Chapter 13: Traffic and Parking

A. INTRODUCTION

This chapter addresses the potential traffic and parking impacts of the proposed project. The project site, largely occupied by the substantially vacant Kingsbridge Armory, is bounded by West Kingsbridge Road to the south, Jerome Avenue to the east, West 195th Street to the north, and Reservoir Avenue to the west.

The area that surrounds the project site is characterized by a mix of primarily residential, commercial, and educational facilities. The streets bordering the Armory are generally moderately trafficked and uncongested; some locations along Kingsbridge Road are, at times, characterized by double parking, bus and truck loading/unloading, and significant pedestrian activities.

The traffic study area encompasses 25 intersections within approximately one mile of the project site concentrating along the Kingsbridge Road corridor, and other intersections near the project site and on routes leading to the project site. The analyses assess the weekday AM, midday, and PM peak hours, and the Saturday midday peak hour, to determine whether the proposed project's vehicle generated trips would result in any significant adverse impacts at these intersections.

This analysis begins with an assessment of existing traffic and parking conditions; then examines conditions in the future without the proposed project; and then considers the future with the proposed project in 2013, the project's Build year. Potential significant adverse traffic impacts are identified in accordance with 2001 *City Environmental Quality Review* (*CEQR) Technical Manual* guidelines. Traffic capacity improvements needed to mitigate the potential significant adverse traffic impacts are presented in Chapter 19, "Mitigation."

PRINCIPAL CONCLUSIONS

As described in Chapter 1, "Project Description," the reasonable worst-case development scenario (RWCDS) that would result from the proposed project is expected to include a range of small and mid-sized stores serving the surrounding neighborhood, as well as food service and a health club within a 410,475 square foot retail component. Given its mid-level size, the retail use would be characterized overall as a "neighborhood retail center." The program is also anticipated to provide a 1,644-seat movie theater, and 27,000 square feet of community facility space.

The proposed project is expected to generate approximately 243 vehicle trips in the weekday AM peak hour (153 vehicle trips to the project site and 90 away from the project site), 793 vehicle trips in the weekday midday peak hour (432 vehicle trips to the project site and 361 away from the project site), 868 vehicle trips in the weekday PM peak hour (417 vehicle trips to the project site and 451 away from the project site), and 1,307 vehicle trips in the Saturday midday peak hour (677 vehicle trips to the project site and 630 away from the project site).

Of the 25 study area intersections analyzed, the proposed project would create significant traffic impacts at 10 intersections in the weekday AM peak hour, nine in the weekday midday peak hour, 13 in the weekday PM peak hour, and 12 in the Saturday midday peak hour. Traffic capacity improvements that would be needed to mitigate these significant adverse traffic impacts are addressed in Chapter 19, "Mitigation."

As part of the proposed project, geometric changes would be implemented at the intersections of West Kingsbridge Road and Reservoir Avenue/Aqueduct Avenue, and along West 195th Street between Reservoir and Jerome Avenues. These are discussed in detail below in "New Roadway Design."

The proposed project would provide approximately 400 on-site parking spaces. Parking demands would be fully accommodated by the provided parking during the weekday AM, midday and PM peak hours. However, the garage capacity would be exceeded during the Saturday midday peak hour. The shortfall could be partially relieved by the approximately 175 on-street parking spaces available within a ¼-mile radius of the project site and approximately 400 additional spaces available within a ½-mile radius of the project site, as described below.

B. EXISTING CONDITIONS

ROADWAY NETWORK AND TRAFFIC STUDY AREA

The study area consists of a network of local streets through a primarily residential area, with a central corridor of local retail uses along Kingsbridge Road. University Avenue, Jerome Avenue, and the Grand Concourse are major north-south streets that also bring traffic into the area. Fordham Road, a major retail corridor in the Bronx, is located approximately ½- mile south of Kingsbridge Road. The Major Deegan Expressway, located approximately ½-mile west of the project site, is a major highway that serves this area.

Kingsbridge Road extends westward from its intersection with Fordham Road across and under the Grand Concourse (via an underpass), past the project site and major intersections with Jerome Avenue and University Avenue, to Bailey Avenue where it transitions into West 225th Street. Kingsbridge Road generally has two travel lanes and curb parking in each direction in the area near the project site, and to the east and west of the project site. Kingsbridge Road is served by local bus lines, and is characterized by significant pedestrian and commercial activity.

Jerome Avenue extends north-south along the east side of the project site below the elevated No. 4 subway viaduct. Next to the project site, it has one travel lane in each direction between the columns that support the subway viaduct overhead. On the outside of the columns, there is curb parking on each side of the street with a narrow lane between the curb parking lane and the columns that allows for cars to negotiate into parking spaces and provides a very limited ability at intersections for a second travel lane. Jerome Avenue is generally lined with commercial uses. The Jerome Avenue corridor is serviced by local bus lines near the project site.

West 195th Street extends east-west along the north side of the project site, with Public School 86 located on the north side of the street directly across from the project site. West 195th Street generally has one travel lane and curb parking in each direction; parking along the south side of the street (adjacent to the project site) is angle parking, while parking along the north side of the street is the more typical parallel parking. One bus route has stops along West 195th Street.

Reservoir Avenue extends north-south along the west side of the project site, starting at Kingsbridge Road to the south and extending north past Public School 86 and Walton High School to the north. Reservoir Avenue generally carries two travel lanes in each direction with curb parking on both sides of the street.

University Avenue extends north-south and is one of the major feeder routes to and from the area. It generally extends through a heavily residential corridor with some retail uses near major intersections and carries two lanes of traffic plus curb parking in each direction. University Avenue has local bus lines operating along its entire length south of Kingsbridge Road.

The Grand Concourse is a major north-south arterial road traveling throughout the length of the Bronx. Closest to the project site—i.e., in the vicinity of Kingsbridge Road—the Grand Concourse has substantial capacity. Its "mainline" section has two travel lanes in each direction with exclusive left turn lanes at major intersections. Adjacent northbound and southbound "service roads" provide access to the mainline and generally have two additional traffic lanes in each direction with curb parking also available. In the area near East Kingsbridge Road, the Grand Concourse is primarily residential; farther south, near Fordham Road, the Grand Concourse is heavily retail-oriented. The B and D subway lines travel under the Grand Concourse and several local and express bus routes travel along this corridor.

Fordham Road is one of the borough's key east-west roadways, traversing a major retail corridor between University Avenue and areas well east of the Grand Concourse, continuing to the Pelham Parkway area in the East Bronx. Fordham Road extends west into Manhattan across the University Heights Bridge, becoming West 207th Street. Fordham Road generally operates with two travel lanes and curb parking in both directions. In July 2008, the Metropolitan Transit Authority (MTA) introduced Select Bus Service along Fordham Road which provides priority bus lanes during most hours of the business day and other priority treatments for buses, including traffic signal priority at key locations.

Webster Avenue extends north-south through the central Bronx. A distinctive transportation hub is situated at its intersection with East Fordham Road which contains a bus terminal, the Fordham Metro-North train station, and Fordham University. Webster Avenue typically carries two lanes of traffic with curb parking in each direction.

Most other local streets in the study area are residential streets with curb parking on both sides of the street; some streets carry one-way traffic while others carry two-way traffic.

The New York City Department of Transportation (NYCDOT)-designated truck routes in the study area include Jerome Avenue, Fordham Road, Bailey Avenue, Webster Avenue and the Major Deegan Expressway.

The traffic study area analyzed in this chapter includes 25 intersections—11 along Kingsbridge Road, nine along Fordham Road and West 207th Street, one along the Grand Concourse, and four along local roadways near the project site. The traffic analysis locations are shown in **Figure 13-1**.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

Traffic counts were conducted for this EIS in November 2007 for the weekday AM, midday, and PM, and Saturday midday peak periods using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts. Additional traffic counts were performed in November 2008 and incorporated as part of an expanded traffic study area. These volumes were used along with observations of traffic conditions to determine levels of service for the weekday 7:30 to

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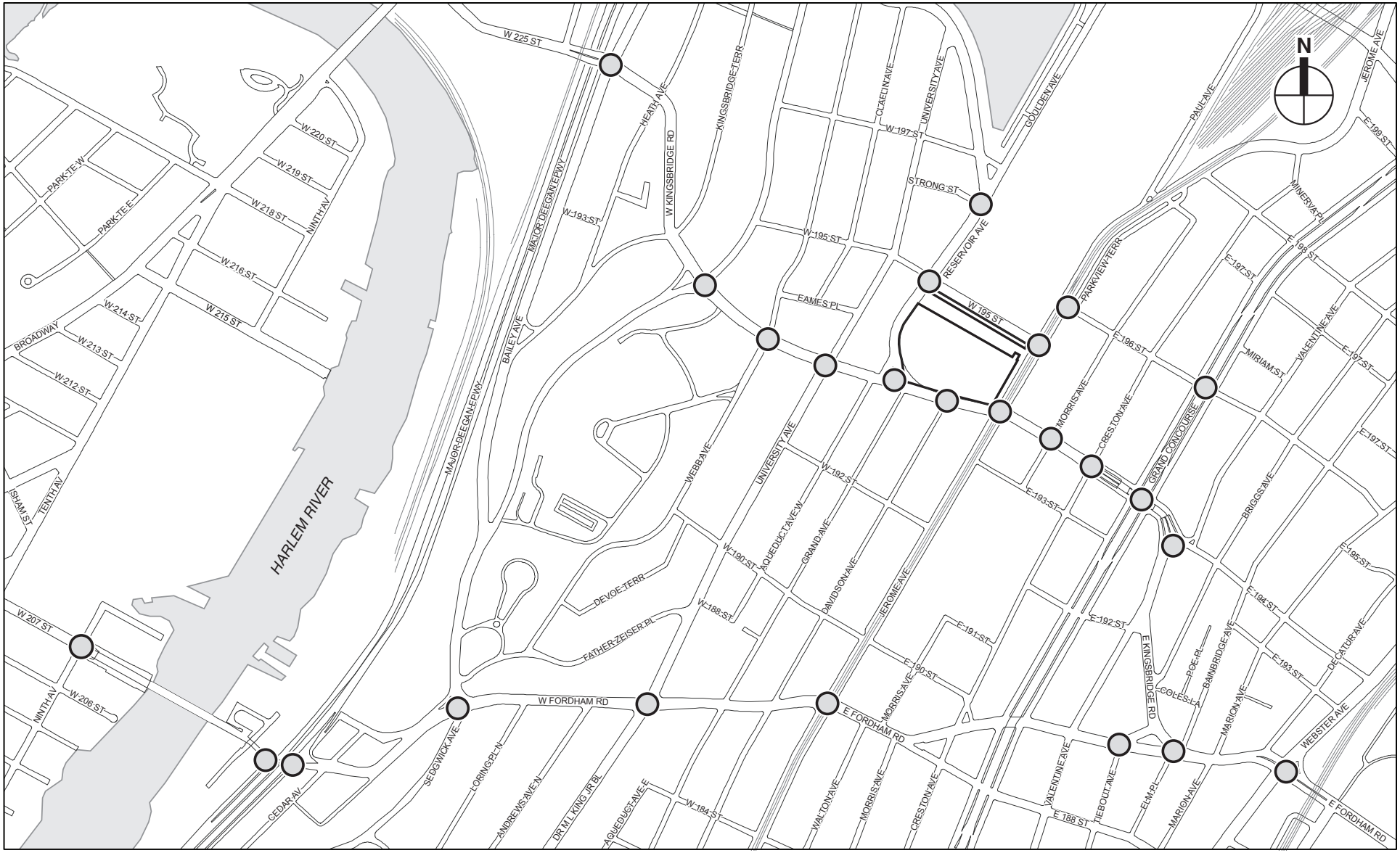

Project Site

Intersection Analyzed

0 500 1000 FEET

SCALE

THE SHOPS AT THE ARMORY

Traffic Study Area

Figure 13-1

8:30 AM, 12:30 to 1:30 PM midday and 4:30 to 5:30 PM peak hours, and for the Saturday 1:00 to 2:00 PM midday peak hour. Levels of service (LOS) were determined using *2000 Highway Capacity Manual (HCM)* procedures, which is the analysis methodology approved for use by NYCDOT and the Department of City Planning (NYCDCP).

For signalized intersections, levels of service are defined in terms of average vehicle control delay, as follows:

- LOS A describes operations with very low delays, i.e., 10.0 seconds or less per vehicle. This occurs when signal progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.
- LOS B describes operations with delays in excess of 10.0 seconds up to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.
- LOS C describes operations with delays in excess of 20.0 seconds up to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is noticeable at this level, although many still pass through the intersection without stopping.
- LOS D describes operations with delays in excess of 35.0 seconds up to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.
- LOS E describes operations with delays in excess of 55.0 seconds up to 80.0 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios.
- LOS F describes operations with delays in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios with cycle failures. Poor progression and long cycle lengths may also contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

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

Table 13-1 provides an overview of the levels of service that characterize existing "overall" intersection conditions during the weekday AM, midday, and PM, and Saturday midday peak hours. Overall levels of service of an intersection represent a weighted average of individual traffic movements' levels of service.

