110.8	A	A	A
4th Ave & President St	X33	North	240	151	284	59.9	239.6	48.3	B	A	B
	X34	East	699	285	412	47.6	102.1	107.4	B	A	A
	X35	South	199	123	197	64.6	232.2	61.0	A	A	A
	X36	West	413	379	631	136.5	93.8	75.5	A	A	A
4th Ave & Carroll St	X37	East	460	168	313	118.4	229.2	181.2	A	A	A
	X38	West	261	159	264	160.0	198.7	180.5	A	A	A
4th Ave & Garfield Pl	X39	East	378	143	263	134.1	234.8	195.5	A	A	A
4th Ave & 1st St	X40	East	325	131	221	132.9	266.9	262.8	A	A	A
4th Ave & 2nd St	X41	North	24	12	15	367.8	3,088.1	776.5	A	A	A
	X42	East	302	120	198	155.2	373.1	312.3	A	A	A
	X43	South	22	12	13	524.2	2,258.9	758.9	A	A	A
5th Ave & 1st St	X44	North	100	45	101	221.1	442.9	218.8	A	A	A
	X45	East	242	212	243	171.7	204.0	162.9	A	A	A
	X46	South	88	56	81	243.1	426.7	245.6	A	A	A
	X47	West	291	275	368	155.3	171.3	123.6	A	A	A
5th Ave & 2nd St	X48	North	69	59	64	194.5	301.2	211.4	A	A	A
	X49	East	256	221	256	190.7	247.3	184.4	A	A	A
	X50	South	88	43	70	146.7	403.3	234.0	A	A	A
	X51	West	293	285	361	143.1	159.8	158.9	A	A	A

Table 14-50
No Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Smith St & President St	C1	NE	73.2	160.8	107.5	A	A	A
	C2	SE	111.9	268.0	207.1	A	A	A
	C3	SW	141.2	312.6	191.3	A	A	A
	C4	NW	124.0	243.2	102.2	A	A	A
Smith St & 3rd St	C5	NE	643.8	966.3	816.8	A	A	A
	C6	SE	355.5	601.5	349.6	A	A	A
Smith St & 9th St	C7	NE	88.7	133.8	111.3	A	A	A
Hoyt St & Baltic St	C8	SW	149.3	158.7	124.2	A	A	A
	C9	NW	312.9	262.2	253.6	A	A	A
Bond St & Baltic St	C10	NE	547.7	671.8	455.1	A	A	A
	C11	NW	441.9	618.3	437.8	A	A	A
Bond St & Union St	C12	NE	409.3	627.9	438.7	A	A	A
	C13	SE	322.7	518.5	242.6	A	A	A
	C14	SW	158.8	302.3	233.2	A	A	A
	C15	NW	448.3	870.2	643.5	A	A	A
Bond St & 3rd St	C16	NE	534.0	668.8	464.3	A	A	A
	C17	SE	822.7	733.4	540.6	A	A	A
	C18	SW	818.4	828.2	602.9	A	A	A
	C19	NW	596.3	858.0	488.3	A	A	A
Nevins St & Union St	C20	NE	506.2	708.8	529.1	A	A	A
	C21	SE	749.2	889.2	381.4	A	A	A
	C22	SW	1,319.5	1,786.8	605.1	A	A	A
	C23	NW	1,161.4	1,503.1	1,024.3	A	A	A
3rd Ave & Douglass St	C24	SE	545.1	556.2	522.7	A	A	A
	C25	SW	700.7	760.9	681.7	A	A	A
	C26	NW	795.7	1,204.3	621.8	A	A	A
3rd Ave & Degraw St	C27	SW	2,011.3	1,716.4	1,249.6	A	A	A
	C28	NW	1,018.8	790.4	858.1	A	A	A
3rd Ave & Sackett St	C29	NE	1,398.3	1,542.9	943.1	A	A	A
	C30	SE	934.4	888.3	626.8	A	A	A
	C31	SW	860.5	1,025.8	615.9	A	A	A
	C32	NW	1,552.7	1,780.8	1,008.7	A	A	A
3rd Ave & Union St	C33	NE	492.0	492.7	356.7	A	A	A
	C34	SE	362.4	503.3	232.5	A	A	A
	C35	SW	623.2	858.2	410.9	A	A	A
	C36	NW	1,493.1	1,569.1	1,092.2	A	A	A
3rd Ave & President St	C37	SE	631.0	829.6	673.4	A	A	A
	C38	SW	989.3	1,249.0	907.0	A	A	A
3rd Ave & Carroll St	C39	NE	130.8	185.5	150.7	A	A	A
	C40	SE	341.7	507.3	415.5	A	A	A
	C41	SW	391.5	641.2	520.6	A	A	A
	C42	NW	603.8	826.3	659.2	A	A	A

Table 14-50 (cont'd)
No Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
3rd Ave 1st St	C43	NE	592.0	1,134.0	654.9	A	A	A
	C44	SE	958.6	1,682.5	1,204.3	A	A	A
3rd Ave 3rd St	C45	NE	616.3	883.7	694.3	A	A	A
	C46	SE	457.7	258.7	468.8	A	A	A
	C47	SW	299.4	168.6	222.5	A	A	A
	C48	NW	874.3	1,013.4	842.8	A	A	A
4th Ave & Douglass St	C49	SW	735.5	645.0	495.7	A	A	A
4th Ave & Degraw St	C50	NE	325.2	841.9	559.6	A	A	A
	C51	SE	278.8	729.9	465.0	A	A	A
	C52	SW	550.9	599.7	426.0	A	A	A
	C53	NW	606.4	671.8	455.8	A	A	A
4th Ave & Sackett St	C54	NE	234.1	444.6	301.7	A	A	A
	C55	SE	258.2	566.6	376.4	A	A	A
	C56	SW	399.3	273.9	244.3	A	A	A
	C57	NW	501.1	338.8	324.6	A	A	A
4th Ave & Union St	C58	NE	196.5	455.4	279.6	A	A	A
	C59	SE	104.5	223.4	149.1	A	A	A
	C60	SW	368.0	371.9	215.0	A	A	A
	C61	NW	402.7	377.3	251.2	A	A	A
4th Ave & President St	C62	NE	98.6	269.9	190.3	A	A	A
	C63	SE	122.8	294.8	214.1	A	A	A
	C64	SW	120.1	135.3	73.6	A	A	A
	C65	NW	177.1	193.9	102.0	A	A	A
4th Ave & Carroll St	C66	NE	168.4	486.5	240.7	A	A	A
	C67	SE	167.5	542.9	328.1	A	A	A
	C68	SW	268.2	640.8	385.4	A	A	A
	C69	NW	209.6	427.3	254.6	A	A	A
4th Ave & Garfield Pl	C70	NE	277.4	747.8	383.6	A	A	A
	C71	SE	306.0	817.4	422.7	A	A	A
4th Ave & 1st St	C72	NE	409.0	1,259.6	793.0	A	A	A
	C73	SE	350.7	910.0	627.3	A	A	A
	C74	SW	534.7	1,098.7	834.2	A	A	A
	C75	NW	375.2	755.6	560.0	A	A	A
4th Ave & 2nd St	C76	NE	272.6	858.3	528.3	A	A	A
	C77	SE	345.6	902.9	685.6	A	A	A
5th Ave & 1st St	C78	NE	329.8	473.8	326.8	A	A	A
	C79	SE	303.0	410.3	304.9	A	A	A
	C80	SW	258.1	312.8	210.9	A	A	A
	C81	NW	274.3	340.3	220.2	A	A	A
5th Ave & 2nd St	C82	NE	154.9	218.8	158.8	A	A	A
	C83	SE	129.7	213.4	156.9	A	A	A
	C84	SW	219.5	308.8	269.3	A	A	A
	C85	NW	260.1	304.7	265.9	A	A	A

Anticipated conditions and significant adverse impacts at analyzed sidewalks, crosswalks, and corner areas in the With Action condition are shown in **Tables 14-51 through 14-53**. As discussed below, a total of nine sidewalks and five crosswalks would be impacted in one or more peak hours, and there would be no impacts to any analyzed corner areas. Potential mitigation for these sidewalk and crosswalk impacts are discussed in Chapter 21, "Mitigation."

SIDEWALKS

Table 14-51 shows the incremental change in peak hour pedestrian volumes attributable to the Proposed Actions and the total With Action pedestrian volumes, average pedestrian space, and platoon-adjusted levels of service at analyzed sidewalks. In addition, **Table 14-51** identifies the 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 14-19**. As shown in **Table 14-51**, there would be significant adverse impacts at nine of the 81 analyzed sidewalks in one or more peak hours. These would include:

- The east sidewalk on Smith Street between 3rd and 4th Streets in the AM and PM peak hours;
- The east sidewalk on Smith Street between 4th and 5th Streets in the AM and PM peak hours;
- The north sidewalk on 5th Street between Smith and Hoyt Streets in the midday peak hour;
- The south sidewalk on Union Street between Bond Street and the Gowanus Canal in all analyzed peak hours;
- The east sidewalk on Bond Street between 2nd and 3rd Streets in the AM and PM peak hours;
- The west sidewalk on 3rd Avenue between Carroll and 1st Streets in all analyzed peak hours;
- The north sidewalk on 3rd Street between the Gowanus Canal and 3rd Avenue in the PM peak hour;
- The east sidewalk on 4th Avenue between Union Street and the Union Street subway station entrance in the AM peak hour; and
- The west sidewalk on 4th Avenue between Union Street and the Union Street subway station entrance in the PM peak hour.

