Chapter 15: Traffic and Parking

A. INTRODUCTION

The proposed development parcels are located along First Avenue on Manhattan's East Side. They are within Manhattan's grid street network of one-way, north-south avenues and one-way, east-west cross streets (with the exception of 34th and 42nd Streets, which operate as two-way streets), in close proximity to the FDR Drive, and the entrance and exit roadways to/from the Queens-Midtown Tunnel (QMT). Although the development parcels are located in a generally high density section of Manhattan, many sections of the street and highway network that are available to serve the development parcels have substantial amounts of unused capacity, most notably First Avenue, which carries traffic right past the "front doors" of the various proposed development parcels. Some sections of the local street network—most notably the approach and departure routes to and from the QMT along Second Avenue—carry substantial traffic volumes which at times are congested.

This chapter addresses the potential traffic and parking impacts of the Proposed Actions. The traffic and parking analysis covers a large study area, one that encompasses 88 intersection analysis locations within three Manhattan study areas—86 existing intersections plus two proposed site driveway access locations requested by the New York City Department of Transportation (NYCDOT), as well as segments of the adjacent FDR Drive—and considers the capacity of the QMT and Queensboro Bridge. Four peak hours are analyzed: the weekday AM, midday, PM, and Saturday midday peak hours. The weekday peak hours were analyzed in the FGEIS. Saturday midday peak hour analyses were conducted for this final Supplemental Environmental Impact Statement (SEIS) in order to determine whether the Proposed Actions have the potential to generate significant adverse traffic impacts under peak Saturday conditions. An additional study area on the Queens side of the Queensboro Bridge was added, and traffic analyses for that Queens Plaza Area are presented in Section I of this chapter. The analyses that follow within this section of the SEIS as well as within Sections B through H focus primarily on conditions and findings in Manhattan and the QMT and Queensboro Bridge themselves.

The analysis begins with an assessment of existing traffic and parking conditions in the study area, and proceeds to an analysis of conditions in the future without the Proposed Actions (2014 No Build conditions). The next step in the analysis estimates the amount of vehicular traffic expected to be generated by development in the future with the Proposed Actions (2014 Build conditions) and assesses future traffic and parking conditions under 2014 Build conditions. The Build condition analyses identify the location of significant adverse impacts potentially generated by the Proposed Actions. Chapter 23, "Mitigation," identifies and evaluates traffic improvement measures that would mitigate those impacts. The parking analysis addresses the ability of the development plan to accommodate expected parking demand under 2014 Build conditions.

The SEIS traffic analyses project that, under 2014 Build conditions, significant adverse impacts would occur at 55 intersections in the three Manhattan study areas in the AM peak hour, 35

intersections in the midday peak hour, 57 intersections in the PM peak hour, and 22 intersections in the Saturday midday peak hour out of 88 study intersections.

Under 2014 Build conditions, the SEIS's analyses indicate that there would be one significant adverse impact on the FDR Drive during the PM peak hour in the southbound direction at the 34th Street on-ramp merge. Analyses of QMT and Queensboro Bridge capacity (referred to as "portals analyses") indicate that there would be significant impacts under 2014 Build conditions in the AM peak hour on the inbound and outbound QMT and in the PM peak hour on the outbound QMT.

Each of the above analyses was based on background conditions in 2014 that include over 38 million square feet of development projected in East and West Midtown including the Queensboro Bridge area. An additional evaluation was conducted with one additional potential development included in background conditions—a potential one million square foot building proposed by the United Nations Development Corporation (UNDC) which may or may not proceed. Conditions and impacts with this potential development added would be slightly worse, and are summarized further below.

The SEIS's traffic analyses of conditions at 12 locations in the Queens Plaza Area, determined that significant adverse impacts would occur at 7 intersections in the AM peak hour, 4 intersections in the midday peak hour, 8 intersections in the PM peak hour, and 4 intersections in the Saturday midday peak hour.

This chapter presents the analysis approach and the findings of the analysis. In addition to the analyses presented, detailed technical analyses, including extensive technical tables, are presented in two technical appendices, Appendix B, "Traffic Impact Analyses," and Appendix C, "Traffic Volume Networks." Traffic capacity improvements needed to mitigate significant adverse impacts are discussed in Chapter 23, "Mitigation." The conclusions of Chapter 23, "Mitigation," indicate that the vast majority of significant impacts (but not all) could be mitigated using standard traffic capacity improvement measures.

B. SUMMARY OF FINAL SEIS AND FGEIS FINDINGS

Summarized below are the conclusions of the traffic and parking analyses, and comparisons to conclusions documented in the FGEIS. Like the FGEIS, the SEIS traffic study intersections are organized into three traffic study areas: the Primary Study Area (61 signalized intersections and six unsignalized intersections); the Queensboro Bridge Secondary Study Area (13 signalized intersections (one of which operates as an unsignalized intersection in the AM peak hour)); and the West Side Secondary Study Area (eight signalized intersections), for a total of 88 intersections (see Figures 15-1 and 15-2 for an illustration of the intersections).

Traffic conditions analyzed in the SEIS use 2000 *Highway Capacity Manual* (HCM) procedures, while the FGEIS used a previous version, the 1994 *HCM* procedures, which was the CEQR-approved methodology at the time the FGEIS was prepared. There is one significant difference between the two methodologies—the 2000 *HCM* incorporates queue spillbacks into nearby intersections in its analyses, while previous methodologies such as the 1994 HCM did not.

EXISTING CONDITIONS

- Existing conditions assessed in this SEIS are based on weekday AM, midday and PM traffic counts collected in 2004 and Saturday midday traffic counts collected in 2006 and 2007; FGEIS traffic was collected in 2001. Due to annual increases in traffic, existing conditions'

traffic volumes are higher in the SEIS than in the FGEIS, by about two to three percent in the primary traffic study area in weekday peak hours.

- As a result of higher existing traffic volumes and use of 2000 HCM procedures, the number of intersections currently operating at overall LOS E or LOS F is higher in this SEIS than determined in the FGEIS in the AM and PM periods. At the 86 existing intersections analyzed in the three Manhattan study areas in both studies, during the AM peak hour, the SEIS indicates five intersections at overall LOS E or F compared to the FGEIS' four; in the PM peak hour, the SEIS indicates 15 intersections at overall LOS E or F compared to eight in the FGEIS. In the midday peak hour, the SEIS indicates that there are four intersections operating at overall LOS E or F compared to two in the FGEIS's analyses.

FUTURE CONDITIONS WITHOUT THE PROPOSED ACTIONS

- Future No Build conditions projected in this SEIS account for traffic generated by over 38 million square feet of future development buildout in Midtown Manhattan by 2014 without the proposed First Avenue Properties development. Much of this development had not been proposed at the time the FGEIS was prepared, or was not expected to be completed by the FGEIS' 2011 Build analysis year. As a result, the SEIS's No Build traffic volumes are significantly higher in the AM peak hour, and moderately higher in the midday and PM peak hours than the 2011 No Build conditions in the FGEIS. In the primary traffic study area, during the AM peak hour, traffic volumes are now projected to increase by 17 percent from existing to No Build conditions, as compared to four percent in the FGEIS. The midday peak hour traffic would increase by 11 percent in the SEIS compared to six percent in the FGEIS, and the PM peak hour traffic would increase by 13 percent in the SEIS compared to six percent in the FGEIS.

- As a result, the number of intersections that would operate at overall unacceptable LOS E or LOS F conditions under future No Build conditions would be higher in the PM peak hour. At the 86 existing intersections analyzed in the three Manhattan study areas in both studies, during the PM peak hour, the SEIS projects 45 intersections at overall LOS E or F compared to 44 intersections identified in the FGEIS. However, in the AM peak hour, the SEIS projects 34 intersections at overall LOS E or F compared to the FGEIS's 40 intersections, and in the midday peak hour, 22 overall LOS E or F intersections are identified in the SEIS versus 26 identified in the FGEIS.

FUTURE CONDITIONS WITH THE PROPOSED ACTIONS

- The volume of project-generated traffic assigned to the traffic network in the SEIS is lower than the Mixed-Use Development Program with Office on 708 First Avenue, which was the alternative with the highest number of trips analyzed in the FGEIS at all 87 intersections and is referred to here as the FGEIS' Base Build condition. The AM peak hour Build volume increments would be 1,494 vehicles per hour (vph) under the Proposed Actions analyzed in the SEIS compared to 1,867 vph in the FGEIS under its base Build condition (373 vph fewer in the SEIS), the midday would be 772 vph compared to 1,544 vph (772 vph fewer in the SEIS), and the PM peak hour would be 1,356 vph compared to 1,601 vph (245 vph fewer in the SEIS).

- Even with a reduced volume of vehicle trips generated by the Proposed Actions in the SEIS, the larger increase in No Build volumes and deterioration in levels of service under No Build conditions in the SEIS would lead to additional significant impacts compared to the FGEIS.

At the 86 existing intersections analyzed in the three Manhattan study areas in both studies, significant impacts identified in this SEIS would occur at 55 intersections in the AM peak hour compared to 33 in the FGEIS; at 35 intersections in the midday peak hour compared to 24 in the FGEIS; and at 57 intersections in the PM peak hour as compared to 36 in the FGEIS.

- The proposed development site plan at the Waterside/708 First Avenue parcels would have a different garage access plan and overall site access than the plan developed for the FGEIS. Whereas the FGEIS's garage access plan had provided for garage access along the east side of First Avenue at both East 39th and 40th Streets, as well as along the other sides of this superblock, the plan proposed and analyzed in this SEIS does not provide for garage access via First Avenue (there is site access provided for drop-offs on East 39th Street but without access to the development's garage underground from this new road). As a result, traffic access and egress to/from the site's garage would be more concentrated at the other garage access/egress locations.
- Parking occupancy would reach about 94 percent in the SEIS compared to 95 percent in the FGEIS.

FDR DRIVE ANALYSES

- The FDR Drive analysis was conducted at the same locations as in the FGEIS. The SEIS Build analyses indicate a deterioration of LOS E to LOS F at one location during one peak hour with one significant impact, compared to the FGEIS under its Base Build condition, which showed a deterioration of LOS E to LOS F at one location for two peak hours. At the time the FGEIS was being prepared, there were no CEQR criteria for significant highway impacts. Subsequently, a methodology was developed by city agencies that now defines significant adverse highway impacts for EIS purposes.

PORTALS ANALYSIS FOR QMT AND QUEENSBORO BRIDGE

- A portals analysis was conducted for the SEIS on the typical mainline segments of the QMT and Queensboro Bridge; this was not required for the FGEIS. Using the methodology that was developed for the *Hudson Yards Rezoning EIS*, the QMT would have significant adverse impacts inbound and outbound during the AM peak hour and outbound during the PM peak hour. There would be no significant adverse impacts on the Queensboro Bridge.

FUTURE CONDITIONS WITH THE UNDC PROJECT

- Inclusion of the potential one million square foot UNDC building in the No Build condition would result in one additional significantly impacted intersection during the weekday AM peak hour, two additional significant impacts during the midday peak hour, and no additional significant impacts in the PM and Saturday midday peak hours according to the Draft SEIS. The FDR Drive analysis in the Draft SEIS, with the UNDC project included, shows a significant impact during the PM peak hour on the southbound FDR Drive at the 34th Street on-ramp merge. In the Draft SEIS portals analysis, the same portals would be impacted with the UNDC project.

CONDITIONS IN THE QUEENS PLAZA AREA

- The FGEIS indicated that significant adverse traffic impacts could be expected at intersections on the Queens side of the Queensboro Bridge within Long Island City. Quantitative level of service analyses conducted at 12 intersections as part of the SEIS

confirm this—7 intersections would be significantly impacted in the AM peak hour, 4 intersections in the midday peak hour, 8 intersections in the PM peak hour, and 4 intersections in the Saturday midday peak hour.

C. EXISTING CONDITIONS

ROADWAY NETWORK AND TRAFFIC STUDY AREAS

The primary study area generally consists of a grid network of local streets and avenues located between First and Third Avenues with the ramp network that serves substantial volumes of traffic heading to and from the QMT. The presence of the QMT and its ramp network has a major influence over traffic conditions in the area since the QMT attracts a substantial volume of traffic, especially during the AM and PM peak commuter periods. The FDR Drive, situated east of the development parcels and along the eastern edge of the study area, is the sole limited-access highway carrying major traffic loads to, from, and through the area. There are several ramps to and from the FDR Drive that serve the area together with the QMT.

The QMT consists of two "tubes" that transport traffic between Queens and Manhattan. Each of the two tubes carries two lanes of traffic, and the directionality of each "tube" varies by time of day, as traffic plans for the QMT provide balanced capacity in each direction when traffic volumes in each direction are relatively equal, and provide three lanes in the peak direction and just one in the non-peak direction when conditions warrant it. For example, the QMT provides three lanes into Manhattan and one out from Manhattan in the weekday AM peak period and two lanes in each direction in the midday and PM peak periods. During the Saturday midday peak period, the tunnel operates with two lanes in each direction. The New York Police Department deploys traffic control agents along key streets leading to and from the QMT, to help process traffic into and out of the area as effectively as possible.

The FDR Drive provides three lanes of traffic in each direction. The FDR Drive has a northbound exit onto the service road just north of 23rd Street that then accesses the traffic study area's local street network via 34th Street, and a "flyover" exit ramp over the highway to the local street network at 42nd Street. There are entrance ramps to the northbound highway at about 30th Street and another just north of 34th Street. The FDR Drive has southbound exit ramps at 53rd, 49th, and 34th Streets, and an entrance onto the southbound highway at 30th Street.

The local study area street network conforms to a general grid, with the avenues extending in a north-south direction and the cross streets extending east-west. The north-south avenues are generally high-capacity arterials that serve substantial volumes of through and local traffic, and benefit from traffic signal timing patterns that enable a good progression of traffic when traffic conditions are uncongested and conditions allow. Many of the east-west cross streets provide access to and from the QMT, as well as to local land uses. 34th and 42nd Streets are the primary crosstown streets in the study area, each carrying two to three lanes of traffic in each direction.

The primary traffic study area developed for this SEIS includes: all of the intersections between (and including) the FDR Drive service road and Third Avenue, between (and including) 34th and 42nd Streets; 34th and 42nd Streets between (and including) Lexington and Madison Avenues; Second Avenue at 30th, 33rd, 43rd, 44th and 49th Streets; and First Avenue at 30th and 33rd Streets, and from 43rd to 49th Streets. Overall, a set of 65 intersections (61 signalized and 4 unsignalized) are included in the primary study area, as shown in Figure 15-1.

Similar to the analysis conducted in the FGEIS, two secondary traffic study areas are included in this SEIS. The Queensboro Bridge study area includes key intersections leading from the

primary study area to the Bridge, and the West Side study area includes intersections extending west on 34th and 42nd Streets toward and through the Herald Square and Times Square areas, respectively. The Queensboro Bridge study area consists of: First Avenue at 52nd, 53rd, 57th, 59th, 60th, 61st and 63rd Streets; the Queensboro Bridge upper level ramp between 59th and 60th Streets; Second Avenue at 52nd, 53rd, 57th and 59th Streets; and the lower level ramp at 57th Street between First and Second Avenues (13 signalized intersections), as shown in Figure 15-2. The West Side study area includes 34th Street from Sixth Avenue/Broadway to Eighth Avenue and 42nd Street from Sixth to Ninth Avenues (eight signalized intersections), as shown in Figure 15-2.

In addition to analyses of these 86 intersections, analyses of FDR Drive conditions, as well as of capacities of the QMT and Queensboro Bridge are also part of the SEIS's traffic studies.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

New traffic counts were conducted for this SEIS in June 2004 for weekday periods and in June 2006 and March 2007 for the Saturday midday period using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts. These volumes were used along with observations of actual traffic conditions to determine levels of service for the weekday 8:00 to 9:00 AM, 11:00 to 12:00 midday, and 5:30 to 6:30 PM peak hours, and for the Saturday 12:00 to 1:00 PM midday peak traffic hour using *2000 Highway Capacity Manual (HCM)* procedures, which is the analysis methodology approved for use by the New York City Department of Transportation (DOT) and Department of City Planning (DCP). The observations of actual traffic conditions that noted where, and to what extent, queuing occurred along the approaches to intersections being analyzed, were part of the determination of actual levels of service.

For signalized intersections, levels of service (LOS) 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 the range of 10.1 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 the range of 20.1 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 the range of 35.1 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 the range of 55.1 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 be 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 overall intersection levels of service.

For unsignalized intersections, delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line: LOS A describes operations with very low delay, i.e., 10.0 seconds or less per vehicle; LOS B describes operations with delays in the range of 10.1 to 15.0 seconds; LOS C has delays in the range of 15.1 to 25.0 seconds; LOS D, 25.1 to 35.0 seconds per vehicle; and LOS E, 35.1 to 50.0 seconds per vehicle, which is considered to be the limit of acceptable delay. LOS F describes operation with delays in excess of 50.0 seconds per vehicle, which is considered problematic to most drivers. This condition exists when there are insufficient gaps of suitable duration to allow side street traffic to cross safely through a major vehicular traffic stream.

Table 15-1 provides an overview of the levels of service that characterize existing "overall" intersection conditions in the three study areas during the AM, midday, and PM peak hours on a typical weekday, and the Saturday midday peak hour. Overall levels of service represent a weighted average of individual traffic movements' levels of service.

PRIMARY STUDY AREA

This summary overview of existing conditions indicates that:

- In the AM peak hour, two of the 61 signalized intersections analyzed are operating at overall LOS E or F and 20 other 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 of the individual traffic movements). Twenty-one traffic movements (e.g., left turns from one street to another, through traffic on one street passing through the intersection, etc.) are at LOS E or F conditions. Figure 15-3 illustrates overall levels of service.
- In the midday peak hour, one of the 61 signalized intersections is operating at overall LOS E or F, while four are at overall LOS D. Only six traffic movements are operating at LOS E or F. Figure 15-4 illustrates overall levels of service.
- In the PM peak hour, seven of the 61 signalized intersections are at overall LOS E or F and 20 others are at overall LOS D. Twenty-three traffic movements are at LOS E or F. Figure 15-5 illustrates overall levels of service
- In the Saturday midday peak hour, none of the 61 signalized intersections are at overall LOS E or F and two are at overall LOS D. Four traffic movements are at LOS E or F. Figure 15-6 illustrates existing levels of service.
- The four unsignalized intersections analyzed during the AM, midday, PM, and Saturday peak hours are operating at overall LOS C or better conditions, with the exception of the

FDR Drive Service Road at 35th Street during the AM peak hour, which operates at overall LOS D.

Table 15-1
Existing Traffic Level of Service Summary

	Existing AM Peak Hour	Existing Midday Peak Hour	Existing PM Peak Hour	Existing Saturday Peak Hour
Primary Traffic Study Area[1]				
Signalized Intersections (61 locations AM, midday, PM weekday, and Saturday)				
Overall LOS A/B	12	29	14	45
Overall LOS C	27	27	20	14
Overall LOS D	20	4	20	2
Overall LOS E/F	2	1	7	0
No. of Movements at LOS E or F	21	6	23	4
Queensboro Bridge Traffic Study Area[2]				
Signalized Intersections (12 locations AM, 13 midday, PM weekday, and Saturday)				
Overall LOS A/B	1	3	2	8
Overall LOS C	4	6	5	5
Overall LOS D	5	3	2	0
Overall LOS E/F	2	1	4	0
No. of Movements at LOS E or F	8	9	9	2
West Side Traffic Study Area[3]				
Signalized Intersections (8 locations AM, midday, PM weekday, and Saturday)				
Overall LOS A/B	0	0	0	3
Overall LOS C	2	4	0	2
Overall LOS D	5	2	4	2
Overall LOS E/F	1	2	4	1
No. of Movements at LOS E or F	7	9	18	5

Notes:
1 All four unsignalized intersections analyzed during the weekday AM, midday, PM, and Saturday peak hours operate at overall LOS C or better, with the exception of the FDR Drive Service Road at 35th Street (LOS D) in the AM peak hour.
2 The Queensboro Bridge Upper Level at 57th Street operates as an unsignalized intersection in the AM peak hour, and operates at overall LOS D under existing conditions.
3 No unsignalized intersections are analyzed in this study area.

QUEENSBORO BRIDGE STUDY AREA

This summary overview of existing conditions indicates that:

- In the AM peak hour, two of the 12 signalized intersections analyzed are operating at overall LOS E or F and five other intersections are operating at marginally acceptable/unacceptable LOS D. Eight traffic movements are at LOS E or F conditions. The Queensboro Bridge upper level at 57th Street operates as an unsignalized intersection in the AM peak hour only, and operates at overall LOS D under existing conditions. Figure 15-7 illustrates overall levels of service.
- In the midday peak hour, one of the 13 signalized intersections is operating at overall LOS E or F, while three are at overall LOS D. Nine traffic movements are operating at LOS E or F.
- In the PM peak hour, four of the 13 signalized intersections are at overall LOS E or F and two others are at overall LOS D. Nine traffic movements are at LOS E or F.

- In the Saturday midday peak hour, none of the 13 signalized intersections are at overall LOS D, E or F. Two traffic movements are at LOS E or F.

WEST SIDE STUDY AREA

This summary overview of existing conditions indicates that:

- In the AM peak hour, one of the eight signalized intersections analyzed is operating at overall unacceptable LOS E or F and five other intersections are operating at marginally acceptable/unacceptable LOS D. Seven traffic movements are at LOS E or F conditions. Figure 15-8 illustrates overall levels of service.
- In the midday peak hour, two of the eight signalized intersections are operating at overall LOS E or F, while two are at overall LOS D. Nine traffic movements are operating at LOS E or F.
- In the PM peak hour, four of the eight signalized intersections are at overall LOS E or F and four others are at overall LOS D. Eighteen traffic movements are at LOS E or F.
- In the Saturday midday peak hour, one of the eight signalized intersections is at overall LOS E or F and two are at LOS D. Five traffic movements are at LOS E or F.

A more detailed presentation of traffic volumes and levels of service is provided below. Details of the level of service analysis for each traffic movement at each of the 86 existing intersections analyzed, as well as detailed traffic volume maps, appear in the two technical traffic appendices.

FDR DRIVE

The FDR Drive is traveled by approximately 3,650 to 4,350 vehicles per hour (vph) northbound during the weekday peak hours and about 3,250 vph during the Saturday midday peak hour approaching 34th Street. Southbound traffic volumes are approximately 3,150 vph to 3,700 vph during the weekday peaks and 2,800 vph in the Saturday midday approaching 34th Street. Traffic volumes on the northbound exit ramp just north of 23rd Street leading to 34th Street via the service road are approximately 250 to 650 vph during the four peak hours, while volumes at the northbound exit ramp onto 42nd Street are about 700 to 1,100 vph during weekday peak hours and 450 vph in the Saturday midday peak hour. The entrance ramp from 34th Street onto the northbound FDR Drive near 42nd Street has volumes of 300 to 450 vph during the four peak hours, while the northbound entrance ramp at 48th Street has volumes of about 300 to 350 vph in the weekday AM, midday, and Saturday peak hours, and 1,000 vph in the PM peak hour. The southbound exit ramp at 49th Street is characterized by 300 to 650 vph in the four peak hours, while the southbound exit ramp to the service road at 40th Street has 500 to 750 vph in the four peak hours. The on-ramp to the southbound FDR Drive at 34th Street has the highest volumes of all of the highway ramps in the area, processing about 1,150 to 1,350 vph during weekday peak hours and 700 vph during the Saturday midday peak hour. Levels of service are described later in this chapter under F, "FDR Drive Analysis."

FIRST AVENUE

First Avenue serves as a northbound arterial in both the study area and in East Midtown and the Upper East Side to the north of the study area, and is also used by traffic heading to or from the portals of the QMT. It generally provides five to six lanes of traffic through most of its length, plus a priority curb bus lane along its east side. At 41st Street, it divides into a tunneled section that allows northbound traffic to travel unimpeded under 42nd Street, and a "service road" type

section that allows more localized traffic to turn left or right onto 42nd Street, or to continue northward and serve the United Nations on the east side of the avenue and local residential and retail uses along the west side of the avenue. The tunneled section provides four lanes for through traffic, while the service roads on either side of the tunneled section each have two lanes available.

First Avenue generally carries approximately 1,750 to 2,300 vph within the section immediately adjacent to the proposed development parcels (i.e., between 34th and 41st Streets) in the AM peak hour, 1,400 to 1,700 vph in the midday peak hour, 2,700 to 2,750 vph in the PM peak hour, and 1,500 to 1,650 vph in the Saturday peak hour. Traffic volumes north of 42nd Street above the tunneled section of the avenue, up to about 46th Street, are generally about 1,500 to 1,750 vph in the AM, 1,300 to 1,600 vph in the midday, 1,750 to 2,150 vph in the PM, and 850 to 900 vph in the Saturday peak hour. Traffic volumes increase at 49th Street, where traffic in the tunneled section has merged back onto the avenue—approximately 2,500 to 2,650 vph during weekday peak hours and 1,800 vph during the Saturday midday peak hour.

The detailed intersection capacity analyses conducted for this SEIS indicate that, overall, the northbound approaches at intersections on First Avenue are currently operating at acceptable LOS C or better conditions during the AM, midday, PM, and Saturday peak hours, with six intersections operating at marginally acceptable/unacceptable LOS D in one or more peak hours, with the northbound left turn on First Avenue at 37th Street operating at LOS F in the PM peak hour as vehicles queue to turn towards the QMT entrance on 37th Street, and the northbound left turn on First Avenue at East 57th Street operating at LOS E in the Saturday peak hour as vehicles queue to turn towards the Queensboro Bridge entrance on East 57th Street. The northbound First Avenue tunnel exit at 49th Street and the northbound local First Avenue approach to the west of the tunnel operate at LOS E during the PM peak hour.

Vehicular traffic on First Avenue receives good signal progression and, given its relatively moderate traffic volumes as compared to the amount of capacity available, it operates at acceptable levels of service. Travel time and delay runs conducted along First Avenue confirm this. For most of First Avenue within the traffic study area, travel speeds are generally in the 20 to 30 mile per hour (mph) range between 36th and 54th Streets during all weekday and Saturday analysis periods, with the exception of lower speeds along the block approaching 34th Street. Travel speeds between 55th and 63rd Streets approaching and near the Queensboro Bridge are in the 10 to 15 mph range during weekdays and 15 to 20 mph range on Saturdays.

SECOND AVENUE

Second Avenue serves as a southbound arterial throughout east Midtown and the Upper East Side, and as a major approach route to the QMT as traffic to and from one of the QMT's two tubes enters and exits the tunnel directly via Second Avenue between 36th and 37th Streets. It also provides access to and from the Queensboro Bridge at 59th and 60th Streets. Second Avenue generally provides five to six lanes for general traffic plus a priority curb bus lane along its west side through the primary study area.

Second Avenue carries approximately 2,300 to 2,450 vph during weekday and Saturday peak hours approaching 60th Street near the Queensboro Bridge. Weekday traffic volumes on Second Avenue at 42nd Street range from 2,650 to 2,800 vph during weekday peaks and 2,400 vph during the Saturday peak. Second Avenue carries between 2,400 to 3,250 vph during weekday and Saturday peak hours between 36th and 37th Streets approaching the QMT portal. Second

Avenue transports approximately 2,500 to 3,450 vph during weekday peak hours and 1,950 vph during the Saturday midday peak hour approaching 34th Street.

Southbound traffic on Second Avenue generally operates at acceptable overall LOS C or marginally acceptable/unacceptable LOS D conditions during the peak traffic analysis hours, with conditions deteriorating into unacceptable LOS E at several critical locations, especially approaching the entrances to the QMT and Queensboro Bridge in the AM and PM peak hours. Travel time and delay runs conducted along Second Avenue indicate that average speeds are generally in the 15 to 25 mph range during weekday and Saturday peak hours from 38th to 56th Streets, with speeds between 5 and 13 mph near the QMT and Queensboro Bridge entrances.

THIRD AVENUE

Third Avenue is another northbound arterial in the east Midtown and Upper East Side areas. It generally provides five travel lanes plus a priority curb bus lane on its east side. Traffic volumes are generally in the 2,500 to 2,750 vph range during the weekday peak hours and 2,050 vph during the Saturday midday peak hour approaching 42nd Street. Third Avenue carries approximately 1,750 to 1,900 vph during weekday peak hours approaching 34th Street.

Traffic flow along northbound Third Avenue generally operates at overall LOS B or C conditions between 34th and 41st Streets during weekday and Saturday peak hours. The Third Avenue and 42nd Street intersection operates at overall LOS D or E during the weekday peak hours and LOS C during the Saturday midday peak hour.

34TH AND 42ND STREETS

34th and 42nd Streets are the primary east-west arterials connecting the development parcels with the heart of Midtown. 34th and 42nd Streets are striped for two traffic lanes in each direction with the curb lane serving buses, pickups and dropoffs, right turns, and even general traffic at times. Traffic volumes vary block by block on both streets depending on many factors—the particular land uses on each block (including, for example, Grand Central Terminal, Times Square and Herald Square), the block's proximity to the FDR Drive and access and egress points to and from the QMT, 42nd Street's proximity to the Lincoln Tunnel near Ninth Avenue, and others. In general, traffic volumes on both 34th and 42nd Streets fall within the 400 to 800 vph range during all weekday and Saturday peak hours, although specific blocks near the QMT entrance and FDR Drive on 34th Street, and the northbound FDR Drive off-ramp at westbound 42nd Street and First Avenue experience traffic volumes in excess of 800 vph in certain weekday peak hours.

Overall intersection traffic levels of service along 34th Street vary block by block, within the broad range of acceptable LOS B conditions to unacceptable LOS E conditions. Some individual through movements and left turns such as eastbound 34th Street at the FDR Drive, at the QMT entrance street and exit street, and at First Avenue, and westbound 34th Street at Sixth Avenue/Broadway and Seventh Avenue are at LOS F conditions during one or more peak hours. Levels of service are more congested along the 42nd Street corridor with generally acceptable individual east-west movements operating at LOS B, C or D at Lexington, Park, and Madison Avenues, and unacceptable individual east-west movements operating at LOS E or F during some peak hours at First, Second, Third, Vanderbilt, Sixth, Seventh, Eighth and Ninth Avenues, and Broadway.

OTHER NORTH-SOUTH STREETS AND EAST-WEST CROSSTOWN STREETS

The east-west crosstown network generally comprises the conventional street pattern in Manhattan of even-numbered streets serving eastbound traffic and odd-numbered streets serving westbound traffic, but is interlaced north-south by other local streets that provide feeder service to and from the two tubes of the QMT. These north-south feeder streets are operated with flexible direction control that is varied by time of day in order to provide for the traffic demands associated with the QMT. As a result, traffic volumes and operating conditions vary significantly block by block.

Traffic volumes on east-west crosstown streets in the traffic study area between and including 35th Street to 39th Street generally fall within the 400 to 500 vph per direction range during weekday peak hours and 100 to 400 vph per direction during the Saturday midday peak hour. However, between 35th and 39th Streets, there are locally high traffic volume increases within a block or two of the QMT Entrance or Exit Streets, such as up to 1,200 vph on westbound 37th Street at Third Avenue in the AM peak hour and 1,500 vph on eastbound 36th Street at Second Avenue in the PM peak hour. Traffic volumes on 40th and 41st Street are generally lower, and fall within the range of 100 to 300 vph per direction during the weekday and Saturday peak hours.

Traffic volumes on north-south connector streets including the QMT Exit Street and QMT Entrance Street generally fall within the range of 300 to 500 vph per direction during weekday and Saturday peak hours, with traffic volumes increasing to as high as 1,550 vph on the southbound approach of the QMT Exit Street at 35th Street in the AM peak hour and 1,350 vph in the PM peak hour.

Overall levels of service on crosstown and connector streets between and including 35th to 41st Streets, the QMT Exit Street, and QMT Entrance Street vary block-by-block. Traffic operates at acceptable overall LOS A, B or C conditions or marginally acceptable/unacceptable overall LOS D conditions during the weekday peak hours and at LOS B conditions during the Saturday midday peak hour on the QMT Entrance Street. On the QMT Exit Street, traffic operates at acceptable overall LOS A, B or C conditions or marginally acceptable/unacceptable overall LOS D conditions from 37th to 41st Streets during all peak hours, but at unacceptable LOS E conditions in the AM peak hour and marginally acceptable/unacceptable LOS D conditions in the PM peak hour at the 35th Street intersection.

Block-by-block traffic volumes and detailed traffic level of service characteristics (volume-to-capacity ratios, average vehicle delays, and movement-by-movement levels of service) are provided in the supplementary Technical Appendices.

PARKING

An inventory of public parking lots and garages within the area bounded by 30th and 47th Streets east of and including Third Avenue, was conducted along with parking facility occupancy surveys during the AM, midday and PM peak hours on a typical weekday in June 2004 and during the Saturday midday period in August 2006 (see Table 15-2 and Figure 15-9). This constitutes an area within approximately a ¼ mile, or slightly more, from the proposed development parcels. One-quarter mile is about a five-minute walk, which is generally the acceptable walking distance to parking. Overall, there are 47 public parking lots or garages in the area, the majority of which have capacities in the 75 to 250 vehicle range.

As shown in Table 15-2, the public parking facilities surveyed contain approximately 6,066 spaces, with an occupancy level of about 66 percent in the AM, 85 percent in the weekday midday, and 71 percent in the PM. This means that at about 8 to 9 AM, i.e., the AM peak

inbound commuter hour, there are about 2,050 unoccupied spaces available within off-street lots and garages, decreasing to about 900 spaces at midday. During the inbound residential peak hour, i.e., 5 to 6 PM, about 1,800 unoccupied spaces exist.