Table 13-1
Existing Traffic Level of Service Summary

Level of Service	Weekday			Saturday
	AM	Midday	PM	Midday
Overall LOS A/B/C	18	23	18	19
Overall LOS D	7	2	6	6
Overall LOS E	0	0	1	0
Overall LOS F	0	0	0	0
Number of movements at LOS E or F (of approximately 143 movements analyzed)	17	4	20	12

This summary overview of existing conditions indicates that:

- In the weekday AM peak hour, none of the 25 intersections analyzed are operating at overall LOS E or F, and seven intersections are operating at marginally acceptable/unacceptable LOS D. "Overall" LOS E or F means that serious congestion exists—either one specific traffic movement has severe delays or two or more of the specific traffic movements at the intersection are at LOS E or F with very significant delays (the overall intersection LOS is a weighted average of all the individual traffic movements). **Figure 13-2** shows the location of these intersections. Seventeen individual traffic movements out of approximately 143 such movements analyzed are at LOS E or F (e.g., left turns from one street to another, through traffic on one street passing through the intersection, etc.).
- In the weekday midday peak hour, all intersections are operating at acceptable levels of service as shown in **Figure 13-3**. Four individual movements operate at LOS E or F.
- In the weekday PM peak hour, one of the analyzed intersections operates at overall LOS E, and six intersections operate at marginally acceptable/unacceptable overall LOS D, as shown in **Figure 13-4**. Twenty individual traffic movements operate at LOS E or F.
- In the Saturday midday peak hour, no intersections operate at overall LOS E or F, and six intersections operate at marginally acceptable/unacceptable overall LOS D as shown in **Figure 13-5**. Twelve individual movements operate at LOS E or F.

Each of the intersections at the four corners of the project site—West Kingsbridge Road at Reservoir and Aqueduct Avenues and at Jerome Avenue, and West 195th Street at Reservoir Avenue and at Jerome Avenue—operate at overall acceptable levels of service during all four traffic analysis hours. Some intersections located at a greater distance from the project site, and which are more heavily trafficked, have some individual traffic movements operating at LOS E or F. These include, for example, specific individual traffic movements at Fordham Road/Jerome Avenue, Fordham Road/University Avenue, Fordham Road/Webster Avenue, Fordham Road at the on- and off-ramps of the Major Deegan Expressway, and West 207th Street/Ninth Avenue.

Detailed traffic levels of service, volume-to-capacity (v/c) ratios, and average vehicle delays for each traffic movement at each traffic study area analysis location are presented at the end of this chapter.

Kingsbridge Road between Bailey Avenue and the Grand Concourse is traveled by approximately 600 to 950 vehicles per hour (vph) in each direction during the weekday AM and PM peak hours. Traffic volumes are lower in the weekday midday and Saturday midday peak hours—about 500 to 800 vph in the eastbound direction, and 450 to 700 vph in the westbound direction.

Jerome Avenue near the project site is traveled by approximately 200 to 350 vph northbound and 300 to 450 vph southbound during all four peak traffic analysis hours.

West 195th Street near the project site is traveled by about 300 vph per direction in the weekday AM peak hour, 100 to 200 vph per direction in the weekday midday peak hour, 200 to 300 vph per direction in the weekday PM peak hour, and about 170 to 200 vph per direction in the Saturday midday peak hour.

Reservoir Avenue near the project site is traveled by approximately 350 to 375 vph per direction in the weekday AM and PM peak hours, and 250 to 300 vph per direction during the weekday and Saturday midday peak hours.

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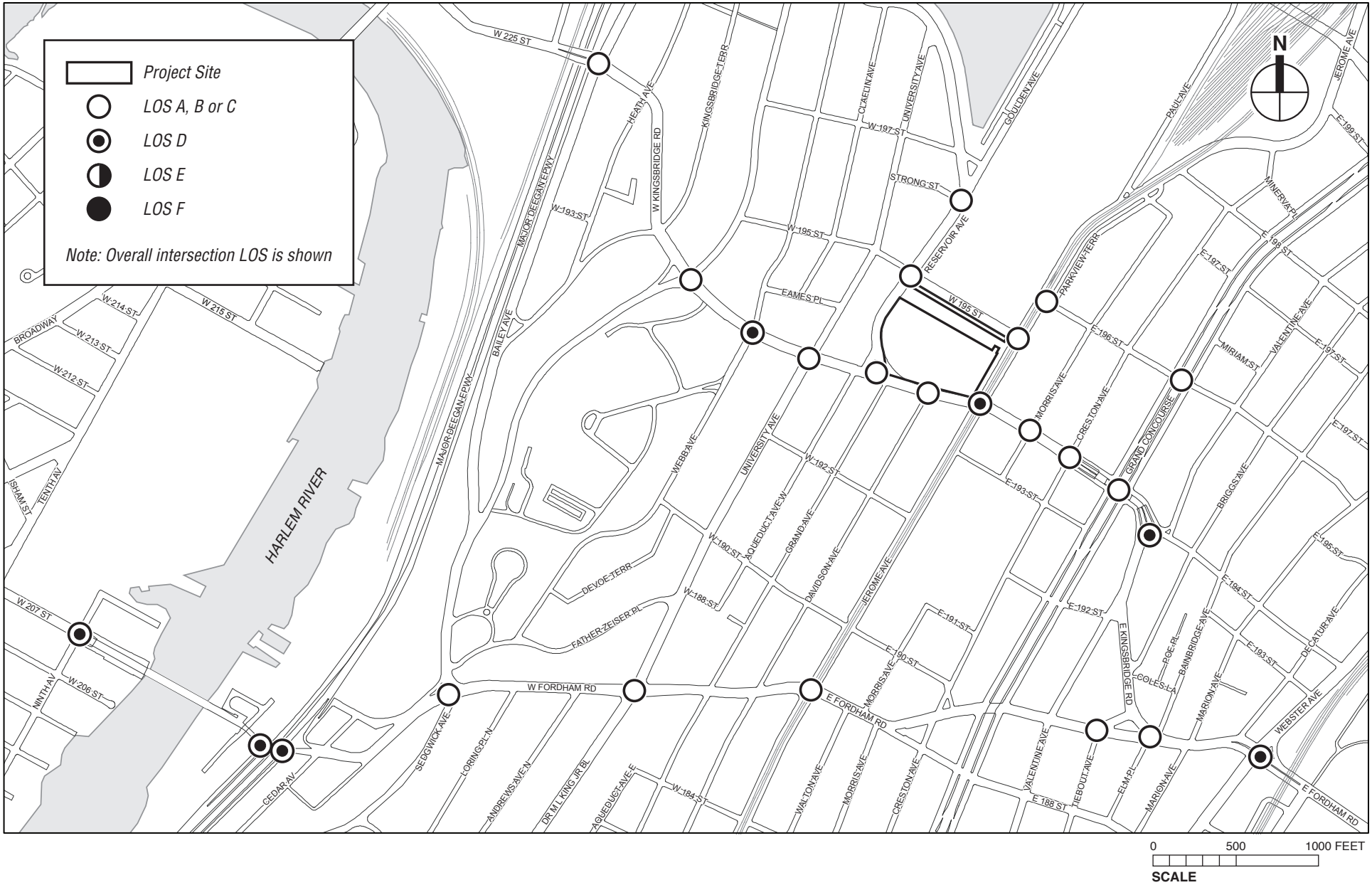

Existing Traffic Levels of Service
Weekday AM Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-2

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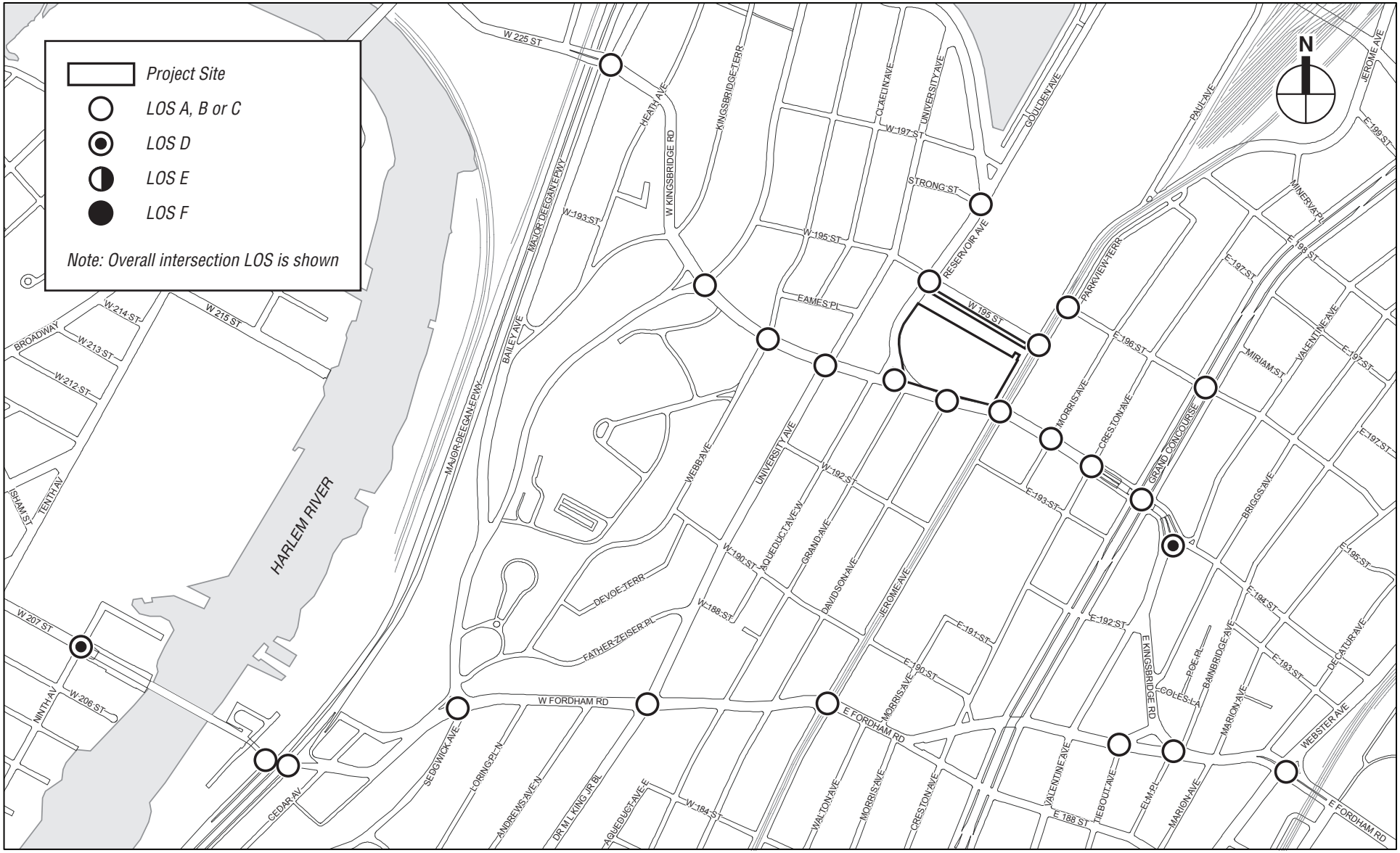
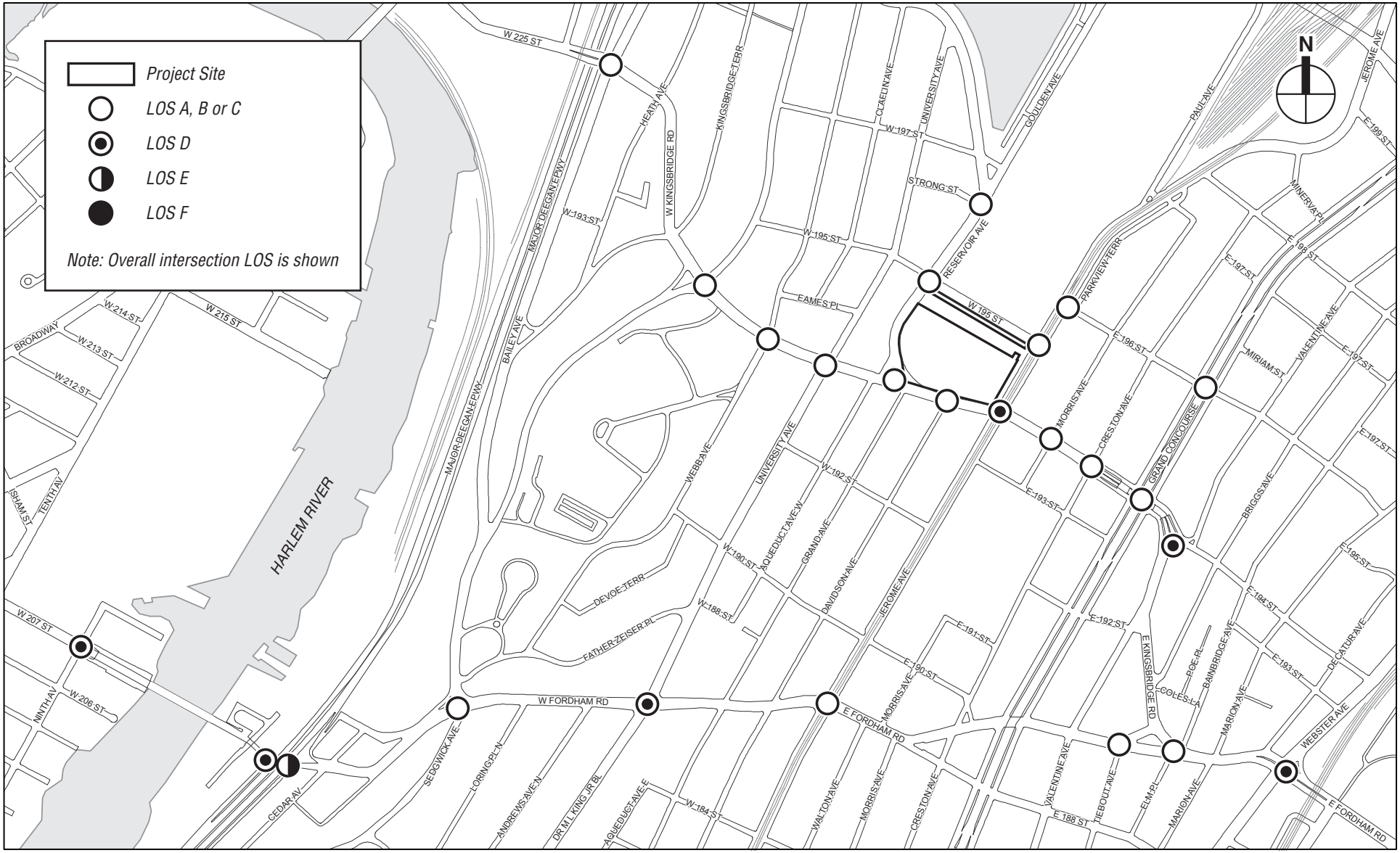


