A. INTRODUCTION

This chapter describes the traffic and parking characteristics and potential impacts associated with the proposed project located on an approximately 22-acre site in the Atlantic Terminal area of Brooklyn, roughly bounded by Flatbush and 4th Avenues on the west, Vanderbilt Avenue on the east, Atlantic Avenue on the north, and Dean and Pacific Streets on the south (see Figures 1-3 and 1-4 in Chapter 1, "Project Description"). As described in detail in earlier chapters of this environmental impact statement (EIS), in addition to an approximately 850,000 gross-square-foot (gsf) arena for use by the Nets professional basketball team and other sporting and cultural events, it is anticipated that the proposed project would include residential, office, hotel, and retail uses, eight acres of publicly accessible open space, approximately 3,670 parking spaces, and an improved Long Island Rail Road (LIRR) yard. (As discussed in Chapter 1, the development program for the proposed project has been reduced from the program that was analyzed in the DEIS.) As shown in Figures 1-3 and 1-4 in Chapter 1, "Project Description," in addition to the arena, a total of 16 other buildings would be constructed on the eight blocks comprising the project site. These buildings are referred to as Site 5 and Buildings 1 through 15.

The proposed development considers two program variations: residential mixed-use and commercial mixed-use. The variations reflect the fact that the programs for three of the project's 17 buildings are not fixed and could be used for a mixture of residential and commercial uses. Under the commercial mixed-use variation additional commercial space would substitute for the hotel use and a majority of the residential space in Buildings 1 and 2 on the arena site (Blocks 1118, 1119, and 1127, collectively referred to as the "arena block"). The Site 5 program has been modified from a mixed-use residential/commercial development to either an all-residential or all-commercial use; the street-level retail use would remain under either development scenario. The other buildings and uses on the project site (the arena and Buildings 3 through 15) would remain the same under both the residential mixed-use and commercial mixed-use variations.

It is anticipated that the proposed project would be developed in two phases. Phase I, to be completed in 2010, would include the arena, Site 5, Buildings 1 through 4, two permanent parking garages and additional interim parking, and a new on-site entrance to the Atlantic Avenue/Pacific Street subway station complex on Block 1118 at the intersection of Flatbush and Atlantic Avenues. Also included in this phase would be the closure of the existing LIRR yard at the west end of the site and the development of an improved LIRR yard at the east end of the site along with a new portal for direct train access between the new yard and the LIRR's Atlantic Terminal. The remainder of the project, which includes construction of a permanent platform over the new LIRR rail yard, Buildings 5 through 15, and the remainder of the permanent parking and publicly accessible open space would be completed under Phase II by 2016.

In addition to the development program outlined above, the proposed project would entail a number of permanent roadway closures and changes in street direction, including:

- The closure of Pacific Street between Flatbush Avenue and 6th Avenue, and between Carlton and Vanderbilt Avenues;
- The conversion of the segment of Pacific Street between Flatbush and 4th Avenues from one-way westbound to two-way operation;
- The closure of 5th Avenue between Flatbush and Atlantic Avenues;
- The conversion of 6th Avenue between Atlantic and Flatbush Avenues from one-way southbound to two-way operation (partly to accommodate diverted traffic resulting from the closure of 5th Avenue); and
- The conversion of Carlton Avenue from one-way northbound to two-way operation between Atlantic Avenue and Pacific Street.

This chapter describes in detail the existing traffic and parking conditions in the vicinity of the project site. Future conditions in the years 2010 and 2016 without the proposed project (the No Build conditions) are then determined, including additional transportation-system demand and any changes in the roadways and parking supply expected by the years 2010 and 2016. The increases in travel demand resulting from Phase I and Phase II of the proposed project are then forecast and added to the No Build to develop the 2010 and 2016 future conditions with the proposed project. Any significant adverse impacts resulting from project-generated trips, changes to the street network, and changes in parking supply or demand are then identified for each analysis year. Transit and pedestrian characteristics and potential impacts associated with the proposed project are examined in Chapter 13 of this EIS.

B. PRINCIPAL CONCLUSIONS

TRAFFIC

The traffic study area extends upwards of 1.2 miles from the project site and includes a total of 93 analyzed intersections (87 signalized and six unsignalized) along local streets proximate to the project site or that would be affected by project-related changes to the street network, as well as along arterials that would provide access to or from the site. The traffic impact analysis examines conditions during five weekday peak hours (8-9 AM, 12-1 PM, 5-6 PM, 7-8 PM pre-game and 10-11 PM post-game), and two Saturday peak hours (1-2 PM pre-game and 4-5 PM post-game).

TRAVEL DEMAND

By 2016, the commercial mixed-use variation (the reasonable worst-case scenario [RWCS] for the weekday traffic analyses) is expected to add between 410 and 2,531 autos to the study area street system in each weekday peak hour, and from 114 to 412 new taxi trips. Peak hour truck trips would increase from 6 to 80 in each weekday peak hour. In general, the highest numbers of new weekday vehicle trips would occur during the 7-8 PM (pre-game) and 10-11 PM (post-game) peak hours, primarily as a result of demand en route to and from the arena. On Saturdays, the residential mixed-use variation (the RWCS for the Saturday analyses) would add an estimated 2,600 auto, 400 taxi, and ten truck trips to the street system in the 1-2 PM peak hour, and 2,881 auto, 458 taxi, and no truck trips in the 4-5 PM peak hour in 2016. The arena use contributes the largest amount of traffic during the pre-game and post-game peak hours, comprising up to 79 percent of the project's demand in the pre-game period and up to 93 percent in the post-game period.

IMPACT ANALYSIS

Of the 93 intersections analyzed, a total of 58 intersections (all signalized) would have significant adverse impacts in one or more peak hours with the development of Phase I of the proposed project in 2010. With completion of the proposed project in 2016, a total of 68 intersections would be significantly adversely impacted. A total of 46 intersections would have significant adverse impacts in the weekday AM peak hour in 2016, 27 in the midday, 44 in the PM, 39 in the 7-8 PM pre-game peak hour, and 17 in the 10-11 PM post-game peak hour. On Saturdays, 41 intersections would have significant impacts in the 1-2 PM pre-game peak hour and 49 in the 4-5 PM post-game peak hour in 2016. The relatively high number of impacts during the Saturday peak hours would be due, in part, to the fact that curbside parking regulations are less restrictive on weekends, and therefore fewer travel lanes are typically available than during the weekday peak hours. With implementation of the proposed project's traffic mitigation plan, unmitigated impacts would remain in one or more peak hours at a total of 35 intersections in 2016. There would be 11 intersections with unmitigated significant adverse impacts in the weekday 8-9 AM peak hour, none in the midday, 15 in the 5-6 PM, six in the 7-8 PM pre-game, and none in the 10-11 PM post-game peak hours. On Saturdays, the number of intersections with unmitigated impacts would total 15 during the 1-2 PM pre-game peak hour and 28 during the 4-5 PM post-game peak hour.

Although the Saturday pre-game and post-game peak hours would have the highest number of unmitigated impacts (18 and 29, respectively), it is important to note that these conditions would occur fewer than four times per year when a Saturday afternoon Nets basketball game would be scheduled. (Other events that would occur at the proposed arena on a Saturday afternoon – the circus for example – would typically attract substantially fewer spectators than would a Nets basketball game.) Eliminating parking and other permanent measures along busy retail corridors such as Atlantic and Flatbush Avenues on Saturday afternoons would be disruptive to adjacent retail land uses, and were not considered warranted for conditions that would occur fewer than four Saturdays per year. This is reflected in the relatively high number of unmitigated significant adverse impacts during the two Saturday peak hours.

BICYCLES

New off-street bike paths would be provided through portions of the proposed project's open space to improve the connection between north-south on-street bike lanes planned by the New York City Department of Transportation (DOT) for Cumberland Street/Carlton Avenue and existing east-west bike lanes along Dean and Bergen Streets. A bicycle station with secure indoor parking for 400 bicycles would also be provided on the arena block. The proposed project would likely generate some new commuter trips by bicycle during the weekday 8-9 AM and 5-6 PM peak periods, as well as recreational and discretionary trips during other weekday periods and on weekends. Events at the arena would also likely generate some new bicycle trips. Permanent street closures and changes in street directions associated with the proposed project would not occur along any street segment with an existing or planned on-street bike lane or along a bicycle route recommended under the City's *Bicycle Network Development Program*. The proposed project would, however, generate new vehicular traffic along many study area roadways, including those used by bicyclists. Some traffic displaced because of project-related changes to the street system would also likely divert to streets used by bicyclists.

ACCIDENTS

The proposed project would substantially increase vehicular, pedestrian, and bicycle traffic in the vicinity of the project site. This includes the intersection of Atlantic and Flatbush Avenues at which factors such as a skewed geometry, long pedestrian crossing distances, and pedestrian activity generated by adjacent retail and transportation nodes likely contributed to the 41 reportable accidents that occurred at this location from 2002 through 2004. With the development of the proposed project in 2016, peak hour vehicular traffic through this intersection would increase by four to 15 percent, and crosswalks would experience upwards of 2,700 new peak hour pedestrian trips. The combination of substantial numbers of new pedestrian trips on the crosswalks and new vehicular traffic may increase the potential for vehicle/vehicle and vehicle/pedestrian conflicts at this intersection, and thereby potentially increase vehicular and pedestrian exposure to accidents, especially during the weekday and Saturday pre-game and post-game peak hours when the greatest increases in travel demand would occur. Other intersections in proximity to the project site, such as Atlantic and Vanderbilt Avenues, would also experience appreciable increases in vehicular and pedestrian demand, and therefore potentially increased vehicular and pedestrian exposure to accidents,

The proposed project would incorporate a number of design features that would enhance overall safety, including the elimination of several roadway segments through the project site; a major new on-site entrance to the Atlantic Avenue/Pacific Street station complex to eliminate the need for subway riders en route to and from the south to cross Atlantic Avenue; new high-visibility crosswalks and lighting at key intersections in the vicinity of the project site; and new off-street bike route segments through the project site that would more safely connect existing and planned on-street bike routes. It is also anticipated that on days when a basketball game or other major event is scheduled at the arena, police and traffic control officers would be deployed at key intersections in the vicinity of the arena during the pre-game and post-game periods, as is currently the practice at other major event venues in the City. The project sponsor is committed to working with NYCDOT and NYPD to ensure that needed resources are available for these purposes.

PARKING

Sufficient off-street parking capacity would be available both on-site and at existing public off-street facilities within ½-mile of the proposed arena to fully accommodate peak demand from either of the proposed project's two variations (residential mixed-use or commercial mixed-use) in both 2010 and 2016. Street closures and operational changes are expected to result in a reduction of approximately 180 on-street spaces (plus an additional 24 spaces of parking for police vehicles along 6th Avenue which would be relocated to facilities on the project site), and overall, on-street parking in the vicinity of the project site would likely be fully utilized during major events at the arena, such as a Nets basketball game. (Further changes to on-street parking would occur at some locations as a result of project-related traffic mitigation measures; see Chapter 19, "Mitigation.") However, as sufficient off-street parking capacity would be available both on-site and at existing public off-street facilities to fully accommodate all project demand in all peak periods, no significant adverse impacts to parking conditions would result from implementation of the proposed project.

C. METHODOLOGY

The traffic and parking analyses in this chapter consider the auto, taxi, and truck trips generated by the proposed project, the effects of permanent roadway closures and changes in street direction, and the parking demand and changes in supply related to the proposed project. As discussed below, traffic and parking count data for the proposed project were collected into late 2005 and early 2006, and these data were used to develop the baseline condition for the analyses of existing traffic and parking conditions. As the proposed project would be developed in phases over a period of time, the traffic and parking analyses examine conditions in two analysis years—2010 for Phase I of the project and 2016 for Phase II. Phase I includes the anticipated opening of the arena and the completion of the improved LIRR rail yard and other development planned for the arena block and Site 5. All permanent street closures and changes in street direction are also assumed to occur in this phase. Phase II represents construction of all other project elements.

As discussed later in this chapter, the commercial mixed-use variation would typically generate a higher level of travel demand during weekday peak periods than would the residential mixed-use variation. During Saturday peak periods, the residential mixed-use variation would generate more trips as a result of its larger residential component. The traffic analyses therefore assume the commercial mixed-use variation as the RWCS for the weekday analyses, and the residential mixed-use variation as the RWCS for the Saturday analyses. As the comparative levels of parking demand generated by the two project variations exhibit greater fluctuation depending on the peak hour, the parking analyses examine conditions for both the residential mixed-use variation and the commercial mixed-use variation.

TRAFFIC

TRAFFIC STUDY AREA

As shown in Figure 12-1, the traffic study area is bounded on the north by Tillary Street/Park Avenue, on the south by Eastern Parkway/Union Street, on the east by Grand Avenue, and on the west by Hicks Street. Analyzed locations within the study area include a total of 93 intersections (87 signalized and six unsignalized) along local streets proximate to the project site or that would be affected by project-related changes to the street network, as well as along arterials that would provide access to or from the site. The traffic study area focuses on locations where new traffic is expected to be most concentrated, and includes key intersections along corridors connecting regional access routes and the project site. As shown in Figure 12-1, these include all intersections along Flatbush Avenue as far north as Tillary Street (location of the entrance to the Manhattan Bridge) and as far south as Sterling Place, and all intersections along Atlantic Avenue as far west as Hicks Street (where access is available to and from the Brooklyn-Queens Expressway [BQE]), and as far east as Grand Avenue.

PEAK HOURS FOR ANALYSIS

On weekdays, the proposed project's residential, office, and local retail components are expected to generate their highest demand during the 8-9 AM and 5-6 PM commuter periods as well as the 12-1 PM midday (lunch time) period. By contrast, a Nets basketball game at the arena would generate much of its travel demand during the weekday evening and nighttime periods and on weekends. On weekdays, for example, it is anticipated that a Nets basketball game or other event at the arena would typically start at 7:30 PM or 8 PM. A 7-8 PM peak hour was therefore

selected for the analysis of weekday pre-game condition as it is during this period that residual commuter demand and peak demand en route to a basketball game or other event at the arena would most likely overlap. The 10-11 PM peak hour was selected for the weekday nighttime period to coincide with the peak demand generated at the end of a basketball game or other event at the arena. For the weekend period, the 1-2 PM and 4-5 PM peak hours on a Saturday were selected for analysis to coincide with the start and end times of a weekend afternoon basketball game, respectively, as well as peak retail-based travel demand from on-site and other nearby retail uses in Downtown Brooklyn (Atlantic Center, for example).

INTERSECTION CAPACITY ANALYSES

The capacity analyses at study area intersections are based on the methodology presented in the *Highway Capacity Manual (HCM) Software 2000 Release 4.1f*. Traffic data required for these analyses include the hourly volumes on each approach and various other physical and operational characteristics. Signal timing plans for each signalized intersection were obtained from DOT. Field inventories were conducted to document the physical layout, lane markings, curbside parking regulations, and other relevant characteristics needed for the analysis.

The HCM methodology provides a volume-to-capacity (v/c) ratio for each signalized intersection approach. The v/c ratio represents the ratio of traffic volumes on an approach to the approach's carrying capacity. A ratio of less than 0.90 is generally considered indicative of non-congested conditions in dense urban areas; when higher than this value, the ratio reflects increasing congestion. At a v/c ratio of between 0.95 and 1.0, near-capacity conditions are reached and delays can become substantial. Ratios of greater than 1.0 indicate saturated conditions with queuing.

The HCM methodology also expresses quality of flow in terms of level of service (LOS), which is based on the amount of delay that a driver typically experiences at an intersection. Levels of service range from A, with minimal delay (10 seconds or less per vehicle), to F, which represents long delays (greater than 80 seconds per vehicle).

For unsignalized intersections, the HCM methodology generally assumes that major street traffic is not affected by minor street flows. Left turns from the major street are assumed to be affected by the opposing, or oncoming major street flow. Minor street traffic is obviously affected by all conflicting movements. Similar to signalized intersections, the HCM methodology expresses the quality of flow at unsignalized intersections in terms of LOS based on the amount of delay that a driver experiences. This relationship differs somewhat from the criteria used for signalized intersections, primarily because drivers expect different levels of performance from the two different kinds of transportation facilities. For unsignalized intersections, levels of service range from A, with minimal delay (10 seconds or less per vehicle), to F, which represents long delays (over 50 seconds per vehicle).

Table 12-1 shows the LOS/delay relationship for signalized and unsignalized intersections using the HCM methodology. Levels of service A, B, and C generally represent highly favorable to fair levels of traffic flow. At LOS D, the influence of congestion becomes noticeable. LOS E is considered to be the limit of acceptable delay, and LOS F is considered to be unacceptable to most drivers. In this study, a signalized lane grouping operating at LOS E or F or a v/c ratio of 0.90 or above is identified as congested. For unsignalized intersections, a movement with LOS E or F is also identified as congested.

Table 12-1
Intersection Level of Service Criteria

Level of Service (LOS)	Average Delay per Vehicle (seconds)	
	Signalized Intersections	Unsignalized Intersections
A	less than 10.1	less than 10.1
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	greater than 80.0	greater than 50.0

Source: *2000 Highway Capacity Manual.*

IMPACT CRITERIA

The identification of significant adverse traffic impacts at analyzed intersections is based on criteria presented in the *City Environmental Quality Review (CEQR) Technical Manual* (2001). According to *CEQR Technical Manual* criteria, if the LOS deteriorates from LOS A, B, or C in the No Build condition to marginally unacceptable mid-LOS D or unacceptable LOS E or F in the Build condition, then a significant traffic impact has occurred. *CEQR* criteria further specify that for a No Build LOS A, B, or C which declines to mid-LOS D (45 seconds of delay for signalized intersections and 30 seconds of delay for unsignalized intersections) or worse in the Build condition, mitigation to mid-LOS D is required to avoid significant adverse impacts. For No Build LOS D, an increase of five or more seconds in a lane group in the future Build condition should be considered significant if the Build delay exceeds mid-LOS D. For No Build LOS E, an increase in delay of four seconds should be considered significant. For No Build LOS F, three seconds of additional delay should be considered significant; however, if the No Build LOS F condition already has delays in excess of 120 seconds, an increase of 1.0 second in delay should be considered significant, unless the proposed action would generate fewer than five vehicles through that intersection in the peak hour (signalized intersections) or fewer than five passenger car equivalents (PCE) in the peak hour along the critical approach (unsignalized intersections). In addition, for unsignalized intersections, for the minor street approach to generate a significant impact, 90 PCEs must be identified in the Build condition in any peak hour.

PARKING

Both variations of the proposed project would include approximately 3,670 parking spaces in on-site garages, sufficient to accommodate all of the anticipated demand from the proposed project's commercial and residential components, as well as a portion of the demand from the proposed arena. The remaining arena demand would be accommodated in existing off-site public parking facilities in the vicinity. The study area for the analysis of off-street parking conditions therefore encompasses all off-street parking facilities within ½ mile of the arena, this being the maximum distance that arena patrons would likely walk to access parking. The periods selected for analysis include the weekday 7 AM period (as a measure of overnight residential demand), noon (a period of peak office and retail demand) and the weekday evening period (when demand from an evening arena event would occur). The Saturday midday period, when peak retail parking demand would coincide with demand from an afternoon arena event, is also analyzed. The analyses of the off-street parking conditions during the weekday evening and Saturday

midday periods each incorporate the anticipated peak parking demand generated by a Nets basketball game at the proposed arena.

The analysis of current and future on-street parking conditions focuses on the potential effects of the loss of curbside spaces from street closures associated with the proposed project. The analysis examines streets within a ¼-mile radius of the project site for the weekday 5-6 PM and pre-game periods, and the Saturday pre-game period.

D. EXISTING CONDITIONS

DATA COLLECTION

Manual turning movement, vehicle classification, and automatic traffic recorder (ATR) counts, along with speed and delay surveys, were initially conducted for the Atlantic Yards Arena and Redevelopment project in November 2003 and in April, May and June of 2004. As project planning advanced, the scope of the analyses was expanded and additional counts and speed surveys were conducted to both expand and update the network in May, June, and November 2005, and in January 2006. Field surveys of parking regulations, lane configurations, and other physical and operational characteristics of the street network were undertaken in November and December 2005. Current signal timing plans for signalized intersections within the study area were obtained from DOT. Surveys of off-street parking capacity and utilization were conducted in November 2004 and updated in January 2006. On-street parking conditions were surveyed in February and March 2006.

VEHICULAR TRAFFIC

STUDY AREA STREET NETWORK

The street system within the proposed project's study area serves the dual function of providing through-access to and from the Brooklyn and Manhattan Bridges while also accommodating the local traffic demands of the Downtown Brooklyn Central Business District (CBD) and surrounding neighborhoods. There are a number of principal arterials carrying heavy volumes of through traffic, as well as minor roadways serving local downtown traffic in the study area. The major arterials and streets in Downtown Brooklyn are under computerized signal control. A discussion of the street network within the study area is provided below. Figures showing the 2006 existing conditions peak hour traffic volumes at analyzed intersections are provided in Appendix C.

In general, the heaviest traffic volumes along the principal streets within the study area occur during the weekday AM and PM peak commuter periods. Volumes during the weekday 7-8 PM (pre-game) period are typically lower than during the 5-6 PM peak commuter hour, while the 10-11 PM (post-game) period experiences the lowest traffic volumes of the seven peak hours analyzed for this study. Traffic volumes during the two analyzed Saturday peak hours (1-2 PM and 4-5 PM) are generally comparable to volumes during the weekday midday.

During the weekday AM peak hour, traffic along the principal arterials serving the project site—Flatbush Avenue, Atlantic Avenue, and 4th Avenue—tends to be heavily peaked in the northbound and westbound directions, reflecting heavy commuter demand towards the Brooklyn and Manhattan Bridges and the Brooklyn-Queens Expressway entrance ramps at the west end of

Atlantic Avenue. In the PM, the peak directions along these corridors become southbound and eastbound, although flows are typically not as heavily biased in the peak direction as in the AM.

Regional Access Routes

The primary regional access route for Downtown Brooklyn is the **BQE (I-278)**, a 10.4-mile-long limited-access highway connecting the Gowanus Expressway and Verrazano Narrows Bridge in Brooklyn to the Long Island Expressway (I-495), Grand Central Parkway and Triborough Bridge in Queens. Although designated an east-west highway, the BQE traverses in a north-south direction through Brooklyn. It typically operates with three lanes in each direction, and borders the study area on the north and west. Exits providing access to the study area arterial system are located at Flushing Avenue (Exit 30), Tillary Street/Manhattan Bridge (Exit 29), Cadman Plaza/Brooklyn Bridge (Exit 28), and Atlantic Avenue (Exit 27).

Downtown Brooklyn is connected to Manhattan by the Brooklyn and Manhattan Bridges which are both toll-free facilities. The **Brooklyn Bridge**, which is restricted to passenger cars, can be reached from Adams Street, Sands Street, and directly from the eastbound BQE, and connects Downtown Brooklyn to the Franklin Delano Roosevelt (FDR) Drive and the City Hall area in Manhattan. The **Manhattan Bridge** serves as a direct extension of Flatbush Avenue, with access also available from Nassau Street and directly from the BQE. In Manhattan, the bridge provides access to the Bowery and Canal Street.

Primary Arterials

The principal arterials providing access to the project site are Atlantic, Flatbush, and 4th Avenues. **Atlantic Avenue**, which borders the project site on the north, is an east-west arterial that provides access to the BQE at its western end. West of 4th Avenue, it is typically 60 feet in width and operates with two travel lanes plus a parking lane in each direction. Curbside parking is restricted at several locations during peak periods. Atlantic Avenue widens to approximately 70 feet in width between 4th and Flatbush Avenues, and to approximately 75 feet in width between Flatbush and 5th Avenues, where it is striped for four westbound lanes (two of which are right-turn-only lanes) and two moving lanes eastbound. Between 5th and 6th Avenues, a double-width parking lane is provided along the westbound curb adjacent to the Atlantic Center shopping mall. East of 6th Avenue, Atlantic Avenue further widens to approximately 95 feet in width and is typically striped for three travel lanes in each direction with exclusive left-turn bays. The eastbound and westbound travel lanes are separated by a raised median that includes vents for the LIRR's Atlantic Avenue Branch which is located in a tunnel beneath the roadway. Two-way peak hour traffic volumes along Atlantic Avenue approaching Flatbush Avenue typically range from 1,400 to 2,400 vehicles per hour (vph) on weekdays, and from 2,000 to 2,400 vph during the Saturday peak hours. Atlantic Avenue hosts the New York City Transit (NYCT) B45 bus route to the east of Flatbush Avenue, and the B61 and B63 routes west of 4th Avenue.

Flatbush Avenue (also referred to as Flatbush Avenue Extension north of Fulton Street), which borders the arena block on the west, operates in a generally northwest-southeast direction from the Manhattan Bridge through Brooklyn to the Rockaways. It also serves as a secondary route to the Brooklyn Bridge. North of Atlantic Avenue, it is 60 to 70 feet wide and typically operates with three northbound and three southbound through lanes, plus left-turn lanes at key intersections. Curbside regulations typically prohibit parking along both sides of Flatbush Avenue, primarily during the peak periods, and left turns are prohibited at some critical intersections in order to maximize roadway capacity. South of Atlantic Avenue, the roadway is approximately 60 feet wide and typically operates with two moving lanes in each direction plus

parking. Within the study area, Flatbush Avenue traverses several complex intersections where one or more intersecting streets cross at oblique angles, a pattern characteristic of much of the downtown area. The intersections of Flatbush Avenue with Atlantic Avenue and with 4th Avenue/Ashland Place/Hanson Place are two examples of such intersections. At the south end of the study area, Flatbush Avenue traverses Grand Army Plaza, a large traffic circle encompassing a park and memorial arch. Traffic flows around Grand Army Plaza are highly channelized with up to six travel lanes in each direction. All analyzed intersections along the Flatbush Avenue corridor within the study area are signalized. Two-way peak hour traffic volumes along Flatbush Avenue approaching Atlantic Avenue typically range from 1,900 to 2,400 vph on weekdays, and from 2,000 to 2,100 during the Saturday peak hours. Bus routes utilizing Flatbush Avenue in the vicinity of the project site include the B41, B45, B63, and B67.

Bordering the project site on the west is **4th Avenue**, a north-south arterial which traverses from Flatbush Avenue south to Bay Ridge. On the short block between Flatbush and Atlantic Avenues, the roadway is approximately 66 feet in width. South of this block, it then widens to approximately 86 feet in width and typically operates with three moving lanes in each direction plus parking. South of Dean Street, a raised median with vents for the 4th Avenue subway line (located in a tunnel beneath the roadway) separates the northbound and southbound travel lanes. Left-turn bays are provided. Two-way peak hour traffic volumes along 4th Avenue approaching Pacific Street typically range from 1,000 to 1,700 vph on weekdays, and from 1,400 to 1,700 vph during the Saturday peak hours.

Other principal arterials within the study area include the Adams Street/Boerum Place combination, Tillary Street, and Eastern Parkway. **Adams Street** and **Boerum Place** form a north-south arterial that connects Atlantic Avenue to the Brooklyn Bridge and Tillary Street. Boerum Place, which runs from Atlantic Avenue to Fulton Street, is an approximately 108-foot-wide arterial with four moving lanes in each direction separated by a raised median. North of Fulton Street, the roadway becomes Adams Street, a limited access arterial with three northbound and three southbound lanes, and adjacent service roads (each with a single travel lane plus parking) providing access to local streets. Two-way peak hour traffic volumes on Adams Street/Boerum Place at Livingston Street typically range from 1,300 to 2,400 vph on weekdays, and from 1,500 to 1,600 vph during the Saturday peak hours. The Adams Street/Boerum Place combination functions as a major corridor for bus circulation within Downtown Brooklyn. Ten local bus routes can be found operating along all or portions of the corridor, including the B25, B37, B38, B41, B45, B52, B57, B61, B65, and B103.

Tillary Street, an east-west arterial traversing between Cadman Plaza West and the BQE on- and off-ramps, collects and distributes traffic between north-south arterials and the BQE. It typically has four lanes in each direction, including left-turn lanes. Approaching Flatbush Avenue Extension, Tillary Street carries two-way peak hour volumes ranging from 1,400 to 2,600 vph on weekdays and from 2,000 to 2,200 during the Saturday peak hours. Nine bus routes operate along portions of Tillary Street including the B25, B26, B38, B41, B51, B52, B54, B57, and B61.

At the south end of the study area is **Eastern Parkway**, a bi-directional arterial running eastward from Grand Army Plaza to East New York. East of Washington Avenue, it is characterized by park-like medians separating 36-foot-wide service roads from a 55-foot-wide mainline with two travel lanes plus left-turn bays in each direction. Two-way peak hour volumes at Washington Avenue typically range from 1,300 to 3,100 vph on weekdays, and from 1,300 to

1,500 during the Saturday peak hours. The B71 bus routes operate along Eastern Parkway within the study area.

Through and Local Access Streets

A network of through and local streets provide access to and within the project site. North-south streets include **3rd Avenue**, an approximately 40-foot-wide two-way street located to the west of the project site. 3rd Avenue, which at its northern end terminates at the complex intersection of Flatbush Avenue with Schermerhorn and Lafayette Streets, experiences two-way peak hour volumes ranging from 200 to 1,000 vph approaching Pacific Street on weekdays, and from 600 to 800 vph during the Saturday peak hours. The B37, B65, and B103 bus routes can all be found operating along 3rd Avenue in the vicinity of the project site.

5th Avenue, also approximately 40 feet wide and bi-directional, terminates at Atlantic Avenue after traversing the proposed arena site. North of Atlantic Avenue, the street continues as Fort Greene Place, a private street which provides access to the Atlantic Center and Atlantic Terminal shopping malls. Two-way peak hour volumes on the block between Atlantic and Flatbush Avenues (which would be closed with development of the arena) typically range from 200 to 800 vph on weekdays, and from 500 to 700 vph during the Saturday peak hours. The B63 bus route operates along 5th Avenue, with northbound buses traversing the project site along the segment between Flatbush and Atlantic Avenues.

To the east is **6th Avenue**, which operates one-way southbound from Atlantic Avenue to Flatbush Avenue, and two-way south of Flatbush Avenue. Between Atlantic and Flatbush Avenues, the 6th Avenue roadway is typically 34 feet in width and flanked by 18-foot-wide sidewalks. A bridge carries 6th Avenue over the LIRR rail yard between Atlantic Avenue and Pacific Street at the proposed project site. Between Dean and Bergen Streets traffic flow is constrained by police vehicles parked perpendicular to the east curb adjacent to the New York City Police Department (NYPD) 78th Precinct station house. North of Atlantic Avenue, the street continues as S. Portland Avenue, an approximately 52-foot-wide two-way street. Under the proposed project, the bridge carrying 6th Avenue over the LIRR rail yard would be rebuilt, and the roadway widened to 40 feet (with 15-foot-wide sidewalks) and converted to bi-directional operation between Atlantic and Flatbush Avenues. Southbound volumes approaching Pacific Street range from approximately 60 to 300 vph during the weekday peak hours, and from 150 to 200 vph during the Saturday peak hours.

Also traversing the project site is **Carlton Avenue**, a one-way northbound street that originates at Flatbush Avenue and, like 6th Avenue to the west, crosses the LIRR rail yard on a bridge structure between Pacific Street and Atlantic Avenue. Carlton Avenue is typically 34 feet wide and continues northward to Park Avenue (located beneath the elevated BQE) and Flushing Avenue. (Under the proposed project, Carlton Avenue would be widened and converted to two-way operation between Atlantic Avenue and Pacific Street.) Northbound peak hour volumes on Carlton Avenue approaching Atlantic Avenue typically range from 100 to 700 vph on weekdays, and from 300 to 400 vph during the Saturday peak hours.

Bordering the project site on the east is **Vanderbilt Avenue**, a two-way street that traverses from Eastern Parkway to Flushing Avenue. North of Atlantic Avenue, the street is typically 42 feet wide, while to the south it is typically 60 feet wide. Two-way peak hour volumes on Vanderbilt Avenue approaching Atlantic Avenue typically range from 400 to 1,600 vph on weekdays, and from 700 to 900 vph during the Saturday peak hours. The B69 buses operate along the length of Vanderbilt Avenue.

To the east of the project site lie Underhill and Washington Avenues. **Underhill Avenue** traverses from Eastern Parkway to an intersection with Atlantic and Washington Avenues. It is typically 34 feet wide and bi-directional, with the exception of the block between Atlantic Avenue and Pacific Street which is one-way southbound. Two-way peak hour volumes approaching Dean Street typically range from 80 to 400 vph on weekdays, and from 100 to 300 vph during the Saturday peak hours. **Washington Avenue**, bi-directional, and traverses the study area southward from a terminus at Flushing Avenue. It is approximately 52 feet wide in the vicinity of the project site. Two-way peak hour volumes approaching Atlantic Avenue typically range from 400 to 1,100 vph on weekdays, and from 900 to 1,000 vph during the Saturday peak hours. The B45 bus route traverses Washington Avenue between Atlantic Avenue and St. John's Place.

