Chapter 16: Traffic and Parking

A. INTRODUCTION

This chapter discusses the potential impacts of new vehicle trips associated with the proposed action on the local street network and at key intersections in the study area as well as the effect on study area's on-street parking utilization. The action's potential impacts to transit and pedestrian facilities are described in Chapter 17, "Transit and Pedestrians."

PRINCIPAL CONCLUSIONS

TRAFFIC

For the streets around the site, future intersection volumes would generally represent an increase over the existing traffic volumes, and the street capacities at majority of the locations would be sufficient to accommodate these increases.

Based on the New York City Environmental Quality Review (CEQR) standards, the proposed project could result in significant impacts at the following two signalized intersection approaches:

- The eastbound approach of Carroll Street at 3rd Avenue during the AM and PM peak hours; and,
- The eastbound approach of Carroll Street at 4th Avenue during the AM and PM peak hours.

The eastbound approach of Carroll Street at 3rd and 4th Avenues operates at congested levels (Level of Service [LOS] F) during both the AM and PM peak hours in the No Build conditions. With the proposed project in place, the moderate increase in traffic levels (up to 38 vehicles during any given peak hour) at the eastbound Carroll Street approach at 3rd Avenue and 4th Avenue would result in significant traffic impacts.

While the delay at the eastbound approach of 1st Street at Bond Street would also increase significantly during the AM peak hour (from 18.7 seconds in the No Build conditions to 48.8 seconds in Build conditions), this increase in delay would not be considered a significant impact based on the *CEQR* guidelines, since fewer than 90 passenger-car-equivalents (PCEs) were identified at this approach during the AM peak hour in the 2011 Build conditions.

Traffic mitigation measures for the proposed project are presented in Chapter 22, "Mitigation."

PARKING

The proposed project would provide 268 accessory spaces, which would accommodate the majority of the project's residential parking demand. The remaining parking demand would be accommodated by the on-street parking available in the study area. Therefore, the proposed project would not significantly impact the supply and demand of parking in the study area.

B. METHODOLOGY

The capacity conditions of the study area intersections were analyzed by applying the methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS 4.1f)*. The *HCM* procedure evaluates the signalized and unsignalized intersections for average delay per vehicle and LOS.

SIGNALIZED INTERSECTIONS

LOS for the signalized intersections is based on the average stopped delay per vehicle for the various lane group movements within the intersection. This delay is the basis for an LOS determination for individual lane groups, the approaches, and the overall intersection. The levels of service are defined as follows:

LOS Criteria for Signalized Intersections

Level of Service (LOS)	Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds

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

Although the HCM methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the *HCM*. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. Conditions at LOS E and F reflect poor service levels, and cycle breakdowns are frequent. The *HCM* methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (the worst case from each roadway) and calculates a summary critical v/c ratio, delay, and LOS. Within New York City, the midpoint of LOS D (45 seconds of delay) is generally perceived as the threshold between acceptable and unacceptable operations.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the total delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. This includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. The LOS criteria for unsignalized intersections are summarized as follows:

LOS Criteria for Unsignalized Intersections

LOS	Average Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds
Source: Transportation Research Board. Highway Capacity Manual, 2000.	

The LOS thresholds for unsignalized intersections are different from those for signalized intersections. The primary reason is that drivers expect different levels of performance from different types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. In addition, certain driver behavioral considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections. For these reasons, the total overall scale of delay thresholds for unsignalized intersections is lower than that of signalized intersections.

C. EXISTING CONDITIONS

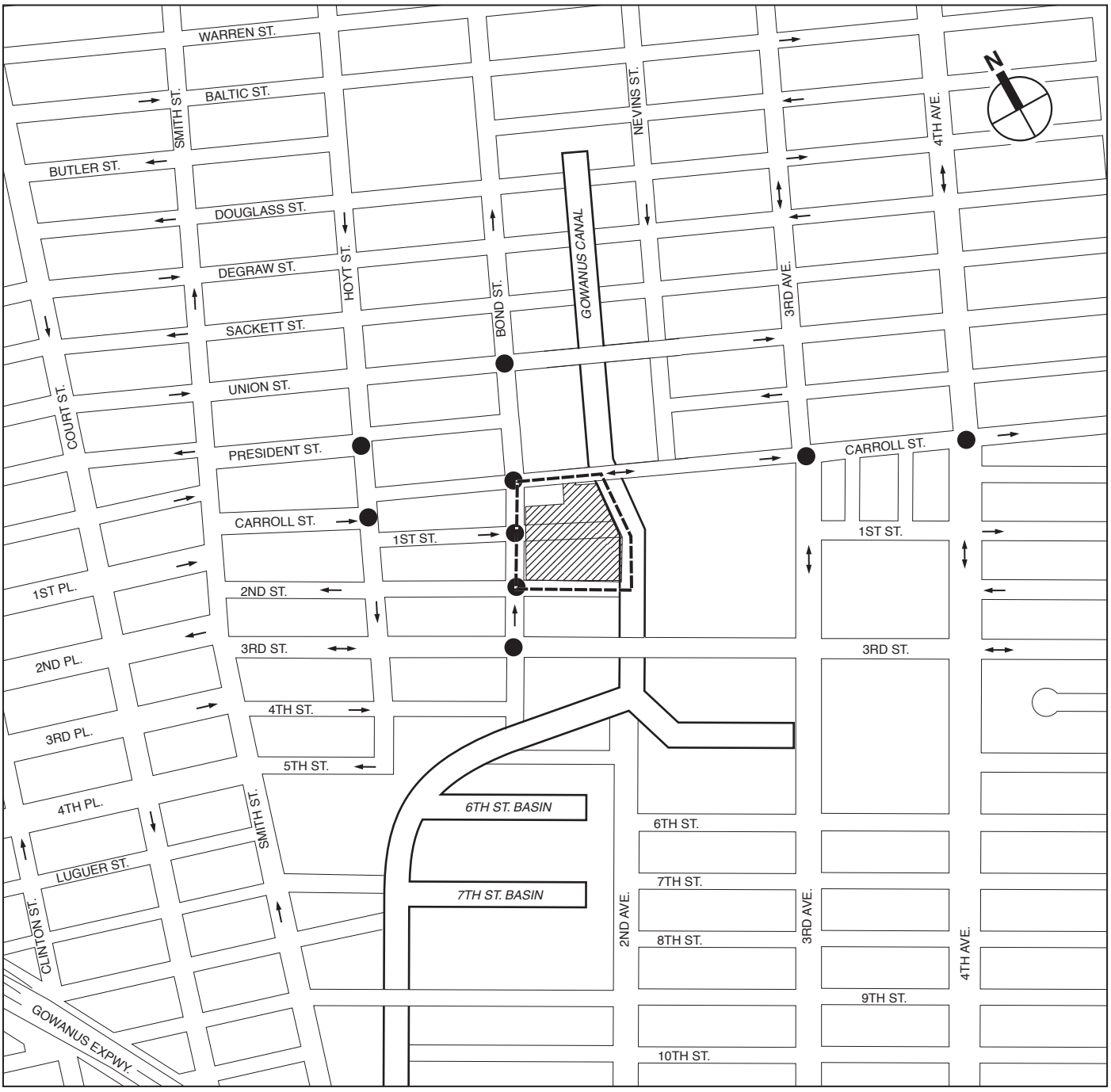
INTRODUCTION

The project site is located in the Gowanus area of Brooklyn situated between the Carroll Gardens neighborhood to the west and the Park Slope neighborhood to the east. The project site is bounded to the north by Carroll Street, to the south by 2nd Street, to the west by Bond Street and to the east by the Gowanus Canal. 1st Street, east of Bond Street separates the north and south blocks of the project site.

ROADWAY NETWORK

To assess the traffic impacts associated with the proposed action, an overall study area was defined that considers the location of the proposed project, primary access routes to and from the site, and key intersections likely to be affected by project-generated trips. The study area is bounded by Union Street to the north, 3rd Street to the south, 4th Avenue to the east, and Hoyt Street to the west. As shown in Figure 16-1, the study area consists of a network containing nine intersections, as follows:

- Hoyt Street and President Street;
- Hoyt Street and Carroll Street;
- Bond Street and Union Street;
- Bond Street and Carroll Street;
- Bond Street and 1st Street;
- Bond Street and 2nd Street;
- Bond Street and 3rd Street;



Traffic Study Area
Figure 16-1

- 3rd Avenue and Carroll Street; and
- 4th Avenue and Carroll Street.

The physical and operational characteristics of the study area roadways and streets are discussed as follows:

- 4th Avenue is a major two-way north-south roadway which operates with three moving lanes of traffic with curbside parking in each direction. At its intersection with Carroll Street, it also provides an exclusive left-turn in the southbound direction.
- 3rd Avenue is a major two-way north-south roadway providing access to the Gowanus Expressway in the south. It operates with one moving lane of traffic with curbside parking in each direction. In addition, southbound 3rd Avenue provides an exclusive bike lane within the study area.
- Hoyt Street is a local one-way southbound street which operates with one moving lane of traffic and provides curbside parking on both sides of the street.
- Bond Street is a local one-way northbound street which operates with one moving lane of traffic and provides curbside parking on both sides of the street. South of the project site, Bond Street terminates at Gowanus Canal.
- Union Street is a local one-way eastbound street which operates with one moving lane of traffic and a bike-lane. Curbside parking is permitted on both sides of Union Street.
- President Street is a local one-way westbound street which operates with one moving lane of traffic and provides curbside parking on both sides of the street.
- Carroll Street is a local one-way eastbound street with which operates with one moving lane of traffic and a parking lane in each direction. The exception to Carroll Street's one-way eastbound operation is the block between Bond Street and Nevins Street where it operates as a two-way east-west street.
- 1st Street is a minor local one-way eastbound street which operates with one moving lane of traffic with curbside parking on both sides of the street.
- 2nd Street is a minor local one-way westbound street which operates with one moving lane of traffic with curbside parking on both sides of the street.
- 3rd Street is a minor local two-way east-west street which operates with one moving lane of traffic and provides curbside parking in each direction. It also provides a bike lane in the westbound direction.

TRAFFIC VOLUMES

Existing traffic volumes in the study area were generated based on traffic data collected in May 2006 and March 2008. The initial field program conducted in May 2006 included traffic counts at all the study area intersections. In addition, Automated Traffic Recorders (ATRs) were placed at key locations for a full week to identify temporal and daily traffic variations. Manual turning movement and vehicle classification counts were conducted at study area intersections during the weekday AM and PM peak hours. An inventory of the analyzed intersections was performed to determine traffic signal timings, phasing, and cycle lengths, street and curbside signage, pavement markings, and lane dimensions to be used in the calculation of street capacities. Official signal timing data were also obtained from the New York City Department of Transportation (NYCDOT) to confirm field observations and for incorporation into the capacity analysis.

In March 2008, additional traffic count surveys were conducted to update the traffic data collected in May 2006. These additional surveys consisted of manual turning movement counts at the key intersections of Bond Street at 3rd and Union Streets, as well as ATR counts on Bond Street (between 1st and Carroll Streets) and Union Street (between Bond and Nevins Streets) for one-full week. In addition, physical inventory and signal timing information of analysis locations was updated. Based on the comparison of 2006 and 2008 traffic counts, adjustments were made to the overall traffic network volumes to reflect changes in the traffic levels within the study area.

Figures 16-2 and 16-3 show the 2008 baseline traffic volumes for the weekday AM and PM peak hours. The weekday AM and PM peak hours of traffic in the study area were determined to take place from 8:15 AM to 9:15 AM and 5:00 PM to 6:00 PM, respectively. These peak hours of existing traffic correspond with the peak hours of project-generated trips, and therefore have been selected as the analysis peak hours to assess the traffic impacts of the proposed project.