CROSSWALKS

Table 14-52 shows the incremental change in peak hour pedestrian volumes attributable to the Proposed Actions and the total With Action pedestrian volumes, average pedestrian space, and levels of service at analyzed crosswalks. As shown in **Table 14-52**, based on the *CEQR Technical Manual* criteria shown in **Table 14-20**, there would be significant adverse impacts at five of the 51 analyzed crosswalks in one or more peak hours as result of the Proposed Actions. These would include:

- The north crosswalk on Smith Street at President Street in the AM and PM peak hours;
- The north crosswalk on 3rd Avenue at Union Street in the PM peak hour;
- The south crosswalk on 3rd Avenue at Union Street in the PM peak hour;
- The south crosswalk on 3rd Avenue at Carroll Street in the AM and PM peak hours; and
- The east crosswalk on President Street at 4th Avenue in the AM peak hour.

Table 14-51
With Action Sidewalk Conditions

No.	Location		Effective Width (ft.)	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	President St betw. Smith St & Hoyt St	North	6.0	122	89	173	497	194	409	129.6	377.1	187.9	B	B	B
S2	President St betw. Smith St & Hoyt St	South	4.0	417	244	422	829	374	606	63.4	116.4	73.5	C	B	C
S3	2nd Pl betw. Court St & Smith St	North	7.0	1,115	672	1,118	1,198	783	1,211	73.3	114.2	57.7	C	B	C
S4	Smith St betw. 3rd St & 4th St	East	4.0	1,163	697	1,129	1,375	953	1,374	26.7	50.1	32.5	D *	C	D *
S5	Smith St betw. 4th St & 5th St	East	2.5	918	489	899	1,053	613	998	23.0	44.0	33.8	D *	C	D *
S6	5th St betw. Smith St & Hoyt St	North	1.0	138	162	123	230	402	267	41.4	26.0	49.3	C	D *	C
S7	Smith St betw. 4th Pl & Luquer St	East	6.0	690	369	583	792	764	783	68.8	102.7	65.9	C	B	C
S8	5th St betw. Smith St & Hoyt St	South	5.5	202	135	233	240	301	320	181.2	144.3	67.3	B	B	C
S9	Smith St betw. Luquer St & Nelson St	East	6.0	590	322	347	667	552	477	90.6	120.1	99.1	B	B	B
S10	Smith St betw. Nelson St & Huntington St	East	7.0	905	514	756	1,061	985	1,024	59.7	83.8	53.1	C	C	C
S11	Smith St betw. Huntington St & 9th St	East	6.2	1,004	563	861	1,255	1,020	1,213	60.9	61.7	46.6	C	C	C
S12	9th St betw. Smith St & Subway entrance	North	6.5	610	368	653	1,562	892	1,408	59.1	87.1	59.1	C	C	C
S13	9th St betw. Subway entrance & Gowanus Canal	North	4.0	304	144	159	534	597	429	96.7	89.6	122.1	B	C	B
S14	Warren St betw. Smith St & Hoyt St	North	3.0	224	115	176	535	415	456	73.9	92.2	84.8	C	B	C
S15	Baltic St betw. Hoyt St & Bond St	North	7.0	209	125	193	409	330	425	211.2	275.3	216.3	B	B	B
S16	Hoyt St betw. President St & Carroll St	East	2.5	172	137	195	298	199	245	84.4	128.9	101.3	C	B	B
S17	Carroll St betw. Hoyt St & Bond St	North	3.0	261	182	281	398	267	371	92.5	120.6	108.4	B	B	B
S18	Hoyt St betw. President St & Carroll St	West	2.5	188	146	204	409	282	339	85.5	104.8	97.6	C	B	B
S19	2nd St betw. Hoyt St & Bond St	South	3.0	399	274	391	545	394	566	76.0	65.5	57.8	C	C	C
S20	Hoyt St betw. 2nd St & 3rd St	West	2.5	273	216	293	410	346	418	68.8	71.4	72.2	C	C	C
S21	2nd St betw. Smith St & Hoyt St	South	4.4	737	467	778	1117	630	1069	59.6	93.5	45.8	C	B	C
S22	4th St betw. Hoyt St & Bond St	North	4.0	153	198	145	186	311	209	272.3	140.2	227.1	B	B	B
S23	4th St betw. Hoyt St & Bond St	South	6.5	160	279	162	216	549	298	357.3	166.6	217.4	B	B	B
S24	Hoyt St betw. 4th St & 5th St	West	8.0	425	327	282	503	649	455	62.1	130.4	161.2	C	B	B
S25	4th St betw. Smith St & Hoyt St	South	2.5	236	287	225	307	493	353	89.7	56.1	60.8	C	C	C
S26	Bond St betw. Baltic St & Butler St	East	4.5	161	137	176	365	274	365	153.9	187.0	130.4	B	B	B
S27	Bond St betw. Douglass St & Degraw St	East	3.5	146	200	195	289	247	267	116.6	163.5	163.7	B	B	B
S28	Bond St betw. Degraw St & Sackett St	East	3.0	253	255	319	408	326	396	90.2	100.0	99.1	B	B	B
S29	Bond St betw. Sackett St & Union St	East	2.5	301	285	389	467	393	495	57.6	67.7	66.4	C	C	C
S30	Union St betw. Bond St & Gowanus Canal	North	4.0	160	196	266	331	314	403	158.5	179.3	147.4	B	B	B
S31	Bond St betw. Union St & President St	East	5.5	171	254	224	286	315	319	249.6	190.5	248.3	B	B	B
S32	Union St betw. Bond St & Gowanus Canal	South	1.5	381	399	448	576	517	703	18.9	35.8	29.7	E *	D *	D *
S33	Bond St betw. President St & Carroll St	East	3.0	180	186	227	360	245	328	95.8	131.5	131.4	B	B	B
S34	Carroll St betw. Bond St & Gowanus Canal	North	6.0	207	250	269	336	332	382	240.2	268.9	186.3	B	B	B
S35	Carroll St betw. Bond St & Gowanus Canal	South	7.0	337	295	367	508	356	493	132.7	233.4	181.9	B	B	B
S36	Bond St betw. 2nd St & 3rd St	East	1.5	322	274	314	439	403	493	35.3	49.6	36.6	D *	C	D *
S37	3rd St betw. Bond St & Gowanus Canal	North	5.0	704	599	676	965	1059	1129	64.8	66.5	50.9	C	C	C
S38	Bond St betw. 3rd St & 4th St	East	4.0	161	297	168	223	569	311	190.1	76.1	93.1	B	C	B
S39	3rd St betw. Bond St & Gowanus Canal	South	6.5	259	316	277	375	551	471	175.4	154.7	170.2	B	B	B
S40	3rd St betw. Hoyt St & Bond St	North	2.5	282	228	299	488	388	466	68.2	87.2	56.8	C	C	C
S41	Nevins St betw. Butler St & Douglass St	East	7.0	114	227	202	202	402	333	384.1	162.4	226.2	B	B	B
S42	Nevins St betw. Sackett St & Union St	East	2.5	65	205	150	147	285	233	166.7	112.1	106.6	B	B	B
S43	Union St betw. Nevins St & 3rd Ave	North	7.0	137	248	266	257	340	379	370.9	231.3	213.3	B	B	B
S44	Nevins St betw. Union St & President St	West	4.5	135	225	201	180	274	259	348.3	115.2	167.6	B	B	B
S45	Union St betw. Gowanus Canal & Nevins St	South	12.5	348	356	411	533	460	658	215.2	336.4	207.4	B	B	B