Key east-west local streets include **Pacific Street**, an approximately 34-foot-wide street that bisects the project site and forms a portion of its southern border. Pacific Street operates one-way westbound except in the vicinity of the project site where it is one-way eastbound from Flatbush Avenue/5th Avenue to 6th Avenue, and bi-directional from 6th Avenue to Washington Avenue. Given the discontinuity of street directions, Pacific Street primarily serves as a local access street for adjacent land uses in the vicinity of the project site. (Under the proposed project, Pacific Street would be closed between Flatbush and 6th Avenues, and between Carlton and Vanderbilt Avenues, and would be converted to bi-directional operation between 4th and Flatbush Avenues.) Existing two-way peak hour volumes on Pacific Street between 6th and Carlton Avenues are relatively low, typically ranging from 40 to 200 vph on weekdays, and from 100 to 300 during the Saturday peak hours.

Dean and Bergen Streets function as a one-way east-west couplet on the southern boundary of the project site. Eastbound **Dean Street**, which borders the project site on the south, is approximately 34 feet wide east of Flatbush Avenue and narrower (24 to 30 feet wide) to the west of Flatbush Avenue. Within the study area, Dean Street includes an eastbound on-street bike lane located between the north curb lane and the travelway. Peak hour volumes on Dean Street approaching 6th Avenue typically range from 80 to 300 vph on weekdays, and from 200 to 400 during the Saturday peak hours. Westbound Bergen Street, one block to the south, ranges in width from 30 to 40 feet and hosts the corresponding westbound bike lane to the one on Dean Street between the south curb lane and the travelway. Peak hour volumes on **Bergen Street** approaching 6th Avenue typically range from 90 to 300 vph on weekdays, and from 100 to 300 on Saturdays. The B65 bus route traverses Dean Street eastbound and Bergen Street westbound in the vicinity of the project site.

Other notable east-west streets in the study area are Union Street and Fulton Street. **Union Street**, at the southern end of the traffic study area, is a bi-directional street with an approximately 34-foot-wide roadway that traverses between Carroll Gardens and Grand Army Plaza. Two-way peak hour volumes on Union Street typically range from 300 to 700 vph approaching 4th Avenue, and the street is traversed by the B71 bus route. **Fulton Street**, parallel and to the north of Atlantic Avenue, is a bi-directional through street that ranges in width from 44 to 54 feet within the study area and carries two-way peak hour volumes ranging from 500 to 1,100 vph approaching S. Portland Avenue on weekdays, and from 500 to 700 vph on Saturdays. The segment of Fulton Street between Adams Street and Flatbush Avenue is flanked by numerous retail uses, and was reconstructed in 1985 as a transit and pedestrian mall and renamed the **Fulton Street Mall**. The roadway was narrowed to a single 12-foot-wide travel lane in each direction to allow for expanded sidewalks on which bus shelter canopies and decorative street furniture have been installed. Through traffic is restricted to NYCT buses, with

seven routes traversing all or part of the mall, including the B25, B26, B38, B51, B52, B54, and B65. Some access by service and delivery vehicles is also permitted. As most streets intersecting Fulton Street do not directly intersect, north-south traffic must negotiate off-set intersections when crossing the Fulton Street Mall.

Bicycle Facilities

As noted above and shown in Figure 12-2, in the vicinity of the project site, on-street bike lanes are provided along eastbound Dean Street and westbound Bergen Street. These bike lanes connect to on-street bike lanes and/or signed bicycle routes along Boerum Place/Adams Street and Smith and Jay Streets which, in turn, connect to the Brooklyn Bridge entrance at Tillary Street. A dedicated shared bicycle/pedestrian promenade along the center of the bridge provides access to and from Manhattan. A walkway/bikeway is also provided on the south side of the Manhattan Bridge with access via a stairway at Jay and Sands Streets. On-street bike lanes can also be found along 3rd Avenue south of Dean Street and Union Street west of 3rd Avenue, as well as along segments of Clinton and Henry Streets, DeKalb and Myrtle Avenues, and Ashland Place. In addition to these on-street bike lanes, an on-street signed bicycle route is located along 5th Avenue south of Dean Street.

INTERSECTION CAPACITY ANALYSES

Table 12-2 summarizes the results of the capacity analysis at congested study area intersections in the seven peak hours analyzed. The table indicates those intersections with one or more movements operating at LOS E or F and/or with a high v/c ratio—0.90 and above. (The v/c ratios, delays and levels of service at all analyzed intersections in all peak hours under 2006 existing conditions are provided in Table C-1 in Appendix C.) For example, as shown in Table 12-2, the intersection of Flatbush Avenue and Tillary Street has one or more congested movements during all but the weekday 10-11 PM peak hour. By contrast, the intersection of Atlantic Avenue and Hicks Street experiences congestion in the weekday 5-6 PM and Saturday 1-2 PM periods. Table 12-2 shows that under existing conditions, 57 of the 87 signalized intersections analyzed have at least one congested movement in one or more peak hours; however, none of the six unsignalized intersections analyzed have congested conditions. Thirty-six signalized intersections experience congestion on one or more approaches in the weekday AM peak hour, 16 in the midday, 34 in the PM, 24 in the weekday 7-8 PM pre-game, and four in the weekday 10-11 PM post-game peak hour. On Saturdays, 30 signalized intersections experience congestion in the 1-2 PM pre-game peak hour and 37 in the 4-5 PM post-game peak hour.

Under 2006 existing conditions, there are a number of intersections with congested movements operating at capacity with a v/c ratio of 1.00 or greater. For example, as shown in Table 12-2, the intersection of Flatbush Avenue and Tillary Street has at least one movement operating at capacity in both the weekday 5-6 PM and Saturday 1-2 PM peak hours. The intersection of Atlantic Avenue and Hicks Street has one or more movements operating at capacity in the weekday 5-6 PM peak hour. The number of intersections with movements operating at capacity total 18 in the weekday AM peak hour, eight in the midday, 21 in the PM, seven in the weekday pre-game, and two in the weekday post-game peak hour. On Saturdays, the number of such intersections would total 10 in the 1-2 PM pre-game and 19 in the 4-5 PM post-game peak hours.

Table 12-2
Congested Intersections—2006 Existing Conditions

Signalized Intersection		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Flatbush Ave at	Tillary Street	○	○	●	○		●	○
	Myrtle Ave	●	●	●	●	●	●	●
	Willoughby Street	●	○	○	●		○	○
	DeKalb Ave	○	●	●	○		○	○
	Fulton Street	○		●	○	○		●
	Livingston Street	○		○				
	Lafayette Street	●		○	○			○
	4th Ave			○				
	Atlantic Ave	○						
	5th Ave	●			○	○	○	
	Dean Street				○		●	○
	Bergen Street		○	●			●	○
	6th Ave	○						
	Prospect Place				○			
	7th Avenue				○			
	Sterling Place						○	
Atlantic Ave at	Hicks Street			●			○	
	Henry Street						○	○
	Clinton Street	○	●				○	○
	Court Street							○
	Boerum Place		○					●
	Smith Street	●	●	○				●
	Hoyt Street			○				●
	Bond Street	●	●	●				●
	Nevins Street	●		●			○	●
	3rd Ave	●					○	○
	4th Ave	●		○	○		○	○
	5th Ave	●		○	●		○	
	S. Portland Ave			○	○		○	●
	Clermont Ave	○		●				
	Vanderbilt Ave	○			○		○	●
	Clinton Ave	○		○				
	Washington/Underhill Aves	●	●	●	●		●	●
3rd Ave at	Dean Street			●	○			○
4th Ave at	Pacific Street	○						
	Dean Street	●			●		●	●
	Bergen Street			●	○		○	●
	St. Mark's Place	○					○	○
	Union Street	●		●	○		●	●
5th Ave at	Dean Street	○	●	●	○		●	●
	Bergen Street		○	○			○	○
S. Portland Ave at	Fulton Street	○						
Carlton Ave at	Fulton Street	●		○				○
	Dean Street							●
Vanderbilt Ave at	Myrtle Ave	●	○	●				
	DeKalb Ave	●		●				
	Fulton Street	●					○	●
	Pacific Street	○						
	Dean Street			○				●
	Park Place						○	○
	Sterling Place						●	
Washington Ave at	Pacific Street	○	○	●	○		○	●
	Dean Street	○	○	●	○		○	○
	Eastern Parkway	○		●	●			
Adams Street at	Tillary Street	●	●	●	●	●	●	●
Boerum Place at	Livingston Street			●				
Smith Street at	Dean Street							○

Notes:

○ intersection with one or more congested movements in the peak hour (LOS E or F, or v/c $\geq$ 0.9).

● intersection with one or more congested movements in the peak hour (LOS E or F and v/c $\geq$ 0.9) and at least one movement operating at capacity (v/c $\geq$ 1.0).

ACCIDENTS

Annual motor vehicle accidents from 2002 through 2004 at 20 intersections in the immediate vicinity of the project site are shown in Table 12-3. It is at these intersections where new vehicular, pedestrian, and bicycle trips generated by the proposed project are expected to be most concentrated. Accidents listed in the table are classified as either non-reportable (involving less than $1,000 in property damage and no injuries or fatalities) or reportable. The numbers of vehicle occupants, bicyclists, and pedestrians killed or injured are also shown, as is the average annual number of pedestrians and bicyclists killed or injured over the three-year period. (DOT accident data do not distinguish injuries from fatalities.) Accidents resulting in injuries or fatalities to pedestrians or bicyclists often involve turning vehicles, with failure to yield the right-of-way to pedestrians in crosswalks frequently cited as a causal factor. Other factors typically cited as contributing to vehicular accidents are wet road conditions, unsafe speeds, and driver inattention.

As shown in Table 12-3, the intersection with the highest overall number of accidents is Atlantic Avenue and Flatbush Avenue, with a total of 41 reportable accidents (and 149 non-reportable accidents) from 2002 through 2004. This intersection also has the highest total number of vehicle occupants killed or injured with 54 during the three-year period, and the highest total number of pedestrians or bicyclists killed or injured with 11. Factors that are likely contributing to the relatively high accident rate at this intersection are its skewed geometry, long pedestrian crossing distances, and the amount of pedestrian activity generated by the proximity of the LIRR/subway terminal, Atlantic Terminal and Atlantic Center shopping malls, and numerous bus stops.

The intersection of Atlantic and Vanderbilt Avenues has the second highest overall number of accidents, with a total of 39 reportable accidents (and 90 non-reportable accidents) from 2002 through 2004. Vehicle occupants killed or injured during this period totaled 48, while the number of pedestrians or bicyclists killed or injured totaled nine. Although this intersection has lower vehicular and pedestrian volumes, the number of accidents is comparable to the intersection of Atlantic and Flatbush Avenues to the west. A likely factor contributing to this relatively high number of accidents is the skewed geometry of the intersection. In addition to being offset, the northbound and southbound approaches are not aligned with each other, leading to awkward vehicular movements and long pedestrian crossings on Atlantic Avenue. Turning movements are also allowed from all approaches, unlike at the intersection of Atlantic and Flatbush Avenues where all left-turns (and some right-turn movements) are prohibited except for buses. (In mid-2006 DOT eliminated the southbound left-turn movement at this intersection.) In addition, an automotive service station is currently located at the southwest corner of the intersection, and field observations suggest that conflicts with vehicles entering and exiting this facility may also be a contributing factor to the location's accident rate.

As shown in Table 12-3, the intersection with the third highest number of accidents during the 2002 through 2004 period is the intersection of Flatbush Avenue and Dean Street, with a total of 21 reportable accidents (and 43 non-reportable accidents), 31 vehicle occupants killed or injured, and five pedestrians or bicyclists killed or injured over the three-year period. As is the case at Atlantic Avenue and Vanderbilt Avenue, an automotive service station is currently located at the northeast corner of Flatbush Avenue and Dean Street. Conflicts with vehicles entering and exiting this facility, which has curb cuts located in close proximity to the intersection, may be a contributing factor to the location's accident rate. With development of the proposed project, this service station would be displaced, and the curb cuts in close proximity to the intersection would be eliminated.

Table 12-3
Annual Motor Vehicle Accidents at Project Site Intersections, 2002-2004

Intersection		Non- Reportable Accidents			Reportable Accidents			Vehicle Occupants Killed / Injured			Bicyclists Killed / Injured			Pedestrians Killed / Injured			Total Reportable Accidents	Total Veh. Occupants Killed/Injured	Total Peds/Bicyclists Killed/Injured
		2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002-2004	2002-2004	2002-2004
Atlantic Ave at	4th Ave	6	13	20	3	1	3	5	2	4	0	0	0	0	0	0	7	11	0
	Flatbush Ave	37	52	60	15	15	11	18	21	15	0	0	0	4	4	3	41	54	11
	5th Ave	4	5	3	0	1	1	0	0	1	0	0	0	0	1	0	2	1	1
	6th Ave	0	1	5	1	1	0	1	1	0	0	0	0	0	0	0	2	2	0
	S. Oxford Street	1	2	3	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0
	Cumberland Street	10	7	2	3	2	1	3	8	1	0	0	0	0	0	0	6	12	0
	Carlton Ave	9	9	5	4	4	3	11	8	2	0	0	0	0	0	2	11	21	2
	Clermont Ave	8	6	7	3	0	2	4	0	3	0	0	0	0	0	0	5	7	0
	Vanderbilt Ave	33	31	26	15	13	11	21	10	17	0	2	0	4	3	0	39	48	9
Flatbush Ave at	4th Ave	6	5	2	1	0	1	0	0	0	1	0	0	0	0	1	2	0	2
	Pacific Street	11	10	12	5	5	1	9	6	3	0	0	0	0	1	0	11	18	1
	5th Ave	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Dean Street	15	16	12	10	9	2	12	14	5	3	0	0	2	0	0	21	31	5
Pacific Street at	4th Ave	3	1	1	1	0	1	1	0	1	0	0	0	0	0	0	2	2	0
	6th Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Carlton Ave	4	1	2	2	3	1	3	7	0	0	0	0	1	0	1	6	10	2
	Vanderbilt Ave	8	4	9	3	4	5	5	5	6	0	0	0	1	2	1	12	16	4
Dean Street at	6th Ave	5	9	6	2	4	1	1	4	2	0	1	0	1	0	0	7	7	2
	Carlton Ave	8	4	2	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1
	Vanderbilt Ave	5	6	3	3	4	1	1	6	7	0	0	0	2	1	0	8	14	3

Notes

Reportable accidents are those that involve more than $1,000 in property damage and/or injuries or fatalities.

Source: NYCDOT data.

All other intersections shown in Table 12-3 experienced a total of 12 or fewer reportable accidents in total over the three-year period. This includes the intersection of Flatbush Avenue and 5th Avenue, which had previously been identified by DOT as a high pedestrian accident location based on 2001 data, but which experienced no reportable accidents from 2002 to 2004. Another intersection of note is the uncontrolled intersection of Flatbush Avenue and Pacific Street, with a total of 11 reportable accidents, although the only turning movement allowed at this intersection—the southbound right-turn from Flatbush Avenue onto Pacific Street—has no conflicting vehicular movements. Field observations indicate that vehicles making illegal left-turns from northbound Flatbush Avenue onto Pacific Street is a frequent occurrence, and this may be a contributing factor to the accident rate at this location. A total of 18 vehicle occupants were killed or injured at this uncontrolled intersection over the three-year period, and one pedestrian (in 2003).

PARKING

OFF-STREET PARKING

As described in later sections of this chapter, it is anticipated that all of the parking demand from the proposed project's residential and commercial components would be accommodated in on-site parking garages. Capacity would also be available to accommodate some of the demand generated by the project's arena component. However, as not all arena parking demand would be accommodated in on-site parking facilities, off-street public parking lots and garages within an approximate ½-mile radius of the proposed arena site were inventoried in November 2004, and again in January 2006 to assess their capacities and approximate utilization during the weekday 7 AM, midday (noon), evening (7 PM), and Saturday midday (2 PM) peak periods. Figure 12-3 shows the locations of these facilities and Table 12-4 shows the map location number, operator, address, licensed capacity, and estimated peak period utilization for each of the parking facilities under 2006 Existing conditions. As shown in Figure 12-3 and Table 12-4, 18 public parking facilities with a total licensed capacity of 3,291 spaces are located within a ½-mile radius of the arena, mostly to the north and west of the project site. Overall, these facilities have a combined utilization of approximately 59 percent in the weekday AM, 84 percent in the midday, 38 percent in the weekday 7-8 PM pre-game, and 47 percent in the Saturday midday pre-game. The numbers of spaces available under 2006 existing conditions totals approximately 1,342 in the weekday AM, 520 in the midday, 2,050 in the weekday pre-game, and 1,750 in the Saturday pre-game.

ON-STREET PARKING

Curbside parking regulations and usage within ¼ mile of the project site were surveyed in December 2005 and again in February 2006. As shown in Figure 12-4, much of the study area is covered by a variety of no parking and no standing regulations typically designed to facilitate AM and PM peak traffic flow on major corridors, to provide for curbside access for pick-up/drop-off activity and truck loading and unloading during certain periods of the day, and to facilitate street cleaning. Metered curbside parking spaces, typically with one-hour or two-hour time limits, are available on some blocks to accommodate the short-term parking needs of adjacent commercial land uses. There are a total of approximately 325 metered spaces within ¼ mile of the project site, generally located along 4th, 5th, and Flatbush Avenues south of Atlantic Avenue, along Atlantic Avenue west of Flatbush Avenue, and along Fulton Street north of

Table 12-4
Existing Off-Street Parking Facilities and Utilization

No.	Facility Operator	Address	License Number	Licensed Capacity	Weekday AM (7AM)		Weekday Midday (Noon)		Weekday Evening (7PM)		Saturday Midday (2PM)	
					Estimated Utilization	Available Capacity	Estimated Utilization	Available Capacity	Estimated Utilization	Available Capacity	Estimated Utilization	Available Capacity
1	Edison Hanson, LLC	625 Atlantic Avenue	951349	650	35%	423	85%	98	25%	488	40%	390
2	County Wide Car Park, Inc.	288 St. Marks Place	1004164	112	15%	95	65%	39	65%	39	70%	34
3	n/a	405 Flatbush	1030813	69	85%	10	75%	17	85%	10	70%	21
4	Amber Car Park, LLC	10 Lafayette Ave.	1021918	124	65%	43	90%	12	40%	74	20%	99
5	Amber Car Park, LLC	258 Ashland Place	1021919	227	70%	68	90%	23	40%	136	45%	125
6	Fulton Car Park, LLC	622 Fulton St.	1026759	95	65%	33	95%	5	15%	81	(a)	(a)
7	Impark 365, LLC	365 Schermerhorn Street	1205793	100	70%	30	80%	20	20%	80	70%	30
8	Impark 365, LLC	300 Schermerhorn Street	1107700	50	55%	23	90%	5	40%	30	65%	18
9	Livingston & Bond Municipal Garage	300 Livingston Street	n/a	606	65%	212	85%	91	30%	424	35%	394
10	Teddy's Parking System	71-77 Bond Street	365142	40	60%	16	75%	10	35%	26	20%	32
11	Paul's Parking	252-286 Schermerhorn Street	1119974	100	60%	40	85%	15	20%	80	35%	65
12	Edison Parking Management	395 Flatbush Avenue Extension	0978218	140	75%	35	90%	14	30%	98	50%	70
13	BHC Car Park, LLC	97-103 Dekalb Avenue	1019609	155	55%	70	95%	8	15%	132	15%	132
14	Discount Parking, Inc.	180 Ashland Place	1009614	316	65%	111	95%	16	25%	237	45%	174
15	Taums Mangement Corp.	903 Union Street	883259	70	85%	11	70%	21	80%	14	75%	18
16	Garage Assoc. LTD	841 Union Street	363740	165	80%	33	65%	58	80%	33	70%	50
17	SS Central	800 Union Street	963093	165	85%	25	75%	41	85%	25	70%	50
18	M.A. Management Group Inc.	700 Pacific Street	1194911	107	40%	64	75%	27	60%	43	55%	48
			Totals:	**3,291**	**59%**	**1,342**	**84%**	**520**	**38%**	**2,050**	**47%**	**1,750**

Notes:

(a) Parking facility closed on weekends.

n/a Data unavailable.

Source: PHA November 2004 and January 2006 field surveys of public parking facilities within 1/2-mile of the proposed arena.

Hanson Place. Some metered spaces can also be found along segments of Dean and Bergen Streets and Vanderbilt Avenue.

The project site's Flatbush Avenue frontage adjacent to Site 5 and the arena block is governed by a mix of metered parking and no standing or no parking regulations designed to facilitate traffic flow and accommodate bus stops. Curbside regulations adjacent to the project site along the south curb of Atlantic Avenue generally prohibit standing or parking during peak periods or at all times. Parking is typically permitted along the north curb of Atlantic Avenue opposite the project site except between S. Portland Avenue and Fort Greene Place where a double-parking lane is provided for loading/unloading activity associated with the adjacent Atlantic Center, and between Fort Greene Place and Flatbush Avenue where standing is prohibited at all times to accommodate double right-turn lanes.

Curbside parking along Pacific Street within the project site is typically governed by alternate side-of-the -street regulations to facilitate street cleaning, as is parking along both curbs of Dean Street. Curbside parking along 5th, 6th, and Carlton Avenues within the project site is generally prohibited during much of the day, including along the block of 5th Avenue between Flatbush and Atlantic Avenues that would be closed as part of the proposed project. Downtown Brooklyn's large concentration of government agencies and court facilities generates a substantial amount of on-street parking by vehicles with official permits. Agencies issuing official parking permits include the courts, the NYPD and other law enforcement agencies, and the New York City Fire Department (FDNY). Authorized on-street parking spaces dedicated for use by these vehicles are provided on many streets in Downtown Brooklyn, primarily concentrated in the vicinity of the courthouses located to the north and west of the study area. Within the study area, regulations restricting parking to NYPD vehicles can be found along 6th Avenue and Bergen Street in the vicinity of the 78th Precinct station house. As previously noted, between Dean and Bergen Streets NYPD vehicles park perpendicular to the east curb of 6th Avenue adjacent to the station house.

Table 12-5 shows the existing supply and utilization of on-street parking spaces within ¼ mile of the project site during the weekday 5-6 PM, 7-8 PM pre-game, and Saturday 1-2 PM pre-game periods. As shown in Table 12-5, accounting for curbside parking regulations, fire hydrants, curb cuts, loading zones and other restricted curb space unavailable for parking, there are a total of approximately 5,590 legal on-street parking spaces within ¼ mile of the project site during the weekday 5-6 PM peak period; 6,075 during the weekday 7-8 PM (pre-game) period; and 6,280 during the Saturday 1-2 PM (pre-game) period. The lower number of parking spaces during the 5-6 PM period reflects the more restrictive curbside regulations typically in effect during weekday peak periods. Utilization of these on-street parking spaces was found to be approximately 65 percent in the 5-6 PM period, 47 percent in the 7-8 PM period, and 65 percent in the Saturday 1-2 PM period, with approximately 1,930, 3,240, and 2,215 spaces available during these periods, respectively. As shown in Figure 12-4, many of the restrictions on parking within the study area (including metered parking) end at 6 PM or 7 PM, and some regulations, including most alternate side-of-the-street regulations, are only in effect on weekdays. Consequently, many of the on-street parking spaces available in the 5-6 PM, 7-8 PM and Saturday 1-2 PM periods can be utilized for lengthy periods (e.g., for more than two hours) or for overnight parking.

Table 12-5
On-Street Parking Utilization—2006 Existing Conditions

Peak Period	Total Spaces[1]	Space Available[1]	Percent Utilization
Weekday 5-6 PM	5,590	1,930	65
Weekday 7-8 PM	6,075	3,240	47
Saturday 1-2 PM	6,280	2,215	65

Source: 1 Philip Habib & Associates (PHA) February 2006 and March 2006 field surveys.

E. FUTURE WITHOUT THE PROPOSED PROJECT—2010

Through 2010, it is expected that traffic and parking demands in the study area will increase due to long-term background growth and the development of new office/commercial, residential, cultural, community facility, court and retail space in Downtown Brooklyn. To forecast the 2010 future without the proposed project (the 2010 No Build condition), the principal development projects listed in Table 2-1 and shown in Figure 2-1 in Chapter 2, "Procedural and Analytical Framework," expected to be completed in the land use study area by 2010 were considered. In addition, several large development projects that are located outside of the land use study area but that are expected to add trips to analyzed intersections by 2010 were also considered, including the Brooklyn Cruise Terminal at Pier 12, the new Federal Courthouse at Adams and Tillary Streets, and the planned IKEA store in Red Hook. Currently, no plans for new development resulting from the Downtown Brooklyn Development project (which examined a 2013 analysis year) have been finalized. The projected developments associated with this rezoning project are therefore included in the analysis of 2016 No Build conditions. Development of approximately 500,000 square feet of new industrial space has also been proposed for the Brooklyn Navy Yard by 2010. However, given its distance from the project site (over one mile) and its immediate proximity to the Brooklyn-Queens Expressway, this proposed development is not expected to add appreciable numbers of trips to analyzed intersections, nor to generate new parking demand in the vicinity of the project site. Additional projects were added as discrete No Build sites for the FEIS in response to recent information on new proposed developments, and agency and public comments on the DEIS. (A list of all discrete No Build sites considered in the transportation analyses is provided in Appendix C.) Overall, the 2010 No Build traffic and parking analyses consider a total of approximately 101,500 square feet of new office/commercial space, 2,078 new dwelling units, 511,500 square feet of new retail space, and 1.1 million square feet of other uses including new cultural and community facility space, new court space, and 280 new hotel rooms.

In addition to demand from specific new developments, an annual background growth rate of 0.5 percent per year was applied to existing traffic and parking demand for the 2006 through 2010 period. This background growth rate, recommended in the *CEQR Technical Manual* for projects in Downtown Brooklyn, is applied to account for smaller projects, as-of-right developments not reflected in Table 2-1, and general increases in travel demand not attributable to specific development projects. Figures showing the resulting traffic volumes at study area intersections in each analyzed peak hour in the 2010 future without the proposed project are provided in Appendix C.

The 2006 through 2010 period will likely see the implementation of a number of physical and operational changes to the study area street system as a result of new developments such as 330 Jay Street and the Renaissance Plaza Hotel Expansion, as well as initiatives by City agencies such as DOT's planned reconstruction of Eastern Parkway. In addition to adjustments to curbside

parking regulations and changes to signal timing and phasing, the following physical changes associated with these projects have been incorporated in the 2010 No Build traffic network.

- The reconfiguration of Boerum Place to include new medians, bulb-outs and bicycle lanes, new exclusive northbound left-turn lanes at Schermerhorn and Livingston Streets, and a new channelized right turn from westbound Atlantic Avenue to Boerum Place to permit conflict-free simultaneous movement with the eastbound Atlantic Avenue exclusive left-turn phase. (330 Jay Street)
- The closure of the slip ramp between the Eastern Parkway westbound main and service roads at Washington Avenue, and the extension of the sidewalk at the northwest corner to eliminate the free southbound right-turn from Washington Avenue onto the Eastern Parkway westbound service road. (Eastern Parkway Reconstruction)
- The reconfiguration of Vanderbilt Avenue from Dean Street to Sterling Place to include new flush center medians with left-turn bays. (DOT)
- The implementation of on-street bike lanes along Cumberland Street/Washington Park and Carlton Avenue between Park and Flatbush Avenues, including the conversion of Carlton Avenue from one-way northbound to two-way operation between Myrtle and Park Avenues. (DOT)
- The implementation of a left-turn prohibition on southbound Flatbush Avenue at Dean Street from 7 AM to 7 PM on weekdays. (DOT)
- The implementation (in mid-2006) of a left-turn prohibition on southbound Vanderbilt Avenue at Atlantic Avenue at all times. (DOT)

The 2006 through 2010 period may also see the implementation of additional measures associated with the New York City Department of Transportation's ongoing *Downtown Brooklyn Traffic Calming Project (DBTCP)*, and the New York City Economic Development Corporation's *Downtown Brooklyn Streetscape—Flatbush Avenue project*. Under the DOT project, which was initiated in 1997, a comprehensive areawide strategy of physical and operational traffic calming measures was developed for Downtown Brooklyn on a corridor-by-corridor basis. Among the project's objectives are to improve pedestrian safety and access, including safer crossings at problem locations, reduce vehicular speeds and enhance mobility between neighborhoods. Typical measures proposed for implementation in Downtown Brooklyn include neckdowns (curb extensions at intersections), rationalized lane widths and alignments, and leading pedestrian intervals (a signal phase that holds all vehicles long enough for pedestrians to enter a crosswalk ahead of turning vehicles). In 2001, a pilot program was implemented to evaluate various candidate traffic calming measures. Measures implemented within the study area included the widening of the median refuges on Tillary Street at Adams Street to reduce north-south crosswalk distance; and the introduction of a pedestrian refuge (subsequently removed in summer 2002) and a new left-turn lane on Atlantic Avenue at Bond Street, along with curb extensions on Bond Street at Atlantic Avenue. In addition, in November 2003, DOT converted Smith Street from two-way to one-way northbound operation between Atlantic Avenue and Schermerhorn Street. No specific measures in the *DBTCP* with the exception of the Smith Street conversion have been identified for implementation within the study area at this time; therefore, none are included in the analysis of 2010 No Build conditions. However, all measures remain candidates for implementation. DOT is working with the Community Boards on prioritizing these measures, and intends to implement additional measures based upon further detailed evaluation, analysis of impacts, and community review.

In addition to the measures under consideration as part of the *DBTCP*, DOT may also implement other minor street system changes by 2010 to improve the pedestrian environment. For example, DOT plans to close the short segment of Willoughby Street between Pearl Street and the northbound Adams Street service road to provide additional space for pedestrian circulation.

Under EDC's *Downtown Brooklyn Streetscape—Flatbush Avenue Project*, a range of measures to enhance the streetscape and operation of Flatbush Avenue (and Flatbush Avenue Extension) between 4th Avenue and Tillary Street are being evaluated. In addition to such streetscape enhancements as new lighting, street furniture, and plantings, and various geometric and operational improvements are under consideration, and these may include extending and widening medians, expanding sidewalks, and introducing new parking restrictions. This project may also incorporate some of the physical changes to the Flatbush Avenue corridor associated with the Downtown Brooklyn Development project (see discussion in Section G, "Future Without the Proposed Project—2016"). As the *Downtown Brooklyn Streetscape—Flatbush Avenue Project* is still in the planning and design phase, no specific improvement measures have been identified for implementation within the study area at this time. Future decisions on which measures to implement will be based on detailed evaluation, analysis of impacts, and community review.

The New York State Department of Transportation (NYSDOT) plans to construct a replacement deck for the BQE from Flushing/Classon Avenues to Sands Street. This section of the expressway, located to the north of the project study area, is composed of two elevated structures, the Nassau-Concord Viaduct and the Park Avenue Viaduct, both of which suffer from structural problems and deterioration. Construction is expected to take three years. Under the project's maintenance and protection of traffic plan, the existing six lanes of traffic capacity would be maintained through the construction area at all times, as would access to the on- and off-ramps at Tillary Street. Two one-week closures of the on-ramp at Flushing Avenue would result in the temporary diversion of traffic along Flushing Avenue and Sands Street to the Tillary Street on-ramp. However, as this traffic is not expected to traverse the study area, as the diversions would be of very limited duration, and as there would be no change in the configuration of the expressway or its access points, this project is not expected to affect the study area traffic network during the 2006 through 2010 period. Concurrent with the deck replacement effort, NYSDOT is also undertaking a long range study to identify potential intermediate (15 to 20 years) and long range (20+ years) alternatives for improvements to the BQE. Given the long timeframe for any improvements that may result from this effort, no changes to the study area traffic network are expected during the 2006 through 2016 period.

The following sections describe traffic and parking conditions in the 2010 future without the proposed project.