Table 15-2
Inventory of Existing Public Parking Lots and Garages

Loc. #	Name and Address	Capacity	Percent Occupied			
			AM	MD	PM	Saturday
1	Elco Parking System, Inc.; 312 E. 46th Street	67	40%	90%	30%	22%
2	Probe Parking Corp; 300 E. 46th Street	36	45%	90%	30%	28%
3	228-230 E. 46th Street Central Parking System	49	30%	95%	28%	18%
4	225 E. 46th Street Basic Parking Corp.	26	69%	100%	77%	54%
5	212 E. 47th Street Allright Parking System	240	27%	100%	90%	28%
6	E. 46th Street Urban Garage Inc	100	60%	90%	95%	50%
7	235 E. 45th Street Valcor Parking, LLC	90	50%	95%	95%	17%
8	E. 44th Street Sharp Parking, LLC	126	45%	90%	80%	56%
9	E. 45th Street, LLC	35	45%	97%	29%	31%
10	Seven Eleven Car Park; LLC 711 3rd Ave	165	80%	90%	85%	36%
11	Park on 44th St. Corp.; 230 E. 44th Street	150	45%	85%	50%	33%
12	Garage Management Corp.; 2 U.N. Plaza	112	35%	60%	35%	Closed
13	Garage Management Corp.; 3 U.N. Plaza	55	85%	60%	60%	Closed
14	Allright Parking New York, LLC.; 213 E. 43rd Street	250	40%	45%	40%	20%
15	43rd Parking, LLC.; 231 E. 43rd Street	250	80%	60%	45%	10%
16	Champion 42nd, LLC.; 214 E. 42nd Street	115	90%	100%	80%	18%
17	Eagle LLC.; 240 E. 41st Street	74	74%	97%	75%	34%
18	The Fisher 40th & 3rd Co, & Hawaiian Reality, Inc.	750	50%	80%	70%	7%
19	245 E.40th Street Parking LLC.; 245 E. 40th Street	130	100%	95%	75%	38%
20	Innovative Parking Corp.; 301-311 E. 40th Street	108	80%	80%	75%	14%
21	Enterprise Garage Corp. 315-335 E. 40th Street	334	85%	95%	80%	45%
22	Noble Parking LLC; 240 E. 41st Street	235	100%	80%	80%	23%
23	222 E. 39th St Parking Corp; 222 E. 39th Street	86	75%	78%	78%	Closed
24	123 Parking Corp; 248 E. 39th	35	70%	57%	57%	100%
25	Realpro Parking Corp; 330 E, 39th Street	208	75%	70%	60%	25%
26	38th Parking LLC (Tamir Parking); 675 First Avenue	146	60%	70%	60%	14%
27	(Icon) 205 E. 38th Street LLC; 205 E. 38th Street	83	60%	90%	80%	20%
28	East 39th Garage LLC; 221 E. 38th Street	95	60%	90%	75%	35%
29	Corinthian Garage Corp.; 330 E. 38th & 345 E. 37th St.	186	80%	100%	90%	70%
30	415 E. 37th Street Parking LLC (Icon); 415 E. 37th St.	60	90%	100%	100%	50%
31	Ladle Parking Corp.; 225 E. 36th Street	64	100%	100%	100%	30%
32	245 E. 36th Street Garage Corp.; 295 E. 36th Street	35	100%	100%	100%	86%
33	First Ave. Parking Inc.; 630 First Avenue	100	50%	100%	60%	37%
34	Superb Parking Corp.; 400-434 E. 35th Street	80	100%	100%	100%	100%
35	GMC Garage LLC.; 300 E. 34th Street	148	60%	80%	65%	35%
36	Manhattan Parking E. 34th Street Corp	56	95%	100%	100%	75%
37	Kinney of 34th St. Inc.; 340 E. 34th Street	41	95%	95%	90%	80%
38	Central Parking System; 400-24 E. 34th Street	128	95%	100%	90%	76%
39	Central Parking System; (E. 34th Street Under FDR)	200	75%	100%	80%	10%
40	Jo-Dash Parking LLC; 488 Third Avenue	55	60%	90%	75%	37%
41	Laurence Towers Garage; 200 E. 33rd Street	157	100%	100%	100%	70%
42	Quick Park E. 33rd Garage LLC	50	100%	100%	100%	100%
43	Management System Inc.; 200 E. 32nd Street	33	100%	100%	90%	21%
44	Rim's Parking Corp 30th Street	25	90%	90%	90%	85%
45	Central Parking System; 350 E. 30th Street	68	50%	90%	50%	55%
46	(NYU) Central Parking System; 500 First Avenue	130	30%	90%	40%	93%
47	Rapid Park Industries; 300-350 E. 33rd Street	300	50%	75%	50%	60%
Total		**6,066**	**66%**	**85%**	**71%**	**36%**

Note: At parking facilities Nos. 13 and 23 where weekday surveys and observations could not be conducted, GEIS data were used. At parking facilities Nos. 33 and 40, where Saturday surveys could not be conducted, percentages were averaged according to nearby facilities.

Source: Eng-Wong, Taub and Associates survey data.

Three facilities were closed during the Saturday survey, reducing the total study area capacity to about 5,813 spaces. The Saturday midday occupancy level was about 36 percent, and individual garage occupancy levels varied from 10 percent to 100 percent. During the Saturday midday, about 3,700 unoccupied spaces exist in the off-street public parking facilities.

In the FGEIS, on-street parking regulations were also inventoried for the same parking study area. Typical weekday parking regulations were recorded on a block-by-block basis, and the number of legal parking spaces available for use by future travelers into the area were detailed.

Both sides of First, Second, and Third Avenues were most typically characterized by a blend of very stringent parking regulations, such as No Standing Anytime, No Standing 7 AM to 7 PM, No Standing or No Stopping 7 to 10 AM and 4 to 7 PM, No Standing 7 AM to 7 PM Except Trucks Loading and Unloading, and No Standing Except Authorized Vehicles such as Medical Examiners' Office, New York Press, United Nations Commission Vehicles, or Foreign Consuls and Diplomats. There were, however, a few block fronts on the avenues along which metered parking was available.

34th Street parking regulations were similarly stringent, generally No Standing Anytime or No Standing 7 to 10 AM and 4 to 7 PM within the parking study area between the FDR Drive and Third Avenue. 42nd Street parking regulations were also similar, with some sections designated as No Standing Except by Foreign Consuls/Diplomats or New York Press. There were virtually no legal on-street parking spaces available to the general public on 34th and 42nd Streets. Parking regulations on the other east-west crosstown streets were similarly stringent, consistent with policies and regulations in effect throughout the vast majority of Midtown Manhattan. However, there were a number of cross-street blockfaces, or portions of blockfaces, where legal "alternate side-of-the-street" parking was available.

Overall, within the approximately 40-block area surveyed for the FGEIS, there was an extremely limited number of legal parking spaces available on-street for use by potential new motorists in the area. At 8 to 9 AM, surveys conducted for the FGEIS showed that there were approximately 593 legal parking spaces, of which 86 percent were occupied. This indicated that there were about 83 legal on-street spaces "available" within the 40-block area which covers about 172 blockfaces, or an average of about one space every other blockface. At 12 to 1 PM, the number of legal parking spaces was somewhat higher as posted parking regulations allow for slightly more parking. At 12 to 1 PM, there were approximately 736 legal parking spaces, of which 95 percent were occupied. Thus, there were only about 36 legal available parking spaces within the survey area, or approximately one space every four blockfaces. At about 5 to 6 PM, there were approximately 731 legal parking spaces on-street, of which about 89 percent were occupied; thus, there were about 77 legal available parking spaces, or an average of about one space every other blockface.

For this SEIS, a key sample section of the on-street parking study area was surveyed during the AM, midday and PM peak hours to confirm that the parking occupancy, number of legal spaces, and parking regulations have not changed significantly from the FGEIS. First Avenue from 30th to 43rd Streets was surveyed, along with all cross streets between and including 30th to 43rd Streets between First and Second Avenues. Within the 13-block sample section which covers about 47 blockfaces, the peak hour occupancy from 8 to 9 AM is 95 percent occupied compared to 90 percent in the FGEIS, the 12 to 1 PM midday peak hour is 98 percent occupied compared to 96 percent in the FGEIS, and the 5 to 6 PM peak hour is 89 percent occupied compared to 86

percent in the FGEIS. As concluded in the FGEIS, there is a limited number of legal parking spaces available for on-street parking by potential new motorists.

For this SEIS, a Saturday peak hour survey of on-street conditions was conducted for the entire 40-block area, covering about 172 blockfaces. According to the survey, approximately 846 legal on-street spaces exist during a Saturday from 12 to 1 PM, of which 88 percent are occupied. During this period, about 102 legal spaces were available, or about one space every block or two. Similar to weekday conditions, there is a limited number of legal parking spaces available for potential new motorists.

D. FUTURE WITHOUT THE PROPOSED ACTIONS

TRAFFIC CONDITIONS

Future conditions without the Proposed Actions, i.e., the future No Build conditions, are established in order to provide the baseline against which the impacts of the Proposed Actions 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 2014. Future No Build traffic volumes were developed by applying a background traffic growth rate of one-half percent per year as stated in the *CEQR Technical Manual*, and by adding trips expected to be generated by approved development projects that are expected to be operational by 2014.

Trip generation and specific traffic assignments for these expected development projects were taken directly from their respective EISs or EASs where such information was available. For projects where such information was not readily available, trip generation analyses were conducted to determine the volume of generated vehicle trips and these trips were assigned through study area intersections. A summary of the No Build project-generated vehicle trips is presented in Table 15-3.

Peak AM, midday and PM hour trips from the DCP-approved list of projects, including Hudson Yards Rezoning (pro-rated to reflect year 2014 conditions), 1 Bryant Park, and other proposed projects have been added to the traffic network. Over 38 million square feet of office, retail, residential, and other development is expected to occur by 2014 within the study area.[1] Overall, the net increase in vehicle traffic in the primary, Queensboro Bridge and West Side traffic study areas is projected to be approximately 4,443 vph inbound (to the study area) and 1,594 vph outbound (from the study area) in the AM peak hour, 2,738 vph inbound and 2,568 vph outbound in the midday peak hour, and 2,288 vph inbound and 5,413 vph outbound in the PM peak hour, plus additional increases in general background traffic at 0.5 percent per year. The addition of this volume of background project-generated traffic to the annual growth presents a very conservative projection of future No Build conditions due to the amount of development and traffic added to existing conditions.

[1] This reflects an additional 4 million square feet of development identified in consultation with DCP during the period between preparation of the Draft SEIS and Final SEIS, and includes developments at 823 First Avenue, 250 E. 57th Street, 310 E. 53rd Street, York Avenue between 61st and 62nd Streets, a school on E. 63rd Street, and an additional 3 million square feet of development on the west side of Manhattan.

Table 15-3

Vehicle Trip Generation from Background Development Projects - Weekday Peak Hours

Project	AM Peak		MD Peak		PM Peak	
	In	Out	In	Out	In	Out
Primary Traffic Study Area						
Perlbinder Site - 245 East 36th Street	47	57	43	43	59	53
NYUSOM Research Building	40	6	13	18	6	37
US Mission to the UN	29	6	7	8	6	29
34th Street Ferry Terminal	7	7	0	0	14	14
400 Park Avenue South	16	26	9	9	22	16
East River Science Park	92	27	37	50	20	77
505 Fifth Avenue	52	10	13	14	10	52
First Avenue (west side)	17	4	2	3	5	14
400 Fifth Avenue	19	28	31	31	33	25
610 Lexington Avenue	7	9	8	8	13	10
Sheraton Russell	12	13	19	18	19	16
992-998 Second Avenue	8	14	5	5	13	8
250-254 East 53rd Street	4	8	3	3	8	5
155-161 East 23rd Street (also 302-314 Third Avenue)	11	20	7	7	19	12
250 East 49th Street	13	22	8	8	22	15
823 First Avenue	15	26	9	9	23	15
Subtotal:	389	283	214	234	292	398
Queensboro Bridge Traffic Study Area						
MSKCC Research Building and Rezoning	142	40	55	40	75	143
1234 First Avenue	20	24	16	17	23	22
Seventh Regiment Armory	0	0	256	172	228	198
Weill Ambulatory Care Facility	32	11	36	42	36	40
Bloomberg HQ	266	82	217	218	245	412
Witkoff Building	4	10	5	5	9	5
Solow - 420 E. 61st Street	14	30	12	12	27	17
Ronald McDonald House	11	8	10	10	14	12
Rockefeller University	3	7	4	4	7	4
250 E. 57th Street	79	87	78	81	52	44
310 E. 53rd Street	5	10	5	5	10	7
York Avenue (between E. 61st and 62nd Streets)	6	13	3	3	11	7
E. 63rd Street School	29	27	27	29	0	0
Subtotal:	611	349	724	638	737	911
West Side Traffic Study Area						
Pennsylvania Station Redevelopment	145	40	166	166	100	173
Theater Row II	10	15	7	7	14	11
River Place II	22	32	13	13	28	21
Hudson Place / Block 1090 Rezoning	24	31	50	50	40	35
306 W. 44th Street	24	35	21	21	33	25
New York Times Headquarters	334	64	118	120	75	382
11 Times Square	176	36	83	84	50	209
Studio City	26	1	6	11	7	26
435 Seventh Avenue	42	8	12	12	8	48
Friars Towers	22	33	13	13	28	21
Schulweis Railyards Development	229	42	76	68	45	257
1 Bryant Park	370	122	169	159	138	375
Hudson Yards Rezoning*	2,019	503	1,066	972	693	2,521
Subtotal:	3,443	962	1,800	1,696	1,259	4,104
TOTAL TRIPS ASSIGNED TO NO BUILD:	**4,443**	**1,594**	**2,738**	**2,568**	**2,288**	**5,413**

Note: The 2010 and 2025 Hudson Yards Build Increments were pro-rated to Year 2014 Conditions, and then increased by an additional 12 percent to include additional West Side development projected by DCP.
Source: Certified EISs, EASs, or new trip generation calculations.

Generally, the Saturday midday peak hour was not included as a peak traffic analysis period in the background traffic studies that were the subject of other EISs or EASs. Therefore, Saturday midday peak hour trips for background projects were developed for this SEIS so background trips could be assigned to the Saturday midday traffic network. Weekday and Saturday daily trips were compared for office, residential, and retail land uses, and a weekday-to-Saturday ratio was computed for each type of use. Using a weighting of the total area of each land use for the No Build developments, Saturday midday peak hour background trips were then calculated as approximately 56 percent of weekday PM trips. The Saturday midday peak hour background project volumes were added to the existing Saturday midday peak hour traffic network, along with a 0.5 percent general background growth rate per year.

Another background project, to be built by the United Nations Development Corporation (UNDC), could create just under one million square feet of office and conference center space on the east side of First Avenue between 41st and 42nd Streets, where the Robert Moses Playground and a QMT ventilation tower currently exist. Because the UNDC project is not currently committed and its future is uncertain, it is analyzed in a separate subsection of this chapter (see G, "Future Conditions with the UNDC Project").

The No Build project-generated trips were assigned to the roadway network and, together with the background traffic growth, become the 2014 No Build traffic volume baseline. Detailed No Build traffic volume maps are provided in technical appendices to the SEIS. A summary of traffic volume increases along selected streets within the study area is described below under "2014 No Build Traffic Conditions."

The traffic analyses for the 2014 No Build conditions included mitigation from certified EISs or EASs for background projects including the Hudson Yards Rezoning EIS (2010 conditions), East River Science Park, 1 Bryant Park, and 250 East 57th Street. Use of year 2010 mitigation associated with year 2014 buildout of the Hudson Yards Rezoning initiative adds another element of conservatism to the No Build, and subsequent Build, analysis.

Mitigation measures listed in Table 15-4 were included in No Build traffic analyses if only one project recommended mitigation. However, several intersections had mitigation measures recommended from two projects. NYCDOT was consulted, and a methodology for choosing which mitigation measures would be included in No Build traffic analyses was agreed upon. For those locations where multiple projects recommended mitigation, tests were conducted. If the mitigation measure from one project conflicted with the measure from the other project, the mitigation measure that improved No Build levels of service more was used. If multiple mitigation measures from two projects did not conflict, both sets of mitigation measures were used.

During the AM peak hour, at Second Avenue and 34th Street, signal timing mitigation from the East River Science Park was used instead of Hudson Yards Rezoning FGEIS signal timing mitigation. During the midday peak hour, at Sixth Avenue and 42nd Street, 1 Bryant Park signal timing mitigation was used instead of Hudson Yards Rezoning FGEIS signal timing mitigation, and at Ninth Avenue and 42nd Street, Hudson Yards Rezoning FGEIS parking prohibition (daylighting) and signal timing mitigation and 1 Bryant Park parking prohibition (daylighting) mitigation was used. During the PM peak hour, at Sixth Avenue/Broadway and 34th Street, Hudson Yards Rezoning FGEIS signal timing mitigation was used instead of 1 Bryant Park signal timing mitigation. During the PM peak hour, at Second Avenue and 57th Street, the 250 East 57th Street mitigation was used instead of that from the Hudson Yards Rezoning FGEIS. During the Saturday midday peak hour, physical changes were applied to Lexington Avenue at 34th Street, Eighth Avenue at 34th Street, and Eighth Avenue at 42nd Street.

The New York State Department of Transportation (NYSDOT) has studied design improvements along the FDR Drive between 25th and 42nd Streets, including: improving the northbound mainline weaving area between 26th and 28th Streets; improving northbound on-ramp flow conditions at 30th Street; improving the northbound acceleration lane entering from 34th Street; rehabilitation of the northbound exit ramp at 42nd Street; improving the southbound merge condition below 34th Street, including the southbound weave condition at 27th Street; and other potential mainline improvements between 30th and 33rd Streets in both directions. During the past several years, various concepts have been developed, but no plan has been decided upon, and this project is currently on hold. Therefore, these improvements are not included in the analysis of future No Build or Build conditions for the Proposed Actions.

Table 15-4
Mitigation Measures for Inclusion in 2014 No Build Traffic Analyses

North–South Avenue	East–West Street	2010 Hudson Yards Rezoning	2006 East River Science Park	1 Bryant Park	250 East 57th Street
Ninth Avenue*	42nd Street	Signal retiming, parking prohibition (daylighting)		Parking prohibition (daylighting)	
Eighth Avenue	34th Street	Signal retiming, parking, prohibition (daylighting), and lane restriping			
Eighth Avenue	42nd Street	Signal retiming, parking prohibition (daylighting)			
Broadway	42nd Street	None		Signal retiming	
Sixth Avenue*	42nd Street	Signal retiming		Signal retiming	
Broadway/Sixth* Avenue	34th Street	Signal retiming		Signal retiming	
Madison Avenue	42nd Street	None		Signal retiming	
Madison Avenue	34th Street	Parking prohibition (daylighting)			
Lexington Avenue	34th Street	Signal retiming, parking prohibition (daylighting)			
Third Avenue	34th Street	Parking prohibition (daylighting) and lane restriping			
Third Avenue	42nd Street	Signal retiming, parking prohibition (daylighting)			
Second Avenue	30th Street	Not analyzed	Signal retiming		
Second Avenue*	34th Street	Signal retiming	Signal retiming		
Second Avenue	36th Street	Signal retiming, parking prohibition (daylighting)			
Second Avenue	42nd Street	Signal retiming			
Second Avenue*	57th Street	Signal retiming			Signal retiming
Second Avenue	59th Street	Signal retiming			
Second Avenue	Queensboro Bridge Ramp	Signal retiming			
First Avenue	57th Street				Signal retiming
First Avenue	30th Street	Not analyzed	Signal retiming		
QMT Entrance	34th Street	None	Signal retiming		

Notes: * Denotes more than one project has approved mitigation.

There are two major transit improvements underway within the study area. MTA/Long Island Rail Road is currently constructing tunnels in Queens to access Grand Central Terminal. The project is called Long Island Rail Road East Side Access (LIRR ESA), which will reduce the number of daily riders and peak hour circulation at Penn Station, and allow LIRR riders destined to east Midtown, who currently have to change modes at Penn Station to ride the subway, buses

or taxis to east Midtown. Once the project is complete, there would be modest overall reductions in vehicle trips within the study area. These changes have not been applied to the 2014 No Build or Build analyses.

The other major transit improvement underway is the Second Avenue Subway (SAS) being designed by MTA/New York City Transit. SAS will be constructed in three phases. Phase I will involve the segment along Second Avenue from 96th Street to 63rd Street. The subway will include stations on Second Avenue at 96th Street, 86th Street, and 72nd Street, and will turn west to stop at the 63rd Street/Lexington Avenue F train station, which will be modified. Phase II will proceed from 125th Street to 96th Street. Phase III will include the portion between 63rd Street and Houston Street, and Phase IV will include the portion from Houston Street to Water Street. According to MTA/NYCT, the segment below 63rd Street would not begin construction until after 2014. Therefore, it does not affect the 2014 analyses in the SEIS.

2014 NO BUILD TRAFFIC CONDITIONS

Traffic volume increases on the study areas' roadway networks due to the cumulative effect of background projects are quantified and discussed below. The peak hour volumes reported below include the Table 15-3 traffic volumes assigned to the study areas' networks, but do not include the general 0.5 percent per year growth rate that has been applied to the existing traffic volumes, which would add about 5 percent more traffic to all streets. However, the 0.5 percent increase is included in the No Build totals.

First Avenue traffic volumes can generally be expected to increase by about 40 to 90 vph in the AM and midday peak hours and by about 50 to 110 vph in the PM peak hour between 30th Street and 59th Street. Saturday midday peak hour volumes can be expected to increase by about 30 to 60 vph.

In the primary study area leading to the QMT, i.e., between 42nd and 36th Streets, Second Avenue traffic volumes can be expected to increase by about 140 to 150 vph in the AM peak hour, by about 100 to 110 vph at midday, and by about 160 to 300 vph in the PM peak hour. Saturday midday peak hour volumes can be expected to increase by about 90 to 170 vph. In the Queensboro Bridge secondary study area leading from the Bridge, i.e., between 49th and 59th Streets, Second Avenue traffic volumes can be expected to increase by about 190 to 210 vph in the AM peak hour, 130 to 180 vph in the midday peak hour, and 160 to 190 vph in the PM peak hour. Saturday midday peak hour volumes on Second Avenue near the Queensboro Bridge can be expected to increase by about 90 to 110 vph.

Third Avenue traffic volumes can be expected to increase by about 30 to 70 vph in the AM and midday peak hours and 50 to 180 vph in the PM peak hour. Saturday midday peak hour volumes can be expected to increase by about 30 to 100 vph.

The FDR Drive service road volumes near 34th Street can be expected to increase by about 140 vph northbound and 80 vph southbound in the AM peak hour, by about 100 vph northbound and 50 vph southbound at midday, and by about 130 vph northbound and 60 vph southbound in the PM peak hour. Saturday midday peak hour volumes can be expected to increase by about 70 vph in the northbound direction and 30 vph southbound.

Crosstown traffic volumes on 34th Street in the primary study area, i.e., between Madison Avenue and the FDR Drive service road, are generally expected to increase by about 60 to 120 vph in the eastbound direction and 70 to 160 vph in the westbound direction in the AM peak hour, about 50 to 130 vph per direction at midday, and by about 90 to 190 vph eastbound and 40

to 90 vph westbound in the PM peak hour. Saturday midday peak hour volumes can be expected to increase by about 50 to 110 vph eastbound and 20 to 50 vph westbound. In the West Side secondary traffic study area, i.e., west of Madison Avenue to Eighth Avenue, 34th Street traffic volumes are generally expected to increase by about 70 vph eastbound and 180 vph westbound in the AM peak hour, 100 to 120 vph eastbound and 80 vph westbound in the midday peak hour, 190 to 250 vph eastbound and 60 to 100 vph westbound in the PM peak hour, and about 110 to 140 vph eastbound and 30 to 60 vph westbound during the Saturday midday peak hour.

Crosstown traffic volumes on 42nd Street in the primary study area, i.e., between Madison Avenue and the FDR Drive, are generally expected to increase by about 40 to 90 vph in the eastbound direction and 100 to 170 vph in the westbound direction in the AM peak hour, about 50 to 100 vph per direction at midday, by about 80 to 180 vph eastbound and 60 to 100 vph westbound in the PM peak hour, and by about 40 to 100 vph eastbound and 30 to 60 vph westbound in the Saturday midday peak hour. In the West Side secondary traffic study area, i.e., west of Madison Avenue to Ninth Avenue, 42nd Street traffic volumes are generally expected to increase by about 60 to 160 vph eastbound and 70 to 180 vph westbound in the AM peak hour, 70 to 110 vph per direction in the midday peak hour, 130 to 170 vph eastbound and 100 to 170 vph westbound in the PM peak hour, and about 50 to 100 vph per direction during the Saturday midday peak hour.

Crosstown traffic volumes on 35th, 36th and 37th Streets leading to and from the QMT and the FDR Drive service road at 34th Street are generally expected to increase by approximately 60 to 100 vph per direction in the AM peak hour, 30 to 100 vph per direction in the midday peak hour, 30 to 100 vph westbound on 35th and 37th Streets and 190 to 325 vph eastbound on 36th Street approaching the QMT in the PM peak hour, and 50 to 180 vph per direction in the Saturday midday peak hour. Crosstown traffic volumes on 38th to 41st Streets during the AM, midday, and Saturday midday peak hours would generally increase by 10 to 60 vph per direction, and by 70 to 100 vph eastbound on 38th and 40th Streets leading to Second Avenue and the QMT and 20 vph or fewer westbound in the PM peak hour.

Based on these traffic volume increases, future traffic levels of service were determined for the 86 No Build analysis locations within the primary and secondary study areas, with the following findings (see Table 15-5 for a comparison of traffic levels of service for existing and future No Build conditions; and Figures 15-10 through 15-15 for an illustrative overview of overall intersection traffic levels of service throughout the study area). It is clear, in comparing overall intersection levels of service and individual traffic movement levels of service, that considerably more locations would operate at LOS E or F under 2014 No Build conditions than in existing conditions.

Table 15-5
Traffic Level of Service Summary Comparison
Existing vs. Future No Build Conditions (2014)

	Existing AM Peak Hour	Existing Midday Peak Hour	Existing PM Peak Hour	Existing Saturday Peak Hour	2014 No Build AM Peak Hour	2014 No Build Midday Peak Hour	2014 No Build PM Peak Hour	2014 No Build Saturday Peak Hour
Primary Traffic Study Area[1]								
Signalized Intersections (61 locations AM, midday, PM weekday, and Saturday)								
Overall LOS A/B	12	29	14	45	11	27	14	42
Overall LOS C	27	27	20	14	18	15	8	12
Overall LOS D	20	4	20	2	11	9	8	3
Overall LOS E/F	2	1	7	0	21	10	31	4
No. of Movements at LOS E or F	21	6	23	4	59	31	71	9
Queensboro Bridge Traffic Study Area[2]								
Signalized Intersections (12 locations AM, 13 midday, PM weekday, and Saturday)								
Overall LOS A/B	1	3	2	8	1	3	2	6
Overall LOS C	4	6	5	5	2	1	3	3
Overall LOS D	5	3	2	0	5	1	2	3
Overall LOS E/F	2	1	4	0	4	8	6	1
No. of Movements at LOS E or F	8	9	9	2	15	17	16	5
West Side Traffic Study Area[3]								
Signalized Intersections (8 locations AM, midday, PM weekday, and Saturday)								
Overall LOS A/B	0	0	0	3	0	0	0	1
Overall LOS C	2	4	0	2	1	0	0	4
Overall LOS D	5	2	4	2	0	4	0	0
Overall LOS E/F	1	2	4	1	7	4	8	3
No. of Movements at LOS E or F	7	9	18	5	21	16	24	7

Notes:

1 All four unsignalized intersections analyzed during the weekday AM, midday, PM, and Saturday peak hours are projected to operate at overall LOS C or better, with the exception of the FDR Drive Service Road at 36th Street (LOS D) and at 38th Street (LOS E) in the AM peak hour.

2 The Queensboro Bridge Upper Level at 57th Street operates as an unsignalized intersection in the AM peak hour, and would operate at overall LOS E under No Build conditions.

3 No unsignalized intersections are analyzed in this study area.

PRIMARY STUDY AREA

This summary overview of No Build conditions indicates that:

- In the AM peak hour, of the 61 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from two under existing conditions to 21 under No Build conditions. The number of intersections projected to operate at overall LOS A or B would decrease from 12 in the existing to 11 in the No Build, meaning that the majority of No Build LOS E or F locations would deteriorate from overall LOS C or D conditions into LOS E or F with the expected increase in background development traffic. The number of traffic movements projected to operate at LOS E or F

would increase from 21 to 59. A review of Figure 15-10 indicates that most of the projected LOS E or F intersections would be located on Second Avenue, 34th Street, 42nd Street, and intersections with the QMT Exit and Entrance Streets, which would experience the highest increases in No Build traffic volumes due to background projects.

- In the midday peak hour, the number of signalized intersections that would operate at overall LOS E or F would increase from one to 10, while the number of traffic movements at LOS E or F would increase from six to 31. The number of marginally acceptable/unacceptable LOS D intersections would increase from four to nine. Figure 15-11 shows overall levels of service.

- In the PM peak hour, the number of signalized intersections that are projected to operate at overall LOS E or F would increase from seven under existing conditions to 31 under No Build conditions. The number of intersections projected to operate at overall LOS A or B would remain at 14 in the No Build, meaning (again) that the majority of No Build LOS E or F locations would deteriorate from overall LOS C or D conditions. The number of traffic movements projected to operate at LOS E or F would increase from 23 to 71. A review of Figure 15-12 indicates that most of the projected LOS E or F intersections would be located on Second Avenue, Third Avenue, 34th Street, 42nd Street, and intersections with the QMT exit and entrance streets, which would experience the highest increases in No Build traffic volumes due to background projects.

- In the Saturday peak hour, of the 61 signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F would increase from none to four, while the number of traffic movements at LOS E or F would increase from four to nine. The number of marginally acceptable/unacceptable LOS D intersections would increase from two to three. Figure 15-13 shows overall levels of service.

- The four unsignalized intersections analyzed during the AM, midday, PM, and Saturday would operate at overall LOS C or better conditions, with the exceptions of the FDR Drive Service Road at 36th Street (overall LOS D) and at 38th Street (overall LOS E) during the AM peak hour.

QUEENSBORO BRIDGE STUDY AREA

This summary overview of No Build conditions indicates that:

- In the AM peak hour, of the 12 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from two under existing conditions to four under No Build conditions. The unsignalized Queensboro Bridge Upper Level at 57th Street intersection would operate at overall LOS E conditions. The number of traffic movements projected to operate at LOS E or F would increase from 8 to 15. A review of Figure 15-14 indicates that most of the projected LOS E or F intersections would be located on Second Avenue, where higher traffic No Build traffic volumes due to background projects are likely.

- In the midday peak hour, of the 13 signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F would increase from one to eight, while the number of traffic movements at LOS E or F would increase from 9 to 17.

- In the PM peak hour, of the 13 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from four to six, mostly

on Second Avenue. The number of traffic movements projected to operate at LOS E or F would increase from 9 to 16.

- In the Saturday peak hour, of the 13 signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F would increase from none to one, while the number of traffic movements at LOS E or F would increase from two to five. The number of marginally acceptable/unacceptable LOS D intersections would increase from none to three.

WEST SIDE STUDY AREA

This summary overview of No Build conditions indicates that:

- In the AM peak hour, of the eight signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from one under existing conditions to seven under No Build conditions. This increase is mainly due to deterioration of existing marginally acceptable/unacceptable LOS D conditions. The number of traffic movements projected to operate at LOS E or F would increase from 7 to 21. Figure 15-15 illustrates overall No Build levels of service for the West Side study area.
- In the midday peak hour, of the eight signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F would increase from two to four, while the number of traffic movements at LOS E or F would increase from nine to 16.
- In the PM peak hour, of the eight signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from four to eight. The number of traffic movements projected to operate at LOS E or F would increase from 18 to 24.
- In the Saturday peak hour, of the eight signalized intersections analyzed, the number of locations that would operate at overall LOS E or F would increase from one to three, while the number of traffic movements at LOS E or F would increase from five to seven.

PARKING

To estimate future parking conditions, No Build vehicle trips within the parking study area have been assigned to proposed new on-site parking associated with the No Build projects, or to the nearest off-street public parking facility with available capacity. Because of proposed parking added by new development, the parking capacity would increase by approximately 900 spaces, primarily due to the East River Science Park. The analysis conservatively assumes that new garages from No Build projects would be filled to 100 percent capacity at all times. The existing off-street parking occupancy has been reduced further by a background traffic growth rate of 0.5 percent per year. Accounting for specific projects within the parking study area that do not propose new on-site parking, public parking facilities in the area can be expected to increase to occupancy levels of approximately 74 percent in the AM, 91 percent in the midday, 78 percent in the PM, and 51 percent in the Saturday midday by 2014. This would create a decrease in the number of available off-street parking spaces from existing to No Build conditions of 2,050 down to 1,780 spaces in the AM, 900 to 640 spaces in the midday, 1,750 to 1,550 spaces in the PM, and 3,720 to 2,910 spaces in the Saturday midday.

Legally available on-street parking would also be expected to diminish by 2014. After assigning a 0.5 percent per year growth rate to the existing parking occupancy, on-street parking occupancy would increase from 95 percent to 100 percent during the AM peak hour, from 98 to 100 percent during the midday peak hour (with some of the unmet demand perhaps shifting to

available paid, off-street public parking), from 89 to 93 percent during the PM peak hour, and from 88 to 92 percent during the Saturday midday peak hour.

E. FUTURE WITH THE PROPOSED ACTIONS

This section presents an analysis of future traffic and parking conditions under Build conditions in 2014. As shown in Table 15-6, the Proposed Actions would create residential space on 616, 685 and 700 (Waterside) First Avenue; office space on the 708 First Avenue site; community facility space (which has been assumed to be medical office space for traffic analysis purposes) on the 616 First Avenue site; local retail at 616, 685, and 708 First Avenue; destination retail at 700 First Avenue; and a total of 4.84 acres of public open 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 each of the sites. Mitigation measures are discussed in Chapter 18, "Mitigation."

Table 15-6
Proposed Development Alternatives Program

Site	Residential		Office	Community Facilities	Destination Retail	Local Retail
	GSF	DU	GSF	GSF	GSF	GSF
616 First Avenue	748,574	833	0	119,936	0	2,071
685 First Avenue	967,376	1,066	0	0	0	6,352
700 First Avenue	2,037,657	2,267	0	0	58,074	0
708 First Avenue	0	0	1,532,437	0	0	4,670
Total	3,753,607	4,166	1,532,437	119,936	58,074	13,093

Notes: GSF=gross square feet
DU=dwelling unit

TRIP GENERATION AND MODAL SPLIT

Travel demand estimates were prepared for each of the four land uses, as discussed below.

RESIDENTIAL

Table 15-7 summarizes the travel demand factors used to estimate residential trips. Four sources were used for the residential trip generation*: Urban Space for Pedestrians* (Pushkarev and Zupan, 1973); *Census 2000* (U.S. Bureau of the Census, 2000), the *Institute for Transportation Engineers, Trip Generation, 7th Edition*, and the 2004 FGEIS. The FGEIS used 1990 Census data to project the modal split and vehicle occupancy. Because 2000 Census data have become available since publication of the FGEIS, modal split and vehicle occupancies from the 2000 Census have been used for this analysis. Three tracts—Tracts 78, 86, and 88—were used, which include a number of existing residential buildings. The FGEIS did not include rates for a Saturday; therefore, Saturday rates were projected using the ITE *Trip Generation* Land Use Code 222.