Table 14-51 (cont'd)
With Action Sidewalk Conditions

No.	Location		Effective Width (ft.)	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
S46	Union St betw. Gowanus Canal & Nevins St	North	6.5	160	196	266	347	320	422	243.1	263.6	190.0	B	B	B
S47	Carroll St betw. Nevins St & 3rd Ave	South	3.0	168	247	222	335	333	318	110.2	106.5	98.1	B	B	B
S48	Carroll St betw. Gowanus Canal & Nevins St	South	10.5	346	332	396	510	420	488	263.9	304.7	238.3	B	B	B
S49	Carroll St betw. Gowanus Canal & Nevins St	North	7.5	231	278	308	392	376	454	224.0	236.7	185.5	B	B	B
S50	3rd Ave betw. Douglass St & Degraw St	West	6.0	120	161	235	208	387	405	274.0	149.4	178.0	B	B	B
S51	Douglass St betw. Nevins St & 3rd Ave	North	7.0	171	159	224	225	270	346	172.2	250.3	188.8	B	B	B
S52	3rd Ave betw. Sackett St & Union St	East	5.0	157	187	251	277	398	430	234.2	163.3	143.3	B	B	B
S53	Sackett St betw. 3rd Ave & 4th Ave	South	5.5	234	242	303	285	372	388	167.8	133.1	147.8	B	B	B
S54	3rd Ave betw. Sackett St & Union St	West	7.0	162	215	337	265	386	492	208.9	200.8	180.0	B	B	B
S55	3rd Ave betw. Degraw St & Sackett St	West	7.0	220	208	363	320	376	491	207.6	203.2	155.5	B	B	B
S56	Sackett St betw. Nevins St & 3rd Ave	North	8.5	140	166	224	228	288	309	401.4	313.1	248.1	B	B	B
S57	Union St betw. 3rd Ave & 4th Ave	North	5.0	236	214	411	366	383	536	151.1	136.1	116.3	B	B	B
S58	Union St betw. 3rd Ave & 4th Ave	South	5.0	378	174	560	839	607	1088	80.5	90.7	52.1	C	B	C
S59	President St betw. 3rd Ave & 4th Ave	South	2.5	156	159	215	291	338	419	94.7	94.3	64.4	B	B	C
S60	3rd Ave betw. President St & Carroll St	West	2.0	131	185	219	238	330	386	118.0	74.2	61.5	B	C	C
S61	3rd Ave betw. Carroll St & 1st St	West	1.0	234	300	311	391	584	575	27.7	21.6	21.7	D *	E *	E *
S62	3rd Ave betw. 1st St & 3rd St	West	4.0	415	481	490	631	867	852	69.5	70.1	54.0	C	C	C
S63	3rd St betw. Gowanus Canal & 3rd Av	South	5.0	101	394	194	261	892	532	224.3	76.5	132.1	B	C	B
S64	3rd St betw. Gowanus Canal & 3rd Av	North	3.0	638	630	668	844	993	1035	46.1	43.8	38.1	C	C	D *
S65	4th Ave betw. Douglass St & Degraw St	West	9.5	285	331	377	475	644	717	313.5	189.0	180.2	B	B	B
S66	Douglass St betw. 3rd Ave & 4th Ave	South	3.0	227	278	258	280	413	391	94.5	64.8	77.1	B	C	C
S67	4th Ave betw. Degraw St & Sackett St	East	4.5	248	184	202	713	451	507	69.2	116.5	116.2	C	B	B
S68	4th Ave betw. Degraw St & Sackett St	West	10.5	214	218	282	411	518	656	356.0	250.2	227.9	B	B	B
S69	4th Ave betw. Sackett St & Union St	East	8.5	419	235	284	993	569	683	106.6	222.2	167.2	B	B	B
S70	4th Ave betw. Sackett St & Union St	West	10.5	396	382	606	646	785	1036	218.6	184.0	126.4	B	B	B
S71	4th Ave betw. Union St & Subway entrance	East	6.5	1052	356	595	2393	1092	1440	39.5	82.3	65.0	D *	C	C
S72	4th Ave betw. Union St & Subway entrance	West	5.5	327	395	1146	982	1138	2202	72.0	67.3	37.0	C	C	D *
S73	4th Ave betw. Subway entrance & President St	East	8.0	690	388	418	2319	1054	1166	47.5	108.9	97.3	C	B	B
S74	4th Ave betw. President St & Carroll St	West	3.5	256	271	429	747	693	1062	51.7	67.2	42.6	C	C	C
S75	4th Ave betw. Subway entrance & President St	West	10.0	249	286	654	808	1074	1720	164.3	120.5	76.7	B	B	C
S76	4th Ave betw. Carroll St & Garfield Pl	East	9.0	379	336	278	951	626	714	127.0	200.1	153.4	B	B	B
S77	4th Ave betw. Garfield Pl & 1st St	East	4.0	319	309	248	915	601	687	55.1	94.3	81.4	C	B	C
S78	4th Ave betw. 1st St & 2nd St	East	10.0	172	225	175	576	432	490	208.7	307.8	251.9	B	B	B
S79	4th Ave betw. 2nd St & 3rd St	East	8.5	22	72	43	403	246	290	220.3	487.0	348.1	B	B	B
S80	1st St betw. 4th Ave & 5th Ave	South	3.5	95	139	103	191	230	236	179.7	199.8	182.9	B	B	B
S81	2nd St betw. 4th Ave & 5th Ave	North	2.5	88	119	91	200	205	248	154.1	158.1	122.5	B	B	B

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

Table 14-52
With Action Crosswalk Conditions

Intersection	Crosswalk		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
Smith St & President St	X1	North	82	71	194	437	237	501	23.7	50.5	21.8	D *	B	D *
Smith St & 3rd St	X2	North	487	274	527	618	323	607	26.1	54.6	28.8	C	B	C
	X3	East	522	322	397	668	429	531	31.0	42.1	36.4	C	B	C
	X4	South	525	324	551	688	389	703	37.3	63.9	34.1	C	A	C
Bond St & Baltic St	X5	North	170	145	175	225	186	231	71.5	148.9	84.2	A	A	A
Bond St & Union St	X6	East	189	222	181	244	246	230	120.4	94.4	106.6	A	A	A
Bond St & 3rd St	X7	North	452	379	441	519	438	514	39.5	70.4	51.0	C	A	B
	X8	East	179	287	198	199	314	233	65.4	60.0	54.5	A	B	B
	X9	South	167	261	196	224	333	287	123.5	107.3	127.2	A	A	A
	X10	West	148	189	137	169	210	166	48.8	45.6	54.9	B	B	B
Nevins St & Union St	X11	North	162	219	268	237	274	352	211.9	190.4	159.2	A	A	A
	X12	East	110	237	188	143	262	229	85.5	49.5	63.2	A	B	A
	X13	West	274	265	335	329	316	486	118.7	141.8	82.4	A	A	A
3rd Ave & Douglass St	X14	West	176	206	286	248	268	365	112.9	166.3	114.0	A	A	A
3rd Ave & Degraw St	X15	West	114	206	249	158	251	314	191.2	116.5	119.6	A	A	A
3rd Ave & Sackett St	X16	North	153	161	220	171	186	250	122.9	57.6	35.5	A	B	C
	X17	East	134	191	218	197	240	298	157.7	121.6	106.1	A	A	A
	X18	South	131	169	190	152	184	218	97.5	35.7	45.4	A	C	B
	X19	West	209	258	402	266	307	498	95.8	103.9	66.7	A	A	A
3rd Ave & Union St	X20	North	175	223	360	229	284	428	72.4	41.0	21.7	A	B	D *
	X21	East	168	208	287	222	269	394	160.3	136.6	85.8	A	A	A
	X22	South	239	78	355	364	174	530	40.3	74.0	13.6	B	A	E *
	X23	West	135	184	250	189	229	331	192.1	155.8	125.5	A	A	A
3rd Ave & Carroll St	X24	South	176	224	168	293	274	237	21.9	27.0	22.6	D *	C	D *
	X25	West	209	311	200	287	381	266	165.6	107.4	117.2	A	A	A
3rd Ave & 3rd St	X26	North	125	215	141	178	261	197	108.2	90.3	145.4	A	A	A
	X27	South	76	250	131	181	438	277	78.5	44.9	69.4	A	B	A
4th Ave & Douglass St	X28	West	224	249	292	361	401	513	119.5	91.9	119.8	A	A	A
4th Ave & Sackett St	X29	East	333	230	248	674	390	473	64.9	90.7	96.5	A	A	A
	X30	West	259	269	387	442	534	670	131.9	84.6	89.5	A	A	A
4th Ave & Union St	X31	East	583	325	393	1168	558	740	37.8	57.0	68.1	C	B	A
	X32	West	451	468	867	700	740	1300	65.2	36.2	32.7	A	C	C
4th Ave & President St	X33	North	147	76	106	387	227	390	36.6	159.2	35.3	C	A	C
	X34	East	642	460	441	1341	745	853	22.3	35.2	49.3	D *	C	B
	X35	South	141	130	122	340	253	319	36.3	114.0	37.2	C	A	C
	X36	West	317	347	560	730	726	1191	74.7	47.4	37.4	A	B	C
4th Ave & Carroll St	X37	East	465	386	335	925	554	648	55.6	65.4	86.5	B	A	A
	X38	West	229	235	373	490	394	637	79.6	76.9	71.6	A	A	A
4th Ave & Garfield Pl	X39	East	352	330	265	730	473	528	65.6	67.0	96.4	A	A	A
4th Ave & 1st St	X40	East	277	320	247	602	451	468	66.5	70.5	119.4	A	A	A
4th Ave & 2nd St	X41	North	10	31	19	34	43	34	250.8	838.6	326.3	A	A	A
	X42	East	17	59	35	319	179	233	146.6	247.9	265.2	A	A	A
	X43	South	2	6	4	24	18	17	475.2	1,478.6	581.7	A	A	A
5th Ave & 1st St	X44	North	8	27	17	108	72	118	201.5	269.8	184.2	A	A	A
	X45	East	9	26	17	251	238	260	165.2	180.9	151.7	A	A	A
	X46	South	11	33	21	99	89	102	214.6	265.5	193.4	A	A	A
	X47	West	11	35	21	302	310	389	149.3	151.4	116.1	A	A	A
5th Ave & 2nd St	X48	North	13	38	23	82	97	87	163.2	182.6	154.5	A	A	A
	X49	East	6	18	12	262	239	268	186.1	228.2	175.9	A	A	A
	X50	South	9	25	16	97	68	86	132.7	252.3	189.7	A	A	A
	X51	West	11	33	20	304	318	381	136.3	140.6	149.0	A	A	A