VEHICULAR TRAFFIC

INTERSECTION CAPACITY ANALYSIS

Table 12-6 summarizes traffic conditions at the 93 analyzed intersections in the 2010 future without the proposed project. (V/c ratios, delays and levels of service at all analyzed intersections in the 2010 future without the proposed project are provided in Table C-2 in Appendix C.) As shown in Table 12-6, with continued growth in travel demand, intersections that were congested under existing conditions, will worsen, and there will be additional locations that will become congested in one or more peak hours by 2010. Overall, Table 12-6 shows that

Table 12-6
Congested Intersections—2010 No Build Conditions

Signalized Intersection		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Flatbush Ave at	Tillary Street	○	○	●	●	○	●	○
	Myrtle Ave	●	●	●	●	●	●	●
	Willoughby Street	●	●	○	●		○	○
	DeKalb Ave	●	●	●	○		○	●
	Fulton Street	○	○	●	●	○		●
	Livingston Street	○	○	○				
	Lafayette Street	●		○	○		○	○
	4th Ave	○		●				○
	Atlantic Ave	●		○				
	5th Ave	●			●	●	●	○
	Dean Street				●		●	●
	Bergen Street		○	●	○		●	○
	6th Ave	○			○			
	Prospect Place				○		○	
	7th Avenue				○		○	
	Sterling Place						●	
Atlantic Ave at	Hicks Street	○		●			○	
	Henry Street						○	○
	Clinton Street	○	●				●	●
	Court Street			○			○	○
	Boerum Place	○	●				○	●
	Smith Street	●	●	●	○		○	●
	Hoyt Street			●			○	●
	Bond Street	●	●		○		○	●
	Nevins Street	●		●			●	●
	3rd Ave	●		○			○	○
	4th Ave	●	○	●	●		●	○
	5th Ave	●		○	●		●	○
	S. Portland Ave	○		○	○		○	●
	Clermont Ave	○		●				
	Vanderbilt Ave	●	●	●	○		●	●
	Clinton Ave	○		●				
	Washington/Underhill Aves	●	●	●	●		●	●
3rd Ave at	Dean Street			●	○			○
4th Ave at	Pacific Street	○						
	Dean Street	●			●		●	●
	Bergen Street	●		●	●		●	●
	St. Mark's Place	○					○	●
	Union Street	●		●	●		●	●
5th Ave at	Dean Street	●	●	●	○		●	●
	Bergen Street		○	●			○	○
S. Portland Ave at	Fulton Street	○						○
Carlton Ave at	Fulton Street	●		○			○	
	Dean Street							●
Vanderbilt Ave at	Myrtle Ave	●	○	●				
	DeKalb Ave	●		●				
	Fulton Street	●					●	●
	Pacific Street	○						
	Dean Street			○				●
	Bergen Street	●		●				
	St. Mark's Place	●		●				
	Prospect Place	●		●				
	Park Place	●		●			●	●
	Sterling Place						●	
Washington Ave at	Pacific Street	○	○	●	○		○	●
	Dean Street	○	○	●	○		○	○
	Eastern Parkway	●		●	●			
Adams Street at	Tillary Street	●	●	●	●	●	●	●
Boerum Place at	Livingston Street		○	●				
Smith Street at	Dean Street							○

Notes:

○ intersection with one or more congested movements in the peak hour (LOS E or F, or v/c ≥ 0.9).

● intersection with one or more congested movements in the peak hour (LOS E or F and v/c ≥ 0.9) and at least one movement operating at capacity (v/c ≥ 1.0).

in the 2010 future without the proposed project, a total of 60 signalized intersections will experience congestion in one or more peak hours, compared with 57 signalized intersections in 2006. Signalized intersections experiencing congestion on one or more approaches will total 45 in the weekday AM peak hour (compared with 36 under existing conditions), 21 in the midday (16 existing), 41 in the PM (34 existing), 28 in the weekday pre-game peak hour (24 existing) and five in the weekday post-game peak hour (four existing). On Saturdays, there will be 39 signalized intersections experiencing congestion in the 1-2 PM pre-game peak hour (compared with 30 under existing conditions) and 40 in the 4-5 PM post-game peak hour (37 existing). No unsignalized intersections will experience congestion in the 2010 No Build, unchanged from existing conditions.

In 2010, there will be a number of intersections with one or more movements operating with a v/c ratio of 1.00 or greater. The numbers of such intersections will total 28 in the weekday AM peak hour (versus 18 under existing conditions), 11 in the midday (eight existing), 31 in the PM (21 existing), 14 in the weekday pre-game (seven existing), and three in the weekday post-game peak hour (two existing). On Saturdays, the number of such intersections would total 20 in the 1-2 PM pre-game and 24 in the 4-5 PM post-game peak hours, compared with 10 and 19, respectively under existing conditions.

It should be noted that future queuing can occur when a movement operates substantially over capacity, and such queuing may potentially affect both upstream and downstream intersections along a corridor. For example, extensive queues may spill back through upstream intersections, while at downstream intersections, forecasted volumes may not occur, as traffic will be effectively metered at the first queued location along the corridor. Queuing at an intersection on the periphery of a study area may therefore effectively reduce the volumes that actually traverse the study area during the peak period.

As noted above and in Table 12-6, under 2010 No Build conditions, a number of intersections are expected to have movements operating over capacity in one or more peak periods. Approaches operating substantially over capacity (with a v/c ratio greater than 1.2, for example) are likely to experience queuing that may potentially spill back to upstream intersections. In the 2010 No Build, approaches along the major corridors serving the project site that would potentially experience queuing and spill-back would include southbound Flatbush Avenue at Myrtle Avenue in the weekday 7-8 PM peak hour; northbound Vanderbilt Avenue from Park Place to Bergen Street in the weekday AM peak hour; southbound Vanderbilt Avenue from Bergen Street to Park Place in the weekday PM peak hour, and southbound Vanderbilt Avenue at Fulton Street in the weekday midday peak hour,. Some queuing may also be evident on Bergen Street approaching 4th Avenue and eastbound and westbound Union Street in the Saturday 1-2 PM peak hour, and on Dean Street approaching 5th Avenue in both Saturday peak hours.

As per *CEQR Technical Manual* criteria, the analysis of future traffic conditions conservatively assumes that traffic volumes within the study area are not metered at congested locations, and that all future traffic volumes occur at analyzed intersections. As discussed later in this chapter in "Probable Impacts of the Proposed Project—2010," traffic simulation software was employed to assist in the planning process and to evaluate the feasibility and effectiveness of different options for facilitating traffic circulation in the vicinity of the project site.

BICYCLE FACILITIES

During the 2006 through 2010 period, it is anticipated that demand on existing bicycle facilities within the study area will likely increase commensurate with the overall increases in transportation demand expected in Downtown Brooklyn and surrounding neighborhoods. Commercial developments will likely generate some new AM and PM peak period commuter trips by bicycle, while residential developments will generate both new AM and PM commuter trips as well as recreational bicycle trips in off-peak periods and on weekends.

In May 2006, DOT reconfigured the block of Dean Street between 5th and Flatbush Avenues to accommodate two travel lanes plus a parking lane along the south curb. The existing bike lane on this block was repositioned to a location adjacent to the north curb, and the four on-street parking spaces along this curb were eliminated. It is also anticipated that during the 2006 through 2010 period, DOT will implement new on-street bike lanes along both northbound and southbound Boerum Place, and along Cumberland Street/Washington Park and Carlton Avenue between Park and Flatbush Avenues. These latter two bike lanes will provide a north-south connection for bicyclists through Prospect Heights and Fort Greene. However, due to a lack of suitable north-south roadways, connections across Atlantic Avenue to and from the pair of existing east-west bike lanes on Dean and Bergen Streets will be awkward, requiring some bicyclists to ride opposite the flow of traffic along a portion of Carlton Avenue.

PARKING

OFF-STREET PARKING

Between 2006 and 2010, new development projected to occur within ½ mile of the arena site is expected to be predominantly residential in nature. It is therefore assumed that the parking demand from these developments would be accommodated in accessory parking facilities typically required by zoning for residential developments in this area of Brooklyn (see Table C-3 in Appendix C). Also during this period, the residential development on Schermerhorn Street between Hoyt and Bond Streets would displace 424 existing spaces. Although this development is located more than ½ mile from the arena site, it is assumed that approximately 50 percent of the displaced demand (212 spaces) would relocate to facilities within the parking study area. No new public parking capacity is expected to become available within ½ mile of the arena site during the 2006 to 2010 period.

Table 12-7 shows the resulting 2010 No Build off-street parking conditions. As shown in Table 12-7, parking capacity within ½ mile of the proposed arena site is expected to decrease from 3,291 spaces to 3,079 spaces on weekdays, and from 3,196 spaces to 2,984 spaces on Saturdays. (One parking facility within the parking study area is closed on weekends.) Demand is expected to total 1,998 spaces in the weekday AM (versus 1,949 spaces under existing conditions), 2,841 in the midday (2,771 existing), 1,272 in the evening (1,241 existing) and 1,483 in the Saturday midday (1,446 existing). These totals include demand associated with anticipated development and a growth factor of 0.5 percent per year applied to existing demand to account for smaller projects and general background growth that would occur through 2010. Overall, as shown in Table 12-7, there would be a surplus of 1,081 public parking spaces within ½ mile of the proposed arena site in the weekday AM peak period compared with a surplus of 1,342 spaces in the existing condition. In the midday, the public parking supply would be operating near

Table 12-7
Off-Street Parking Conditions—2010 No Build

Period	2006 Existing Conditions			2010 No Build Conditions		
	Total Capacity[1]	Estimated Demand[1]	Net Spaces Available	Total Capacity[2]	Estimated Demand[3]	Net Spaces Available
Weekday AM	3,291	1,949	1,342	3,079	1,998	1,081
Weekday Midday	3,291	2,771	520	3,079	2,841	238
Weekday Evening	3,291	1,241	2,050	3,079	1,272	1,807
Saturday Midday	3,196	1,446	1,750	2,984	1,483	1,501

Notes:
1 Source: PHA November 2004 and January 2006 surveys of facilities within ½-mile of the proposed arena.
2 Excludes 212 public spaces displaced by development during the 2006 to 2010 period.
3 Includes 0.5 percent/year background growth for the 2006 to 2010 period and demand from No Build sites.

capacity, with only 238 spaces available out of 3,079, versus 520 available in the existing condition. In the weekday evening period there would be 1,807 available public parking spaces compared with 2,050 in the existing condition, while in the Saturday midday period, a total of 1,501 spaces would be available within ½ mile of the arena site versus 1,750 under existing conditions.

ON-STREET PARKING

In the 2010 future without the proposed project, it anticipated that demand for on-street parking will increase, primarily due to general background growth. Demand from new developments in 2010 is expected to be minimal as only two—the residential conversion of the Williamsburgh Savings Bank Building and the conversion of an existing building on Waverly Avenue into an 80,000 sf charter school—are expected to occur within ¼ mile of the project site. Table 12-8 shows the estimated utilization of on-street parking within ¼ mile of the project site under 2010 No Build conditions assuming an overall 0.5 percent per year increase in demand. The analysis also takes into account the elimination in May 2006 of approximately four on-street parking spaces along the north curb of Dean Street between 5th and Flatbush Avenues to accommodate the relocation of the bike lane along this block. As shown in Table 12-8, a total of approximately 1,852 spaces would be available in the weekday 5-6 PM peak hour, 3,179 spaces in the 7-8 PM peak hour, and 2,129 spaces in the Saturday 1-2 PM peak hour. This compares to 1,930, 3,240, and 2,215 spaces during these periods, respectively, under 2006 existing conditions. Overall utilization would total 67, 48 and 66 percent during the 5-6 PM, 7-8 PM and Saturday 1-2 PM periods in the 2010 No Build, compared with 65, 47 and 65 percent during these periods, respectively, under 2006 existing conditions.

Table 12-8
No Build On-Street Parking Conditions—2010

Period	2006 Existing Conditions			2010 No Build Conditions		
	Total Spaces	Spaces Available	Percent Utilization	Total Spaces	Spaces Available	Percent Utilization
Weekday 5-6 PM	5,590	1,930	65	5,586	1,852	67
Weekday 7-8 PM	6,075	3,240	47	6,071	3,179	48
Saturday 1-2 PM	6,280	2,215	65	6,276	2,129	66

Notes:
1 Source: PHA February 2006 and March 2006 field surveys within ¼-mile of the project site.
2 Includes 0.5 percent/year background growth for the 2006 to 2010 period.

F. PROBABLE IMPACTS OF THE PROPOSED PROJECT—2010

This section provides an analysis of traffic and parking conditions in 2010 with development of Phase I of the proposed project.

CHANGES TO THE STUDY AREA STREET NETWORK

In addition to the development program outlined previously in this chapter, the proposed project would entail a number of permanent roadway closures, changes in street direction, and other changes to the street network in the vicinity of the project site. In developing these proposed changes, traffic simulation using the Synchro/SimTraffic 6.0 software program was employed to facilitate planning and to evaluate the feasibility and effectiveness of different options for facilitating traffic circulation in and around the project site. (As described in Chapter 19, "Mitigation," Synchro/SimTraffic simulation was also employed in developing the mitigation plan for addressing the proposed project's significant adverse traffic impacts.) The simulation focused on the core street network in the vicinity of the project site, from Vanderbilt Avenue on the east to 3rd Avenue on the west, and from Bergen Street on the south to Atlantic Avenue on the north. Also included were intersections along Flatbush Avenue as far north as DeKalb Avenue and as far south as 6th Avenue. The simulation was used to confirm the feasibility of closing segments of 5th Avenue and Pacific Street to accommodate development of the arena and new open space, and the effectiveness of converting 6th Avenue between Atlantic and Flatbush Avenues and Carlton Avenue between Atlantic Avenue and Pacific Street to two-way operation to facilitate traffic flow to and through the project site. These and other changes to the study area street network are shown in Figure 12-5a/b and discussed below. All are expected to occur by 2010 with the development of Phase I of the proposed project.

ATLANTIC AVENUE

The south sidewalk along Atlantic Avenue would be set back between Flatbush Avenue and Fort Greene Place to accommodate creation of an 8-foot-wide lay-by lane adjacent to the arena block. Three eastbound through-lanes would be provided along this block along with four westbound lanes (three through and one right-turn-only). East of Fort Greene Place, Atlantic Avenue would be reconfigured to operate with three travel lanes and a single 10-foot-wide parking lane in each direction, plus an 8- to 15-foot-wide raised median. (The existing 21-foot-wide double parking lane along the north curb adjacent to the Atlantic Center mall would be reduced in width.) The eastbound and westbound left-turn bays at 6th Avenue/South Portland Avenue would be maintained.

CARLTON AVENUE

To facilitate traffic circulation at the project site, the bridge carrying Carlton Avenue over the LIRR rail yard between Atlantic Avenue and Pacific Street would be reconstructed. The roadway along this block would be widened to 38 feet flanked by 16-foot-wide sidewalks, and converted from one-way northbound to two-way operation.

DEAN STREET

The north sidewalk along Dean Street east of Flatbush Avenue would be set back seven feet for a distance of approximately 170 feet to create a lay-by lane adjacent to the arena site. The existing bike lane along this block would be moved to a location adjacent to the existing north

curb line (it is currently outboard of the existing north-side parking lane), matching DOT's planned bike lane configuration on Dean Street between Flatbush and 5th Avenues, one block to the west. With parking along the north curb relocated to the new lay-by lane, Dean Street would function with two eastbound moving lanes (one through-lane and one exclusion left-turn lane) between Flatbush and 6th Avenues.

5TH AVENUE

To accommodate the development of the arena and the new subway entrance on Block 1118, the segment of 5th Avenue from Flatbush Avenue/Pacific Street to Atlantic Avenue would be permanently closed. Traffic now using this block of 5th Avenue would be distributed among parallel north-south corridors, including 4th Avenue, Flatbush Avenue and 6th Avenue (see discussion of 6th Avenue, below). The B63 buses, which currently traverse this block of 5th Avenue in the northbound direction, would instead turn left from 5th Avenue onto Flatbush Avenue and then turn left again onto Atlantic Avenue (see Chapter 13, "Transit and Pedestrians"). The left-turn prohibition at the Flatbush Avenue/Atlantic Avenue intersection would be modified to exclude these buses.

FLATBUSH AVENUE

The east sidewalk along Flatbush Avenue would be set back between Dean Street and Atlantic Avenue to provide for a 10-foot-wide lay-by lane along the east curb to accommodate pick-up/drop-off and loading/unloading activity adjacent to the arena. This segment of Flatbush Avenue would operate with three travel lanes and the lay-by lane in the northbound direction, and two travel lanes and a curb lane in the southbound direction.

PACIFIC STREET

Pacific Street would be permanently closed from Flatbush Avenue/5th Avenue to 6th Avenue to accommodate development on the arena block. The block of Pacific Street between Carlton and Vanderbilt Avenues would also be permanently closed during Phase I to accommodate construction staging and interim parking during Phase I, and development on blocks 1121 and 1129 in Phase II. Pacific Street would remain open to two-way traffic between 6th and Carlton Avenues, as at present, to facilitate vehicle circulation.

To the west, Pacific Street between Flatbush and 4th Avenues would be converted from one-way westbound to two-way operation to facilitate vehicular circulation around Site 5. To accommodate two-way operation, all parking and standing would be prohibited for approximately 160 feet along the north curb adjacent to an existing community garden. Along the remainder of the block, the north sidewalk would be set back by approximately eight feet (widening the roadway from 30 feet to 38 feet) to accommodate a lay-by lane along the north curb. The roadway would operate with a single travel lane in each direction plus parking, except at its eastern end where parking or standing along the north curb would be eliminated.

6TH AVENUE

6th Avenue would be converted from one-way southbound to two-way operation from Atlantic Avenue to Flatbush Avenue to facilitate traffic circulation at the project site and provide an alternative route for traffic diverted as a result of the closure of 5th Avenue between Flatbush and Atlantic Avenues. To accommodate this change in operation, the bridge carrying 6th Avenue over the LIRR rail yard between Atlantic Avenue and Pacific Street would be

reconstructed, and the roadway widened to 40 feet in width flanked by 15-foot-wide sidewalks from Atlantic Avenue to Flatbush Avenue. (The current roadway is typically 34 feet in width flanked by 18-foot-wide sidewalks). Between Atlantic and Pacific Street, 6th Avenue would operate with two travel lanes in each direction. Between Pacific Street and Flatbush Avenue, 6th Avenue would operate with two southbound travel lanes, and one travel lane and a parking lane northbound. In addition, an approximately 250-foot-long segment of the west sidewalk along 6th Avenue opposite Pacific Street would be set back to accommodate a 7-foot-wide lay-by lane adjacent to the arena. The perpendicular parking of police vehicles along 6th Avenue between Dean and Bergen Streets adjacent to the 78th Precinct station house could no longer be accommodated with this change in operation of the street.

TRAVEL DEMAND

TRANSPORTATION PLANNING ASSUMPTIONS

As previously discussed, the proposed development considers two program variations: residential mixed-use and commercial mixed-use (shown in Figures 1-3 and 1-4 in Chapter 1, "Project Description"). The variations reflect the fact that the programs for three of the project's 17 buildings are not fixed and could be used for a mixture of residential and commercial uses. Under the commercial mixed-use variation additional commercial space would substitute for the hotel use and a majority of the residential space in Buildings 1 and 2 on the arena site (blocks 1118, 1119, and 1127) and on Site 5 (Block 927). The other buildings and uses on the project site (the arena and Buildings 3 through 15) would remain the same under both the residential mixed-use and commercial mixed-use variations. Table 12-9 compares the Phase I development programs for the proposed project's two variations. (As discussed in Chapter 1, the development programs for both the residential mixed-use and the commercial mixed-use variations have been reduced from the programs that were analyzed in the DEIS.) As shown in Table 12-9, along with the 850,000 gsf arena (with a capacity of 18,000 seats for a Nets basketball game), the residential mixed-use variation would consist of a total of approximately 2,110 dwelling units, 336,000 gsf of commercial office space, a 180-room hotel, and 91,000 gsf of ground-floor local retail space that would be distributed among Site 5 and Buildings 1 through 4. A total of approximately 750 permanent and 1,596 temporary parking spaces would also be provided in on-site parking garages and temporary parking lots. Phase I of the commercial mixed-use variation would include an 850,000-square-foot arena (18,000 seats for a Nets basketball game), approximately 1,005 dwelling units, 1,606,000 gsf of commercial office space, and no hotel use, as well as a similar number of parking spaces as the residential variation. The arena and local retail uses would also remain the same under both scenarios.

Table 12-9
Project Development Program—2010 (Phase I)

Project Component	Residential Mixed-Use Variation	Commercial Mixed-Use Variation
Arena	850,000 gsf (18,000 seats)	850,000 sf (18,000 seats)
Residential	2,110 units	1,005 units
Office	336,000 gsf	1,606,000 gsf
Local Retail	91,000 gsf	91,000 gsf
Hotel	165,000 gsf (180 rooms)	0 gsf
Parking	750 spaces (permanent) 1,596 spaces (temporary)	750 spaces (permanent) 1,596 spaces (temporary)

Both the residential mixed-use and the commercial mixed-use variations are expected to include community facility uses, including a health care center in Phase I. As described later in this chapter, a staffed bicycle station with approximately 3,300 square feet of space for lockers, restrooms, a security desk, and storage space for 400 bicycles would also be provided on the arena block in Phase I under both variations. For the purposes of the travel demand forecast, all of this space is assumed to be local retail (i.e., retail establishments serving the needs of workers and residents in the neighborhood) as a conservative measure.

The transportation planning assumptions used to forecast travel demand from the various project components are summarized in Table 12-10. The trip generation rates, temporal distributions, and mode choice assumptions shown in Table 12-10 for the proposed project's residential, office, hotel, and local retail components were based on accepted *CEQR Technical Manual* criteria, standard professional references, and studies that have been done for similar uses in Downtown Brooklyn and Manhattan. For example, the travel demand forecast for the hotel that would be developed under the residential mixed-use variation (but not the commercial mixed-use variation) was based on data developed for the expansion of the existing Marriott Hotel at Renaissance Plaza in Downtown Brooklyn. These sources were supplemented by data from the 2000 Census, and Employee Commute Options survey data from firms and governmental/educational institutions in Downtown Brooklyn.

It is important to note the role that the proposed project's location plays with respect to anticipated mode choice, and specifically the relatively high mode shares shown for transit in Table 12-10. The proposed project would be located at a site that is a major hub for three different transit modes—subway, commuter rail and bus. As discussed in Chapter 13, "Transit and Pedestrians," the project site is accessible via seven subway stations served by a total of a dozen subway routes, and is adjacent to the Long Island Rail Road's Brooklyn terminus. In addition, a total of 11 local bus routes operate within ¼ mile of the project site. Locating high density, high quality development in proximity to transit nodes is recognized as an important planning strategy for reducing the numbers of auto trips that would otherwise be generated by such development. The proximity of good transit service, especially rail transit service, has also become a consideration in the site selection for major event venues such as the proposed Atlantic Yards arena. A recent example is the 1997 Verizon Center in Washington, D.C., home to the NBA Washington Wizards, which was constructed immediately above the Gallery Place–Chinatown station complex, a junction of three Metro lines. The Atlantic Yards arena and other components of the proposed project would similarly benefit from direct access to the ten subway lines serving the Atlantic Avenue/Pacific Street subway station complex via a major new on-site subway entrance that would be located adjacent to the arena. Internal circulation improvements to the subway station complex are also planned. The project site's excellent accessibility by subway, commuter rail and bus is reflected in the relatively high mode shares for transit shown in Table 12-10—a combined 75 percent subway/bus share on weekdays for residential uses, for example. Transit facilities serving the project site are discussed in more detail in Chapter 13, "Transit and Pedestrians."

The retail uses developed under both the residential mixed-use variation and the commercial mixed-use variation would be local (or "neighborhood") retail, attracting trips primarily from the residential and worker populations on-site and in surrounding neighborhoods. It is therefore anticipated that the majority of these trips would be via the walk mode, and that many would be "linked" trips (e.g., a trip with multiple purposes, such as stopping at a retail store while commuting to or from work) and would therefore not represent the addition of new discrete trips to the study area transportation systems. For the purposes of the travel demand forecast, it is conservatively assumed that 40 percent of retail trips would be such "linked" trips, consistent with the rates assumed for other retail developments in New York City.

Table 12-10
Transportation Planning Assumptions for Project Components

Land Use:		Arena			Residential		Office		Hotel	Local Retail
		(1)			(3,6)		(6,11)		(4)	(6,7)
Trip Generation:	**Weekday**	2.00			8.075		18.00		5.82	205
(Person-trips)	**Saturday**	2.00			7.679		0.90		8.61	205
		(trips/seat)			(trips/dwelling unit)		(trips/1,000 gsf)		(trips/room)	(trips/1,000 gsf)
		(8,9)			(2,23)		(2)		(4,5)	(2,10)
Temporal Distribution:	**AM (8-9)**	1.0%			9.1%		11.8%		6.6%	3.1%
	MD (12-1)	1.0%			4.7%		14.5%		8.3%	19.0%
	PM (5-6)	5.0%			10.7%		13.7%		7.7%	9.6%
	Pre-game (7-8 PM)	37.5%			8.3%		4.0%		6.6%	3.0%
	Post-game (10-11 PM)	42.5%			3.3%		0.5%		2.0%	1.0%
	Saturday (1-2 PM)	37.5%			7.0%		15.0%		7.5%	9.5%
	Saturday (4-5 PM)	42.5%			7.2%		15.0%		7.5%	9.5%
		(12)			(22)		(14,15)		(4)	(13)
		Weekday		**Sat**						
Modal Split:		**In**	**Out**	**All Periods**	**Weekday**	**Sat**	**AM/PM/EVE**	**MD/Sat MD**	**All Periods**	**All Periods**
	Auto	34.8%	35.9%	40.0%	14.0%	20.0%	12.0%	2.0%	30.1%	2.0%
	Taxi	3.0%	3.0%	3.0%	1.0%	1.0%	1.0%	1.0%	12.3%	3.0%
	Subway	49.7%	46.7%	44.0%	72.0%	45.0%	65.0%	7.0%	18.8%	20.0%
	LIRR	7.7%	9.6%	8.0%	1.0%	1.0%	12.0%	0.0%	0.0%	0.0%
	Bus	2.1%	2.1%	2.0%	3.0%	3.0%	6.0%	7.0%	5.5%	5.0%
	Walk	2.7%	2.7%	3.0%	9.0%	30.0%	4.0%	83.0%	33.3%	70.0%
		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		(16)		(16)	(13,22)		(14)		(4)	(13)
		Weekday		**Sat**	**All Periods**		**All Periods**		**All Periods**	**All Periods**
Vehicle Occupancy:	**Auto**	2.35		2.75	1.18		1.42		1.60	2.00
	Taxi	2.35		2.75	1.40		1.42		1.40	2.00
		(13,17)			(5,13)		(2,5,13)		(4,18)	(10)
Directional		**In**	**Out**		**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
Distribution:	**AM (8-9)**	96%	4%		20%	80%	96%	4%	41%	59%	50%	50%
	MD (12-1)	39%	61%		51%	49%	39%	61%	68%	32%	50%	50%
	PM (5-6)	85%	15%		65%	35%	5%	95%	59%	41%	50%	50%
	Pre-game (7-8 PM)	99%	1%		70%	30%	20%	80%	60%	40%	50%	50%
	Post-game (10-11 PM)	1%	99%		95%	5%	20%	80%	95%	5%	50%	50%
	Saturday (1-2 PM)	99%	1%		50%	50%	60%	40%	56%	44%	55%	45%
	Saturday (4-5 PM)	1%	99%		50%	50%	15%	85%	56%	44%	45%	55%
		(21)			(5,13)		(5,20)		(5,19)	(5,19)
Daily Truck Trip	**Weekday**	0.07			0.07		0.16		0.06	0.35
Generation:	**Saturday**	0.02			0.01		0.01		0.01	0.02
		(trips/1,000 gsf)			(trips/dwelling unit)		(trips/1,000 gsf)		(trips/1,000 gsf)	(trips/1,000 gsf)
		(21)			(19)		(5,20)		(5,19)	(5,19)
Truck Trip	**AM (8-9)**	12%			12%		7%		12%	8%
Temporal Distribution:	**MD (12-1)**	14%			9%		7%		9%	11%
	PM (5-6)	3%			2%		3%		0%	2%
	Pre-game (7-8 PM)	0%			0%		2%		0%	0%
	Post-game (10-11 PM)	0%			0%		2%		0%	0%
	Saturday (1-2 PM)	20%			9%		11%		9%	11%
	Saturday (4-5 PM)	0%			0%		3%		0%	2%

Notes:

(1) Although a sell-out basketball game typically has 90% attendance, a trip rate of 2 trips/seat for all 18,000 seats is assumed in order to account for trips by spectators as well as employees, players, coaches, team staff and other visitors.

(2) Source: Pushkarev & Zupan, *Urban Space for Pedestrians* .

(3) Saturday residential trip rate based on ratio of weekday/Saturday trip rates from *ITE Trip Generation* , 7*th Edition* , Land Use: 220 (Apartment).

(4) Source: *Renaissance Plaza Expansion EAS* , March 2003 and data from *Marriott Hotel Transportation Survey* , AKRF, August 1999.

(5) Based on Saturday data from *Coliseum Redevelopment FSEIS* , July 1997.

(6) Source: *City Environmental Quality Review (CEQR) Technical Manua* l, Appendix 3, 2001.

(7) Weekday trip generation rate assumed for Saturday as per *Coliseum Redevelopment FSEIS* , July 1997.

(8) Based on data from *Madison Square Garden Modal Split Analysis* , August 26, 2003.

(9) Post-game arena temporal distribution based on MTA data on subway ridership patterns at stations serving Madison Square Garden.

(10) Source: *Coliseum Redevelopment FSEIS* , July 1997.

(11) Saturday trip generation assumed to be 5% of weekday generation, consistent with assumptions in the C*oliseum Redevelopment FSEIS* , July 1997.

(12) Reflects the anticipated origin/destination distribution of arena spectators and the accessibility by transit of the proposed arena site in Downtown Brooklyn.

(13) Source: *Downtown Brooklyn Development FEIS* , April 2004.

(14) Source: NYCDOT ECO Survey data for Downtown Brooklyn.

(15) Source for midday modal split data: *Downtown Brooklyn Development FEIS* , April 2004. Weekday midday modal split assumed for Saturday midday.

(16) Based on data from *Madison Square Garden Modal Split Analysis* and data from a PHA parking survey prior to a Knicks game at MSG on March 9, 2003.

(17) PM and pre-game directional distribution for arena trips assumed to be predominantly inbound; post-game predominantly outbound.

(18) Weekday 10-11 PM directional distribution assumed based on pattern for residential uses.

(19) Source: *Curbside Pickup & Delivery Operations & Arterial Traffic Impacts* , FHWA, February 1981.

(20) Weekday office truck trip rate and temporal distribution based on PHA June 10, 2004 survey at existing office buildings in Midtown and Lower Manhattan.

(21) Based on FCRC projections for Arena loading dock usage.

(22) Based on 2000 Census journey-to-work data. Saturday modal split adjusted to reflect anticipated higher walk and auto shares compared to a weekday.

(23) Saturday 4-5 PM based on Sunday 4-5 PM data from the *No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS* , Nov. 2004.

The proposed project's 850,000 gsf arena would accommodate 18,000 to 19,925 seats, depending on the event. The capacity for a basketball game, for example, would be 18,000 seats, whereas for the largest concert or other events, additional space for seating could be available on the arena floor. As a RWCS for the EIS transportation analyses, the weekday and Saturday travel demand forecasts examine the demand that would be generated by a Nets basketball game at the arena. A Nets basketball game was selected as an RWCS based on both the frequency of home games and the relatively high level of travel demand that such games are expected to generate compared with most other uses. Using the 2005-2006 season as a guide, approximately 41 games would occur at the arena during a typical basketball season from early November to late April (not including playoff games which could continue through June). Approximately 26 of these games would occur on a weekday, four on a weekend afternoon (Saturday or Sunday) and 11 on a weekend evening. (Although weekend evening games would occur somewhat more frequently than weekend afternoon games, the afternoon pre- and post-game peak hours would coincide with peak retail activity and typically experience higher ambient traffic levels. These periods were therefore selected for analysis.) Non-basketball events, such as concerts, ethnic shows, general fixed fee rentals (graduations, receptions, job fairs, etc.), and religious/motivational shows, other sporting events, family shows and community events, are each expected to occur with less frequency, would often attract fewer spectators, and would likely generate a lower level of travel demand than a Nets basketball game. As noted above, for the largest concerts and other events, additional space for seating would be available on the arena floor. However, when such factors as technical production requirements (stage size and placement, backdrop pieces, camera platforms, lighting, etc.), sightline restraints, and space requirements for wheelchair seating are accounted for, the actual capacity for most events at the arena would be less than the 18,000-seat capacity for a Nets basketball game. For example, for the most typical concert configuration–setting a stage at one end of the floor with approximately 270 degrees of potential seating–the capacity of the arena would be approximately 15,000 persons. Overall, conditions identified in the analysis for the pre-game and post-game peak hours are expected to occur at only limited instances throughout the year. Conditions in the large majority of days would experience fewer trips, including fewer vehicular trips.

The travel demand forecast for the arena assumes a sold-out game for all 18,000 seats, and a daily trip generation rate of two trips per seat. It should be noted, however, that the actual number of spectators at a game is typically fewer than the number of tickets distributed, and that even a sold-out game typically has about 90 percent attendance. The daily trip generation rate of two trips per seat for all 18,000 seats therefore also accounts for trips by employees, players, coaches, team staff, and other such non-spectator demand.

Data on the arrival patterns for spectators at a Knicks basketball game at Madison Square Garden reported in the 2003 *Madison Square Garden Modal Split Analysis* study were utilized to estimate the temporal distribution for trips to the Atlantic Yards Arena. Based on these data, it is estimated that approximately 75 percent of spectators en route to a basketball game would arrive in the peak one-hour period. The temporal distribution of post-game peak hour trips was estimated based on Metropolitan Transportation Authority (MTA) subway ridership data for stations serving Madison Square Garden. Using a comparison of the subway ridership on both game days and non-game days, and the hourly variation in the demand attributable to Madison Square Garden, it is estimated that approximately 85 percent of spectators would typically depart the Atlantic Yards Arena in the peak one hour at the end of a basketball game.