In terms of traffic volumes, 3rd and 4th Avenues carry the highest traffic volumes within the study area. Two-way traffic volumes on 3rd Avenue are in the range of approximately 1,200 to 1,500 vehicles per hour (vph) while the two-way traffic volumes on 4th Avenue are in the range of approximately 2,700 to 3,000 vph during the AM and PM peak hours, respectively. Other local streets in the study area carry low-to-moderate traffic volumes in the range of approximately 150 to 500 vph during the AM and PM peak hours.

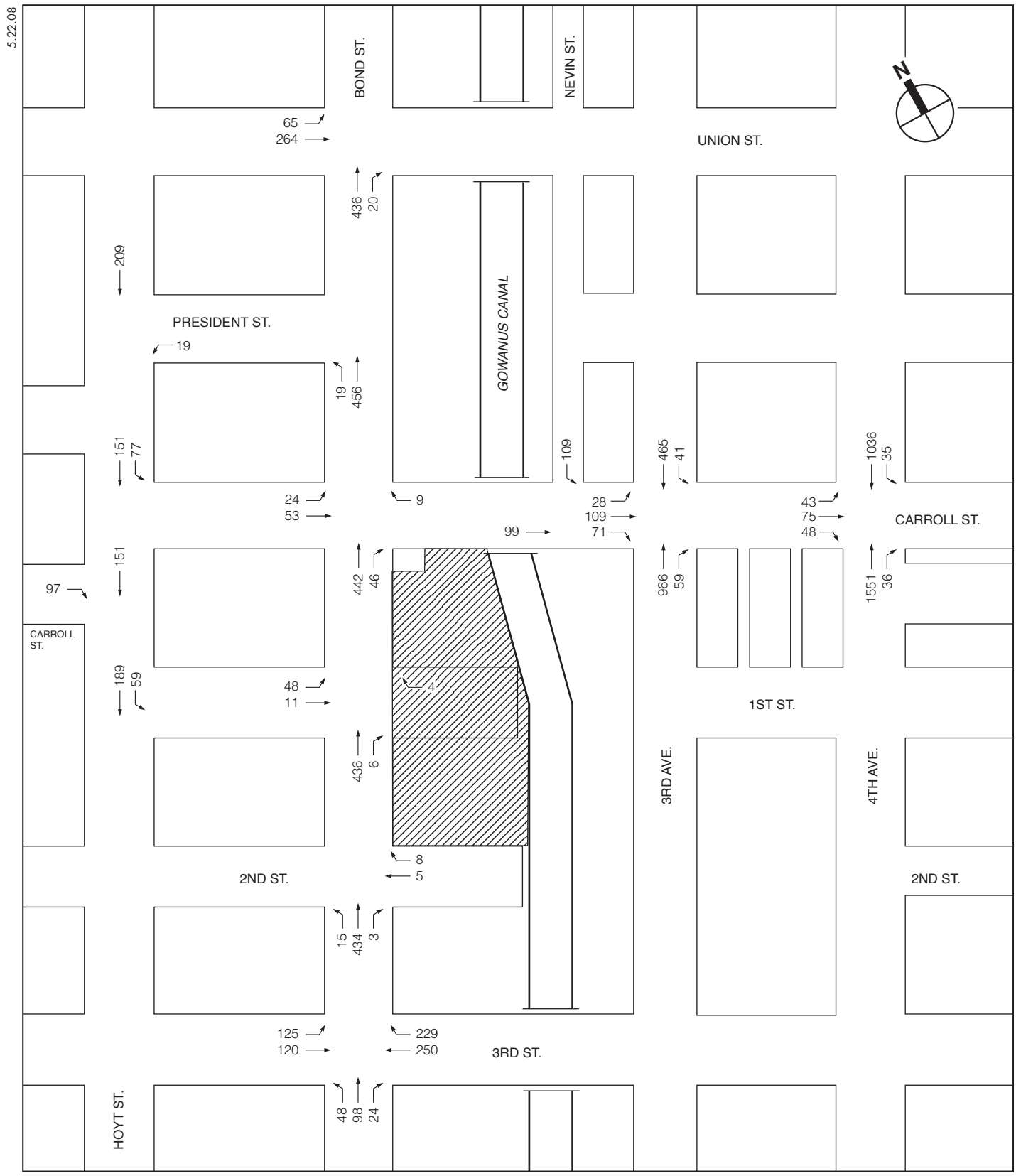
LEVEL OF SERVICE

Table 16-1 presents the capacity analysis results for the signalized and unsignalized intersections in the study area. As presented in Table 16-1, a majority of approaches/lane-groups in the study area operate at acceptable levels (mid-LOS D or better) during the two analysis peak hours. The exceptions are discussed as follows:

- The eastbound approach at the intersection of 3rd Avenue and Carroll Street which operates at LOS E and F during the AM and PM peak hours, respectively;
- The northbound through movement at the intersection of 3rd Avenue and Carroll Street which operates at LOS E during the AM peak hour; and
- The eastbound approach at the intersection of 4th Avenue and Carroll Street which operates at LOS E during the AM and PM peak hours.

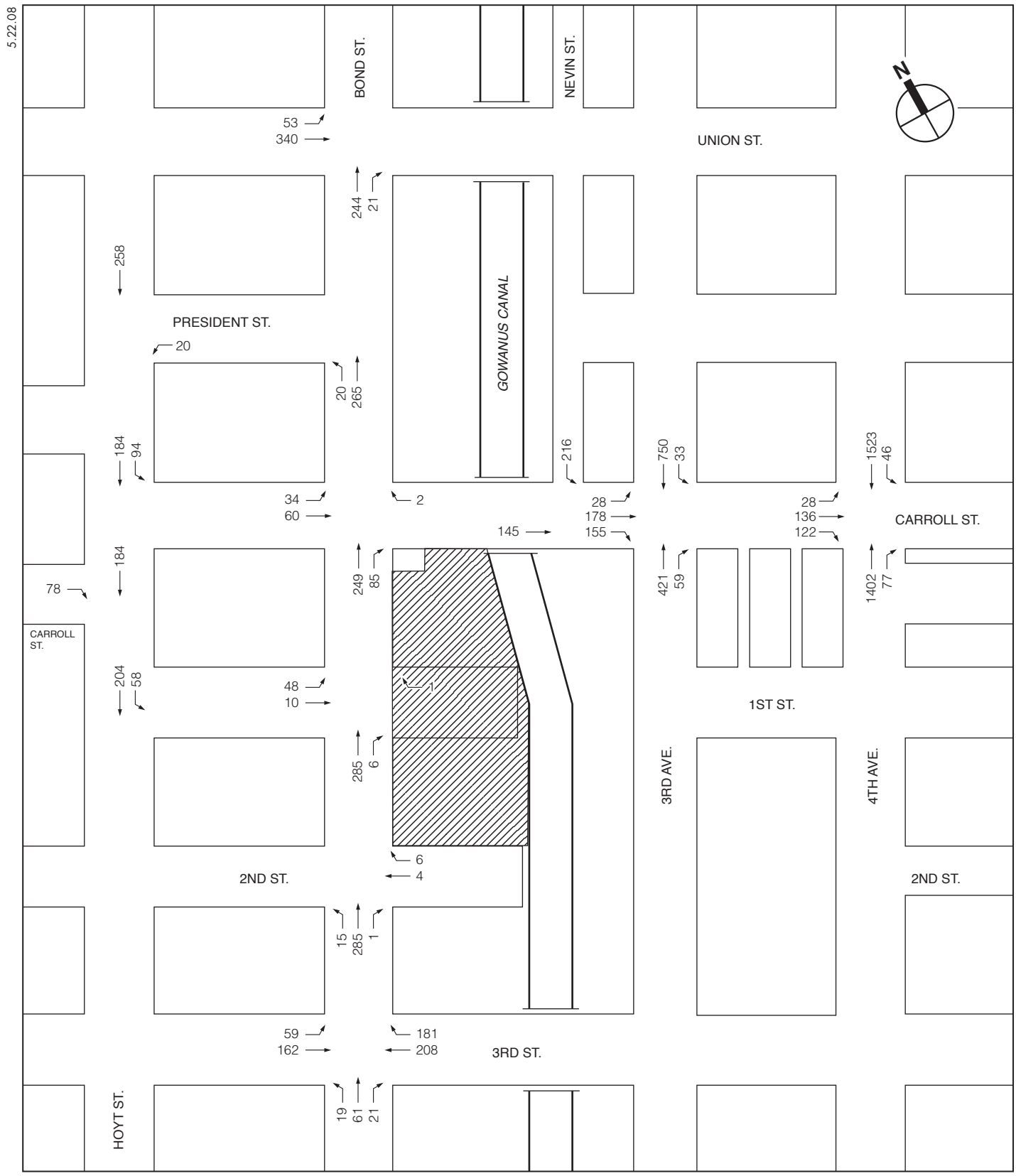
PARKING

A survey of off-street parking facilities (autos-only) and on-street parking spaces within a ¼-mile radius of the project site was conducted in March 2008 to assess their capacities and approximate utilization rates (see Figure 16-4). Based on the survey, there are no off-street parking facilities located within a ¼-mile radius of the project site. The majority of the streets in the study area are regulated by alternate side parking (street cleaning) regulations. Subsequent to the publication of the DEIS, the New York City Department of Sanitation (DOS) has revised the street cleaning regulations in the study area. A field visit confirmed that for a majority of the study area streets, alternate-side-of-the-street cleaning restrictions have been reduced from three-hour intervals to 90-minute intervals. In addition, the frequency has changed from twice a week cleaning to once a week, to ease parking for local residents.



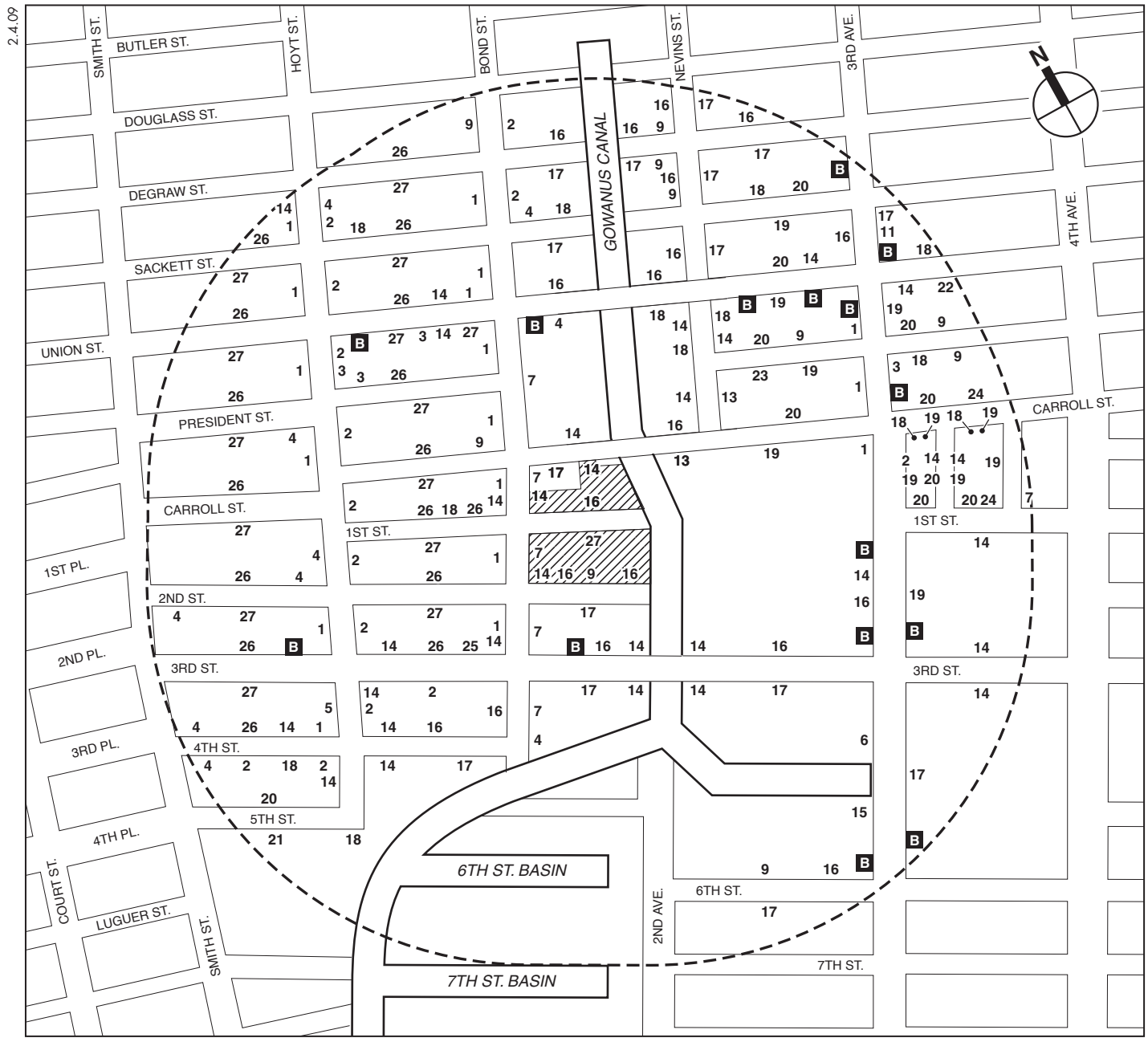
2008 Baseline Traffic Volumes
Weekday AM Peak Hour
Figure 16-2