Existing Traffic Levels of Service
Weekday Midday Peak Hour

THE SHOPS AT THE ARMORY

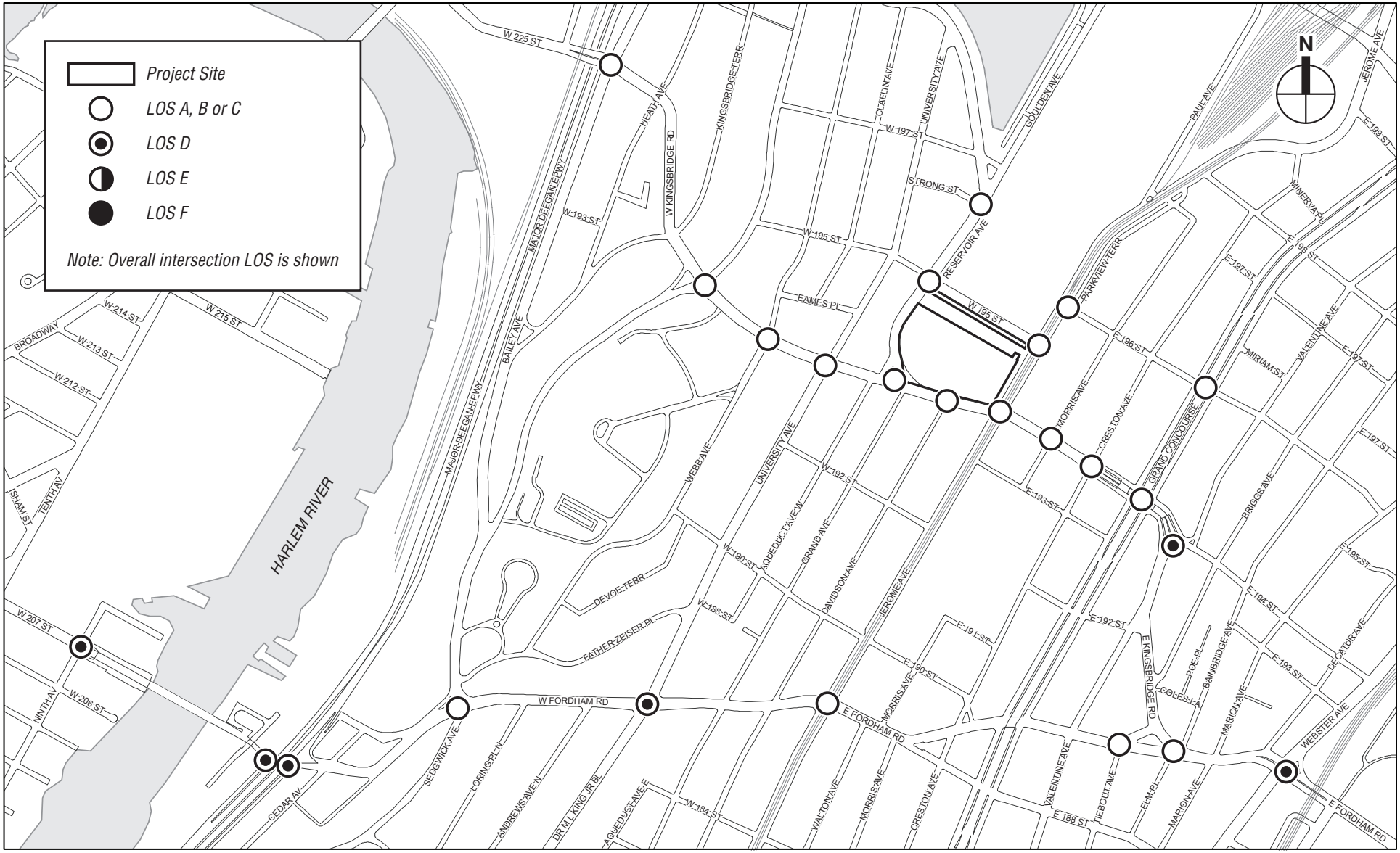
Figure 13-3



Existing Traffic Levels of Service
Weekday PM Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-4



Existing Traffic Levels of Service
Saturday Midday Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-5

Traffic volumes along Fordham Road vary significantly along its length. East of Sedgwick Avenue, traffic volumes in the eastbound direction range from approximately 550 to 930 vph in the weekday AM, midday, and Saturday midday peak hours, and are somewhat higher at approximately 750 to 1,050 vph in the weekday PM peak hour. Westbound volumes along Fordham Road are consistently within the 700 to 1,100 vph range during all four peak hours. Traffic volumes west of Sedgwick Avenue are generally heavier as a result of its proximity to the Major Deegan Expressway. Traffic volumes along Fordham Road between the University Heights Bridge and its intersection with Sedgwick Avenue generally range from approximately 730 vph to 1,130 vph in the eastbound direction and 980 vph to 1,460 vph in the westbound direction throughout the day.

Within the study area, the Grand Concourse consists of a mainline and service roads. Approximately 550 vph and 850 vph travel northbound on the mainline during the weekday AM and PM peak hours, respectively. During the weekday AM peak hour, the southbound mainline is generally traveled by over 1,400 vph and approximately 750 vph during the weekday PM peak hour. Weekday and Saturday midday peak hour volumes are generally in the 350 to 500 vph range in each direction. Service road volumes are generally lower, with approximately 380 vph and 530 vph northbound in the weekday AM and PM peak hours, respectively. During the weekday AM peak hour, the southbound service road is traveled by approximately 600 vph, while approximately 500 to 600 vph travel southbound in the weekday PM peak hour. Similar to the mainline, service road volumes are generally consistent throughout the weekday and Saturday midday peak hours with approximately 300 to 450 vph in each direction.

PARKING

A detailed inventory of on-street parking and off-street public parking lots and garages was conducted within approximately ¼-mile (a five-minute walk) of the project site on a typical weekday and Saturday. There are no public parking lots or garages in this area; there is only one metered parking area in the "median" of Kingsbridge Road just west of the Grand Concourse between the Grand Concourse and the underpass, which has a capacity of 14 spaces. Of the 14 spaces available, about five spaces are occupied throughout the day. All other parking lots and garages were either outside of the ¼-mile radius or for private use only.

On-street parking regulations, capacities, and occupancies were also inventoried for the same ¼-mile study area on a block-by-block basis. Metered spaces are found along Creston Avenue between 192nd Street and 191st Street, along Jerome Avenue between 196th Street and 190th Street, and along Kingsbridge Road between Sedgwick Avenue and Creston Avenue. There are a total of 2,551 (164 metered and 2,387 non-metered) legal on-street parking spaces, out of which approximately 85 percent are occupied during the weekday AM peak period. The occupancy generally increases throughout the day with approximately 92 percent of the on-street spaces being occupied during the weekday midday peak period and approximately 93 percent occupancy during the PM peak period. During the Saturday midday peak period, approximately 92 percent of on-street parking is occupied.

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

BACKGROUND DEVELOPMENTS AND TRIP GENERATION

Future conditions without the proposed project, i.e., future No Build conditions, are established in order to provide the baseline against which the impacts of the proposed project can be

compared and to account for changes in traffic conditions between existing conditions and the future analysis year. Future year conditions were analyzed for 2013. Future No Build traffic volumes were developed by applying a background traffic growth rate of 0.5 percent per year, as stated in the *CEQR Technical Manual* for the Bronx, and by adding trips expected to be generated by development projects located within ¼-mile of the project site that are expected to be built and occupied by 2013.

A list of background developments expected to be built in the Kingsbridge area by 2013 is provided in **Table 13-2** and are shown in **Figure 13-6**. Trip generation and traffic assignments were developed for these background projects.

Table 13-2
Background Development Projects

Site No.	Project Name/Address	Status/Anticipated Completion Year	Residential (Units)	Community Facility (sf)
1	2763 Morris Avenue	Scheduled for completion in 2009	72	16,407
2	2516 Grand Avenue	Scheduled for completion in 2010	57	
3	3552 Webb Avenue	Unknown	72	
Total			**201**	**16,407**
Source: New York City Department of City Planning, 2008				

Overall, approximately 201 dwelling units and 16,407 square feet of community facility space are assumed to be built by 2013. As a result of these developments, 41 vph, 20 vph, 57 vph and 63 vph are expected to be added to the street network during the weekday AM, midday, PM, and Saturday midday peak hours, respectively. A summary of vehicle trips generated by these developments is provided in **Table 13-3**.

Table 13-3
Projected Vehicle Trip Generation from Background Development Projects

		AM Peak Hour		Midday Peak Hour		PM Peak Hour		Saturday Midday Peak Hour	
Map No.	Project	In	Out	In	Out	In	Out	In	Out
1	2763 Morris Avenue	5	12	5	5	13	9	15	11
2	2516 Grand Avenue	3	8	2	2	9	6	9	8
3	3552 Webb Avenue	3	10	3	3	11	7	11	9
Total		11	30	10	10	33	24	35	28

No Build project-generated trips were assigned to the roadway network and, together with the annual background traffic growth, constitute the 2013 No Build traffic volume baseline. Detailed No Build traffic volume maps are provided in **Appendix B**.

The traffic analyses for the 2013 No Build conditions include changes due to the implementation of the Bx12 Select Bus Service (SBS) along the Fordam Road corridor by the MTA in July 2008. Changes along this corridor include: elimination of the Bx12 Limited bus service; modifications to the Bx12 bus schedule; new bus stops for the Bx12 SBS; additional parking prohibitions; and extension of the exclusive bus lane along the Fordham Road corridor. The No Build condition also incorporates: the installation of Class II bike lanes along the Grand Concourse service roads as part of the New York City Bicycle Master Plan; safety improvements along Fordham Road at its intersections with University Avenue and Sedgwick Avenue which includes the installation of pedestrian refuge areas and lane restriping; and changes to the signal phasing at the intersection of West Fordham Road and University Avenue.

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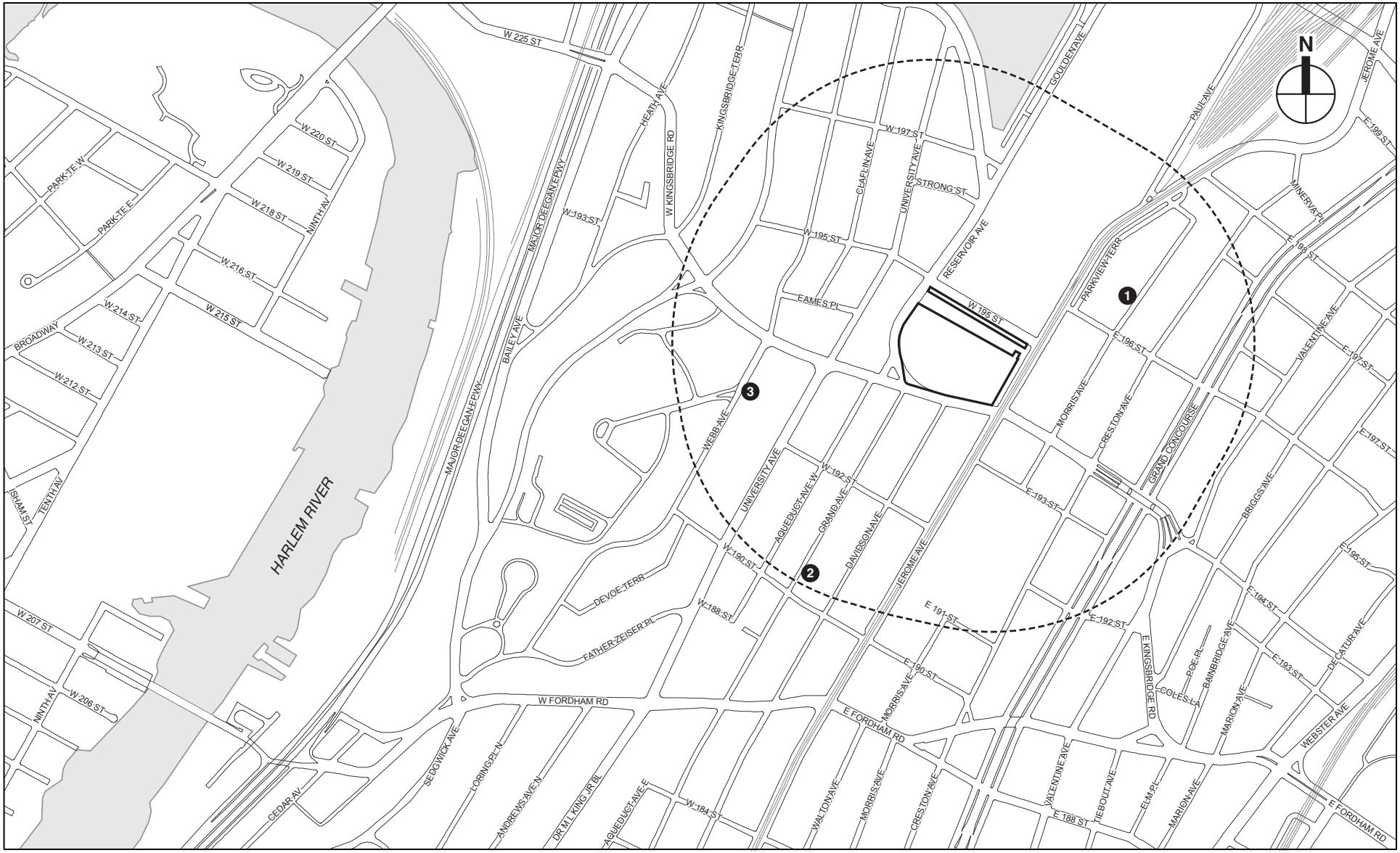

Project Site

Study Area Boundary (1/4-Mile Perimeter)

❶ *No Build Project Site*

0 500 1000 FEET

SCALE

Background Development Projects

Figure 13-6

THE SHOPS AT THE ARMORY

NO BUILD VOLUMES AND LEVELS OF SERVICE

Projected traffic volume increases in the study area roadway network due to the cumulative effect of background projects and the annual growth in background traffic are quantified and discussed below.