In addition to trips by spectators before and after a Nets basketball game, it is anticipated that arena employees, players, coaches, team staff, and other non-spectator visitors to the arena would generate

trips outside of the immediate pre-game and post-game periods. As shown in the temporal distribution in Table 12-10, it is assumed that one percent of daily trips generated by the arena would occur in each of the weekday AM and midday peak hours, and five percent during the weekday 5-6 PM peak hour.

Trip origin and modal split assumptions for the Atlantic Yards Arena reflect the anticipated origin/destination distribution of arena spectators and the accessibility by transit of the proposed arena site. The assumptions were developed from trip origin and modal split data reported in the *Madison Square Garden Modal Split Analysis* study, along with data specific to Downtown Brooklyn developed for other studies such as the *Downtown Brooklyn Development FEIS*.

Based on discussions with DOT and NYCT concerning the anticipated travel characteristics of arena patrons, separate trip origin/destination and modal split assumptions have been assumed for persons arriving and departing the arena. On weekdays, it is likely that some spectators would travel to the arena from workplaces in one borough or county, and then depart en route to residences in a different borough or county at the conclusion of a game, sometimes by a different mode of travel. For example, it is likely that some spectators would travel to the arena from Manhattan by subway, and then to homes on Long Island via the LIRR. Others may walk from workplaces in Downtown Brooklyn and then drive home to New Jersey. These workplace-based trips en route to the arena are more likely to be made by transit (primarily subway) than would be the case for post-game trips en route home which are more likely to have higher auto and commuter rail shares. The trip destination and modal split assumptions for persons departing the arena on a weekday therefore reflect a lower Manhattan share than for trips en route to the arena, and a lower subway share (46.7 percent versus 49.7 percent). The auto mode share is slightly higher for trips departing the arena (35.9 percent versus 34.8 percent) as is the LIRR share (9.8 percent versus 7.8 percent), reflecting the expected higher percentage of trips with end points outside of Manhattan in the post-game period. As work-based trips would be minimal on weekends, the travel demand forecast assumes a general balance of trip origins and destinations for the Saturday peak hours.

The three percent taxi mode share assumed for both arriving and departing arena trips reflects trips by both taxi and by livery or "black" car services. Trips from the northern and western suburbs served by PATH, New Jersey Transit and Metro-North Railroad were assumed to complete their journeys via the subway mode.

The truck-trip generation forecast for the arena was derived from projections for arena loading dock usage provided by the project sponsors. These truck trips include deliveries of food and supplies, general deliveries (e.g., UPS, FedEx, etc.), and trucks associated with television broadcasts.

TRAVEL DEMAND FORECAST—2010

Tables 12-11 and 12-12 show the trip generation in peak hour person trips by all modes (auto, taxi, subway, LIRR, bus, and walking) that would result in 2010 from development of Phase I of the proposed project's residential mixed-use and commercial mixed-use variations, respectively. A comparison of the total peak hour person trips generated by each variation is presented in Table 12-13 along with the total numbers of peak hour vehicle trips (auto, taxi, and truck) and person trips by transit (subway, bus, and LIRR). It should be noted that both variations would displace existing land uses on the project site, such as the 46,913 square feet of retail (a Modell's Sporting Goods store and a P.C. Richards consumer electronics store) currently located on Block 927 (Site 5). However, the travel demand forecast conservatively assumes no credit for the travel demand from these existing uses that would be displaced in the Build condition.

Table 12-11

TRAVEL DEMAND FORECAST FOR THE RESIDENTIAL MIXED-USE VARIATION - 2010
(PERSON TRIPS)

		Site 5			Arena Block								
		Residential/ Office/Local Retail			Arena			Residential/ Office/Hotel/Local Retail			Total Trips		
Person Trips by Mode:		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	9	29	38	120	5	125	130	164	294	259	198	457
	Taxi	3	5	8	10	0	10	16	18	34	29	23	52
	Subway	52	155	207	172	7	179	656	800	1,456	880	962	1,842
	LIRR	0	2	2	27	1	28	85	13	98	112	16	128
	Bus	5	10	15	7	0	7	55	39	94	67	49	116
	Walk	67	80	147	9	0	9	119	168	287	195	248	443
	Total	136	281	417	345	13	358	1,061	1,202	2,263	1,542	1,496	3,038
MD (12-1)	**Auto**	20	19	39	49	79	128	83	75	158	152	173	325
	Taxi	17	17	34	4	7	11	28	26	54	49	50	99
	Subway	155	153	308	70	103	173	387	384	771	612	640	1,252
	LIRR	1	1	2	11	21	32	3	3	6	15	25	40
	Bus	29	29	58	3	5	8	63	75	138	95	109	204
	Walk	390	389	779	4	6	10	696	844	1,540	1,090	1,239	2,329
	Total	612	608	1,220	141	221	362	1,260	1,407	2,667	2,013	2,236	4,249
PM (5-6)	**Auto**	31	20	51	532	97	629	164	185	349	727	302	1,029
	Taxi	10	9	19	46	8	54	24	25	49	80	42	122
	Subway	186	126	312	760	126	886	810	958	1,768	1,756	1,210	2,966
	LIRR	2	1	3	118	26	144	15	99	114	135	126	261
	Bus	19	17	36	32	6	38	48	78	126	99	101	200
	Walk	210	203	413	41	7	48	290	273	563	541	483	1,024
	Total	458	376	834	1,529	270	1,799	1,351	1,618	2,969	3,338	2,264	5,602
Pre-game (7-8 PM)	**Auto**	23	11	34	4,651	48	4,699	137	83	220	4,811	142	4,953
	Taxi	5	4	9	401	4	405	15	11	26	421	19	440
	Subway	126	64	190	6,642	63	6,705	658	405	1,063	7,426	532	7,958
	LIRR	2	1	3	1,029	13	1,042	14	27	41	1,045	41	1,086
	Bus	9	6	15	281	3	284	34	29	63	324	38	362
	Walk	75	67	142	361	4	365	148	106	254	584	177	761
	Total	240	153	393	13,365	135	13,500	1,006	661	1,667	14,611	949	15,560
Post-game (10-11 PM)	**Auto**	12	2	14	53	5,438	5,491	71	7	78	136	5,447	5,583
	Taxi	2	1	3	5	454	459	8	1	9	15	456	471
	Subway	65	9	74	76	7,074	7,150	338	38	376	479	7,121	7,600
	LIRR	1	0	1	12	1,454	1,466	6	3	9	19	1,457	1,476
	Bus	3	1	4	3	318	321	16	3	19	22	322	344
	Walk	27	20	47	4	409	413	67	22	89	98	451	549
	Total	110	33	143	153	15,147	15,300	506	74	580	769	15,254	16,023
Saturday (1-2 PM)	**Auto**	23	22	45	5,346	54	5,400	123	116	239	5,492	192	5,684
	Taxi	10	8	18	401	4	405	21	18	39	432	30	462
	Subway	99	88	187	5,881	59	5,940	287	273	560	6,267	420	6,687
	LIRR	1	1	2	1,069	11	1,080	5	5	10	1,075	17	1,092
	Bus	18	15	33	267	3	270	34	30	64	319	48	367
	Walk	237	199	436	401	4	405	387	338	725	1,025	541	1,566
	Total	388	333	721	13,365	135	13,500	857	780	1,637	14,610	1,248	15,858
Saturday (4-5 PM)	**Auto**	23	24	47	61	6,059	6,120	125	125	250	209	6,208	6,417
	Taxi	8	10	18	5	454	459	20	19	39	33	483	516
	Subway	89	100	189	67	6,665	6,732	284	314	598	440	7,079	7,519
	LIRR	1	1	2	12	1,212	1,224	6	10	16	19	1,223	1,242
	Bus	15	18	33	3	303	306	31	34	65	49	355	404
	Walk	200	238	438	5	454	459	332	365	697	537	1,057	1,594
	Total	336	391	727	153	15,147	15,300	798	867	1,665	1,287	16,405	17,692

This table has been revised for the FEIS.

Table 12-12

TRAVEL DEMAND FORECAST FOR THE COMMERCIAL MIXED-USE VARIATION - 2010
(PERSON TRIPS)

		Site 5			Arena Block								
		Office/Local Retail			Arena			Residential/Office/ Local Retail			Total Trips		
Person Trips by Mode:		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	84	5	89	120	5	125	334	98	432	538	108	646
	Taxi	10	3	13	10	0	10	30	10	40	50	13	63
	Subway	462	36	498	172	7	179	1,807	512	2,319	2,441	555	2,996
	LIRR	82	3	85	27	1	28	312	19	331	421	23	444
	Bus	45	6	51	7	0	7	163	28	191	215	34	249
	Walk	90	64	154	9	0	9	176	116	292	275	180	455
	Total	773	117	890	345	13	358	2,822	783	3,605	3,940	913	4,853
MD (12-1)	**Auto**	18	22	40	49	79	128	63	76	139	130	177	307
	Taxi	19	21	40	4	7	11	30	37	67	53	65	118
	Subway	134	147	281	70	103	173	334	379	713	538	629	1,167
	LIRR	0	0	0	11	21	32	2	2	4	13	23	36
	Bus	51	64	115	3	5	8	123	174	297	177	243	420
	Walk	667	826	1,493	4	6	10	1,452	2,057	3,509	2,123	2,889	5,012
	Total	889	1,080	1,969	141	221	362	2,004	2,725	4,729	3,034	4,026	7,060
PM (5-6)	**Auto**	11	100	111	532	97	629	103	405	508	646	602	1,248
	Taxi	8	16	24	46	8	54	16	41	57	70	65	135
	Subway	82	565	647	760	126	886	560	2,206	2,766	1,402	2,897	4,299
	LIRR	5	94	99	118	26	144	25	360	385	148	480	628
	Bus	16	61	77	32	6	38	39	201	240	87	268	355
	Walk	196	225	421	41	7	48	239	328	567	476	560	1,036
	Total	318	1,061	1,379	1,529	270	1,799	982	3,541	4,523	2,829	4,872	7,701
Pre-game (7-8 PM)	**Auto**	8	25	33	4,651	48	4,699	90	118	208	4,749	191	4,940
	Taxi	3	5	8	401	4	405	9	11	20	413	20	433
	Subway	48	142	190	6,642	63	6,705	474	637	1,111	7,164	842	8,006
	LIRR	6	23	29	1,029	13	1,042	27	90	117	1,062	126	1,188
	Bus	7	16	23	281	3	284	29	54	83	317	73	390
	Walk	63	69	132	361	4	365	106	104	210	530	177	707
	Total	135	280	415	13,365	135	13,500	735	1,014	1,749	14,235	1,429	15,664
Post-game (10-11 PM)	**Auto**	2	4	6	53	5,438	5,491	40	14	54	95	5,456	5,551
	Taxi	1	1	2	5	454	459	4	2	6	10	457	467
	Subway	10	22	32	76	7,074	7,150	203	74	277	289	7,170	7,459
	LIRR	1	3	4	12	1,454	1,466	6	11	17	19	1,468	1,487
	Bus	1	2	3	3	318	321	10	6	16	14	326	340
	Walk	20	21	41	4	409	413	43	24	67	67	454	521
	Total	35	53	88	153	15,147	15,300	306	131	437	494	15,331	15,825
Saturday (1-2 PM)	**Auto**	7	5	12	5,346	54	5,400	62	60	122	5,415	119	5,534
	Taxi	9	7	16	401	4	405	12	11	23	422	22	444
	Subway	62	50	112	5,881	59	5,940	185	172	357	6,128	281	6,409
	LIRR	0	0	0	1,069	11	1,080	3	3	6	1,072	14	1,086
	Bus	17	13	30	267	3	270	29	25	54	313	41	354
	Walk	234	188	422	401	4	405	364	300	664	999	492	1,491
	Total	329	263	592	13,365	135	13,500	655	571	1,226	14,349	969	15,318
Saturday (4-5 PM)	**Auto**	6	11	17	61	6,059	6,120	64	79	143	131	6,149	6,280
	Taxi	7	9	16	5	454	459	10	12	22	22	475	497
	Subway	53	85	138	67	6,665	6,732	188	277	465	308	7,027	7,335
	LIRR	1	5	6	12	1,212	1,224	6	20	26	19	1,237	1,256
	Bus	12	17	29	3	303	306	22	31	53	37	351	388
	Walk	173	213	386	5	454	459	246	287	533	424	954	1,378
	Total	252	340	592	153	15,147	15,300	536	706	1,242	941	16,193	17,134

This table has been revised for the FEIS.

As shown in Table 12-13, the total number of person trips generated in 2010 by the residential mixed-use variation (inbound and outbound combined) would range from 3,038 in the AM peak hour to 17,692 in the Saturday 4-5 PM post-game peak hour. The commercial mixed-use variation would generate from 4,853 peak hour person trips (in the AM) to 17,134 (in the Saturday 4-5 PM post-game). The commercial mixed-use variation would generate 1,815 more trips than the residential mixed-use variation project in the weekday AM peak hour, 2,811 more trips in the midday, and 2,099 more trips in the PM peak hour. By contrast, the residential mixed-use variation would generate 540 more person trips than the commercial mixed-use variation during the Saturday 1-2 PM pre-game peak hour, and 558 more trips in the Saturday 4-5 PM post-game peak hour. During the weekday 7-8 PM pre-game and 10-11 PM post-game periods, the travel demand from the two variations would differ by roughly one percent (fewer than 200 trips).

The numbers of peak hour vehicle trips that would be generated by the residential mixed-use variation and the commercial mixed-use variation are also summarized in Table 12-13, and are shown in detail in Tables 12-14 and 12-15, respectively. As was the case for person trips, the commercial mixed-use variation would generate more vehicle trips (from 11 to 164 more, comparatively) in the AM, midday and PM peak hours, while the residential mixed-use variation would generate a higher number of trips in the Saturday pre-game and post-game peak hours (134 more in each period). During the weekday 7-8 PM pre-game and 10-11 PM post-game periods, the number of vehicle trips generated by the two variations are virtually the same, differing by roughly one percent (30 trips in each period).

As demonstrated by the data in Table 12-13, in 2010 the commercial mixed-use variation would generate a substantially higher level of total travel demand (from 37 to 66 percent higher) compared with the residential mixed-use variation in the key weekday AM, midday and PM peak hours. During the weekday 7-8 PM and 10-11 PM periods, the demand from the two variations would be roughly equivalent, differing by approximately one percent. By contrast, on Saturdays the residential mixed-use variation would generate approximately three percent more trips than the commercial mixed-use variation during the 1-2 PM and 4-5 PM peak hours. The commercial mixed-use variation was therefore selected as the RWCS for the weekday traffic analyses, while the residential mixed-use variation is analyzed as the RWCS for the two Saturday peak hours. As discussed later in this chapter, the comparative levels of parking demand generated by the two project variations exhibit greater fluctuation by peak hour than is the case for overall travel demand. The parking analyses therefore examine conditions for both the residential mixed-use variation and the commercial mixed-use variation.

As shown in Table 12-15, in 2010 the commercial mixed-use variation is expected to add between 179 and 2,382 autos to the study area street system in each weekday peak hour, and from 60 to 392 new taxi trips. Peak hour truck trips would increase from six to 38 in each weekday peak hour. In general, the highest numbers of new weekday vehicle trips would occur during the 7-8 PM (pre-game) and 10-11 PM (post-game) peak hours, primarily as a result of demand en route to and from the arena. As shown in Table 12-14, on Saturdays, the residential mixed-use variation (the RWCS for the Saturday analyses) would add an estimated 2,188 auto, 334 taxi, and six truck trips to the street system in the 1-2 PM peak hour, and 2,459 auto, 388 taxi, and no truck trips in the 4-5 PM peak hour in 2010.

Table 12-13
Comparison of 2010 Peak Hour Travel
Residential Variation vs. Commercial Variation

Peak Hour	Residential Variation	Commercial Variation	Net Difference	Percent Difference
Person Trips				
8-9 AM	3,038	4,853	(1,815)	(60)
12-1 PM (midday)	4,249	7,060	(2,811)	(66)
5-6 PM	5,602	7,701	(2,099)	(37)
7-8 PM (pre-game)	15,560	15,664	(104)	(1)
10-11 PM (post-game)	16,023	15,825	198	1
Saturday 1-2 PM	15,858	15,318	540	3
Saturday 4-5 PM	17,692	17,134	558	3
Vehicle Trips (Auto/Taxi/Truck)				
8-9 AM	392	531	(139)	(35)
12-1 PM (midday)	310	321	(11)	(4)
5-6 PM	679	843	(164)	(24)
7-8 PM (pre-game)	2,575	2,545	30	1
10-11 PM (post-game)	2,810	2,780	30	1
Saturday 1-2 PM	2,528	2,394	134	5
Saturday 4-5 PM	2,847	2,713	134	5
Transit Trips (Subway/Bus/LIRR)				
8-9 AM	2,086	3,689	(1,603)	(77)
12-1 PM (midday)	1,496	1,623	(127)	(8)
5-6 PM	3,427	5,282	(1,855)	(54)
7-8 PM (pre-game)	9,406	9,584	(178)	(2)
10-11 PM (post-game)	9,420	9,286	134	1
Saturday 1-2 PM	8,146	7,849	297	4
Saturday 4-5 PM	9,165	8,979	186	2

Table 12-14

TRAVEL DEMAND FORECAST FOR THE RESIDENTIAL MIXED-USE VARIATION - 2010
(VEHICLE TRIPS)

		Site 5			Arena Block								
		Residential/ Office/Local Retail			Arena			Residential/ Office/Hotel/Local Retail			Total Trips		
Peak Hour Vehicle Trips		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	7	24	31	51	2	53	95	135	230	153	161	314
	Taxi [1]	3	3	6	3	3	6	16	16	32	22	22	44
	Truck	2	2	4	4	4	8	11	11	22	17	17	34
	Total	**12**	**29**	**41**	**58**	**9**	**67**	**122**	**162**	**284**	**192**	**200**	**392**
MD (12-1 PM)	**Auto**	12	12	24	21	34	55	62	57	119	95	103	198
	Taxi [1]	12	12	24	4	4	8	25	25	50	41	41	82
	Truck	2	2	4	4	4	8	9	9	18	15	15	30
	Total	**26**	**26**	**52**	**29**	**42**	**71**	**96**	**91**	**187**	**151**	**159**	**310**
PM (5-6 PM)	**Auto**	25	15	40	227	41	268	134	139	273	386	195	581
	Taxi [1]	8	8	16	16	16	32	22	22	44	46	46	92
	Truck	0	0	0	1	1	2	2	2	4	3	3	6
	Total	**33**	**23**	**56**	**244**	**58**	**302**	**158**	**163**	**321**	**435**	**244**	**679**
Pre-Game (7-8 PM)	**Auto**	19	9	28	1,979	21	2,000	112	65	177	2,110	95	2,205
	Taxi [1]	2	2	4	165	165	330	17	17	34	184	184	368
	Truck	0	0	0	0	0	0	1	1	2	1	1	2
	Total	**21**	**11**	**32**	**2,144**	**186**	**2,330**	**130**	**83**	**213**	**2,295**	**280**	**2,575**
Post-Game (10-11 PM)	**Auto**	10	1	11	23	2,314	2,337	59	5	64	92	2,320	2,412
	Taxi [1]	1	1	2	192	192	384	5	5	10	198	198	396
	Truck	0	0	0	0	0	0	1	1	2	1	1	2
	Total	**11**	**2**	**13**	**215**	**2,506**	**2,721**	**65**	**11**	**76**	**291**	**2,519**	**2,810**
Saturday (1-2 PM)	**Auto**	18	17	35	1,944	20	1,964	96	93	189	2,058	130	2,188
	Taxi [1]	8	8	16	137	137	274	22	22	44	167	167	334
	Truck	0	0	0	2	2	4	1	1	2	3	3	6
	Total	**26**	**25**	**51**	**2,083**	**159**	**2,242**	**119**	**116**	**235**	**2,228**	**300**	**2,528**
Saturday (4-5 PM)	**Auto**	17	18	35	22	2,203	2,225	99	100	199	138	2,321	2,459
	Taxi [1]	9	9	18	161	161	322	24	24	48	194	194	388
	Truck	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**26**	**27**	**53**	**183**	**2,364**	**2,547**	**123**	**124**	**247**	**332**	**2,515**	**2,847**

Notes:
[1] Balanced taxi trips shown.

This table has been revised for the FEIS.

Table 12-15

TRAVEL DEMAND FORECAST FOR THE COMMERCIAL MIXED-USE VARIATION - 2010 (VEHICLE TRIPS)

		Site 5			Arena Block								
		Office/Local Retail			Arena			Residential/Office/ Local Retail			**Total Trips**		
Peak Hour Vehicle Trips		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	59	3	62	51	2	53	238	80	318	348	85	433
	Taxi [(1)]	6	6	12	3	3	6	21	21	42	30	30	60
	Truck	3	3	6	4	4	8	12	12	24	19	19	38
	Total	**68**	**12**	**80**	**58**	**9**	**67**	**271**	**113**	**384**	**397**	**134**	**531**
MD (12-1 PM)	**Auto**	10	13	23	21	34	55	46	55	101	77	102	179
	Taxi [(1)]	17	17	34	4	4	8	32	32	64	53	53	106
	Truck	3	3	6	4	4	8	11	11	22	18	18	36
	Total	**30**	**33**	**63**	**29**	**42**	**71**	**89**	**98**	**187**	**148**	**173**	**321**
PM (5-6 PM)	**Auto**	6	69	75	227	41	268	83	291	374	316	401	717
	Taxi [(1)]	12	12	24	18	18	36	27	27	54	57	57	114
	Truck	1	1	2	1	1	2	4	4	8	6	6	12
	Total	**19**	**82**	**101**	**246**	**60**	**306**	**114**	**322**	**436**	**379**	**464**	**843**
Pre-Game (7-8 PM)	**Auto**	5	17	22	1,979	21	2,000	72	87	159	2,056	125	2,181
	Taxi [(1)]	3	3	6	165	165	330	11	11	22	179	179	358
	Truck	1	1	2	0	0	0	2	2	4	3	3	6
	Total	**9**	**21**	**30**	**2,144**	**186**	**2,330**	**85**	**100**	**185**	**2,238**	**307**	**2,545**
Post-Game (10-11 PM)	**Auto**	1	2	3	23	2,314	2,337	32	10	42	56	2,326	2,382
	Taxi [(1)]	0	0	0	193	193	386	3	3	6	196	196	392
	Truck	1	1	2	0	0	0	2	2	4	3	3	6
	Total	**2**	**3**	**5**	**216**	**2,507**	**2,723**	**37**	**15**	**52**	**255**	**2,525**	**2,780**
Saturday (1-2 PM)	**Auto**	3	2	5	1,944	20	1,964	50	49	99	1,997	71	2,068
	Taxi [(1)]	7	7	14	141	141	282	12	12	24	160	160	320
	Truck	0	0	0	2	2	4	1	1	2	3	3	6
	Total	**10**	**9**	**19**	**2,087**	**163**	**2,250**	**63**	**62**	**125**	**2,160**	**234**	**2,394**
Saturday (4-5 PM)	**Auto**	3	6	9	22	2,203	2,225	51	62	113	76	2,271	2,347
	Taxi [(1)]	7	7	14	164	164	328	12	12	24	183	183	366
	Truck	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**10**	**13**	**23**	**186**	**2,367**	**2,553**	**63**	**74**	**137**	**259**	**2,454**	**2,713**

Notes:

[(1)] Balanced taxi trips shown.

This table has been revised for the FEIS.

TRIP ASSIGNMENT

PROJECT-GENERATED TRAFFIC

The assignment of auto and taxi trips for the proposed project's office, residential, and hotel uses was based on data from the 2000 Census, while the assignment for the arena component was based on data from both the Downtown Brooklyn Development project and the expected geographical distribution of demand to the arena. Given the differences in their travel demand characteristics, each project component has a unique trip assignment pattern. For example, a majority of the auto trips generated by the residential and hotel components are expected to have endpoints in Manhattan and Brooklyn, while office trips are expected to be more widely dispersed among all five boroughs, as well as suburban locations such as Long Island. The arena is expected to draw heavily not only from Brooklyn, Queens, and Manhattan, but also from New Jersey and Long Island. As previously discussed, separate assignments for trips arriving and departing the arena on weekdays are assumed to reflect the fact that on weekdays some spectators would likely travel to the arena from their workplaces, and then depart to residences in a different borough or county at the conclusion of a game. As the project's retail component is expected to consist primarily of local retail uses serving the surrounding worker and residential populations, all of its trips are expected to be Brooklyn-based.

Auto and taxi trips have been assigned to the primary corridors providing access to and from the project site based on their origin or destination as well as the most direct routes to major access points such as the BQE and the Brooklyn and Manhattan bridges. Truck trips en route to and from the site have been assigned to designated local and through truck routes in Downtown Brooklyn. These include Atlantic, Flatbush, 3rd and 4th Avenues, and portions of 5th Avenue and Bergen Street. The assignments of auto, taxi, and truck trips within Downtown Brooklyn take into account changes to the study area traffic network that are expected to occur by the 2010 Build year as a result of No Build developments and initiatives by DOT and other agencies.

Auto trips destined to or from the proposed project's residential, office, retail, and hotel components were assigned to the on-site parking garages that would be provided as part of the proposed project. As discussed below, it is anticipated that sufficient capacity would be provided in these facilities to accommodate all non-arena demand. Approximately 1,100 parking spaces would also be available on-site to accommodate the parking needs of the arena, while the remaining arena demand (totaling approximately 1,400 spaces on both weekdays and weekends) would be accommodated at other public off-street facilities located in the vicinity. The assignment of arena auto trips reflects this distribution of trips to both on-site parking facilities and directly to off-site parking facilities.

Figures showing the assignment of 2010 project increment vehicle trips to the study area street system in each peak hour are provided in Appendix C. The weekday assignments reflect trips generated by the commercial mixed-use variation (the RWCS for the weekday peak hours), while the assignments for the Saturday peak hours reflect the trips generated by the residential mixed-use variation (the RWCS for Saturday).

TRAFFIC DIVERTED BY NETWORK CHANGES

In addition to generating new travel demand by autos, taxis, and trucks, permanent roadway closures and changes in street direction associated with both the proposed project's residential mixed-use and commercial mixed-use variations would alter traffic flows in the vicinity of the

project site in the 2010 future with the proposed project. These changes, described previously, would include the permanent closure of Pacific Street between Flatbush and 6th Avenues, and between Carlton and Vanderbilt Avenues; the permanent closure of 5th Avenue between Flatbush and Atlantic Avenues; the conversion of 6th Avenue from one-way southbound to two-way operation between Atlantic and Flatbush Avenues; the conversion of Carlton Avenue from one-way northbound to two-way operation between Atlantic Avenue and Pacific Street; and the conversion of Pacific Street from one-way westbound to two-way operation between Flatbush and 4th Avenues. The analysis of 2010 Build traffic conditions assumes that 2010 No Build traffic diverted off of 5th Avenue would be distributed among parallel north-south corridors, including 4th, Flatbush, and 6th Avenues. As the segments of Pacific Street that would be closed are used mainly for access to adjacent land uses, the diversions that would result from these closures would affect primarily streets within the immediate vicinity of the project site. The project increment traffic assignments shown in the figures provided in Appendix C also reflect the diversion of 2010 No Build traffic that would result from these project-related changes to the street network.

VEHICULAR TRAFFIC

Figures showing the 2010 Build traffic networks for the seven analyzed peak hours are provided in Appendix C. The volumes shown are the combination of the 2010 No Build traffic network with the incremental traffic generated (or diverted) under the commercial mixed-use variation (for the weekday peak hours) or the residential mixed-use variation (for the Saturday peak hours).

IMPACT ANALYSIS

The results of the analysis of 2010 Build conditions at analyzed study area intersections are summarized in Table 12-16, while the v/c ratios, delays and levels of service at all analyzed intersections in the 2010 future with the proposed project are provided in Table C-4 in Appendix C. The identification of significant adverse traffic impacts at analyzed intersections is based on criteria presented in the *CEQR Technical Manual* and discussed earlier in this chapter in Section C, "Methodology." As shown in Table 12-16, of the 93 intersections analyzed, a total of 58 would have significant adverse impacts in one or more peak hours with development of Phase I of the proposed project in 2010. All of these significant adverse impacts would occur at signalized intersections. The Saturday 4-5 PM post-game peak hour would have the highest number of impacted intersections with 46, followed by the weekday 7-8 PM pre-game and Saturday 1-2 PM pre-game peak hours with 34 impacted intersections each. There would be 27 impacted intersections in the weekday AM peak hour, 15 in the midday and 32 in the weekday PM peak hour. The weekday 10-11 PM peak hour would have the fewest number of impacted intersections under 2010 Build conditions with 13. Although the Saturday pre- and post-game peak hours would have among the highest numbers of significant adverse impacts, it is important to note that these conditions would occur fewer than four times per year when a Saturday afternoon Nets basketball game would be scheduled. (Other events that would occur at the proposed arena on a Saturday afternoon—the circus for example—would typically attract substantially fewer spectators than would a Nets basketball game).

Intersections with one or more movements operating over capacity (i.e., a v/c ratio of 1.0 or greater) would total 33 in the weekday AM peak hour (compared with 28 in the 2010 No Build), 15 in the midday (11 No Build), 37 in the PM (31 No Build), 30 in the 7-8 PM pre-game (14 No Build) and four in the 10-11 PM post-game peak hour (three No Build). During the Saturday

peak hours, intersections operating over capacity would total 29 and 40 during the 1-2 PM pre-game and 4-5 PM post-game periods, respectively, compared with 20 and 24 during these periods, respectively, in the 2010 No Build. Based on the number of intersections with one or more movements operating over capacity, conditions during the weekday 7-8 PM pre-game and Saturday pre- and post-game periods on days when a Nets basketball game is scheduled at the arena would be comparable in many respects to conditions experienced during the weekday AM and PM commuter peak hours.

The following provides a discussion of the impacted locations by corridor. The potential for queuing and spill-back along the principal arterials serving the project site (Flatbush, Atlantic and 4th Avenues) as well as along Vanderbilt Avenue and at the intersection of Adams and Tillary Streets is also discussed. Measures to mitigate traffic impacts are presented in Chapter 19, "Mitigation."

Flatbush Avenue

As shown in Table 12-16, a total of 13 intersections out of 18 analyzed along the Flatbush Avenue corridor would be significantly adversely impacted in one or more peak hours in 2010. Impacts would occur on northbound and/or southbound Flatbush Avenue in all peak hours, and at all of these locations with the exceptions of Atlantic Avenue, 6th Avenue, and St. Mark's Place. One or more movements on Atlantic Avenue would be impacted approaching Flatbush Avenue in the weekday AM, PM, 7-8 PM pre-game and Saturday 4-5 PM post-game periods, while the Dean Street approach to Flatbush Avenue would be impacted in all seven analyzed peak hours.

As previously discussed, future queuing can occur when a movement operates substantially over capacity, and such queuing may potentially affect both upstream and downstream intersections along a corridor. In the 2010 Build condition, over-capacity conditions that may potentially result in queuing and spill-back along Flatbush Avenue would primarily occur during the weekday and Saturday pre-game and post-game peak hours. Approaches that may experience queuing and spill-back during these periods include the southbound approaches at Fulton and Dean Streets, and the northbound and southbound approaches at Myrtle Avenue. Overall, Flatbush Avenue may experience queuing and spill-back on one or both approaches at three intersections in one or more peak hours in the 2010 Build condition, compared with one intersection in the 2010 No Build.

Atlantic Avenue

A total of 17 intersections out of 22 analyzed along the Atlantic Avenue corridor would be significantly adversely impacted in one or more peak hours in 2010. As shown in Table 12-16, there would be impacts to the eastbound and/or westbound Atlantic Avenue approach in at least one peak hour at each of these locations.

The eastbound approach at 4th Avenue would be impacted in all but the weekday AM peak hour, while the westbound left-turn at S. Portland Avenue would be impacted in all but the weekday 10-11 PM post-game peak hour. There would be one or more impacts to Atlantic Avenue at Flatbush Avenue in the weekday AM, PM, 7-8 PM pre-game and Saturday 4-5 PM post-game periods. Both 4th Avenue and S. Portland Avenue would be impacted approaching Atlantic Avenue in all but the weekday 10-11 PM post-game period. There would also be impacts at the intersection of Atlantic and Vanderbilt Avenues in all but the weekday 10-11 PM peak hour. Impacts on Atlantic Avenue would be primarily to the left-turn movements, while impacted movements on Vanderbilt Avenue would include the northbound left-turn movement in the AM, PM, and both Saturday peak hours.