Table 15-7
Travel Demand Factors—Residential

Factor	AM	Midday	PM	Saturday
Daily Person Trip Rate[1,4]	8.0 Trips per DU			9.5 Trips per DU
Temporal Distribution[1,4]	9.1%	4.7%	10.7%	8.0%
Inbound	15%	50%	70%	57%
Outbound	85%	50%	30%	43%
Modal Split[2]				
Auto	10%	10%	10%	10%
Taxi	9%	9%	9%	9%
Subway	20%	20%	20%	20%
Bus	11%	11%	11%	11%
Commuter Rail	2%	2%	2%	2%
Walk Only	48%	48%	48%	48%
Vehicle Occupancy[2,3]				
Auto	1.2	1.2	1.2	1.2
Taxi	1.4	1.4	1.4	1.4

Notes:
1 Pushkarev and Zupan, *Urban Space for Pedestrians* (1973)
2 U.S. Bureau of the Census, *Census 2000* (2000).
3 *Case 01-E-0377 - Joint Petition of Consolidated Edison Company of New York, Inc. and FSM East River Associates LLC for Authority under Section 70 of the Public Service Law to Transfer Certain Real Property Located at 616 First Avenue, a Portion of 685 First Avenue, 700 First Avenue and 708 First Avenue and for Related Relief Final Generic Environmental Impact Statement* (2004)
4 The person trip rate, temporal distribution and directional distribution for Saturday were derived based on rates presented in the Institute for Transportation Engineers *Trip Generation, 7th Edition.*

OFFICE

Table 15-8 shows the travel demand factors applied to the project's office component. Five sources were used for the office trip generation: *the New York City Environmental Quality Review (CEQR) Technical Manual* (Mayor's Office of Environmental Coordination, 2001); *Census 2000* (U.S. Bureau of the Census, 2000), the *Institute for Transportation Engineers, Trip Generation, 7th Edition*, No*. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004) and the 2004 FGEIS. Because reverse journey-to-work data from the 2000 Census became available subsequent to publication of the FGEIS, the modal split and vehicle occupancies were updated for this analysis. Three tracts—Tracts 78, 86, and 88—were used. These tracts encompass a mix of commercial uses including corporate offices, government offices, and medical offices. Thus, they were considered a reasonable representation of the project's future office uses.

The FGEIS applied a conservative modal distribution for midday office trips based on the 1990 Census; however, these rates have been revised for the SEIS to better reflect the travel mode for midday trips. The midday office modal distribution was developed based on the No*. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004). The resultant midday rates predict that a much smaller percentage of midday trips would be by automobile or taxi modes as compared to analysis presented in the FGEIS.

The FGEIS did not include rates for a Saturday; therefore, Saturday rates were projected using the ITE *Trip Generation* Land Use Code 710.

Table 15-8
Travel Demand Factors—Office

Factor	AM	Midday	PM	Saturday
Daily Person Trip Rate[1,4]	18.0 Trips per 1,000 SF			3.72 Trips/1,000SF
Temporal Distribution[1,4,5]	11.8%	15.0%	13.7%	17.3%
Inbound	96%	48%	5%	54%
Outbound	4%	52%	95%	46%
Modal Split[2,5]				
Auto	13%	2%	13%	13%
Taxi	2%	3%	2%	2%
Subway	42%	6%	42%	42%
Bus	14%	6%	14%	14%
Commuter Rail	11%	0%	11%	11%
Walk Only	18%	83%	18%	18%
Vehicle Occupancy[2,3,5]				
Auto	1.2	1.65	1.2	1.2
Taxi	1.4	1.4	1.4	1.4

Notes:

1 Mayor's Office of Environmental Coordination, *City Environmental Quality Review Technical Manual* (2001)

2 U.S. Bureau of the Census, 2000 Census of Population and Housing (2000).

2 *Case 01-E-0377 - Joint Petition of Consolidated Edison Company of New York, Inc. and FSM East River Associates LLC for Authority under Section 70 of the Public Service Law to Transfer Certain Real Property Located at 616 First Avenue, a Portion of 685 First Avenue, 700 First Avenue and 708 First Avenue and for Related Relief Final Generic Environmental Impact Statement* (2004)

4. The person trip rate, temporal distribution and directional distribution for Saturday were derived based on rates presented in the Institute for Transportation Engineers *Trip Generation, 7th Edition.*

5. No*. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004).

COMMUNITY FACILITY

In the travel demand analysis prepared for the FGEIS, the project's community facility component was assessed as medical office space, which provides a conservative (i.e., higher) estimate of traffic that would be generated by other types of community facilities. This analysis also treats the community facility component as medical offices. The FGEIS analysis for the project's community facility component was based on medical office rates from *400 East 61st Street Final Environmental Impact Statement* (1988). However, the modal split and vehicle occupancies for employee trips for the SEIS were updated using the 2000 Census data and the same midday modal distribution assumptions described above for the office use. Because the Census tracts that encompass the project sites include medical offices, the 2000 reverse journey-to-work data were considered a reasonable estimate for employee trips. The FGEIS did not include rates for a Saturday; therefore, Saturday rates were projected using the ITE *Trip Generation* Land Use Code 630. Tables 15-9 and 15-10 show the travel demand factors for the community facility component.

Table 15-9
Travel Demand Factors—Medical Office Employees

Factor	AM	Midday	PM	Saturday
Daily Person Trip Rate[1, 4]	10.0 Trips per 1,000 SF			2.5 Trips / 1,000 SF
Temporal Distribution[1,*]	48%	4%	48%	4%
Inbound	95%	50%	15%	50%
Outbound	5%	50%	85%	50%
Modal Split[2,3]				
Auto	13%	2%	13%	13%
Taxi	2%	3%	2%	2%
Subway	42%	6%	42%	42%
Bus	14%	6%	14%	14%
Commuter Rail	11%	0%	11%	11%
Walk Only	18%	83%	18%	18%
Vehicle Occupancy[1,2,3]				
Auto	1.2	1.65	1.2	1.2
Taxi	1.4	1.4	1.4	1.4

Notes:
1 *Case 01-E-0377 - Joint Petition of Consolidated Edison Company of New York, Inc. and FSM East River Associates LLC for Authority under Section 70 of the Public Service Law to Transfer Certain Real Property Located at 616 First Avenue, a Portion of 685 First Avenue, 700 First Avenue and 708 First Avenue and for Related Relief Final Generic Environmental Impact Statement* (2004)
2 U.S. Bureau of the Census, 2000 Census of Population and Housing (2000).
3 N*o. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004)
4 The person trip rate, temporal distribution and directional distribution for Saturday were derived based on rates presented in the Institute for Transportation Engineers *Trip Generation, 7th Edition.*
* The Saturday temporal distribution was assumed to be the same as the weekday midday period.

Table 15-10
Travel Demand Factors – Medical Office Patients and Visitors

Factor	AM	Midday	PM	Saturday
Daily Person Trip Rate[1]	33.6 Trips per 1,000 SF			8.3 Trips / 1,000 SF
Temporal Distribution[1]	20%	9%	5%	40.5%
Inbound	58%	40%	20%	57%
Outbound	42%	60%	80%	43%
Modal Split[1]				
Auto	25%	25%	25%	25%
Taxi	25%	25%	25%	25%
Subway	29%	29%	29%	29%
Bus	11%	11%	11%	11%
Commuter Rail	0%	0%	0%	0%
Walk Only	10%	10%	10%	10%
Vehicle Occupancy[1]				
Auto	1.65	1.65	1.65	1.65
Taxi	1.40	1.40	1.40	1.40

Notes:
1 *Case 01-E-0377 - Joint Petition of Consolidated Edison Company of New York, Inc. and FSM East River Associates LLC for Authority under Section 70 of the Public Service Law to Transfer Certain Real Property Located at 616 First Avenue, a Portion of 685 First Avenue, 700 First Avenue and 708 First Avenue and for Related Relief Final Generic Environmental Impact Statement* (2004)
2 The person trip rate, temporal distribution and directional distribution for Saturday were derived based on rates presented in the Institute for Transportation Engineers *Trip Generation, 7th Edition.*

DESTINATION RETAIL

The retail component of the proposed building at 700 First Avenue was assumed to be destination retail. Destination retail results in different trip generation characteristics than local merchants,

since it attracts people from a wider geographic area. The rates used to estimate destination retail trips were derived from the 2004 FGEIS, *Retail and Industrial Zoning Text Amendment Final Environmental Impact Statement* (1996), and N*o. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004). The daily trip rate also accounts for a 25 percent credit for linked trips consistent with the guidance of the *CEQR Technical Manual*. The rates used for this analysis are shown in Table 15-11.

Table 15-11
Travel Demand Factors—Destination Retail

Factor	AM	Midday	PM	Saturday
Daily Person Trip Rate[1,2,3]	118.5 Trips / 1,000 SF			274 Trips / 1,000 SF
Temporal Distribution[2,4]	0.0%	9.5%	9.8%	17.0%
Inbound	N/A	55%	48%	54%
Outbound	N/A	45%	52%	46%
Modal Split[1]				
Auto	N/A	9%	9%	9%
Taxi	N/A	4%	4%	4%
Subway	N/A	20%	20%	20%
Bus	N/A	8%	8%	8%
Commuter Rail	N/A	0%	0%	0%
Walk Only	N/A	59%	59%	59%
Vehicle Occupancy[1]				
Auto	N/A	2.0	2.0	2.0
Taxi	N/A	2.0	2.0	2.0

Notes:
1 *Case 01-E-0377 - Joint Petition of Consolidated Edison Company of New York, Inc. and FSM East River Associates LLC for Authority under Section 70 of the Public Service Law to Transfer Certain Real Property Located at 616 First Avenue, a Portion of 685 First Avenue, 700 First Avenue and 708 First Avenue and for Related Relief Final Generic Environmental Impact Statement* (2004)
2 *Retail and Industrial Zoning Text Amendment Final Environmental Impact Statement* (1996)
2 *The daily trip rate includes a 25 percent credit for linked trips consistent with the guidance of the City Environmental Quality Review Technical* (Manual (Mayor's Office of Environmental Coordination, 2001)
4. N*o. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004)

LOCAL RETAIL

The retail space that would be provided at 616, 685, and 708 First Avenue was assumed to be local retail (e.g., dry cleaners, delis, etc.). This analysis of local retail trips uses rates from four sources: *Urban Space for Pedestrians* (Pushkarev and Zupan, 1973); *CEQR Technical Manual* (Mayor's Office of Environmental Coordination, 2001), *Retail and Industrial Zoning Text Amendment Final Environmental Impact Statement* (New York City Department of City Planning, 1996), and the 2004 FGEIS. The daily trip rate also accounts for a 25 percent credit for linked trips consistent with the guidance of the *CEQR Technical Manual*. Table 15-12 shows the travel demand factors for the project's local retail component.

Table 15-12
Travel Demand Factors—Local Retail

Factor	AM	Midday	PM	Saturday
Daily Person Trip Rate[1,5]	154 Trips / 1,000 SF			366 Trips / 1,000 SF
Temporal Distribution[2,3]	1%	22.0%	10.0%	17.0%
Inbound	50%	50%	50%	54%
Outbound	50%	50%	50%	46%
Modal Split[3,4]				
Auto	2%	2%	2%	2%
Taxi	2%	2%	2%	3%
Subway	14%	14%	14%	15%
Bus	3%	3%	3%	5%
Commuter Rail	0%	0%	0%	0%
Walk Only	79%	79%	79%	75%
Vehicle Occupancy[4]				
Auto	1.65	1.65	1.65	1.65
Taxi	1.4	1.4	1.4	1.4

Notes:
1 Pushkarev and Zupan, *Urban Space for Pedestrians* (1973)
2 Mayor's Office of Environmental Coordination, *City Environmental Quality Review Technical Manual* (2001)
3 *Retail and Industrial Zoning Text Amendment Final Environmental Impact Statement* (1996)
4 *Case 01-E-0377 - Joint Petition of Consolidated Edison Company of New York, Inc. and FSM East River Associates LLC for Authority under Section 70 of the Public Service Law to Transfer Certain Real Property Located at 616 First Avenue, a Portion of 685 First Avenue, 700 First Avenue and 708 First Avenue and for Related Relief Final Generic Environmental Impact Statement* (2004)
5 *The daily trip rate includes a 25 percent credit for linked trips consistent with the guidance of the City Environmental Quality Review Technical* (Manual (Mayor's Office of Environmental Coordination, 2001)

OPEN SPACE

Weekday trips associated with the project's public open space were estimated based on rates presented in the *CEQR Technical Manual*. The Saturday trips were estimated using rates from *Gateway Estates Final Environmental Impact Statement* (1996). Trips associated with the open space were assumed to be from the surrounding community; therefore, all visitors would travel to and from the open space on foot (walk only). Table 15-13 shows the travel demand factors for the project's open space component.

DELIVERIES

Delivery trips were estimated for each of the project's land uses by applying rates from *No. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004) and the 2004 FGEIS. The Saturday delivery trips were estimated using weekend rates from *No. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004) and *World Trade Center Memorial and Redevelopment Plan Final Generic Environmental Impact Statement* (2003). These factors are presented in Table 15-14.

Table 15-13
Travel Demand Factors—Open Space

Factor	AM	Midday	PM	Saturday
Daily Person Trip Rate[1,2]	139 Trips/Acre			158 Trips/Acre
Temporal Distribution[1,2]	7.0%	17.0%	14.0%	20.0%
Inbound	50%	50%	50%	55%
Outbound	50%	50%	50%	45%
Modal Split[3]				
Auto	0%	0%	0%	0%
Taxi	0%	0%	0%	0%
Subway	0%	0%	0%	0%
Bus	0%	0%	0%	0%
Commuter Rail	0%	0%	0%	0%
Walk Only	100%	100%	100%	100%
Vehicle Occupancy				
Auto	N/A	N/A	N/A	N/A
Taxi	N/A	N/A	N/A	N/A

Notes:
1 Mayor's Office of Environmental Coordination, *City Environmental Quality Review Technical Manual* (2001)
2 *Gateway Estates Final Environmental Impact Statement* (1996)
3 All trips to and from the project's open space were assumed to be walk only.

Table 15-14
Travel Demand Factors – Delivery Trips

Factor	Residential[1]	Office[1]	Medical Office[2]	Destination Retail[1]	Local Retail[1]
Daily Weekday Trip Rate	0.03 Trips per DU	0.15 Trips per 1,000 SF	0.2 Trips per 1,000 SF	0.35 Trips per 1,000 SF	0.35 Trips per 1,000 SF
Saturday Trip Rate	0.015 Trips per DU	0.01 Trips per 1,000 SF	0.01 Trips per 1,000 SF	0.02 Trips per 1,000 SF	0.02 Trips per 1,000 SF
Temporal Distribution					
AM	12.2%	9.7%	9.6%	7.7%	7.7%
Midday	8.7%	7.8%	11.0%	11.0%	11.0%
PM	1.0%	5.1%	1.0%	1.0%	1.0%
Saturday	7.8%	1.0%	1.0%	1.0%	1.0%

Sources:
1 No*. 7 Subway Extension and Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* (2004)
2 *Case 01-E-0377 - Joint Petition of Consolidated Edison Company of New York, Inc. and FSM East River Associates LLC for Authority under Section 70 of the Public Service Law to Transfer Certain Real Property Located at 616 First Avenue, a Portion of 685 First Avenue, 700 First Avenue and 708 First Avenue and for Related Relief Final Generic Environmental Impact Statement* (2004)

TRAVEL DEMAND ANALYSIS RESULTS

Table 15-15 presents the person trips generated by the proposed development program. The development program would generate a total of 7,737, 7,182, 9,026, and 7,989 person trips in the AM, midday, PM, and Saturday peak hours, respectively. The greatest number of trips in each of the peak hours would be by walking when considering that subway, rail, and bus trips eventually become walk trips at the various project sites.

Table 15-15
Proposed Development Program—Person Trips by Mode

Site	Use	Auto		Taxi		Subway		Bus		Rail		Walk Only		Total	
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM PEAK HOUR															
616 First Avenue	Residential	9	52	8	46	18	103	10	57	2	10	44	247	91	515
	Medical Office	187	89	128	86	363	113	127	42	60	4	144	40	1009	374
	Retail	0	0	0	0	0	0	0	0	0	0	2	2	2	2
	Subtotal	196	141	136	132	381	216	137	99	62	14	190	289	1102	891
685 First Avenue	Residential	12	66	10	59	23	132	13	73	2	13	56	317	116	660
	Retail	0	0	0	0	0	0	0	0	0	0	2	2	2	2
	Subtotal	12	66	10	59	23	132	13	73	2	13	58	319	118	662
700 First Avenue	Residential	25	140	22	126	50	281	27	154	5	28	119	674	248	1403
	Dest. Retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Subtotal	25	140	22	126	50	281	27	154	5	28	119	674	248	1403
708 First Avenue	Office	406	17	63	3	1313	55	438	18	344	14	563	23	3127	130
	Retail	0	0	0	0	1	1	0	0	0	0	3	3	4	4
	Subtotal	406	17	63	3	1314	56	438	18	344	14	566	26	3131	134
Open Space		0	0	0	0	0	0	0	0	0	0	24	24	24	24
Total		**639**	**364**	**231**	**320**	**1768**	**685**	**615**	**344**	**413**	**69**	**957**	**1332**	**4623**	**3114**
MIDDAY PEAK HOUR															
616 First Avenue	Residential	16	16	14	14	31	31	17	17	3	3	76	76	157	157
	Medical Office	36	54	37	55	43	64	17	25	0	0	35	42	168	240
	Retail	1	1	1	1	5	5	1	1	0	0	28	28	36	36
	Subtotal	53	71	52	70	79	100	35	43	3	3	139	146	361	433
685 First Avenue	Residential	20	20	18	18	40	40	22	22	4	4	96	96	200	200
	Retail	2	1	1	1	5	5	1	1	0	0	28	28	37	36
	Subtotal	22	21	19	19	45	45	23	23	4	4	124	124	237	236
700 First Avenue	Residential	43	43	38	38	85	85	47	47	9	9	204	204	426	426
	Dest. Retail	32	26	14	12	72	59	29	24	0	0	212	173	359	294
	Subtotal	75	69	52	50	157	144	76	71	9	9	416	377	785	720
708 First Avenue	Office	40	43	60	65	119	129	119	129	0	0	1648	1786	1986	2152
	Retail	2	2	2	2	11	11	2	2	0	0	62	62	79	79
	Subtotal	42	45	62	67	130	140	121	131	0	0	1710	1848	2065	2231
Open Space		0	0	0	0	0	0	0	0	0	0	57	57	57	57
Total		**192**	**206**	**185**	**206**	**411**	**429**	**255**	**268**	**16**	**16**	**2446**	**2552**	**3505**	**3677**
PM PEAK HOUR															
616 First Avenue	Residential	50	21	45	19	100	43	55	24	10	4	239	103	499	214
	Medical Office	21	104	12	50	48	253	16	87	9	54	20	104	126	652
	Retail	0	0	0	0	2	2	0	0	0	0	13	13	15	15
	Subtotal	71	125	57	69	150	298	71	111	19	58	272	220	640	881
685 First Avenue	Residential	64	27	58	25	128	55	70	30	13	5	306	132	639	274
	Retail	1	0	0	0	2	2	0	0	0	0	13	13	16	15
	Subtotal	65	27	58	25	130	57	70	30	13	5	319	145	655	289
700 First Avenue	Residential	136	58	122	52	272	116	149	64	27	12	652	280	1358	582
	Dest. Retail	29	32	13	14	65	70	26	28	0	0	191	207	324	351
	Subtotal	165	90	135	66	337	186	175	92	27	12	843	487	1682	933
708 First Avenue	Office	25	467	4	72	79	1508	26	503	21	395	34	646	189	3591
	Retail	1	1	1	1	5	5	1	1	0	0	28	28	36	36
	Subtotal	26	468	5	73	84	1513	27	504	21	395	62	674	225	3627
Open Space		0	0	0	0	0	0	0	0	0	0	47	47	47	47
Total		**327**	**710**	**255**	**233**	**701**	**2054**	**343**	**737**	**80**	**470**	**1543**	**1573**	**3249**	**5777**

Table 15-15 (cont'd)
Proposed Development Program—Person Trips by Mode

Site	Use	Auto		Taxi		Subway		Bus		Rail		Walk Only		Total	
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
SATURDAY MIDDAY PEAK HOUR															
616 First Avenue	Residential	36	27	33	25	72	55	40	30	7	5	174	131	362	273
	Medical Office	59	45	58	44	69	52	26	20	1	1	24	18	237	180
	Retail	1	1	2	2	11	9	4	3	0	0	53	44	71	59
	Subtotal	96	73	93	71	152	116	70	53	8	6	251	193	670	512
685 First Avenue	Residential	46	35	42	31	93	70	51	38	9	7	222	168	463	349
	Retail	4	1	2	2	11	9	4	3	0	0	53	44	74	59
	Subtotal	50	36	44	33	104	79	55	41	9	7	275	212	537	408
700 First Avenue	Residential	98	74	89	67	197	149	108	82	20	15	472	356	984	743
	Dest. Retail	131	112	58	50	292	248	117	99	0	0	860	733	1458	1242
	Subtotal	229	186	147	117	489	397	225	181	20	15	1332	1089	2442	1985
708 First Avenue	Office	69	59	11	9	224	191	75	64	59	50	96	82	534	455
	Retail	3	3	5	4	24	20	8	7	0	0	118	101	158	135
	Subtotal	72	62	16	13	248	211	83	71	59	50	214	183	692	590
Open Space		0	0	0	0	0	0	0	0	0	0	84	69	84	69
Total		**447**	**357**	**300**	**234**	**993**	**803**	**433**	**346**	**96**	**78**	**2156**	**1746**	**4425**	**3564**

Table 15-16 shows the vehicle trips that would be generated by the proposed development program. The development program would generate a total of 1,494, 772, 1,356, and 1,097 vehicle trips in the AM, midday, PM, and Saturday peak hours, respectively.

Table 15-16
Proposed Development Program—Vehicle Trips By Type

Site	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
AM PEAK HOUR									
616 First Avenue	137	98	144	144	5	5	286	247	533
685 First Avenue	10	55	45	45	4	4	59	104	163
700-708 First Avenue	359	131	122	122	32	32	513	285	798
Total	**506**	**284**	**311**	**311**	**41**	**41**	**858**	**636**	**1494**
MIDDAY PEAK HOUR									
616 First Avenue	38	49	68	68	4	4	110	121	231
685 First Avenue	18	18	21	21	3	3	42	42	84
700-708 First Avenue	77	76	119	119	33	33	229	228	457
Total	**133**	**143**	**208**	**208**	**40**	**40**	**381**	**391**	**772**
PM PEAK HOUR									
616 First Avenue	57	95	70	70	1	1	128	166	294
685 First Avenue	54	24	42	42	0	0	96	66	162
700-708 First Avenue	150	454	145	145	3	3	298	602	900
Total	**261**	**573**	**257**	**257**	**4**	**4**	**522**	**834**	**1356**
SATURDAY MIDDAY PEAK HOUR									
616 First Avenue	67	52	83	83	1	1	151	136	287
685 First Avenue	40	31	43	43	1	1	84	75	159
700-708 First Avenue	208	169	134	134	3	3	345	306	651
Total	**315**	**252**	**260**	**260**	**5**	**5**	**580**	**517**	**1097**

TRIP DISTRIBUTION AND ASSIGNMENT TO THE ROADWAY NETWORK

The volume of vehicular traffic generated by the Build program was assigned to the roadway network using regional origin/destination patterns from the FGEIS, with adjustments to account for changes in the roadway network on 41st Street between First Avenue (which was two-way

and is now one-way westbound) and the PM peak hour closure of the QMT Entrance Street between 34th Street and 35th Street (which no longer allows eastbound or westbound traffic on 34th Street to turn onto the northbound QMT Entrance Street). An overview of the regional distribution of generated traffic is described below. The local distribution in the immediate vicinity of each site varies because the specific routes taken to and from each depends on each site's relative proximity to 34th and 42nd Streets and to specific FDR Drive on-ramps and off-ramps.

OFFICE TRIPS

For office use at 708 First Avenue, most auto trips would originate from Queens (about 28 percent), Long Island (about 12 percent), Brooklyn (about 10 percent), Manhattan (about 11 percent), Westchester and other Upstate New York counties (about 11 percent), and New Jersey (about 15 percent), while about 90 percent of all taxi trips would originate from Manhattan (and the remainder from Brooklyn and Queens).

The FDR Drive would be significantly used by auto trips, with about 41 percent using this route to access the study area. Another 24 percent is expected to approach the area via the QMT and close to 17 percent via the Queensboro Bridge. 34th and 42nd Streets (about 15 percent) and First and Second Avenues (about 4 percent) would not be the primary approach routes to the area regionally, although these four streets would be more heavily used by traffic once it emerges onto the street network from the FDR Drive, the QMT, and the Queensboro Bridge.

RESIDENTIAL TRIPS

For residential uses at 616, 685 and 700 First Avenue, most auto trips are expected to be made to other Manhattan locations (about 25 percent), Queens (about 21 percent), Brooklyn (15 percent), Long Island (about 14 percent), and New Jersey (about 22 percent), while taxi trips would be destined to other Manhattan locations (more so to locations above 42nd Street than below 42nd Street, by about a 60 percent/40 percent ratio). About 40 percent of the residentially-generated auto trips would be expected to use the FDR Drive, especially to destinations in Lower Manhattan and Brooklyn, with Queens and Long Island trips oriented to the QMT and Queensboro Bridge (about 22 percent and 13 percent, respectively). The remainder of the auto trips would use the various north-south avenues to proceed uptown or downtown, and primarily 34th and 42nd Street to proceed to crosstown destinations including the entrances to the Lincoln Tunnel for many New Jersey-bound locations. The local street network would also be used to gain access into the QMT, toward the Queensboro Bridge, or onto the FDR Drive. Taxi trips would also be made via this array of routes, including the FDR Drive for most trips to Lower Manhattan and for some trips to the Upper East Side.

LOCAL RETAIL TRIPS

Local retail trips would be predominantly made by walking with little auto use. Auto and taxi trips made to and from local retail uses at each site would be expected to be local, Manhattan-oriented trips.

DESTINATION RETAIL TRIPS

Auto and taxi trips made to and from destination retail space at 700 First Avenue would be expected to be local, Manhattan-oriented trips. The majority of trips would use the FDR Drive, or First or Second Avenues (about 85 to 90 percent), with the remainder coming to or from Lexington or Third Avenues and proceeding on 34th or 42nd Streets (about 10 to 15 percent).

DELIVERIES

Deliveries can be expected to use designated truck routes such as First, Second, and Third Avenues, and 34th and 42nd Streets. Percent assignments would range from 15 to 35 percent on each roadway. Upon reaching the site, trucks destined to 616 First Avenue would load or unload on 36th Street or use the single-berth truck dock on 36th Street. Deliveries to 685 First Avenue would load or unload on the private road between 39th and 40th Streets or use the single-berth truck dock on 39th Street. Deliveries to 700 First Avenue would pull into the off-street loading area on the FDR Drive service road, use one of four loading bays, and pull head-out onto the FDR Drive service road. Deliveries to 708 First Avenue would proceed to 41st Street, pull into the off-street loading area, use one of five loading bays, and pull head-out onto 41st Street.

MEDICAL OFFICE TRIPS

Employee auto trips can be expected to have similar origin and destination patterns to the general office type auto trips, while patient and visitor trips would be more oriented to local Manhattan origins, with close to 50 percent of such trips being Manhattan-oriented. The remaining medical office patient/visitor auto trips would be oriented to the other boroughs (about 35 percent overall, primarily from Queens and Brooklyn), and less so to Long Island (about 4 percent), Westchester and upstate New York (about 6 percent), and New Jersey (about 7 percent).

GENERATED TRAFFIC VOLUMES

The above trip generation-modal split-trip distribution process produced specific roadway-by-roadway and intersection-by-intersection traffic volume projections within the study area, an overview of which is provided below. Specific block-by-block generated volume projections are provided in detail in the supplementary technical appendices.

In 2014, the Build program traffic volume increments would make up about 4.1 percent of overall traffic volumes in the AM peak hour, 2.5 percent in the midday peak hour, 3.7 percent in the PM peak hour, and 4.1 percent in the Saturday midday peak hour when comparing these volume increments to overall Build traffic volumes entering and exiting the primary traffic study area along its various streets and roadways.

First Avenue traffic volumes can generally be expected to increase due to the Build program traffic volumes by about 200 vph near 34th Street, 500 vph near 42nd Street, and 100 vph between 49th and 57th Streets in the AM peak hour, with midday peak hour volumes increasing by about 130 vph near 34th Street, 300 vph near 42nd Street, and 80 vph between 49th and 57th Streets, PM peak hour volumes increasing by about 300 vph near 34th Street, 500 vph near 42nd Street, and 160 vph between 49th and 57th Streets, and Saturday midday peak hour volumes increasing by about 200 vph near 34th Street, 350 vph near 42nd Street, and 90 vph between 49th and 57th Streets.

In the primary study area leading to the QMT, i.e., between 42nd and 36th Streets, Second Avenue traffic volumes can be expected to increase by about 80 to 150 vph in the AM peak hour, by about 40 to 100 vph at midday, by about 50 to 130 vph in the PM peak hour, and by about 60 to 110 vph in the Saturday peak hour. In the Queensboro Bridge secondary study area leading from the Bridge, i.e., between 49th Street and 59th Street, Second Avenue traffic volumes can be expected to increase by about 160 to 170 vph in the AM peak hour, 70 to 80 vph

in the midday peak hour, 90 to 100 vph in the PM peak hour, and 90 to 110 vph in the Saturday peak hour.

Third Avenue traffic volumes can be expected to increase by about 10 to 20 vph in each of the peak hours.

FDR Drive service road volumes near 34th Street can be expected to increase by about 200 vph northbound and 200 to 400 vph southbound in the AM peak hour, by about 100 vph northbound and 100 to 180 vph southbound at midday, by about 180 vph northbound and 200 to 280 vph southbound in the PM peak hour, and by about 170 vph northbound and 150 to 230 vph southbound in the Saturday midday peak hour.

Crosstown traffic volumes on 34th Street in the primary study area, i.e., between Madison Avenue and First Avenue, are generally expected to increase by about 20 to 50 vph in the eastbound direction and 10 to 40 vph in the westbound direction in the AM peak hour, about 10 to 30 vph per direction at midday, by about 30 to 40 vph eastbound and 20 to 30 vph westbound in the PM peak hour, and by about 30 to 40 vph eastbound and 10 to 20 vph westbound in the Saturday peak hour. Between the FDR Drive service road and First Avenue, westbound 34th Street would experience an increase in traffic volumes ranging from 140 to 150 vph in the AM peak hour, 80 to 90 vph in the midday peak hour, 160 to 170 vph in the PM peak hour, and 130 to 140 vph in the Saturday peak hour. In the West Side secondary traffic study area, i.e., west of Madison Avenue to Eighth Avenue, 34th Street traffic volumes are generally expected to increase by about 20 to 60 vph per direction in the four peak hours.

Crosstown traffic volumes on 42nd Street in the primary study area, i.e., between Madison Avenue and First Avenue, are generally expected to increase by about 90 to 140 vph in the eastbound direction and 70 to 100 vph in the westbound direction in the AM peak hour, about 40 to 70 vph per direction at midday, by about 40 to 60 vph eastbound and 90 to 120 vph westbound in the PM peak hour, and by about 50 to 70 vph in each direction in the Saturday peak hour. Between the FDR Drive service road and First Avenue, eastbound 42nd Street would experience an increase in traffic volumes ranging from 380 to 390 vph in the AM peak hour, 150 to 160 vph in the midday peak hour, 130 to 140 vph in the PM peak hour, and 180 to 190 vph in the Saturday peak hour. In the West Side secondary traffic study area, i.e., west of Madison Avenue to Ninth Avenue, 42nd Street traffic volumes are generally expected to increase by about 30 to 90 vph in each direction in the AM and PM peak hours, and 10 to 50 vph in each direction in the weekday midday and Saturday midday peak hours.

Crosstown traffic volumes on 35th to 37th Streets leading to and from the QMT and First Avenue are generally expected to increase by approximately 20 to 70 vph per direction in the AM and midday peak hours, 30 to 50 vph in each direction in the PM peak hour, and 30 to 110 vph in each direction in the Saturday midday peak hour. Eastbound 38th Street between the QMT Exit Street and First Avenue would experience increases in traffic volumes of up to 160 vph in the AM peak hour, 60 vph in the midday peak hour, 120 vph in the PM peak hour, and 120 vph in the Saturday midday peak hour. Crosstown traffic volumes on 39th to 41st Streets during the AM, midday, PM, and Saturday midday peak hours would generally increase by 10 to 60 vph in each direction.

TRAFFIC LEVELS OF SERVICE AND IMPACTS

The assessment of potential significant traffic impacts of the Proposed Actions 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 Actions 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 Build conditions, primarily through the use of figures indicating overall levels of service intersection-by-intersection and significantly impacted locations. Detailed volume-to-capacity (v/c) ratios, average vehicle delay, and levels of service movement-by-movement at each intersection under 2014 Build conditions, along with generated-traffic volume increment maps and total Build volume maps, are provided within the technical traffic appendices.

Future traffic levels of service under Build conditions are shown in Figures 15-16 through 15-21 and in Table 15-17. As shown in Table 15-17, the Proposed Actions would have significant traffic impacts at 40 of the 61 signalized intersections analyzed in the AM peak hour, 20 of 61 at midday, 40 of 61 in the PM peak hour, and 13 of 61 in the Saturday midday peak hour in the primary traffic study area. Of the four unsignalized intersections analyzed, three would be significantly impacted in the AM and PM peak hours, and one would be significantly impacted in the midday and Saturday peak hours.

In the Queensboro Bridge secondary study area, of 12 signalized intersections analyzed during the AM peak hour, and 13 signalized intersections analyzed during the midday, PM and Saturday peak hours, there would be five significantly impacted intersections in the AM peak hour, seven during the midday peak hour, six during the PM peak hour, and two during the Saturday midday peak hour.

In the West Side secondary traffic study area, of the eight signalized intersections analyzed, seven would be significantly impacted during the AM and weekday midday peak hours, all eight locations would be significantly impacted in the PM peak hour, and six would be significantly impacted during the Saturday midday peak hour.