363-365 BOND STREET



2008 Baseline Traffic Volumes
Weekday PM Peak Hour
Figure 16-3

363-365 BOND STREET



Project Site

1/4-Mile Perimeter

2 *Regulation*

B *Bus Stop No Standing Anytime*

On Street Park Regulations

1*	*No Parking 9:30AM-11AM, Wednesday*
2*	*No Parking 9:30AM-11AM, Friday*
3	*No Parking 7AM-4PM, School Days*
4	*No Standing, Fire Zone*
5	*No Standing 6AM-6PM, Except Sunday*
6	*No Parking 8AM-11AM, Monday and Thursday*
7	*No Parking 8AM-6PM, Except Sunday*
8	*No Parking 8AM-11AM, Tuesday and Friday*
9	*No Parking 8AM-6PM, Monday-Friday*
10	*No Parking 10AM-1PM, Tuesday and Friday*
11	*No Standing 7AM-10AM, Monday and Friday*
12	*No Parking 10AM-1PM, Monday and Thursday*
13	*No Standing Except Trucks Loading and Unloading*
14	*No Standing Anytime*
15	*Construction Barriers, No Regulation*
16**	*No Parking 3AM-6AM, Monday and Thursday*
17**	*No Parking 3AM-6AM, Tuesday and Friday*
18**	*No Parking Anytime*
19**	*No Parking 9AM-10:30AM, Friday*
20**	*No Parking 9AM-10:30AM, Wednesday*
21**	*No Standing 6AM-2PM, Monday-Friday*
22**	*No Standing - Hotel Loading Zone*
23**	*No Standing Except Trucks Loading and Unloading 7AM-4PM, Monday-Friday*
24**	*No Standing 7AM-4PM - School Days*
25**	*No Standing Anytime - Temporary Construction*
26**	*No Parking 11:30AM-1PM, Wednesday*
27**	*No Parking 11:30AM-1PM, Friday*

***** *Parking regulation revised between the Draft and Final EISs*

****** *New parking regulations implemented between the Draft and Final EISs*

******* *Revised January 30, 2009*

363-365 BOND STREET

On-Street Parking Regulations

Figure 16-4

Table 16-1
2008 Existing Conditions Level of Service Analysis

	AM Peak Hour				PM Peak Hour			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Signalized Intersections								
Bond Street and Union Street								
Eastbound	LT	0.77	29.8	C	LT	0.91	44.0	D
Northbound	TR	0.64	13.9	B	TR	0.39	9.8	A
	Intersection		20.5	C	Intersection		29.9	C
Bond Street and 3rd Street								
Eastbound	LT	0.71	20.4	C	LT	0.39	10.0+	B
Westbound	TR	0.63	13.5	B	TR	0.49	10.9	B
Northbound	LTR	0.40	18.1	B	LTR	0.25	16.0	B
	Intersection		16.3	B	Intersection		11.3	B
3rd Avenue and Carroll Street								
Eastbound	LTR	0.90	73.9	E	LTR	1.05	101.4	F
Northbound	TR	1.05	61.7	E	TR	0.48	11.5	B
Southbound	LT	0.70	18.0	B	LT	0.88	27.5	C
	Intersection		51.5	D	Intersection		41.8	D
4th Avenue and Carroll Street								
Eastbound	LTR	0.82	62.9	E	LTR	0.91	74.2	E
Northbound	TR	0.66	13.6	B	TR	0.62	12.9	B
Southbound	L	0.39	21.1	C	L	0.37	17.1	B
	T	0.41	10.1	B	T	0.57	12.1	B
	Intersection		16.6	B	Intersection		17.8	B
Unsignalized Intersections								
Hoyt Street and President Street								
Westbound	L	0.04	11.6	B	L	0.04	12.2	B
Hoyt Street and Carroll Street								
Eastbound	R	0.17	11.7	B	R	0.16	11.6	B
Bond Street and Carroll Street								
Eastbound	L	0.09	17.8	C	L	0.08	13.6	B
	T	0.20	18.3	C	T	0.15	14.4	B
Westbound	R	0.02	14.0	B	R	0.01	11.5	B
Bond Street and 1st Street								
Eastbound	LT	0.19	18.2	C	LT	0.15	14.5	B
Westbound	R	0.02	13.3	B	R	0.01	11.5	B
Bond Street and 2nd Street								
Westbound	TR	0.04	14.4	B	TR	0.04	12.5	B
Northbound	LTR	0.01	7.6	A	LTR	0.01	7.6	A

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.

In some cases, regulations were changed to the early morning (3AM to 6AM) hours which has affected the overnight on-street parking capacity of the study area. Based on the parking survey, on a given day, up to 40 of the existing on-street parking spaces available in the study area

would be affected by these revised regulations. As a result, overnight capacity has been decreased from 1,630 to 1,590 spaces. The utilization rate for the on-street parking in the study area changes from approximately 88 percent to 90 percent (with 1,430 utilized and 160 available on-street parking spaces) during the overnight/early-morning hours.

It should be noted that the changes to the street cleaning regulations would not affect the traffic analysis presented in this chapter. Curbside regulations on the west side of 3rd Avenue between Carroll and 3rd Streets include alternate side street cleaning, No Standing Anytime, and bus stop parking restrictions.

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

Traffic and parking conditions in the future without the proposed action were assessed to establish a baseline, or the "No Build" condition, against which to evaluate the potential project impacts. The No Build analysis focuses on conditions in 2011, the year during which the proposed project would be completed. As discussed in Chapter 2, "Land Use, Zoning, and Public Policy," a number of developments within the study area were identified, independent of the proposed project.

TRAFFIC

Future 2011 No Build peak hour traffic levels were estimated by first applying a background growth of 1.0 percent per year (as recommended by the *CEQR Technical Manual*), for a total of 3.0 percent by 2011 in the vicinity of the project site. In addition to the background growth, trips generated by the following development projects were incorporated into the No Build analysis:

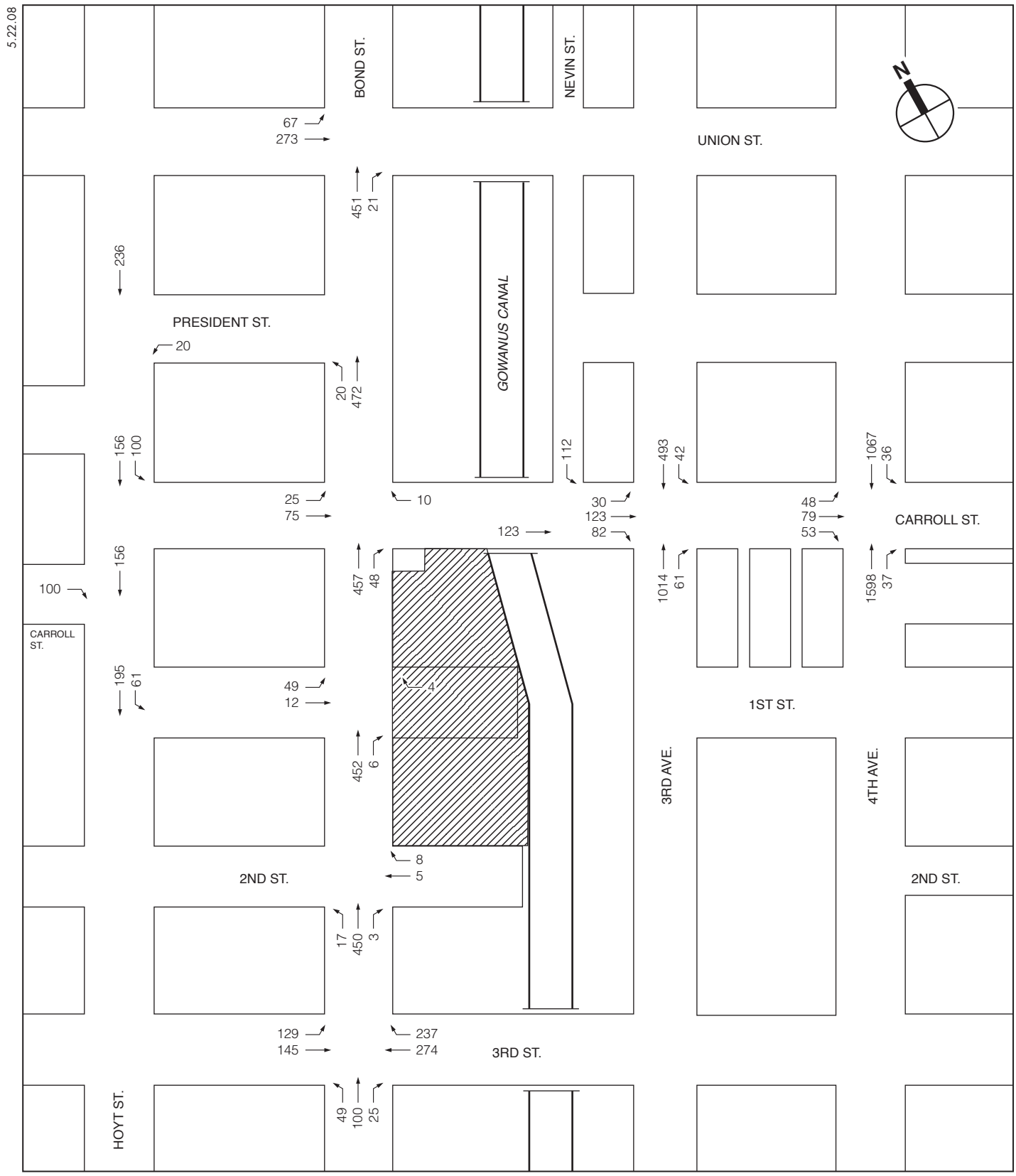
- A 45-unit residential development located at 103-113 3rd Street;
- An approximately 52,000-square-foot supermarket located at 220 3rd Street;
- A 28-room hotel located at 265 3rd Avenue; and,
- A 49,500-square-foot development consisting of office space located on the block bounded by 1st and 3rd Streets, and 3rd and 4th Avenues.