Table 12-16
Summary of Impacted Intersections—2010 Build Conditions

Signalized Intersection		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Flatbush Ave at	Tillary Street			❶①	❶①		①	①
	Myrtle Ave		❷		❷	❷	❸	❶
	Willoughby Street			①			❶	
	DeKalb Ave				❶			①
	Fulton Street			❶	❷	❷	❷	❶
	Lafayette Street	❶		❷	❶	❷		
	4th Ave		❶	❶	❶		❶	❶
	Atlantic Ave	①		①	①			②
	5th Ave				❶		❶	
	Dean Street	①	①	①	❶①	①	❶①	❶①
	6th Ave	①						②
	St. Mark's Place	①					①	
	Sterling Place						❶	
Atlantic Ave at	Hicks Street	❶						❶
	Clinton Street							❶
	Court Street							❶
	Boerum Place		❶				❶	❶
	Smith Street	❷	❶	①	❶		❶①	❷①
	Hoyt Street			❶	❶		❶	❶
	Bond Street	❷			❶		❶	❷
	Nevins Street	❶		❶			❶	❶
	3rd Ave	❶						❶
	4th Ave	①	❶①	❶①	❶①	❶	❶①	❶②
	S. Portland Ave	❶①	❶①	❶①	❶①		❶②	❷②
	Carlton Ave			❶	❶		❶	
	Clermont Ave	❶						
	Vanderbilt Ave	❷②	❷	❶①	❶		❸①	❷①
	Washington/Underhill Aves	❶①	①	①	①		①	①
	Grand Ave							❶
3rd Ave at	Dean Street			①	①		①	①
4th Ave at	Pacific Street	❷		①	①		①	①
	Dean Street	❶			①		①	①
	Bergen Street	❶	①	①	①		①	①
	St. Mark's Place	❶						❶①
	Union Street			❶				①
5th Ave at	Dean Street	①	①	①	❶①		❶①	❶①
	Bergen Street	①	①	①	①	①	①	①
	Union Street						❶	
6th Ave at	Dean Street				①	①	②	②
Carlton Ave at	Myrtle Ave					❶		
	Fulton Street			❶			❶	❶
	Pacific Street							❶
	Dean Street			①	①		①	①
	Bergen Street	①						①

Table 12-16 (cont'd)
Summary of Impacted Intersections—2010 Build Conditions

Signalized Intersection		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Vanderbilt Ave at	Park Ave							❶
	Myrtle Ave	❷	❶	❷	❷	❶		❶
	DeKalb Ave	❶		❷	❶			
	Fulton Street				❶		❶	❶
	Dean Street	①	①	①	①	①	①	①
	Bergen Street	❶①		❶	①		①	❶
	St. Mark's Place			❶				
	Prospect Place			❶				
Underhill Ave at	Dean Street							①
Washington Ave at	Dean Street	①	①	①	①	①	①	①
	Eastern Parkway			❶	❶			❶
Adams Street at	Tillary Street			❷	❶	❶	❷①	❷①
Boerum Place	Livingston Street				❶	①		①
Smith Street at	Dean Street							①

Notes:
● number of movements on the major street approaches with significant adverse impacts in the peak hour.
○ number of movements on the minor street approaches with significant adverse impacts in the peak hour.

In the 2010 Build, over-capacity conditions that may potentially result in future queuing and spill-back along Atlantic Avenue would primarily occur during the weekday pre-game and Saturday pre-game and post-game peak hours. Approaches that may experience future queuing and spill-back because of over-capacity conditions during these periods include the eastbound approaches at Smith and Bond Streets, and 4th Avenue, and the westbound approaches at Boerum Place; Court, Hoyt, Bond, and Nevins Streets; and 3rd Avenue. Overall, Atlantic Avenue may experience queuing and spill-back on one or both approaches at eight intersections in one or more peak hours in the 2010 Build condition, compared with no intersections in the 2010 No Build.

4th Avenue

A total of seven analyzed intersections along 4th Avenue would be significantly adversely impacted in one or more peak hours in the 2010 Build condition. At Atlantic Avenue, the 4th Avenue approach would be impacted in all but the weekday 10-11 PM post-game peak hour, while Atlantic Avenue would be impacted in all but the weekday AM. Flatbush Avenue would be impacted at 4th Avenue in all but the weekday 8-9 AM and 10-11 PM post-game peak hours. At least one approach on 4th Avenue would be impacted at Pacific Street (in the weekday AM peak hour), Dean Street (weekday AM), Bergen Street (weekday AM), St. Mark's Place (weekday 8-9 AM), and Union Street (weekday PM). The Bergen Street approach to 4th Avenue would be impacted in all but the weekday AM and 10-11 PM peak hours.

In the 2010 Build, over-capacity conditions that may potentially result in future queuing and spill-back along 4th Avenue would occur during the weekday AM peak hour when the northbound approaches at Pacific and Dean Streets would both be operating substantially over capacity. Neither of these approaches was identified as potential locations for future queuing or spill-back in the 2010 No Build condition.

5th Avenue

A total of four analyzed intersections along 5th Avenue would be significantly adversely impacted in one or more peak hours in the 2010 Build condition. Flatbush Avenue would be impacted at 5th Avenue in the weekday 7-8 PM pre-game and Saturday 1-2 PM pre-game peak hours. 5th Avenue would be impacted approaching Dean Street in the weekday 7-8 PM pre-game and both Saturday peak hours, as well as at Union Street in the Saturday 1-2 PM pre-game peak hour. The Bergen Street approach to 5th Avenue would be impacted in all peak hours, while the Dean Street approach would be impacted in all but the weekday 10-11 PM post-game peak hour.

6th Avenue/S. Portland Avenue

A total of three analyzed intersections along 6th Avenue/S. Portland Avenue would be significantly adversely impacted in one or more peak hours in the 2010 Build condition. Sixth Avenue would be impacted at Flatbush Avenue in the weekday AM and Saturday 4-5 PM post-game peak hours. Atlantic Avenue would be impacted at 6th Avenue/S. Portland Avenue in all but the weekday 10-11 PM post-game peak hour, as would at least one approach on 6th Avenue/S. Portland Avenue. Dean Street would be impacted approaching Sixth Avenue in the weekday 7-8 PM pre-game, 10-11 PM post-game and both Saturday peak hours.

Carlton Avenue

As shown in Table 12-16, a total of six analyzed intersections along Carlton Avenue (which would be used by project traffic en route to the BQE), would be significantly adversely impacted in one or more peak hours in the 2010 Build condition. There would be impacts to Carlton Avenue at one intersection in the weekday PM peak hour (Fulton Street), one intersection in the weekday 10-11 PM post-game peak hour (Myrtle Avenue), one intersection in the Saturday 1-2 PM pre-game peak hour (Fulton Street), and two intersections in the Saturday 4-5 PM post-game peak hour (Fulton and Pacific Streets). The Dean Street approach to Carlton Avenue would be impacted in the weekday PM, 7-8 PM pre-game, and both Saturday peak hours. Atlantic Avenue would be impacted approaching Carlton Avenue in the weekday PM, 7-8 PM pre-game, and Saturday 1-2 PM pre-game peak hours.

Vanderbilt Avenue

A total of nine analyzed intersections along Vanderbilt Avenue would be significantly adversely impacted in one or more peak hours in the 2010 Build condition. The northbound and/or southbound approach on Vanderbilt Avenue would be impacted in one or more peak hours at Park, Myrtle, DeKalb and Atlantic Avenues, at Fulton and Bergen Streets, and at St. Mark's Place and Prospect Place. Vanderbilt Avenue would be impacted at Atlantic Avenue in the weekday AM, PM, and both Saturday peak hours, and at Myrtle Avenue in all but the Saturday 1-2 PM pre-game peak hour. There would be no significant adverse impacts to either Vanderbilt Avenue approach at Dean Street; however, the Dean Street approach would be impacted in all peak hours. As was the case for the 2010 No Build condition, in the 2010 Build, over-capacity conditions that may potentially result in future queuing and spill-back would occur along northbound Vanderbilt Avenue from Park Place to Bergen Street (a total of four intersections) in the weekday AM peak hour, and along southbound Vanderbilt Avenue from Bergen Street to Park Place in the weekday PM peak hour.

Washington Avenue/Underhill Avenue

A total of four analyzed intersections along Washington and Underhill Avenues would be significantly adversely impacted in one or more peak hours in the 2010 Build condition. The northbound and/or southbound approach on Washington Avenue at Atlantic Avenue would be impacted in all but the weekday 10-11 PM post-game peak hour. At Eastern Parkway, Washington Avenue would be significantly adversely impacted in the weekday PM, 7-8 PM pre-game, and Saturday 4-5 PM post-game peak hours. At the intersection with Dean Street, there would be no significant adverse impacts to Washington Avenue in any peak hour; however, the Dean Street approach would be impacted in all peak hours. The Dean Street approach to Underhill Avenue would also be impacted in the Saturday 4-5 PM peak hour.

Dean Street/Bergen Street

As previously discussed, eastbound Dean Street and westbound Bergen Street would function as an east-west couplet along the southern boundary of the project site. As shown in Table 12-16, a total of 10 analyzed intersections along eastbound Dean Street would be significantly adversely impacted in one or more peak hours in the 2010 Build condition. On weekdays, Dean Street would be impacted at four intersections in the AM peak hour, four in the midday, six in the PM, eight in the 7-8 PM pre-game, and four in the 10-11 PM post-game peak hour. On Saturdays, Dean Street would be impacted at eight intersections in the 1-2 PM pre-game peak hour and 10 intersections in the 4-5 PM post-game peak hour.

Westbound Bergen Street would be significantly adversely impacted in one or more peak hours at a total of four intersections. On weekdays, Bergen Street would be impacted at three intersections in the AM peak hour, two each in the midday and PM, three in the 7-8 PM pre-game, and one in the 10-11 PM post-game peak hour. On Saturdays, Bergen Street would be impacted at three intersections in each of the 1-2 PM pre-game and 4-5 PM post-game peak hours.

Other Corridors

In addition to the locations discussed above, the intersection of Adams and Tillary Streets would be significantly adversely impacted in all but the weekday AM and midday peak hours. As shown in Table 12-16, there would be impacts to the northbound and/or southbound Adams Street approach in all but the weekday AM and midday peak hours, while the eastbound and/or westbound Tillary Street approach would be impacted in the Saturday peak hours. Lastly, the intersection of Boerum Place and Livingston Street would be impacted in the weekday pre-game and post-game peak hours and the post-game peak hour on Saturdays.

As noted previously, the traffic impact analyses follow the *CEQR Technical Manual* definitions and criteria. It should also be noted, however, that when an intersection is very congested under No Build conditions, the addition of relatively few project vehicles would result in a significant adverse impact under these criteria. As an example, approximately one new vehicle every ten minutes would constitute a significant adverse impact on a congested (LOS F, v/c ratio > 1.05) local street in the peak hour, while an arterial which operates under heavy (though not congested) conditions at LOS D, could accommodate as much as one new vehicle per minute before exceeding the CEQR impact threshold. Therefore, the impacted intersections shown in Table 12-16 (and in Table 12-32 for 2016 Build conditions) represent a wide range of conditions with respect to additional traffic. Further, at several of the intersections near the project site, project-generated pedestrians in the crosswalks also contribute to vehicle delays and traffic impacts independent of project-generated traffic. Lastly, impacts are also a function of changes

in the capacity of an intersection, also independent of project-generated traffic. As an example, weekend parking regulations on the principal arterials reduce capacity resulting in congested conditions and impacts that may not have occurred if commuter peak hour regulations were in effect. Given the broad number of variables that can contribute to the creation of significant adverse traffic impacts, Chapter 19 describes an equally broad range of mitigation measures to address these variables to the maximum extent practicable.

BICYCLE FACILITIES

With development of Phase I of the proposed project, a bicycle station would be provided on the arena block in ground floor space along the 6th Avenue corridor. This bicycle station would be a secured, staffed facility providing storage for 400 bicycles. At this location, it would be conveniently situated next to the arena and easily accessible from the bicycle lanes on Dean and Bergen Streets. As currently contemplated, this facility would occupy approximately 4,000 square feet of space including 3,000 square feet of storage space for bicycles and 300 square feet for amenities such as lockers, restrooms and a security desk. In addition, an approximately 700-square-foot bicycle repair and accessory retail shop would be incorporated into the facility to provide services to both users of the bicycle station and the surrounding community.

As discussed later in this chapter, with full build-out of the proposed project by 2016, new bike paths through portions of the project's open space would be provided east of 6th Avenue to improve the connection between DOT's planned north-south bike lanes along Cumberland Street/Washington Park and Carlton Avenue, and the existing pair of east-west bike lanes along Dean and Bergen Streets. However, these proposed on-street bike paths would not be implemented until construction of the Phase II residential buildings and open space, and they would therefore not be available to bicyclists in the 2010 Build condition.

With development of Phase I of the proposed project by 2010, the project's commercial components would be fully built-out and would likely generate some new commuter trips by bicycle, primarily during the weekday 8-9 AM and 5-6 PM peak periods. The project's residential components (most of which would not be implemented until Phase II of the proposed project in 2016) would likely generate some new commuter trips by bicycle in the weekday peak commuter periods, as well as recreational and discretionary trips during other weekday periods and on weekends. Events at the arena would also likely generate some new bicycle trips, especially for afternoon events on weekends during warm weather months. However, an event such as a Nets basketball game on a weekday evening would likely generate fewer numbers of new bicycle trips as it would typically end after dark (between 10 PM and 11 PM). It should also be noted that the basketball season begins in November and continues through the winter months when inclement weather would make the bicycle mode a less attractive travel option.

Much of the bicycle demand generated by the proposed project is expected to utilize the east-west on-street bike lanes located immediately to the south of the project site on Dean and Bergen Streets, and the north-south bike lanes planned by DOT for Carlton Avenue and Cumberland Street/Washington Park. Permanent street closures and changes in street directions associated with the proposed project (all of which would be implemented by 2010) would not occur along any street segment with an existing or planned on-street bike lane or along a bicycle route recommended under the City's *Bicycle Network Development Program*. The proposed project would, however, generate new vehicular traffic along many study area roadways, including those used by bicyclists. Some traffic displaced as a result of project-related changes to the street system would also likely divert to streets used by bicyclists.

ACCIDENTS

With completion of Phase I in 2010, the proposed project would increase vehicular, pedestrian, and bicycle traffic at many intersections in the vicinity of the project site, increasing the potential for conflicts and accidents. (Further increases in travel demand would occur by 2016.) However, the proposed project would incorporate a number of design features that would enhance overall safety. Those features expected to be implemented by 2010, would include:

- The closure of the segment of 5th Avenue traversing the arena block which would eliminate two pedestrian crossings—the south crosswalk on 5th Avenue at Atlantic Avenue, and the north crosswalk on 5th Avenue at Flatbush Avenue;
- The reconfiguration of Atlantic Avenue adjacent to the project site to provide for three eastbound travel lanes which would eliminate the current awkward transition from three travel lanes to two as eastbound vehicles traverse the intersection with Flatbush Avenue;
- The proposed 8-foot-wide lay-by lane along the south curb of Atlantic Avenue adjacent to the project site which would eliminate conflicts caused by buses stopped in the traffic lane on eastbound Atlantic Avenue;
- The major new on-site entrance to the Atlantic Avenue/Pacific Street subway station complex which would eliminate the need for subway riders to negotiate the Atlantic Avenue/Flatbush Avenue intersection or cross Atlantic Avenue at other locations; and
- The installation of new high visibility crosswalks (crosswalks delineated by one-foot-wide stripes at a spacing of two feet on center perpendicular to the direction of travel) and improved lighting at key intersections adjacent to the project site.

The proposed project's potential effects with respect to accidents are discussed in more detail later in this chapter in the section on the 2016 Future with the Proposed Project. Additional potential improvements to key study area intersections are presented in Chapter 19, "Mitigation."

PARKING

OFF-STREET PARKING

Under Phase I of both the proposed project's residential and commercial variations, a total of 750 parking spaces would be provided in two on-site public parking garages. Approximately 400 spaces would be provided in a parking garage on Site 5, with two below-grade levels and an entrance midblock on Pacific Street. Approximately 350 additional spaces would be provided in a second two-level public parking garage located on the arena block beneath Buildings 2 and 3. (No parking would be provided beneath the arena itself.) The entrance to this facility would be located on Dean Street approximately 100 feet west of 6th Avenue. Both of these parking garages would be attended-park facilities, and would employ car-stackers. A further 1,596 public parking spaces would be provided in Phase I in three temporary parking lots: an approximately 182-space below-grade parking lot at the southwest quadrant of Block 1120 with access expected to be from 6th Avenue; an approximately 470-space at-grade parking lot midblock on the north side of Block 1120 with access from Atlantic Avenue; and an approximately 944-space at-grade parking lot on Block 1129 with access expected to be from both Carlton and Vanderbilt Avenues. The two temporary parking lots on Block 1120 would be attendant-park facilities with stackers, while the lot on Block 1129 would likely be an attendant-park facility with no stackers. Overall, the permanent and temporary public parking facilities developed in Phase I would provide a total of approximately 2,346 spaces to accommodate the parking demand generated by

the arena, office, residential, hotel and hotel uses that would be developed by 2010 under either the proposed project's residential mixed-use or commercial mixed-use variations. Approximately 1,100 of these on-site spaces would be available to accommodate a portion of the demand from the proposed arena. (Remaining arena demand would be accommodated at existing off-site parking facilities.) It is anticipated that many residential parkers would have reserved monthly spaces that would remain available for their use during arena events. In addition, it is anticipated that a system for reserving on-site parking at time of ticket purchase would be implemented to manage arena parking demand and further ensure that residential users would not be displaced. No existing public parking capacity would be displaced from the project site.

Tables 12-17 through 12-20 show the total estimated hourly parking demand by use that would be generated by the proposed project's residential mixed-use and commercial mixed-use variations on weekdays and on Saturdays in the 2010 Build condition. As shown in Tables 12-17 and 12-18, in 2010, the residential mixed-use variation would generate a total demand for approximately 818 parking spaces in the weekday AM (7 AM) and 697 spaces at midday. Peak project parking demand during a Nets basketball game would total approximately 3,270 spaces during a weekday evening game and 2,758 spaces for a Saturday afternoon game.

As shown in Tables 12-19 and 12-20, the commercial mixed-use variation would generate a total demand for approximately 408 parking spaces in the weekday AM and 840 spaces at midday. Peak project parking demand during a Nets basketball game would total approximately 2,874 spaces during a weekday evening game and 2,615 spaces for a Saturday afternoon game. The higher levels of weekday AM and evening game parking demand exhibited by the residential mixed-use variation reflect the higher demand for overnight residential parking under this variation. The higher level of weekday midday parking demand projected under the commercial mixed-use variation reflects commuter/visitor demand from this variation's larger office component.

Tables 12-21 and 12-22 show the 2010 off-street parking conditions with development of the proposed project's residential mixed-use and commercial mixed-use variations, respectively. As shown in Table 12-21, under the residential mixed-use variation, the number of available parking spaces in off-street parking facilities within ½-mile of the proposed arena would total 2,609 in the weekday AM, 1,887 in the midday, 883 during a weekday evening Nets basketball game, and 1,089 during a Saturday afternoon Nets game. As shown in Table 12-22, under the commercial mixed-use variation, the number of available spaces would total 3,019, 1,744, 1,279, and 1,232 during these periods, respectively. This compares to 1,081 spaces available in the weekday AM, 238 in the midday, 1,807 during a weekday evening Nets basketball game, and 1,501 during a Saturday afternoon Nets game in the 2010 No Build. The higher numbers of parking spaces available in the weekday AM and midday periods under both variations compared with the 2010 No Build condition reflect, in part, arena parking that would typically be available for other uses during these periods.

Under both variations, the proposed project would include sufficient off-street parking capacity in 2010 to fully accommodate all project-generated parking demand in the weekday AM and midday periods. During weekday evening and weekend afternoon Nets basketball games, sufficient parking capacity would be available both on-site and at existing public off-street facilities within ½-mile of the arena to accommodate all project demand. Under the residential mixed-use variation, the study area would continue to operate with 883 and 1,089 spaces available during these periods, respectively, after accommodating project demand. Under the commercial mixed-use variation, the numbers of spaces available within the study area during these periods would total 1,279 and 1,232, respectively. Therefore, no significant adverse impacts to off-street parking conditions would result from implementation of either of the proposed project's two variations.

Table 12-17
Weekday Hourly Parking Accumulation for the Proposed Project - 2010
Residential Variation

	Site 5				Arena Block						
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	**2010 Total**
12-1 AM	130	0	0	130	0	714	0	0	36	750	**880**
1-2	130	0	0	130	0	714	0	0	36	750	**880**
2-3	130	0	0	130	0	714	0	0	36	750	**880**
3-4	130	0	0	130	0	714	0	0	36	750	**880**
4-5	129	0	0	129	0	712	0	0	36	748	**877**
5-6	126	0	0	126	0	691	1	0	36	728	**854**
6-7	119	0	0	119	3	653	8	0	35	699	**818**
7-8	108	0	0	108	27	593	28	0	33	681	**789**
8-9	91	0	0	91	76	500	84	0	30	690	**781**
9-10	84	0	1	85	106	464	110	2	26	708	**793**
10-11	75	0	2	77	110	419	112	3	26	670	**747**
11-12	69	0	2	71	104	387	107	3	25	626	**697**
12-1 PM	69	0	2	71	91	389	104	3	31	618	**689**
1-2	67	0	2	69	102	380	108	3	29	622	**691**
2-3	66	0	2	68	109	376	111	3	19	618	**686**
3-4	70	0	3	73	111	398	111	3	21	644	**717**
4-5	74	0	3	77	108	415	91	3	22	639	**716**
5-6	84	0	3	87	294	470	28	3	25	820	**907**
6-7	95	0	1	96	501	522	16	2	23	1,064	**1,160**
7-8	105	0	1	106	2,459	578	4	2	26	3,069	**3,175**
8-9	111	0	0	111	2,517	610	2	1	29	3,159	**3,270**
9-10	119	0	0	119	2,426	656	1	0	32	3,115	**3,234**
10-11	128	0	0	128	135	707	0	0	36	878	**1,006**
11-12	130	0	0	130	0	714	0	0	36	750	**880**

This table has been revised for the FEIS.

Table 12-18
Saturday Hourly Parking Accumulation for the Proposed Project - 2010
Residential Variation

	Site 5				Arena Block						
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	**2010 Total**
12-1 AM	130	0	0	130	0	714	0	0	36	750	**880**
1-2	130	0	0	130	0	714	0	0	36	750	**880**
2-3	130	0	0	130	0	714	0	0	36	750	**880**
3-4	130	0	0	130	0	714	0	0	36	750	**880**
4-5	130	0	0	130	0	714	0	0	36	750	**880**
5-6	127	0	0	127	0	698	0	0	35	733	**860**
6-7	118	0	0	118	3	648	0	0	35	686	**804**
7-8	104	0	0	104	16	566	1	0	32	615	**719**
8-9	84	0	1	85	64	452	4	1	29	550	**635**
9-10	73	0	1	74	90	393	6	1	23	513	**587**
10-11	62	0	1	63	138	334	6	1	23	502	**565**
11-12	54	0	1	55	348	291	6	1	14	660	**715**
12-1 PM	37	0	1	38	500	200	6	2	33	741	**779**
1-2	37	0	2	39	2,424	200	6	3	35	2,668	**2,707**
2-3	39	0	3	42	2,461	212	7	4	32	2,716	**2,758**
3-4	49	0	3	52	2,382	267	7	4	14	2,674	**2,726**
4-5	49	0	2	51	201	267	5	3	16	492	**543**
5-6	75	0	2	77	86	415	1	3	18	523	**600**
6-7	92	0	1	93	26	510	0	3	21	560	**653**
7-8	110	0	0	110	0	609	0	1	22	632	**742**
8-9	122	0	0	122	0	673	0	0	26	699	**821**
9-10	127	0	0	127	0	698	0	0	31	729	**856**
10-11	129	0	0	129	0	708	0	0	35	743	**872**
11-12	130	0	0	130	0	714	0	0	36	750	**880**

This table has been revised for the FEIS.

Table 12-19
Weekday Hourly Parking Accumulation for the Proposed Project - 2010
Commercial Variation

	Site 5				Arena Block						
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	**2010 Total**
12-1 AM	0	0	0	0	0	402	0	0	0	402	**402**
1-2	0	0	0	0	0	402	0	0	0	402	**402**
2-3	0	0	0	0	0	402	0	0	0	402	**402**
3-4	0	0	0	0	0	402	0	0	0	402	**402**
4-5	0	0	0	0	0	401	0	0	0	401	**401**
5-6	0	1	0	1	0	390	2	0	0	392	**393**
6-7	0	8	0	8	3	367	30	0	0	400	**408**
7-8	0	29	0	29	27	333	108	0	0	468	**497**
8-9	0	85	0	85	76	281	318	0	0	675	**760**
9-10	0	111	1	112	106	260	422	1	0	789	**901**
10-11	0	112	2	114	110	234	429	2	0	775	**889**
11-12	0	107	2	109	104	216	409	2	0	731	**840**
12-1 PM	0	104	2	106	91	217	399	2	0	709	**815**
1-2	0	108	2	110	102	212	416	2	0	732	**842**
2-3	0	111	2	113	109	209	429	2	0	749	**862**
3-4	0	111	3	114	111	222	429	2	0	764	**878**
4-5	0	91	3	94	108	232	351	2	0	693	**787**
5-6	0	28	3	31	294	263	112	2	0	671	**702**
6-7	0	16	1	17	501	292	65	1	0	859	**876**
7-8	0	4	1	5	2,459	324	18	1	0	2,802	**2,807**
8-9	0	2	0	2	2,517	343	12	0	0	2,872	**2,874**
9-10	0	1	0	1	2,426	369	6	0	0	2,801	**2,802**
10-11	0	0	0	0	135	397	0	0	0	532	**532**
11-12	0	0	0	0	0	402	0	0	0	402	**402**

This table has been revised for the FEIS.

Table 12-20
Saturday Hourly Parking Accumulation for the Proposed Project - 2010 Commercial Variation

	Site 5				Arena Block						
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	**2010 Total**
12-1 AM	0	0	0	0	0	402	0	0	0	402	**402**
1-2	0	0	0	0	0	402	0	0	0	402	**402**
2-3	0	0	0	0	0	402	0	0	0	402	**402**
3-4	0	0	0	0	0	402	0	0	0	402	**402**
4-5	0	0	0	0	0	402	0	0	0	402	**402**
5-6	0	0	0	0	0	393	0	0	0	393	**393**
6-7	0	0	0	0	3	365	1	0	0	369	**369**
7-8	0	1	0	1	16	317	5	0	0	338	**339**
8-9	0	4	1	5	64	253	15	1	0	333	**338**
9-10	0	6	1	7	90	220	20	1	0	331	**338**
10-11	0	6	1	7	138	187	20	1	0	346	**353**
11-12	0	6	1	7	348	163	20	1	0	532	**539**
12-1 PM	0	6	1	7	500	112	20	2	0	634	**641**
1-2	0	6	2	8	2,424	112	20	3	0	2,559	**2,567**
2-3	0	7	3	10	2,461	119	21	4	0	2,605	**2,615**
3-4	0	7	3	10	2,382	151	21	3	0	2,557	**2,567**
4-5	0	5	2	7	201	151	11	2	0	365	**372**
5-6	0	1	2	3	86	232	1	3	0	322	**325**
6-7	0	0	1	1	26	286	1	3	0	316	**317**
7-8	0	0	0	0	0	341	1	1	0	343	**343**
8-9	0	0	0	0	0	377	0	0	0	377	**377**
9-10	0	0	0	0	0	392	0	0	0	392	**392**
10-11	0	0	0	0	0	398	0	0	0	398	**398**
11-12	0	0	0	0	0	402	0	0	0	402	**402**

This table has been revised for the FEIS.

Table 12-21
Future With the Proposed Project Off-Street Parking Conditions - 2010
Residential Variation

Peak Period	2010 No Build Conditions			2010 Future with the Proposed Project					
	Total Capacity (1)	Estimated Demand (2)	Net Spaces Available	Existing Public Spaces Displaced (3)	New Spaces Provided (4)	Total Parking Capacity (5)	Project Increment Demand (6)	Total Parking Demand (6)	Net Spaces Available (5)
Weekday AM (7AM)	3,079	1,998	1,081	0	2,346	5,425	818	2,816	2,609
Weekday Midday (Noon)	3,079	2,841	238	0	2,346	5,425	697	3,538	1,887
Weekday Evening (7PM)	3,079	1,272	1,807	0	2,346	5,425	3,270	4,542	883
Saturday Midday (2PM)	2,984	1,483	1,501	0	2,346	5,330	2,758	4,241	1,089

Notes:

(1) Excludes 212 public spaces displaced by No Build development within 1/2-mile of the arena.

(2) Includes 0.5 percent/year background growth for the 2005 to 2010 period and demand from No Build sites.

(3) No public parking spaces displaced due to development on the project site.

(4) Includes 400 permanent spaces on Site 5, 350 permanent spaces on the Arena Block, 652 spaces of interim parking on Block 1120, and 944 spaces of interim parking on Block 1129.

(5) Includes spaces provided on-site and in public parking facilities within 1/2-mile of the arena.

(6) Weekday evening and Saturday midday demand includes peak demand from the proposed project during a Nets basketball game.

This table has been revised for the FEIS.

Table 12-22
Future With the Proposed Project Off-Street Parking Conditions - 2010
Commercial Variation

Peak Period	2010 No Build Conditions			2010 Future with the Proposed Project					
	Total Capacity (1)	Estimated Demand (2)	Net Spaces Available	Existing Public Spaces Displaced (3)	New Spaces Provided (4)	Total Parking Capacity (5)	Project Increment Demand (6)	Total Parking Demand (6)	Net Spaces Available (5)
Weekday AM (7AM)	3,079	1,998	1,081	0	2,346	5,425	408	2,406	3,019
Weekday Midday (Noon)	3,079	2,841	238	0	2,346	5,425	840	3,681	1,744
Weekday Evening (7PM)	3,079	1,272	1,807	0	2,346	5,425	2,874	4,146	1,279
Saturday Midday (2PM)	2,984	1,483	1,501	0	2,346	5,330	2,615	4,098	1,232

Notes:

(1) Excludes 212 public spaces displaced by No Build development within 1/2-mile of the arena.

(2) Includes 0.5 percent/year background growth for the 2005 to 2010 period and demand from No Build sites.

(3) No public parking spaces displaced due to development on the project site.

(4) Includes 400 permanent spaces on Site 5, 350 permanent spaces on the Arena Block, 652 spaces of interim parking on Block 1120, and 944 spaces of interim parking on Block 1129.

(5) Includes spaces provided on-site and in public parking facilities within 1/2-mile of the arena.

(6) Weekday evening and Saturday midday demand includes peak demand from the proposed project during a Nets basketball game.

This table has been revised for the FEIS.

ON-STREET PARKING

With development of Phase I of the proposed project in 2010, 5th Avenue would be permanently closed between Flatbush and Atlantic Avenues, and Pacific Street would be permanently closed between Flatbush and 6th Avenues, and between Carlton and Vanderbilt Avenues. These closures would result in the elimination of approximately 130 on-street parking spaces along Pacific Street. (There is no parking currently allowed along the segment of 5th Avenue that would be closed.) The proposed reconfiguration of Atlantic Avenue adjacent to the project site (described previously and shown in Figure 12-5a/b), would also require the reduction of the double-parking lane along the north curb of Atlantic Avenue between Fort Greene Place and S. Portland Avenue to a single 10-foot-wide parking lane. Further changes in operational conditions, such as the conversion from one-way to two-way operation of portions of Pacific Street and 6th and Carlton Avenues, would also require adjustments to on-street parking regulations that may affect the available on-street parking capacity in the vicinity of the project site during certain periods of the day. For example, the conversion of 6th Avenue to two-way operation would likely require the replacement of the angled parking of police vehicles along the east curb of 6th Avenue between Dean and Bergen Streets with parallel parking. As a result, the approximate number of spaces available for authorized police vehicle parking along this curb would be reduced from 24 spaces to 10. The parallel parking of police vehicles along the west curb on this block (approximately 10 spaces) would be displaced to accommodate two moving lanes for southbound traffic. The project sponsors would provide off-street parking within the project site for the up to 24 vehicles that would be displaced. Overall, excluding the reduction in police parking, a total of approximately 180 on-street parking spaces would be eliminated as a result of the proposed project. These would include approximately 99 spaces on or adjacent to the arena block, 77 spaces along Pacific Street adjacent to blocks 1121 and 1129, and four spaces along Pacific Street adjacent to Site 5 where a new parking lane with a capacity of approximately 13 spaces would replace approximately 17 existing spaces.

As discussed above, in 2010 the proposed project would include sufficient new off-street parking capacity to fully accommodate all project-generated parking demand during the weekday AM and midday peak periods, and there would be sufficient parking capacity available both on-site and in public off-street facilities within ½-mile of the proposed arena to fully accommodate all project demand during a weekday evening and a weekend afternoon Nets basketball game. However, it is expected that some drivers en route to the project site, especially those en route to an event at the arena, would choose to park on-street if spaces were available. It is therefore likely that during an event at the arena, much of the on-street parking capacity available in the immediate vicinity of the arena would be utilized by project-generated demand. Accounting for the reduction in on-street parking capacity as a result of project-related changes to the street network, the number of on-street parking spaces available to accommodate project demand within ¼ mile of the project site in 2010 would total approximately 1,672 in the weekday 5-6 PM peak hour, 2,999 in the weekday 7-8 PM peak hour, and 1,949 in the Saturday 1-2 PM peak hour.