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

Table 14-53
With Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
Smith St & President St	C1	NE	60.2	119.1	64.2	A	A	A
	C2	SE	103.0	229.0	150.7	A	A	A
	C3	SW	116.6	233.4	116.5	A	A	A
	C4	NW	101.5	186.4	70.7	A	A	A
Smith St & 3rd St	C5	NE	159.0	236.5	176.4	A	A	A
	C6	SE	77.6	121.8	79.6	A	A	A
Smith St & 9th St	C7	NE	43.8	59.2	42.2	B	B	B
Hoyt St & Baltic St	C8	SW	114.6	122.7	92.5	A	A	A
	C9	NW	199.8	188.6	162.9	A	A	A
Bond St & Baltic St	C10	NE	192.9	209.6	182.2	A	A	A
	C11	NW	167.6	202.6	168.1	A	A	A
Bond St & Union St	C12	NE	117.2	107.1	97.2	A	A	A
	C13	SE	87.7	95.5	83.7	A	A	A
	C14	SW	62.1	81.1	80.1	A	A	A
	C15	NW	209.7	213.7	204.6	A	A	A
Bond St & 3rd St	C16	NE	59.8	78.0	65.9	B	A	A
	C17	SE	116.5	101.4	114.1	A	A	A
	C18	SW	142.9	129.5	136.6	A	A	A
	C19	NW	82.4	104.9	88.4	A	A	A
Nevins St & Union St	C20	NE	140.2	106.1	111.2	A	A	A
	C21	SE	172.8	154.2	121.3	A	A	A
	C22	SW	233.7	190.6	159.0	A	A	A
	C23	NW	358.5	215.8	240.2	A	A	A
3rd Ave & Douglass St	C24	SE	215.4	141.0	154.9	A	A	A
	C25	SW	212.8	208.7	161.2	A	A	A
	C26	NW	204.8	222.0	133.1	A	A	A
3rd Ave & Degraw St	C27	SW	334.8	250.0	223.4	A	A	A
	C28	NW	314.7	174.1	195.4	A	A	A
3rd Ave & Sackett St	C29	NE	301.8	261.8	148.4	A	A	A
	C30	SE	194.4	122.4	111.7	A	A	A
	C31	SW	138.0	120.5	90.4	A	A	A
	C32	NW	321.9	322.0	190.2	A	A	A
3rd Ave & Union St	C33	NE	143.6	123.1	62.6	A	A	A
	C34	SE	168.0	224.9	60.4	A	A	A
	C35	SW	180.2	284.6	113.0	A	A	A
	C36	NW	383.8	292.7	219.9	A	A	A
3rd Ave & President St	C37	SE	257.5	233.3	159.6	A	A	A
	C38	SW	385.6	305.1	232.3	A	A	A
3rd Ave & Carroll St	C39	NE	41.9	46.4	40.9	B	B	B
	C40	SE	137.8	136.5	125.1	A	A	A
	C41	SW	97.9	90.2	98.4	A	A	A
	C42	NW	178.1	157.1	156.6	A	A	A

Table 14-53 (cont'd)
With Action Corner Conditions

Intersection	Corner		Average Pedestrian Space (ft^2/ped)			Level of Service		
			AM	MD	PM	AM	MD	PM
3rd Ave 1st St	C43	NE	226.1	231.9	220.3	A	A	A
	C44	SE	269.1	258.3	285.0	A	A	A
3rd Ave 3rd St	C45	NE	272.4	184.0	262.4	A	A	A
	C46	SE	271.1	114.2	225.7	A	A	A
	C47	SW	159.5	62.2	104.2	A	A	A
	C48	NW	115.4	146.8	145.0	A	A	A
4th Ave & Douglass St	C49	SW	261.4	203.4	169.0	A	A	A
4th Ave & Degraw St	C50	NE	188.3	311.7	251.6	A	A	A
	C51	SE	166.0	283.9	224.9	A	A	A
	C52	SW	204.2	220.0	180.9	A	A	A
	C53	NW	227.8	228.9	179.2	A	A	A
4th Ave & Sackett St	C54	NE	109.5	173.8	141.2	A	A	A
	C55	SE	132.6	212.6	179.9	A	A	A
	C56	SW	102.4	79.8	74.7	A	A	A
	C57	NW	183.3	161.4	134.9	A	A	A
4th Ave & Union St	C58	NE	87.7	172.6	131.6	A	A	A
	C59	SE	54.5	122.9	84.3	B	A	A
	C60	SW	127.9	179.6	84.5	A	A	A
	C61	NW	134.2	138.0	84.9	A	A	A
4th Ave & President St	C62	NE	61.3	132.2	111.7	A	A	A
	C63	SE	62.3	115.0	110.4	A	A	A
	C64	SW	61.1	64.2	36.4	A	A	C
	C65	NW	96.9	113.6	57.0	A	A	B
4th Ave & Carroll St	C66	NE	87.4	162.4	127.6	A	A	A
	C67	SE	82.4	163.2	153.2	A	A	A
	C68	SW	127.8	230.1	161.7	A	A	A
	C69	NW	107.9	187.6	115.0	A	A	A
4th Ave & Garfield Pl	C70	NE	145.3	256.8	208.1	A	A	A
	C71	SE	153.6	257.8	219.8	A	A	A
4th Ave & 1st St	C72	NE	221.3	368.8	366.7	A	A	A
	C73	SE	178.1	251.3	268.9	A	A	A
	C74	SW	300.6	383.4	346.2	A	A	A
	C75	NW	160.4	257.3	205.2	A	A	A
4th Ave & 2nd St	C76	NE	222.0	398.7	344.7	A	A	A
	C77	SE	328.6	648.7	585.3	A	A	A
5th Ave & 1st St	C78	NE	315.6	391.2	299.2	A	A	A
	C79	SE	286.9	340.2	273.8	A	A	A
	C80	SW	242.5	256.5	190.6	A	A	A
	C81	NW	261.4	283.4	203.6	A	A	A
5th Ave & 2nd St	C82	NE	145.3	179.7	141.1	A	A	A
	C83	SE	123.9	182.6	143.9	A	A	A
	C84	SW	209.5	265.2	249.2	A	A	A
	C85	NW	242.3	252.7	237.7	A	A	A

CORNER AREAS

Table 14-53 shows the total With Action pedestrian volumes, average pedestrian space, and levels of service at analyzed corner areas. As shown in **Table 14-53**, based on the *CEQR Technical Manual* criteria shown in **Table 14-20**, there would be no significant adverse impacts to any analyzed corner area in any peak hour as a result of the Proposed Actions.

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 the New York City Police Department (NYPD) developed a set of five plans, each of which analyzes the unique conditions of one New York City borough and recommends actions to address the borough's specific challenges to pedestrian safety. These plans pinpoint the conditions and characteristics of pedestrian fatalities and severe injuries; they also identify priority corridors, intersections, and areas that disproportionately account for pedestrian fatalities and severe injuries, prioritizing them for safety interventions. The plans outline a series of recommended actions comprised of engineering, enforcement, and education measures that intend to alter the physical and behavioral conditions on City streets that lead to pedestrian fatality and injury.

The *Vision Zero Brooklyn Pedestrian Safety Action Plan* was released on February 19, 2015. Much of the study area north of Degraw Street and east of Smith Street is located within a Priority Area where safety issues were found to occur systematically at an area-wide level. Court Street and Atlantic, Flatbush and 4th Avenues are identified as Priority Corridors, and the intersection of Flatbush and Atlantic Avenues is identified as a Priority Intersection.

Actions recommended in the *Vision Zero Brooklyn Pedestrian Safety Action Plan* to enhance pedestrian safety in Brooklyn are summarized below.

Engineering and Planning

- 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

STUDY AREA HIGH CRASH LOCATIONS

Crash data for analyzed intersections in the traffic and pedestrian study areas were obtained from DOT for the three-year period between January 1, 2015, and December 31, 2017 (the most recent three-year period for which data are available). The data quantify the total number of reportable crashes (involving a fatality, injury, or more than $1,000 in property damage) and non-reportable crashes as well as the total number of crashes involving injuries to pedestrians or bicyclists. During the three-year reporting period, a total of 548 reportable and non-reportable crashes, 128 pedestrian/bicyclist-related injury crashes and one fatality occurred at study area intersections. **Table 14-54** provides a summary of these crashes by year and location, including a breakdown of pedestrian and bicycle crashes.

According to the *CEQR Technical Manual*, a high crash location is one where there were 48 or more reportable and non-reportable crashes or five or more pedestrian/bicyclist-related crashes in any consecutive 12 months within the most recent three-year period for which data are available. As shown in **Table 14-54**, no study area intersections experienced 48 or more reportable and non-reportable crashes within a consecutive 12-month period during the 2015 to 2017 period. However, the intersection of 4th Avenue at Union Street experienced seven pedestrian/bicyclist-related crashes in 2016 and five in 2017, and the intersection of Court Street at Hamilton Avenue experienced five pedestrian/bicyclist-related crashes in 2015. Both are therefore considered high crash locations.

4TH AVENUE AND UNION STREET

A total of four pedestrian crashes and three bicycle-related crashes occurred at this intersection in 2016, and five pedestrian crashes occurred in 2017. Only three pedestrian crashes occurred in 2015, and no bicycle-related crashes were reported in either 2015 or 2017. Geometric and operational characteristics affecting safety at this intersection likely include high traffic volumes and a relatively long (approximately 80-foot) pedestrian crossing distance on 4th Avenue. It should be noted that construction activity observed in proximity to this intersection in both 2016 and 2017, including a multi-year lane closure on the northbound approach, may also have been a contributing factor to the high crash rate at this intersection during those years. High-visibility crosswalks and pedestrian signals with countdown clocks have been installed at this intersection, and sidewalk extensions installed at all but the southeast corner of the intersection have shortened pedestrian crossing distances on all four legs of the intersection. A raised median also provides a pedestrian refuge on the south leg of the intersection, although no such refuge exists on the north leg due to the presence of a southbound left-turn bay for traffic.