Table 15-17
Traffic Level of Service Summary Comparison
No Build vs. Build Conditions (2014)

	2014 No Build AM Peak Hour	2014 No Build Midday Peak Hour	2014 No Build PM Peak Hour	2014 No Build Saturday Peak Hour	2014 Build AM Peak Hour	2014 Build Midday Peak Hour	2014 Build PM Peak Hour	2014 Build Saturday Peak Hour
Primary Traffic Study Area[1]								
Signalized Intersections (61 locations AM, midday and PM weekday, Saturday)								
Overall LOS A/B	11	27	14	42	10	25	10	40
Overall LOS C	18	15	8	12	10	13	4	11
Overall LOS D	11	9	8	3	10	8	8	3
Overall LOS E/F	21	10	31	4	31	15	39	7
No. of Intersections with Significant Impacts	--	--	--	--	40	20	40	13
No. of Movements at LOS E or F	59	31	71	9	77	39	84	14
Queensboro Bridge Traffic Study Area[2]								
Signalized Intersections (12 locations AM, 13 midday and PM weekday, Saturday)								
Overall LOS A/B	1	3	2	6	0	3	2	6
Overall LOS C	2	1	3	3	2	1	3	3
Overall LOS D	5	1	2	3	5	1	2	2
Overall LOS E/F	4	8	6	1	5	8	6	2
No. of Intersections with Significant Impacts	--	--	--	--	5	7	6	2
No. of Movements at LOS E or F	15	17	16	5	17	18	17	5
West Side Traffic Study Area[3]								
Signalized Intersections (8 locations AM, midday and PM weekday, Saturday)								
Overall LOS A/B	0	0	0	1	0	0	0	1
Overall LOS C	1	0	0	4	1	0	0	3
Overall LOS D	0	4	0	0	0	3	0	1
Overall LOS E/F	7	4	8	3	7	5	8	3
No. of Intersections with Significant Impacts	--	--	--	--	7	7	8	6
No. of Movements at LOS E or F	21	16	24	7	22	16	24	8

Notes:

1 Three unsignalized intersections in the weekday AM peak hour would operate at LOS F and would be significantly impacted. One unsignalized intersection would operate at overall LOS F and would be significantly impacted during the weekday midday and Saturday midday peak hours. Three unsignalized intersections during the PM peak hour would operate at overall LOS D or F and would be significantly impacted. All other unsignalized intersections and peak hours would operate at overall LOS C or better. Two additional unsignalized intersections created at garage access points on 35th and 38th Streets would operate at LOS A during all peak hours.

2 The Queensboro Bridge Upper Level at 57th Street operates as an unsignalized intersection in the AM peak hour, and would operate at an overall LOS E under Build conditions.

3 No unsignalized intersections are analyzed in this study area.

PRIMARY STUDY AREA

This summary overview of Build conditions indicates that:

- In the AM peak hour, of the 61 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from 21 under No Build conditions to 31 under Build conditions. Forty of the intersections would be significantly impacted. The number of traffic movements projected to operate at LOS E or F would increase from 59 to 77. Figure 15-16 shows overall levels of service and significantly impacted intersections.
- In the midday peak hour, the number of signalized intersections that would operate at overall LOS E or F would increase from 10 to 15, with 20 intersections significantly impacted as shown in Figure 15-17, while the number of traffic movements at LOS E or F would increase from 31 to 39.
- In the PM peak hour, the number of signalized intersections that are projected to operate at overall LOS E or F would increase from 31 to 39 under Build conditions. As shown in Figure 15-18, 40 intersections would be significantly impacted. The number of traffic movements projected to operate at LOS E or F would increase from 71 to 84.
- In the Saturday peak hour, of the 61 signalized intersections analyzed, seven intersections would operate at overall LOS E or F as compared with four under No Build conditions, with 13 significantly impacted intersections, as shown in Figure 15-19, while the number of traffic movements at LOS E or F would increase from 9 to 14.
- The four unsignalized intersections analyzed during the AM, midday, PM, and Saturday peak hours would operate at LOS F conditions on some movements. As a result, the FDR Drive service road at 36th and 38th Streets, and First Avenue at 41st Street, would be significantly impacted in the AM and PM peak hours. First Avenue at 41st Street would be significantly impacted in the midday and Saturday peak hours. The other unsignalized intersections, including two new garage access points on East 35th and 38th Streets between First Avenue and the FDR Drive service road would operate at overall LOS C or better.

QUEENSBORO BRIDGE STUDY AREA

This summary overview of Build conditions indicates that:

- In the AM peak hour, of the 12 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from four under No Build conditions to five under Build conditions. Five signalized intersections would be significantly impacted. The number of traffic movements projected to operate at LOS E or F would increase from 15 to 17. The Queensboro Bridge upper level at 57th Street, which operates as an unsignalized intersection in the AM peak hour only, would operate at overall LOS E, but would not be significantly impacted. Figure 15-20 shows overall levels of service and significantly impacted intersections.
- In the midday peak hour, of the 13 signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F would remain at eight, and the number of traffic movements at LOS E or F would increase from 17 to 18. Seven intersections would be significantly impacted.

- In the PM peak hour, of the 13 signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F remain at six, and the number of traffic movements at LOS E or F would increase from 16 to 17. Six intersections would be significantly impacted.
- In the Saturday peak hour, of the 13 signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F would increase from one to two, while the number of traffic movements at LOS E or F would remain at five. Two intersections would be significantly impacted.

WEST SIDE STUDY AREA

This summary overview of Build conditions indicates that:

- In the AM peak hour, of the eight signalized intersections analyzed, seven would operate at overall LOS E or F under No Build and Build conditions. As illustrated in Figure 15-21, there would be significant impacts at seven intersections. The number of traffic movements projected to operate at LOS E or F would increase from 21 to 22.
- In the midday peak hour, of the eight signalized intersections analyzed, the number of intersections that would operate at overall LOS E or F would increase from four to five, seven intersections would be significantly impacted, and the number of traffic movements at LOS E or F would remain at 16.
- In the PM peak hour, of the eight signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would remain at eight, and all eight intersections would be significantly impacted. The number of traffic movements projected to operate at LOS E or F would remain at 24.
- In the Saturday peak hour, of the eight signalized intersections analyzed, the number of locations that would operate at overall LOS E or F would remain at three, six intersections would be significantly impacted, and the number of traffic movements at LOS E or F would increase from seven to eight.

PARKING

This section of the SEIS addresses the ability of on-site parking spaces to accommodate projected parking demands under Build conditions. The Proposed Actions would provide sufficient parking spaces on-site overall, although some motorists destined to residential space at 685 First Avenue may be accommodated across the street at the 700/708 First Avenue site and approximately 220 autos destined to the office space at 708 First Avenue would need to find parking at nearby off-street public parking, which is accounted for in the traffic assignments and parking accumulation table that follows (Table 15-18). The approximately 220 autos that would not be accommodated by public parking on site have been assigned to available off-street parking facilities within one-quarter mile of the site. These additional autos would increase off-site, off-street parking from 91 percent under No Build conditions to 94 percent under Build conditions. With the exception of about 220 autos in the mid-morning to early afternoon, it would not be necessary for those driving to the site to use off-site parking lots or garages in the area. Also, because peak on-site parking demands would reach about 94 percent on weekdays and off-site parking occupancy rates would be lower—ranging from 74 to 94 percent on weekdays—significant transient (non site-destined) parking would not occur on the project sites.

However, to be conservative, about 40 off-site autos have been added to the public parking at 616 First Avenue to reach 100 percent occupancy.

Table 15-18
Weekday Accumulation—2014 Build Conditions

Northern Parcel: 685/700/708				Southern Parcel: 616			TOTAL		
Time	Autos In	Autos Out	Number of Spaces Occupied (Percent Occupied)	Autos In	Autos Out	Number of Spaces Occupied (Percent Occupied)	Autos In	Autos Out	Number of Spaces Occupied (Percent Occupied)
12 - 1 AM	19	19	833 (66%)	5	5	208 (71%)	24	24	1,042 (67%)
1 - 2 AM	8	8	833 (66%)	2	2	208 (71%)	10	10	1,042 (67%)
2 - 3 AM	4	4	833 (66%)	1	1	208 (71%)	6	6	1,042 (67%)
3 - 4 AM	2	2	833 (66%)	1	1	208 (71%)	3	3	1,042 (67%)
4 - 5 AM	2	2	833 (66%)	1	1	208 (71%)	3	3	1,042 (67%)
5 - 6 AM	3	3	833 (66%)	1	1	208 (71%)	4	4	1,042 (67%)
6 - 7 AM	2	11	824 (65%)	0	3	206 (70%)	2	14	1,030 (66%)
7 - 8 AM	240	86	978 (78%)	5	18	192 (65%)	245	104	1,170 (75%)
8 - 9 AM	368	186	1,161 (92%)	137	98	230 (78%)	505	284	1,391 (90%)
9 - 10 AM	138	145	1,154 (92%)	79	48	261 (89%)	217	193	1,415 (91%)
10 - 11 AM	117	101	1,170 (93%)	77	44	294 (100%)	194	145	1,464 (94%)
11 AM - 12 Noon	162	160	1,172 (93%)	63	102	255 (87%)	225	262	1,427 (92%)
12 - 1 PM	95	94	1,172 (93%)	38	49	244 (83%)	133	143	1,416 (91%)
1 - 2 PM	200	201	1,171 (93%)	29	34	238 (81%)	229	235	1,410 (91%)
2 - 3 PM	206	215	1,163 (92%)	27	59	206 (70%)	233	273	1,369 (88%)
3 - 4 PM	147	173	1,137 (90%)	26	40	192 (65%)	173	213	1,329 (86%)
4 - 5 PM	179	297	1,020 (81%)	37	15	214 (73%)	217	312	1,234 (79%)
5 - 6 PM	204	478	746 (59%)	57	95	176 (60%)	261	573	922 (59%)
6 - 7 PM	178	143	781 (62%)	40	20	195 (66%)	218	163	976 (63%)
7 - 8 PM	128	74	835 (66%)	30	17	208 (71%)	158	92	1,043 (67%)
8 - 9 PM	49	50	834 (66%)	11	11	208 (71%)	59	61	1,042 (67%)
9 - 10 PM	35	35	833 (66%)	8	8	208 (71%)	43	43	1,042 (67%)
10 - 11 PM	37	37	833 (66%)	9	9	208 (71%)	46	46	1,042 (67%)
11 PM - 12 midnight	27	27	833 (66%)	7	7	208 (71%)	33	33	1,042 (67%)
Spaces Available	1,260			294			1,554		

The Proposed Actions are expected to provide a total of 945 public parking spaces and 609 accessory parking spaces with the following site breakdowns: 294 public spaces at 616 First Avenue; 110 accessory spaces at 685 First Avenue; and 651 public spaces and 499 accessory spaces at 700/708 First Avenue. Trips generated by the residential land use have been assigned to accessory or public parking, and trips generated by the office, retail, and medical office have been assigned to public parking. Similar to the FGEIS, the SEIS has grouped the parking accumulation table into northern and southern parking areas including 685, 700 and 708 First Avenue and 616 First Avenue, respectively.

Under 2014 Build conditions, overall weekday parking accumulation can be expected to increase from the early morning hours as office workers and medical office employees start to arrive for work, and reach a maximum accumulation of about 94 percent overall by 10 AM (see Table 15-18). This level of parking is typically what most garages are designed to accommodate. Parking accumulation would then fluctuate within a general range of about 79 to 92 percent through the midday and early afternoon hours as office visitors and medical office visitors come and go, decreasing to 59 percent at about 5 PM. Overnight parking accumulation would be steady at about 67 percent due to residential parking.

On a typical Saturday under 2014 Build conditions, there would be ample parking since far fewer auto trips would be destined to office or community facility/medical office land uses. All on-site parking demands would be met, and due to the estimated 51 percent occupancy rate of off-site parking within a ¼-mile of the site, it is not likely that transient parking would occur in the on-site public parking areas since ample off-site parking would exist on a Saturday.

F. FDR DRIVE ANALYSIS

Level of service analyses of the FDR Drive corridor were conducted using the CORSIM traffic simulation model that was also used in the FGEIS. In the FGEIS, both CORSIM and HCS were used to analyze the FDR Drive, but the FGEIS concluded that the HCS results could not be verified with actual FDR Drive conditions, and that CORSIM was more accurate in depicting FDR Drive conditions, so this SEIS uses only CORSIM. These analyses were conducted for existing, 2014 No Build, and 2014 Build conditions for the weekday AM, midday and PM peak hours and the Saturday midday peak hour.

The CORSIM model reports the density in passenger cars per mile per lane (pc/mi/ln) and an average speed for the highway section being analyzed, but does not readily report the level of service. Levels of service are necessary to assess potential impacts of the proposed development program on the highway as per *CEQR Technical Manual* guidelines. The *2000 HCM* defines level of service thresholds for merge and diverge areas using density in pc/mi/ln, and these thresholds have been applied to the results of the CORSIM model. The level of service thresholds for each density range are as follows:

- LOS A describes operations with very low densities (i.e., 0–10 pc/mi/ln) and high free flow speeds.
- LOS B describes operations with fairly low densities (i.e., 10.1–20 pc/mi/ln) and moderate to high free flow speeds.
- LOS C describes operations with moderate densities (i.e., 20.1–28 pc/mi/ln) and moderate free flow speeds.
- LOS D describes operations with moderate to high densities (i.e., 28.1–35 pc/mi/ln) and moderate to low free flow speeds. A mid-LOS D density of 30 pc/mi/ln is considered the high range of acceptable density. Densities greater than 30 pc/mi/ln are considered unacceptable but are commonplace on highways in New York City.
- LOS E describes operations with high densities (i.e., 35.1 and higher pc/mi/ln) and low free flow speeds. 45 pc/mi/ln is considered the maximum density for sustained flows at capacity on a typical freeway. Queuing can begin at densities higher than this.
- LOS F describes operations with very high densities and very low free flow speeds. Queuing is common within LOS F, which leads to failure conditions and congestion.

According to the *CEQR Technical Manual*, highway or ramp sections being analyzed—including mainline capacity sections, weaving areas, and ramp junctions—should not deteriorate more than one-half of a level of service between No Build and Build conditions when No Build level of service is in the D, E, or F range. Additional criteria have been established by DCP and have been used in other certified EISs:

- For No Build LOS D to Build LOS D: Since the starting value of LOS D is 28.1 pc/mi/ln and the highest value of LOS E is 35 pc/mi/ln, one half of the difference between these two is 3.5

pc/mi/ln. Hence, an increase in the projected density of 4 pc/mi/ln or more as a result of traffic volume added between the No Build and Build conditions is considered a significant impact.

- For No Build LOS D to Build LOS E: Since the value of mid-LOS D is 31.5 pc/mi/ln and the starting value of LOS E is 35.1 pc/mi/ln, one half of the difference between these two is 1.75 pc/mi/ln. Therefore, an increase in the projected density of 2 pc/mi/ln or more between No Build and Build is considered a significant impact.
- For No Build LOS E to Build LOS F: The same criteria as No Build LOS D to Build LOS E applies.

According to these guidelines, the overall conclusions of the detailed CORSIM analyses are that there would be a level of service deterioration from No Build to Build conditions from LOS E to LOS F at the southbound FDR Drive 34th Street on-ramp merge during the PM peak hour, resulting in an increase in density of 2.3 pc/mi/ln, which is above the threshold of 2 pc/mi/ln or more for a significant traffic impact. This finding of one significant impact differs from the Draft SEIS determination of no significant traffic impacts due to the increased amount of development applied to the No Build condition and a modest increase in projected FDR Drive Build volumes at 34th Street. The resulting decrease in speed, however, would be less than 0.5 mph, which would not be noticeable to motorists. This is similar to the FGEIS analyses, wherein only one segment was determined to deteriorate from No Build to Build conditions from LOS E to LOS F in the AM and PM peak hours.

EXISTING CONDITIONS

Existing conditions were analyzed using the CORSIM model with level of service findings matching observed field conditions. Levels of service were determined from the model for the northbound FDR Drive in the vicinity of the 34th Street entrance ramp area (north and south of it and at the merge) and in the vicinity of the 42nd Street exit ramp area (north and south of it and at the diverge). On the southbound FDR Drive, levels of service were determined at the diverge, or "slip ramp," to the service road near 40th Street, the merge from 34th Street, and the mainline between these two ramp locations. Existing conditions analysis findings are shown in Table 15-19.

Existing conditions analyses of the AM peak hour indicate LOS F conditions prevail northbound near 34th Street (9 to 12 mph), LOS D to E conditions prevail northbound near 42nd Street (27 to 38 mph), and LOS D to F conditions prevail southbound near 34th Street (35 to 39 mph). Although northbound AM peak hour volumes entering from 34th Street are only about 350 vph, the entrance ramp is substandard (short) and is not adequate for motorists to fully accelerate to mainline speeds, which causes LOS F conditions at that location. Northbound AM peak hour volumes exiting at 42nd Street exceed 1,000 vph, which causes marginally acceptable/unacceptable LOS D conditions at the diverge. On the southbound mainline at the "slip ramp" to the service road, high AM peak hour volumes in excess of 700 vph exit on this substandard (short) ramp, which is not long enough for motorists to slow from mainline speeds to local street speeds, cause marginally acceptable/unacceptable LOS D conditions. Further south, the on-ramp from 34th Street adds nearly 1,500 vph to the southbound mainline, which slows traffic and causes LOS F conditions at the merge.

Table 15-19
Existing Traffic Levels of Service on the FDR Drive

Location	AM Speed (mph)	AM LOS	Midday Speed (mph)	Midday LOS	PM Speed (mph)	PM LOS	Saturday Midday Speed (mph)	Saturday Midday LOS
FDR Northbound, south of the 34th Street Merge Area	12.2	F	38.4	C	9.0	F	25.0	D
FDR Northbound, at the 34th Street Merge Area	9.1	F	37.5	C	9.1	F	38.5	C
FDR Northbound, north of the 34th Street Merge Area	9.2	F	39.0	C	9.2	F	52.7	B
FDR Northbound, south of the 42nd Street Diverge Area	38.4	D	39.0	D	29.0	E	42.2	C
FDR Northbound, at the 42nd Street Diverge Area	38.5	D	38.8	C	28.9	D	41.9	C
FDR Northbound, north of the 42nd Street Diverge Area	27.0	E	38.5	C	14.8	F	26.7	D
FDR Southbound, at the 34th Street Diverge Area	39.0	D	39.3	C	39.2	D	30.5	D
FDR Southbound, south of the 34th Street Diverge Area	37.9	D	38.7	D	38.1	D	40.7	C
FDR Southbound, at the 34th Street Merge Area	34.9	F	37.2	D	35.5	E	42.9	C

Existing midday peak conditions are in the LOS C to marginally acceptable/unacceptable D range (37 to 39 mph) for all analysis locations. Midday peak hour volumes are lower on the mainline and at all ramps, compared to AM and PM peak hours.

PM peak hour existing conditions indicate LOS F conditions prevail northbound near 34th Street (about nine mph), LOS D to F conditions prevail northbound near 42nd Street (15 to 29 mph), and LOS D to E conditions prevail southbound near 34th Street (36 to 39 mph). PM peak hour volumes entering from the substandard 34th Street entrance ramp are about 450 vph, which causes LOS F conditions. Northbound PM peak hour volumes exiting at 42nd Street are about 450 vph, which causes marginally acceptable/unacceptable LOS D conditions at the diverge. On the southbound mainline at the substandard "slip ramp" to the service road, PM peak hour volumes of about 500 vph cause marginally acceptable/unacceptable LOS D conditions. Further south, the on-ramp from 34th Street adds about 1,100 vph to the southbound mainline, which slows traffic and causes LOS E conditions at the merge.

Existing Saturday midday peak hour conditions range from LOS B on the northbound mainline north of the 34th Street merge (approximately 53 mph) to marginally acceptable/unacceptable LOS D on the northbound mainline south of the 34th Street merge (25 mph). The mainline Saturday peak hour volumes are the lowest of all peak hours, ranging from 2,500 to 2,900 vph, and the ramp volumes are similar to the weekday midday peak hour, or lower.

FUTURE WITHOUT THE PROPOSED ACTIONS

The 2014 No Build conditions were analyzed, and as shown in Table 15-20 as compared to existing conditions shown in Table 15-1, there would be some level of service deterioration in each peak hour.

Table 15-20
2014 No Build Traffic Levels of Service on the FDR Drive

Location	AM Speed (mph)	AM LOS	Midday Speed (mph)	Midday LOS	PM Speed (mph)	PM LOS	Saturday Midday Speed (mph)	Saturday Midday LOS
FDR Northbound, south of the 34th Street Merge Area	8.6	F	38.4	C	7.4	F	25.1	D
FDR Northbound, at the 34th Street Merge Area	8.9	F	37.4	C	8.7	F	38.5	C
FDR Northbound, north of the 34th Street Merge Area	9.1	F	38.9	C	9.1	F	52.7	C
FDR Northbound, south of the 42nd Street Diverge Area	38.0	E	38.8	D	28.8	E	42.2	C
FDR Northbound, at the 42nd Street Diverge Area	38.5	D	38.7	C	25.8	F	41.9	C
FDR Northbound, north of the 42nd Street Diverge Area	19.5	F	38.3	C	7.9	F	26.6	D
FDR Southbound, at the 34th Street Diverge Area	39.0	D	39.2	D	39.2	D	30.5	D
FDR Southbound, south of the 34th Street Diverge Area	37.8	D	38.6	D	38.0	D	40.6	C
FDR Southbound, at the 34th Street Merge Area	34.6	F	36.8	D	35.1	E	42.8	C

AM peak hour conditions would deteriorate from LOS D under existing conditions to LOS E under projected 2014 No Build conditions just south of the 42nd Street diverge on the northbound mainline. An increase in more than 300 vph due to the 0.5 percent per year background growth rate and AM peak hour trips from background projects would be responsible for the level of service deterioration. North of the 42nd Street diverge area, the northbound mainline would deteriorate from LOS E under existing conditions to LOS F under projected 2014 No Build conditions, with speeds decreasing from about 27 to 20 mph, which would be caused by higher mainline and ramp volumes.

2014 No Build midday peak conditions would be in the LOS C to marginally acceptable/unacceptable D range (37 to 39 mph) for all analysis locations, with the southbound FDR Drive at the diverge to the service road "slip ramp" deteriorating from LOS C under existing conditions to LOS D under No Build conditions.

PM peak hour conditions would deteriorate from LOS D under existing conditions to LOS F under projected 2014 No Build conditions at the northbound 42nd Street diverge, with a loss in speed of about 3 mph, caused by an increase in about 110 vph exiting to 42nd Street and higher northbound mainline volumes.

Saturday peak hour conditions would deteriorate from LOS B under existing conditions to LOS C under projected 2014 No Build conditions, with a loss in speed of less than 1 mph, on the northbound mainline north of the 34th Street merge.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS

Year 2014 Build conditions were analyzed, and as shown in Table 15-21 as compared to 2014 No Build conditions shown in Table 15-20, there would be a level of service deterioration in the PM peak hour at one location. There would be no level of service deterioration during the weekday AM or midday peak hours or Saturday midday peak hour.

Table 15-21
2014 Build Traffic Levels of Service on the FDR Drive

Location	AM Speed (mph)	AM LOS	Midday Speed (mph)	Midday LOS	PM Speed (mph)	PM LOS	Saturday Midday Speed (mph)	Saturday Midday LOS
FDR Northbound, south of the 34th Street Merge Area	8.6	F	38.4	C	7.4	F	25.1	D
FDR Northbound, at the 34th Street Merge Area	8.9	F	37.4	C	8.7	F	38.5	C
FDR Northbound, north of the 34th Street Merge Area	9.1	F	38.9	C	9.1	F	52.7	C
FDR Northbound, south of the 42nd Street Diverge Area	38.0	E	38.8	D	28.8	E	42.2	C
FDR Northbound, at the 42nd Street Diverge Area	38.5	D	38.7	C	25.8	F	41.9	C
FDR Northbound, north of the 42nd Street Diverge Area	19.5	F	38.3	C	7.9	F	26.6	D
FDR Southbound, at the 34th Street Diverge Area	38.9	D	39.2	D	39.2	D	30.5	D
FDR Southbound, south of the 34th Street Diverge Area	37.7	D	38.6	D	38.0	D	40.6	C
FDR Southbound, at the 34th Street Merge Area	34.6	F	36.7	D	34.7	F	42.6	C

2014 AM peak hour Build conditions would operate at the same levels of service and about the same speeds as the 2014 No Build conditions. Due to Build program-generated traffic volumes, FDR Drive on-ramp and off-ramp volumes can generally be expected to increase by approximately 200 to 210 vph exiting the northbound FDR Drive at 34th Street, about 130 to 140 vph exiting the FDR Drive to the southbound service road using the "slip ramp," and approximately 200 to 210 vph entering the southbound FDR Drive at 34th Street in the AM peak hour. No significant impacts are projected in the AM peak hour.

2014 weekday midday peak hour Build conditions would operate at the same levels of service and about the same speeds as the 2014 No Build conditions. Due to Build program-generated traffic volumes, FDR Drive on-ramp and off-ramp volumes can generally be expected to increase by approximately 80 to 90 vph exiting the northbound FDR Drive at 34th Street, about 20 to 30 vph exiting the FDR Drive to the southbound service road using the "slip ramp," and approximately 100 to 110 vph entering the southbound FDR Drive at 34th Street in the weekday midday peak hour. No significant impacts are projected in the midday peak hour.

2014 PM peak hour Build conditions would operate at the same levels of service and about the same speeds as the 2014 No Build conditions, with the exception of the southbound mainline at the 34th Street merge, which would deteriorate from LOS E to F, with a loss in speed of less than 0.5 mph, and an increase in density of 2.3 pc/mi/ln (which is above the deterioration threshold of 2/pc/mi/ln, which defines a significant adverse impact). Due to Build program-generated traffic volumes, FDR Drive on-ramp and off-ramp volumes can generally be expected to increase by approximately 170 to 180 vph exiting the northbound FDR Drive at 34th Street, about 30 to 40 vph exiting the FDR Drive to the southbound service road using the "slip ramp," and approximately 200 to 210 vph entering the southbound FDR Drive at 34th Street in the PM peak hour.

2014 Saturday midday peak hour Build conditions would operate at the same levels of service and about the same speeds as the 2014 No Build conditions. Due to Build program-generated traffic volumes, FDR Drive on-ramp and off-ramp volumes can generally be expected to increase by approximately 160 to 170 vph exiting the northbound FDR Drive at 34th Street, about 70 to 80 vph exiting the FDR Drive to the southbound service road using the "slip ramp," and approximately 150 to 160 vph entering the southbound FDR Drive at 34th Street in the Saturday midday peak hour. No significant impacts are projected in the Saturday midday peak hour.

Traffic volumes generated by the proposed development are not generally expected to exit the northbound FDR Drive at 42nd Street, since they would travel several blocks past the site to 42nd Street at Second Avenue before they could turn south or east to access the site.

G. PORTALS ANALYSIS FOR QMT AND QUEENSBORO BRIDGE

Utilization of traffic capacity within the QMT and along the Queensboro Bridge was also analyzed for this SEIS—referred to as a "portals analysis"—as was conducted for the DEIS/FEIS for the City of New York's No. 7 Line Subway Extension and Hudson Yards Rezoning initiative, hereafter referred to as the Hudson Yards EIS. According to the methodologies used in that study, mainline vehicle capacities were estimated for each facility based on its lane and shoulder widths, peak hour lane directions, and mixture of heavy vehicles—all of which would affect peak hour capacity.

The Hudson Yards EIS concluded that a volume/capacity (v/c) ratio greater than 0.90, or 90 percent of the capacity, "might be approaching [its] estimated mainline capacity," and that any increase in the v/c ratio of 0.02 or more when No Build conditions are above 0.90 would constitute a significant adverse impact. The analyses of the QMT and Queensboro Bridge mainlines project that significant adverse impacts would occur at the QMT inbound and outbound in the AM peak hour, and at the QMT outbound in the PM peak hour, according to this definition.

EXISTING CONDITIONS

The following analyses present the existing weekday peak hour volumes and estimated capacities of the QMT and Queensboro Bridge within the traffic study area; weekday peak hour conditions would be considered the critical conditions for these facilities, and therefore, no analyses were done for Saturday conditions. Subsequent to the Draft SEIS, NYCDOT requested that Saturday analyses be performed for the QMT, and those have been included. The existing weekday peak hour volumes in and out of the QMT were obtained directly from turning movement counts collected for this SEIS. However, since not all weekday peak hour intersection turning movements leading to and from the Queensboro Bridge were included in the SEIS (it is in the Proposed Actions' secondary study area, so only selected key intersections were counted and analyzed), the Hudson Yards EIS was used to calculate the existing weekday peak hour volumes in and out of the Queensboro Bridge. The Hudson Yards EIS used data from the New York City Department of Transportation (NYCDOT) Bridge Volume Report, 2003. A comparison of existing turning movements near the Queensboro Bridge at intersections where new data were collected confirms that existing volumes used in the Hudson Yards EIS are comparable to existing counts collected in the SEIS. Existing weekday peak hour capacities for both the QMT and Queensboro Bridge used data certified in the Hudson Yards EIS.

Table 15-22 presents existing weekday peak hour volumes, mainline capacities, and volume/capacity (v/c) ratios for the QMT. As shown in Table 15-22, the QMT mainline operates at v/c ratios under 0.90, i.e., under 90 percent, during the weekday peak hours and Saturday midday (Saturday analyses

were requested between Draft SEIS and Final SEIS for the QMT). According to the Hudson Yards EIS, a v/c ratio greater than 0.90 would indicate facilities whose mainlines "might be approaching their estimated mainline capacity." In general, the mainline capacity is not the constraint to smooth traffic flow—conditions at intersections on the Manhattan side are the "limiting" factor, and are depicted in the intersection level of service analyses that have been presented earlier.

Table 15-22
Queens-Midtown Tunnel Existing Portals Analysis

	AM Peak Hour		Midday Peak Hour		PM Peak Hour		Saturday Peak Hour	
	In	Out	In	Out	In	Out	In	Out
Existing Volumes	4,349	1,422	3,198	2,105	3,086	3,204	2,241	1,621
Capacity	5,382	1,794	3,588	3,588	3,588	3,588	3,588	3,588
Volume/Capacity Ratio	0.81	0.79	0.89	0.59	0.86	0.89	0.62	0.45
Note: "In" = Inbound to Manhattan; "Out" = outbound from Manhattan								

Total QMT volumes and v/c ratios are highest in the PM peak hour, which corresponds to higher traffic volumes at many intersections on Second and Third Avenues adjacent to the QMT portal on the Manhattan side, compared to the weekday AM and midday peak hours.

Table 15-23 presents the existing weekday peak hour volumes, mainline capacities, and v/c ratios for the Queensboro Bridge. As shown in Table 15-23, the Queensboro Bridge operates at v/c ratios in the 0.49 to 0.76 range, i.e., up to 76 percent of capacity, during the weekday peak hours. Volumes and v/c ratios are highest in the PM peak hour, which corresponds to higher traffic volumes at intersections on Second Avenue leading to and from the Queensboro Bridge on the Manhattan side, compared to the weekday AM and midday peak hours. As stated above for the QMT, intersection level of service on the Manhattan side is the critical factor for traffic flow.

Table 15-23
Queensboro Bridge Existing Portals Analysis

	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
	In	Out	In	Out	In	Out
Existing Volumes	5,883	2,881	3,945	3,864	4,631	6,012
Capacity	9,546	4,773	6,364	7,955	6,364	7,955
Volume/Capacity Ratio	0.62	0.60	0.62	0.49	0.73	0.76
Note: "In" = Inbound to Manhattan; "Out" = outbound from Manhattan						

FUTURE WITHOUT THE PROPOSED ACTIONS

2014 No Build capacities would remain the same as existing since no capacity improvements are planned for the QMT or Queensboro Bridge mainlines. Existing inbound and outbound volumes were increased by 0.5 percent per year, and No Build project trips were added to form the basis for the 2014 No Build conditions.

Table 15-24 presents the 2014 No Build weekday peak hour volumes, mainline capacities, and v/c ratios for the QMT. As shown in Table 15-24, under 2014 No Build conditions, the QMT mainline would operate at v/c ratios at or over 0.90 in both directions in the AM and PM peak hours and inbound towards Manhattan in the midday peak hour. This includes 2014 No Build conditions with over 38 million square feet of development buildout in Midtown Manhattan.

This means that given the projected increase in background traffic to the year 2014, mainline QMT traffic will start to approach or exceed the capacity of its tubes—and exceed capacity outbound from Manhattan in the weekday PM peak hour—just as adjacent intersections on the Manhattan side continue to operate with demand volumes at or above their capacity.

Table 15-24
Queens-Midtown Tunnel 2014 No Build Portals Analysis

	AM Peak Hour		Midday Peak Hour		PM Peak Hour		Saturday Peak Hour	
	In	Out	In	Out	In	Out	In	Out
2014 No Build Volumes	5,034	1,684	3,514	2,446	3,395	3,996	2,427	2,044
Capacity	5,382	1,794	3,588	3,588	3,588	3,588	3,588	3,588
Volume/Capacity Ratio	0.94	0.94	0.98	0.68	0.95	1.11	0.68	0.57
Note: "In" = Inbound to Manhattan; "Out" = outbound from Manhattan								

Table 15-25 presents the 2014 No Build weekday peak hour volumes, mainline capacities, and v/c ratios for the Queensboro Bridge. As shown in Table 15-25, the Queensboro Bridge would operate at v/c ratios in the 0.54 to 0.85 range, i.e., below the 0.90 threshold.

Table 15-25
Queensboro Bridge 2014 No Build Portals Analysis

	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
	In	Out	In	Out	In	Out
2014 No Build Volumes	6,633	3,205	4,435	4,310	5,184	6,747
Capacity	9,546	4,773	6,364	7,955	6,364	7,955
Volume/Capacity Ratio	0.69	0.67	0.70	0.54	0.81	0.85
Note: "In" = Inbound to Manhattan; "Out" = outbound from Manhattan						

PROBABLE IMPACTS OF THE PROPOSED ACTIONS

2014 Build capacities would remain the same as existing and No Build since no capacity improvements are planned for the QMT or Queensboro Bridge mainlines. Build volumes were calculated by adding project-generated Build increment trips to the 2014 No Build volumes.

Table 15-26 presents the 2014 Build weekday peak hour volumes, mainline capacities, and v/c ratios for the QMT. As shown in Table 15-26, under 2014 Build conditions, the QMT mainline would operate at v/c ratios at or over 0.90 in both directions in the AM and PM peak hours and inbound towards Manhattan in the midday peak hour. Because the increase in v/c ratios for the AM peak hour inbound and outbound directions and PM peak hour outbound direction would increase by 0.02 or more between No Build and Build conditions, these movements would be significantly impacted. No additional in or out movements would cross the 0.90 v/c ratio threshold as a result of project-generated Build increment volumes. However, the five movements that would operate at more than 90 percent of their capacity would increase by up to four percent. This means that under 2014 Build conditions, mainline QMT traffic will continue to approach or exceed the capacity of its tubes—and in the weekday PM peak hour it would continue to exceed capacity—just as adjacent intersections on the Manhattan side would continue to operate with demand volumes at or above their capacity.

Table 15-26
Queens-Midtown Tunnel 2014 Build Portals Analysis

	AM Peak Hour		Midday Peak Hour		PM Peak Hour		Saturday Peak Hour	
	In	Out	In	Out	In	Out	In	Out
2014 Build Volumes	5,155	1,760	3,553	2,486	3,453	4,121	2,484	2,089
Capacity	5,382	1,794	3,588	3,588	3,588	3,588	3,588	3,588
Volume/Capacity Ratio	0.96	0.98	0.99	0.69	0.96	1.15	0.69	0.58
Note: "In" = Inbound to Manhattan; "Out" = outbound from Manhattan								

Table 15-27 presents the 2014 Build weekday peak hour volumes, mainline capacities, and v/c ratios for the Queensboro Bridge. As shown in Table 15-27, the Queensboro Bridge would operate at v/c ratios in the 0.55 to 0.87 range, below the 0.90 threshold. Individual movements would increase by up to two percent, but there would be no significant impacts.