Traffic volumes along Kingsbridge Road are expected to increase by approximately 20 to 40 vph in each direction during the weekday AM, PM, and Saturday midday peak hours. During the weekday midday peak hour, traffic volumes are expected to increase by approximately 15 to 30 vph in each direction.

Jerome Avenue traffic volumes near the project site are expected to increase by approximately 10 to 15 vph in the northbound direction and 15 to 25 vph in the southbound direction for the all peak hours analyzed.

Traffic volumes along West 195th Street and Reservoir Avenue adjacent to the project site are expected to generally be less than 15 vph per direction during all peak hours.

Fordham Road traffic volumes are expected to increase by approximately 15 to 35 vph in the eastbound direction and approximately 20 to 50 vph in the westbound direction for all peak hours.

Traffic volumes along the Grand Concourse mainline are expected to increase by approximately 15 to 30 vph for the northbound direction for all peak hours. In the southbound direction, expected traffic volume increases would generally range from 10 to 25 vph during the weekday midday, PM, and Saturday midday peak hours; traffic volumes are expected to increase by approximately 45 vph during the weekday AM peak hour. Along the service road, an increase of approximately 10 to 20 vph is expected in each direction.

Based on these traffic volume increases, future No Build traffic levels of service were determined for the 25 analysis locations. Generated traffic volume increment maps and total Build volume maps are provided in **Appendix** B. **Table 13-4** shows a comparison of traffic levels of service for existing and future No Build conditions. **Figures 13-7 through 13-10** provide an illustrative overview of overall intersection traffic levels of service throughout the study area.

Table 13-4
Traffic Level of Service Summary Comparison
Existing vs. Future No Build Conditions (2013)

	Existing				2013 No Build			
	AM	Midday	PM	Saturday Midday	AM	Midday	PM	Saturday Midday
Overall LOS A/B/C	18	23	18	19	15	20	14	18
Overall LOS D	7	2	6	6	8	5	6	6
Overall LOS E	0	0	1	0	2	0	5	1
Overall LOS F	0	0	0	0	0	0	0	0
Number of movements at LOS E or F (of approximately 146 movements analyzed)	17	4	20	12	23	9	25	18

This summary overview of future No Build conditions indicates that:

- In the AM peak hour, two of the 25 study area intersections analyzed would operate at overall LOS E, and eight intersections would operate at marginally acceptable/unacceptable

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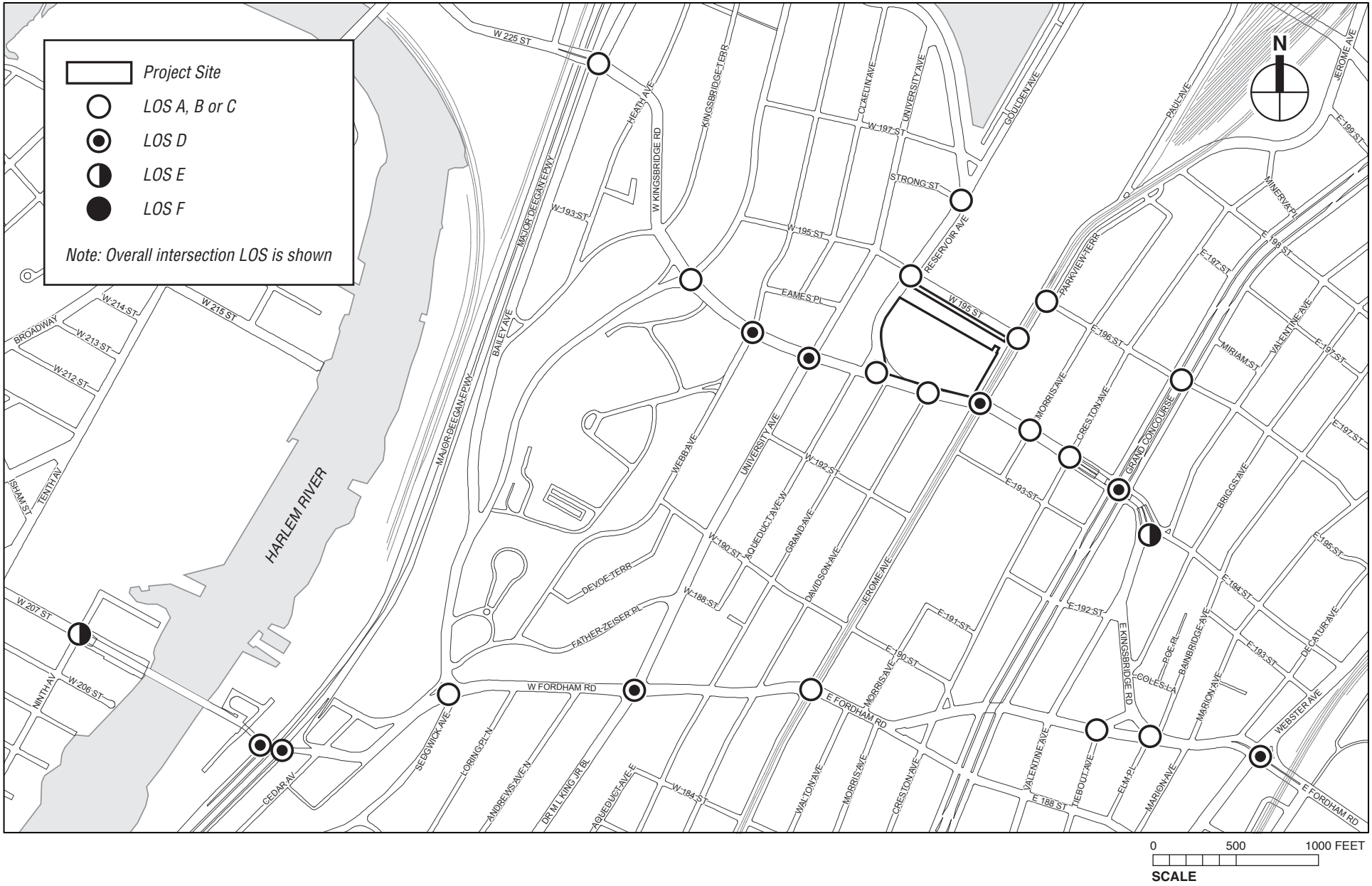

No Build Traffic Levels of Service
Weekday AM Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-7

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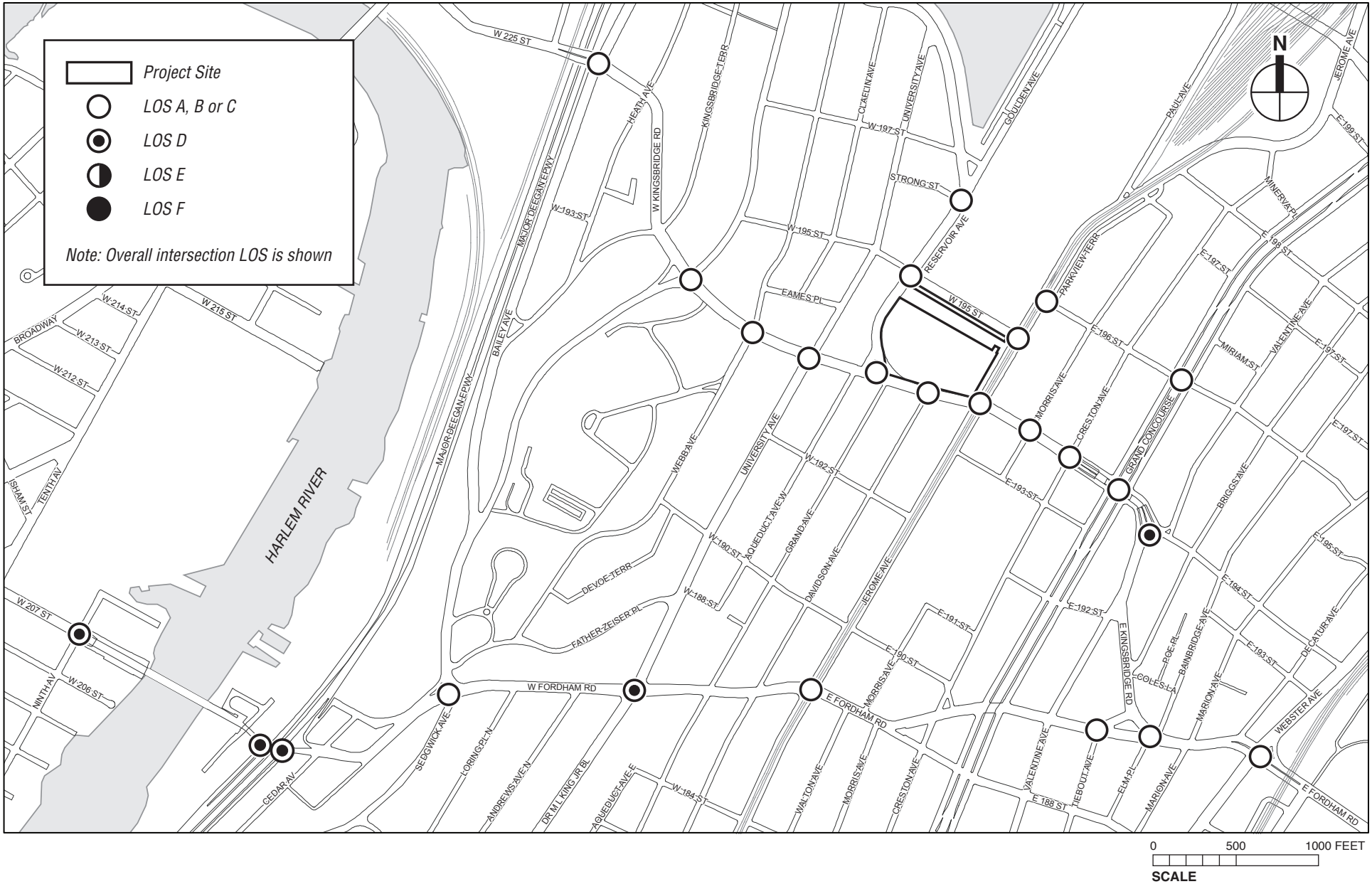

No Build Traffic Levels of Service
Weekday Midday Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-8

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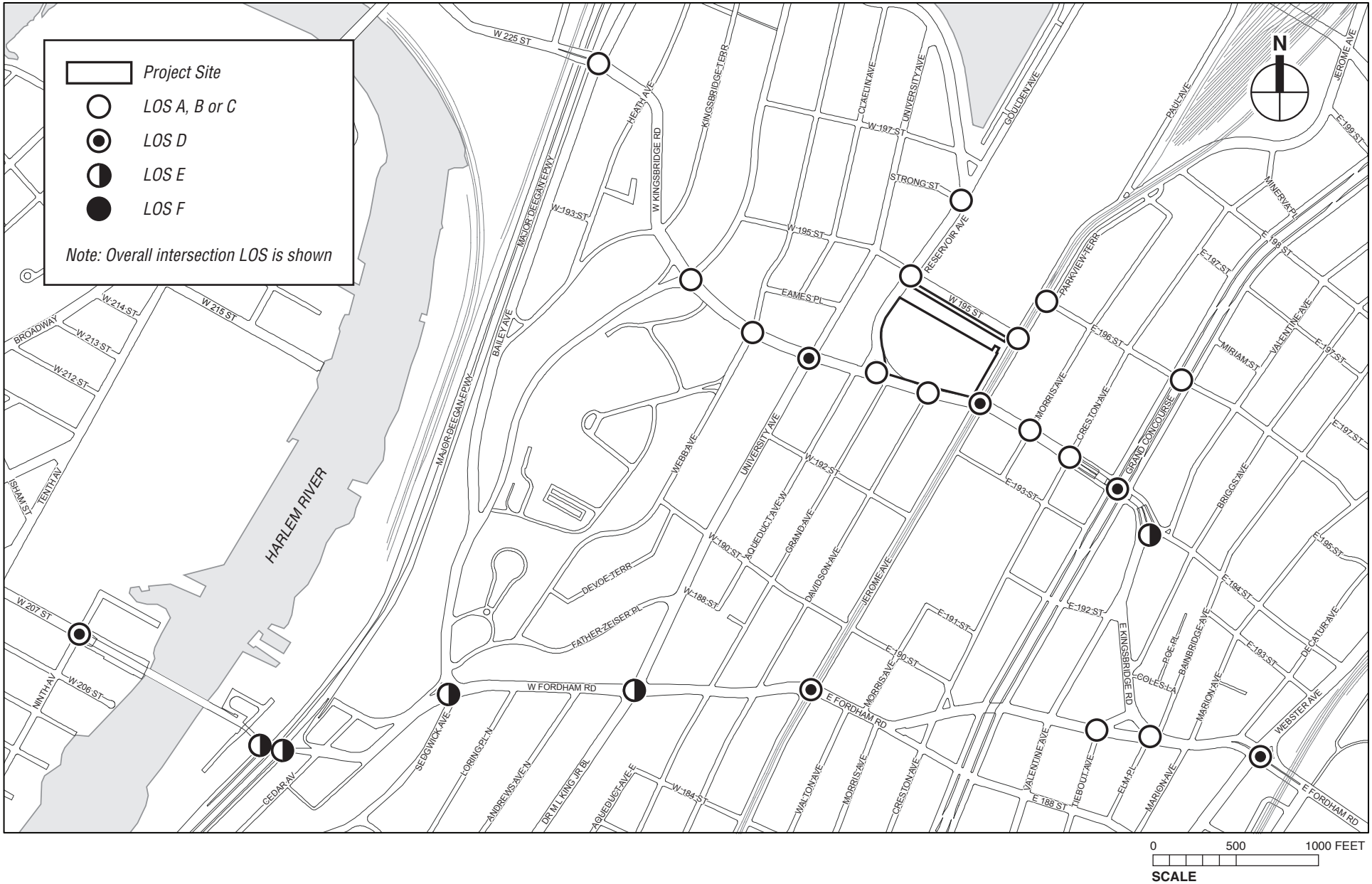