Table 14-54
Summary of Motor Vehicle Crash Data 2015-2017

Intersection		Pedestrian Injury Crashes			Bicycle Injury Crashes			Total Pedestrian/Bicycle Injury Crashes			Total Crashes (Reportable + Non-Reportable)		
		2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Court St	Baltic St	0	2	0	0	1	0	0	3	0	1	5	2
	Union St	0	0	0	0	0	0	0	0	0	1	1	2
	4 Pl	0	0	0	0	0	0	0	0	0	0	0	0
	Luquer St	0	0	0	0	0	0	0	0	0	0	1	1
	Hamilton Ave	4	0	0	1	0	1	5	0	1	7	4	6
Smith Street	Union St	0	0	3	0	0	0	0	0	3	0	3	4
	President St	0	0	0	0	0	0	0	0	0	1	0	0
	3 St	0	0	0	0	0	1	0	0	1	0	0	2
	4 Pl	0	0	0	0	1	0	0	1	0	0	1	0
	Luquer St	0	0	0	1	0	0	1	0	0	1	0	0
	Nelson St	0	0	0	0	0	0	0	0	0	0	0	0
	Huntington St	0	0	0	0	0	0	0	0	0	2	0	0
	W 9 St	0	1	2	1	0	0	1	1	2	2	2	3
	Hamilton Ave	0	0	0	0	0	0	0	0	0	2	10	5
Hoyt St	Baltic St	0	0	1	0	0	1	0	0	2	3	0	2
	Sackett St	0	0	0	0	0	0	0	0	0	0	0	0
	Union St	0	0	0	0	0	1	0	0	1	2	2	2
	President St	1	1	0	0	0	0	1	1	0	2	1	1
	Carroll St	0	0	0	0	0	0	0	0	0	0	0	1
	2 St	0	0	0	0	0	0	0	0	0	0	0	0
	3 St	0	0	0	0	0	0	0	0	0	3	0	0
	4 St	0	0	0	0	0	0	0	0	0	2	0	0
Bond St	Atlantic Ave	2	0	2	1	0	0	3	0	2	11	7	7
	Baltic St	0	0	0	1	0	0	1	0	0	1	2	0
	Butler St	1	2	0	1	0	0	2	2	0	3	2	0
	De Graw St	0	0	0	0	0	0	0	0	0	0	0	1
	Union St	0	0	0	1	2	1	1	2	1	2	2	1
	Carroll St	0	0	0	0	0	1	0	0	1	1	3	3
	1 St	0	0	0	0	0	0	0	0	0	0	0	0
	2 St	0	0	0	0	0	0	0	0	0	0	0	0
	3 St	0	0	0	0	3	0	0	3	0	0	4	0
	4 St	0	0	0	0	0	0	0	0	0	1	1	0
Nevins St	Atlantic Ave	2	0	1	0	0	0	2	0	1	8	11	13
	Butler St	0	0	0	0	0	0	0	0	0	0	0	0
	De Graw St	0	0	1	0	0	0	0	0	1	0	0	1
	Union St	0	1	0	0	0	0	0	1	0	2	1	3
	Carroll St	0	0	0	0	0	0	0	0	0	1	0	0
2 Ave	9 St	0	0	0	4	1	0	4	1	0	4	2	1
3 Ave	Atlantic Ave	1	1	1	0	0	0	1	1	1	9	13	14
	Baltic St	0	0	0	0	0	0	0	0	0	2	1	1
	Douglass St	0	0	0	0	0	0	0	0	0	0	2	1
	De Graw St	0	0	0	0	0	0	0	0	0	0	1	2
	Sackett St	0	0	0	0	1	0	0	1	0	0	1	1
	Union St	0	2	1	0	0	0	0	2	1	4	3	3
	President St	0	0	0	1	0	0	1	0	0	1	1	0
	Carroll St	0	1	0	0	0	2	0	1	2	1	1	4
	1 St	0	0	0	0	0	0	0	0	0	0	0	0
	3 St	1	0	1	1	0	1	2	0	2	4	4	6
	9 St	1	3	2	1	0	2	2	3	4	4	4	7
	Prospect Ave	0	0	0	0	0	0	0	0	0	12	16	24
	17 St	0	0	0	0	0	1	0	0	1	8	6	7

5 Denotes a high crash location based on *CEQR Technical Manual* criteria.

Table 14-54 (cont'd)
Summary of Motor Vehicle Crash Data 2015-2017

Intersection		Pedestrian Injury Crashes			Bicycle Injury Crashes			Total Pedestrian/Bicycle Injury Crashes			Total Crashes (Reportable + Non-Reportable)		
		2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
4 Ave	Atlantic Ave	0	2	2	0	0	0	0	2	2	12	14	20
	St Marks Pl	0	1	0	1	0	0	1	1	0	2	3	2
	Douglass St	0	0	0	0	0	0	0	0	0	3	0	1
	De Graw St	2	0	0	0	1	0	2	1	0	3	2	0
	Sackett St	0	0	0	0	0	0	0	0	0	0	2	4
	Union St	3	4	5	0	3	0	3	7	5	7	17	8
	President St	1	0	0	0	0	0	1	0	0	3	0	3
	Carroll St	0	0	0	0	0	0	0	0	0	1	3	2
	Garfield Pl	0	1	0	0	0	0	0	1	0	0	1	1
	1 St	0	0	0	0	0	0	0	0	0	0	0	1
	2 St	0	1	1	0	0	0	0	1	1	0	3	1
	3 St	1	0	2	0	0	0	1	0	2	2	2	5
	9 St	1	1	0	0	0	0	1	1	0	4	5	5
	Prospect Ave	0	0	1	0	0	0	0	0	1	10	7	4
	17 St	0	0	0	0	0	0	0	0	0	1	1	1
5 Ave	Union St	0	0	2	1	1	0	1	1	2	1	4	2
	1 St	0	1	0	3	0	0	3	1	0	5	1	1
	2 St	0	0	0	0	0	0	0	0	0	0	0	0
	3 St	1	0	0	0	1	0	1	1	0	1	2	0
	9 St	1	3	1	1	0	1	2	3	2	2	4	2

5 Denotes a high crash location based on *CEQR Technical Manual* criteria.

Improvements to street lighting may warrant consideration as a potential safety improvement measure at this intersection based on the fact that seven of the fifteen pedestrian and bicycle crashes occurred during darkness. Modifying the traffic signal timing plan to provide an LPI for pedestrians crossing 4th Avenue may also warrant consideration.

COURT STREET AT HAMILTON AVENUE

A total of four pedestrian crashes and one bicycle-related crash were reported at this intersection in 2015. There were no pedestrian crashes or bicycle-related crashes reported in 2016, and no pedestrian crashes and only one bicycle-related crash in 2017. No prevailing trends or factors potentially contributing to the spike in pedestrian/bicycle crashes in 2015 were identified. Contributing factors may have included high traffic volumes, long pedestrian crossing distance, and the geometric characteristics of the intersection. Hamilton Avenue is a high-volume eight-lane arterial and truck route that intersects Court Street at an angle, and the eastbound and westbound travel lanes are separated by a wide median within which are located the support columns for the elevated Gowanus Expressway (I-278). Pedestrians crossing Hamilton Avenue are restricted to a crosswalk on the west leg of the intersection.

A number of measures to enhance pedestrian/bicycle safety have already been implemented at this intersection, including the installation of pedestrian signals and high visibility crosswalks, installation of a sidewalk extension on the south leg of the intersection to shorten the pedestrian crossing distance on Court Street, and installation of a striped bicycle lane along Court Street. In late 2017, "no pedestrians" signs were also installed along with new fencing along the median to discourage pedestrians from crossing the east leg of the intersection where no crosswalk is provided.

SCHOOL SAFETY MEASURES

With the Proposed Actions, a potential new 500-seat public school would be developed on Projected Development Site 47 bounded by 5th Street on the north, the new extension of eastbound Luquer Street on the south, the new extension of Hoyt Street on the east, and Smith Street on the west. It is anticipated that school buses would drop-off/pickup along the east curb of Smith Street while students traveling by private auto would be dropped-off/picked up along both Smith and Luquer Streets. As school bus doors are located on the right side of the vehicle, students traveling by school bus could not be discharged or embark directly from the north curb of the new segment of Luquer Street as it would operate one-way eastbound.

As discussed in Chapter 21, "Mitigation," the Proposed Actions' would include the installation of two new traffic signals at the unsignalized intersections of Smith Street with 4th Place/5th Street and with Luquer Street in connection with the development of Site 47. These two intersections are immediately adjacent to Site 47 and, in addition to mitigating significant adverse traffic impacts, the new signals would also enhance the safety of pedestrians en route to/from the proposed new public school. The installation of pedestrian signals and school crossing pavement markings and signage would further enhance pedestrian safety. Typically, as the design is advanced on a school project, DOT School Safety Division is consulted in developing appropriate pedestrian safety measures.