Table 15-27
Queensboro Bridge 2014 Build Portals Analysis

	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
	In	Out	In	Out	In	Out
2014 Build Volumes	6,778	3,307	4,503	4,379	5,263	6,883
Capacity	9,546	4,773	6,364	7,955	6,364	7,955
Volume/Capacity Ratio	0.71	0.69	0.71	0.55	0.83	0.87
Note: "In" = Inbound to Manhattan; "Out" = outbound from Manhattan						

H. FUTURE CONDITIONS WITH THE UNDC PROJECT

Within the Draft SEIS, detailed traffic and parking analyses were conducted with the inclusion of a proposed development by the United Nations Development Corporation (UNDC) of approximately one million square feet of office and conference center space on the east side of First Avenue between 41st and 42nd Streets, where the Robert Moses Playground and a QMT ventilation tower currently exist. Although the UNDC project is not currently committed and its future is uncertain, it was analyzed nonetheless within the Draft SEIS as a potential "worst-case" condition. These analyses included the traffic and parking No Build and Build conditions with UNDC, the FDR Drive analysis with UNDC, and the portals analysis for the QMT and Queensboro Bridge with UNDC, with comparisons in each to conditions without the UNDC project. The key finding of these analyses in the Draft SEIS was that projected conditions with the UNDC project included were not appreciably different than projected conditions without the UNDC project. These raft SEIS findings confirmed the findings of the FGEIS, namely that traffic conditions with and without the potential UNDC project were not appreciably different. Therefore, detailed analyses were not re-conducted for this Final SEIS; highlights from the Draft SEIS are provided in the remainder of this section.

FUTURE CONDITIONS WITHOUT THE PROPOSED ACTIONS WITH THE UNDC PROJECT

2014 No Build traffic and parking conditions with the UNDC project were analyzed in the Draft SEIS. It includes travel demand estimates of the volume of traffic that would be generated by the proposed UNDC building and its distribution within the street network, followed by level of

service comparison to 2014 No Build traffic conditions without the UNDC project. Details of the Draft SEIS trip generation and level of service analyses are presented below.

UNDC PROJECT TRIP GENERATION

The trip generation estimates summarized in Table 15-28 indicate that the UNDC building would generate approximately 2,504 total person trips in the weekday AM peak hour, 2,812 person trips in the weekday midday peak hour, 2,333 person trips in the weekday PM peak hour, and 612 person trips in the Saturday midday peak hour.

The trip generation estimates summarized in Table 15-29 indicate that the UNDC building would generate approximately 431 total vehicle trips in the weekday AM peak hour, 61 vehicle trips in the weekday midday peak hour, 390 vehicle trips in the weekday PM peak hour, and 79 vehicle trips in the Saturday midday peak hour. These vehicle trips were then added to the 2014 No Build volumes along the street network, as described below.

Table 15-28
Person Trip Estimates for the Proposed UNDC Building

Mode	AM Peak Hour		Midday Peak Hour		PM Peak Hour		Saturday Peak Hour	
	In	Out	In	Out	In	Out	In	Out
Auto	355	18	7	12	50	297	43	37
Taxi	69	3	7	14	10	59	7	6
Commuter Rail	887	47	32	57	138	724	139	118
Subway	405	22	10	20	58	344	46	39
Bus	269	14	5	12	40	225	36	31
Walk Only	394	21	933	1,703	62	326	59	51
Total	**2,379**	**125**	**994**	**1,818**	**358**	**1,975**	**330**	**282**

Table 15-29
Vehicle Trip Estimates for the Proposed UNDC Building

Mode	AM Peak Hour		Midday Peak Hour		PM Peak Hour		Saturday Peak Hour	
	In	Out	In	Out	In	Out	In	Out
Autos	288	15	5	10	41	241	36	31
Taxis	50	50	12	12	46	46	6	6
Delivery Vehicles	14	14	11	11	8	8	0	0
Total	**352**	**79**	**28**	**33**	**95**	**295**	**42**	**37**

NO BUILD TRAFFIC ANALYSES WITH THE UNDC PROJECT

Consistent with the FGEIS, the Draft SEIS traffic analysis and routing assignments for the proposed UNDC building assumed the following: (1) there will be a modest amount of parking available for VIP vehicles in a 50-car garage located under the UNDC building; (2) all other autos would park at available off-street parking near the site; (3) taxi dropoffs and pickups will be allowed at the site; and (4) truck deliveries will also be accommodated at the site. These assumptions reflect reasonable worst-case conditions.

Under 2014 No Build conditions, on First Avenue between 34th and 42nd Streets, there would be increases of 50 to 80 vph in the AM peak hour, 10 to 30 vph in the midday peak hour, 20 to 80 vph in the PM peak hour, and 10 to 20 vph in the Saturday peak hour due to UNDC-generated traffic. On 34th Street near First Avenue, eastbound and westbound traffic would increase by about 10 to 20 vph per direction, with the exception of the AM peak hour, where up to an additional 50 vph would approach First Avenue on westbound 34th Street from the northbound FDR Drive exit. On eastbound 42nd Street at First Avenue, traffic would increase by 40 to 60 vph in the AM and PM peak hours, and by 10 to 20 vph in the weekday midday and Saturday midday peak hours.

This summary overview of No Build conditions presented in the Draft SEIS indicated that in the AM peak hour in the primary study area, of the 61 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase by three with the UNDC project, and the number of movements that would operate at LOS E or F would increase by eight with the UNDC project. In the weekday midday peak hour in the primary study area, the number of locations that would operate at overall LOS E or F would remain the same, while the number of movements that would operate at LOS E or F would increase by two with the UNDC project. In the PM peak hour in the primary study area, the number of locations that would operate at overall LOS E or F would remain the same, and the number of movements that would operate at LOS E or F would increase by three with the UNDC project. On Saturdays in the midday peak hour, there would be no changes in LOS E or F conditions with or without UNDC.

In the AM peak hour in the Queensboro Bridge Study Area, the number of locations that would operate at overall LOS E or F would increase by one with the UNDC project, and the number of movements that would operate at LOS E or F would also increase by one with the UNDC project. There would be no differences in LOS E or F conditions during the other three traffic analysis hours.

In the West Side study area and during all other peak hours and study areas, there would be no increase in the number of intersections that would operate at overall LOS E or F with UNDC included.

PARKING

As stated above, it was assumed that on-site parking at UNDC would accommodate up to 50 vehicles, which would mean the remainder of auto trips would have to park at off-street parking facilities in the area. This excess parking demand was assigned to off-street parking facilities with available capacity. Approximately 250 UNDC-generated autos would accumulate during the AM peak hour at off-site parking facilities, raising the overall off-street parking facility occupancy to 78 percent under 2014 No Build conditions with UNDC, compared to 74 percent under 2014 No Build conditions without UNDC. Carrying this number through the weekday midday would result in an increase from 91 percent in 2014 No Build conditions without UNDC to 95 percent with UNDC. Approximately 90 UNDC-generated autos would accumulate during the PM peak hour, raising the off-street parking facility occupancy to 79 percent under 2014 No Build conditions with UNDC, compared to 78 percent under 2014 No Build conditions without UNDC. During the Saturday midday peak hour, off-street parking facility occupancy would not increase significantly, since much fewer office trips would accumulate than on a weekday. On-street parking levels under 2014 No Build with UNDC would remain the same as, or slightly higher than, 2014 No Build conditions without UNDC.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS WITH THE UNDC PROJECT

2014 Build conditions were analyzed in the Draft SEIS to include the UNDC-generated trips. The following sections discuss the vehicular levels of service, vehicular traffic impacts, and parking occupancy with UNDC under 2014 Build conditions as reported in the Draft SEIS.

BUILD TRAFFIC ANALYSES WITH THE UNDC PROJECT

The Draft SEIS analysis of Build conditions reported that, in most cases, the number of intersections that would operate at overall LOS E or F conditions, the number of movements that would operate at LOS E or F, and the number of intersections that would be significantly impacted would not be substantially different when UNDC is included. A comparison is provided below:

- In the AM peak hour in the primary study area, the number of movements at signalized intersections that would operate at LOS E or F would increase by five under Build conditions with UNDC. The number of overall intersections that would operate at LOS E or F would increase by two, and the number of significantly impacted intersections, would increase by one.
- In the midday peak hour in the primary study area, the number of significantly impacted locations would increase by one under Build conditions with UNDC. The number of individual movements at LOS E or F would increase by three, and the number of overall intersections at LOS E or F would not change.
- In the PM peak hour in the Primary Study Area, of the 61 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase by one under Build conditions with UNDC, the number of movements at signalized intersections that would operate at LOS E or F would remain the same, and the number of significantly impacted locations would remain the same.
- In the Saturday midday peak hour in the Primary Study Area, the number of movements at signalized intersections that would operate at LOS E or F would increase by one under Build conditions with UNDC. The number of overall intersections at LOS E or F, and the number of significantly impacted intersections, would not change.
- In the midday peak hour in the Queensboro Bridge Study Area, the number of significantly impacted locations would increase by one under Build conditions with UNDC. In the AM peak hour, the number of signalized intersections that would operate at LOS E or F would also increase by one under Build conditions with UNDC. There would be no other significant differences in this secondary study area.
- In the West Side study area, there would be no changes in overall intersection levels of service or in the number of significantly impacted intersections in any of the traffic analysis hours between Build conditions with or without the UNDC project.

PARKING

According to the Draft SEIS, parking demand generated by the projected development program (i.e., under the Proposed Actions) would remain satisfied by the amount of parking it would provide, with the exception of approximately 200 autos during the weekday midday, which would be accommodated off site at public parking facilities.

FDR DRIVE ANALYSIS WITH THE UNDC PROJECT

As detailed in the Draft SEIS, future No Build and Build conditions on the FDR Drive with UNDC-generated trips included would generally not be substantially different from conditions without UNDC-generated trips. The exception would be a deterioration from LOS E conditions in 2014 No Build conditions with UNDC to LOS F conditions in 2014 Build conditions with UNDC, which would result in a significant impact on the southbound FDR Drive at the 34th Street on-ramp merge during the weekday PM peak hour.

NO BUILD TRAFFIC ANALYSES WITH THE UNDC PROJECT

CORSIM analyses conducted in the Draft SEIS for 2014 conditions showed that conditions including UNDC-generated trips would remain at the same levels of service and speeds during weekday AM, weekday midday, and Saturday midday peak hours. However, due to a very modest amount of additional traffic generated by UNDC on the northbound FDR Drive exiting at 42nd Street in the PM peak hour (approximately five vph), the 2014 No Build conditions without UNDC would deteriorate from LOS E conditions to LOS F conditions with UNDC; the speed would decrease at the 42nd Street diverge by less than one mph.

BUILD TRAFFIC ANALYSES WITH UNDC

The Draft SEIS reported that, under Build conditions, weekday AM, weekday midday, and Saturday midday peak hour conditions would remain at the same levels of service and speeds after adding UNDC-generated trips. The weekday PM peak hour northbound FDR Drive at the 42nd Street diverge would deteriorate from LOS E under 2014 Build conditions without UNDC to LOS F under 2014 Build conditions with UNDC. The speed would decrease at the 42nd Street diverge by less than one mph due to additional traffic generated by the UNDC project.

When comparing 2014 No Build conditions with UNDC to 2014 Build conditions with UNDC, the weekday AM, weekday midday, and Saturday midday peak hour conditions would remain at the same levels of service and speeds after adding Build increment trips. The Draft SEIS indicated that, the weekday PM peak hour deterioration from LOS E under 2014 No Build with UNDC conditions to LOS F under 2014 Build with UNDC conditions on the southbound FDR Drive at the 34th Street on-ramp merge would result in a density increase of 2.0 pc/mi/ln, which is defined as a significant impact.

PORTALS ANALYSIS FOR QMT AND QUEENSBORO BRIDGE WITH THE UNDC PROJECT

As described in the Draft SEIS, future No Build and Build conditions in the QMT and on the Queensboro Bridge with the UNDC project-generated trips included would be similar to conditions documented without UNDC-generated trips. Significant impacts would occur on the QMT mainline inbound and outbound in the AM and PM peak hours, with and without UNDC.

NO BUILD CONDITIONS WITH THE UNDC PROJECT

UNDC project-generated trips were added to 2014 No Build conditions without UNDC to get 2014 No Build conditions with UNDC. When comparing 2014 No Build conditions with and without UNDC, the QMT mainline would continue to operate at v/c ratios at or over 0.90 in both directions in the AM and PM peak hours and inbound towards Manhattan in the midday peak hour with and without UNDC.

BUILD CONDITIONS WITH THE UNDC PROJECT

Under Build conditions with and without UNDC, the QMT mainline would continue to operate at v/c ratios at or over 0.90 in both directions in the AM and PM peak hours and inbound towards Manhattan in the midday peak hour. Significant impacts would occur on the QMT mainline inbound and outbound in the AM and PM peak hours.

I. QUEENS PLAZA APPROACH TO THE QUEENSBORO BRIDGE

INTRODUCTION

The Proposed Actions are expected to generate vehicular traffic over the Queensboro Bridge into Manhattan and pass through the Queens Plaza Area on the Queens side of the Bridge. Therefore, additional traffic analyses were conducted to assess the potential for significant adverse traffic impacts in the Queens Plaza Area.

The proposed development program analyzed in the SEIS is expected to generate the following volume of vehicle trips across the Queensboro Bridge: 145 inbound vehicle trips to Manhattan and 102 outbound vehicle trips from Manhattan in the weekday AM peak hour; 68 inbound vehicle trips to Manhattan and 69 outbound vehicle trips from Manhattan in the weekday midday peak hour; 79 inbound vehicle trips to Manhattan and 136 outbound vehicle trips from Manhattan in the weekday PM peak hour; and 74 inbound vehicle trips to Manhattan and 67 outbound vehicle trips from Manhattan in the Saturday midday peak hour.

The routing of these vehicle trips to and from the Queensboro Bridge is the basis of the assessments that follow, with the potential for significant traffic impacts and mitigation addressed at twelve key intersections along the major approaches to and from the Bridge: 1) Queens Boulevard/Thomson Avenue and Van Dam Street; 2) Northern Boulevard/ 31st Street and 40th Avenue; 3) Queens Plaza North/41st Avenue and Northern Boulevard; 4) Queens Boulevard and Jackson Avenue/Northern Boulevard; 5) Queens Plaza North and 28th Street; 6) Queens Plaza North and Crescent Street; 7) Jackson Avenue and 44th Drive; 8) Queens Plaza South and 27th Street; 9) Queens Plaza North and JFK Commuter Plaza; 10) Thomson Avenue and Skillman Avenue; 11) Queens Boulevard and Skillman Avenue; 12) Thomson Avenue and Queensboro Bridge Upper Level ramp.

EXISTING CONDITIONS

New traffic counts were conducted for the Queens Plaza approach to the Queensboro Bridge in April 2007 for weekday and Saturday midday periods using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts. These volumes were used along with observations of actual traffic conditions to determine levels of service for the weekday 8:00 to 9:00 AM, 1:00 to 2:00 PM midday, and 5:00 to 6:00 PM peak hours, and for the Saturday 1:00 to 2:00 PM midday peak traffic hour using *2000 Highway Capacity Manual (HCM)* procedures.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

Table 15-30 provides an overview of the levels of service that characterize existing "overall" intersection conditions during the AM, midday, and PM peak hours on a typical weekday, and the Saturday midday peak hour. Overall levels of service represent a weighted average of individual traffic movements' levels of service.

Table 15-30
Queens Plaza Approach to Queensboro Bridge
Existing Traffic Level of Service Summary

	Existing AM Peak Hour	Existing Midday Peak Hour	Existing PM Peak Hour	Existing Saturday Peak Hour
Signalized Intersections (12 locations)				
Overall LOS A/B	0	7	4	8
Overall LOS C	4	4	1	3
Overall LOS D	3	1	3	1
Overall LOS E/F	4	0	4	0
No. of Movements at LOS E or F	20	6	21	6

Notes:
1. No unsignalized intersections are analyzed in this study area.
2. Thomson Avenue & Queensboro Bridge Upper Level operates freeflow during the AM peak hour.

This summary overview of existing conditions indicates that:

- In the AM peak hour, four of the 11 signalized intersections analyzed (one of the 12 intersections operates freeflow during the AM peak hour) operate at overall LOS E or F, and three other intersections operate 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 of the individual traffic movements). Twenty traffic movements (e.g., left turns from one street to another, through traffic on one street passing through the intersection, etc.) are at LOS E or F conditions. Figure 15-22 illustrates overall weekday AM levels of service.
- In the midday peak hour, none of the 12 signalized intersections operate at overall LOS E or F, while one is at overall LOS D. Six traffic movements operate at LOS E or F. Figure 15-23 illustrates weekday midday overall levels of service.
- In the PM peak hour, four of the 12 signalized intersections are at overall LOS E or F, and three others are at overall LOS D. Twenty-one traffic movements are at LOS E or F. Figure 15-24 illustrates overall weekday PM levels of service
- During the Saturday midday peak hour, none of the 12 signalized intersections are at overall LOS E or F, and one is at overall LOS D. Six traffic movements are at LOS E or F. Figure 15-25 illustrates overall Saturday midday levels of service.

A more detailed description of traffic volumes and levels of service is provided below. Details of the level of service analysis for each traffic movement at each of the 12 intersections analyzed, as well as detailed traffic volume maps, appear in the two technical traffic appendices.

Queens Plaza North

The Queens Plaza North service road is traveled by approximately 200 to 350 vehicles per hour (vph) westbound during the four peak hours approaching Crescent Street. The Queens Plaza North mainline onto the Queensboro Bridge is traveled by approximately 1,850 to 2,300 vph westbound during the four peak hours approaching Crescent Street. During the four peak analysis periods, approximately 500 to 850 vph southbound Crescent Street approaching Queens Plaza North.

The detailed intersection capacity analyses conducted for this DEIS indicate that the overall intersection levels of service at intersections on Queens Plaza North are currently at marginally unacceptable LOS D or unacceptable LOS E during the AM peak hour, with one intersection at acceptable LOS C. During the weekday midday and PM and Saturday midday peak hours, these intersections are generally at acceptable LOS B or LOS C, except for two intersections operating at marginally acceptable/unacceptable LOS D in the PM peak hour.

Queens Plaza South

The Queens Plaza South service road is traveled by approximately 1,050 to 1,750 vph eastbound approaching 27th Street during the four peak hours. Overall levels of service at the intersection of Queens Plaza South and 27th Street are acceptable LOS B or C at all times.

Queens Boulevard

Queens Boulevard carries approximately 950 to 1,450 vph eastbound and 1,000 to 1,350 vph westbound, between Jackson Avenue and Van Dam Street, during the four analysis peak hours. Eastbound Queens Boulevard receives most of its traffic from the Queensboro Bridge, about 800 to 1,100 vph during the peak hours, while westbound Queens Boulevard volumes predominantly originate from Queens Boulevard east of the study area (600–800 vph) and from northbound Van Dam Street (350–550 vph).

Overall intersection levels of service at the three Queens Boulevard analysis locations, at Jackson Avenue, Skillman Avenue, and Van Dam Street, generally operate at unacceptable LOS E or F during the weekday AM and PM peak hours, but operate at acceptable LOS B or C or marginally acceptable/unacceptable LOS D during the weekday and Saturday midday peak hours. Specifically during the weekday AM and PM peak hours, the westbound Queens Boulevard approach at Jackson Avenue operates at LOS F, due to heavy demand and spillback from the Queensboro Bridge. Both directions of Queens Boulevard typically operate at marginally unacceptable LOS D or unacceptable LOS E or F at the intersection with Skillman Avenue, while spillback from the intersection at Van Dam Street causes LOS E or F operation for eastbound Queens Boulevard during the AM and PM peak hours.

Thomson Avenue

Thomson Avenue experiences a significant directional shift in traffic volumes throughout the day, with westbound traffic toward the Queensboro Bridge Upper Level ramp prevailing in the AM, and the eastbound traffic peaking in the PM peak hour. As a result, eastbound Thomson Avenue is traveled by approximately 700 to 2,250 vph throughout the four peak hours, while westbound traffic ranges from 950 to 2,600 vph. During the AM peak hour, westbound Thomson Avenue receives approximately 1,500 vph from westbound Queens Boulevard, and about 1,850 vph access the Queensboro Bridge Upper Level Ramp. During the PM peak hour, approximately 1,700 vph access eastbound Thomson Avenue from the bridge ramp.

Overall intersection levels of service along Thomson Avenue range from acceptable LOS B and C and marginally acceptable LOS D in the weekday AM, midday and Saturday midday peak hours, to marginally unacceptable LOS D and unacceptable LOS E or F during the PM peak hour. Eastbound Thomson Avenue at both Skillman Avenue and Van Dam Street operates at unacceptable LOS E or F during the PM peak hour, as does the Queensboro Bridge Upper Level ramp approach to Thomson Avenue. Furthermore, the heavy eastbound Thomson Avenue right-turn movement onto southbound Van Dam Street consistently operates at unacceptable LOS E during all four peak hours.

Jackson Avenue/Northern Boulevard

Immediately south of Queens Boulevard, Jackson Avenue carries approximately 450 to 650 vph northbound and 450 to 1,000 vph southbound during the four peak hours. North of Queens Plaza, in the vicinity of 31st Street, Northern Boulevard is traveled by approximately 950 to 1,600 vph in the northeasterly direction and approximately 1,050 to 1,550 vph in the southwesterly direction. Northern Boulevard traffic peaks directionally toward the Queensboro Bridge prevails during the AM peak hour, while traffic in the reverse direction peaks during the PM peak hour. Also, a significant volume of traffic on southbound Northern Boulevard turns right onto the Queens Plaza North roadway at the intersection with 41st Avenue; this volume ranges from 800 to 1,050 vph throughout the day.

The Jackson Avenue intersection at 44th Drive operates at overall acceptable LOS B or C during all four peak hours, as does the intersection of Northern Boulevard/31st Street and 40th Avenue. The northbound/eastbound Northern Boulevard left turn movement, which moves simultaneously with southbound 31st Street, typically operates at marginally unacceptable LOS D or unacceptable LOS E or F.

Skillman Avenue

Approaching Thomson Avenue, northbound Skillman Avenue carries about 200 to 350 vph during the four peak hours, and southbound Skillman Avenue at Queens Boulevard has approximately 150 to 550 vph, with the highest volumes occurring during the AM peak hour. During the AM and PM peak hours, the Skillman Avenue approaches at both Thomson Avenue and at Queens Boulevard operate at LOS D or unacceptable LOS E or F, usually due to long cycle lengths, short green times, and spillback along the major east-west corridors.

Van Dam Street

Northbound Van Dam Street carries approximately 900 to 1,050 vph during the four peak hours, with a significant amount of that traffic turning left onto westbound Thomson Avenue toward the upper level of the Queensboro Bridge. This approach consistently operates at unacceptable LOS E or F during all peak hours.

FUTURE WITHOUT THE PROPOSED ACTIONS

Future conditions without the Proposed Actions, i.e., the future No Build conditions, provide the baseline against which the impacts of the Proposed Actions 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 2014. Future No Build traffic volumes were developed by applying a background traffic growth rate of one-half percent per year as stated in the *CEQR Technical Manual*, and by adding trips included in the No Build and Build conditions of the certified Silvercup West FEIS for development projects expected to be operational by 2014. Trip generation and specific traffic assignments for the Silvercup West development project, as well as those trips included as part of its No Build condition, were taken directly from its FEIS (2006). Subsequent to the Draft SEIS, trip generation and traffic assignments for the portion of the Hunters Point South development that could be operational by 2014, plus approximately three million square feet of additional No Build development by 2014 in Long Island City, were assigned to the roadway network in Queens Plaza and across the East River into Manhattan. In total, trips from approximately 15 million square feet of development in Long Island City have been assigned to the Queens Plaza and Manhattan study areas.

The No Build project-generated trips were assigned to the roadway network and, together with the background traffic growth, become the 2014 No Build traffic volume baseline. Detailed No Build traffic volume maps are provided in technical appendices to the SEIS. A summary of traffic volume increases along selected streets within the study area is described below under "2014 No Build Traffic Conditions."

The traffic analyses for 2014 No Build conditions also include physical improvements to be built as part of the Queens Plaza Bike and Pedestrian Improvements Project (2001).

2014 NO BUILD TRAFFIC CONDITIONS

Traffic volume increases on the study area roadway network due to the cumulative effect of background projects in both Manhattan and in the Long Island City section of Queens are quantified and discussed below. The peak hour volumes reported below were assigned to the study areas network (the volume descriptions below do not include the general half-percent per year growth rate that has been applied to the existing traffic volumes, which would add about 4 percent more traffic to all streets; however, the one-half percent per year increase is included in the No Build totals).

Queens Plaza South roadway traffic volumes are generally expected to increase by about 60 to 70 vph in the AM, midday, and Saturday midday peak hours and by about 100 vph in the PM peak hour approaching 27th Street.

Eastbound Queens Boulevard volumes are generally expected to increase by approximately 75 to 150 vph in the AM and PM peak hours and by about 40 to 50 vph in the weekday midday and Saturday midday peak hours through Skillman Avenue. Westbound volumes on Queens Boulevard approaching Van Dam Street (which proceed to Thomson Avenue) are expected to increase by about 70 to 90 vph during the weekday peak hours, and by about 50 vph on Saturday midday.

During the AM peak hour, eastbound Thomson Avenue volumes approaching Skillman Avenue are expected to increase by about 175 vph, while westbound volumes would increase by about 375 vph. Weekday midday and PM volume increases on Thomson Avenue are expected to range from 225 to 350 vph in the eastbound direction and about 200 vph in the westbound direction. Eastbound and westbound Thomson Avenue volume increases Saturday midday would be about 160 vph and 120 vph, respectively.

Northbound Jackson Avenue volumes approaching Queens Boulevard are expected to increase by approximately 175 to 275 vph during the weekday peak hours and approximately 90 vph in the Saturday midday peak hour, while southbound volumes along the same section would increase by about 100 to 150 vph.

Northeastbound Northern Boulevard volumes would increase by approximately 140 to 300 vph during the four peak hours approaching the intersection with 31st Street/40th Avenue. Southwestbound Northern Boulevard volumes are expected to increase by approximately 175 to 275 vph during the four peak hours.

The northbound Van Dam Street left turn volumes approaching the Thomson Avenue/Queens Boulevard intersection are expected to increase by about 100 vph during the AM peak hour and by approximately 60 to 100 vph during the midday and PM peak hours. The Saturday midday volume increase would be about 30 vph.

Table 15-31 provides an overview of the levels of service that characterize 2014 No Build "overall" intersection conditions during the AM, midday, and PM peak hours on a typical weekday, and the Saturday midday peak hour.

Table 15-31
Queens Plaza Approach to Queensboro Bridge
2014 No Build Traffic Level of Service Summary

	No Build AM Peak Hour	No Build Midday Peak Hour	No Build PM Peak Hour	No Build Saturday Peak Hour
Signalized Intersections (12 locations)				
Overall LOS A/B	0	3	1	6
Overall LOS C	2	5	3	3
Overall LOS D	0	0	0	1
Overall LOS E/F	9	4	8	2
No. of Movements at LOS E or F	26	7	25	11

Notes:
1. No unsignalized intersections are analyzed in this study area.
2. Thomson Avenue & Queensboro Bridge Upper Level operates freeflow during the AM peak hour.

This summary overview of existing conditions indicates that:

- In the AM peak hour, nine of the 11 signalized intersections analyzed (one of the 12 intersections operates freeflow during the AM peak hour) operate at overall LOS E or F, and none are at LOS D. Twenty-six traffic movements are at LOS E or F conditions. Figure 15-26 illustrates overall weekday AM levels of service.
- In the midday peak hour, four of the 12 signalized intersections operate at overall LOS E or F, and none are at overall LOS D. Seven traffic movements operate at LOS E or F. Figure 15-27 illustrates weekday midday overall levels of service.
- In the PM peak hour, eight of the 12 signalized intersections are at overall LOS E or F, and no other intersections are at overall LOS D. Twenty-five traffic movements are at LOS E or F. Figure 15-28 illustrates overall weekday PM levels of service
- During the Saturday midday peak hour, two of the 12 signalized intersections are at overall LOS E or F, and one is at overall LOS D. Eleven traffic movements are at LOS E or F. Figure 15-29 illustrates overall Saturday midday levels of service.

FUTURE WITH THE PROPOSED ACTIONS

The Proposed Actions' project-generated trips were added to the 2014 No Build volumes to develop the 2014 Build volumes for the Proposed Actions. Detailed Build traffic volume maps are provided in technical appendices to the SEIS. A summary of traffic volume increases along selected streets within the study area as well as the identification of significant adverse traffic impacts are described below.

2014 BUILD TRAFFIC CONDITIONS

Overall, the Proposed Actions are expected to generate the following volume of vehicle trips across the Queensboro Bridge: 145 inbound vehicle trips to Manhattan and 102 outbound vehicle trips from Manhattan in the weekday AM peak hour; 68 inbound vehicle trips to Manhattan and 69 outbound vehicle trips from Manhattan in the weekday midday peak hour; 79 inbound vehicle trips to Manhattan and 136 outbound vehicle trips from Manhattan in the

weekday PM peak hour; and 74 inbound vehicle trips to Manhattan and 67 outbound vehicle trips from Manhattan in the Saturday midday peak hour.

Volumes along Queens Boulevard, Thomson Avenue, and Northern Boulevard are expected have the highest increment of Build program traffic through the Queens Plaza study area. Queens Boulevard traffic volumes can generally be expected to increase by about 30 to 70 vph during the four peak hours. Thomson Avenue eastbound volumes would increase during the midday, PM, and Saturday midday peak hours, ranging from 40 to 110 vph; there would be no Build volume increment on westbound Thomson Avenue. Northern Boulevard volumes are expected to increase by approximately 30 to 60 vph toward the Queensboro Bridge and by approximately 5 to 40 vph in the reverse direction during the four peak hours. Smaller increments, ranging from 5 to 10 vph, are expected along the Queens Plaza South service road, Crescent Street, 31st Street, Jackson Avenue, and Van Dam Street.

Future traffic levels of service under Build conditions are shown in Table 15-32. As shown in the table, the Proposed Actions would have significant traffic impacts at seven of the 11 signalized intersections analyzed in the AM peak hour, four of 12 at midday, eight of 12 in the PM peak hour, and four of 12 in the Saturday midday peak hour.

Table 15-32
Queens Plaza Approach to Queensboro Bridge Traffic Level of Service Summary Comparison
No Build vs. Build Conditions (2014)

	2014 No Build AM Peak Hour	2014 No Build Midday Peak Hour	2014 No Build PM Peak Hour	2014 No Build Saturday Peak Hour	2014 Build AM Peak Hour	2014 Build Midday Peak Hour	2014 Build PM Peak Hour	2014 Build Saturday Peak Hour
Signalized Intersections (12 locations)								
Overall LOS A/B	0	3	1	6	0	3	1	6
Overall LOS C	2	5	3	3	2	3	3	3
Overall LOS D	0	0	0	1	0	2	0	1
Overall LOS E/F	9	4	8	2	9	4	8	2
No. of Intersections with Significant Impacts	--	--	--	--	7	4	8	4
No. of Movements at LOS E or F	26	7	25	11	26	7	27	11

Notes:
1. No unsignalized intersections are analyzed in this study area.
2. Thomson Avenue & Queensboro Bridge Upper Level operates freeflow during the AM peak hour.

- In the AM peak hour, of the 11 signalized intersections analyzed (one of the 12 intersections operates freeflow during the AM peak hour), the number of locations that are projected to operate at overall LOS E or F would remain at nine under Build conditions. Seven of the intersections would be significantly impacted. The number of traffic movements projected to operate at LOS E or F would remain at 26 under Build conditions. Figure 15-30 shows overall levels of service and significantly impacted intersections.
- In the midday peak hour, the number of locations that are projected to operate at overall LOS E or F would remain at four under Build conditions. Four of the intersections would be significantly impacted. The number of traffic movements projected to operate at LOS E or F remain at seven. Figure 15-31 shows overall levels of service and significantly impacted intersections.

- In the PM peak hour, the number of locations that are projected to operate at overall LOS E or F would remain at eight under Build conditions. Eight of the intersections would be significantly impacted. The number of traffic movements projected to operate at LOS E or F would increase from 25 under No Build conditions to 27 under Build conditions. Figure 15-32 shows overall levels of service and significantly impacted intersections.
- During the Saturday midday peak hour, the number of locations that are projected to operate at overall LOS E or F would remain at two under the Build conditions, similar to No Build conditions. Four of the intersections would be significantly impacted. Eleven traffic movements would continue to operate at LOS E or F. Figure 15-33 shows overall levels of service and significantly impacted intersections.

J. BUS RAPID TRANSIT FOR FIRST AND SECOND AVENUES

New York City Transit (NYCT) is in the early stages of planning for the implementation of Bus Rapid Transit (BRT) service primarily along First and Second Avenues, from South Ferry to 125th Street, one of five citywide demonstration projects. A specific plan for that service has not yet been developed. Design elements and details that would be necessary to perform an analysis of the traffic, transit and pedestrian impacts of such service have yet to be determined by NYCT and NYCDOT.

Conceptually, BRT would provide for expanded limited-stop bus service within dedicated lanes that would not be as affected by general traffic conditions as are the existing priority bus lanes on First and Second Avenues, allowing for faster and more reliable service than that provided by conventional bus service. It could consist of either an exclusive bus/BRT lane along the northbound curb of First Avenue and the southbound curb of Second Avenue, or two exclusive lanes along each avenue, or the treatment could be different at different locations depending on adjacent land uses and traffic issues segment by segment. BRT stations may be created within corner bulbouts to create a more visible and less crowded area for waiting riders. For two-lane BRT segments, the curb lane would be available for parking or delivery vehicle loading and unloading in off-peak hours, while the second lane from the curb would be a BRT/bus lane during the extended business day. Right turns by other vehicles may or may not be allowed from the bus lanes; it is possible that they will be allowed at some intersections but not at others.

Preliminary design of the BRT treatment will begin later this year and next year, as will traffic simulations of selected segments of the two avenues. At this time, only a conceptual plan showing potential representative cross-sections along the length of the proposed BRT lanes is available.

First and Second Avenues currently operate with bus priority treatments in their curb lanes during peak periods. This generally consists of a single dedicated curb bus lane with right turns allowed at all cross-streets. For locations where a single bus/BRT lane may be proposed, it is possible that traffic operating conditions would remain unchanged, except that these conditions could be extended into non-peak hours. It is also possible that special signal provisions implemented for better operation of the BRT vehicles could affect general traffic operations, especially if bus signal pre-emption or queue bypass treatments integrated with signal timing changes are implemented. For locations where a second bus/BRT lane may be proposed, it is possible that general traffic operating conditions would be adversely affected, unless countermeasures are employed and are successful in providing general traffic with sufficient capacity to offset the loss of a general travel lane. This, for example, could include stricter parking regulations on the opposite, non-bus/BRT curb lane, increased enforcement of curb

parking prohibitions, or other measures to facilitate traffic flow. However, most person trips in the corridor are made by bus, not by private auto, and the speed, frequency, and dependability of bus service will improve.