No Build Traffic Levels of Service
Weekday PM Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-9

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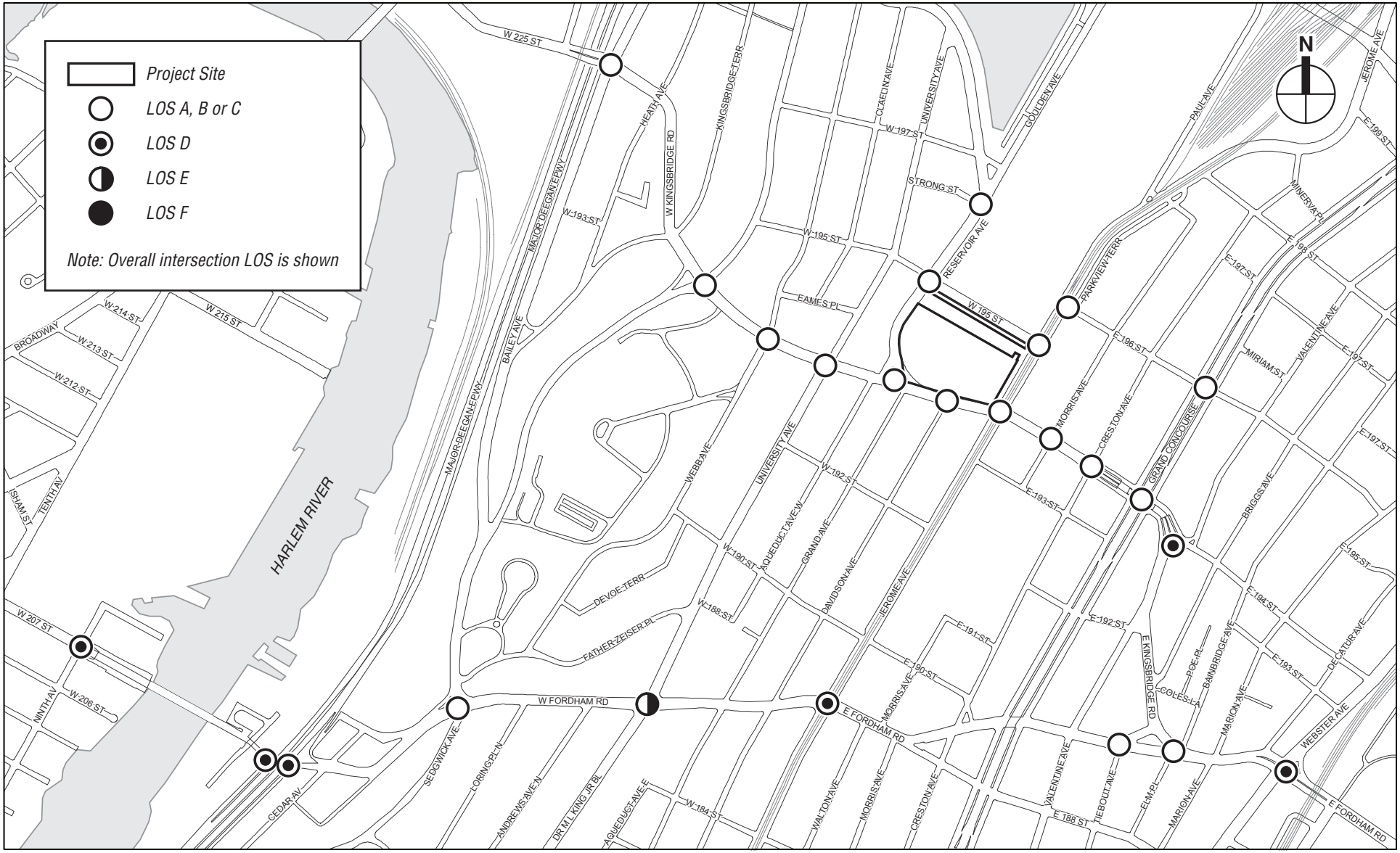


No Build Traffic Levels of Service
Saturday Midday Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-10

LOS D as shown in **Figure 13-7**. Twenty-three individual traffic movements out of approximately 146 movements analyzed would operate at LOS E or F as compared to 17 in the existing condition.

- In the midday peak hour, five of the intersections analyzed would operate at marginally acceptable/unacceptable LOS D and no intersections would operate at LOS E or F, as shown in **Figure 13-8**. Nine individual movements would operate at LOS E or F as compared to four in the existing condition.
- In the PM peak hour, five intersections would operate at LOS E, and six intersections would operate at marginally acceptable/unacceptable LOS D, as shown in **Figure 13-9**. Twenty-five individual traffic movements would operate at LOS E or F as compared to 20 in the existing condition.
- In the Saturday midday peak hour, one intersection would operate at LOS E, and six intersections would operate at marginally acceptable/unacceptable LOS D, as shown in **Figure 13-10**. Eighteen individual movements would operate at LOS E or F as compared to 12 in the existing condition.

The overall levels of service would thus be expected to deteriorate slightly for the No Build conditions as compared to the existing conditions since increases in background growth would be relatively modest.

PARKING

To estimate future parking conditions, existing occupancy at public parking facilities and on-street parking was increased by the background traffic growth rate of 0.5 percent per year. Vehicle trips generated by No Build project sites within the study area were assumed to park on-street.

Available on-street parking is expected to decrease under future No Build conditions due to the projected increase of traffic in the area. Under the No Build conditions, approximately 87 percent of the on-street parking is expected to be occupied during the weekday AM peak hour. The on-street occupancy would increase to about 94 to 96 percent during the weekday midday, PM, and Saturday midday peak hours.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

This section presents an analysis of future traffic and parking conditions under Build conditions in 2013. As described in Chapter 1, "Project Description," the reasonable worst-case development scenario (RWCDS) that would result from the proposed project is expected to include a range of small and mid-sized stores serving the surrounding neighborhood, as well as food service and a health club within a 410,475 square foot retail component. Given its mid-level size, the retail use would be characterized overall as a "neighborhood retail center." The program is also anticipated to provide a 1,644-seat movie theater, and 27,000 square feet of community facility space. This section includes a determination of the volume of vehicle trips generated under the Build conditions, their distribution within the study area roadway network, the analysis of future traffic levels of service, the identification of significant impacts as per *CEQR Technical Manual* guidelines, and hour-by-hour parking accumulation estimates for the proposed project. Mitigation measures are discussed in Chapter 19, "Mitigation."

TRIP GENERATION AND MODAL SPLIT

To estimate the volume of traffic generated by the proposed project during the traffic peak hours, a detailed trip generation analysis was performed. Travel demand factors used to calculate the projected number of trips were obtained primarily from previous EIS studies (such as *Plaza at the Hub EAS* [2005], *Willets Point Development Plan FGEIS* [2008], the *CEQR Technical Manual*, U.S. Census 2000 data, and reasonable planning assumptions. Travel demand factors used to calculate trips generated by each of these land uses are summarized in **Table 13-5 and 13-6** and described in detail below.

Table 13-5
Weekday Travel Demand Characteristics: Build Condition

Rates	Destination Retail	Movie Theatre	Community Facility
Size	410,475 SF	1,644 seats	27,000 SF
Person Trip Generation Rate	89.9[5] per 1,000 SF	3.26[1] per seat	34.0[4] per 1,000 SF
Temporal Distribution			
AM Peak	2.4%[5]	1.0%[4]	7.2%[4]
Midday Peak	8.7%[5]	3.0%[4]	7.1%[4]
PM Peak	8.9%[5]	8.0%[4]	8.3%[4]
Modal Split (AM/MD/PM)			
Auto	40.0%[2,5]	56.0%[4]	27.0%[3]
Taxi	3.0%[2,5]	7.0%[4]	3.0%[3]
Subway	15.0%[2,5]	18.0%[4]	46.0%[3]
Bus	14.0%[2,5]	8.0%[4]	15.0%[3]
Walk Only	28.0%[2,5]	11.0%[4]	9.0%[3]
Vehicle Occupancy			
Auto	2.00[5]	2.52[4]	1.25[3]
Taxi	2.00[5]	2.30[4]	1.50[4]
Directional Split (Ins)			
AM Peak	61.0%[5]	95.0%[4]	94.0%[4]
Midday Peak	55.0%[5]	62.0%[4]	45.0%[4]
PM Peak	47.0%[5]	54.0%[4]	42.0%[4]
Truck Trip Generation Rate	0.35[5] per 1,000 SF	0.02[4] per seat	0.38[4] per 1,000 SF
Truck Temporal Distribution			
AM Peak	8.0%[5]	12.0%[4]	6.0%[4]
Midday Peak	11.0%[5]	11.0%[4]	11.0%[4]
PM Peak	2.0%[5]	1.0%[4]	1.0%[4]
Truck Trip Directional Split (Ins)			
AM Peak	50.0%	50.0%	50.0%
Midday Peak	50.0%	50.0%	50.0%
PM Peak	50.0%	50.0%	50.0%

Notes:
Trip Generation References
(1) *CEQR Technical Manual*
(2) Modal Splits adjusted for local transportation conditions
(3) 2000 US Census "Journey to Work" data
(4) *Willets Point Development Plan FGEIS* (2008): CEQR # 07DME014Q
(5) *Plaza at the HUB EAS* (2005): CEQR # 06DME005X

Table 13-6
Saturday Midday Travel Demand Characteristics: Build Condition

Rates	Destination Retail	Movie Theatre	Community Facility
Size	410,475 SF	1,644 seats	27,000 SF
Person Trip Generation Rate	119.1[5] per 1,000 SF	6.25[4] per seat	34.0[4] per 1,000 SF
Temporal Distribution			
	11.5%[4]	5.0%[4]	14.1%[4]
Modal Split			
Auto	43.0%[2,5]	56.0%[4]	27.0%[3]
Taxi	5.0%[2,5]	7.0%[4]	3.0%[3]
Subway	9.0%[2,5]	18.0%[4]	46.0%[3]
Bus	18.0%[2,5]	8.0%[4]	15.0%[3]
Walk Only	25.0%[2,5]	11.0%[4]	9.0%[3]
Vehicle Occupancy			
Auto	2.49[4]	2.52[4]	1.25[3]
Taxi	2.49[4]	2.30[4]	1.50[4]
Directional Split (Ins)			
	51.0%[4]	62.0%[4]	49.0%[4]
Truck Trip Generation Rate	0.04[4] per 1,000 SF	0.00[4] per seat	0.00[4] per 1,000 SF
Truck Temporal Distribution			
	11.0%[4]	0.0%[4]	0.0%[4]
Truck Trip Directional Split (Ins)			
	50.0%	50.0%	50.0%

Notes:
Trip Generation References
(1) *CEQR Technical Manual*
(2) Modal Splits adjusted for local transportation conditions
(3) 2000 US Census "Journey to Work" data
(4) *Willets Point Development Plan FGEIS* (2008): CEQR # 07DME014Q
(5) *Plaza at the HUB EAS* (2005): CEQR # 06DME005X

DESTINATION RETAIL

For the destination retail component, trip generation rates of 89.9 daily person trips per 1,000 square feet for weekday and 119.1 daily person trips per 1,000 square feet for Saturday were obtained from the *Plaza at the Hub EAS*. Vehicle occupancy for the weekday (2.00 persons per auto and per taxi) and Saturday (2.49 persons per auto and per taxi) were obtained from the *Plaza at the Hub EAS* and the *Willets Point Development Plan FGEIS*, respectively. The weekday modal split of 40 percent by auto, 3 percent by taxi, 15 percent by subway, 14 percent by bus, and 28 percent by walk, and Saturday modal split of 43 percent by auto, 5 percent by taxi, 9 percent by subway, 18 percent by bus, and 25 percent by walk were obtained from the *Plaza at the Hub EAS*, and adjusted to reflect a higher household auto ownership in the Kingsbridge Armory study area as compared to the *Plaza at the Hub EAS* study area. Weekday temporal distributions (2.4 percent, 8.7 percent, and 8.9 percent) and directional distributions (61 percent "in," 55 percent "in," and 47 percent "in") during the AM, midday and PM peak hours, respectively, were obtained from the *Plaza at the Hub EAS.* For the Saturday midday peak hour, a temporal distribution of 11.5 percent, and a directional distribution of 51 percent "in," were obtained from the *Willets Point Development Plan FGEIS.*

For delivery trips, a weekday trip generation rate of 0.35 daily trips per 1,000 square feet and a temporal distribution of 8 percent, 11 percent, and 2 percent during the weekday AM, midday, and PM peak hours, respectively, were obtained from the *Plaza at the Hub EAS*. A Saturday trip generation rate of 0.04 daily trips per 1,000 square feet, and temporal distribution of 11 percent, were obtained from *Willets Point Development Plan FGEIS*.