Trips generated by each of the above No Build projects were developed based on information provided in approved studies and standard references, such as the *CEQR Technical Manual*, Pushkarev and Zupan's *Urban Space for Pedestrians* and the 2000 U.S. census database. Trips generated by other No Build projects identified in Chapter 2, "Land Use, Zoning, and Public Policy," were assumed to be included in the background growth forecast for the study area. The estimated vehicle trips were then assigned to the study area intersections. Figures 16-5 and 16-6 present the future 2011 No Build traffic volumes for the weekday AM and PM peak hours.

LEVEL OF SERVICE

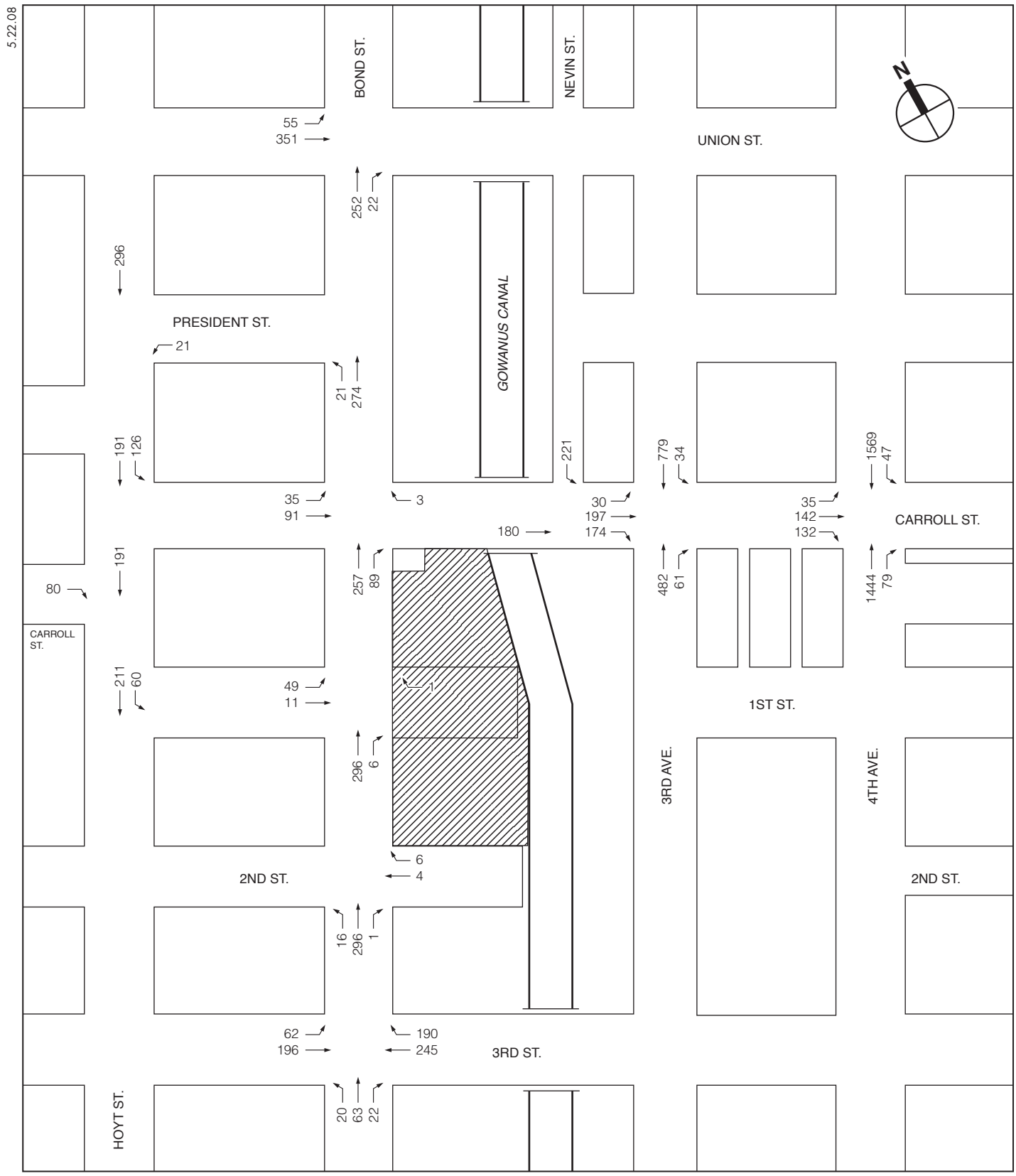
Table 16-2 presents a comparison of the existing and No Build service conditions for the study area intersections. The following are the notable changes in the service conditions at the analyzed intersections:

- The eastbound approach at the intersection of Bond Street and Union Street would decline from LOS D to mid-LOS D (with delay increasing from 44.0 to 48.7 seconds) during the PM peak hour;



2011 No Build Traffic Volumes
Weekday AM Peak Hour
Figure 16-5

363-365 BOND STREET



2011 No Build Traffic Volumes
Weekday PM Peak Hour
Figure 16-6

- The eastbound approach at the intersection of 3rd Avenue and Carroll Street would decline from LOS E to LOS F during the AM peak hour; and
- The eastbound approach at the intersection of 4th Avenue and Carroll Street would decline from LOS E to LOS F during the PM peak hour.

Table 16-2
2008 Existing and 2011 No Build Conditions Level of Service Analysis

	AM Peak Hour								PM Peak Hour							
	2008 Existing				2011 No Build				2008 Existing				2011 No Build			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Signalized Intersections																
Bond Street and Union Street																
Eastbound	LT	0.77	29.8	C	LT	0.80	31.6	C	LT	0.91	44.0	D	LT	0.94	48.7	D
Northbound	TR	0.64	13.9	B	TR	0.66	14.5	B	TR	0.39	9.8	A	TR	0.40	10.0	A
	Intersection		20.5	C	Intersection		21.6	C	Intersection		29.9	C	Intersection		32.8	C
Bond Street and 3rd Street																
Eastbound	LT	0.71	20.4	C	LT	0.81	27.8	C	LT	0.39	10.0+	B	LT	0.46	11.0	B
Westbound	TR	0.63	13.5	B	TR	0.67	14.5	B	TR	0.49	10.9	B	TR	0.55	11.7	B
Northbound	LTR	0.40	18.1	B	LTR	0.41	18.3	B	LTR	0.25	16.0	B	LTR	0.26	16.1	B
	Intersection		16.3	B	Intersection		19.1	B	Intersection		11.3	B	Intersection		12.0	B
3rd Avenue and Carroll Street																
Eastbound	LTR	0.90	73.9	E	LTR	1.02	100.0	F	LTR	1.05	101.4	F	LTR	1.16	140.9	F
Northbound	TR	1.05	61.7	E	TR	1.10	79.5	E	TR	0.48	11.5	B	TR	0.55	12.6	B
Southbound	LT	0.70	18.0	B	LT	0.75	20.1	C	LT	0.88	27.5	C	LT	0.91	31.9	C
	Intersection		51.5	D	Intersection		66.5	E	Intersection		41.8	D	Intersection		54.7	D
4th Avenue and Carroll Street																
Eastbound	LTR	0.82	62.9	E	LTR	0.90	72.8	E	LTR	0.91	74.2	E	LTR	0.99	91.0	F
Northbound	TR	0.66	13.6	B	TR	0.68	14.0	B	TR	0.62	12.9	B	TR	0.63	13.2	B
Southbound	L	0.39	21.1	C	L	0.43	24.2	C	L	0.37	17.1	B	L	0.40	19.1	B
	T	0.41	10.1	B	T	0.43	10.3	B	T	0.57	12.1	B	T	0.59	12.4	B
	Intersection		16.6	B	Intersection		18	B	Intersection		17.8	B	Intersection		19.9	B
Unsignalized Intersections																
Hoyt Street and President Street																
Westbound	L	0.04	11.6	B	L	0.04	11.9	B	L	0.04	12.2	B	L	0.05	12.6	B
Hoyt Street and Carroll Street																
Eastbound	R	0.17	11.7	B	R	0.18	11.8	B	R	0.16	11.6	B	R	0.16	11.7	B
Bond Street and Carroll Street																
Eastbound	L	0.09	17.8	C	L	0.10	18.4	C	L	0.08	13.6	B	L	0.09	13.8	B
	T	0.20	18.3	C	T	0.28	20.3	C	T	0.15	14.4	B	T	0.22	15.4	C
Westbound	R	0.02	14.0	B	R	0.03	14.3	B	R	0.01	11.5	B	R	0.01	11.6	B
Bond Street and 1st Street																
Eastbound	LT	0.19	18.2	C	LT	0.20	18.7	C	LT	0.15	14.5	B	LT	0.16	14.7	B
Westbound	R	0.02	13.3	B	R	0.02	13.5	B	R	0.01	11.5	B	R	0.01	11.6	B
Bond Street and 2nd Street																
Westbound	TR	0.04	14.4	B	TR	0.04	14.6	B	TR	0.04	12.5	B	TR	0.04	12.6	B
Northbound	LTR	0.01	7.6	A	LTR	0.01	7.6	A	LTR	0.01	7.6	A	LTR	0.01	7.6	A

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.

PARKING SUPPLY AND UTILIZATION

The utilization of on-street parking spaces in the study area would increase due to the area's background growth in traffic (3 percent over existing by the year 2011) and additional demand generated by the potential no build projects. In total, these no build projects would include four residential projects consisting of a total of 95 units, one hotel with 28 rooms and an office development consisting of 49,552 sf. The 52,000 square feet of supermarket located at 220 3rd Street would provide on-site parking and was therefore not included in the overall parking utilization estimates. In addition, it was conservatively assumed that the residential No Build projects would not provide any on-site parking, thereby creating demand for the on-street parking spaces in the study area. In general, the overall utilization rate of on-street parking in the study area would increase to approximately 96 percent (with 1,524 utilized and 66 available spaces) during the overnight/early-morning hours (see Table 16-3).

Table 16-3
2011 No Build—Overnight On-Street Parking Utilization

2008 Existing Conditions	
Capacity (spaces)	1590*
Demand (spaces)	1430
Available Spaces (Capacity minus Demand)	160
Utilization	90%
2011 No Build Conditions	
Capacity (spaces)	1590*
2008 Existing	1430
Demand due to Background Growth	43
Parking Demand from No Build Projects	
No Build Residential Projects (95 units)	47
No Build Hotel Project (28 rooms)	4
Total Demand	1524
Available Spaces (Capacity minus Demand)	66
Utilization	96%

Notes:
(1) Parking demand from No Build projects does not include the 49,500 square feet of office space which would generate no overnight parking demand.
(2) Parking demand from No Build projects does not include the 52,000-square-foot supermarket which would accommodate its parking demand on site.
* In order to provide a conservative analysis, the supply of on-street parking spaces has been reduced by 40 spaces for all time periods to account for the recently implemented early morning street cleaning regulations. These spaces will remain available for use for on-street parking except between the hours of 3 a.m. to 6 a.m.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The assessment of potential adverse impacts associated with the proposed action begins with and builds on the future No Build conditions described in the preceding section. As with the future No Build evaluation, 2011 is used as the analysis year for assessing project impacts.

The proposed project would result in the development of approximately 447 dwelling units, approximately 2,000 gsf of commercial space, approximately 2,000 gross square feet (gsf) of community facility space (which is expected to be occupied by the Gowanus Dredgers for

equipment storage and community education), and approximately 0.7 acres of publicly-accessible waterfront open space. In addition, the proposed project would provide approximately 268 accessory parking spaces. The trip generation characteristics for the residential, commercial, and community facility space are discussed below.

TRIP GENERATION

RESIDENTIAL

Trips expected to be generated by the 447 residential units were estimated based on a daily trip rate of 8.075 person-trips per dwelling unit as identified in the *CEQR Technical Manual*. The temporal distribution rates were based on the information presented in Pushkarev and Zupan's *Urban Space for Pedestrians.* The modal split estimates and vehicle occupancies were based on 2000 Census Data. Delivery trip rates were estimated based on the information presented in Wilbur Smith Associates' *Motor Trucks in the Metropolis.* Trip generation characteristics for the residential use are summarized in Table 16-4.