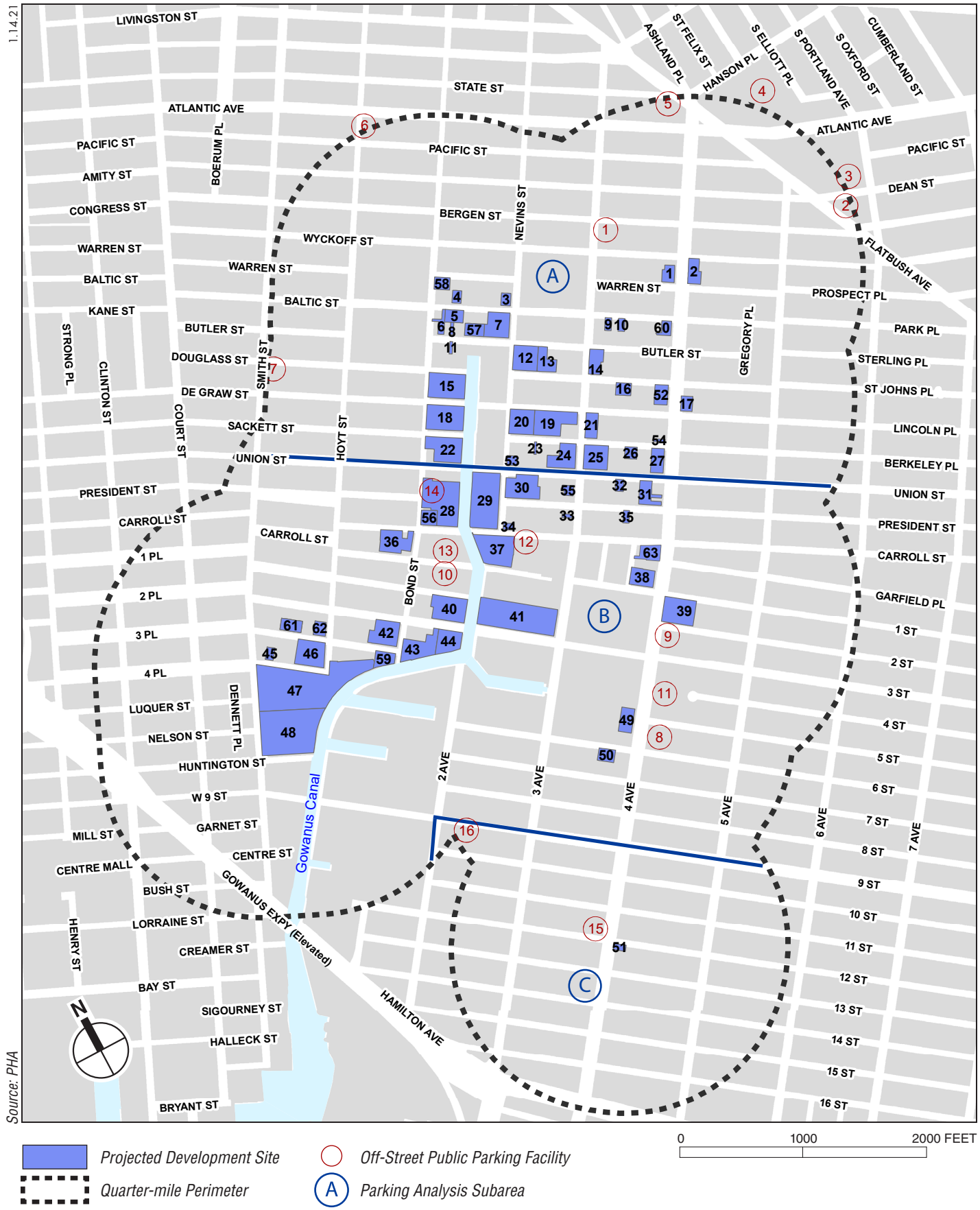
K. PARKING

EXISTING CONDITIONS

OFF-STREET PARKING

Off-street public parking facilities were inventoried during June 2019 and a total of 16 public parking lots and garages were identified within ¼-mile of projected development sites. **Figure 14-27** shows the locations of these off-street public parking facilities and **Table 14-55** provides a summary of their names, addresses, license numbers, capacities, and estimated weekday midday and overnight utilization. As shown in **Figure 14-27**, only one of the facilities in **Table 14-55**—No. 14—is located on a projected development site. This facility has a licensed capacity of 120 spaces.

Available on-line data, field observations and interviews with parking attendants were used 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 14-55**, the 16 parking lots and garages within the overall study area have a combined licensed capacity of 1,626 spaces during the midday. This falls to 1,283 spaces during the overnight period when three facilities in Subarea A (Nos. 2, 3, and 4 in **Table 14-55**) are closed. During the midday period, approximately 68 percent of spaces within the overall parking study area are utilized, leaving a residual supply of approximately 514 available parking spaces. During the overnight period, approximately 84 percent of spaces are utilized, leaving a residual supply of approximately 253 available parking spaces. Of the three subareas, Subarea C has the highest level of utilization in the midday with the two parking facilities in this subarea operating essentially at capacity while Subarea A has the highest level in the overnight period (94 percent with 56 spaces of available supply).



Study Area
Existing Off-Street Parking Facilities

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 14-27

Table 14-55
Existing Off-Street Public Parking Facilities in the Study Area

Sub-Area	Map No.	Name	Address	License No.	Hours of Operation	Licensed Capacity	Weekday Midday		Weekday Overnight	
							Estimated Utilization (%)	Available Capacity	Estimated Utilization (%)	Available Capacity
A	1	99 3rd Ave Garage	312 Bergen St	2036981	24Hrs Daily	42	100%	0	32%	28
	2	470 Dean St Garage	470 Dean St	2080002	6A-12A Daily	111	19%	87	Closed	Closed
	3	iPark 38 Sixth Avenue Parking Corp	38 Sixth Avenue	2072499	6A-1A Daily	80	90%	6	Closed	Closed
	4	Ochre Car Park, LLC (Atlantic Center)	625 Atlantic Ave	1242325	6A-1A Daily	650	61%	250	Closed	Closed
	5	556 State St Garage	556 State St	1328826	24Hrs Daily	25	100%	0	25%	18
	6	C.N.A. Parking	99 Hoyt St	1019603	24Hrs Daily	10	78%	2	56%	4
	7	Michael Scotto	72 Douglass St	0787501	24Hrs Daily	14	69%	4	54%	6
	Sub-Area A Subtotal:					**932**	**62%**	**349**	**94%**	**56**
B	8	LAZ Parking NY/NJ, LLC	267 6th St	1474028	24Hrs Daily	42	100%	0	100%	0
	9	IMPARK 302 LLC	302/306 2nd St	2034863 2034864	24Hrs Daily	55	100%	0	94%	3
	10	Quik Park 365 Management LLC	365 Bond St	2034908	24Hrs Daily	193	61%	73	61%	73
	11	IMPARK 353 LLC	353 Fourth Ave	2034905	24Hrs Daily	60	100%	0	100%	0
	12	TBD Five Management Inc	442 Carroll St	2019862	24Hrs Daily	31	100%	0	100%	0
	13	Bon D Operating LLC	363 Bond St	2055977	24Hrs Daily	122	97%	3	97%	3
	14	Canal Car Park Inc	313-319 Bond St	1012276	24Hrs Daily	120	25%	88	19%	95
	Sub-Area B Subtotal:					**623**	**73%**	**164**	**72%**	**174**
C	15	IMPARK 500 LLC	500 Fourth Ave	2034912	24Hrs Daily	53	100%	0	67%	17
	16	Park Slope Rental Corp	142 9th St	1073375	24Hrs Daily	18	94%	1	65%	6
	Sub-Area C Subtotal:					**71**	**99%**	**1**	**67%**	**23**
	Total:					**1,626**	**68%**	**514**	**84%**	**253**

Notes:
Source: PHA June 2019 field surveys and interviews with parking facility operators.
Analysis conservatively assumes that facility is fully utilized at 98 percent of licensed capacity as per *CEQR Technical Manual* guidance.

ON-STREET PARKING

An inventory of existing parking regulations within ¼-mile of projected development sites was compiled from field surveys and online sources. Curbside parking regulations for all block faces within the study area are shown in Figure G-1 and listed in accompanying Table G-4 in Appendix G. On-street public parking is generally governed by alternate-side-of-the-street regulations to facilitate street cleaning (mostly in the overnight and morning hours), 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 5th Avenue, 8th through 16th Streets to the east and west of 5th Avenue, and portions of 3rd Avenue, Smith Street, and Court Street. 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 10,415 legal curbside parking spaces in the

midday and 10,410 spaces during the overnight period within ¼-mile of projected development sites. The number of spaces in parking Subareas A, B, and C total approximately 4,199, 4,432, and 1,784, respectively, in the midday period and 4,112, 4,514, and 1,784, respectively, in the overnight period.

As shown in **Table 14-56**, based on data collected during field surveys conducted in February 2019, on-street parking within the overall parking study area is approximately 94 percent utilized during the midday period and approximately 93 percent utilized during the overnight period. Approximately 666 and 740 on-street parking spaces are currently available within the study area during each of these periods, respectively. Of the three Subareas, Subarea C has the highest level of on-street parking utilization in the midday (97 percent) with an available capacity of 60 spaces, as well as in the overnight period (94 percent) with an available capacity of 107 spaces.

Table 14-56
Existing On-Street Parking Utilization in the Study Area

	Midday			Overnight		
	Legal Curbside Spaces	Estimated Utilization	Available Capacity	Legal Curbside Spaces	Estimated Utilization	Available Capacity
Subarea A	4,199	3,905	294	4,112	3,834	278
Subarea B	4,432	4,120	312	4,514	4,159	355
Subarea C	1,784	1,724	60	1,784	1,677	107
Total	10,415	9,749	666	10,410	9,670	740

Note: Based on February 2019 PHA field surveys. Excludes authorized vehicle parking.

THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO ACTION CONDITION)

By 2035 it is expected that parking demand in the vicinity of projected development sites will increase due to long-term background growth as well as development that could occur pursuant to existing zoning. The forecast of parking demand generated by residential development on projected development sites in the No Action condition is based on 2013–2017 five-year ACS auto ownership data. Parking demands from other uses were derived from the forecasts of daily auto trips from these uses.