In addition to general parking demand, the proposed project would generate new demand for curbside space for pick-up and drop-off activity by autos, taxis, and livery vehicles ("black cars"). This activity would be most concentrated during the weekday AM and PM peak commuter periods (for the project's residential and commercial components), and immediately prior to and following an event at the arena. To accommodate this demand, the proposed project would incorporate lay-by lanes adjacent to the arena block along Atlantic Avenue

(approximately 34 spaces), Flatbush Avenue (14 spaces), 6th Avenue (six spaces) and Dean Street (seven spaces). All of the proposed buildings would also incorporate sufficient off-street loading facilities to accommodate delivery and service vehicles.

As discussed above, sufficient off-street parking capacity would be available both on-site and at existing public off-street facilities to fully accommodate peak demand from either of the proposed project's two variations in 2010. Street closures and operational changes are expected to result in a reduction of approximately 180 on-street spaces (plus an additional 24 spaces of parking for police vehicles along 6th Avenue which would be relocated to parking facilities on the project site), and overall, on-street parking in the vicinity of the project site would likely be fully utilized during major events at the arena, such as a Nets basketball game. However, as sufficient off-street parking capacity would be available both on-site and at existing public off-street facilities to fully accommodate all project demand in all peak periods, no significant adverse impacts to parking conditions would result from implementation of the proposed project in 2010.

G. FUTURE WITHOUT THE PROPOSED PROJECT—2016

Through 2016, it is expected that traffic and parking demands in the study area will increase because of long-term background growth as well as the development of new office/commercial, residential, cultural, community facility, court, and retail space in Downtown Brooklyn. To forecast the 2016 future without the proposed project (the 2016 No Build condition), the principal land use study area development projects listed Table 2-1 and shown in Figure 2-1 in Chapter 2, "Procedural and Analytical Framework," were considered. In addition, several large development projects that are located outside of the study area but that are expected to add trips to study area intersections by 2016 were also considered. In addition to the projects that were considered for the analysis of 2010 conditions, the analysis of 2016 traffic and parking conditions conservatively includes all of the projected development sites for the Downtown Brooklyn Development project along with Brooklyn Bridge Park. Development of approximately 500,000 square feet of new industrial space has also been proposed for the Brooklyn Navy Yard by 2010. However, given its distance from the project site (over one mile) and its immediate proximity to the BQE, this proposed development is not expected to add appreciable numbers of trips to analyzed intersections, nor generate new parking demand in the vicinity of the project site. Additional projects were added as discrete No Build sites for the FEIS in response to recent information on new proposed developments, and agency and public comments on the DEIS. (A list of all discrete No Build sites considered in the transportation analyses is provided in Appendix C.) Overall, the 2016 No Build traffic and parking analyses consider a total of approximately 5.2 million square feet of new office/commercial space, 6,254 new dwelling units, 1.2 million sf of new retail space, and more than 2.4 million square feet of other uses including new cultural and community facility space, new court space, 504 new hotel rooms, and 85 acres of new park space.

In addition to demand from new developments, an annual background growth rate of 0.5 percent per year was applied to existing traffic and parking demand for the 2006 through 2016 period. This background growth rate, recommended in the *CEQR Technical Manual* for projects in Downtown Brooklyn, is applied to account for smaller projects, as-of-right developments not reflected in Table 2-1, and general increases in travel demand not attributable to specific development projects. Figures showing the resulting traffic volumes at study area intersections

in each analyzed peak hour in the 2016 future without the proposed project are provided in Appendix C.

The 2006 through 2016 period will likely see the implementation of a number of physical and operational changes to the study area street system as a result of new developments and initiatives by City agencies. In addition to those considered for the analysis of 2010 No Build conditions (and discussed previously), the 2016 No Build analysis considers the effects on study area intersections of DOT's proposed conversion of Furman Street from one-way southbound to two-way operation, as well as changes associated with the planned Brooklyn Bridge Park and the Downtown Brooklyn Development project. Along with adjustments to curbside parking regulations and changes to signal timing and phasing associated with these two projects, the following additional physical changes associated with the Downtown Brooklyn Development project have been incorporated in the 2016 No Build traffic network.

- The demapping and closure of Red Hook Lane between Boerum Place and Fulton Street, Pearl Street between Fulton and Willoughby Streets, Fair Street between Fleet Place and Prince Street, and Prince Street between Flatbush Avenue Extension and Myrtle Avenue.
- The widening of Fleet Place (increasing mapped width from 50 to 60 feet), its extension northward to a new signalized intersection with Myrtle Avenue, and its conversion from one-way northbound to two-way operation between Willoughby Street and Myrtle Avenue.
- The elimination of the northbound left-turn movement from Flatbush Avenue Extension onto westbound Willoughby Street, with all traffic making this movement instead directed onto northbound Fleet Place and from there onto westbound Willoughby Street.
- The widening (by 25 feet) of the westbound Myrtle Avenue approach at Flatbush Avenue Extension and installation of a planted median consistent with the median on the opposing Flatbush Court approach.
- The reconfiguration of Gold Street between Flatbush Court (Myrtle Avenue) and Willoughby Street, including reconfiguring the slip off lane from Gold Street onto southbound Flatbush Avenue Extension into a "T" intersection; the closing of the segment of Gold Street north of this intersection to traffic; and the conversion of the remaining segment of Gold Street to the south from one-way southbound to one-way northbound operation.
- The widening (by 35 feet) of Willoughby Street between Albee Square West/Gold Street and Flatbush Avenue Extension to provide sufficient right-of-way for a 30-foot-wide travelway in each direction and a planted median.
- Conversion of the block of Schermerhorn Street between Smith Street and Boerum Place to bi-directional operation, consistent with the rest of the Schermerhorn Street corridor from Smith Street to Flatbush Avenue.
- The reconfiguration of the Livingston and Schermerhorn Street corridors to provide a 20-foot-wide travelway with one moving lane and a curbside lane in each direction, with the curbside lanes used for parking and, in the case of Livingston Street, as exclusive bus lanes during peak periods. A 10-foot-wide median would be installed on both streets, with dedicated left-turn bays at intersections.

As previously discussed for the 2010 No Build analysis, the 2006 through 2016 period may also see the implementation of additional measures associated with DOT's ongoing *Downtown Brooklyn Traffic Calming Project (DBTCP), and EDC's Downtown Brooklyn Streetscape—Flatbush Avenue* project. No specific measures in the *DBTCP* have been identified for

implementation within the study area at this time, and therefore none are included in the analysis of 2016 No Build conditions. However, all measures remain candidates for implementation. DOT is working with the Community Boards on prioritizing these measures. DOT intends to implement additional measures based upon further detailed evaluation, analysis of impacts, and community review.

EDC's *Downtown Brooklyn Streetscape—Flatbush Avenue* project is still in the planning and design phase, and no specific improvement measures have been identified for implementation within the study area at this time. Future decisions on which measures to implement will also be based on detailed evaluation, analysis of impacts, and community review.

As discussed in more detail for the analysis of 2010 No Build conditions, NYSDOT plans to construct a replacement deck for the BQE from Flushing/Classon Avenues to Sands Street over a three-year period. As there would be no change in the configuration of the expressway or its access points (the existing six lanes of traffic would be maintained through the construction area), the project is not expected to affect the study area traffic network during the 2006 through 2016 period. NYSDOT is also undertaking a long range study to identify potential intermediate (15 to 20 years) and long range (20+ years) alternatives for improvements to the BQE. Given the long time-frame for any improvements that may result from this effort, no changes to the study area traffic network are expected during the 2006 through 2016 period as a result of this study.

The following sections describe traffic and parking conditions in the 2016 future without the proposed project.

VEHICULAR TRAFFIC

INTERSECTION CAPACITY ANALYSIS

Table 12-23 summarizes traffic conditions at analyzed intersections in the 2016 future without the proposed project. (V/c ratios, delays, and levels of service at all analyzed intersections in the 2016 future without the proposed project are provided in Table C-5 in Appendix C.) As shown in Table 12-23, with continued growth in travel demand, intersections that were congested under Existing conditions will generally worsen, and there will be additional locations that will become congested in one or more peak hours by 2016. At some locations, however, conditions may improve as a result of measures that are planned as part of the Downtown Brooklyn Development project and other projects. Overall, Table 12-23 shows that in the 2016 future without the proposed project, a total of 64 signalized and one unsignalized intersection will experience congestion in one or more peak hours (i.e., a v/c ratio of 0.90 or greater, and/or LOS E or F conditions), compared with 57 signalized intersections (and no unsignalized intersections) in 2006. Signalized intersections experiencing congestion at one or more approaches will total 52 in the weekday AM peak hour (compared with 36 under Existing conditions), 31 in the midday (16 existing), 43 in the PM (34 existing), 30 in the weekday pre-game peak hour (24 existing), and six in the weekday post-game peak hour (four existing). On Saturdays, there will be 43 signalized intersections experiencing congestion in the 1-2 PM pre-game peak hour (compared with 30 under existing conditions) and 42 in the 4-5 PM post-game peak hour (37 existing). Of the six unsignalized intersections in the study area, one will experience congestion in the weekday AM peak hour (Waverly Place at Atlantic Avenue). No unsignalized intersections will experience congestion in any other peak hour in the 2016 No Build. No unsignalized intersections were found to experience congestion under existing conditions.

Table 12-23
Congested Intersections—2016 No Build Conditions

Signalized Intersection		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Flatbush Ave at	Tillary Street	●	●	●	●	○	●	○
	Myrtle Ave	●	●	●	●	●	●	●
	Willoughby Street	○		○				
	DeKalb Ave	○	○	○			○	
	Fulton Street	○	●	●	●	○	○	●
	Livingston Street	●	○	○				
	Lafayette Street	●	○	●	○	○	○	○
	4th Ave	●	○	●	○		○	●
	Atlantic Ave	●	○	●	○		○	●
	5th Ave	●	○		●	●	●	○
	Dean Street				●		●	●
	Bergen Street		●	●	○		●	●
	6th Ave	○			○		○	
	St. Mark's Place						○	
	Prospect Place				●		○	
	7th Avenue		○		●		○	
	Sterling Place				○		●	
Atlantic Ave at	Hicks Street	●	●	○				○
	Henry Street		●		○		●	●
	Clinton Street	●	○	○			●	●
	Court Street		○	●			○	○
	Boerum Place	●	○				●	●
	Smith Street	●	●	●	○		●	●
	Hoyt Street	○	○	●			●	●
	Bond Street	●	●	●	○		●	●
	Nevins Street	●	●	●			●	●
	3rd Ave	●	○	●			○	●
	4th Ave	●	●	●	●		●	●
	5th Ave	○		●	●		●	●
	S. Portland Ave	○		●	●		●	●
	Cumberland Street	○						
	Carlton Ave	○						
	Clermont Ave	●		●				
	Vanderbilt Ave	●	○	●	●		●	●
	Clinton Ave	●		●				
	Washington/Underhill Aves	●	●	●	●		●	●
	Grand Ave	○		○				○
3rd Ave at	Pacific Street	●						
	Dean Street			●	○			○
4th Ave at	Pacific Street	●						
	Dean Street	●			●		●	●
	Bergen Street	●	○	●	●		●	●
	St. Mark's Place	●					○	●
	Union Street	●		●	●		●	●
5th Ave at	Dean Street	●	●	●	○		●	●
	Bergen Street	○	○	●			○	○
S. Portland Street at	Fulton Street	●						○
Carlton Ave at	Fulton Street	●		○			○	●
	Dean Street							●
Vanderbilt Ave at	Myrtle Ave	●	○	●				
	DeKalb Ave	●		●				
	Fulton Street	●					●	●
	Pacific Street	●						
	Dean Street			○			○	●
	Bergen Street	●		●				
	St. Mark's Place	●		●				
	Prospect Place	●		●				
	Park Place	●		●			●	●
	Sterling Place						●	
Washington Ave at	Pacific Street	○	○	●	○		○	●
	Dean Street	○	○	●	○		○	●
	Eastern Parkway	●		●	●			
Adams Street at	Tillary Street	●	●	●	●	●	●	●
Smith Street at	Dean Street							●

Unsignalized Intersection		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Atlantic Ave at	Waverly Place	○						

Notes:
○ intersection with one or more congested movements in the peak hour (LOS E or F, or v/c > 0.9).
● intersection with one or more congested movements in the peak hour (LOS E or F and v/c > 0.9) and at least one movement operating at capacity (v/c > 1.0).

In 2016, there will be a number of intersections with one or more movements operating at or over capacity with a v/c ratio of 1.00 or greater. The number of such intersections will total 38 in the weekday AM peak hour (compared with 18 under Existing conditions), 13 in the midday (eight existing), 35 in the PM (21 existing), 17 in the weekday pre-game (seven existing), and three in the weekday post-game peak hour (two existing). On Saturdays, the number of such intersections would total 26 in the 1-2 PM pre-game and 33 in the 4-5 PM post-game peak hours, compared with 10 and 19 respectively under existing conditions.

As noted above and in Table 12-23, under 2016 No Build conditions, a number of intersections are expected to have movements operating over capacity in one or more peak periods. Approaches operating substantially over capacity (with a v/c ratio greater than 1.2, for example) are likely to experience future queuing that may potentially spill-back to upstream intersections, as well as affect downstream intersections (because of the metering of traffic flows). Along the principal arterials serving the project site, future queuing and spill-back in the 2016 No Build will potentially occur along eastbound Atlantic Avenue at Smith and Bond Streets in the weekday AM and/or midday periods and at 4th Avenue in the PM peak hour. Queued conditions may also potentially occur along westbound Atlantic Avenue at Nevins Street, 3rd Avenue, and Flatbush Avenue in the weekday AM, midday and/or PM peak hours, and at Boerum Place in the Saturday 4-5 PM peak hour. The potential for future queuing noted under 2010 No Build conditions for southbound Flatbush Avenue at Myrtle Avenue in the weekday pre-game peak hour would increase in 2016. In addition, Flatbush Avenue may experience queuing southbound at Dean Street (Saturday pre-game), and northbound at Sterling Place (Saturday pre-game), and Bergen Street (PM) in 2016. The potential for queuing and spill-back noted under 2010 No Build conditions for intersections along Vanderbilt Avenue northbound in the AM peak hour and southbound in the PM would increase in the 2016 No Build, as would the potential for queuing on Bergen Street approaching 4th Avenue in the Saturday 1-2 PM peak hour and on Dean Street approaching 5th Avenue in both Saturday peak hours. Queued conditions may also potentially occur on southbound Vanderbilt Avenue at Fulton Street in the Saturday 1-2 PM peak hour.

As per *CEQR Technical Manual* criteria, the analysis of future traffic conditions conservatively assumes that traffic volumes within the study area are not metered at congested locations, and that all future traffic volumes occur at analyzed intersections. As discussed in "Probable Impacts of the Proposed Project—2010," traffic simulation software was employed to help identify problematic locations near the project site, and to evaluate the feasibility and effectiveness of different options for facilitating traffic circulation in that area.

BICYCLE FACILITIES

During the 2006 through 2016 period, it is anticipated that demand on existing bicycle facilities within the study area will likely increase commensurate with the overall increases in transportation demand expected in Downtown Brooklyn and surrounding neighborhoods. Commercial developments will likely generate some new AM and PM peak period commuter trips by bicycle, while residential developments will generate both new AM and PM commuter trips as well as recreational bicycle trips in off-peak periods and on weekends. The planned Brooklyn Bridge Park will also likely generate new recreational trips by bicycle.

As discussed for the 2010 No Build condition, in May 2006, DOT reconfigured the block of Dean Street between 5th and Flatbush Avenues to accommodate two travel lanes plus a parking lane along the south curb. The existing bike lane on this block was repositioned to a location adjacent to the north curb, and the four on-street parking spaces along this curb were eliminated. It is also anticipated that during the 2006 through 2016 period, DOT will implement new on-

street bicycle lanes along both northbound and southbound Boerum Place, and along Cumberland Street/Washington Park and Carlton Avenue between Flatbush and Flushing Avenues. These latter two bike lanes will provide a north-south connection for bicyclists through Prospect Heights and Fort Greene. However, due to a lack of suitable north-south roadways, connections across Atlantic Avenue to and from the pair of existing east-west bike lanes on Dean and Bergen Streets will be awkward, requiring some bicyclists to ride opposite the flow of traffic along a portion of Carlton Avenue.

Along the waterfront to the north and west of the project site, a designated bikeway, coordinated with the Greenway Initiative effort, is planned for implementation as part of the development of Brooklyn Bridge Park. A 15-foot-wide bikeway would traverse the park from Pier 1 to Pier 6. The primary access to the park for bicyclists would be at Old Fulton Street at the north end of the park, and at Atlantic Avenue at the park's southern end. At Fulton Ferry landing, the bikeway would connect with a proposed Greenway bike route along Water Street.

PARKING

OFF-STREET PARKING

Between 2006 and 2016, new developments would generate a demand for approximately 496 parking spaces in the weekday AM, 632 in the midday, 707 in the evening, and 317 in the Saturday midday at public parking facilities within ½ mile of the arena site (see Table C-3 in Appendix C). These totals exclude demand from new residential developments, which it is assumed would be accommodated in accessory parking typically required under zoning. Over this same period, approximately 431 off-street public parking spaces serving study area demand would be displaced because of new development. This loss in capacity would be more than offset by the addition of approximately 931 new public parking spaces planned as part of new developments. Contributing to the change in parking supply is the residential development on Schermerhorn Street between Hoyt and Bond Streets, which would include accessory spaces to accommodate its on-site demand, but would also displace 424 existing spaces. Although this development is located more than ½ mile from the arena site, it is assumed that approximately 50 percent of the displaced demand (212 spaces) would relocate to facilities within the off-street parking study area for the proposed project. In addition, the BAM LDC and BAM LDC North developments at Lafayette Avenue and Ashland Place are expected to result in a net increase of 712 public spaces, accounting for much of the new capacity expected within the study area by 2016.

Table 12-24 shows the resulting 2016 No Build off-street parking conditions. As shown in Table 12-24, parking capacity in public facilities within ½ mile of the arena site is expected to total 3,791 spaces on weekdays and 3,696 spaces on Saturdays (a net increase of 500 spaces on both days compared with existing capacity). Demand is expected to total 2,555 spaces in the weekday AM (versus 1,949 spaces under existing conditions), 3,559 in the midday (2,771 existing), 2,018 in the evening (1,241 existing), and 1,845 in the Saturday midday (1,446 existing). These totals include demand associated with anticipated development and a growth factor of 0.5 percent per year applied to existing demand to account for general background growth that would occur through 2016. Overall, as shown in Table 12-24, there would be 1,236 public parking spaces available within ½ mile of the arena in the weekday AM peak period compared with 1,342 under existing conditions. In the midday, the public parking supply would be operating close to capacity with 232 spaces available out of 3,791, versus 520 available under existing conditions.

Table 12-24
No Build Off-Street Parking Conditions—2016

Period	2006 Existing Conditions			2016 No Build Conditions		
	Total Capacity[1]	Estimated Demand[-]	Net Spaces Available	Total Capacity[2]	Estimated Demand[3]	Net Spaces Available
Weekday AM	3,291	1,949	1,342	3,791	2,555	1,236
Weekday Midday	3,291	2,771	520	3,791	3,559	232
Weekday Evening	3,291	1,241	2,050	3,791	2,018	1,773
Saturday Midday	3,196	1,446	1,750	3,696	1,845	1,851

Notes:
[1] Source: PHA November 2004 and January 2006 field surveys of facilities within ½-mile of the proposed arena.
[2] Includes 931 new public spaces and 431 public spaces displaced by development.
[3] Includes 0.5 percent/year background growth and demand from No Build sites.

In the weekday evening period there would be 1,773 available public parking spaces compared with 2,050 under existing conditions, while in the Saturday midday period, a total of 1,851 spaces would be available within ½ mile of the arena site versus 1,750 under existing conditions.

ON-STREET PARKING

In the 2016 future without the proposed project, it anticipated that, in addition to general background growth, demand for on-street parking within ¼-mile of the project site will increase because of new development. Principal among these would be the Atlantic Center residential and commercial development located across Atlantic Avenue from the project site between Fort Greene Place and S. Portland Avenue (see Figure 2-1 and Table 2-1 in Chapter 2). This development would incorporate an existing 650-space on-site parking garage, and it is anticipated that this garage would be able to accommodate much, if not all, of the projected parking demand during the 5-6 PM, 7-8 PM, and Saturday 1-2 PM peak periods. It is likely, however, that some demand may utilize available on-street spaces in the vicinity. Four other developments projected to occur by 2016 would be expected to generate parking demand within ¼-mile of the project site: the residential conversion of the Williamsburgh Savings Bank Building on Hanson Place (considered in the 2010 analysis), the conversion of an existing building on Waverly Avenue into an 80,000 square-foot charter school (also considered in the 2010 analysis), and the two BAM LDC sites located along Lafayette Avenue at Ashland Place. However, all of these developments but the charter school are expected to provide sufficient on-site parking to accommodate their anticipated demand. Parking demand from the charter school would primarily occur in the AM through mid-afternoon school hours, and would not coincide with peak demand from the proposed arena in the analyzed weekday 5-6 PM, 7-8 PM and Saturday 1-2 PM periods.

Table 12-25 shows the estimated utilization of on-street parking within ¼ mile of the project site under 2016 No Build conditions assuming an overall 0.5 percent per year increase in demand. The analysis also takes into account the elimination in May 2006 of approximately four on-street parking spaces along the north curb of Dean Street between 5th and Flatbush Avenues to accommodate the relocation of the bike lane along this block. As shown in Table 12-25, a total of approximately 1,739 spaces would be available in the weekday 5-6 PM peak hour, 3,091 spaces in the 7-8 PM peak hour, and 2,003 spaces in the Saturday 1-2 PM peak hour. This compares with 1,930, 3,240, and 2,215 spaces during these periods, respectively, under existing conditions. Overall utilization would total approximately 69, 49 and 68 percent during the 5-6 PM, 7-8 PM, and Saturday 1-2 PM periods in the 2010 No Build, compared with 65, 47, and 65 percent during these periods, respectively, under existing conditions.

Table 12-25
On-Street Parking Conditions—2016 No Build

Period	2006 Existing Conditions			2016 No Build Conditions		
	Total Spaces[1]	Spaces Available[1]	Percent Utilization	Total Spaces[1]	Spaces Available[2]	Percent Utilization
Weekday 5-6 PM	5,590	1,930	65	5,586	1,739	69
Weekday 7-8 PM	6,075	3,240	47	6,071	3,091	49
Saturday 1-2 PM	6,280	2,215	65	6,276	2,003	68

Notes:
[1] Source: PHA December 2005 and February 2006 field surveys within ¼-mile of the project site.
[2] Includes 0.5 percent/year background growth for the 2006 to 2016 period.

H. PROBABLE IMPACTS OF THE PROPOSED PROJECT—2016

This section provides an analysis of traffic and parking conditions in the 2016 future with the proposed project, under which construction of Buildings 5 through 15 (including four additional permanent below-grade parking garages replacing interim facilities) by 2016 would complete the full development program.

As previously stated, the proposed development considers two program variations: residential mixed-use and commercial mixed-use. The variations reflect the fact that the programs for three of the project's 17 buildings are not fixed and could be used for a mixture of residential and commercial uses.

CHANGES TO THE STUDY AREA STREET NETWORK

As shown in Figure 12-5a/b and discussed in more detail in the previous section, "Probable Impacts of the Proposed Project—2010," the proposed project would see the implementation of the following changes to the study area street system, all of which would occur in Phase I:

- The creation of a lay-by lane along the south curb of Atlantic Avenue adjacent to the arena block, and the reconfiguration of the street to provide three eastbound through-lanes and four westbound lanes (two through and two right-turn-only) west of Fort Greene Place, and three travel lanes and a single 10-foot-wide parking lane in each direction, plus an eight-foot-wide raised median east of Fort Greene Place;
- The reconstruction of the bridge carrying Carlton Avenue over the LIRR rail yard between Atlantic Avenue and Pacific Street to accommodate a widened 38-foot-wide roadway flanked by 16-foot-wide sidewalks. This block of Carlton Avenue would be converted from one-way northbound to two-way operation.
- The creation of a seven-foot-wide lay-by lane along 170 feet of the north curb of Dean Street east of Flatbush Avenue adjacent to the arena. The existing bike lane along this block would be moved to a location adjacent to the existing north curb line (it is currently outboard of the existing north-side parking lane), matching DOT's planned bike lane configuration on Dean Street between Flatbush and 5th Avenues, one block to the west.
- The permanent closure of 5th Avenue from Flatbush Avenue/Pacific Street to Atlantic Avenue. B63 buses, which currently traverse this block of 5th Avenue in the northbound direction, would instead turn left from 5th Avenue onto Flatbush Avenue and then turn left again onto Atlantic Avenue (see Chapter 13, "Transit and Pedestrians"). The left-turn prohibition at the Flatbush Avenue/Atlantic Avenue intersection would be modified to exclude NYCT buses.

- The creation of a 10-foot-wide lay-by lane along the east curb of Flatbush Avenue between Atlantic Avenue and Dean Street to accommodate pick-up/drop-off activity adjacent to the arena. This segment of Flatbush Avenue would operate with three travel lanes and the lay-by lane in the northbound direction, and two travel lanes and a curb lane in the southbound direction
- The permanent closure of Pacific Street from Flatbush Avenue/5th Avenue to 6th Avenue and between Carlton and Vanderbilt Avenues. Pacific Street would remain open to two-way traffic between 6th and Carlton Avenues, as at present, to facilitate vehicle circulation within the project site. To the west, Pacific Street between Flatbush and 4th Avenues would be converted from one-way westbound to two-way operation to facilitate vehicular circulation around Site 5. All parking and standing would be prohibited for approximately 160 feet along the north curb adjacent to an existing community garden, and the north sidewalk along the remainder of the block would be set back by approximately eight feet (widening the roadway from 30 to 38 feet) to accommodate a lay-by lane along the north curb; and
- The conversion of 6th Avenue between Atlantic and Flatbush Avenues from one-way southbound to two-way operation to facilitate traffic circulation at the project site and provide an alternative route for traffic diverted as a result of the closure of 5th Avenue between Flatbush and Atlantic Avenues. To accommodate this change in operation, the bridge carrying 6th Avenue over the LIRR rail yard between Atlantic Avenue and Pacific Street would be reconstructed, and the roadway widened to 40 feet in width flanked by 15-foot-wide sidewalks from Atlantic Avenue to Flatbush Avenue. In addition, an approximately 250-foot-long segment of the west sidewalk along 6th Avenue opposite Pacific Street would be set back to accommodate a seven-foot-wide lay-by lane adjacent to the arena. The perpendicular parking of police vehicles along 6th Avenue between Dean and Bergen Streets adjacent to the 78th Precinct station house could no longer be accommodated with this change in operation of the street.

TRAVEL DEMAND

TRANSPORTATION PLANNING ASSUMPTIONS

As previously discussed, the proposed development considers two program variations: residential mixed-use and commercial mixed-use (shown in Figures 1-3 and 1-4 in Chapter 1, "Project Description"). The variations reflect the fact that the programs for three of the project's 17 buildings are not fixed and could be used for a mixture of residential and commercial uses. Under the commercial mixed-use variation additional commercial space would substitute for the hotel use and a majority of the residential space in Buildings 1 and 2 on the arena site (blocks 1118, 1119, and 1127) and on Site 5 (Block 927). The other buildings and uses on the project site (the arena and Buildings 3 through 15) would remain the same under both the residential mixed-use and commercial mixed-use variations.

Table 12-26 compares the full development programs for the proposed project's two variations. (As discussed in Chapter 1, the development programs for both the residential mixed-use and the commercial mixed-use variations have been reduced from the programs that were analyzed in the DEIS.) As shown in Table 12-26, along with the 850,000 gsf arena (with a capacity of 18,000 seats for a Nets basketball game), the residential mixed-use variation would consist of a total of approximately 6,430 dwelling units, 336,000 gsf of commercial office space, a 180-room hotel, and 247,000 gsf of ground floor local retail space that would be distributed among Site 5

Table 12-26
Project Development Program—2016

Project Component	Residential Mixed-Use Variation	Commercial Mixed-Use Variation
Arena	850,000 gsf (18,000 seats)	850,000 sf (18,000 seats)
Residential	6,430 units	5,325 units
Office	336,000 gsf	1,606,000 gsf
Local Retail	247,000 gsf	247,000 gsf
Hotel	165,000 gsf (180 rooms)	0 gsf
Parking	3,670 spaces	3,670 spaces

and Buildings 1 through 15. A total of approximately 3,670 permanent parking spaces would also be provided in on-site parking garages. The commercial mixed-use variation would include an 850,000 gsf arena (capacity of 18,000 seats for a Nets basketball game) and approximately 5,325 dwelling units, 1,606,000 gsf of commercial office space, and no hotel use, as well as a similar number of parking spaces as the residential variation. The arena and local retail uses would also remain the same under both scenarios.

Both the residential mixed-use and the commercial mixed-use variations are expected to include community facility uses, including a health care center and an intergenerational community center offering child care and youth and senior activities. In addition, as previously discussed, a staffed bicycle station with approximately 3,300 square feet of space for lockers, restrooms, a security desk, and storage space for 400 bicycles would also be provided on the arena block under both variations. Both the community facilities and the bicycle station built as part of the proposed project would occupy some portion of the retail and residential space. For the purposes of the travel demand forecast, all of this space is assumed to be local retail (i.e., retail establishments serving the needs of workers and residents in the neighborhood).

The transportation planning assumptions used to forecast travel demand from the project's residential, office, hotel, local retail, and arena components are summarized in Table 12-10 and discussed in the section, "Probable Impacts of the Proposed Project—2010." The trip generation rates, temporal distributions, and mode choice assumptions shown in Table 12-10 were based on accepted *CEQR Technical Manual* criteria, standard professional references, and studies that have been done for similar uses in Downtown Brooklyn and Manhattan. These sources were supplemented by data from the 2000 Census, and Employee Commute Options survey data from firms and governmental/educational institutions in Downtown Brooklyn.

As an RWCS for the EIS transportation analyses, the weekday and Saturday travel demand forecasts examine the demand that would be generated by a Nets basketball game at the arena with a seating capacity of 18,000. A Nets basketball game was selected as an RWCS based on both the frequency of home games and the relatively high level of travel demand that such games are expected to generate compared with most other uses.

TRAVEL DEMAND FORECAST—2016

Tables 12-27 and 12-28 show the trip generation in peak hour person trips by all modes (auto, taxi, subway, LIRR, bus, and walking) that would result in 2016 from development of the proposed project's residential mixed-use and commercial mixed-use variations, respectively. A comparison of the total peak-hour person trips generated by each variation is presented in Table

12-29 along with the total numbers of peak hour vehicle trips (auto, taxi, and truck) and person trips by transit (subway, bus, and LIRR). It should be noted that both variations would displace existing land uses on the project site such as the 46,913 square feet of retail (a Modell's Sporting Goods store and a P.C. Richards consumer electronics store) currently located on Block 927 (Site 5). However, as with the 2010 forecast, the 2016 travel demand forecast conservatively assumes no credit for the travel demand from these existing uses that would be displaced in the Build condition.

As shown in Table 12-29, the total number of person trips generated in 2016 by the residential mixed-use variation (inbound and outbound combined) would range from 6,810 in the AM peak hour to 21,907 in the Saturday 4-5 PM post-game peak hour. The commercial mixed-use variation would generate from 8,625 peak hour person trips (in the AM) to 21,349 (in the Saturday 4-5 PM post-game). The commercial mixed-use variation would generate 1,815 more trips than the residential mixed-use variation in the weekday AM peak hour, 2,811 more trips in the midday, and 2,099 more trips in the PM peak hour. By contrast, the residential mixed-use variation would generate 540 more person trips than the commercial mixed-use variation during the Saturday 1-2 PM pre-game peak hour, and 558 more trips in the Saturday 4-5 PM post-game peak hour. During the weekday 7-8 PM pre-game and 10-11 PM post-game periods, the travel demand from the two variations would differ by roughly one percent (fewer than 200 trips).

The numbers of peak hour vehicle trips that would be generated by the residential mixed-use variation and the commercial mixed-use variation are also summarized in Table 12-29, and are shown in detail in Tables 12-30 and 12-31, respectively. As was the case for person trips, the commercial mixed-use variation would generate more vehicle trips (from 11 to 164 more) in the AM, midday, and PM peak hours, while the residential mixed-use variation would generate a higher number of trips in the Saturday pre-game and post-game peak hours (134 more in each period). During the weekday 7-8 PM pre-game and 10-11 PM post-game periods, the number of vehicle trips generated by the two variations is virtually the same, differing by roughly one percent (30 trips in each period).