COMMERCIAL

Trips generated by the 2,000 gsf of commercial component were estimated based on a daily trip rate of 205 person-trips per 1,000 gsf as identified in the *CEQR Technical Manual*. Other trip generation factors (including temporal distribution, modal splits, vehicle occupancies, and delivery trip rates) were based on the trip generation factors for the commercial use presented in the *Atlantic Yards Arena and Redevelopment Project FEIS* (November 2006). The trip generation characteristics associated with the commercial use are summarized in Table 16-5.

COMMUNITY FACILITY

As discussed above, the proposed 2,000 gsf of community facility space is expected to be occupied by the Gowanus Dredgers for equipment storage and community education. The level of traffic generated by such a use is expected to be minimal, primarily taking place outside of the morning and evening peak periods of network traffic activity. Therefore, to conservatively assess the proposed project's traffic impacts, the 2,000 gsf of community facility space was assumed to function as a day-care center, which would be expected to generate more traffic activity as compared to the use proposed. Trip generation factors (including daily trip rate, temporal distribution, modal splits, vehicle occupancies, and delivery trip rates) were based on the trip generation factors for the day-care center use presented in the *No. 7 Subway Extension—Far West Midtown Manhattan Rezoning (aka Hudson Yards Rezoning) FEIS.* The trip generation characteristics associated with the community facility space are summarized in Table 16-6.

WATERFRONT OPEN SPACE

The proposed project would provide approximately 0.7 acres of publicly-accessible waterfront open space on the Gowanus Canal along the entire project waterfront from 2nd Street on the south to Carroll Street on the north. The waterfront open space open space will be primarily used by local residents from the neighborhood, would generate local pedestrian trips, and is not expected to result in additional vehicle trips to-and-from the study area. The trip generation characteristics associated with the waterfront open space are summarized in Table 16-7.

TOTAL TRIPS

As shown in Table 16-8, the proposed development is estimated to result in an increase of 390, 278, and 489 person trips, and 80, 48, and 100 vehicle trips during the AM, midday, and PM peak hours, respectively.

Table 16-4
Residential Trip Generation

Residential Use:	**447 dwelling units**												
Daily Person Trip Rate (1):	**8.075 trips per d.u.**												
Temporal Distribution (2)													
Weekday AM Peak Hour	9.1%												
Weekday MD Peak Hour	4.7%												
Weekday PM Peak Hour	10.7%												
Modal Split Estimates (3) & Vehicle Occupancy (3)													
Auto	22.0%												
Taxi	1.0%												
Bus	1.0%												
Subway	68.0%												
Walk/Other	8.0%												
Total	**100.0%**												
Auto Occupancy	1.14												
Taxi Occupancy	1.40												
Hourly In & Out Distribution (2)													
	In	Out											
Weekday AM Peak Hour	15.0%	85.0%											
Weekday MD Peak Hour	50.0%	50.0%											
Weekday PM Peak Hour	70.0%	30.0%											
Peak Hour Person Trips by Mode													
	Auto		Taxi		Bus		Subway		Walk/Other		Total Trips		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	11	61	0	3	0	3	34	190	4	22	49	279	328
Weekday MD Peak Hour	19	19	1	1	1	1	58	58	7	7	86	86	172
Weekday PM Peak Hour	59	25	3	1	3	1	184	79	22	9	271	115	386
Peak Hour Vehicle Trips													
	Auto		Taxi		Deliveries(3)		Total						
	In	Out	In	Out	In	Out	In	Out	Total				
Weekday AM Peak Hour	10	54	2	2	1	1	13	57	70				
Weekday MD Peak Hour	17	17	2	2	1	1	20	20	40				
Weekday PM Peak Hour	52	22	3	3	1	1	56	26	82				
DELIVERIES:	**D. Units: 447**												
Delivery Trip Rate (4):	0.03 trips per d.unit												
Temporal Distribution (4)													
Weekday AM Peak Hour	9.7%												
Weekday MD Peak Hour	7.8%												
Weekday PM Peak Hour	5.1%												
Hourly In & Out Distribution													
	In	Out											
Weekday AM Peak Hour	100.0%	100.0%											
Weekday MD Peak Hour	100.0%	100.0%											
Weekday PM Peak Hour	100.0%	100.0%											
Total Deliveries													
	In	Out											
Weekday AM Peak Hour	1	1											
Weekday MD Peak Hour	1	1											
Weekday PM Peak Hour	1	1											

Notes:
(1) *CEQR Technical Manual*
(2) Pushkarev & Zupan, Urban Space for Pedestrians (1975)
(3) U.S. Department of Commerce, Bureau of the Census, 2000 Census of Population and Housing—Journey-to-Work Data for Census Tract # 77
(4) Wilbur Smith and Associates, Motor Trucks in the Metropolis

Table 16-5
Commercial Trip Generation

Commercial Use:	**2,000 square feet**												
Daily Person Trip Rate (1):	**205 trips per 1,000 square feet**												
Temporal Distribution (2)													
Weekday AM Peak Hour	3.1%												
Weekday MD Peak Hour	19.0%												
Weekday PM Peak Hour	9.6%												
Modal Split Estimates (2) & Vehicle Occupancy (2)													
Auto	2.0%												
Taxi	3.0%												
Bus	5.0%												
Subway	20.0%												
Walk/Other	70.0%												
Total	**100.0%**												
Auto Occupancy	2.00												
Taxi Occupancy	2.00												
Hourly In & Out Distribution (2)													
	In		Out										
Weekday AM Peak Hour	50.0%		50.0%										
Weekday MD Peak Hour	50.0%		50.0%										
Weekday PM Peak Hour	50.0%		50.0%										
Peak Hour Person Trips by Mode													
	Auto		Taxi		Bus		Subway		Walk/Other		Total Trips		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	0	0	0	0	0	0	1	1	5	5	6	6	12
Weekday MD Peak Hour	1	1	1	1	2	2	8	8	27	27	39	39	78
Weekday PM Peak Hour	0	0	1	1	1	1	4	4	14	14	20	20	40
Peak Hour Vehicle Trips													
	Auto		Taxi		Deliveries(1)		Total						
	In	Out	In	Out	In	Out	In	Out	Total				
Weekday AM Peak Hour	0	0	0	0	0	0	0	0	0				
Weekday MD Peak Hour	0	0	2	2	0	0	2	2	4				
Weekday PM Peak Hour	0	0	2	2	0	0	2	2	4				
DELIVERIES:	**Commercial: 2,000 square feet**												
Delivery Trip Rate (2):	0.35 trips per 1,000 sq. ft.												
Temporal Distribution (2)													
Weekday AM Peak Hour	8.0%												
Weekday MD Peak Hour	11.0%												
Weekday PM Peak Hour	2.0%												
Hourly In & Out Distribution													
	In		Out										
Weekday AM Peak Hour	100.0%		100.0%										
Weekday MD Peak Hour	100.0%		100.0%										
Weekday PM Peak Hour	100.0%		100.0%										
Total Deliveries													
	In		Out										
Weekday AM Peak Hour	0		0										
Weekday MD Peak Hour	0		0										
Weekday PM Peak Hour	0		0										

Notes:
(1) *CEQR Technical Manual*
(2) *Atlantic Yards: Redevelopment Project FEIS* (2006)

Table 16-6
Community Facility Trip Generation

Daycare Use:	**2,000 square feet**
Daily Person Trip Rate (1):	**138 trips per 1,000 square feet**
Temporal Distribution (1)	
Weekday AM Peak Hour	16.0%
Weekday MD Peak Hour	5.0%
Weekday PM Peak Hour	19.0%
Modal Split Estimates (1) & Vehicle Occupancy (1)	
Auto (1)	38.0%
Taxi (1)	2.0%
Bus	10.0%
Subway	20.0%
Walk/Other	30.0%
Total	**100.0%**
Auto Occupancy	1.65
Taxi Occupancy	1.40

Hourly In & Out Distribution (1)		
	In	Out
Weekday AM Peak Hour	53.0%	47.0%
Weekday MD Peak Hour	50.0%	50.0%
Weekday PM Peak Hour	47.0%	53.0%

Peak Hour Person Trips by Mode

	Auto		Taxi		Bus		Subway		Walk/Other		Total Trips		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	9	8	0	0	2	2	5	4	7	7	23	21	44
Weekday MD Peak Hour	3	3	0	0	1	1	1	1	2	2	7	7	14
Weekday PM Peak Hour	9	11	0	1	2	3	5	6	9	7	25	28	53

Peak Hour Vehicle Trips

	Auto		Taxi		Deliveries(1)		Total		
	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	5	5	0	0	0	0	5	5	10
Weekday MD Peak Hour	2	2	0	0	0	0	2	2	4
Weekday PM Peak Hour	6	6	1	1	0	0	7	7	14

DELIVERIES:	**Daycare 2,000 square feet**
Delivery Trip Rate (1):	0.07 trips per 1,000 sq. ft.
Temporal Distribution (1)	
Weekday AM Peak Hour	9.6%
Weekday MD Peak Hour	11.0%
Weekday PM Peak Hour	1.0%

Hourly In & Out Distribution

	In	Out
Weekday AM Peak Hour	100.0%	100.0%
Weekday MD Peak Hour	100.0%	100.0%
Weekday PM Peak Hour	100.0%	100.0%

Total Deliveries

	In	Out
Weekday AM Peak Hour	0	0
Weekday MD Peak Hour	0	0
Weekday PM Peak Hour	0	0

Note: (1) No. 7 Subway Extension—Far West Midtown Manhattan Rezoning FEIS

Table 16-7
Waterfront Open Space Trip Generation

0.70	Acres														
Daily Trip Rates (1):															
Person Trips:		**139**	Trips per acre												
Modal Split (2):															
	Auto	Taxi	Subway	Bus	Walk Only	Other	Total								
AM/Midday/PM	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**80.0%**	**0.0%**	**100%**								
Vehicle Occupancy (1):															
	Auto	Taxi													
AM/Midday/PM	**2.00**	**2.00**	Persons per Vehicle												
Temporal Trip Distribution (1,3):															
	Person Trips														
	Total	In	Out												
AM Peak Hour	**7.0%**	**50.0%**	**50.0%**												
Midday Peak Hour	**17.0%**	**50.0%**	**50.0%**												
PM Peak Hour	**14.0%**	**50.0%**	**50.0%**												
Person Trips (Unfactored)															
	Auto		Taxi		Subway		Bus		Walk Only		Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	
AM Peak Hour	0	0	0	0	0	0	0	0	3	3	0	0	3	3	
Midday Peak Hour	0	0	0	0	0	0	0	0	7	7	0	0	7	7	
PM Peak Hour	0	0	0	0	0	0	0	0	5	5	0	0	5	5	
Taxi Trips															
	Demand		Shared Trips		Inbound Only		Outbound Only		Total Trips						
	In	Out	In	Out	In	Out	In	Out	In	Out					
AM Peak Hour	0	0	0	0	0	0	0	0	0	0					
Midday Peak Hour	0	0	0	0	0	0	0	0	0	0					
PM Peak Hour	0	0	0	0	0	0	0	0	0	0					
Vehicle Trips by Mode and Distribution															
	Auto		Taxi		Total										
	In	Out	In	Out	In	Out									
AM Peak Hour	0	0	0	0	0	0									
Midday Peak Hour	0	0	0	0	0	0									
PM Peak Hour	0	0	0	0	0	0									

Notes:
The shore public walkway was assumed to have a modal split similar to commercial.
(1) New York City Mayor's Office of Environmental Coordination *City Environmental Quality Review Technical Manual* (December 2001)
(2) New York City Department of City Planning, *Retail and Industrial Zoning Text Amendments: Final Generic Environmental Impact Statement* (1996)
(3) AKRF Assumption