Thirty-one of the 63 projected development sites would experience new residential, commercial, and community facility development under the No Action condition, and a total of approximately 2,156 on-site accessory parking spaces would be provided on 19 of the projected development sites under the No Action condition. As these new accessory spaces would not be sufficient to accommodate all of the weekday midday and overnight parking demand generated by the No Action development, some of the incremental No Action demand is expected to utilize off-street public parking facilities or park on-street.

The forecast of future No Action parking conditions also considers the potential for new demand from the developments not located on projected development sites that are listed in Table 2-9 in Chapter 2, "Land Use, Zoning, and Public Policy." ACS auto ownership data and auto trip forecasts were used to forecast the parking demands from these developments except where site-specific data were available from secondary sources, such as previous environmental studies. In addition, the forecast of future No Action parking conditions incorporates annual background growth rates of 0.5 percent per year for the 2019 through 2024 period and 0.25 percent per year for the 2024 through 2035 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 2-9, and general increases in parking demand not attributable to specific development projects.

OFF-STREET PARKING

No existing public parking facilities would be displaced by new development on projected development sites under the No Action condition, nor is any existing public parking expected to be displaced by new development unrelated to the Proposed Actions. As shown in **Table 14-57**, based on the increased demand under the No Action condition, midday off-street public parking demand within the overall parking study area is expected to total 148 percent of capacity, with a deficit of 761 spaces during this period. Overnight utilization is expected to increase to 191 percent of capacity with a deficit of 691 parking spaces at the 13 twenty-four-hour public parking facilities. The greatest parking deficits would occur in Subarea A where there would be a shortfall of 499 spaces in the midday and 751 spaces in the overnight period. Subarea B would experience a shortfall of 166 spaces in the midday and a surplus of 144 spaces in the overnight period, while Subarea C would have deficits of 96 spaces and 84 spaces during these same periods, respectively.

ON-STREET PARKING

A review of traffic and pedestrian improvement measures associated with recently proposed DOT initiatives and mitigation associated with No Action developments found that Phase A of DOT's 4th Avenue safety improvements would result in the displacement an estimated 26 curbside parking spaces along 4th Avenue in both the midday and overnight periods (six in Subarea B and 20 in Subarea C). Other initiatives are not expected to substantially affect on-street spaces within the overall parking study area. After accounting for background growth and demand from No Action developments on projected development sites and in the surrounding area not otherwise accommodated by accessory parking, the demand for on-street parking within the overall study area is expected to increase to 11,035 spaces in the midday period and 10,881 spaces in the overnight period. **Table 14-58** shows that in the No Action condition, on-street parking within ¼-mile of projected development sites is expected to be operating at approximately 106 percent of capacity with a deficit of 646 spaces in the weekday midday versus an existing surplus of 666 spaces. In the overnight period, on-street parking is expected to operate at approximately 105 percent of capacity with a deficit of 497 spaces in the No Action condition compared to an existing surplus of 740 spaces.

On-street parking demand within parking Subareas A, B, and C would increase to approximately 110, 102, and 108 percent of capacity, respectively, in the midday period, and 117, 97, and 105 percent, respectively, in the overnight period. Subareas A, B, and C would experience deficits of approximately 415, 82, and 149 spaces, respectively, in the midday in the No Action condition. During the overnight hours, Subareas A and C would experience deficits of approximately 679 and 87 spaces, respectively, while Subarea B would have a surplus of 125 spaces.

Overall, in the No Action condition, the combined supply of on-street and public off-street parking capacity within ¼-mile of projected development sites would not be sufficient to accommodate demand during either the midday or overnight periods. It is estimated that there would be shortfalls of 646 and 497 spaces in the study area during these periods, respectively.

Table 14-57
No Action Off-Street Public Parking Capacity, Demand and Utilization within ¼-Mile of Projected Development Sites

	Subarea A		Subarea B		Subarea C		Total Study Area	
	Midday	Overnight[6]	Midday	Overnight	Midday	Overnight	Midday	Overnight
Capacity								
Existing Capacity[1]	910	87	607	607	68	68	1,585	762
Capacity Displaced by No Action Developments[2]	0	0	0	0	0	0	0	0
Total No Action Capacity	910	87	607	607	68	68	1,585	762
Demand								
Existing Demand	561	31	443	433	67	45	1,071	509
Demand From Background Growth[3]	30	2	24	23	4	2	58	27
Incremental Demand from No Action Developments on Projected Development Sites[4]	181	17	84	7	1	4	266	28
Incremental Demand from Off-Site No Action Developments[5]	637	788	222	0	92	101	951	889
Total No Action Demand	1,409	838	773	463	164	152	2,346	1,453
Utilization								
No Action Utilization	155%	963%	127%	76%	241%	224%	148%	191%
No Action Off-Street Parking Surplus/(Deficit)	(499)	(751)	(166)	144	(96)	(84)	(761)	(691)

Notes:
[1] Analysis conservatively assumes that facilities are fully utilized at 98 percent of licensed capacity.
[2] No existing public parking facilities are expected to be displaced by new development in the No Action condition.
[3] Reflects annual background growth rates of 0.5 percent per year for the 2019 through 2024 period and 0.25 percent for the 2024 through 2035 period.
[4] Demand from No Action development on projected development sites not accommodated by accessory parking.
[5] Demand from developments in proximity to the Project Area not located on projected development sites and not accommodated by accessory parking.
[6] Existing public parking facilities Nos. 2, 3 and 4 in Subarea A are closed during the overnight period.

Table 14-58
No Action On-Street Parking Capacity, Demand and Utilization within ¼-Mile of Projected Development Sites

	Subarea A		Subarea B		Subarea C		Overall Study Area	
	Midday	Overnight	Midday	Overnight	Midday	Overnight	Midday	Overnight
Capacity								
Existing Capacity	4,199	4,112	4,432	4,514	1,784	1,784	10,415	10,410
Net Change in No Action Parking Supply[1]	0	0	(6)	(6)	(20)	(20)	(26)	(26)
Total No Action Capacity	4,199	4,112	4,426	4,508	1,764	1,764	10,389	10,384
Demand								
Existing Demand[2]	3,905	3,834	4,120	4,159	1,724	1,677	9,749	9,670
Demand From Background Growth[3]	210	206	222	224	93	90	525	520
Off-Street Public Parking Deficit	499	751	166	0 [4]	96	84	761	691
Total No Action Demand	4,614	4,791	4,508	4,383	1,913	1,851	11,035	10,881
Utilization								
No Action Utilization	110%	117%	102%	97%	108%	105%	106%	105%
No Action On-Street Parking Surplus/(Deficit)	(415)	(679)	(82)	125	(149)	(87)	(646)	(497)

Notes:
[1] DOT initiatives and mitigation associated with No Action developments are not expected to substantially affect existing on-street parking spaces.
[2] Based on February 2019 field surveys. Excludes authorized vehicle parking.
[3] Reflects annual background growth rates of 0.5 percent per year for the 2019 through 2024 period and 0.25 percent for the 2024 through 2035 period.
[4] There would be a surplus of 144 off-street public parking in the overnight period in Subarea B.

THE FUTURE WITH THE PROPOSED ACTIONS (WITH ACTION CONDITION)

With the Proposed Actions, it is assumed that 24 of the 63 projected development sites would provide accessory parking. No new off-street public parking spaces would be provided under the Proposed Actions, and development on Projected Development Site 28 would displace a total of 120 existing spaces in a public parking facility currently located on the site (No. 14 in **Table 14-55**).

Table 14-59 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 Proposed Actions' residential component is based on 2013–2017 five-year ACS data on average vehicles per household for Brooklyn Census Tracts 39, 71, 75, 77, 117, 119, 121, 129.01, 131, 133, 135, 137, 139, and 141 which encompass the Project Area. Parking demands from all other uses are derived from the forecasts of daily auto trips from these uses.

Table 14-59
With Action Net Incremental
Weekday Hourly Parking Demand by Land Use

	Local Retail	Office [a]	Residential [b,f]	Destination Retail [c]	Restaurant [e]	Supermarket [c]	Auto Repair	Innovation Economy [d]	Light Industrial [a]	Warehouse	Medical Office	Community Center	Waterfront Park [h]	School Staff	Total Demand
12-1 AM	0	0	3,820	0	0	0	0	0	0	0	0	0	0	0	3,820
1-2	0	0	3,820	0	0	0	0	0	0	0	0	0	0	0	3,820
2-3	0	0	3,820	0	0	0	0	0	0	0	0	0	0	0	3,820
3-4	0	0	3,820	0	0	0	0	0	0	0	0	0	0	0	3,820
4-5	0	0	3,820	0	0	0	0	0	0	0	0	0	0	0	3,820
5-6	0	0	3,774	0	0	0	0	0	0	0	0	0	0	0	3,774
6-7	0	0	3,589	-3	0	2	0	0	0	0	0	0	2	0	3,590
7-8	18	39	3,291	-10	0	12	-13	30	-1	-31	2	3	0	0	3,340
8-9	18	276	2,945	-24	1	20	-48	111	-26	-101	12	5	0	12	3,201
9-10	25	443	2,850	-74	21	20	-128	169	-42	-157	11	5	0	12	3,155
10-11	30	446	2,816	-113	42	20	-134	174	-44	-169	20	4	0	12	3,104
11-12	32	429	2,817	-140	80	30	-104	166	-41	-155	25	3	0	12	3,154
12-1 PM	30	432	2,804	-159	141	19	-62	166	-41	-152	16	4	0	12	3,210
1-2	30	426	2,804	-177	141	15	-62	164	-41	-152	14	6	0	12	3,180
2-3	30	487	2,848	-168	70	15	-68	186	-46	-166	12	6	0	12	3,218
3-4	28	486	3,002	-158	38	18	-67	186	-46	-164	19	7	0	12	3,361
4-5	28	340	3,248	-150	7	24	-24	138	-32	-126	27	6	0	12	3,498
5-6	28	57	3,403	-138	51	20	-24	44	-5	-51	14	5	0	0	3,404
6-7	23	8	3,606	-137	135	16	-5	4	-1	-20	1	6	0	0	3,636
7-8	12	0	3,697	-132	193	7	0	0	0	-2	0	5	0	0	3,780
8-9	7	0	3,774	-98	112	5	0	0	0	0	0	1	0	0	3,801
9-10	0	0	3,814	-31	37	3	0	0	0	0	0	0	0	0	3,823
10-11	0	0	3,781	-11	0	0	0	0	0	0	0	0	0	0	3,770
11-12	0	0	3,820	0	0	0	0	0	0	0	0	0	0	0	3,820