MOVIE THEATRE

The weekday person trip generation rate of 3.26 person trips per seat for the project's movie theater component is based on the information presented in the *CEQR Technical Manual*; the Saturday trip generation rate of 6.25 per seat is based on information presented in the *Willets Point Development Plan FGEIS*. Vehicle occupancy (2.52 persons per auto and 2.30 per taxi) and modal splits of 56 percent by auto, 7 percent by taxi, 18 percent by subway, 8 percent by bus, and 11 percent by walk were based on the *Willets Point Development Plan FGEIS*. Temporal distributions (1 percent, 3 percent, 8 percent, and 5 percent during the weekday AM, midday, PM, and Saturday midday peak hours, respectively), and directional distributions (95 percent "in," 62 percent "in," 54 percent "in", and 62 percent "in" during the weekday AM, midday, PM, and Saturday midday peak hours, respectively) were also obtained from the *Willets Point Development Plan FGEIS*.

For delivery trips, a weekday trip generation rate of 0.02 daily trips per 1,000 square feet and a temporal distribution of 12 percent, 11 percent, and 1 percent during the weekday AM, midday, and PM peak hours, respectively, were obtained from the *Willets Point Development Plan FGEIS*.

COMMUNITY FACILITY

To calculate trips generated by community facility space, a weekday and Saturday trip generation rate of 34 daily person trips per 1,000 square feet was obtained from the *Willets Point Development Plan FGEIS*. Vehicle occupancy (1.25 persons per auto and 1.5 per taxi), and modal splits of 27 percent by auto, 3 percent by taxi, 46 percent by subway, 15 percent bus, and 9 percent by walk were based on U.S. Census journey-to-work data. Temporal distribution (7.2 percent, 7.1 percent, 8.3 percent, and 14.1 percent during the weekday AM, midday, PM, and Saturday midday peak hours, respectively), and directional split (94 percent "in," 45 percent "in," 42 percent "in", and 49 percent "in" during the weekday AM, midday, PM, and Saturday midday peak hours, respectively) were all obtained from the *Willets Point Development Plan FGEIS*.

For delivery trips, a weekday trip generation rate of 0.38 daily trips per 1,000 square feet and a temporal distribution of 6 percent, 11 percent, and 1 percent during the weekday AM, midday, and PM peak hours, respectively, were obtained from the *Willets Point Development Plan FGEIS*.

GENERATED TRAFFIC VOLUMES

As shown in **Table 13-7**, the proposed project would generate a total of 243 vehicles per hour (vph), 793 vph, 868 vph, and 1,307 vph during the weekday AM, midday, PM, and Saturday midday peak hours, respectively.

TRIP DISTRIBUTION AND ASSIGNMENT

The volume of vehicular traffic generated by the RWCDS was assigned to the roadway network. A description of vehicular traffic assignments (for autos, taxis, and trucks) is provided below.

Table 13-7
2013 Build Vehicle Trip Generation

Use	Weekday AM			Weekday Midday			Weekday PM			Saturday Midday		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Autos/Trucks												
Retail	114	75	189	361	297	658	310	349	659	496	477	973
Movie Theatre	14	3	17	24	15	39	52	44	96	71	43	114
Community facility	14	1	15	7	9	16	7	10	17	14	14	28
Taxis (all uses)	11	11	22	40	40	80	48	48	96	96	96	192
Total	**153**	**90**	**243**	**432**	**361**	**793**	**417**	**451**	**868**	**677**	**630**	**1,307**

AUTOS

Destination Retail/Movie Theatre

Destination retail and movie theatre trips would be expected to draw consumers from within a three-mile radius of the project site; therefore the vast majority of the trips are expected to come from the Bronx (89 percent) with some trips expected to come from Westchester County (two percent) and Manhattan (eight percent). In total, the traffic assignments assume that 24 percent would use Fordham Road/West 207th Street, 22 percent would use either Jerome Avenue or the Grand Concourse, 14 percent would use University Avenue, seven percent would arrive via the Major Deegan Expressway, six percent would use Bedford Park Boulevard, and the remaining 27 percent would travel along local roadways such as Sedgwick Avenue, Bailey Avenue, Reservoir Avenue, Grand Avenue, Davidson Avenue, East 196th Street and East 198th Street. Reverse trips are expected to return along the same general routes on which they arrived.

Community Facility

Community facilities are expected to serve the immediate surrounding area. Therefore, auto trips were generally assigned from local origins within the neighborhood and adjacent residential areas. Auto trips were assigned to the site along the key roadways of Grand Concourse, Jerome Avenue, and University Avenue, and local roadways within the area. Departing community facility trips were assigned along the same routes as arrivals.

TAXIS

The majority of taxi pick-ups and drop-offs for all land uses were assigned to the designated taxi pick-up/drop-off area along Reservoir Avenue; other taxi trips were assigned to pick up and drop off at the other site entrances along East Kingsbridge Road and Jerome Avenue.

TRUCKS

Truck delivery trips for all land uses were assigned to NYCDOT-designated truck routes. Trucks were assigned to the study area from regional origins via the Major Deegan Expressway, Fordham Road, University Avenue, Jerome Avenue, and Bailey Avenue. Trucks were assigned along regional and local truck routes as long as possible until reaching the project site.

SITE ACCESS

The access plan provides two vehicular entrances/exits along Reservoir Avenue—one would provide direct access for autos entering/exiting the parking garage; the second would enable

trucks to access the loading/unloading areas. A taxi pick-up/drop-off zone would also be designated along the east curb of Reservoir Avenue. There would be four pedestrian entry/exit points—one each along West Kingsbridge Road and Reservoir Avenue, and two additional entrances/exits along Jerome Avenue. The entrances/exits along West Kingsbridge Road and Jerome Avenue are all very close to the No. 4 subway station and would serve as the main pedestrian entry/exit points.

NEW ROADWAY DESIGN

As part of the proposed project, geometric changes would be implemented at the intersection of West Kingsbridge Road and Reservoir Avenue/Aqueduct Avenue. Other geometric changes that may occur simultaneous to this project include the narrowing of the roadway width along West 195th Street between Reservoir Avenue and Jerome Avenue. **Figure 13-11** shows the proposed changes.

WEST KINGSBRIDGE ROAD AND RESERVOIR AVENUE/AQUEDUCT AVENUE

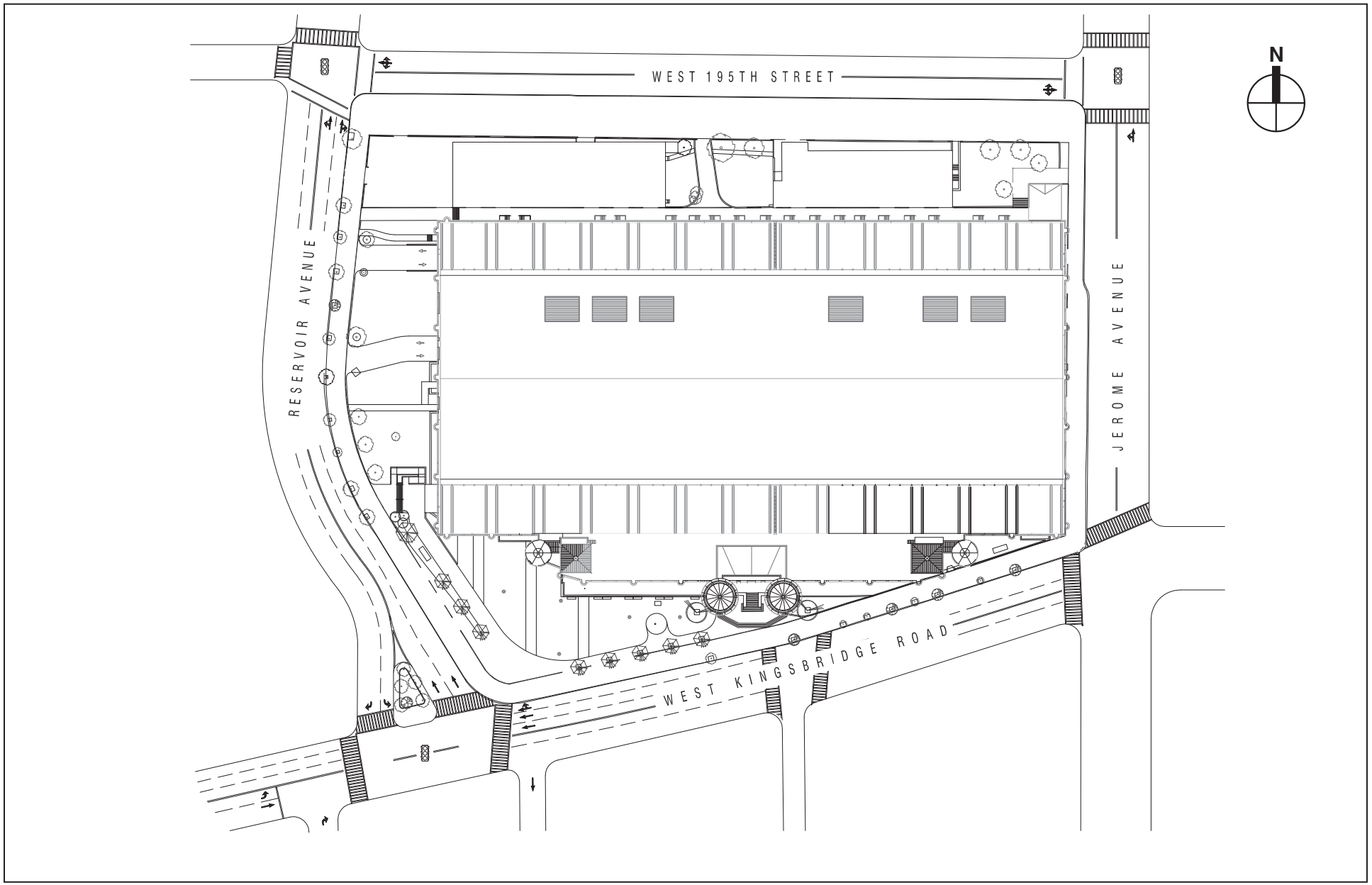
An approximately 30,000-square-foot public open space would be developed at the northeast corner of the intersection of West Kingsbridge Road and Reservoir Avenue/Aqueduct Avenue. As part of this effort, the intersection has been redesigned to improve traffic operations after a series of working meetings with NYCDOT and their concurrence with the proposed modifications described below:

- The curb along the northeast corner would be smoothed out to accommodate right turns from westbound West Kingsbridge Road.
- The existing traffic island (i.e., also known as "Barnhill Triangle") on the north side of West Kingsbridge Road, would be narrowed and would continue to separate the northbound and southbound traffic flows along Reservoir Avenue. The eastern curb of this traffic island would also be smoothed out to accommodate left turns from eastbound West Kingsbridge Road.
- The sidewalk along the west side of Reservoir Avenue would be extended outward to the east to better accommodate pedestrians.
- The stop bar for westbound West Kingsbridge Road would be relocated further east of the turn onto northbound Reservoir Avenue, and the stop bar for eastbound West Kingsbridge Road would be relocated slightly to the east just past Aqueduct Avenue.
- Left turns from northbound Aqueduct Avenue would be prohibited to minimize conflicts with other traffic; only right turns would be allowed.
- Signal phasing and timing modifications, parking prohibitions, crosswalk relocations, and lane restripings are also proposed.

The intent of these measures is to better accommodate vehicular traffic flow (especially left turns from West Kingsbridge Road onto northbound Reservoir Avenue) to the project site and to other destinations to the north; and, to improve pedestrian conditions, crossings, and safety.

WEST 195TH STREET BETWEEN RESERVOIR AVENUE AND JEROME AVENUE

The roadway width along West 195th Street would be narrowed between Reservoir Avenue and Jerome Avenue, and the perpendicular parking along the south curb would be changed to parallel parking to provide additional width along the south curb for potential future development.



Proposed Roadway Geometry

THE SHOPS AT THE ARMORY

Figure 13-11

Signal timing modifications and parking prohibitions would be implemented at the intersections of West 195th Street with Reservoir and Jerome Avenues to accommodate these changes and improve the capacity.

PROJECT-GENERATED TRAFFIC VOLUMES

The aforementioned trip generation-assignment process produced specific roadway-by-roadway and intersection-by-intersection traffic volume projections within the study area, which are summarized below. Specific turning movement volume projections are detailed in **Appendix** B.

The proposed project would add approximately 30 to 55 vph in each direction along Kingsbridge Road in front of the project site during the weekday AM peak hour which is the lowest traffic generating period analyzed. Traffic volumes would be expected to increase by approximately 100 to 200 vph in the eastbound direction and 125 to 180 vph in the westbound direction at this location during the other peak hours.

On Jerome Avenue during the weekday AM peak hour, an increase of approximately 10 to 20 vph in each direction would be expected. Approximately 45 to 60 vph are expected to travel along Jerome Avenue in each direction north of West 195th Street during the weekday midday and PM peak hours, and approximately 100 to 115 vph during the Saturday peak hour. South of West Kingsbridge Road, 15 to 25 vph are expected to be generated in each direction during the weekday midday and PM peak hours, and approximately 30 to 55 vph during the Saturday midday peak hour.