Table 16-8
Total Project-Generated Trips
Person Trips by Mode

Analysis Period and Use	Auto		Taxi		Bus		Subway		Walk/Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
AM PEAK PERIOD													
Residential	11	61	0	3	0	3	34	190	4	22	49	279	328
Commercial	0	0	0	0	0	0	1	1	5	5	6	6	12
Daycare	9	8	0	0	2	2	5	4	7	7	23	21	44
Waterfront Open Space	0	0	0	0	0	0	0	0	3	3	3	3	6
TOTAL	**20**	**69**	**0**	**3**	**2**	**5**	**40**	**195**	**19**	**37**	**81**	**309**	**390**
MIDDAY PEAK PERIOD													
Residential	19	19	1	1	1	1	58	58	7	7	86	86	172
Commercial	1	1	1	1	2	2	8	8	27	27	39	39	78
Daycare	3	3	0	0	1	1	1	1	2	2	7	7	14
Waterfront Open Space	0	0	0	0	0	0	0	0	7	7	7	7	14
TOTAL	**23**	**23**	**2**	**2**	**4**	**4**	**67**	**67**	**43**	**43**	**139**	**139**	**278**
PM PEAK PERIOD													
Residential	59	25	3	1	3	1	184	79	22	9	271	115	386
Commercial	0	0	1	1	1	1	4	4	14	14	20	20	40
Daycare	9	11	0	1	2	3	5	6	9	7	25	28	53
Waterfront Open Space	0	0	0	0	0	0	0	0	5	5	5	5	10
TOTAL	**68**	**36**	**4**	**3**	**6**	**5**	**193**	**89**	**50**	**35**	**321**	**168**	**489**

Vehicle Trips by Type

Analysis Period and Use	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
AM PEAK PERIOD									
Residential	10	54	2	2	1	1	13	57	70
Commercial	0	0	0	0	0	0	0	0	0
Daycare	5	5	0	0	0	0	5	5	10
Waterfront Open Space	0	0	0	0	0	0	0	0	0
TOTAL	**15**	**59**	**2**	**2**	**1**	**1**	**18**	**62**	**80**
MIDDAY PEAK PERIOD									
Residential	17	17	2	2	1	1	20	20	40
Commercial	0	0	2	2	0	0	2	2	4
Daycare	2	2	0	0	0	0	2	2	4
Waterfront Open Space	0	0	0	0	0	0	0	0	0
TOTAL	**19**	**19**	**4**	**4**	**1**	**1**	**24**	**24**	**48**
PM PEAK PERIOD									
Residential	52	22	3	3	1	1	56	26	82
Commercial	0	0	2	2	0	0	2	2	4
Daycare	6	6	1	1	0	0	7	7	14
Waterfront Open Space	0	0	0	0	0	0	0	0	0
TOTAL	**58**	**28**	**6**	**6**	**1**	**1**	**65**	**35**	**100**

SCREENING ANALYSIS

As per the criteria established in the *CEQR Technical Manual*, detailed traffic analysis is required if the proposed action generates 50 or more peak hour vehicle trips. As presented in Table 16-8, the proposed development will result in approximately 80, 48, and 100 vehicle trips during the weekday AM, midday, and PM peak hours, respectively. Based on the CEQR criteria, a detailed analysis of traffic and transportation conditions for the weekday midday peak hour is not warranted, since the proposed project will generate less than 50 peak hour vehicle trips during that peak hour. The *CEQR Technical Manual* recommends converting the vehicular trips to passenger car equivalents (PCEs) for proposed actions that generate significant volumes of trucks and buses. Since the proposed project is primarily a residential development, which unlike industrial/manufacturing uses (such as waste transfer facilities, bus depots, and warehouse-storage facilities) would not generate a significant number of truck trips, the vehicle trips generated during the weekday peak hours are similar to PCEs and do not require conversion.

Therefore, as per the CEQR criteria, detailed analysis of traffic conditions was conducted for the weekday AM and PM peak hours, as presented in the proceeding section. The screening analysis for the transit and pedestrian components is discussed in Chapter 17, "Transit and Pedestrians."

TRIP DISTRIBUTION AND ASSIGNMENT

Project generated vehicle trips for the residential component were distributed based on the origin-and-destination patterns for journey-to-work trips obtained from the 2000 Census Data. Based on this information, approximately 60 percent of all new residential auto trips from the proposed project would drive to destinations in Manhattan, 30 percent would drive to destinations in Brooklyn, and the remaining 10 percent would drive to destinations in Queens, the Bronx, Staten Island, New Jersey, Connecticut, and Long Island. Project-generated commercial and community facility vehicle trips were distributed based on the prevailing traffic patterns in the study area.

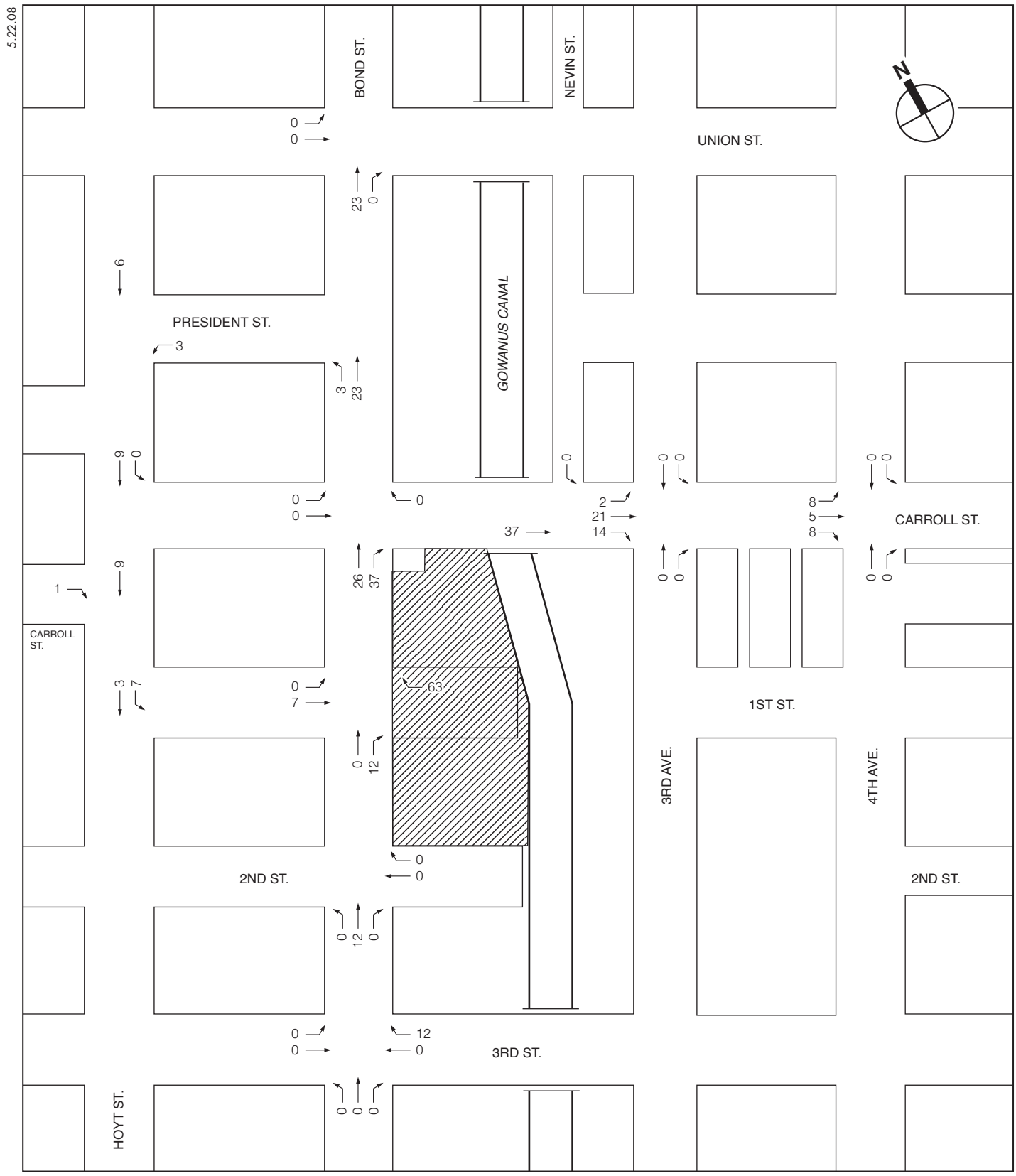
Project generated vehicle trips were assigned to the study area intersections based on the most likely routes to and from the project site, the configuration of the street network, prevailing travel patterns, and the location of the site's proposed driveway. All of the vehicular trips were routed to the project's proposed entrance/exit located at Bond Street/1st Street. Delivery vehicles were assigned to the traffic network using designated NYCDOT truck routes.

TRAFFIC VOLUMES AND LEVEL OF SERVICE

Figures 16-7 and 16-8 present the project-generated traffic volumes for the weekday AM and PM peak hours. Figures 16-9 and 16-10 show the Build traffic volumes for the weekday AM and PM peak hours. Table 16-9 presents a comparison of the No Build and Build conditions for the study area's signalized and unsignalized intersections.

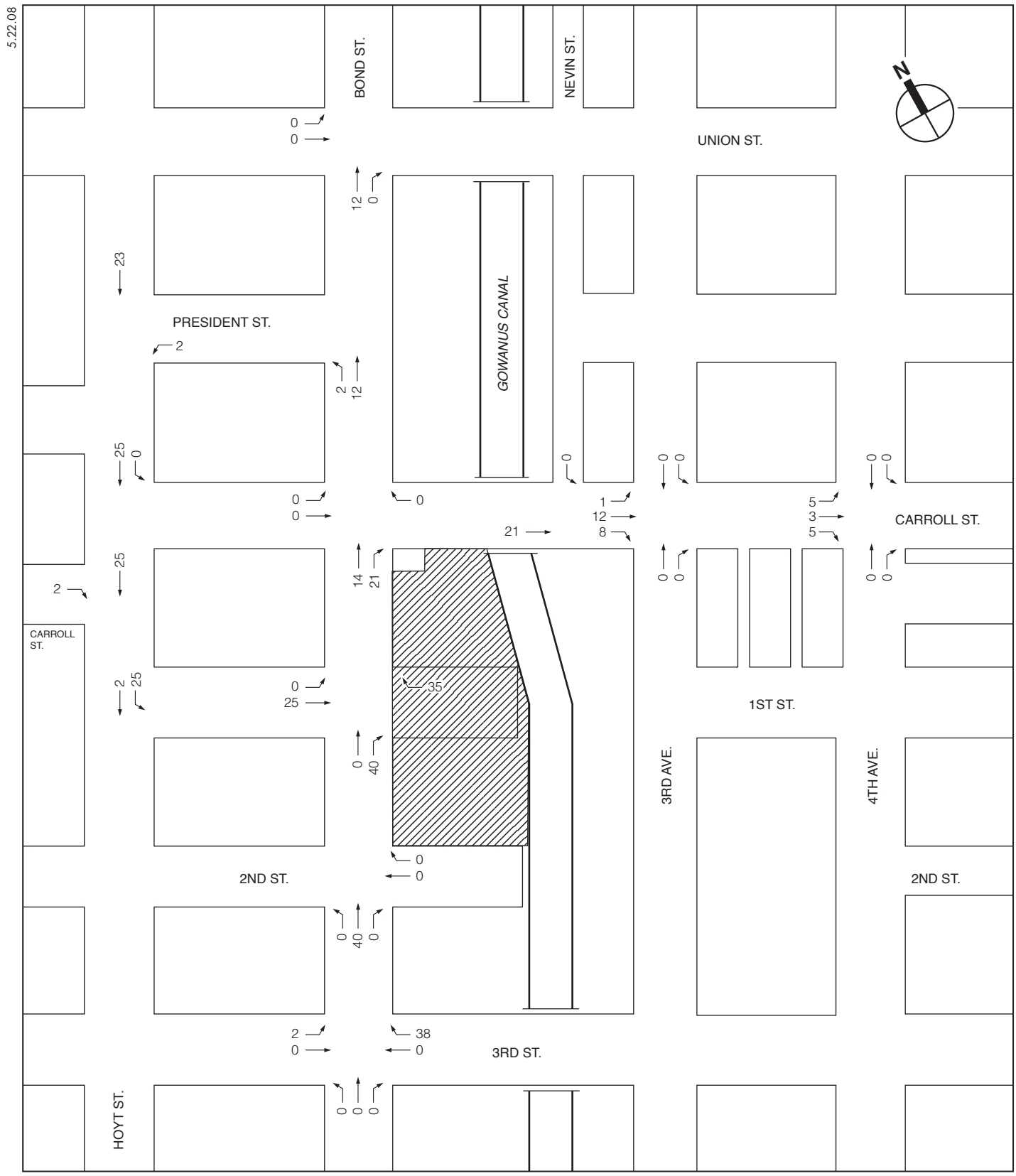
IMPACT CRITERIA

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant (for both signalized and unsignalized intersections) and require examination of mitigation if they result in an increase of 5 or more seconds of delay in a lane group over No Build levels beyond mid-LOS D. For No Build LOS E, a 4-second increase in delay is considered significant. For No Build LOS F, a 3-second increase in delay is considered