With BRT on First and Second Avenues, it is expected that No Build traffic levels of service identified above in this SEIS would deteriorate. Depending upon the ultimate design of the BRT service, there could be an increased number of significant adverse traffic impact locations under the Build condition, and some of the Proposed Actions' significant adverse traffic impacts could require additional mitigation.

K. CONDITIONS WITH SPECIAL EVENTS AT THE UNITED NATIONS

The United Nations (UN), located along the east side of First Avenue north of 42nd Street, is a major traffic generator in the study area; traffic associated with its typical daily activities are part of the analyses conducted throughout this chapter of the SEIS. There are times, however, when special events at the UN have caused the New York City Police Department (NYPD) to implement lane closures and other traffic operations measures aimed at maintaining security at the UN and along key streets leading to the UN. This occurs during "UN Week," generally toward the end of September when the General Assembly is in Special Session and notable domestic and foreign dignitaries may be speaking, and may also occur at times during the year when other special sessions attended by notable dignitaries occur.

NYPD uses a combination of operational measures to provide the level of security needed for each event. These measures may include the following:

- Closure of the First Avenue tunnel under 42nd Street to all traffic (typically occurs when the President of the United States is expected to speak at the UN, and includes closure of First Avenue alongside the UN from 42nd to 48th or 50th Streets), or its use by all traffic other than truck traffic. At times, First Avenue may be closed south of the tunnel as well, with traffic directed away from the east side of the avenue, except for buses. At other times, the "service roads" along both sides of the tunnel approaching 42nd Street may be closed while the tunnel itself is open to vehicular traffic.
- Closure of the northbound exit ramp of the FDR Drive to 42nd Street.
- Closure of 42nd Street to vehicular traffic from First Avenue as far west as Fifth Avenue, with the length of its closure varying based on the nature of the specific event being held at the UN. At times, a special travel lane may be created along 42nd Street for dignitaries heading crosstown to or from the UN.
- Closure of selected east-west cross-streets, such as 44th, 45th, and 46th Streets from First Avenue to Second Avenue. At times, such as when the President of the United States or other notable foreign dignitaries stay at the Waldorf-Astoria Hotel or other major Midtown hotels, 49th Street may be closed from Third Avenue to Park Avenue, 50th Street may be closed from Madison Avenue to Lexington Avenue, 45th Street may be closed from Lexington Avenue to Madison Avenue, and Vanderbilt Avenue may be closed from 44th to 46th Streets. At times, Park Avenue may be closed to truck and other large vehicles from 48th to 51st Streets.
- At times during a period of UN Week, vehicular access may be closed at more distant locations, such as the southbound FDR Drive at 63rd Street and/or the northbound FDR

Drive at 34th Street. The FDR Drive may also be subject to intermittent closure from South Ferry up to 63rd Street.

While NYPD is responsible for all traffic operations and closures during these periods, NYCDOT and the New York State Department of Transportation (NYSDOT) provide variable-message (VM) signage throughout the region advising motorists of "Gridlock Alert" with the UN in special session. VM signs may be placed and activated along major roadways approaching New York City in Long Island, Westchester, and New Jersey, encouraging commuters to use mass transit.

These closures are daytime closures, not all-day/all-night closures, and occur when the UN is in special session. These are special occurrences that cause considerable diversions of traffic to other roadways, streets, and avenues in Manhattan and approaching Manhattan. They are atypical conditions that exist for limited periods of time. Traffic generated by the Proposed Actions would contribute to traffic diversions already experienced under the special event conditions. ✷

Development Parcels

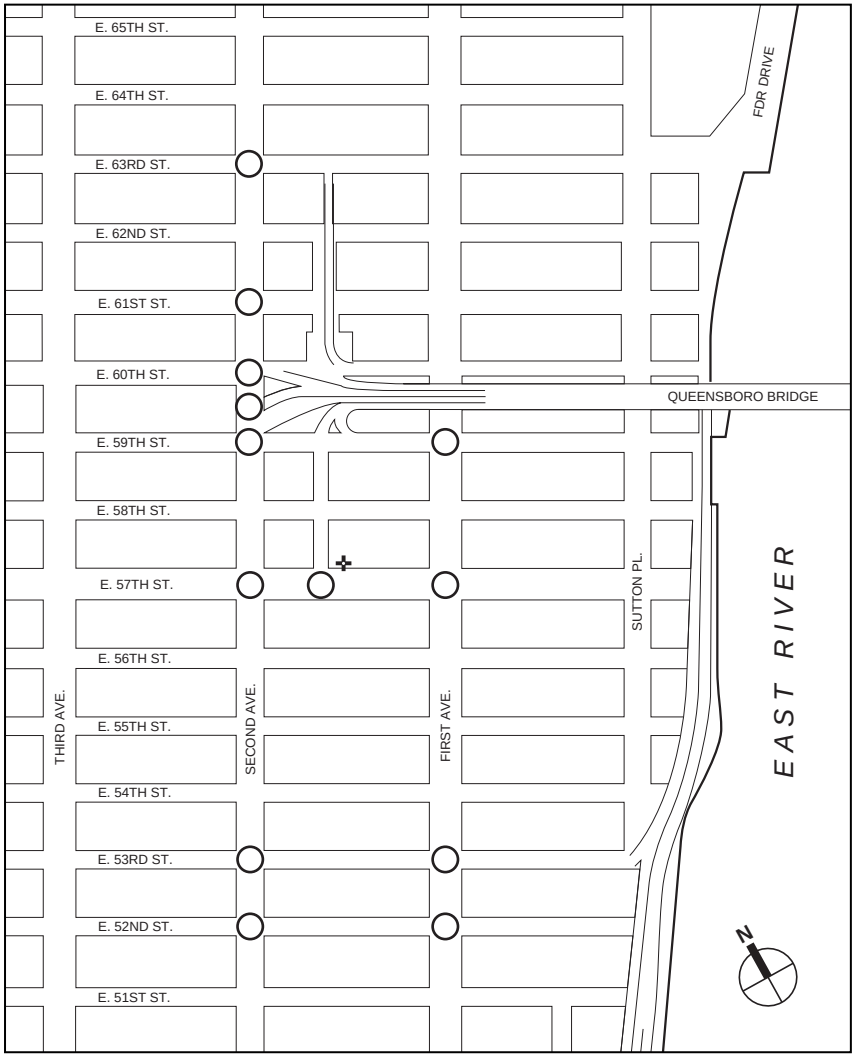
Intersection Analysis Location

Unsignalized Intersection (two additional proposed garage driveway locations are included in the Build analyses)

FIRST AVENUE PROPERTIES REZONING

Primary Traffic Study Area
Figure 15-1

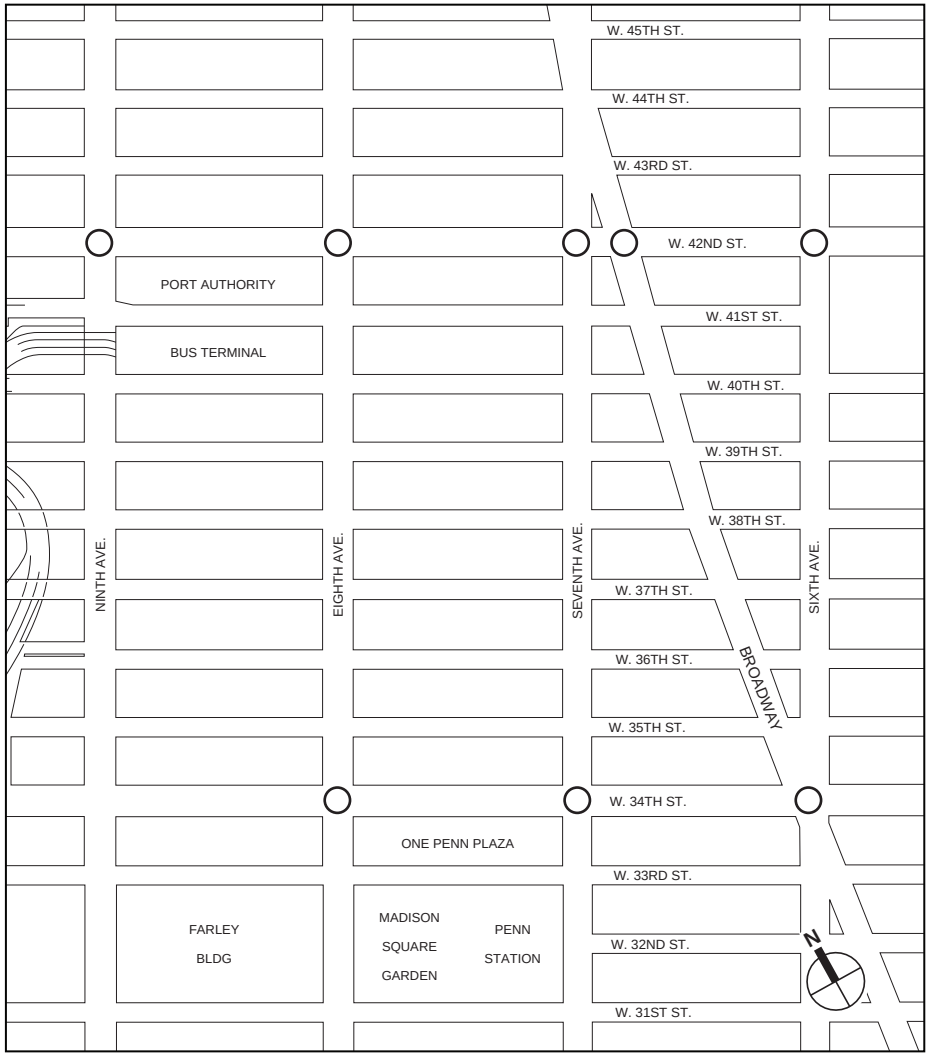
9.5.06



0 500 FEET

SCALE

Queensboro Bridge Secondary Study Area



0 500 FEET

SCALE

West Side Secondary Study Area

○ *Intersection Analysis Location*

○✣ *Unsignalized Intersection in Weekday AM Peak*

Secondary Traffic Study Areas: Queensboro Bridge and West Side Areas

Figure 15-2

Existing Levels of Service:
Primary Traffic Study Area
AM Peak Hour
Figure 15-3

Existing Levels of Service: Primary Traffic Study Area Midday Peak Hour

Figure 15-4

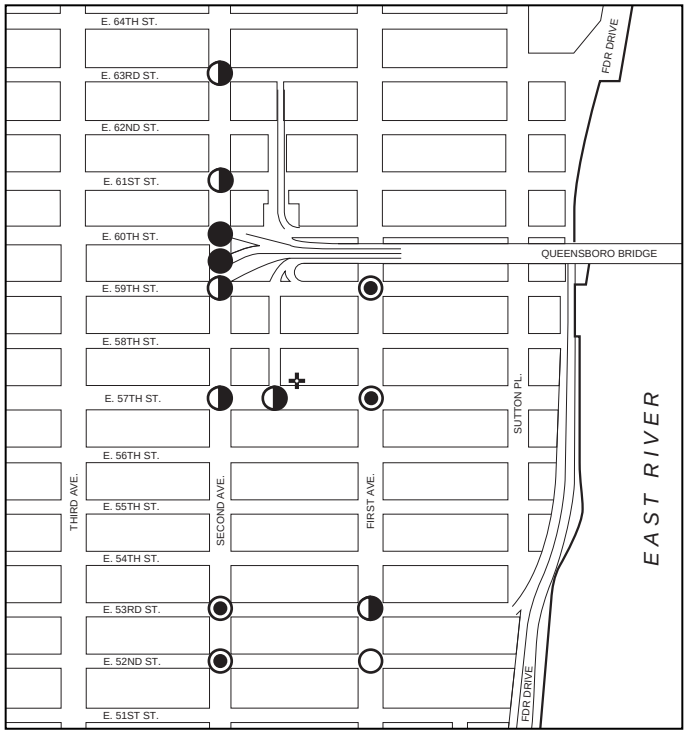
Existing Levels of Service: Primary Traffic Study Area PM Peak Hour

Figure 15-5

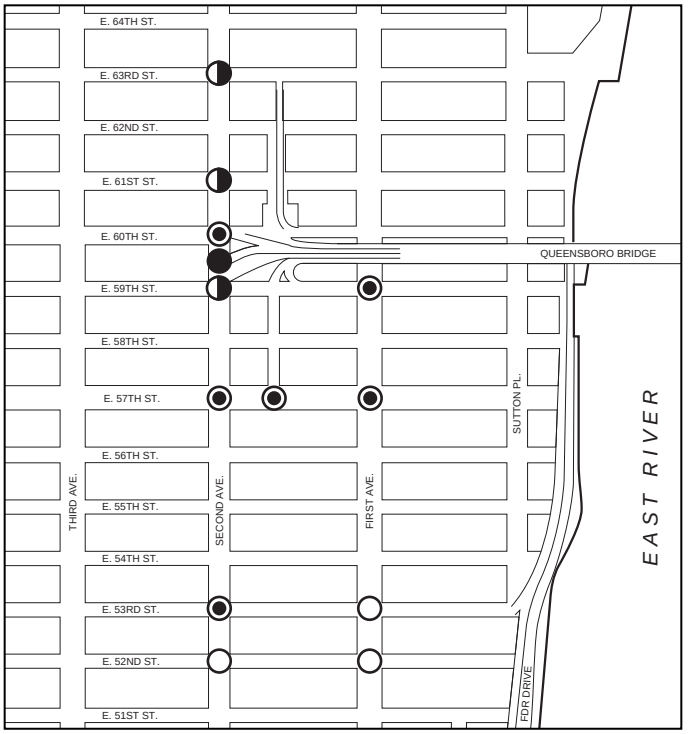
Existing Levels of Service: Primary Traffic Study Area Saturday Midday Peak Hour

Figure 15-6

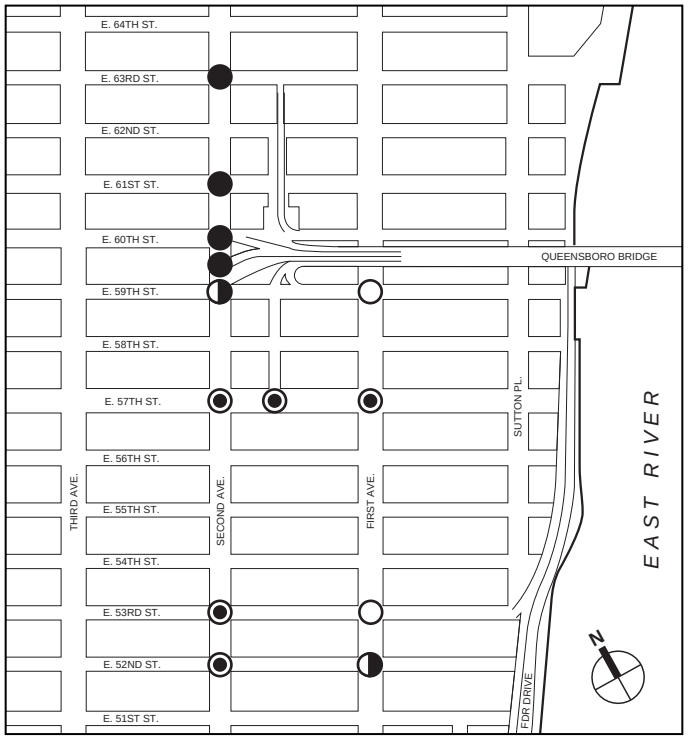
6.4.07



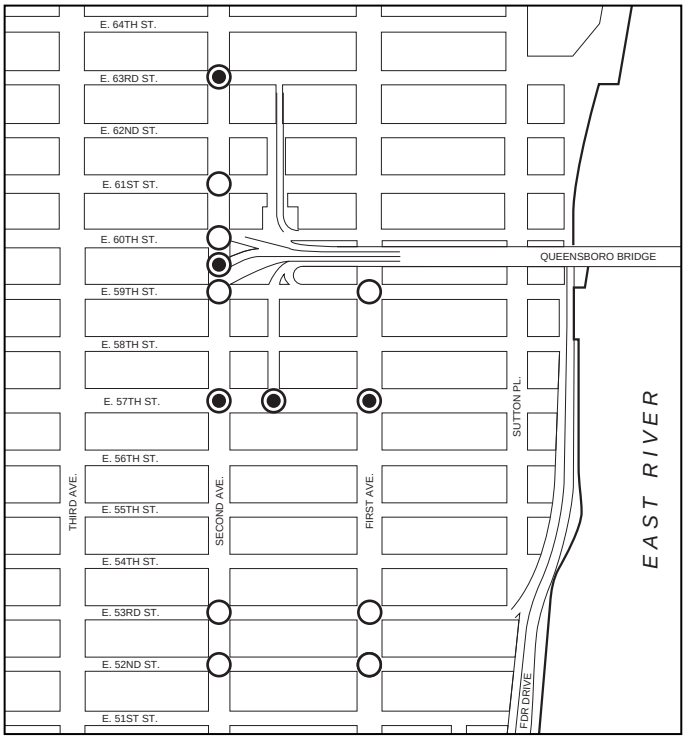
AM Peak Hour



Midday Peak Hour



PM Peak Hour



Saturday Peak Hour

0 500 FEET
SCALE

- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*
- ✢ *Unsignalized Intersection (AM Only)*

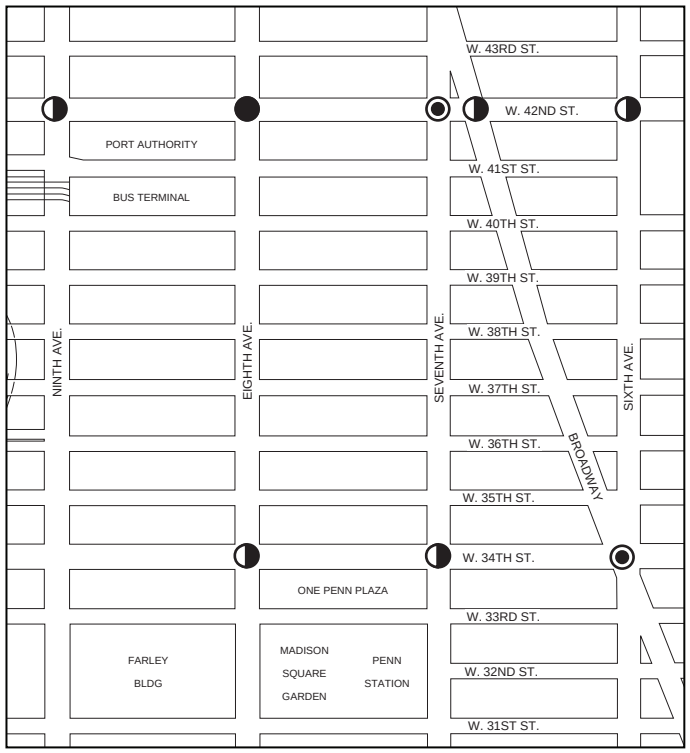
NOTE: OVERALL INTERSECTION LOS IS SHOWN

FIRST AVENUE PROPERTIES REZONING

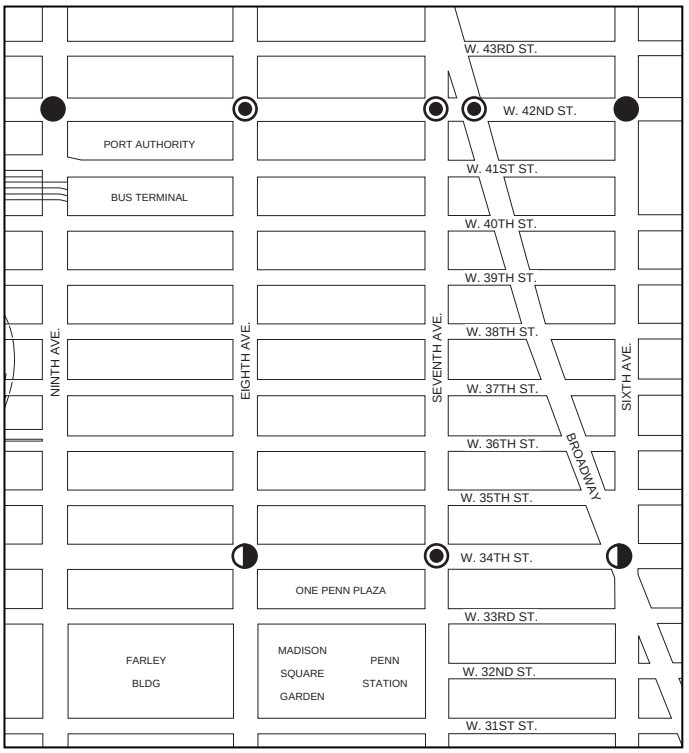
Existing Levels of Service: Queensboro Bridge Secondary Study Area

Figure 15-7

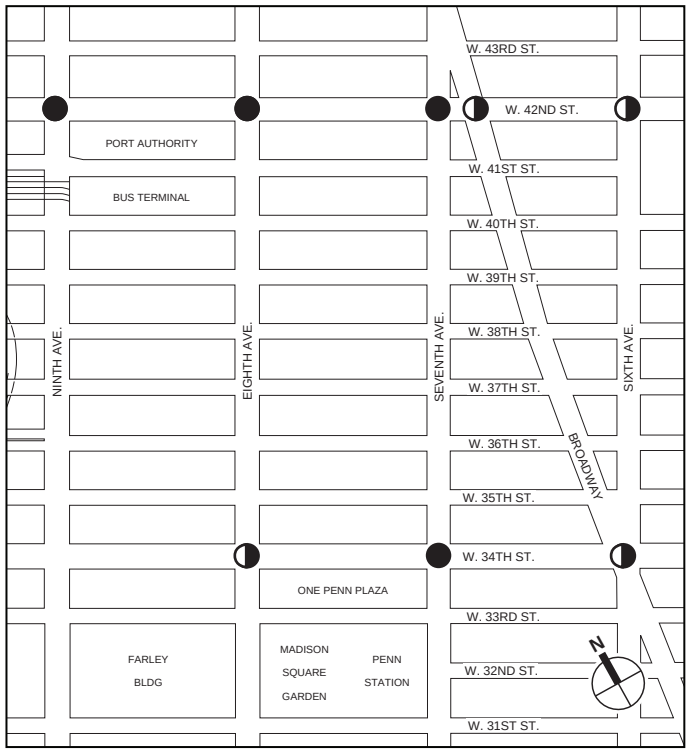
5.31.07



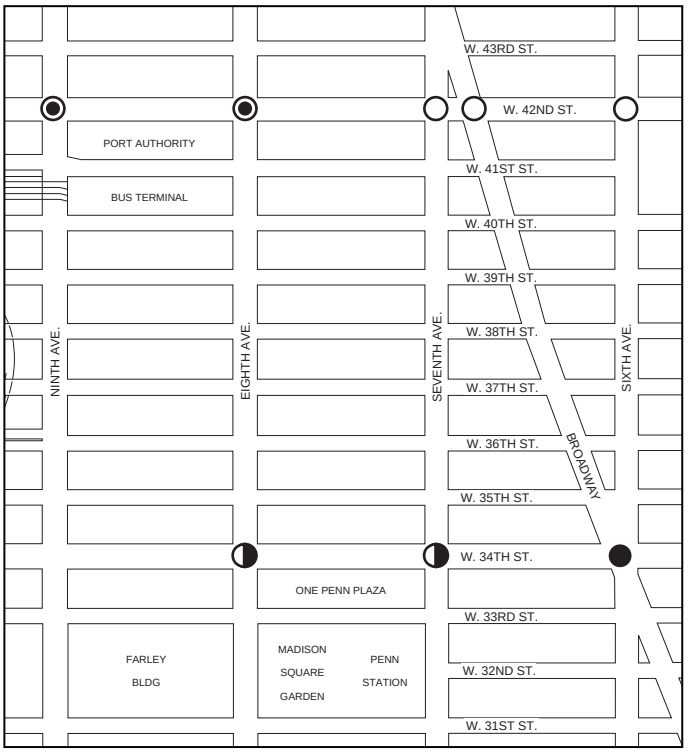
AM Peak Hour



Midday Peak Hour



PM Peak Hour



Saturday Peak Hour

0 500 FEET

SCALE

- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*

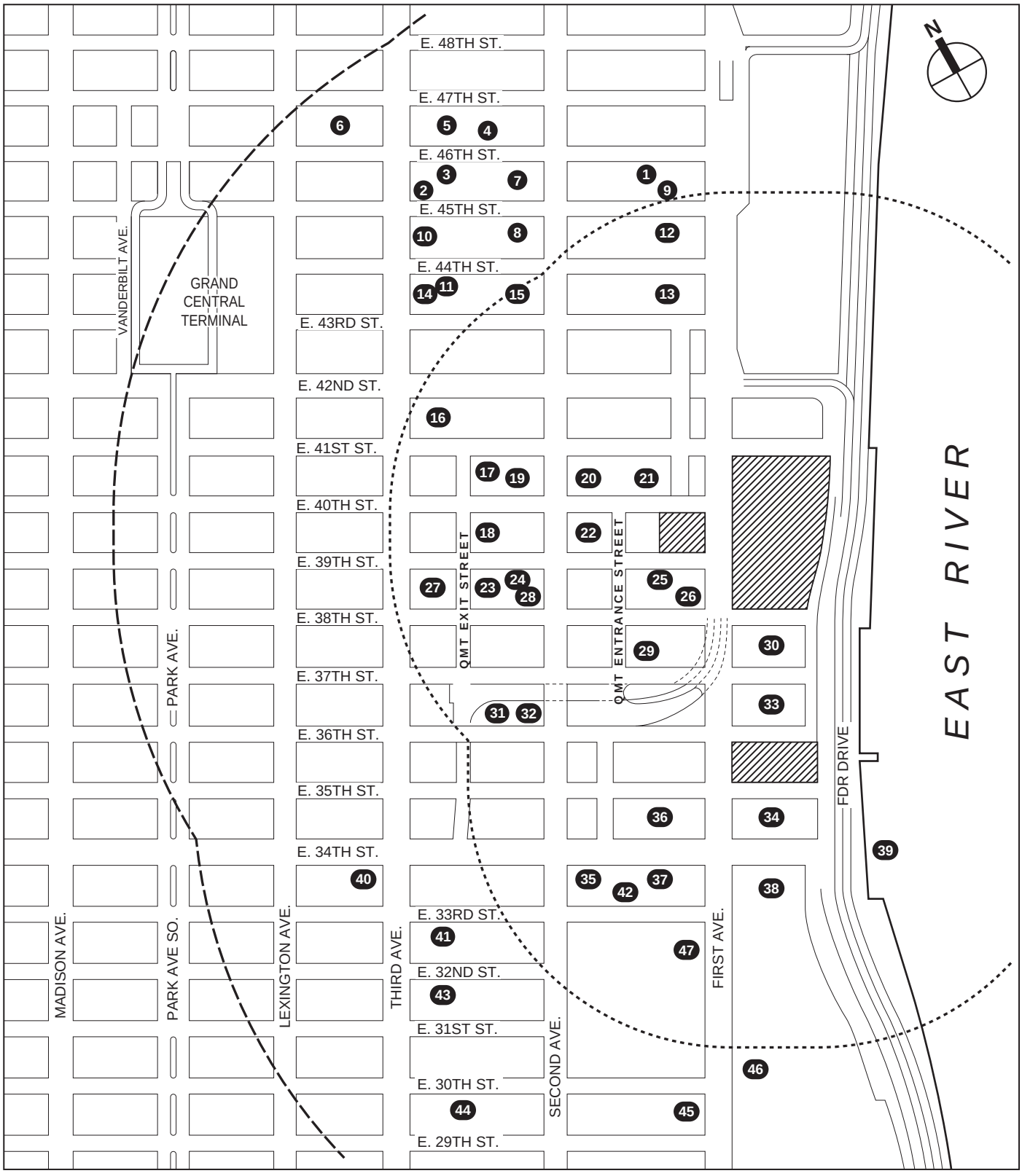
NOTE: OVERALL INTERSECTION LOS IS SHOWN

FIRST AVENUE PROPERTIES REZONING

Existing Levels of Service: West Side Secondary Study Area

Figure 15-8

9.26.06



Development Parcels

Study Area Boundary (1/4-Mile Perimeter)

Study Area Boundary (1/2-Mile Perimeter)

1 *Parking Facility*

Existing Public Parking Facilities

Figure 15-9

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Primary Traffic Study Area AM Peak Hour

FIRST AVENUE PROPERTIES REZONING

Figure 15-10

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Primary Traffic Study Area Midday Peak Hour

Figure 15-11

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Primary Traffic Study Area PM Peak Hour

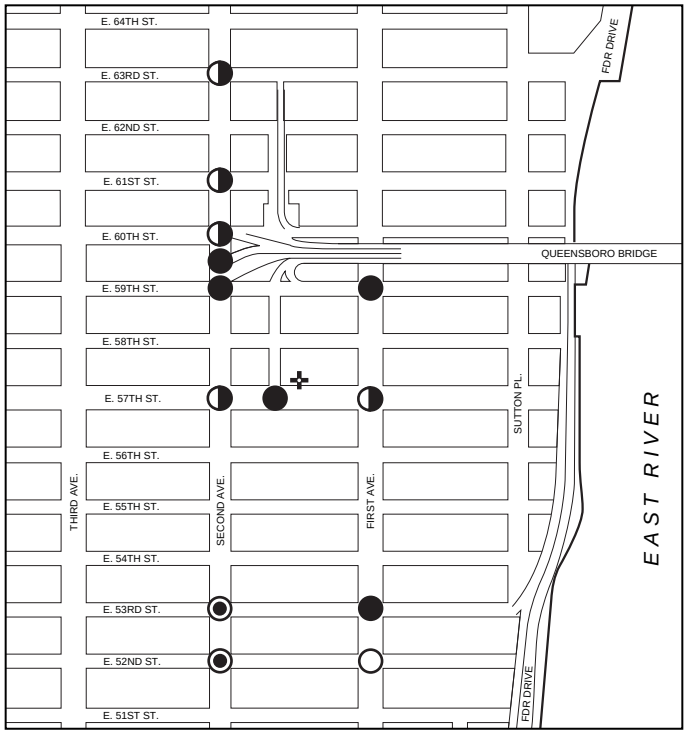
FIRST AVENUE PROPERTIES REZONING

Figure 15-12

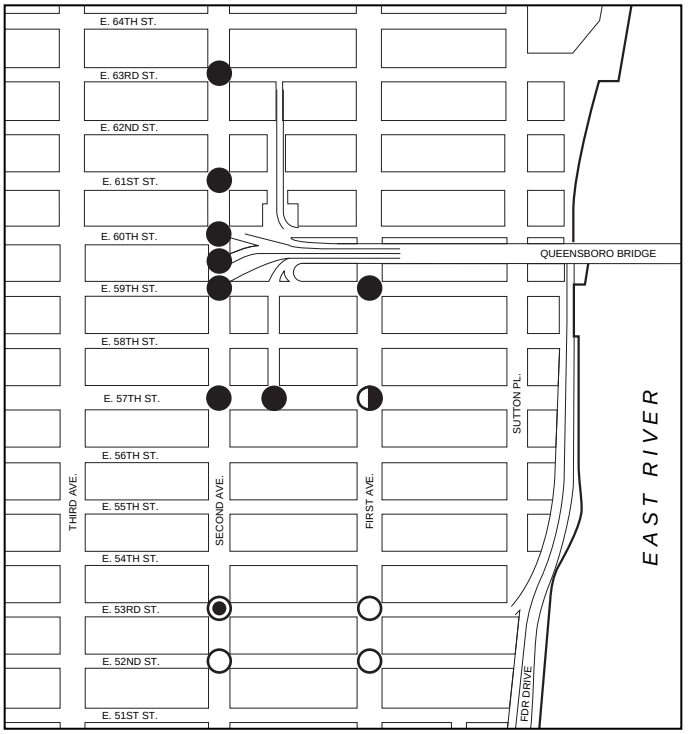
NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Primary Traffic Study Area Saturday Midday Peak Hour

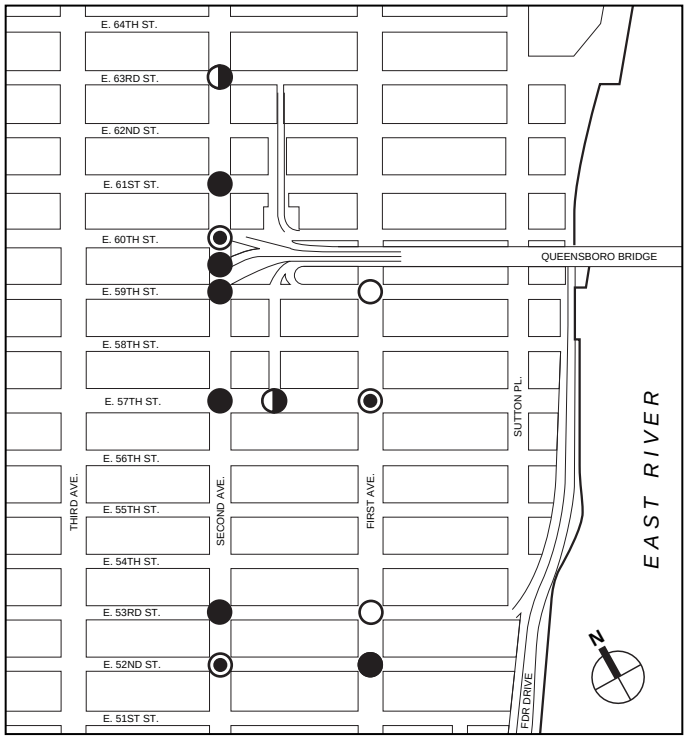
1.04.08



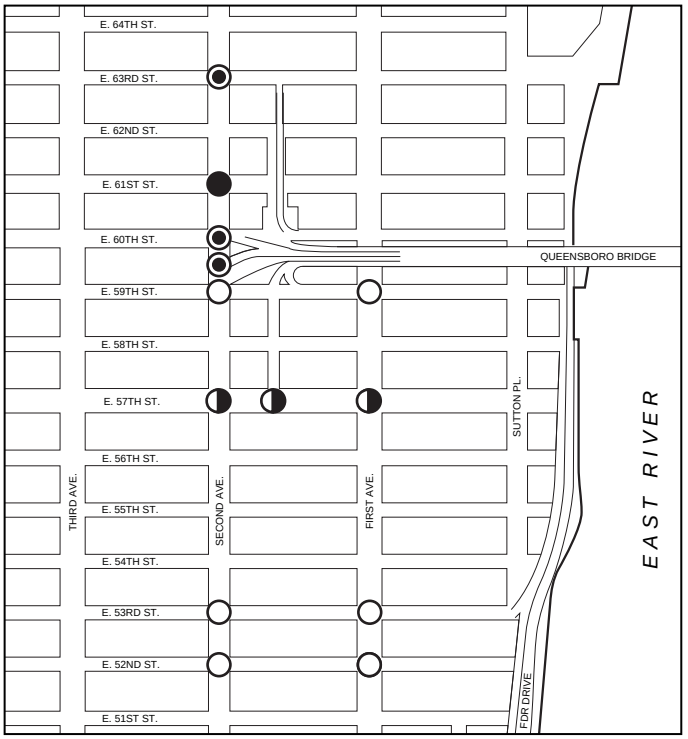
AM Peak Hour



Midday Peak Hour



PM Peak Hour



Saturday Peak Hour

0 500 FEET
SCALE

- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*
- ✢ *Unsignalized Intersection (AM Only)*