As demonstrated by the data in Table 12-29, in 2016 the commercial mixed-use variation would generate a substantially higher level of total travel demand (from 19 to 29 percent higher) compared with the residential mixed-use variation in the key weekday AM, midday and PM peak hours. During the weekday 7-8 PM and 10-11 PM periods, the demand from the two variations would be roughly equivalent, differing by approximately one percent. By contrast, on Saturdays the residential mixed-use variation would generate approximately three percent more trips than the commercial mixed-use variation during the 1-2 PM and 4-5 PM peak hours. The commercial mixed-use variation was therefore selected as the RWCS for the weekday traffic analyses, while the residential mixed-use variation is analyzed as the RWCS for the two Saturday peak hours. As previously discussed in the parking analysis in the section, "Probable Impacts of the Proposed Project—2010," the comparative levels of parking demand generated by the two project variations exhibit greater fluctuation by peak hour than is the case for overall travel demand. The 2016 parking analyses therefore examine conditions for both the residential mixed-use variation and the commercial mixed-use variation.

As shown in Table 12-31, in 2016 the commercial mixed-use variation is expected to add between 410 and 2,531 autos to the study area street system in each weekday peak hour, and from 114 to 412 new taxi trips. Peak hour truck trips would increase by from 6 to 80 in each weekday peak hour. In general, the highest numbers of new weekday vehicle trips would occur

Table 12-27
Travel Demand Forecast for the Residential Mixed-Use Variation - 2016
(Person Trips)

		Site 5			Arena Block						Residential Blocks [1]					
		Residential/ Office/Local Retail			Arena			Residential/ Office/Hotel/Local Retail			Residential/Local Retail			Total Trips		
Person Trips by Mode:		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	9	29	38	120	5	125	130	164	294	95	362	457	354	560	914
	Taxi	3	5	8	10	0	10	16	18	34	15	34	49	44	57	101
	Subway	52	155	207	172	7	179	656	800	1,456	517	1,889	2,406	1,397	2,851	4,248
	LIRR	0	2	2	27	1	28	85	13	98	6	25	31	118	41	159
	Bus	5	10	15	7	0	7	55	39	94	34	91	125	101	140	241
	Walk	67	80	147	9	0	9	119	168	287	266	438	704	461	686	1,147
	Total	136	281	417	345	13	358	1,061	1,202	2,263	933	2,839	3,772	2,475	4,335	6,810
MD (12-1)	**Auto**	20	19	39	49	79	128	83	75	158	155	148	303	307	321	628
	Taxi	17	17	34	4	7	11	28	26	54	64	64	128	113	114	227
	Subway	155	153	308	70	103	173	387	384	771	968	943	1,911	1,580	1,583	3,163
	LIRR	1	1	2	11	21	32	3	3	6	9	9	18	24	34	58
	Bus	29	29	58	3	5	8	63	75	138	117	117	234	212	226	438
	Walk	390	389	779	4	6	10	696	844	1,540	1,351	1,349	2,700	2,441	2,588	5,029
	Total	612	608	1,220	141	221	362	1,260	1,407	2,667	2,664	2,630	5,294	4,677	4,866	9,543
PM (5-6)	**Auto**	31	20	51	532	97	629	164	185	349	359	202	561	1,086	504	1,590
	Taxi	10	9	19	46	8	54	24	25	49	53	41	94	133	83	216
	Subway	186	126	312	760	126	886	810	958	1,768	1,933	1,126	3,059	3,689	2,336	6,025
	LIRR	2	1	3	118	26	144	15	99	114	25	13	38	160	139	299
	Bus	19	17	36	32	6	38	48	78	126	119	86	205	218	187	405
	Walk	210	203	413	41	7	48	290	273	563	863	763	1,626	1,404	1,246	2,650
	Total	458	376	834	1,529	270	1,799	1,351	1,618	2,969	3,352	2,231	5,583	6,690	4,495	11,185
Pre-game (7-8 PM)	**Auto**	23	11	34	4,651	48	4,699	137	83	220	289	127	416	5,100	269	5,369
	Taxi	5	4	9	401	4	405	15	11	26	29	18	47	450	37	487
	Subway	126	64	190	6,642	63	6,705	658	405	1,063	1,519	684	2,203	8,945	1,216	10,161
	LIRR	2	1	3	1,029	13	1,042	14	27	41	20	9	29	1,065	50	1,115
	Bus	9	6	15	281	3	284	34	29	63	76	41	117	400	79	479
	Walk	75	67	142	361	4	365	148	106	254	383	279	662	967	456	1,423
	Total	240	153	393	13,365	135	13,500	1,006	661	1,667	2,316	1,158	3,474	16,927	2,107	19,034
Post-game (10-11 PM)	**Auto**	12	2	14	53	5,438	5,491	71	7	78	155	11	166	291	5,458	5,749
	Taxi	2	1	3	5	454	459	8	1	9	15	3	18	30	459	489
	Subway	65	9	74	76	7,074	7,150	338	38	376	807	62	869	1,286	7,183	8,469
	LIRR	1	0	1	12	1,454	1,466	6	3	9	12	0	12	31	1,457	1,488
	Bus	3	1	4	3	318	321	16	3	19	38	7	45	60	329	389
	Walk	27	20	47	4	409	413	67	22	89	166	72	238	264	523	787
	Total	110	33	143	153	15,147	15,300	506	74	580	1,193	155	1,348	1,962	15,409	17,371
Saturday (1-2 PM)	**Auto**	23	22	45	5,346	54	5,400	123	116	239	253	248	501	5,745	440	6,185
	Taxi	10	8	18	401	4	405	21	18	39	42	37	79	474	67	541
	Subway	99	88	187	5,881	59	5,940	287	273	560	724	687	1,411	6,991	1,107	8,098
	LIRR	1	1	2	1,069	11	1,080	5	5	10	12	12	24	1,087	29	1,116
	Bus	18	15	33	267	3	270	34	30	64	84	75	159	403	123	526
	Walk	237	199	436	401	4	405	387	338	725	1,050	923	1,973	2,075	1,464	3,539
	Total	388	333	721	13,365	135	13,500	857	780	1,637	2,165	1,982	4,147	16,775	3,230	20,005
Saturday (4-5 PM)	**Auto**	23	24	47	61	6,059	6,120	125	125	250	255	260	515	464	6,468	6,932
	Taxi	8	10	18	5	454	459	20	19	39	37	42	79	70	525	595
	Subway	89	100	189	67	6,665	6,732	284	314	598	702	739	1,441	1,142	7,818	8,960
	LIRR	1	1	2	12	1,212	1,224	6	10	16	12	12	24	31	1,235	1,266
	Bus	15	18	33	3	303	306	31	34	65	76	85	161	125	440	565
	Walk	200	238	438	5	454	459	332	365	697	934	1,061	1,995	1,471	2,118	3,589
	Total	336	391	727	153	15,147	15,300	798	867	1,665	2,016	2,199	4,215	3,303	18,604	21,907

Notes:
[1] Includes blocks 1120, 1121, 1128, 1129.

This table has been revised for the FEIS.

Table 12-28
2016 Travel Demand Forecast for the Commercial Mixed-Use Variation
(Person Trips)

		Site 5			Arena Block						Residential Blocks [1]					
		Office/Local Retail			Arena			Residential/Office/ Local Retail			Residential/Local Retail			Total Trips		
Person Trips by Mode:		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	84	5	89	120	5	125	334	98	432	95	362	457	633	470	1,103
	Taxi	10	3	13	10	0	10	30	10	40	15	34	49	65	47	112
	Subway	462	36	498	172	7	179	1,807	512	2,319	517	1,889	2,406	2,958	2,444	5,402
	LIRR	82	3	85	27	1	28	312	19	331	6	25	31	427	48	475
	Bus	45	6	51	7	0	7	163	28	191	34	91	125	249	125	374
	Walk	90	64	154	9	0	9	176	116	292	266	438	704	541	618	1,159
	Total	773	117	890	345	13	358	2,822	783	3,605	933	2,839	3,772	4,873	3,752	8,625
MD (12-1)	**Auto**	18	22	40	49	79	128	63	76	139	155	148	303	285	325	610
	Taxi	19	21	40	4	7	11	30	37	67	64	64	128	117	129	246
	Subway	134	147	281	70	103	173	334	379	713	968	943	1,911	1,506	1,572	3,078
	LIRR	0	0	0	11	21	32	2	2	4	9	9	18	22	32	54
	Bus	51	64	115	3	5	8	123	174	297	117	117	234	294	360	654
	Walk	667	826	1,493	4	6	10	1,452	2,057	3,509	1,351	1,349	2,700	3,474	4,238	7,712
	Total	889	1,080	1,969	141	221	362	2,004	2,725	4,729	2,664	2,630	5,294	5,698	6,656	12,354
PM (5-6)	**Auto**	11	100	111	532	97	629	103	405	508	359	202	561	1,005	804	1,809
	Taxi	8	16	24	46	8	54	16	41	57	53	41	94	123	106	229
	Subway	82	565	647	760	126	886	560	2,206	2,766	1,933	1,126	3,059	3,335	4,023	7,358
	LIRR	5	94	99	118	26	144	25	360	385	25	13	38	173	493	666
	Bus	16	61	77	32	6	38	39	201	240	119	86	205	206	354	560
	Walk	196	225	421	41	7	48	239	328	567	863	763	1,626	1,339	1,323	2,662
	Total	318	1,061	1,379	1,529	270	1,799	982	3,541	4,523	3,352	2,231	5,583	6,181	7,103	13,284
Pre-game (7-8 PM)	**Auto**	8	25	33	4,651	48	4,699	90	118	208	289	127	416	5,038	318	5,356
	Taxi	3	5	8	401	4	405	9	11	20	29	18	47	442	38	480
	Subway	48	142	190	6,642	63	6,705	474	637	1,111	1,519	684	2,203	8,683	1,526	10,209
	LIRR	6	23	29	1,029	13	1,042	27	90	117	20	9	29	1,082	135	1,217
	Bus	7	16	23	281	3	284	29	54	83	76	41	117	393	114	507
	Walk	63	69	132	361	4	365	106	104	210	383	279	662	913	456	1,369
	Total	135	280	415	13,365	135	13,500	735	1,014	1,749	2,316	1,158	3,474	16,551	2,587	19,138
Post-game (10-11 PM)	**Auto**	2	4	6	53	5,438	5,491	40	14	54	155	11	166	250	5,467	5,717
	Taxi	1	1	2	5	454	459	4	2	6	15	3	18	25	460	485
	Subway	10	22	32	76	7,074	7,150	203	74	277	807	62	869	1,096	7,232	8,328
	LIRR	1	3	4	12	1,454	1,466	6	11	17	12	0	12	31	1,468	1,499
	Bus	1	2	3	3	318	321	10	6	16	38	7	45	52	333	385
	Walk	20	21	41	4	409	413	43	24	67	166	72	238	233	526	759
	Total	35	53	88	153	15,147	15,300	306	131	437	1,193	155	1,348	1,687	15,486	17,173
Saturday (1-2 PM)	**Auto**	7	5	12	5,346	54	5,400	62	60	122	253	248	501	5,668	367	6,035
	Taxi	9	7	16	401	4	405	12	11	23	42	37	79	464	59	523
	Subway	62	50	112	5,881	59	5,940	185	172	357	724	687	1,411	6,852	968	7,820
	LIRR	0	0	0	1,069	11	1,080	3	3	6	12	12	24	1,084	26	1,110
	Bus	17	13	30	267	3	270	29	25	54	84	75	159	397	116	513
	Walk	234	188	422	401	4	405	364	300	664	1,050	923	1,973	2,049	1,415	3,464
	Total	329	263	592	13,365	135	13,500	655	571	1,226	2,165	1,982	4,147	16,514	2,951	19,465
Saturday (4-5 PM)	**Auto**	6	11	17	61	6,059	6,120	64	79	143	255	260	515	386	6,409	6,795
	Taxi	7	9	16	5	454	459	10	12	22	37	42	79	59	517	576
	Subway	53	85	138	67	6,665	6,732	188	277	465	702	739	1,441	1,010	7,766	8,776
	LIRR	1	5	6	12	1,212	1,224	6	20	26	12	12	24	31	1,249	1,280
	Bus	12	17	29	3	303	306	22	31	53	76	85	161	113	436	549
	Walk	173	213	386	5	454	459	246	287	533	934	1,061	1,995	1,358	2,015	3,373
	Total	252	340	592	153	15,147	15,300	536	706	1,242	2,016	2,199	4,215	2,957	18,392	21,349

Notes:
[1] Includes blocks 1120, 1121, 1128, 1129.

This table has been revised for the FEIS.

Table 12-29
Comparison of 2016 Peak Hour Travel
Residential Variation vs. Commercial Variation

Peak Hour	Residential Variation	Commercial Variation	Net Difference	Percent Difference
Person Trips				
8-9 AM	6,810	8,625	(1,815)	(27)
12-1 PM (midday)	9,543	12,354	(2,811)	(29)
5-6 PM	11,185	13,284	(2,099)	(19)
7-8 PM (pre-game)	19,034	19,138	(95)	(1)
10-11 PM (post-game)	17,731	17,173	198	1
Saturday 1-2 PM	20,005	19,465	540	3
Saturday 4-5 PM	21,907	21,349	558	3
Vehicle Trips (Auto/Taxi/Truck)				
8-9 AM	871	1,010	(139)	(16)
12-1 PM (midday)	675	686	(11)	(2)
5-6 PM	1,219	1,383	(164)	(13)
7-8 PM (pre-game)	2,965	2,935	30	1
10-11 PM (post-game)	2,967	2,937	30	1
Saturday 1-2 PM	3,010	2,876	134	4
Saturday 4-5 PM	3,339	3,205	134	4
Transit Trips (Subway/Bus/LIRR)				
8-9 AM	4,648	6,251	(1,603)	(34)
12-1 PM (midday)	3,659	3,786	(127)	(3)
5-6 PM	6,729	8,584	(1,855)	(28)
7-8 PM (pre-game)	11,755	11,933	(178)	(2)
10-11 PM (post-game)	10,346	10,212	134	1
Saturday 1-2 PM	9,740	9,443	297	3
Saturday 4-5 PM	10,791	10,605	186	2

Table 12-30
Travel Demand Forecast for the Residential Mixed-Use Variation - 2016
(Vehicle Trips)

		Site 5			Arena Block						Residential Blocks [2]					
		Residential/ Office/Local Retail			Arena			Residential/ Office/Hotel/Local Retail			Residential/Retail			**Total Trips**		
Peak Hour Vehicle Trips		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	7	24	31	51	2	53	95	135	230	78	305	383	231	466	697
	Taxi [1]	3	3	6	3	3	6	16	16	32	27	27	54	49	49	98
	Truck	2	2	4	4	4	8	11	11	22	21	21	42	38	38	76
	Total	**12**	**29**	**41**	**58**	**9**	**67**	**122**	**162**	**284**	**126**	**353**	**479**	**318**	**553**	**871**
MD (12-1 PM)	**Auto**	12	12	24	21	34	55	62	57	119	118	113	231	213	216	429
	Taxi [1]	12	12	24	4	4	8	25	25	50	50	50	100	91	91	182
	Truck	2	2	4	4	4	8	9	9	18	17	17	34	32	32	64
	Total	**26**	**26**	**52**	**29**	**42**	**71**	**96**	**91**	**187**	**185**	**180**	**365**	**336**	**339**	**675**
PM (5-6 PM)	**Auto**	25	15	40	227	41	268	134	139	273	296	164	460	682	359	1,041
	Taxi [1]	8	8	16	16	16	32	22	22	44	37	37	74	83	83	166
	Truck	0	0	0	1	1	2	2	2	4	3	3	6	6	6	12
	Total	**33**	**23**	**56**	**244**	**58**	**302**	**158**	**163**	**321**	**336**	**204**	**540**	**771**	**448**	**1,219**
Pre-Game (7-8 PM)	**Auto**	19	9	28	1,979	21	2,000	112	65	177	244	106	350	2,354	201	2,555
	Taxi [1]	2	2	4	165	165	330	17	17	34	20	20	40	204	204	408
	Truck	0	0	0	0	0	0	1	1	2	0	0	0	1	1	2
	Total	**21**	**11**	**32**	**2,144**	**186**	**2,330**	**130**	**83**	**213**	**264**	**126**	**390**	**2,559**	**406**	**2,965**
Post-Game (10-11 PM)	**Auto**	10	1	11	23	2,314	2,337	59	5	64	131	6	137	223	2,326	2,549
	Taxi [1]	1	1	2	192	192	384	5	5	10	10	10	20	208	208	416
	Truck	0	0	0	0	0	0	1	1	2	0	0	0	1	1	2
	Total	**11**	**2**	**13**	**215**	**2,506**	**2,721**	**65**	**11**	**76**	**141**	**16**	**157**	**432**	**2,535**	**2,967**
Saturday (1-2 PM)	**Auto**	18	17	35	1,944	20	1,964	96	93	189	206	206	412	2,264	336	2,600
	Taxi [1]	8	8	16	137	137	274	22	22	44	33	33	66	200	200	400
	Truck	0	0	0	2	2	4	1	1	2	2	2	4	5	5	10
	Total	**26**	**25**	**51**	**2,083**	**159**	**2,242**	**119**	**116**	**235**	**241**	**241**	**482**	**2,469**	**541**	**3,010**
Saturday (4-5 PM)	**Auto**	17	18	35	22	2,203	2,225	99	100	199	211	211	422	349	2,532	2,881
	Taxi [1]	9	9	18	161	161	322	24	24	48	35	35	70	229	229	458
	Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**26**	**27**	**53**	**183**	**2,364**	**2,547**	**123**	**124**	**247**	**246**	**246**	**492**	**578**	**2,761**	**3,339**

Notes:
[1] Balanced taxi trips shown.
[2] Includes blocks 1120, 1121, 1128, 1129.

This table has been revised for the FEIS.

Table 12-31
Travel Demand Forecast for the Commercial Mixed-Use Variation - 2016
(Vehicle Trips)

		Site 5			Arena Block			Arena Block			Residential Blocks [2]					
		Office/Local Retail			Arena			Residential/Office/ Local Retail			Residential/Local Retail			Total Trips		
Peak Hour Vehicle Trips		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM (8-9)	**Auto**	59	3	62	51	2	53	238	80	318	78	305	383	426	390	816
	Taxi [1]	6	6	12	3	3	6	21	21	42	27	27	54	57	57	114
	Truck	3	3	6	4	4	8	12	12	24	21	21	42	40	40	80
	Total	**68**	**12**	**80**	**58**	**9**	**67**	**271**	**113**	**384**	**126**	**353**	**479**	**523**	**487**	**1,010**
MD (12-1 PM)	**Auto**	10	13	23	21	34	55	46	55	101	118	113	231	195	215	410
	Taxi [1]	17	17	34	4	4	8	32	32	64	50	50	100	103	103	206
	Truck	3	3	6	4	4	8	11	11	22	17	17	34	35	35	70
	Total	**30**	**33**	**63**	**29**	**42**	**71**	**89**	**98**	**187**	**185**	**180**	**365**	**333**	**353**	**686**
PM (5-6 PM)	**Auto**	6	69	75	227	41	268	83	291	374	296	164	460	612	565	1,177
	Taxi [1]	12	12	24	18	18	36	27	27	54	37	37	74	94	94	188
	Truck	1	1	2	1	1	2	4	4	8	3	3	6	9	9	18
	Total	**19**	**82**	**101**	**246**	**60**	**306**	**114**	**322**	**436**	**336**	**204**	**540**	**715**	**668**	**1,383**
Pre-Game (7-8 PM)	**Auto**	5	17	22	1,979	21	2,000	72	87	159	244	106	350	2,300	231	2,531
	Taxi [1]	3	3	6	165	165	330	11	11	22	20	20	40	199	199	398
	Truck	1	1	2	0	0	0	2	2	4	0	0	0	3	3	6
	Total	**9**	**21**	**30**	**2,144**	**186**	**2,330**	**85**	**100**	**185**	**264**	**126**	**390**	**2,502**	**433**	**2,935**
Post-Game (10-11 PM)	**Auto**	1	2	3	23	2,314	2,337	32	10	42	131	6	137	187	2,332	2,519
	Taxi [1]	0	0	0	193	193	386	3	3	6	10	10	20	206	206	412
	Truck	1	1	2	0	0	0	2	2	4	0	0	0	3	3	6
	Total	**2**	**3**	**5**	**216**	**2,507**	**2,723**	**37**	**15**	**52**	**141**	**16**	**157**	**396**	**2,541**	**2,937**
Saturday (1-2 PM)	**Auto**	3	2	5	1,944	20	1,964	50	49	99	206	206	412	2,203	277	2,480
	Taxi [1]	7	7	14	141	141	282	12	12	24	33	33	66	193	193	386
	Truck	0	0	0	2	2	4	1	1	2	2	2	4	5	5	10
	Total	**10**	**9**	**19**	**2,087**	**163**	**2,250**	**63**	**62**	**125**	**241**	**241**	**482**	**2,401**	**475**	**2,876**
Saturday (4-5 PM)	**Auto**	3	6	9	22	2,203	2,225	51	62	113	211	211	422	287	2,482	2,769
	Taxi [1]	7	7	14	164	164	328	12	12	24	35	35	70	218	218	436
	Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**10**	**13**	**23**	**186**	**2,367**	**2,553**	**63**	**74**	**137**	**246**	**246**	**492**	**505**	**2,700**	**3,205**

Notes:
[1] Balanced taxi trips shown.
[2] Includes blocks 1120, 1121, 1128, 1129.

This table has been revised for the FEIS.

during the 7-8 PM (pre-game) and 10-11 PM (post-game) peak hours, primarily as a result of demand en route to and from the arena. As shown in Table 12-30, on Saturdays, the residential mixed-use variation (the RWCS for the Saturday analyses) would add an estimated 2,600 auto, 400 taxi and ten truck trips to the street system in the 1-2 PM peak hour, and 2,881 auto, 458 taxi, and no truck trips in the 4-5 PM peak hour in 2010.

TRIP ASSIGNMENT

PROJECT-GENERATED TRAFFIC

The assignment of 2016 auto, taxi and truck trips for the proposed project's arena, office, residential, hotel, and retail components uses the same methodology as was described for the assignment of 2010 project generated traffic. A majority of the auto trips generated by the residential and hotel components are expected to have endpoints in Manhattan and Brooklyn, while office trips are expected to be more widely dispersed among all five boroughs as well as suburban locations such as Long Island. The arena is expected to draw heavily not only from Brooklyn, Queens, and Manhattan, but also from New Jersey and Long Island. Separate assignments for trips arriving and departing the arena on weekdays are assumed in order to reflect the fact that on weekdays some spectators would likely travel to the arena from their workplaces, and then depart to residences in a different borough or county at the conclusion of a game. As the project's retail component is expected to consist primarily of local retail uses serving the surrounding worker and residential populations, all of its trips are expected to be Brooklyn-based.

Auto and taxi trips have been assigned to the primary corridors providing access to and from the project site based on their origin or destination, as well as the most direct routes to major access points such as the BQE and Brooklyn and Manhattan bridges. Truck trips en route to and from the site have been assigned to designated local and through truck routes in Downtown Brooklyn. These include Atlantic, Flatbush, 3rd and 4th Avenues, and portions of 5th Avenue and Bergen Street. The assignments of auto, taxi, and truck trips within Downtown Brooklyn take into account changes to the study area traffic network that are expected to occur by the 2016 Build year as a result of No Build developments and initiatives by DOT and other agencies. These include street closures and changes in street directions proposed as mitigation for the Downtown Brooklyn Development project.

Auto trips destined to or from the proposed project's residential, office, retail, and hotel components were assigned to the on-site parking garages that would be provided as part of the proposed project. As discussed below in the discussion of 2016 Build off-street parking conditions, it is anticipated that sufficient capacity would be provided in these facilities to accommodate all non-arena demand. Approximately 1,100 parking spaces would also be available on-site to accommodate the parking needs of the arena, while the remaining arena demand (totaling approximately 1,400 spaces on both weekdays and weekends) would be accommodated at other public off-street facilities located in the vicinity. The assignment of arena auto trips reflects this distribution of trips to both on-site parking facilities and directly to off-site parking facilities.

Figures showing the assignment of project increment vehicle trips to the study area street system in each peak hour in 2016 are provided in Appendix C. The weekday assignments reflect trips generated by the commercial mixed-use variation (the RWCS for the weekday peak hours),

while the assignment for the Saturday peak hours reflect the trips generated by the residential mixed-use variation (the RWCS for Saturday).

TRAFFIC DIVERTED BY NETWORK CHANGES

In addition to generating new travel demand by autos, taxis and trucks, permanent roadway closures and changes in street direction associated with both the proposed project's residential mixed-use and commercial mixed-use variations would alter traffic flows in the vicinity of the project site in the 2016 future with the proposed project. These changes, described previously, would include the permanent closure of Pacific Street between Flatbush and 6th Avenues, and between Carlton and Vanderbilt Avenues; the permanent closure of 5th Avenue between Flatbush and Atlantic Avenues; the conversion of 6th Avenue from one-way southbound to two-way operation between Atlantic and Flatbush Avenues; the conversion of Carlton Avenue from one-way northbound to two-way operation between Atlantic Avenue and Pacific Street; and the conversion of Pacific Street from one-way westbound to two-way operation between Flatbush and 4th Avenues. The analysis of 2016 Build traffic conditions assumes that 2016 No Build traffic diverted off of 5th Avenue would be distributed among parallel north-south corridors, including 4th Avenue, Flatbush Avenue and 6th Avenue. As the segments of Pacific Street that would be closed are used mainly for access to adjacent land uses, the diversions that would result from these closures would affect primarily streets within the immediate vicinity of the project site. The project increment traffic assignments shown in the figures provided in Appendix C also reflect the diversion of 2016 No Build traffic that would result from these project-related changes to the street network.

VEHICULAR TRAFFIC

Figures showing the 2016 Build traffic networks for the seven analyzed peak hours are provided in Appendix C. The volumes shown are the combination of the 2016 No Build traffic network with the incremental traffic generated (or diverted) in 2016 under the commercial mixed-use variation (for the weekday peak hours) or the residential mixed-use variation (for the Saturday peak hours).

IMPACT ANALYSIS

The results of the analysis of 2016 Build conditions at analyzed study area intersections are summarized in Table 12-32, while the v/c ratios, delays and levels of service at all analyzed intersections in the 2016 future with the proposed project are provided in Appendix C. The identification of significant adverse traffic impacts at analyzed intersections is based on criteria presented in the *CEQR Technical Manual* and discussed earlier in this chapter in Section C, "Methodology." As shown in Table 12-32, of the 93 intersections analyzed, a total of 68 would have significant adverse impacts in one or more peak hours with full build-out of the proposed project in 2016. All of these significant adverse impacts would occur at signalized intersections. The Saturday 4-5 PM post-game and weekday AM peak hours would have the highest numbers of impacted intersections with 49 and 46, respectively, followed by the weekday PM with 44, the Saturday 1-2 PM pre-game with 41 and the weekday 7-8 PM pre-game peak hour, with 39 impacted locations. There would be 27 impacted intersections in the weekday midday peak hour. The weekday 10-11 PM peak hour would have the fewest number of impacted intersections under 2016 Build conditions with 17.

Intersections with one or more movements operating over capacity (i.e., a v/c ratio of 1.0 or greater) would total 50 in the weekday AM peak hour (compared with 38 in the 2016 No Build), 26 in the midday (13 No Build), 42 in the PM (35 No Build), 37 in the 7-8 PM pre-game (17 No Build) and six in the 10-11 PM post-game peak hour (three No Build). During the Saturday peak hours, intersections operating over capacity would total 36 and 47 during the 1-2 PM pre-game and 4-5 PM post-game periods, respectively, compared with 26 and 33 during these periods, respectively, in the 2016 No Build. Based on the number of intersections with one or more movements operating over capacity, conditions during the weekday 7-8 PM pre-game and Saturday pre- and post-game periods on days when a Nets basketball game is scheduled at the arena would be comparable in many respects to conditions experienced during the weekday AM and PM commuter peak hours.

The following provides a discussion of the impacted locations by corridor. The potential for queuing and spill-back along the principal arterials serving the project site (Flatbush, Atlantic, and 4th Avenues) as well as along Vanderbilt Avenue and at the intersection of Adams and Tillary Streets is also discussed. Measures to mitigate traffic impacts are presented in Chapter 19, "Mitigation."

Flatbush Avenue

As shown in Table 12-32, a total of 15 intersections out of 18 analyzed along the Flatbush Avenue corridor would be significantly adversely impacted in one or more peak hours in 2016. Impacts would occur on northbound and/or southbound Flatbush Avenue in all peak hours, and at all of these locations with the exception of Atlantic and 6th Avenues, Bergen Street and St. Mark's Place. One or both approaches on Flatbush Avenue would be impacted in six of seven analyzed peak hours at Myrtle Avenue, and in all peak hours at Fulton and Lafayette Streets. One or more movements on Atlantic Avenue would be impacted approaching Flatbush Avenue in all peak hours, while the Dean Street approach to Flatbush Avenue would be impacted in six of seven analyzed peak hours.

Table 12-32
Summary of Impacted Intersections—2016 Build Conditions

		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Signalized Intersections								
Flatbush Ave at	Tillary Street		①	❶①	❶①		❷①	❶②
	Myrtle Ave	❷	❶	❶	❶	❶	❶	
	Willoughby Street			❶	❶			
	DeKalb Ave				❶			
	Fulton Street	❷	❷	❶	❷①	❷	❸	❸
	Lafayette Street	❷	❷	❷	❶	❷	❷	❷
	4th Ave	❶	❶	❶	❶		❷	❷
	Atlantic Ave	③	①	③	③	①	②	②
	5th Ave				❶	❶	❶	
	Dean Street	①	①	①	❶①	❶	❷①	❶①
	Bergen Street	①						
	6th Ave	①						②
	7th Ave				❶			
	St. Mark's Place	①	①				①	
	Sterling Place						❶	

Table 12-32 (cont'd)
Summary of Impacted Intersections—2016 Build Conditions

		Analyzed Peak Hour						
		Weekday					Saturday	
		8–9 AM	12–1 PM	5–6 PM	7–8 PM	10–11 PM	1–2 PM	4–5 PM
Signalized Intersections								
Atlantic Ave at	Hicks Street	❶	❶					❶
	Henry Street		❷					❶
	Clinton Street	❶		❶	❶		❶	❷①
	Boerum Place	❶	❶			❶	❶	❷
	Smith Street	❷	❷	①	❶		❶①	❷①
	Hoyt Street	❶		❶	❷		❷	❷
	Bond Street	❷	①		❶		❷	❷
	Nevins Street	❶	❶①	❶①			❶	❶①
	3rd Ave	❶		❶			❶	❶
	4th Ave	①	❶①	❶①	❶①	❶①	❶①	❶②
	Fort Greene Place	❶		❶	❶			❶
	S. Portland Ave	❶②	❶①	❶①	❶①		❷①	❷①
	Cumberland Street							
	Carlton Ave	❶①		❶	❶		❷	❷①
	Clermont Ave	❶		❶				❶
	Clinton Ave	❶						
	Vanderbilt Ave	❸②	❸	❷②	❷		❸①	❸①
	Washington/Underhill Aves	①	①	❶①	①		①	❶①
	Grand Ave							❶
3rd Ave at	Dean Street		①	①	①		①	①
4th Ave at	Pacific Street	❷		①	①		①	①
	Dean Street	❶		①	①		①	①
	Bergen Street	❶	①	①	①		①	①
	St. Mark's Place	❶					❶	❶①
	Union Street			❶				
5th Ave at	Dean Street	①	❶①	①	❶①	①	❶①	❶①
	Bergen Street	①	①	①	①	①	①	①
	Union Street						❶	
6th Ave at	Dean Street				②	①	②	②
S. Portland Ave at	Fulton Street	①					❶	❶
Carlton Ave at	Park Ave					❶		❶
	Myrtle Ave					❶		
	Fulton Street	❶		❶	❶		❶	❶
	Pacific Street							❶
	Dean Street	①	①	①	①		①	①
	Bergen Street	①						①
Vanderbilt Ave at	Park Ave							❶
	Myrtle Ave		❶	❷	❷	❶		❶
	DeKalb Ave	❶		❷	❶			
	Fulton Street	❶		❶	❶		❶	❷
	Pacific Street	①		①				
	Dean Street	①	①	①	①	①	①	①
	Bergen Street	❷①		❶①	①		①	❶
	St. Mark's Place	❶		❶				
	Prospect Place	❶		❶				
	Park Place	❶		❶				
Underhill Ave at	Dean Street			①				①
Washington Ave at	Dean Street	①	①	①	①	①	①	①
	Eastern Parkway	❶		❶	❶		❶	❶
Adams Street at	Tillary Street	❶	❶	❷	❶	❶	❷①	❷①
Boerum Place at	Livingston Street			❶	❶		❷	①
	Schermerhorn Street			❶				
Smith Street at	Dean Street							①

Notes:
● number of movements on the major street approaches with significant adverse impacts in the peak hour.
○ number of movements on the minor street approaches with significant adverse impacts in the peak hour.