Volumes along West 195th Street would be expected to increase by 10 to 20 vph in each direction during the weekday AM peak hour, and 50 vph in each direction during the weekday midday and PM peak hours. Trips to the project site would be expected to be higher during the Saturday midday peak hour, with approximately 95 vph in the eastbound direction and approximately 60 vph in the westbound direction.

Traffic volumes along the Grand Concourse are expected to increase by approximately 10 to 15 vph in each direction during the weekday AM peak hour. During other peak hours, the project would add approximately 15 to 35 vph in the northbound direction and approximately 35 to 50 vph in the southbound direction.

Vehicular traffic traveling toward the project site along Fordham Road from the west would be expected to arrive from the Major Deegan Expressway and the University Heights Bridge, and travel to and from the site along key roadways such as Sedgwick Avenue, University Avenue, and Jerome Avenue. In the eastbound direction, volumes are expected to increase by approximately 20 vph in the weekday AM peak hour, 60 vph in the weekday midday and PM peak hours, and 95 vph in the Saturday midday peak hour. In the westbound direction, traffic volumes are expected to increase by approximately 10 vph in the weekday AM peak hour, 50 to 60 vph in the weekday midday and PM peak hours, and 85 vph in the Saturday midday peak hour.

From the east, vehicular traffic along Fordham Road east of its intersection with East Kingsbridge Road are expected to increase by approximately 15 to 25 vph per direction in the weekday AM peak hour, 55 to 65 vph in the weekday midday and PM peak hours, and 100 to 110 vph in the Saturday midday peak hour.

TRAFFIC LEVELS OF SERVICE AND IMPACTS

The assessment of potential significant traffic impacts of the proposed project is based on significant impact criteria defined in the *CEQR Technical Manual*. No Build LOS A, B, or C conditions that deteriorate to unacceptable LOS D, E, or F in the future Build conditions are considered a significant traffic impact. For future No Build LOS A, B, or C conditions that deteriorate to LOS D, mitigation to mid-LOS D (45.0 seconds of delay for signalized intersections and 30.0 seconds of delay for unsignalized intersections) needs to be considered to fully mitigate the impact.

For a No Build LOS D, an increase of delay by 5 or more seconds in the Build condition is considered a significant impact if the Build delay meets or exceeds 45.0 seconds. For a No Build LOS E, the threshold is a 4-second increase in Build delay; for a No Build LOS F, a 3-second increase in delay in the Build condition is significant. However, if a No Build LOS F condition already has delays in excess of 120 seconds, an increase in delay of more than 1 second is considered significant, unless the proposed project would generate fewer than 5 vehicles through that intersection in the peak hour (signalized intersections) or fewer than 5 passenger-car-equivalents (PCEs) in the peak hour along the critical approach (unsignalized intersections). In addition, for unsignalized intersections, for the minor street to generate a significant impact, 90 PCEs must be identified in the Build condition in any peak hour.

The remainder of this section provides an overview of significant traffic impacts that would be generated under the 2013 Build condition. The proposed project would have significant traffic impacts at 10 intersections in the weekday AM peak hour, nine intersections in the weekday midday peak hour, 13 intersections in the weekday PM peak hour, and 12 intersections in the Saturday midday peak hour.

Detailed volume-to-capacity (v/c) ratios, average vehicle delay, and levels of service movement-by-movement at each intersection under the Build condition are provided at the end of this chapter. Generated traffic volume increment maps and total Build volume maps are provided in **Appendix B**. A summary of level of service findings and significant traffic impacts for the 25 intersections analyzed is presented in **Table 13-8 and Figures 13-12 through 13-15**.

Table 13-8
Traffic Level of Service Summary Comparison
Future No Build vs. Future Build Conditions (2013)

	2013 No Build				2013 Build			
	AM	Midday	PM	Saturday Midday	AM	Midday	PM	Saturday Midday
Overall LOS A/B/C	15	20	14	18	14	19	11	15
Overall LOS D	8	5	6	6	7	4	7	4
Overall LOS E	2	0	5	1	4	2	4	3
Overall LOS F	0	0	0	0	0	0	3	3
Number of intersections with significant impacts	-	-	-	-	10	9	13	12
Number of movements at LOS E or F (of approximately 146 movements analyzed)	23	9	25	18	27	14	37	29

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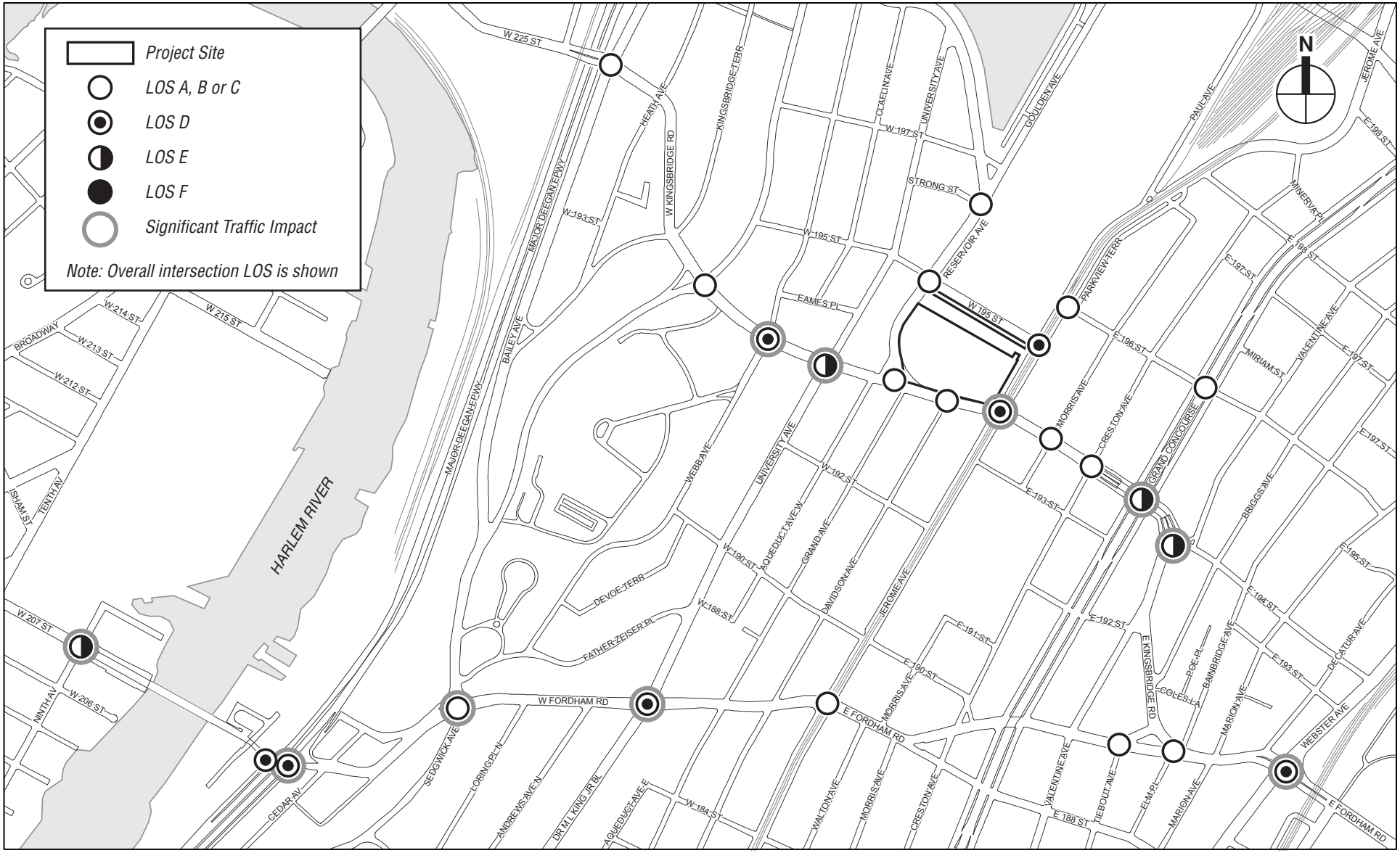
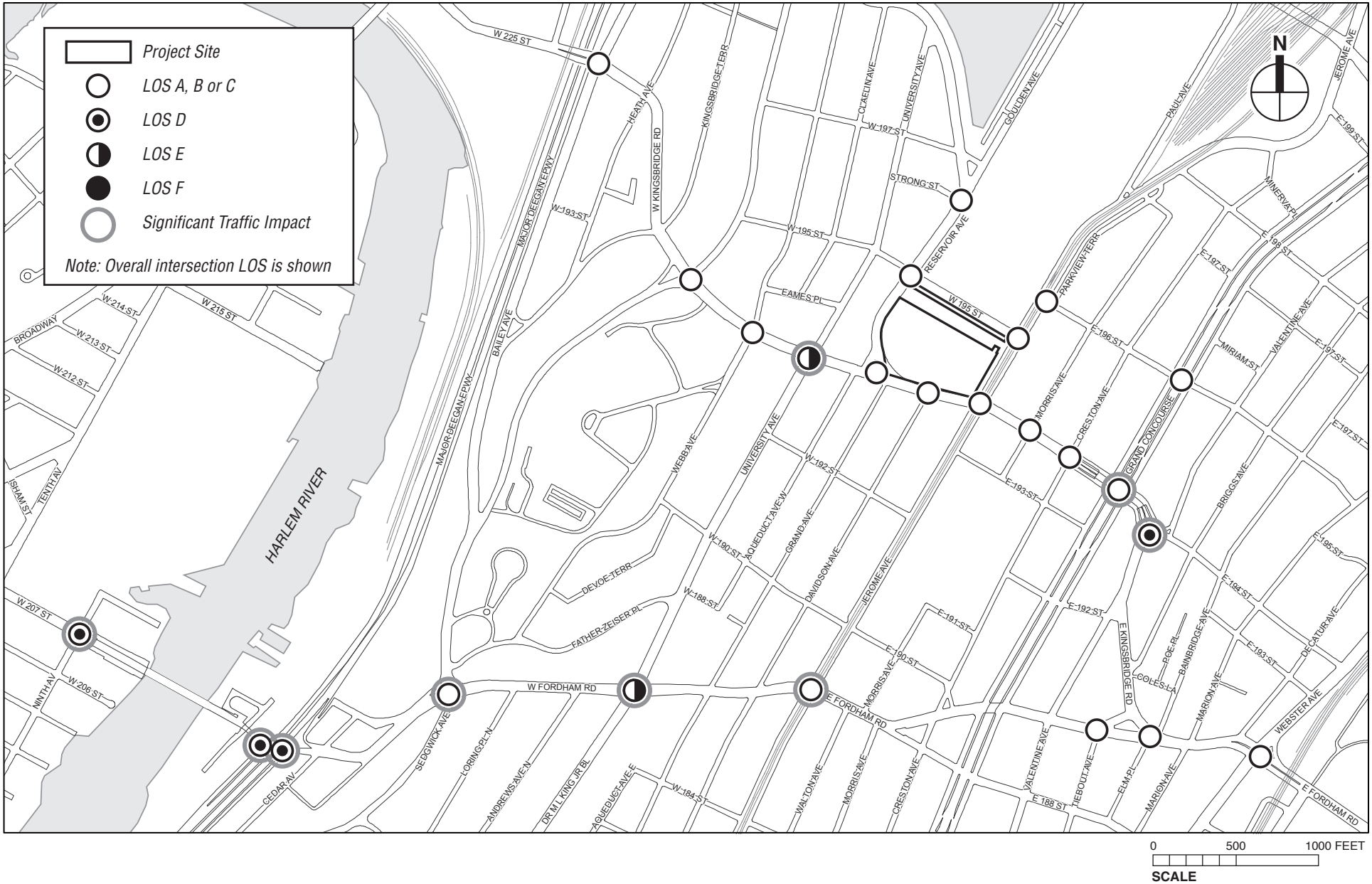


Build Traffic Levels of Service
Weekday AM Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-12