2011 Project Generated Traffic Volumes
Weekday AM Peak Hour
Figure 16-7

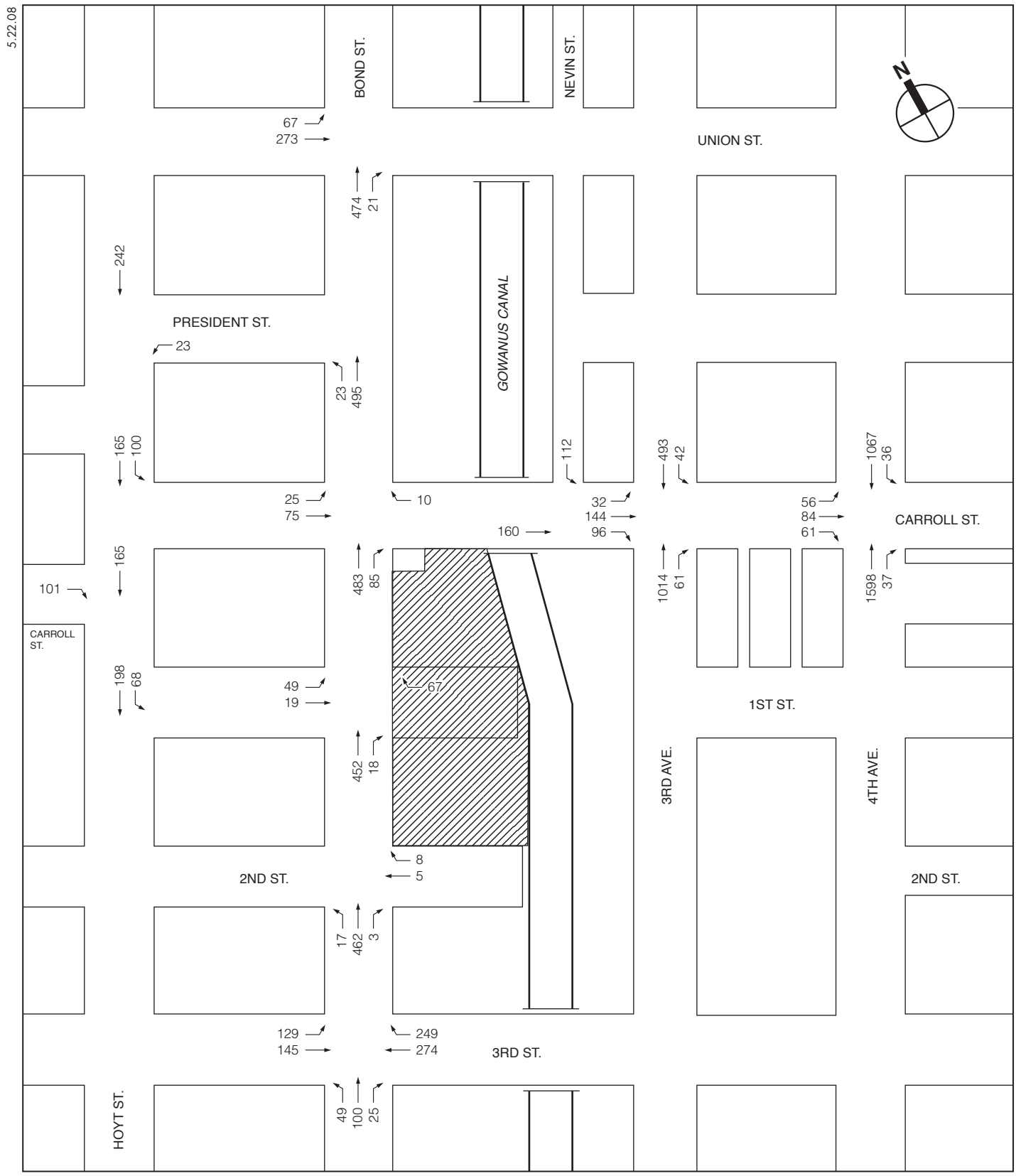
363-365 BOND STREET



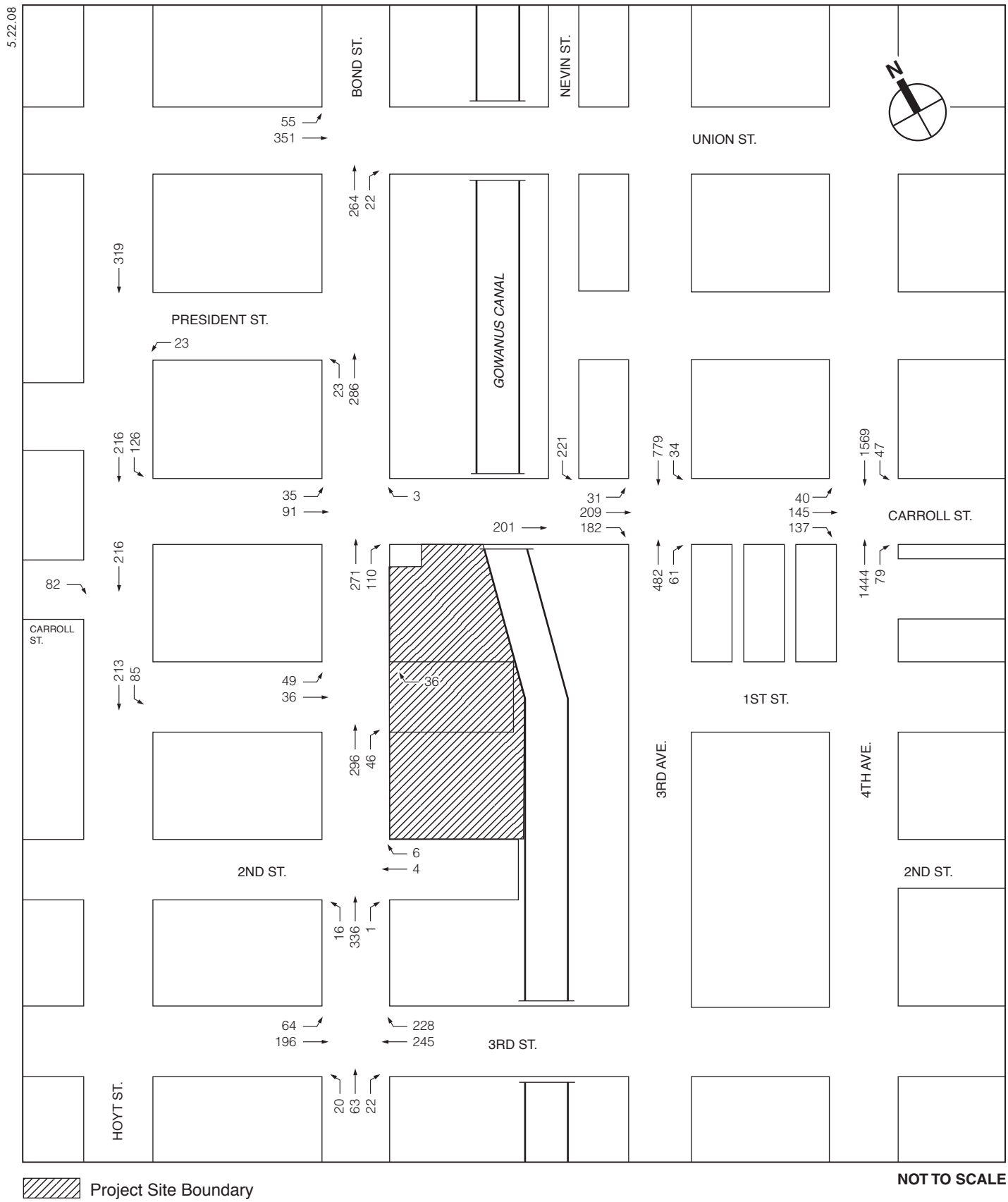
2011 Project Generated Traffic Volumes
Weekday PM Peak Hour

363-365 BOND STREET

Figure 16-8



2011 Build Traffic Volumes
Weekday AM Peak Hour
Figure 16-9



2011 Build Traffic Volumes
Weekday PM Peak Hour
Figure 16-10

363-365 BOND STREET

Table 16-9
2011 No Build and Build Conditions Level of Service Analysis

	AM Peak Hour								PM Peak Hour							
	2011 No Build				2011 Build				2011 No Build				2011 Build			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Signalized Intersections																
Bond Street and Union Street																
Eastbound	LT	0.81	32.7	C	LT	0.80	32.0	C	LT	0.94	48.7	D	LT	0.95	49.9	D
Northbound	TR	0.69	15.4	B	TR	0.69	15.4	B	TR	0.40	10.0	A	TR	0.42	10.2	B
	Intersection		22.4	C	Intersection		22.1	C	Intersection		32.8	C	Intersection		33.2	C
Bond Street and 3rd Street																
Eastbound	LT	0.83	30.1	C	LT	0.83	29.6	C	LT	0.46	11.0	B	LT	0.47	11.2	B
Westbound	TR	0.71	15.6	B	TR	0.70	15.3	B	TR	0.55	11.7	B	TR	0.61	12.0	B
Northbound	LTR	0.41	18.6	B	LTR	0.42	18.4	B	LTR	0.26	16.1	B	LTR	0.26	16.1	B
	Intersection		20.5	C	Intersection		20.1	C	Intersection		12.0	B	Intersection		12.8	B
3rd Avenue and Carroll Street																
Eastbound	LTR	1.02	100.0	F	LTR	1.21	164.7	F +	LTR	1.16	140.9	F	LTR	1.26	178.3	F +
Northbound	TR	1.10	79.5	E	TR	1.10	80.2	F	TR	0.55	12.6	B	TR	0.55	12.6	B
Southbound	LT	0.75	20.1	C	LT	0.75	20.2	C	LT	0.91	31.9	C	LT	0.91	32.1	C
	Intersection		66.5	E	Intersection		79.0	E	Intersection		54.7	D	Intersection		66.1	E
4th Avenue and Carroll Street																
Eastbound	LTR	0.90	72.8	E	LTR	1.02	101.3	F +	LTR	0.99	91.0	F	LTR	1.05	108.1	F +
Northbound	TR	0.68	14.0	B	TR	0.68	14.0	B	TR	0.63	13.2	B	TR	0.63	13.2	B
Southbound	L	0.43	24.2	C	L	0.43	24.2	C	L	0.40	19.1	B	L	0.40	19.1	B
	T	0.43	10.3	B	T	0.43	10.3	B	T	0.59	12.4	B	T	0.59	12.4	B
	Intersection		18.0	B	Intersection		21.4	C	Intersection		19.9	B	Intersection		21.8	C
Unsignalized Intersections																
Hoyt Street and President Street																
Westbound	L	0.04	11.9	B	L	0.05	12.0	B	L	0.05	12.6	B	L	0.05	13.0	B
Hoyt Street and Carroll Street																
Eastbound	R	0.18	11.9	B	R	0.20	13.1	B	R	0.16	11.7	B	R	0.19	13.2	B
Bond Street and Carroll Street																
Eastbound	L	0.10	18.4	C	L	0.13	22.6	C	L	0.09	13.8	B	L	0.10	16.0	C
	T	0.28	20.3	C	T	0.35	25.5	D	T	0.22	15.4	C	T	0.26	17.9	C
Westbound	R	0.03	14.3	B	R	0.03	16.2	C	R	0.01	11.6	B	R	0.01	12.7	B
Bond Street and 1st Street																
Eastbound	LT	0.20	18.7	C	LT	0.49	48.8	E	LT	0.16	14.7	B	LT	0.37	25.7	D
Westbound	R	0.02	13.5	B	R	0.47	22.6	C	R	0.01	11.6	B	R	0.31	15.9	C
Bond Street and 2nd Street																
Westbound	TR	0.04	14.6	B	TR	0.04	16.1	C	TR	0.04	12.6	B	TR	0.05	14.2	B
Northbound	LTR	0.01	7.6	A	LTR	0.01	7.7	A	LTR	0.01	7.6	A	LTR	0.01	7.7	A