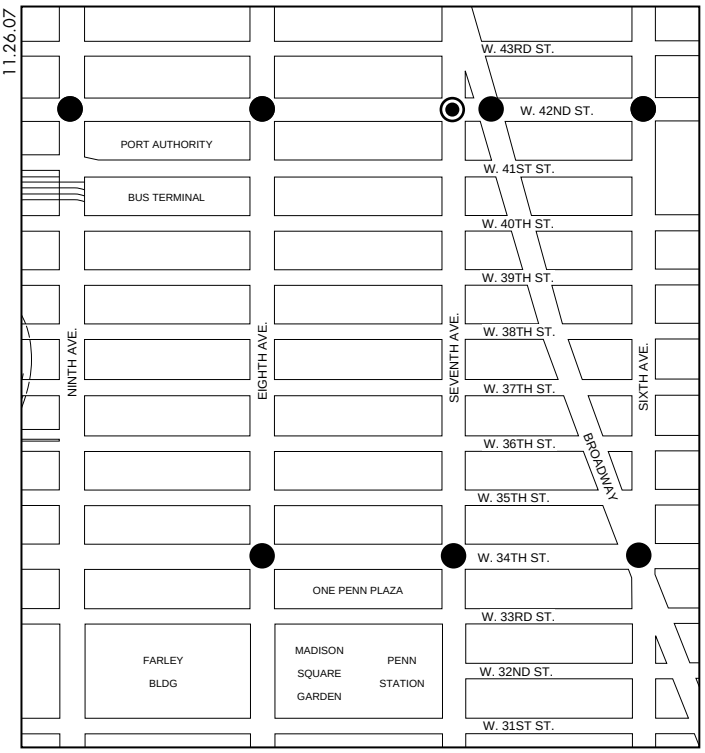
NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Queensboro Bridge Secondary Study Area

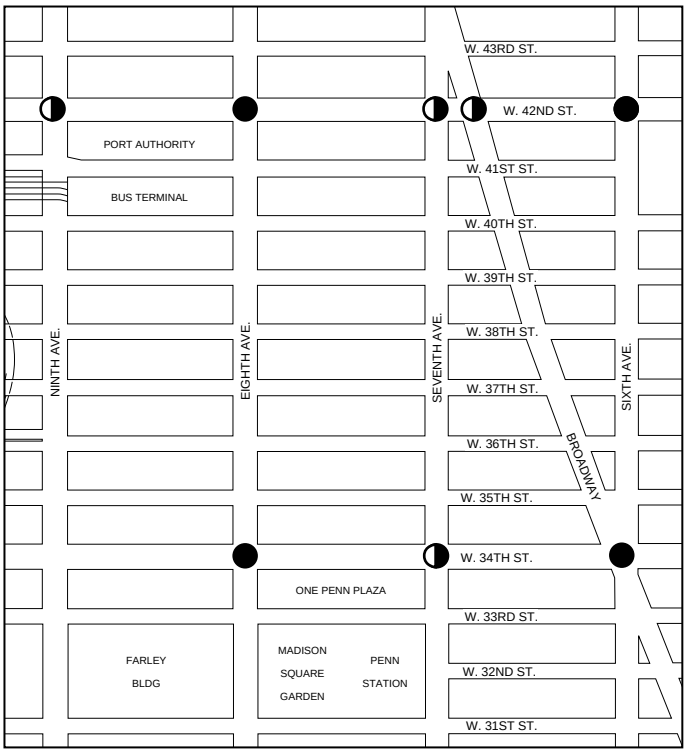
Figure 15-14

FIRST AVENUE PROPERTIES REZONING

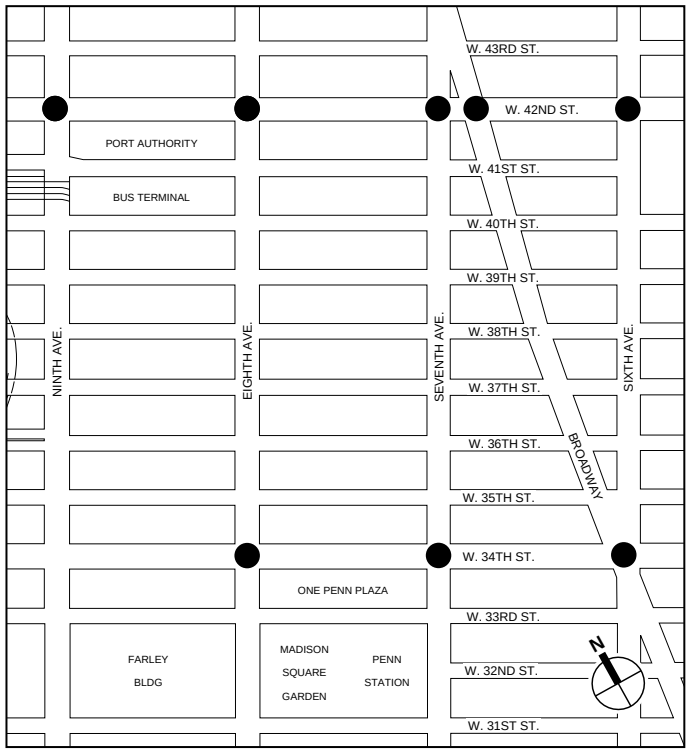
11.26.07



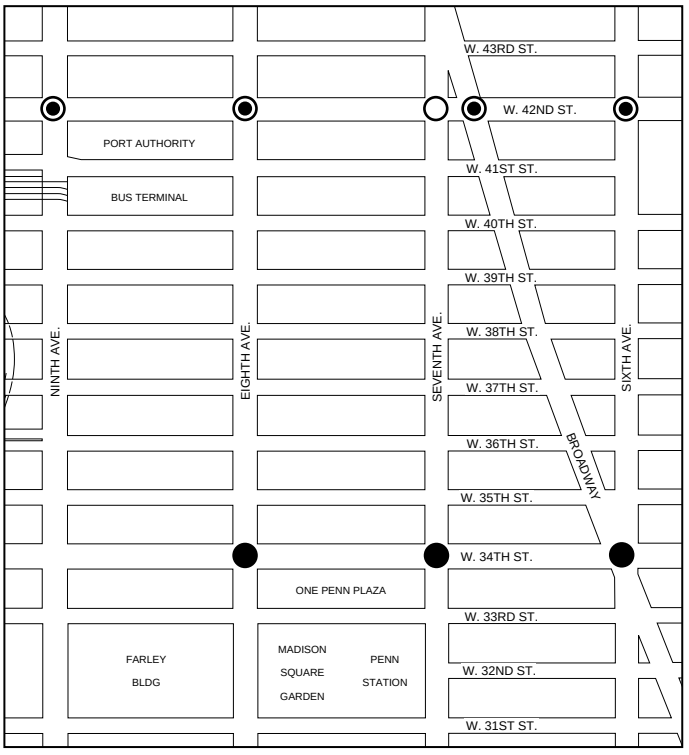
AM Peak Hour



Midday Peak Hour



PM Peak Hour



Saturday Peak Hour

0 500 FEET

SCALE

- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: West Side Secondary Study Area

Figure 15-15

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 Build Levels of Service: Primary Traffic Study Area AM Peak Hour

Figure 15-16

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 Build Levels of Service: Primary Traffic Study Area Midday Peak Hour

Figure 15-17

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 Build Levels of Service: Primary Traffic Study Area PM Peak Hour

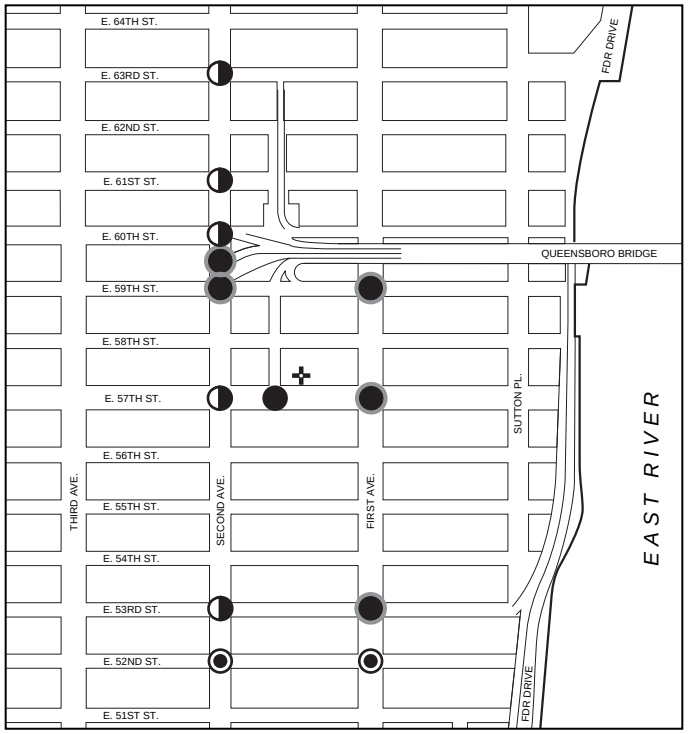
Figure 15-18

NOTE: OVERALL INTERSECTION LOS IS SHOWN

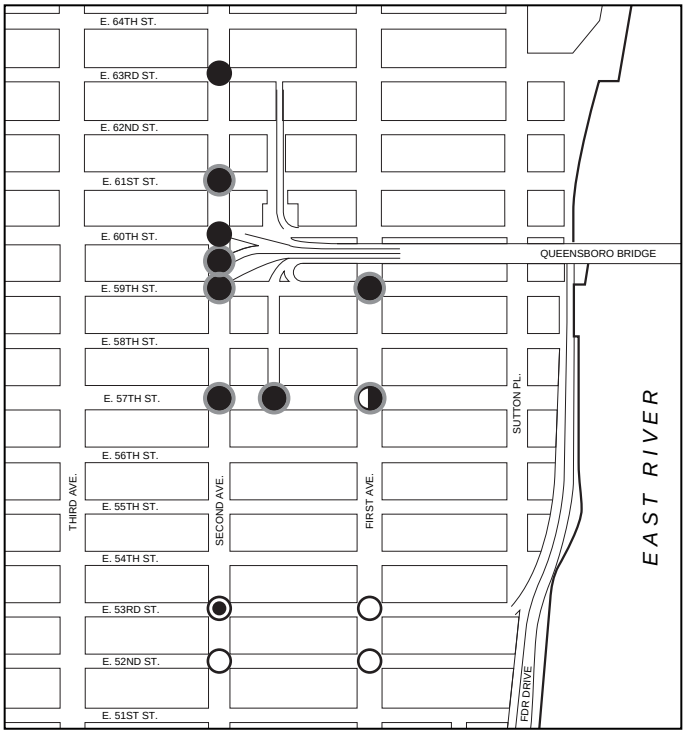
2014 Build Levels of Service: Primary Traffic Study Area Saturday Midday Peak Hour

Figure 15-19

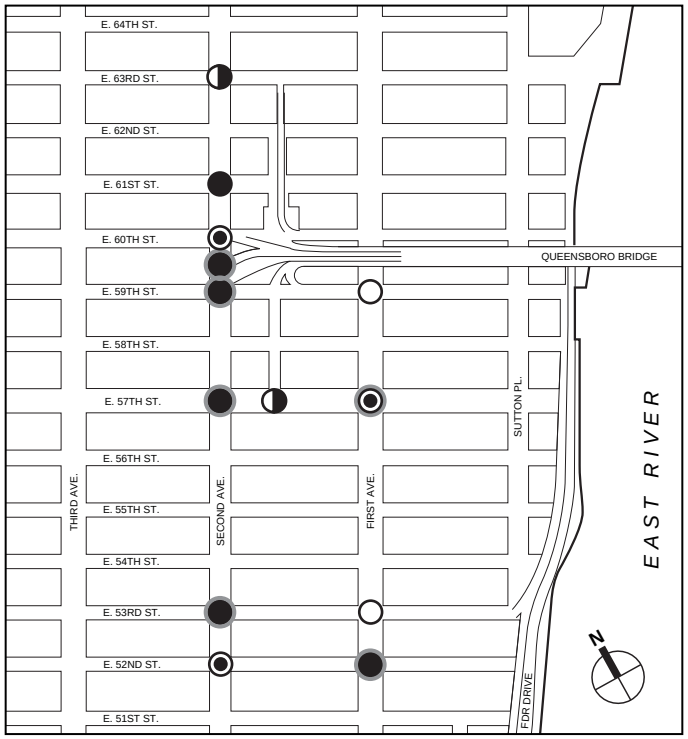
1.04.08



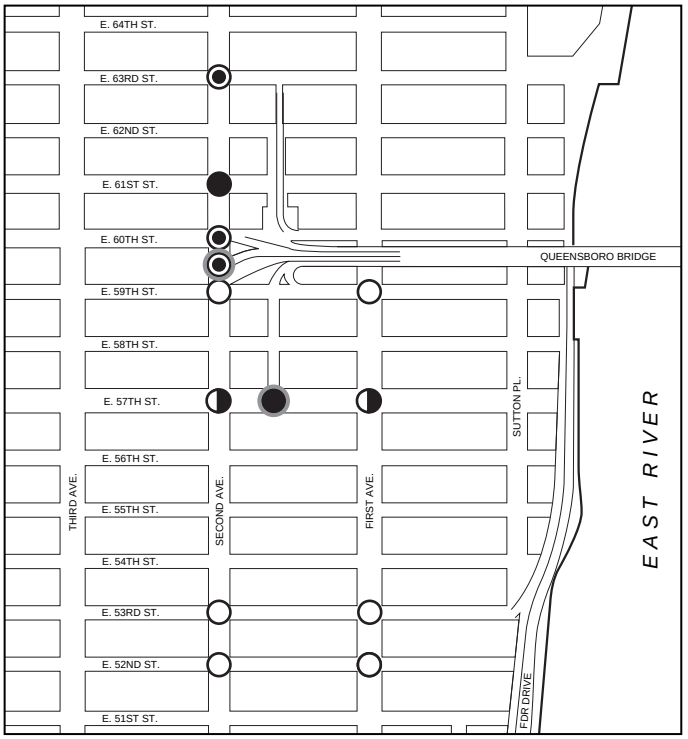
AM Peak Hour



Midday Peak Hour



PM Peak Hour



Saturday Peak Hour

0 500 FEET
SCALE

- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*
- *Unsignalized Intersection*
- *Significant Impact*

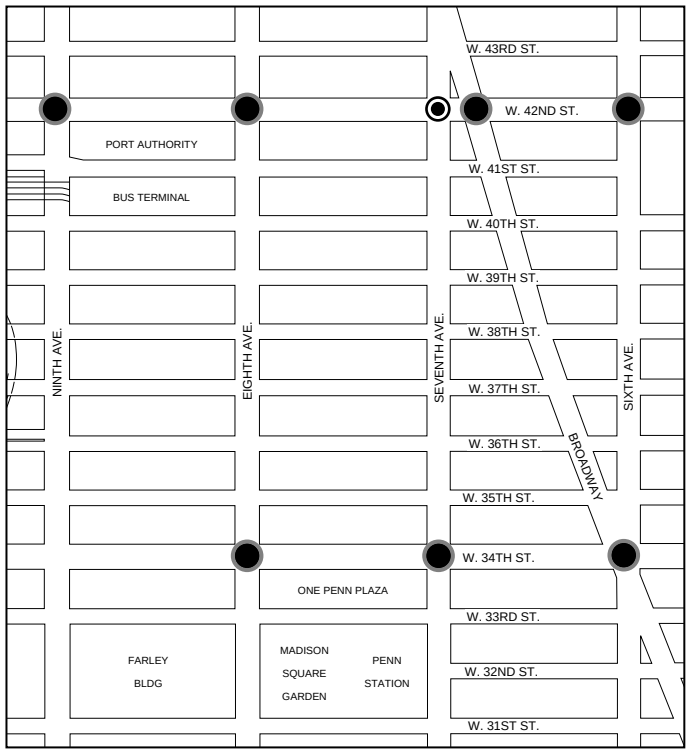
NOTE: OVERALL INTERSECTION LOS IS SHOWN

FIRST AVENUE PROPERTIES REZONING

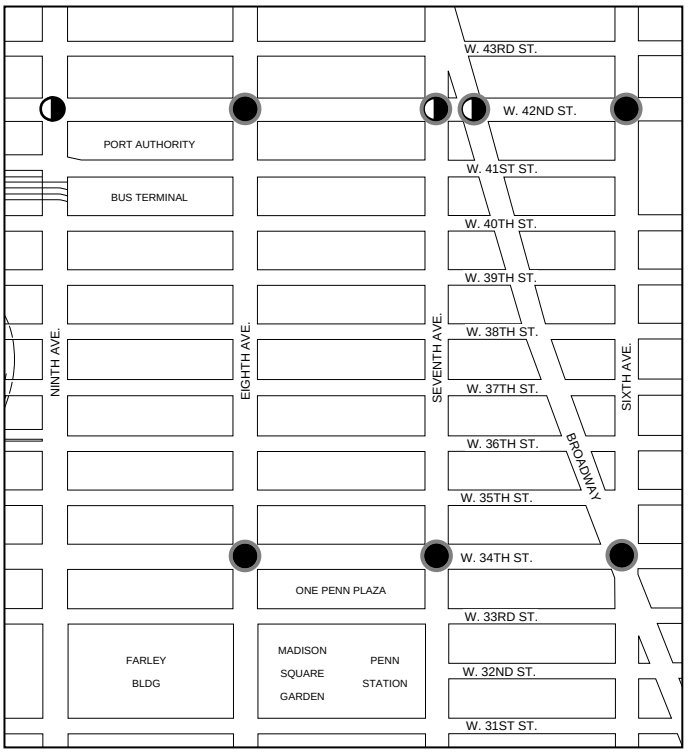
2014 Build Levels of Service: Queensboro Bridge Secondary Study Area

Figure 15-20

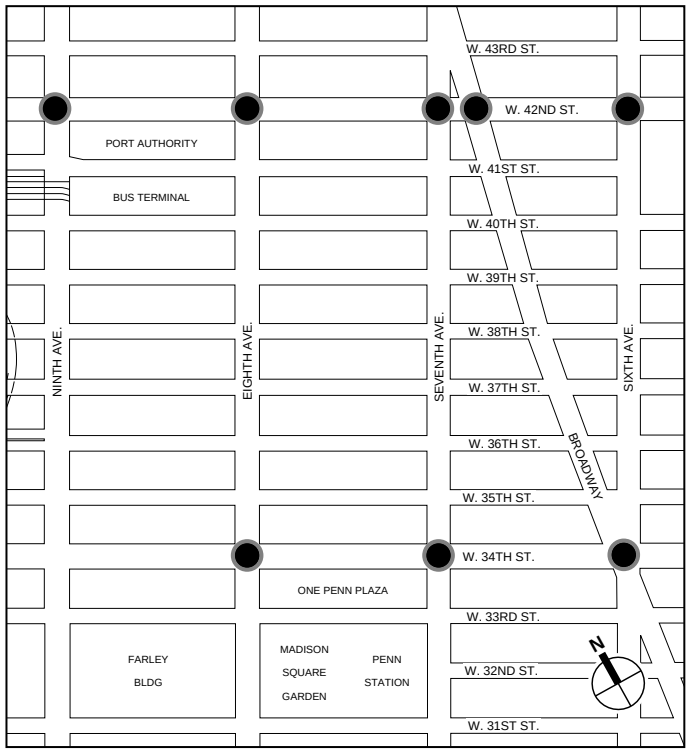
11.27.07



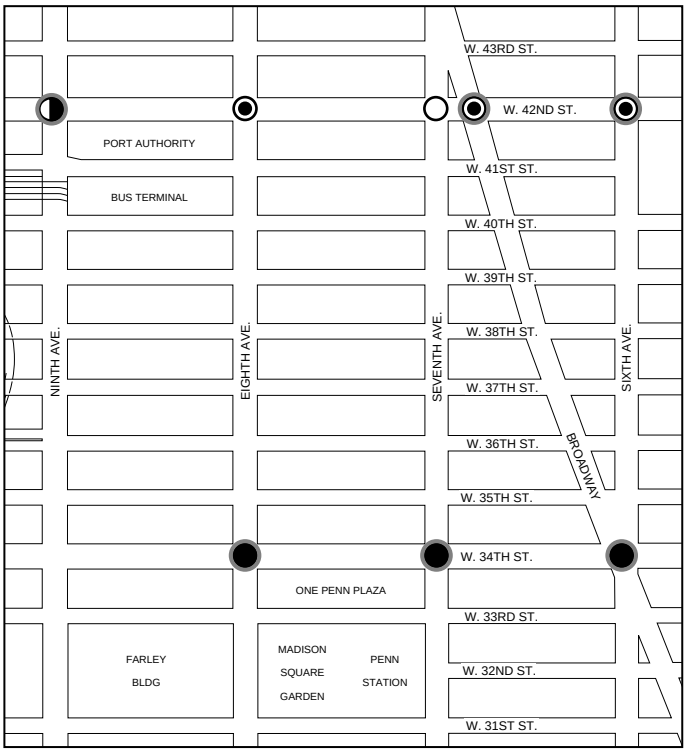
AM Peak Hour



Midday Peak Hour



PM Peak Hour



Saturday Peak Hour

0 500 FEET

SCALE

- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*
- ○ *Significant Impact*

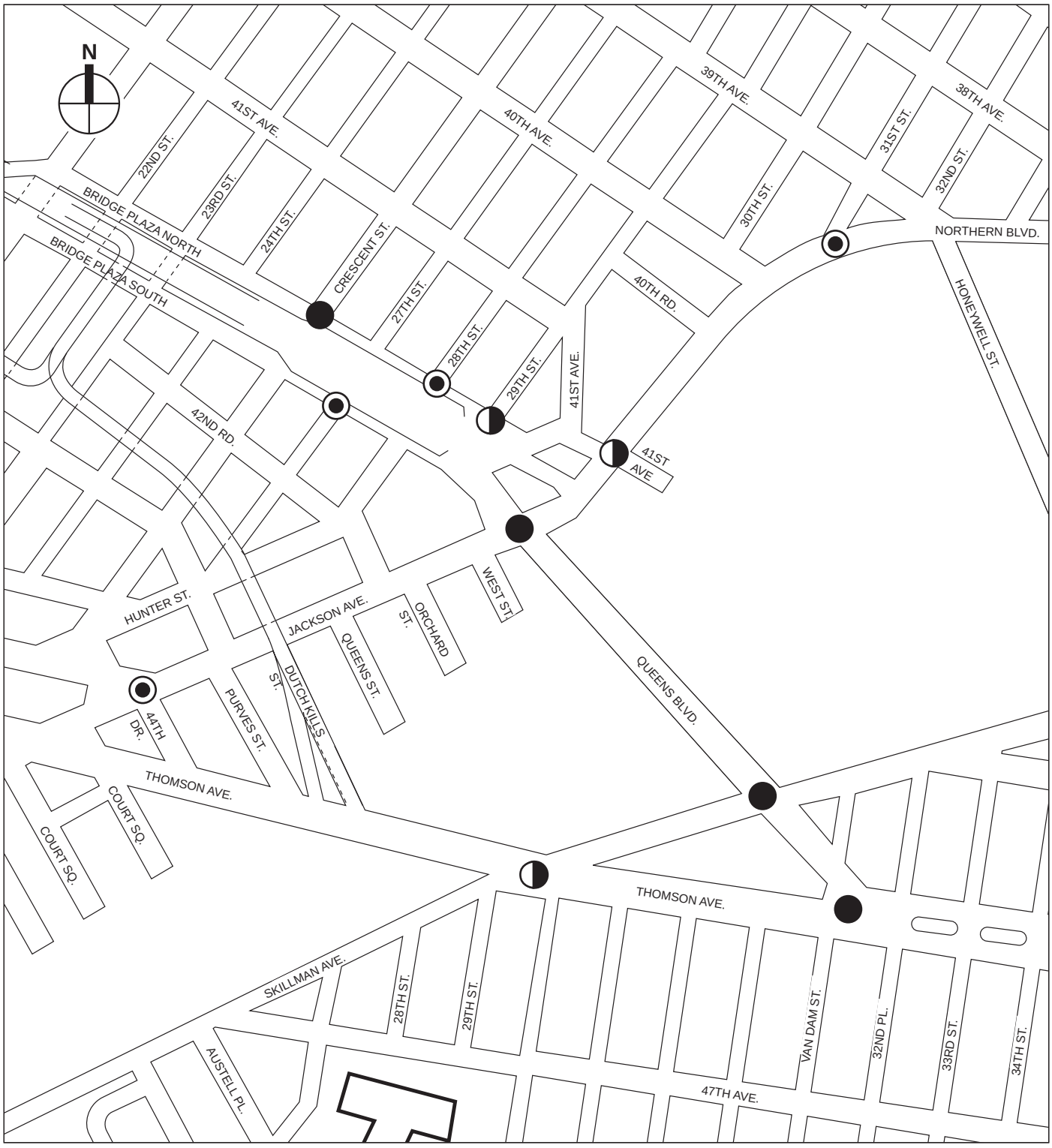
NOTE: OVERALL INTERSECTION LOS IS SHOWN

FIRST AVENUE PROPERTIES REZONING

2014 Build Levels of Service: West Side Secondary Study Area

Figure 15-21

11.29.07



0 400 800 FEET

SCALE

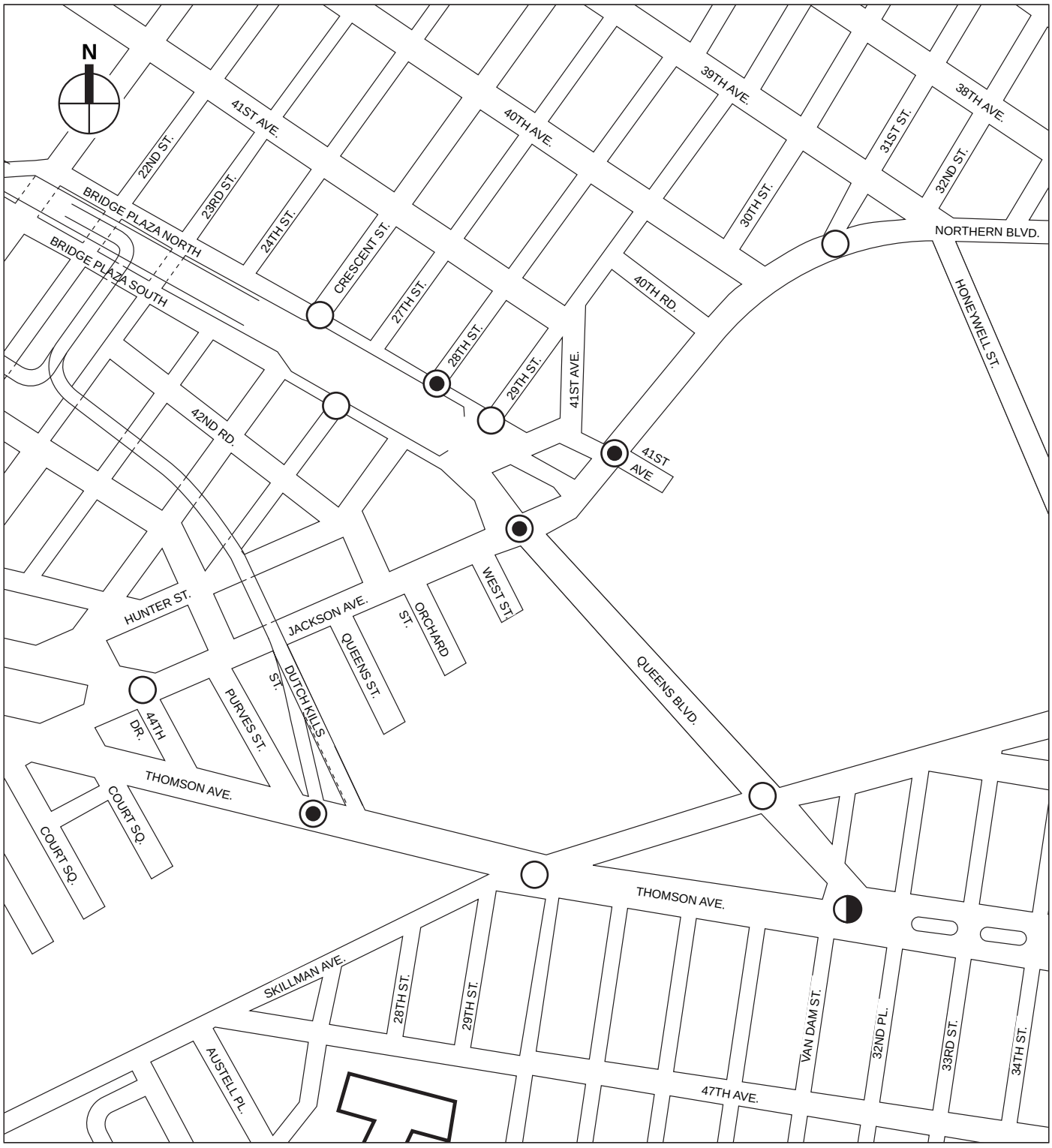
- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

Existing Levels of Service: Queens Plaza Study Area AM Peak Hour

Figure 15-22

11.27.07



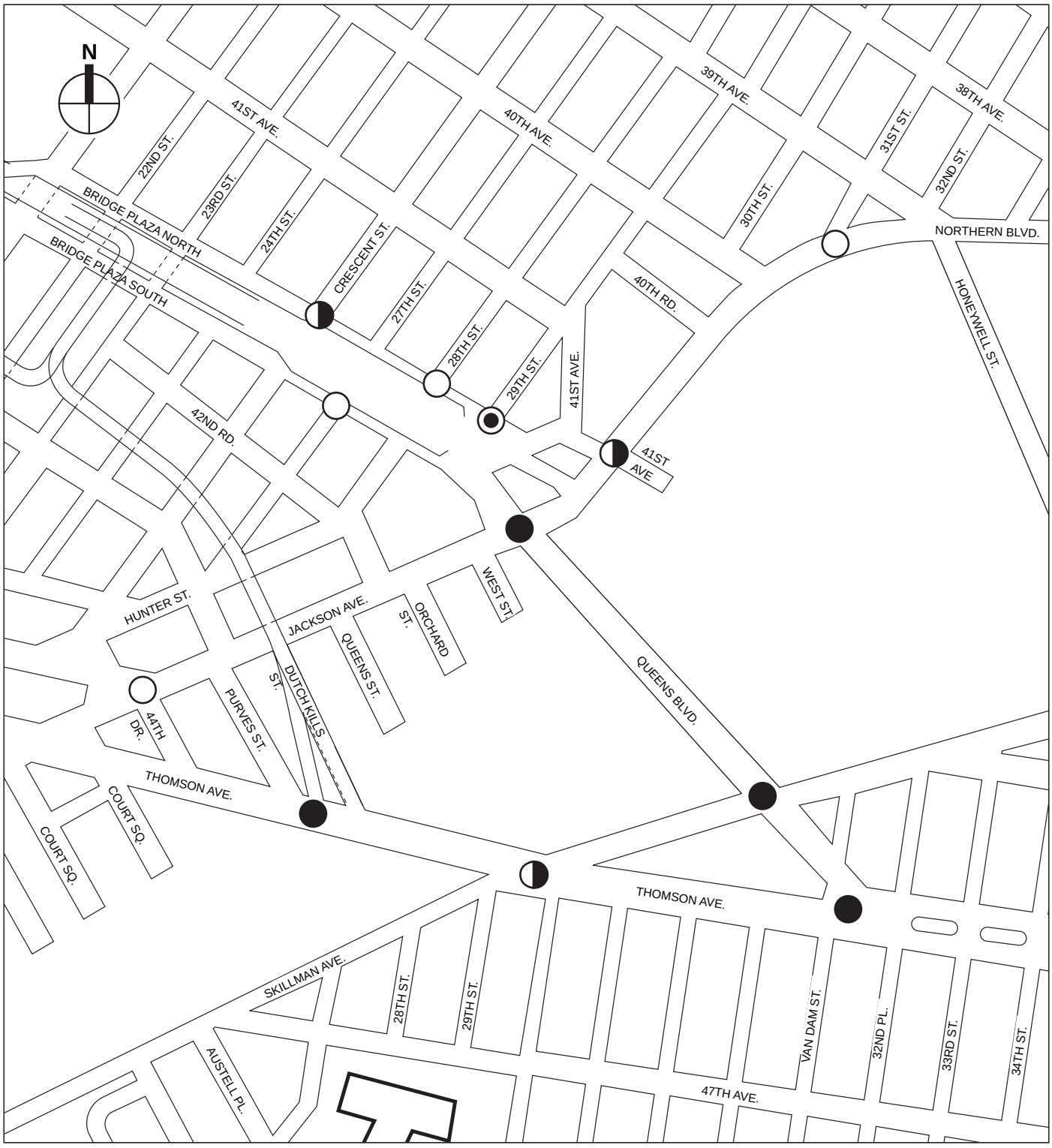
- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