8.27.09

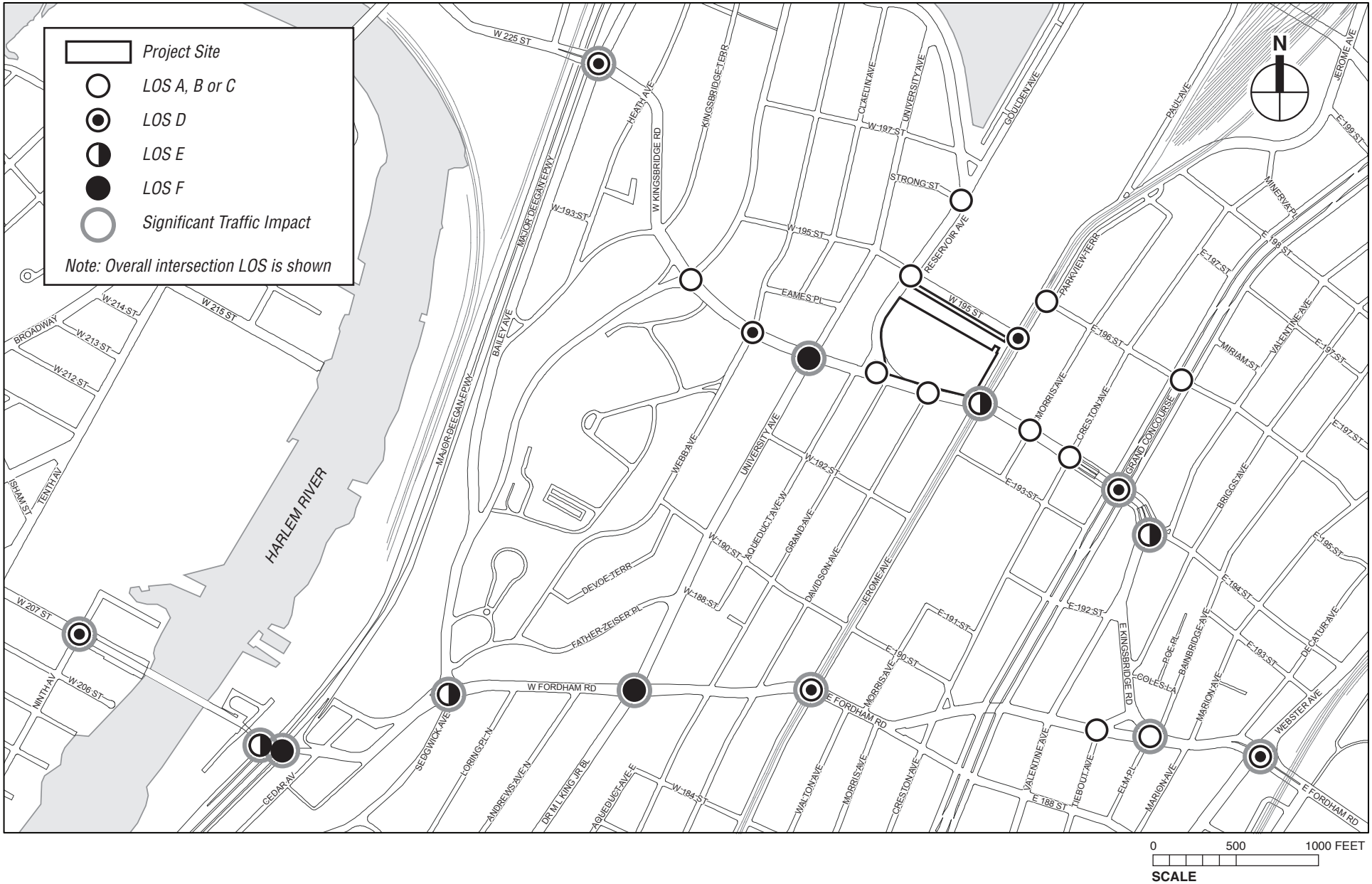


Build Traffic Levels of Service
Weekday Midday Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-13

9.24.09



Build Traffic Levels of Service
Weekday PM Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-14

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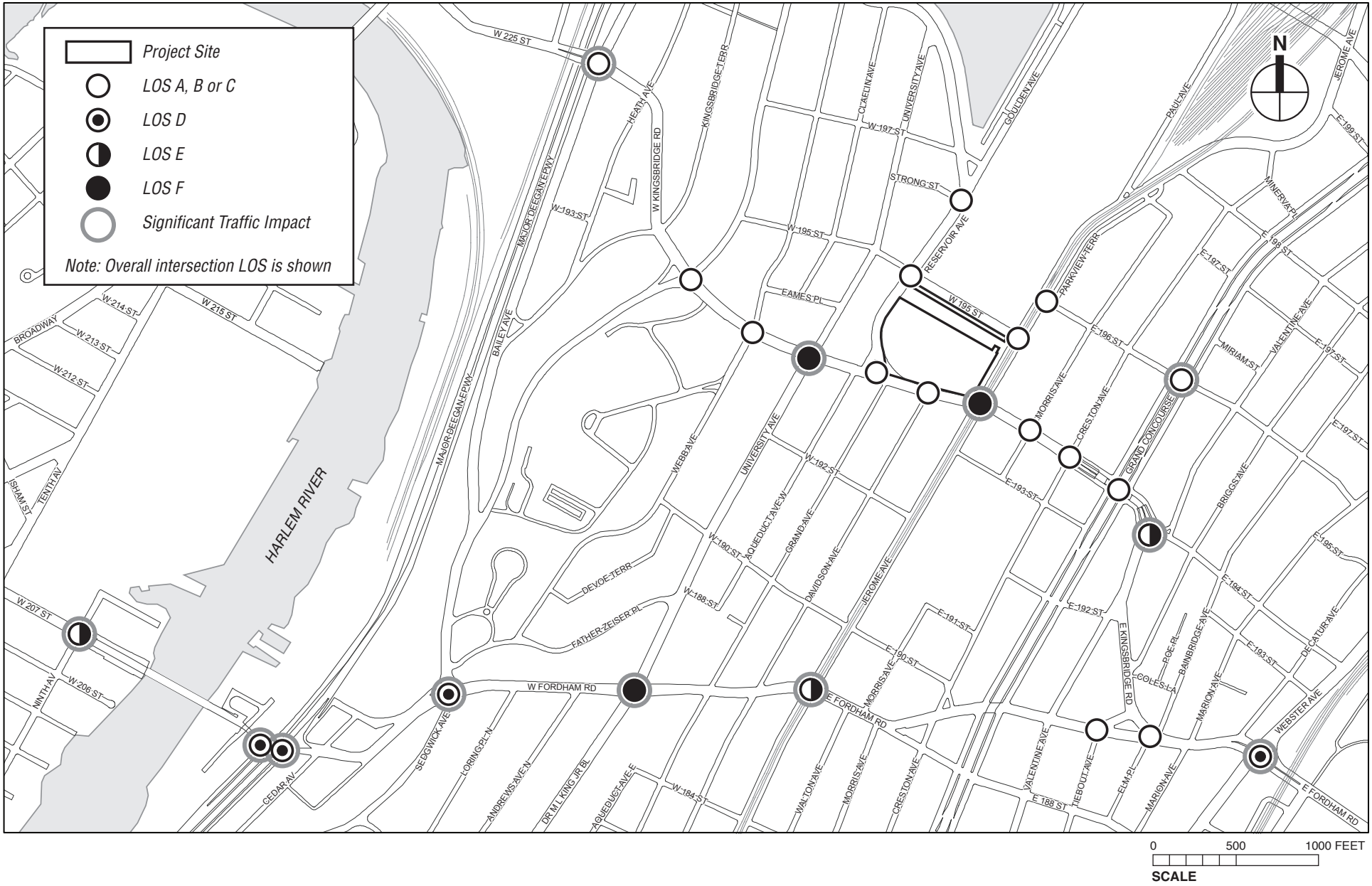

Build Traffic Levels of Service
Saturday Midday Peak Hour

THE SHOPS AT THE ARMORY

Figure 13-15

This summary overview of Build conditions in **Table 13-8** indicates that:

- During the weekday AM peak hour, the number of intersections analyzed that are projected to operate at overall LOS E or F would increase from two under the No Build condition to four under the Build condition. The number of traffic movements projected to operate at LOS E or F would increase from 23 under the No Build condition to 27 under the Build condition. Overall, 10 of the 25 intersections would have significant impacts. **Figure 13-12** shows overall levels of service and intersections where significant impacts would occur.
- During the weekday midday peak hour, the number of intersections that would operate at overall LOS E or F would increase from none under the No Build condition to two under the Build condition. The number of traffic movements at LOS E or F would increase from nine to 14. Overall, nine intersections would be significantly impacted, as shown in **Figure 13-13**.
- During the weekday PM peak hour, the number of intersections that are projected to operate at overall LOS E or F would increase from five under the No Build condition to seven under the Build condition. The number of traffic movements projected to operate at LOS E or F would increase from 25 to 37. As shown in **Figure 13-14**, 13 intersections would experience significant impacts.
- During the Saturday midday peak hour, the number of intersections that are projected to operate at overall LOS E or F would increase from one under the No Build condition to six under the Build condition. The number of traffic movements projected to operate at LOS E or F would increase from 18 to 29. As shown in **Figure 13-15**, 12 intersections would experience significant impacts.

The majority of the intersections that would be significantly impacted are located close to ½-mile or more from the project site, at locations that are already heavily trafficked. These locations include intersections along West Fordham Road at its interchange with the Major Deegan Expressway and West 207th Street at Ninth Avenue (in Manhattan). These three intersections—located on both sides of the University Heights Bridge—are already congested locations due to heavy background traffic coming off the Major Deegan Expressway or turning onto it combined with substantial traffic volumes crossing between Upper Manhattan and the Bronx at one of only a few crossing locations. Other significantly impacted locations at a substantial distance include other intersections along Fordham Road at Sedgwick Avenue, University Avenue, Jerome Avenue, and Webster Avenue, where there is substantial traffic associated with major commercial uses and cross-Bronx traffic that uses Fordham Road during multiple hours of the week and on Saturdays. And other significantly impacted intersections also located at a significant distance from the project site include West Kingsbridge Road at Bailey Avenue/West 225th Street, and East Kingsbridge Road at Fordham Road and at Valentine Avenue/194th Street. At most of these intersections, the addition of even a moderate amount of project-generated traffic is projected to create significant traffic impacts since most of these intersections have at least one, if not several, traffic movements operating at unacceptable levels of service E or F under future No Build conditions.

Closer to the project site, the number of significantly impacted intersections is not as great. Three of the four intersections at the corners of the project site would not be significantly impacted; only the intersection of Kingsbridge Road and Jerome Avenue would be significantly impacted. Local intersections north of the project site, within the more residential part of the community and near its schools, would also not be significantly impacted.

Six of the intersections where significant impacts would occur would have those impacts during all four peak hours analyzed. These intersections include West Kingsbridge Road and University Avenue, West Fordham Road and University Avenue, East Kingsbridge Road and Valentine Avenue/East 194th Street, West Fordham Road and Sedgwick Avenue, West Fordham Road and the Major Deegan Expressway Northbound Ramp, and Ninth Avenue and West 207th Street. Other intersections would be significantly impacted in one, two, or three of the four peak hours analyzed, while many intersections would not be significantly impacted during any of the peak hours analyzed. With the redesign of the key intersection at the southwest corner of the project site—West Kingsbridge Road and Reservoir Avenue/Aqueduct Avenue—and the reconfiguration of West 195th Street between Reservoir Avenue and Jerome Avenue, all three of those intersections would not be significantly impacted under future conditions with the proposed Kingsbridge Armory project in place.

PARKING

Parking demands during the weekday AM, midday, and PM peak traffic hours would be fully accommodated by the parking garage. There would be a modest shortfall of about 10 to 50 spaces in a few mid-afternoon hours, and a modest number of vehicles would need to park on-street. On Saturdays, the parking garage's capacity of 400 spaces would be reached during the 1-2 PM Saturday midday peak hour. During this hour, approximately 330 additional vehicles would need to find parking elsewhere in the area, either on-street or within off-street lots/garages. This is reflected in the traffic assignments and analyses. **Table 13-9** provides the projected parking accumulation at the project garage for weekday and Saturday conditions.

Table 13-9
Project Garage Parking Accumulation—2013 Build Condition

	Weekday				Saturday			
			Accumulated Parking Demand				Accumulated Parking Demand	
Time	Autos In	Autos Out	No.	%	Autos In	Autos Out	No.	%
Midnight–1 AM	0	7	6	2	0	11	11	3
1–2 AM	0	6	0	0	0	11	0	0
2–3 AM	0	0	0	0	0	0	0	0
3–4 AM	0	0	0	0	0	0	0	0
4–5 AM	0	0	0	0	0	0	0	0
5–6 AM	0	0	0	0	0	0	0	0
6–7 AM	0	0	0	0	0	0	0	0
7–8 AM	52	7	45	11	53	0	53	13
8–9 AM	134	71	108	27	49	5	97	24
9–10 AM	154	89	173	43	76	17	156	39
10–11 AM	251	177	247	62	102	47	211	53
11 AM–Noon	329	252	324	81	234	101	344	86
12–1 PM	381	310	395	99	179	162	361	90
1–2 PM	333	335	393	98	252	213	400	100
2–3 PM	339	344	388	97	211	222	389	97
3–4 PM	355	343	400	100	216	227	378	95
4–5 PM	377	377	400	100	127	165	340	85
5–6 PM	368	402	366	92	193	218	315	79
6–7 PM	371	350	387	97	197	271	241	60
7–8 PM	369	359	397	99	169	230	180	45
8–9 PM	304	329	372	93	198	170	208	52
9–10 PM	163	315	220	55	150	180	178	45
10–11 PM	44	181	83	21	18	119	77	19
11 PM–Midnight	9	79	13	3	7	62	22	6
Total Spaces	**400**							

Available on-street parking for the Build conditions is expected to remain at about 87 percent during the weekday AM peak hour, and increase to approximately 95 to 98 percent during the weekday midday, PM, and Saturday midday peak hours. During the Saturday midday period, the projected parking shortfall at the project's garage could be partially relieved by the on-street spaces available within a ¼-mile radius, but a substantial amount of project-generated traffic would need to find parking spaces further than ¼-mile of the project site.

A preliminary survey conducted during a Saturday midday in February 2009 indicated that approximately 400 additional spaces are available between ¼-mile and approximately ½-mile from the site. Parking is available along sections of Reservoir Avenue (approximately 40 spaces on-street), Goulden Avenue (approximately 50 spaces on-street), Jerome Avenue (approximately 125 spaces within two off-street lots), and approximately 25 on-street spaces along Bedford Park Boulevard. Also, approximately 150 spaces are available within a garage located along Jerome Avenue between Fordham Road and East 190th Street.

The Saturday traffic assignments followed the assumption that, of the vehicles that would not find parking in the garage on-site, 50 percent would arrive at the site, see that the garage is full, and then look for parking in the area, i.e., they would "touch the site" and then park elsewhere. The remaining 50 percent of vehicle trips would not "touch the site" and would park directly at an available parking spot along their route. For departures, similar routes would be followed. ✷