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
+ implies a significant project impact

significant. Also, if the No Build LOS F condition already corresponds with a delay in excess of 120 seconds, an increase of 1.0 or more seconds of delay is considered significant, unless the proposed project generates fewer than five vehicle trips through that intersection in the peak hour. In addition, impacts are considered significant if levels of service deteriorate from acceptable LOS A, B, or C in the No Build condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of the LOS D range of delay), or unacceptable LOS E or F in the future Build condition.

In addition, the *CEQR Technical Manual* states that at an unsignalized intersection, for the minor approach to trigger significant impacts, 90 passenger car equivalents (PCEs) must be identified in the future build condition in any peak hour.

For the streets around the site, future intersection volumes would generally represent an increase over the existing traffic volumes, and the street capacities at majority of the locations would be sufficient to accommodate these increases.

Based on the CEQR standards, the proposed project could result in significant impacts at the following two signalized intersection approaches:

- The eastbound approach of Carroll Street at 3rd Avenue during the AM and PM peak hours; and
- The eastbound approach of Carroll Street at 4th Avenue during the AM and PM peak hours.

It should be noted that the eastbound approach of Carroll Street at 3rd Avenue operates at a congested level (LOS F) during both the AM and PM peak hours in the No Build conditions. In addition, the eastbound approach of Carroll Street at 4th Avenue operates at congested levels (LOS E and F) during both the AM and PM peak hours, respectively. With the proposed project in place, the moderate increase in traffic levels (up to 38 vehicles during any given peak hour) at the eastbound Carroll Street approach at 3rd Avenue and 4th Avenue would result in significant traffic impacts.

While the delay at the eastbound approach of 1st Street at Bond Street would also increase significantly during the AM peak hour (from 18.7 seconds in the No Build conditions to 48.8 seconds in the Build conditions), this increase in delay would not be considered a significant impact based on the *CEQR* guidelines, since fewer than 90 passenger-car-equivalents (PCEs) were identified at this approach during the AM peak hour in the 2011 Build conditions.

Traffic mitigation measures for the proposed project are discussed in Chapter 22, "Mitigation."

PARKING

As described in Chapter 1, "Project Description," pursuant to the zoning requirements of residential developments in R7-2 districts, the proposed project would be required to provide 199 accessory parking spaces. However, to accommodate the parking demand that would be generated by the proposed project, approximately 268 accessory spaces would be provided. Given the residential character of the proposed project, the overnight period would represent the peak demand for parking. The overnight parking demand generated by the proposed project was estimated by applying the specific homeowner and renter vehicle ownership rates—from the 2000 Census Data for the project site's census tract (Census Tract No. 77)—for the proposed project's market-rate and affordable housing components. Based on the census data, the vehicle ownership rate for owner and renter occupied units is approximately 88 and 35 percent, respectively. Applying these vehicle ownership rates to the proposed project's market-rate and

affordable housing components would result in a peak parking demand for approximately 331 spaces. The total parking demand from the proposed project (including the residential, commercial, and community facility components) is summarized in Table 16-10. Based on this, the peak parking demand of 331 spaces would occur during the overnight hours. Therefore, the majority of the proposed project's parking demand would be accommodated by the 268 on-site accessory parking spaces. The remaining 63 patrons would use the on-street parking spaces available in the study area during the overnight hours.

Table 16-10
Parking Accumulation

	Residential								
	Owner Occupied Units		Renter Occupied Units		Commercial		Community Facility		
Program Size	317 units		130 units		2,000 gsf		2,000 gsf		
Vehicles Parked Overnight	279		46		0		0		**Total**
Time	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**Accumulation**
12:00 AM–1:00 AM	4	4	2	2	0	0	0	0	325
1:00 AM–2:00 AM	2	2	1	1	0	0	0	0	325
2:00 AM–3:00 AM	1	1	0	0	0	0	0	0	325
3:00 AM–4:00 AM	0	0	0	0	0	0	0	0	325
4:00 AM–5:00 AM	0	0	0	0	0	0	0	0	325
5:00 AM–6:00 AM	1	2	0	0	0	0	0	0	324
6:00 AM–7:00 AM	1	3	0	1	0	0	0	0	321
7:00 AM–8:00 AM	4	16	2	6	0	0	2	0	307
8:00 AM–9:00 AM	7	38	3	16	0	0	5	5	263
9:00 AM–10:00 AM	8	25	3	10	0	0	3	1	241
10:00 AM–11:00 AM	10	15	4	6	0	0	3	2	235
11:00 AM–12:00 PM	11	11	4	4	0	0	2	2	235
12:00 PM–1:00 PM	12	11	5	5	0	0	2	2	236
1:00 PM–2:00 PM	11	11	5	5	2	0	2	2	238
2:00 PM–3:00 PM	10	10	4	4	2	2	1	2	237
3:00 PM–4:00 PM	16	11	7	4	0	2	2	3	242
4:00 PM–5:00 PM	23	12	9	5	0	0	2	3	256
5:00 PM–6:00 PM	37	16	15	6	0	0	6	6	286
6:00 PM–7:00 PM	30	16	12	7	0	0	1	3	303
7:00 PM–8:00 PM	27	14	11	6	0	0	0	0	321
8:00 PM–9:00 PM	13	6	5	2	0	0	0	0	331
9:00 PM–10:00 PM	5	9	2	4	0	0	0	0	325
10:00 PM–11:00 PM	8	8	3	3	0	0	0	0	325
11:00 PM–12:00 AM	6	6	2	2	0	0	0	0	325

In 2011 Build conditions, the overall on-street parking utilization rate in the study area would increase to approximately 99 percent due to the demand generated by the proposed project during the overnight hours (see Table 16-11). As discussed above, subsequent to the publication of the DEIS, the New York City Department of Sanitation (DOS) has revised the street cleaning regulations in the study area. Some of the alternate-side-of the street cleaning regulations in the study area were changed to the early morning (3 a.m. to 6 a.m.) hours. As a result, the overnight on-street parking capacity decreased from 1,630 to 1,590 vehicles. Though the on-street parking utilization would be high, the local parking supply would be able to accommodate the on-street parking demand generated by the proposed project. Therefore, the proposed project would not significantly impact the supply and demand of on-street parking in the study area.

Table 16-11
2011 Build - Overnight On-Street Parking Utilization

2008 Existing Conditions	
Capacity (spaces)	1590*
Demand (spaces)	1430
Available Spaces (Capacity minus Demand)	160
Utilization	90%
2011 No Build Conditions	
Capacity (spaces)	1590*
2008 Existing	1430
Demand due to Background Growth	43
Parking Demand from No Build Projects	
No Build Residential Projects (95 units)	47
No Build Hotel Project (28 rooms)	4
Total Demand	1524
Available Spaces (Capacity minus Demand)	66
Utilization	96%
2011 Build Conditions	
Capacity (spaces)	1590*
2011 No Build Demand	1524
Parking Demand from Build Project	
2011 Proposed Project	331
On-site Parking Spaces	268
Project-generated On-street Parking Demand	63
Total On-street Parking Demand	1587
Available On-street Parking Spaces (Capacity minus Demand)	3
Utilization	99%

Note:
* In order to provide a conservative analysis, the supply of on-street parking spaces has been reduced by 40 spaces for all time periods to account for the recently implemented early morning street cleaning regulations. These spaces will remain available for use for on-street parking except between the hours of 3 a.m. to 6 a.m.

F. PEDESTRIAN SAFETY

Accident data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the period between October 1, 2004 and

September 30, 2007. The data obtained included a yearly breakdown of total number of pedestrian- and bicycle-related accidents at each location. NYCDOT considers any intersection a high accident location at which five or more pedestrians or cyclists are killed or injured per year.

No study area intersection experienced more than one pedestrian or cyclist killed or injured in any year during the 2004 through 2007 period. Table 16-12 summarizes the accident characteristics by intersection during the study period, as well as, a breakdown of pedestrian and bicycle accidents by year and location.

Table 16-12
Accident Data

Intersections		Accidents by Year											
North-South Roadway	East-West Roadway	Pedestrian				Bicycle				Pedestrian and Bicycle			
		2004	2005	2006	2007	2004	2005	2006	2007	2004	2005	2006	2007
3rd Avenue	Carroll Street	0	0	0	0	0	0	1	1	0	0	1	1
Bond Street	1st Street	0	0	0	0	0	0	0	0	0	0	0	0
Bond Street	2nd Street	0	0	0	0	0	0	0	0	0	0	0	0
Bond Street	3rd Street	0	0	0	0	0	0	0	0	0	0	0	0
Bond Street	4th Street	0	0	0	0	0	0	0	0	0	0	0	0
Bond Street	Carroll Street	0	0	0	0	0	0	0	0	0	0	0	0
Bond Street	President Street	0	0	0	0	0	0	0	0	0	0	0	0
Bond Street	Union Street	0	0	0	0	0	1	1	0	0	1	1	0
Hoyt Street	1st Street	0	0	0	0	0	0	0	0	0	0	0	0
Hoyt Street	2nd Street	0	0	0	0	0	0	0	0	0	0	0	0
Hoyt Street	Carroll Street	0	0	0	0	0	0	0	0	0	0	0	0
Hoyt Street	Sackett Street	0	0	0	0	0	0	0	0	0	0	0	0
Nevins Street	Carroll Street	0	0	0	0	0	0	0	0	0	0	0	0
Nevins Street	President Street	0	0	0	0	0	0	0	0	0	0	0	0
Nevins Street	Union Street	0	0	0	0	1	0	0	0	1	0	0	0
Smith Street	1st Place	0	0	0	1	0	0	0	0	0	0	0	1
Smith Street	2nd Street	0	0	0	0	0	0	0	0	0	0	0	0
Smith Street	Carroll Street	0	1	0	0	0	0	0	0	0	1	0	0
Smith Street	President Street	0	0	0	0	0	0	0	0	0	0	0	0

Source: Accident data obtained from NYSDOT (October 2004 through September 2007).

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