Notes:
Parking accumulation pattern based on data from the 2016 *East New York Rezoning FEIS* unless otherwise noted.
(a) Auto share variable by time of day (office=28.7% AM/PM, 2% MD; light industrial=32.2% AM/PM, 2% MD).
(b) 0.45 spaces/D.U. derived from average 2013-2017 ACS Tenure by Vehicles Available data for project area census tracts.
(c) Parking accumulation pattern based on data from 2017 *East Harlem Rezoning FEIS*.
(d) Office parking accumulation pattern assumed for innovation economy uses.
(e) Restaurant linked-trip credit varies by time of day (0% AM, 25% MD, 15% PM).
(f) Residential auto occupancy varies by time of day (1.12 AM/PM, 1.57 MD).
(g) Parking accumulation pattern based on data from 2013 St. George Waterfront Redevelopment FEIS.

As shown in **Table 14-59**, parking demand generated by the various commercial, retail, light industrial, and community facility uses that would be developed under the Proposed Actions would typically peak during the midday hour, whereas residential parking demand would peak during the overnight period. The net decreases in destination retail, auto-related, light industrial, and warehouse parking demand shown in **Table 14-59** reflect net reductions in these land uses within the Project Area under the With Action condition. Overall, development associated with the Proposed Actions would generate a peak net parking demand of approximately 3,210 spaces in the weekday midday (12 noon-1:00 p.m.) period and 3,820 spaces in the overnight period. 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 condition.

With the Proposed Actions, it is assumed that up to 1,940 accessory parking spaces would be provided on projected development sites compared to an estimated 2,156 accessory spaces in the No Action condition. For those sites with accessory parking, it is conservatively assumed that up to 30 percent of new residential development would be designated as affordable and would not include accessory parking.

After accounting for new parking demand and the number of accessory spaces provided on a site-by-site basis under the RWCDS (see Table G-5 in Appendix G), it is estimated that compared to the No Action condition, incremental parking demand from new development associated with

the Proposed Actions would total approximately 2,214A spaces at off-street public parking facilities and on-street in the weekday midday period and 2,221 spaces during the overnight period.

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 14-60**. With the Proposed Actions, an existing public parking facility with a total licensed capacity of 120 spaces located on Projected Development Site 28 would be displaced, and no new public parking capacity would be provided on any projected development site.

Table 14-60
With Action Off-Street Public Parking Capacity, Demand and Utilization within ¼-Mile of Projected Development Sites

	Subarea A		Subarea B		Subarea C		Total Study Area	
	Midday	Overnight[3]	Midday	Overnight	Midday	Overnight	Midday	Overnight[3]
Capacity								
No Action Capacity	910	87	607	607	68	68	1,585	762
Capacity Displaced by With Action Development[1]	0	0	120	120	0	0	120	120
Total With Action Capacity	910	87	487	487	68	68	1,465	642
Demand								
No Action Demand	1,409	838	773	463	164	152	2,346	1,453
Incremental Demand from With Action Developments[2]	668	796	1,530	1,408	16	17	2,214	2,221
Total With Action Demand	2,077	1,634	2,303	1,871	180	169	4,560	3,674
Utilization								
With Action Utilization	228%	1,878%	473%	384%	265%	249%	311%	572%
With Action Off-Street Parking Surplus/(Deficit)	(1,167)	(1,547)	(1,816)	(1,384)	(112)	(101)	(3,095)	(3,032)

Notes:
[1] Reflects displacement of existing public parking facilities on Projected Developments Site 28 (facility 14 in **Table 14-55**) under the Proposed Actions. Numbers shown represent 98 percent of the licensed capacity (120 spaces).
[2] Includes demand not otherwise accommodated in on-site accessory parking. The numbers reflect the net incremental change compared to the No Action RWCDS.
[3] Existing public parking facilities Nos. 2, 3 and 4 in **Table 14-55** are closed overnight.

As shown in **Table 14-60**, compared to the No Action condition, development associated with the Proposed Actions would result in a demand for 2,214 more off-street public parking spaces within the overall parking study area in the weekday midday period and 2,221 more spaces during the overnight period. Demand for off-street public parking in the study area would total approximately 4,560 spaces in the weekday midday and 3,674 spaces during the overnight period.

As shown in **Table 14-60**, after accounting for No Action capacity displaced from projected development sites, off-street public parking in the overall study area would be operating at approximately 311 percent of capacity with a deficit of 3,095 spaces in the weekday midday period and at 572 percent of capacity with a deficit of 3,032 spaces during the overnight period. The greatest parking deficit would occur in Subarea B where there would be a shortfall of 1,816 spaces in the midday period and 1,384 spaces in the overnight period. Subarea A would experience shortfalls of 1,167 spaces in the midday and 1,547 spaces in the overnight period, while Subarea C would experience deficits of 112 spaces and 101 spaces during these same periods, respectively.

As discussed in Section F, "Transportation Analysis Methodologies," in this area of Brooklyn the inability of a proposed action or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant under *CEQR Technical Manual* guidelines due to the magnitude of available alternative modes of transportation. The shortfalls in off-street public parking spaces in the overall study area and in all three subareas during the weekday midday and overnight periods under the Proposed Actions would therefore not be considered a significant adverse parking impact. The ability of the on-street parking supply to accommodate this excess demand is assessed below.

ON-STREET PARKING

As shown in **Table 14-61**, compared to the No Action condition, development associated with the Proposed Actions and the displacement of 120 parking spaces in an existing public parking facility on Projected Development Site 28 would result in a net increase in study area on-street parking demand of approximately 2,334 spaces in the weekday midday period and 2,341 spaces in the overnight period. On-street parking demand within the overall study area would therefore total approximately 13,369 spaces in the weekday midday and 13,222 spaces overnight. Although some new on-street parking capacity may be provided along newly mapped streets, the analysis conservatively assumes no change to the No Action on-street parking supply as a result of the Proposed Actions. Utilization in the overall study area therefore would increase from 106 percent of capacity in the No Action condition to 129 percent with the Proposed Actions in the midday period, and from 105 percent to 127 percent in the overnight period. There would be deficits of approximately 2,980 on-street parking spaces within the overall study area in the midday period and 2,838 spaces during the overnight period.

On-street parking demand within parking Subareas A, B, and C would increase to approximately 126, 139, and 109 percent of capacity, respectively, in the midday period, and 136, 128, and 106 percent, respectively, in the overnight period. Subareas A, B and C would experience deficits of approximately 1,083, 1,732, and 165 spaces, respectively, in the midday in the With Action condition. During the overnight hours, Subareas A, B, and C would experience deficits of approximately 1,475, 1,259, and 104 spaces, respectively.

Table 14-61
With Action On-Street Parking Capacity, Demand and Utilization within ¼-Mile of Projected Development Sites

	Subarea A		Subarea B		Subarea C		Overall Study Area	
	Midday	Overnight	Midday	Overnight	Midday	Overnight	Midday	Overnight
Capacity								
Total With Action Capacity[1]	4,199	4,112	4,426	4,508	1,764	1,764	10,389	10,384
Demand								
No Action Demand	4,614	4,791	4,508	4,383	1,913	1,851	11,035	10,881
Incremental Demand From Proposed Actions[2]	668	796	1,650	1,384	16	17	2,334	2,341
Total With Action Demand	5,282	5,587	6,158	5,767	1,929	1,868	13,369	13,222
Utilization								
With Action Utilization	126%	136%	139%	128%	109%	106%	129%	127%
With Action On-Street Parking Surplus/(Deficit)	(1,083)	(1,475)	(1,732)	(1,259)	(165)	(104)	(2,980)	(2,838)

Notes:
[1] Although some new on-street parking capacity may be provided along newly-mapped streets, the analysis conservatively assumes no change to the No Action on-street parking supply 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 facilities, and demand displaced from an existing public parking facility located on Projected Development Site 28.

In summary, in the With Action condition there would be deficits of approximately 2,980 spaces of on-street and off-street public parking capacity within ¼-mile of projected development sites in the weekday midday period, and 2,838 spaces during the overnight period. These deficits would reflect project demand not otherwise accommodated in accessory or off-street public parking facilities as well as demand displaced from an existing parking facility on a projected development site. While some drivers destined for the Project Area would potentially have to travel a greater distance (e.g., between ¼ and ½ mile) to find available parking, these shortfalls would not be considered a significant adverse impact based on *CEQR Technical Manual* criteria due to the magnitude of available alternative modes of transportation. Therefore, the Proposed Actions are not expected to result in a significant adverse parking impact during the weekday midday peak period for commercial and retail parking demand, nor during the overnight peak period for residential demand. ✷