Existing Levels of Service: Queens Plaza Study Area Midday Peak Hour

Figure 15-23

11.27.07

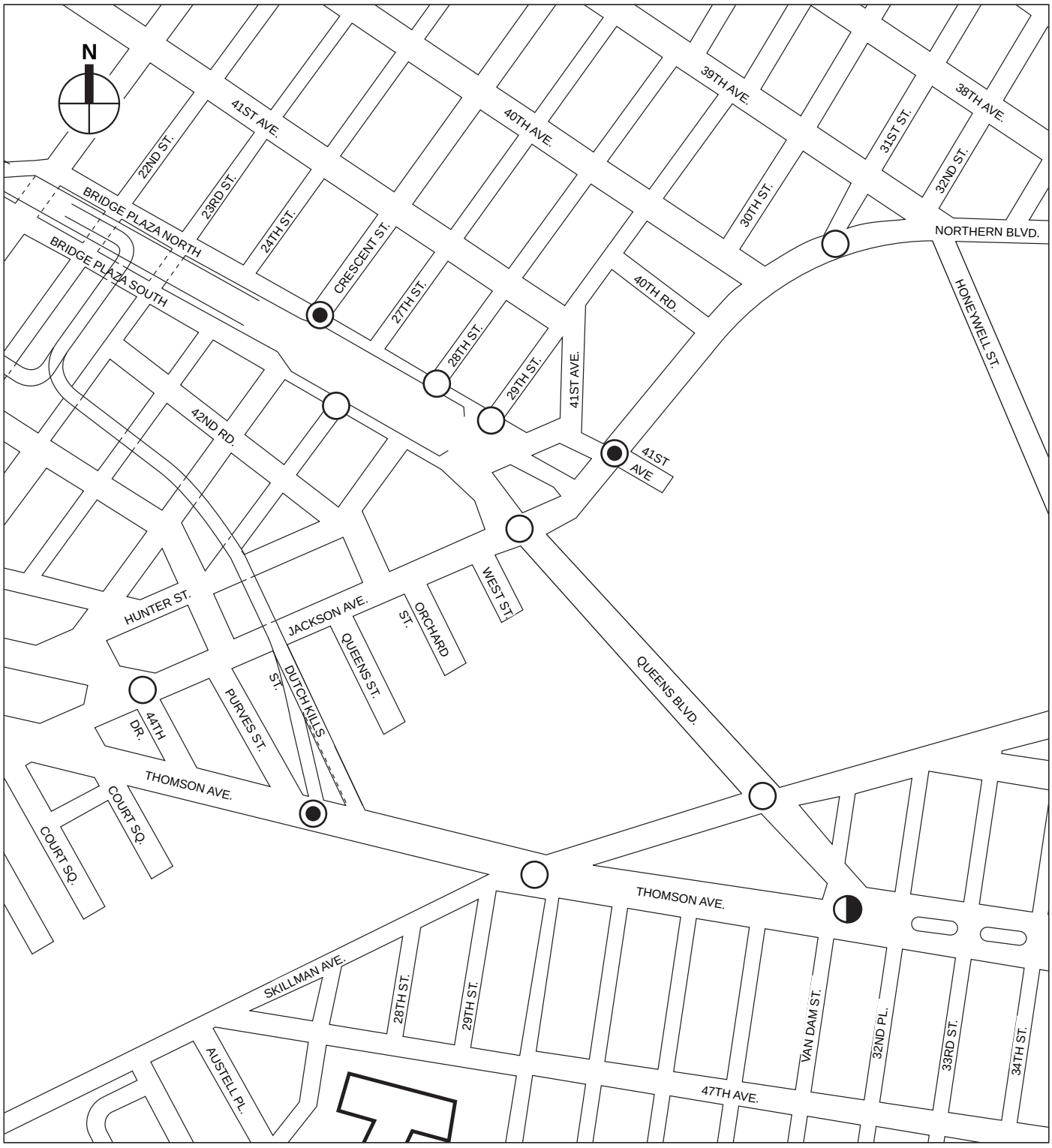


- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

Existing Levels of Service:
Queens Plaza Study Area
PM Peak Hour
Figure 15-24

11.27.07



- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*

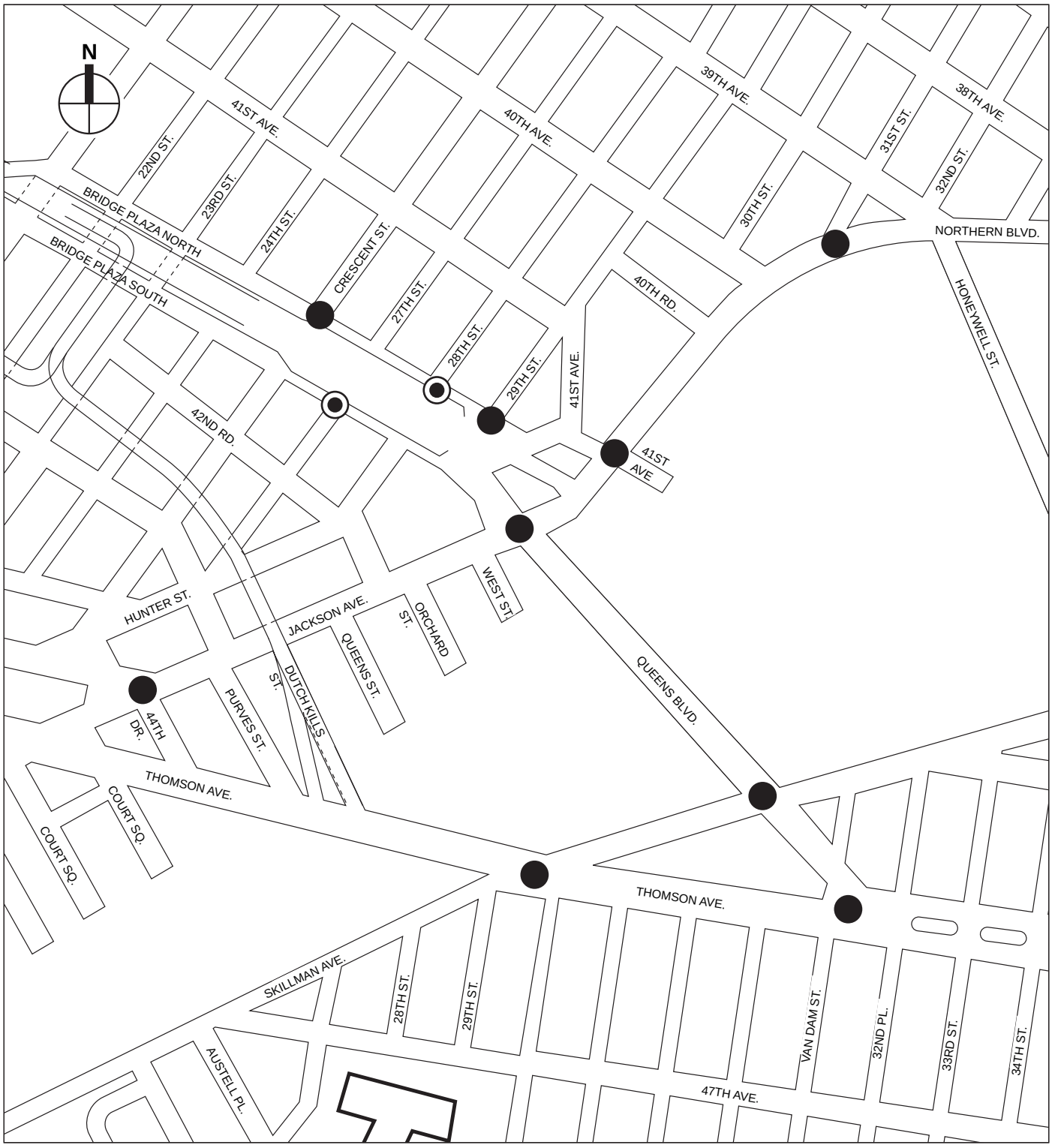
NOTE: OVERALL INTERSECTION LOS IS SHOWN

Existing Levels of Service: Queens Plaza Study Area Saturday Midday Peak Hour

Figure 15-25

FIRST AVENUE PROPERTIES REZONING

1.04.08



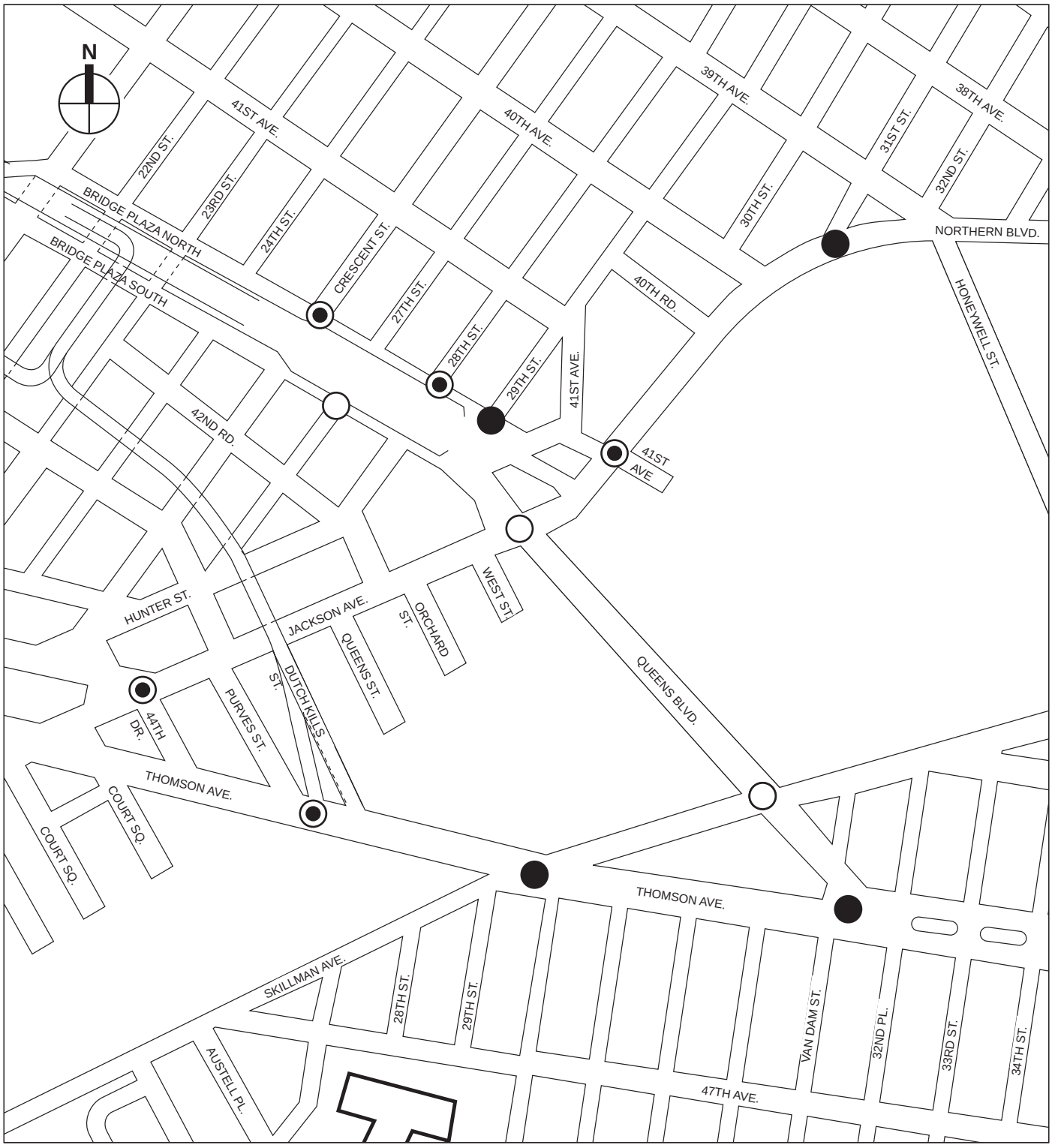
- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Queens Plaza Study Area AM Peak Hour

Figure 15-26

11.29.07



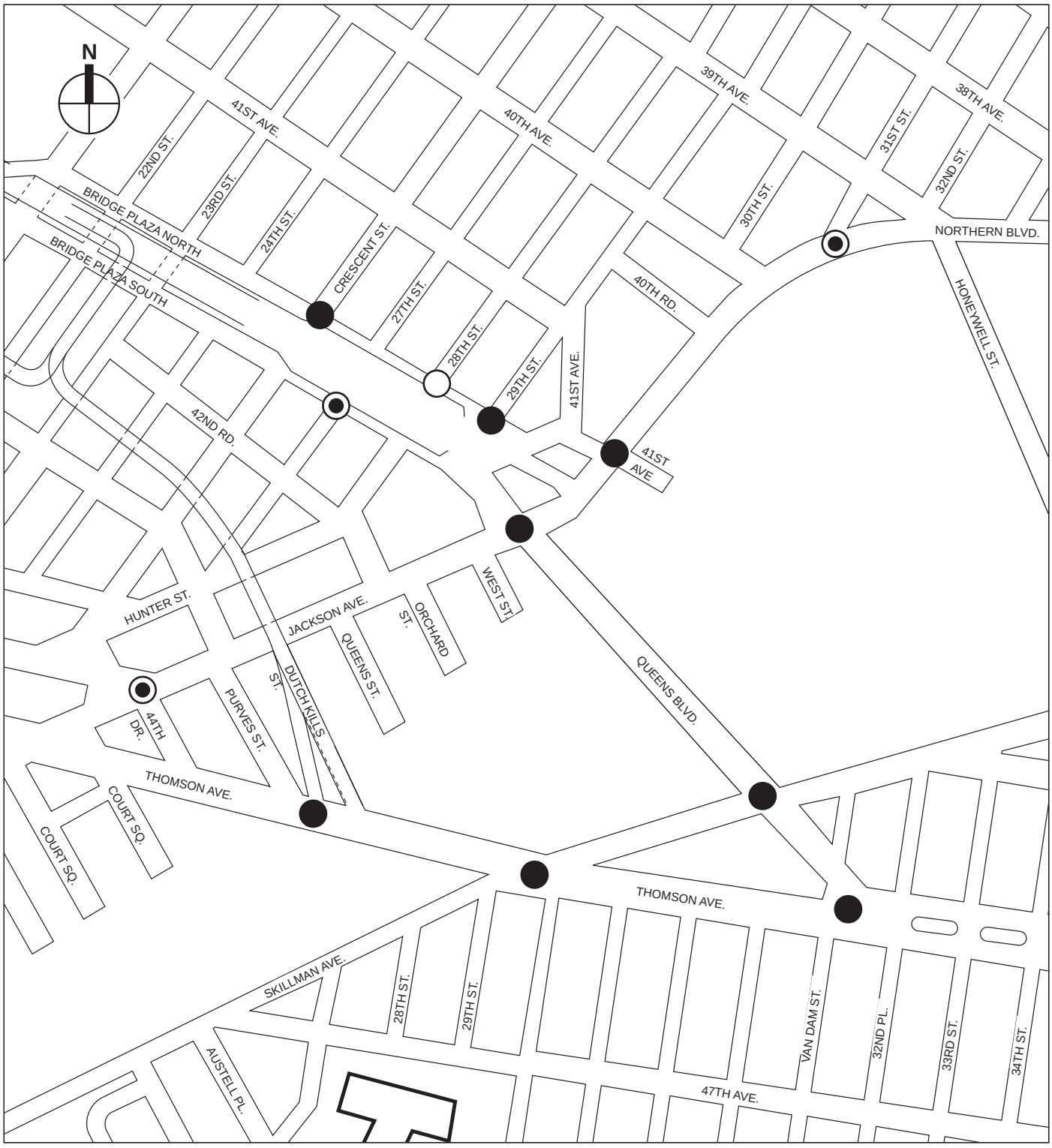
- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Queens Plaza Study Area Midday Peak Hour

Figure 15-27

11.29.07



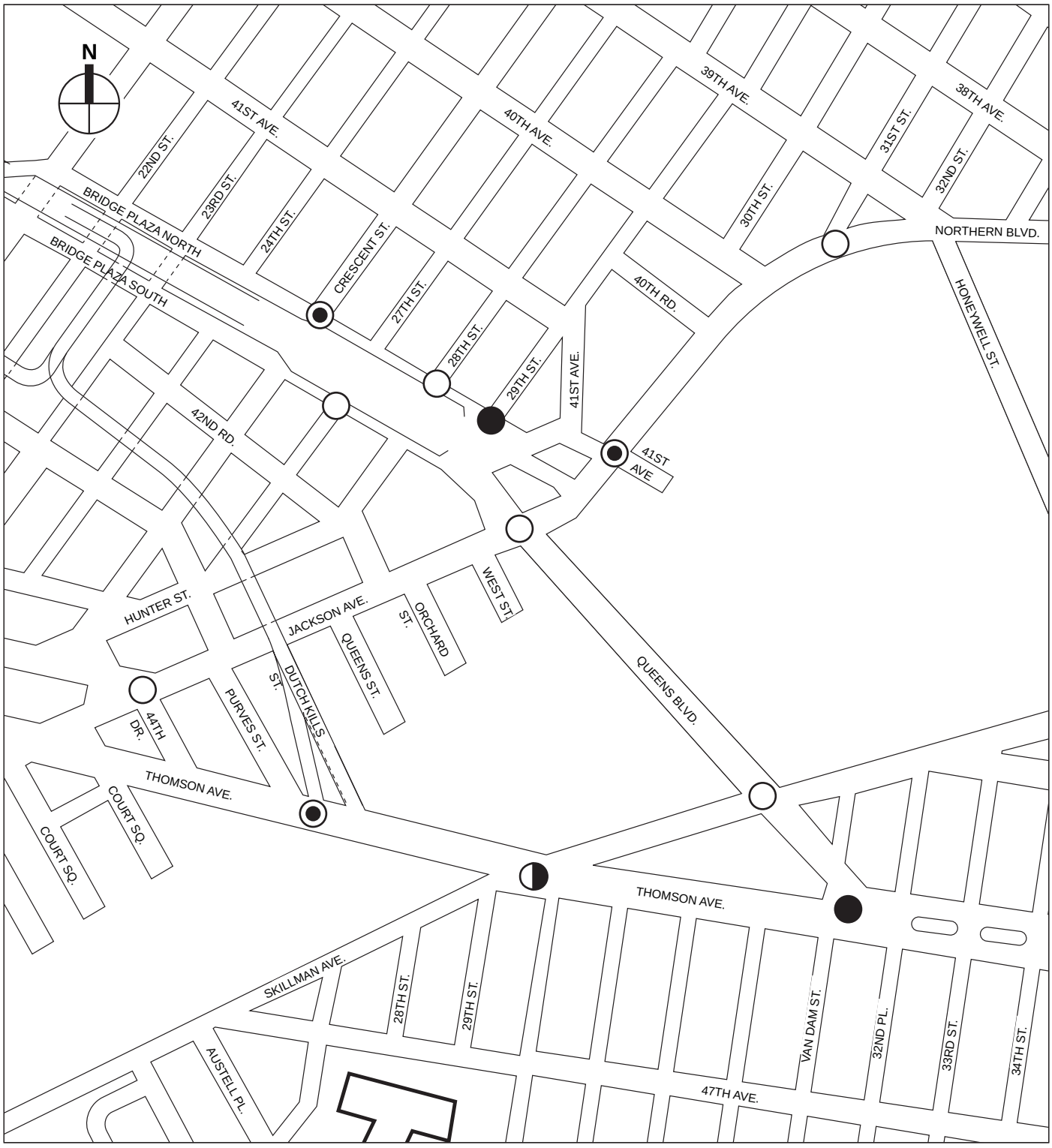
- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Queens Plaza Study Area PM Peak Hour

Figure 15-28

1.04.08



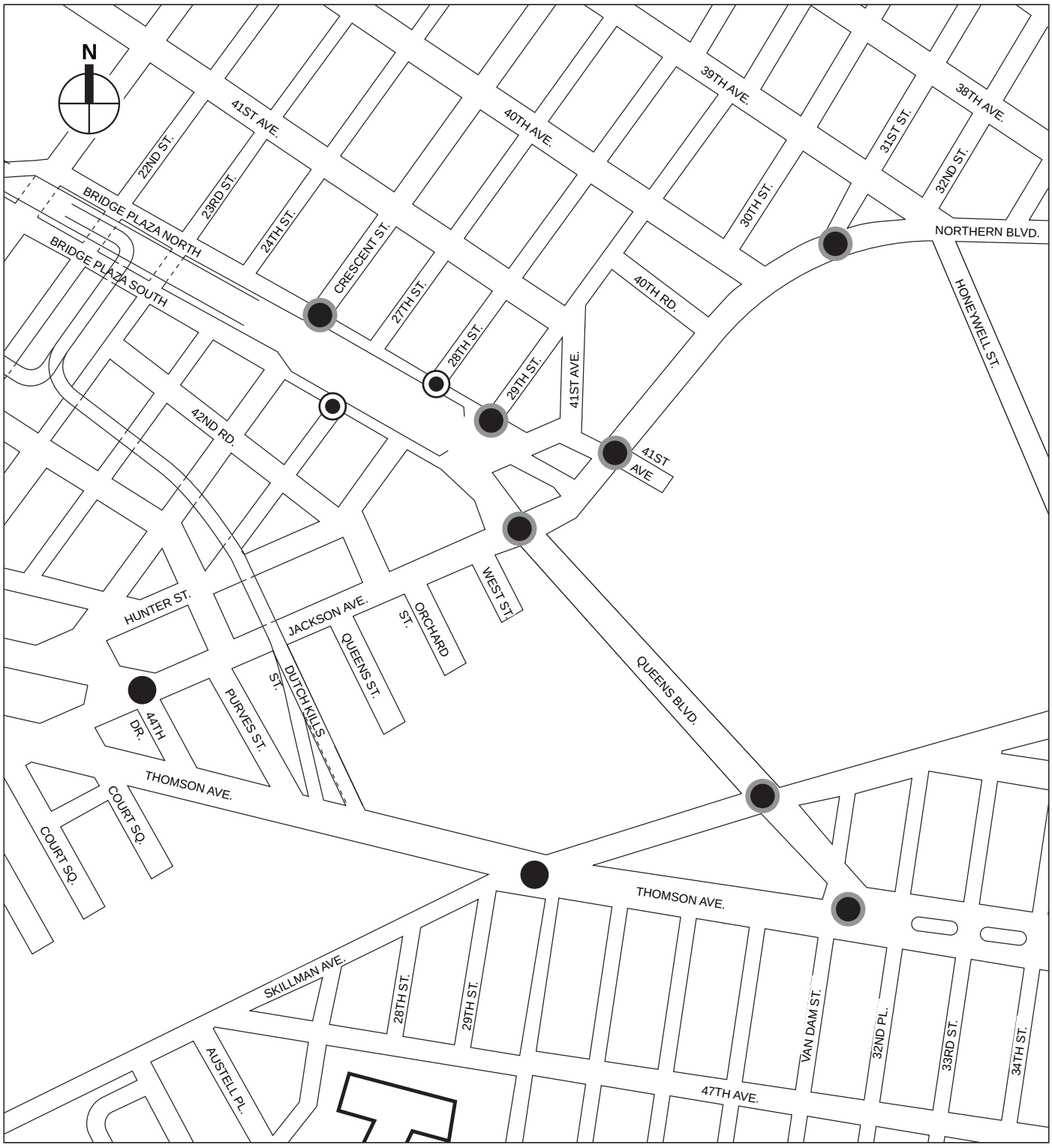
- ○ *LOS A or B*
- ◉ *LOS C*
- ◑ *LOS D*
- ● *LOS E or F*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 No Build Levels of Service: Queens Plaza Study Area Saturday Midday Peak Hour

Figure 15-29

1.04.08



- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*
- *Significant Impact*

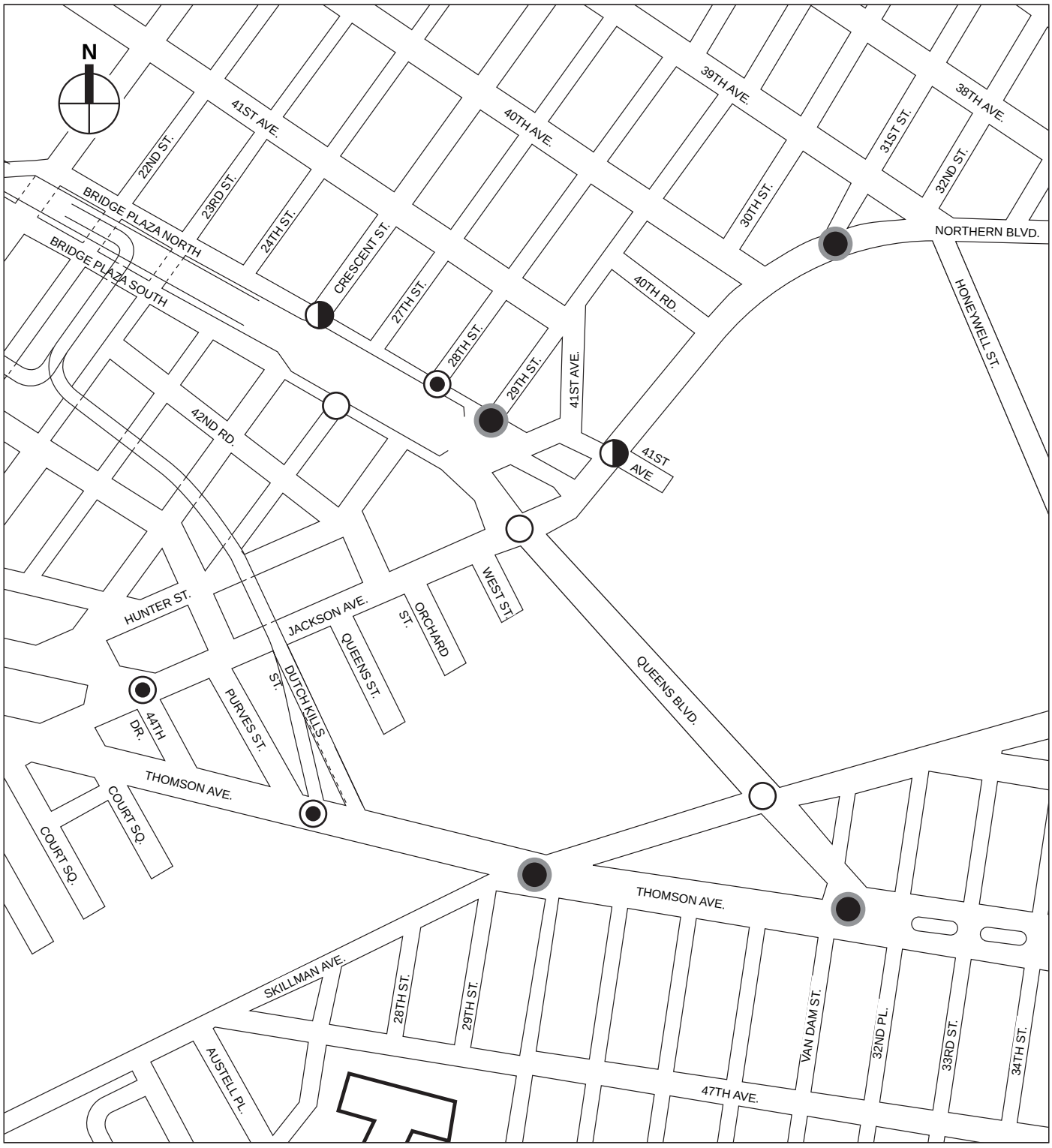
NOTE: OVERALL INTERSECTION LOS IS SHOWN

FIRST AVENUE PROPERTIES REZONING

2014 Build Levels of Service: Queens Plaza Study Area AM Peak Hour

Figure 15-30

1.04.08



- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*
- *Significant Impact*

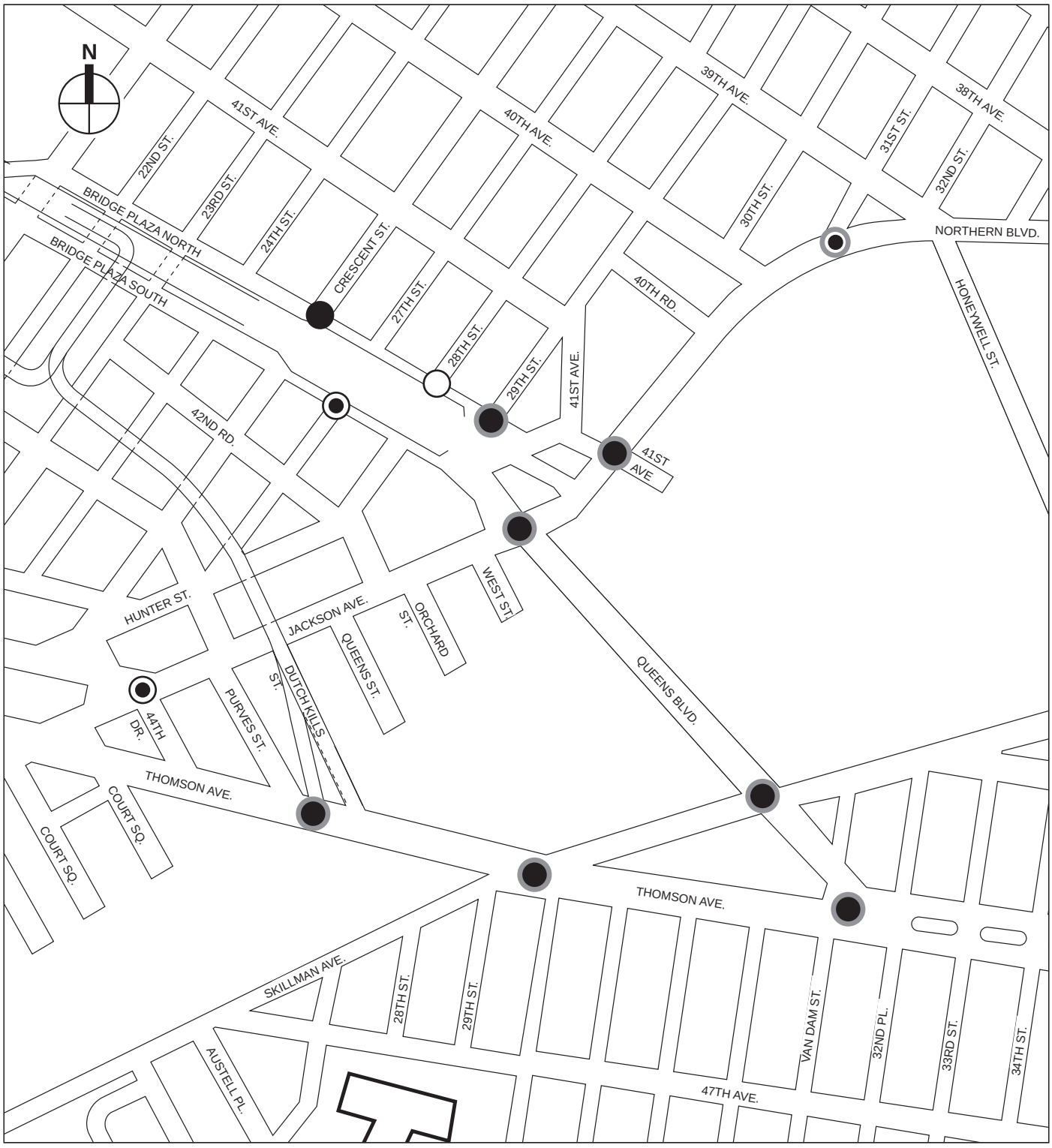
NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 Build Levels of Service: Queens Plaza Study Area Midday Peak Hour

Figure 15-31

FIRST AVENUE PROPERTIES REZONING

11.29.07



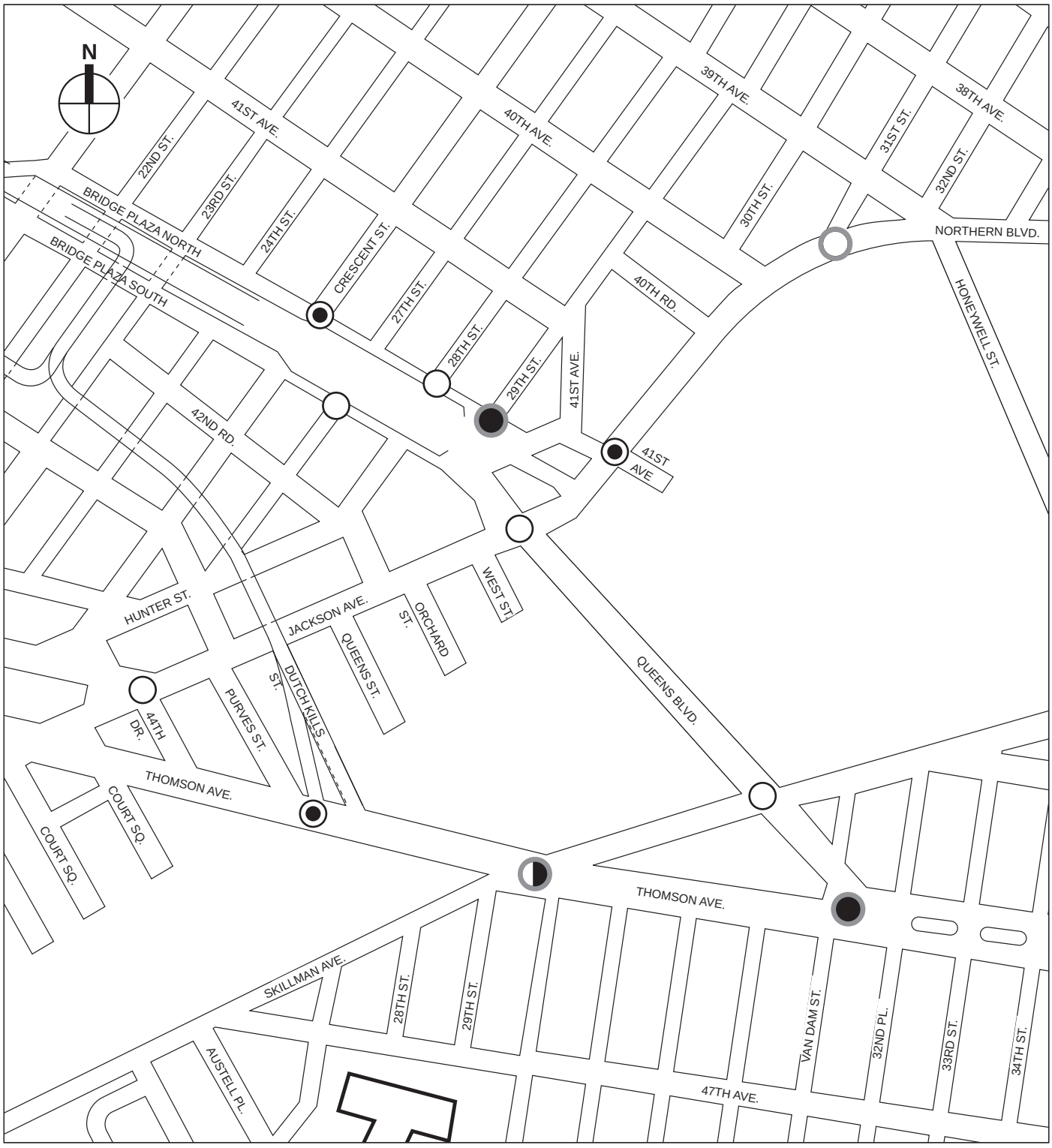
- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*
- *Significant Impact*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

2014 Build Levels of Service: Queens Plaza Study Area PM Peak Hour

Figure 15-32

11.29.07



- *LOS A or B*
- *LOS C*
- *LOS D*
- *LOS E or F*
- *Significant Impact*

NOTE: OVERALL INTERSECTION LOS IS SHOWN

FIRST AVENUE PROPERTIES REZONING

2014 Build Levels of Service: Queens Plaza Study Area Saturday Midday Peak Hour

Figure 15-33