As previously discussed, future queuing can occur when a movement operates substantially over capacity, and such queuing may potentially affect both upstream and downstream intersections along a corridor. In the 2016 Build condition, over-capacity conditions that may potentially result in future queuing and spill-back along Flatbush Avenue would occur in all peak periods, but would be most concentrated in the weekday and Saturday pre- and post-game peak hours. Southbound approaches on Flatbush Avenue that may experience queuing and spill-back include those at Myrtle Avenue in the midday and the weekday and Saturday pre-game peak hours; Fulton Street in the weekday pre-game; and Dean Street in the weekday and Saturday pre- and post-game peak hours. Northbound approaches include those at Myrtle Avenue in the weekday and Saturday post-game peak hours; Lafayette Avenue in the AM; Bergen Street in the PM; and Sterling Place in the Saturday pre-game peak hour. Overall, Flatbush Avenue may experience future queuing and spill-back on one or both approaches at six intersections in one or more peak hours in the 2016 Build condition, compared with four intersections in the 2016 No Build condition.

Atlantic Avenue

A total of 20 intersections out of 22 analyzed along the Atlantic Avenue corridor would be significantly adversely impacted in one or more peak hours in 2016. As shown in Table 12-32, there would be impacts to the eastbound and/or westbound Atlantic Avenue approach in at least one peak hour at each of these 20 locations. The highest number of impacts to Atlantic Avenue would occur at Flatbush Avenue and at Vanderbilt Avenue. At Flatbush Avenue, the Atlantic Avenue approaches would experience three impacts in each of the AM, PM and 7-8 PM pre-game peak hours, two each in the two Saturday peak hours, and one each in the midday and 10-11 PM post-game peak hours. At Vanderbilt Avenue, the Atlantic Avenue approaches would experience three impacts in each of the weekday AM, midday and two Saturday peak hours, two impacts each in the PM and 7-8 PM pre-game peak hours, and no impacts in the 10-11 PM post-game peak hour. Vanderbilt Avenue would be impacted approaching Atlantic Avenue in the weekday AM, PM, and both Saturday peak hours. Atlantic Avenue would be impacted during six of the seven analyzed peak hours at 4th Avenue, S. Portland Avenue and Vanderbilt Avenue in the 2016 Build condition.

In the 2016 Build, over-capacity conditions that may potentially result in future queuing and spill-back along Atlantic Avenue would occur in all peak periods except the weekday 10-11 PM post-game peak hour. Eastbound approaches on Atlantic Avenue that may experience future queuing and spill-back include those at Smith Street in the AM, midday, weekday pre-game, and Saturday pre- and post-game peak hours; Bond Street in the AM, weekday pre-game, and Saturday pre- and post-game; and 4th Avenue in the PM and weekday and Saturday pre-game peak hours. Westbound approaches subject to future queuing include Henry Street in the Saturday post-game; Boerum Place in the Saturday pre-game and post-game; Smith Street, Bond Street, and 3rd Avenue in the AM and Saturday post-game; Hoyt Street in the AM, PM and both Saturday peak hours; Nevins Street in the AM, PM, and both Saturday peak hours; and Flatbush Avenue, Fort Greene Place and Clermont Street in the AM peak hour. Overall, Atlantic Avenue may experience future queuing and spill-back on one or both approaches at 12 intersections in one or more peak hours in the 2016 Build condition, compared with six intersections in the 2016 No Build.

4th Avenue

A total of seven analyzed intersections along 4th Avenue would be significantly adversely impacted in one or more peak hours in the 2016 Build condition. At Atlantic Avenue, the 4th Avenue approach would be impacted in all peak hours, while Atlantic Avenue approaches would be impacted in all but the weekday AM. Flatbush Avenue at 4th would be impacted in all but the weekday 10-11 PM post-game peak hour. At least one approach on 4th Avenue would be impacted at Pacific Street (in the weekday AM), Dean Street (weekday AM), Bergen Street (weekday AM), St. Mark's Place (weekday AM and both Saturday peak hours), and Union Street (weekday PM). The Bergen Street approach to 4th Avenue would be impacted in all but the weekday AM and 10-11 PM peak hour.

In the 2016 Build, over-capacity conditions that may potentially result in future queuing and spill-back along 4th Avenue would occur during the weekday AM peak hour when the northbound approaches at Pacific and Dean Streets would both be operating substantially over capacity. Neither of these approaches was identified as a potential location for queuing or spill-back in the 2016 No Build condition.

5th Avenue

A total of four analyzed intersections along 5th Avenue would be significantly adversely impacted in one or more peak hours in the 2016 Build condition. Flatbush Avenue would be impacted at 5th Avenue in the weekday 7-8 PM pre-game and 10-11 PM post-game peak hours, and the Saturday 1-2 PM pre-game peak hour. 5th Avenue would be impacted approaching Dean Street in the weekday midday, 7-8 PM pre-game, both Saturday peak hours, and at Union Street in the Saturday 1-2 PM pre-game peak hour. The Bergen Street approach to 5th Avenue would be impacted in all peak hours, as would the Dean Street approach.

6th Avenue

A total of four analyzed intersections along 6th Avenue/S. Portland Avenue would be significantly adversely impacted in one or more peak hours in the 2016 Build condition. Sixth Avenue would be impacted at Flatbush Avenue in the weekday AM and Saturday 4-5 PM post-game peak hours. Dean Street would be impacted approaching Sixth Avenue in the weekday 7-8 PM pre-game, 10-11 PM post-game, and both Saturday peak hours.

S. Portland Avenue would experience significant adverse impacts approaching Atlantic Avenue in all but the weekday 10-11 PM post-game peak hour, and at Fulton Street in both Saturday peak hours. The westbound Fulton Street approach at S. Portland Avenue would be impacted in the weekday 8-9 AM peak hour.

Carlton Avenue

As shown in Table 12-32, a total of seven analyzed intersections along Carlton Avenue would be significantly adversely impacted in one or more peak hours in the 2016 Build condition. Carlton Avenue would be impacted at Fulton Street in all but the weekday midday and 10-11 PM post-game peak hours, at Atlantic Avenue in the weekday AM and Saturday 4-5 PM post-game peak hours, at Park Avenue in the weekday 10-11 PM and Saturday 4-5 PM post-game peak hours, at Myrtle Avenue in the weekday 10-11 PM post-game peak hour, and at Pacific Street in the Saturday 4-5 PM post-game peak hour. The Dean Street approach to Carlton Avenue would be impacted in all but the weekday 10-11 PM post-game peak hour, while Bergen Street would be impacted in the weekday AM and Saturday 4-5 PM post-game peak hours.

Vanderbilt Avenue

A total of 11 analyzed intersections along Vanderbilt Avenue would be significantly adversely impacted in one or more peak hours in the 2016 Build condition. The northbound and/or southbound approach on Vanderbilt Avenue would be impacted in one or more peak hours at Park, Myrtle, DeKalb and Atlantic Avenues, at Fulton and Bergen Streets, and at St. Mark's Place, Prospect Place, and Park Place. Vanderbilt Avenue would be impacted at Atlantic Avenue in the weekday AM, PM and both Saturday peak hours, and at Myrtle Avenue in all but the AM and Saturday 1-2 PM pre-game peak hour. There would be no significant adverse impacts to either Vanderbilt Avenue approach at Dean Street; however, the Dean Street approach would be impacted in all peak hours.

As was the case for the 2016 No Build condition, in the 2016 Build, over-capacity conditions that may potentially result in future queuing and spill-back would occur along northbound Vanderbilt Avenue from Park Place to Bergen Street in the weekday AM peak hour, and along southbound Vanderbilt Avenue from Bergen Street to Park Place in the weekday PM peak hour. Additional locations potentially subject to future queuing and spill-back in the 2016 Build include the southbound approach at Fulton Street in both Saturday peak hours; the northbound approach at DeKalb Avenue in the PM; and both the northbound and southbound approaches at Myrtle Avenue in the PM and 7-8 PM pre-game peak hours. Overall, Vanderbilt Avenue may experience future queuing and spill-back on one or both approaches at a total of seven intersections in one or more peak hours in the 2016 Build condition, compared with four intersections in the 2016 No Build.

Washington Avenue/Underhill Avenue

A total of four analyzed intersections along Washington Avenue would be significantly adversely impacted in one or more peak hours in the 2016 Build condition. Washington Avenue would be significantly adversely impacted at Atlantic Avenue in all but the weekday 10-11 PM post-game peak hour in 2016. At Eastern Parkway, Washington Avenue would be impacted in the weekday AM, PM, 7-8 PM pre-game, and both Saturday peak hours. At the intersection with Dean Street, there would be no significant adverse impacts to Washington Avenue in any peak hour, however, the Dean Street approach would be impacted in all peak hours. Dean Street would also be impacted at Underhill Avenue in the weekday PM and Saturday post-game peak hours.

Dean Street/Bergen Street

As previously discussed, eastbound Dean Street and westbound Bergen Street function as an east-west couplet along the southern boundary of the project site. As shown in Table 12-16, a total of 10 analyzed intersections along eastbound Dean Street would be significantly adversely impacted in one or more peak hours in the 2016 Build condition. On weekdays, Dean Street would be impacted at five intersections in the AM peak hour, six in the midday, eight in the PM, eight in the 7-8 PM pre-game, and four in the 10-11 PM post-game peak hour. On Saturdays, Dean Street would be impacted at eight intersections in the 1-2 PM pre-game peak hour and 10 intersections in the 4-5 PM post-game peak hour.

Westbound Bergen Street would be significantly adversely impacted in one or more peak hours at a total of five intersections. On weekdays, Bergen Street would be impacted at four intersections in the AM peak hour, two in the midday, three each in the PM and 7-8 PM pre-game, and one in the 10-11 PM post-game peak hour. On Saturdays, Bergen Street would be impacted at three intersections in each of the two analyzed peak hours.

Boerum Place

In the 2016 Build condition, three intersections along Boerum Place would be significantly adversely impacted in one or more analyzed peak hours. Atlantic Avenue would be impacted at Boerum Place in all but the weekday 5-6 PM and 7-8 PM pre-game peak hours. Boerum Place would be impacted at Livingston Street in the weekday PM, 7-8 PM pre-game and Saturday 1-2 PM pre-game peak hours, and at Schermerhorn Street in the weekday PM.

Other Corridors

In addition to the locations discussed above, the intersection of Adams and Tillary Streets would be significantly adversely impacted in all peak hours. As shown in Table 12-32, There would be impacts to Adams Street in all peak hours, and to Tillary Street in both Saturday peak hours. In the 2016 Build, over-capacity conditions that may potentially result in future queuing and spill-back would occur along the southbound Adams Street approach at Tillary Street in the Saturday pre-game peak hour, and along the northbound approach in the Saturday post-game peak hour. These over-capacity conditions would not be evident in the 2016 No Build.

Brooklyn and Manhattan Bridges

As discussed earlier in this chapter, some auto and taxi trips en route to and from the proposed project are expected to utilize the Brooklyn and Manhattan Bridges. A portion of the project-generated truck trips are also expected to utilize the Manhattan Bridge. Typically, weekday traffic volumes on these bridges peak in the Manhattan-bound direction in the AM peak hour and the Brooklyn-bound direction in the PM. By contrast, on weekdays the proposed project would generate its highest Manhattan-bound demand on these bridges during the PM post-game peak hour, and its highest Brooklyn-bound demand during the PM pre-game peak period due to demand from the arena. Project-generated vehicle trips in 2016 on the Brooklyn and Manhattan Bridges during the weekday AM, PM, pre-game, and post-game peak hours are presented below. (Figures showing the 2010 and 2016 project increment traffic volumes en route to and from each of these bridges in all peak hours are provided in Appendix C.) Peaking patterns for both baseline and project increment traffic are similar for both the Brooklyn and the Manhattan Bridges, although the Manhattan Bridge typically experiences lower overall traffic volumes than the Brooklyn Bridge, as it does not provide a direct connection to the FDR Drive in Manhattan.

		Manhattan-bound Project Increment Vehicle Trips	Brooklyn-bound Project Increment Vehicle Trips
Brooklyn Bridge	8-9 AM	167	84
	5-6 PM	128	199
	7-8 PM	109	489
	10-11 PM	401	126
Manhattan Bridge	8-9 AM	85	73
	5-6 PM	94	107
	7-8 PM	66	378
	10-11 PM	363	65

LOS A 0-11 (pc/mi/ln)
LOS B >11-18
LOS C >18-26
LOS D >26-35
LOS E >35-45
LOS F >45

For the Brooklyn-bound direction, the analysis focused on the 5-6 PM and 7-8 PM peak hours as the periods when baseline traffic and project-generated traffic would be highest. For the Manhattan-bound direction, 8-9 AM and 10-11 PM were selected for analysis as the peak periods for baseline and project increment demand.

Under *CEQR Technical Manual* criteria for analyzing an independent facility such as a highway segment or bridge, a deterioration by more than one-half an LOS between No Build and Build conditions would constitute a significant adverse impact when the No Build level of service is in the D, E, or F ranges. The screening analysis found that under 2016 Build conditions, both bridges would operate at LOS D or better in each direction during the analyzed peak hours, and that the maximum change in density for either facility in any analyzed peak hour resulting from the addition of project-generated traffic would be 3.7 pc/mi/ln or less. As the changes in traffic-flow density on the two bridges would therefore remain below the *CEQR Technical Manual* threshold of more than one-half LOS at LOS D (4.5 pc/mi/ln) in each analyzed peak hour, no significant adverse impacts to traffic flow on the Brooklyn and Manhattan Bridges as independent facilities are anticipated to result from the proposed project. It should be noted, however, that some future queuing would likely occur on the bridges (as is presently the case) due to congestion at the metering intersections during peak periods.

BICYCLE FACILITIES

As previously discussed, with development of Phase I of the proposed project in 2010, a bicycle station would be provided on the arena block in ground floor space along the 6th Avenue corridor. This bicycle station would be a secured, staffed facility providing storage for 400 bicycles. At this location it would be conveniently situated next to the arena and easily accessible from the bicycle lanes on Dean and Bergen Streets. As currently contemplated, this facility would occupy approximately 4,000 square feet of space including 3,000 square feet of storage space for bicycles and 300 square feet for amenities such as lockers, restrooms and a security desk. In addition, an approximately 700-square-foot bicycle repair and accessory retail shop would be incorporated into the facility to provide services to both users of the bicycle station and the surrounding community.

By the 2016 Build year it is anticipated that DOT will have implemented new on-street bike lanes along Cumberland Street/Washington Park and Carlton Avenue between Park and Flatbush Avenues to provide a north-south connection for bicyclists through Prospect Heights and Fort Greene. However, due to the lack of suitable north-south roadways, connections across Atlantic Avenue to and from the pair of east-west bike lanes on Dean and Bergen Streets will be awkward, requiring bicyclists to ride opposite the flow of traffic along a portion of Carlton Avenue. As part of the Atlantic Yards Arena project, it is therefore proposed to provide bike paths through portions of the project's open space to improve the connection between the north-south and east-west bike lanes. As shown in Figure 1-11 in Chapter 1, "Project Description," a southbound off-street bicycle path would be provided from the Atlantic Avenue/Cumberland Street intersection to Pacific Street. Southbound bicyclists would then head east on Pacific Street to its intersection with Carlton Avenue where a new off-street bike path would continue east through the proposed project's open space before turning south midblock to connect with the eastbound bike lane along Dean Street. These new off-street bike path segments would be implemented in conjunction with the development on Blocks 1120, 1121, and 1129 in Phase II of the proposed project.

The proposed project's commercial components (which would be developed by 2010) would likely generate some new commuter trips by bicycle, primarily during the weekday 8-9 AM and 5-6 PM peak periods. The project's residential components (which would be fully built out by 2016) would likely generate some new commuter trips by bicycle in the weekday peak commuter periods, as well as recreational and discretionary trips during other weekday periods and on weekends. As previously discussed, events at the arena would also likely generate some new bicycle trips, especially afternoon events on weekends during warm weather months. However, an event such as a Nets basketball game on a weekday evening would likely generate fewer numbers of new bicycle trips as it would typically end after dark (between 10 PM and 11 PM), and would often occur during winter months when inclement weather would make the bicycle mode a less attractive travel option.

Much of the bicycle demand generated by the proposed project in 2016 is expected to utilize the east-west on-street bike lanes located immediately to the south of the project site on Dean and Bergen Streets, and the north-south bike lanes planned by DOT for Carlton Avenue and Cumberland Street/Washington Park. Permanent street closures and changes in street directions associated with the proposed project would not occur along any street segment with an existing or planned on-street bike lane or along a bicycle route recommended under the City's *Bicycle Network Development Program*. The proposed project would, however, generate new vehicular traffic along many study area roadways, including those used by bicyclists. Some traffic displaced because of project-related changes to the street system would also likely divert to streets used by bicyclists.

ACCIDENTS

With full build-out in 2016, the proposed project would incorporate a number of design features that are expected to reduce the potential for conflicts between vehicles, pedestrians, and bicyclists, and enhance overall safety. These include

- The closure of the segment of 5th Avenue traversing the arena block which would eliminate two pedestrian crossings—the south crosswalk on 5th Avenue at Atlantic Avenue and the north crosswalk on 5th Avenue at Flatbush Avenue;
- The reconfiguration of Atlantic Avenue adjacent to the project site to provide for three eastbound travel lanes which would eliminate the current awkward transition from three travel lanes to two as eastbound vehicles traverse the intersection with Flatbush Avenue;
- The proposed eight-foot-wide lay-by lane along the south curb of Atlantic Avenue adjacent to the project site which would eliminate conflicts caused by buses stopped in a traffic lane on eastbound Atlantic Avenue;
- The major new on-site entrance to the Atlantic Avenue/Pacific Street subway station complex which would eliminate the need for subway riders to negotiate the Atlantic Avenue/Flatbush Avenue intersection or cross Atlantic Avenue at other locations;
- The implementation of new off-street bike route segments through the project site to more safely connect existing and planned on-street bike routes; and
- The installation of new high visibility crosswalks (crosswalks delineated by one-foot-wide stripes at a spacing of two feet on center perpendicular to the direction of travel) and improved lighting at key intersections adjacent to the project site.

With the exception of the new off-street bike route segments through the project site, all of these changes would be implemented by 2010.

As previously discussed, the intersection with the highest overall number of accidents from 2002 through 2004 is the intersection of Atlantic Avenue and Flatbush Avenue which experienced a total of 41 reportable accidents during this three-year period. Factors that likely contribute to the relatively high accident rate at this intersection are its skewed geometry, long pedestrian crossing distances, and the amount of pedestrian activity generated by the proximity of the subway/LIRR terminal, the Atlantic Terminal and Atlantic Center shopping malls, and numerous bus stops. The proposed project is expected to add appreciable numbers of vehicles and pedestrians to this location. With full build-out of the proposed project in 2016, it is estimated that there would be a four to eight percent increase in vehicular traffic through this intersection during the weekday AM, midday, and PM peak hours, and a 12 to 15 percent increase during the weekday and Saturday pre-game and post-game peak hours.

As noted above, the proposed project would include a major new on-site entrance to the Atlantic Avenue/Pacific Street subway station complex, eliminating the need for pedestrians en route to or from the subway to negotiate the intersection of Atlantic and Flatbush Avenues. However, many project-generated pedestrian trips en route to and from outlying parking facilities, bus stops, the LIRR and other locations to the north and west of the project site would still pass through the intersection, mostly concentrated on the south and east crosswalks. Upwards of 2,700 peak hour pedestrian trips would be added to each of these crosswalks in 2016, with the highest volumes occurring during the weekday and Saturday pre-game and post-game periods. Overall, the combination of new vehicular traffic and substantial numbers of new pedestrian trips on the crosswalks may increase the potential for vehicle/vehicle and vehicle/pedestrian conflicts at this intersection, and thereby potentially increase vehicular and pedestrian exposure to accidents.

The intersection with the second highest overall number of accidents is the intersection of Atlantic and Vanderbilt Avenues which experienced a total of 39 reportable accidents from 2002 through 2004. With full build-out of the proposed project in 2016, it is estimated that there would be a five to nine percent increase in vehicular traffic through this intersection during the weekday AM, midday, and PM peak hours, and a 14 to 22 percent increase during the weekday and Saturday pre-game and post-game peak hours. The proposed project would also add upwards of 460 new pedestrian trips in each peak hour through this intersection, with most of these new pedestrian trips concentrated on the south and west crosswalks. As at the Atlantic Avenue/Flatbush Avenue intersection, the combination of new vehicular traffic and new pedestrian trips on the crosswalks may increase the potential for vehicle/vehicle and vehicle/pedestrian conflicts at this intersection, and thereby potentially increase vehicular and pedestrian exposure to accidents. It should also be noted, however, that the proposed residential development on Block 1121 would displace the existing service station at the southwest corner of the intersection. This would eliminate curb cuts and vehicle turning movements in proximity to the intersection, thereby reducing the potential for conflicts and accidents at this location.

The intersection of Flatbush Avenue and Dean Street at the southwest corner of the project site would be located immediately adjacent to the proposed arena. From 2002 through 2004, this intersection experienced a total of 21 reportable accidents, including three accidents in 2002 involving bicyclists. With full build-out of the proposed project in 2016, it is estimated that vehicular traffic through this intersection would increase by seven to 11 percent during the weekday AM, midday, and PM peak hours, and by six to 19 percent increase during the weekday and Saturday pre-game and post-game peak hours. The proposed project would also add up to 425 new pedestrian trips in each peak hour through this intersection, mostly concentrated on the north and east crosswalks. Substantial new pick-up and drop-off activity

would also occur in the vicinity of the intersection, especially along the west curb of Flatbush Avenue and north curb of Dean Street where new lay-by lanes are proposed adjacent to the arena. Increased bicycle demand is also expected to traverse the intersection on the existing bike lane along the north curb of Dean Street. The combination of new vehicular, pedestrian and bicycle trips, and increased curbside activity may increase the potential for conflicts at this intersection with full implementation of the proposed project. It should also be noted, however, that the proposed development on the arena block would displace the existing service station at the northeast corner of the intersection of Flatbush Avenue and Dean Street. This would eliminate curb cuts and vehicle turning movements in proximity to the intersection, thereby reducing some of the existing potential for conflicts and accidents at this location.

As previously noted, at the adjacent intersection of Flatbush Avenue with 5th Avenue, the number of crosswalks and potential vehicle movements would be reduced with the closure of 5th Avenue between Flatbush and Atlantic Avenues (see Figure 12-5a/b). The eastern leg of this intersection would be closed, the crosswalk on 5th Avenue along the eastern side of Flatbush Avenue would be replaced by a continuous sidewalk, and vehicular turning movements would be reduced with the elimination of the westbound approach, and the northbound right-turn and southbound left-turn movements. This would reduce the potential for vehicle/vehicle and vehicle/pedestrian conflicts and thereby potentially decrease vehicular and pedestrian exposure to accidents. A similar situation would occur to the north on Atlantic Avenue where the proposed project would eliminate the 5th Avenue approach to the intersection along with the eastbound right-turn and westbound left-turn movements, and would replace the crosswalk on 5th Avenue along the southern side of Atlantic Avenue with a continuous sidewalk.

Also of note is the uncontrolled intersection of Flatbush Avenue and Pacific Street, where a total of 11 reportable accidents occurred from 2002 through 2004, although the only turning movement allowed at this intersection—the southbound right-turn from Flatbush Avenue onto Pacific Street—has no conflicting vehicular movements. In the Build condition, Pacific Street would be reconfigured from one-way westbound to two-way operation between Flatbush and 4th Avenues. The new eastbound approach to Flatbush Avenue would be stop-controlled, and the left-turn from northbound Flatbush Avenue would continue to be prohibited. (Field observations indicate that vehicles making illegal left-turns from northbound Flatbush Avenue onto Pacific Street is a frequent occurrence, and this may be a contributing factor to the accident rate at this location.) The crosswalk on Pacific Street would remain, and no new crosswalks would be introduced. (Further changes to the operation of this intersection are proposed for the "Build With Mitigation" condition; see Chapter 19, "Mitigation.")

6th Avenue between Atlantic and Flatbush Avenues would also be converted to two-way operation (from one-way southbound) under the proposed project, with the roadway widened to 40 feet in width. As at other locations in the vicinity of the project site, vehicular and pedestrian volumes are expected to increase. To enhance pedestrian safety along the corridor, new high visibility crosswalks would be installed at the intersections with Atlantic Avenue, Pacific Street and Dean Street, along with new regular crosswalks at Bergen Street and at Flatbush Avenue. New crosswalk striping would also be installed along Carlton Avenue (which would be converted from one-way northbound to two-way operation between Atlantic Avenue and Pacific Street), and at intersections along Atlantic Avenue adjacent to the project site. In addition, raised medians to be installed along Atlantic Avenue adjacent to the project site would include recessed areas for pedestrian refuge at Clermont Avenue and at Cumberland Street.

In summary, the proposed project would substantially increase vehicular, pedestrian, and bicycle traffic in the vicinity of the project site. This includes the intersection of Atlantic and Flatbush Avenues at which factors such as a skewed geometry, long pedestrian crossing distances, and pedestrian activity generated by adjacent retail and transportation nodes likely contributed to the 41 reportable accidents that occurred at this location from 2002 through 2004. With development of the proposed project in 2016, peak hour vehicular traffic through this intersection would increase by four to 15 percent, and crosswalks would experience upwards of 2,700 new peak hour pedestrian trips. The combination of substantial numbers of new pedestrian trips on the crosswalks and new vehicular traffic may increase the potential for vehicle/vehicle and vehicle/pedestrian conflicts at this intersection, and thereby potentially increase vehicular and pedestrian exposure to accidents, especially during the weekday and Saturday pre-game and post-game peak hours when the greatest increases in travel demand would occur. Other intersections in proximity to the project site would also experience appreciable increases in vehicular and pedestrian demand, and therefore increased potential for vehicle/vehicle and vehicle/pedestrian conflicts and vehicular and pedestrian exposure to accidents. Uses that may contribute to conflicts at the intersection of Atlantic and Vanderbilt Avenues and Flatbush Avenue and Dean Street would be eliminated.

The proposed project would incorporate a number of design features that would enhance overall safety, including the elimination of several roadway segments through the project site; a major new on-site entrance to the Atlantic Avenue/Pacific Street station complex to eliminate the need for subway riders en route to and from the south to cross Atlantic Avenue; new high visibility crosswalks and lighting at key intersections in the vicinity of the project site; and new off-street bike route segments through the project site to more safely connect existing and planned on-street bike routes. Additional potential measures to facilitate vehicle and pedestrian flow, reduce conflicts, and decrease vehicular and pedestrian exposure to accidents at study area intersections are discussed in Chapter 19, "Mitigation."

PARKING

OFF-STREET PARKING

Under both the proposed project's residential mixed-use and commercial mixed-use variations, a total of six on-site public parking garages would be developed by 2016. Approximately 400 spaces would be provided in a parking garage on Site 5, with two below-grade levels and an entrance midblock on Pacific Street. Approximately 350 additional spaces would be provided in a second two-level public parking garage located on the arena block beneath Buildings 2 and 3. (No parking would be provided beneath the arena itself.) The entrance to this facility would be located on Dean Street approximately 100 feet west of 6th Avenue. A further 2,920 public parking spaces would be provided in four additional parking garages: a 350-space, two-level garage on the southwest quadrant of Block 1120 with an entrance on 6th Avenue; a 450-space, two-level garage beneath Buildings 6 and 7 on Block 1120 with an entrance on Carlton Avenue, a 150-space, two-level garage beneath Building 15 on Block 1128 with an entrance on Pacific Street; and a 1,970-space, two-level garage on Block 1129 with three entrances, one each on Carlton Avenue, Vanderbilt Avenue and Dean Street. The locations of these permanent parking facilities are shown in Figure 1-12 in Chapter 1, "Project Description."

The three temporary parking lots located on blocks 1120 and 1129 in Phase I of the proposed project would be replaced by these new permanent facilities, all of which would be attendant-park facilities and would employ car-stackers. Overall, the public parking facilities developed

with full build-out of the proposed project would provide a total of approximately 3,670 spaces to accommodate the parking demand generated by the arena, office, residential, hotel, and local retail uses that would be developed by 2016 under either the proposed project's residential mixed-use or commercial mixed-use variations. Approximately 1,100 of these on-site spaces would be available to accommodate a portion of the demand from the proposed arena. (Remaining arena demand would be accommodated at off-site parking facilities.) It is anticipated that many residential parkers would have reserved monthly spaces that would remain available for their use during arena events. In addition, it is anticipated that a system for reserving on-site parking at time of ticket purchase would be implemented to manage arena parking demand and further ensure that residential users would not be displaced. No existing public parking capacity would be displaced from the project site.

Tables 12-33 through 12-36 show the total estimated hourly parking demand by use that would be generated by the proposed project's residential mixed-use and commercial mixed-use variations on weekdays and on Saturdays in the 2016 Build condition. As shown in Tables 12-33 and 12-34, in 2016 the residential mixed-use variation would generate a total demand for approximately 2,397 parking spaces in the weekday AM (7 AM) and 1,641 spaces at noon. Peak project parking demand during a Nets basketball game would total approximately 4,819 spaces during a weekday evening game and 3,381 spaces for a Saturday afternoon game. As shown in Tables 12-35 and 12-36, the commercial mixed-use variation would generate a total demand for approximately 1,987 parking spaces in the weekday AM and 1,784 spaces at noon. Peak project parking demand during a Nets basketball game would total approximately 4,387 spaces during a weekday evening game and 3,222 spaces for a Saturday afternoon game. The higher levels of weekday AM and evening game-time parking demand exhibited by the residential mixed-use variation reflects the higher demand for evening and overnight residential parking under this variation. The higher level of weekday midday parking demand projected under the commercial mixed-use variation reflects commuter/visitor demand from this variation's larger office component.

Tables 12-37 and 12-38 show the 2016 off-street parking conditions with development of the proposed project's residential mixed-use and commercial mixed-use variations, respectively. As shown in Table 12-37, under the residential mixed-use variation, the number of available parking spaces in off-street parking facilities within ½-mile of the proposed arena would total 2,509 in the weekday AM, 2,261 in the midday, 624 during weekday evening Nets basketball game, and 2,140 during a Saturday afternoon Nets game. As shown in Table 12-38, under the commercial mixed-use variation, the number of available spaces would total 2,919 in the weekday AM, 2,118 in the midday, 1,056 during weekday evening Nets basketball game, and 2,299 during a Saturday afternoon Nets game. This compares to 1,236 spaces available in the weekday AM, 232 in the midday, 1,773 during a weekday evening Nets basketball game and 1,851 during a Saturday afternoon Nets game in the 2016 No Build. The higher numbers of parking spaces available in the weekday AM and midday periods under both variations compared with the 2016 No Build condition reflect, in part, arena parking that would typically be available for other uses during these periods.

Table 12-33
Weekday Hourly Parking Accumulation for the Proposed Project - 2016
Residential Variation

	Site 5				Arena Block						Block 1120			Block 1121			Block 1128			Block 1129			
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	**Project Total**
12-1 AM	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
1-2	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
2-3	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
3-4	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
4-5	129	0	0	129	0	712	0	0	36	748	617	0	617	571	0	571	114	0	114	420	0	420	**2,599**
5-6	126	0	0	126	0	691	1	0	36	728	599	0	599	554	0	554	111	0	111	408	0	408	**2,526**
6-7	119	0	0	119	3	653	8	0	35	699	565	0	565	523	0	523	105	0	105	386	0	386	**2,397**
7-8	108	0	0	108	27	593	28	0	33	681	514	0	514	475	0	475	94	0	94	350	0	350	**2,222**
8-9	91	0	0	91	76	500	84	0	30	690	433	0	433	400	0	400	79	0	79	294	0	294	**1,987**
9-10	84	0	1	85	106	464	110	2	26	708	402	0	402	371	1	372	73	0	73	273	1	274	**1,914**
10-11	75	0	2	77	110	419	112	3	26	670	363	2	365	335	2	337	66	1	67	246	3	249	**1,765**
11-12	69	0	2	71	104	387	107	3	25	626	335	3	338	309	2	311	61	2	63	228	4	232	**1,641**
12-1 PM	69	0	2	71	91	389	104	3	31	618	337	3	340	310	2	312	62	2	64	229	4	233	**1,638**
1-2	67	0	2	69	102	380	108	3	29	622	329	2	331	302	2	304	61	1	62	224	3	227	**1,615**
2-3	66	0	2	68	109	376	111	3	19	618	326	2	328	298	2	300	61	1	62	221	4	225	**1,601**
3-4	70	0	3	73	111	398	111	3	21	644	346	2	348	316	2	318	63	1	64	235	4	239	**1,686**
4-5	74	0	3	77	108	415	91	3	22	639	360	2	362	330	2	332	66	1	67	245	4	249	**1,726**
5-6	84	0	3	87	294	470	28	3	25	820	407	2	409	374	2	376	75	1	76	277	4	281	**2,049**
6-7	95	0	1	96	501	522	16	2	23	1,064	451	2	453	415	2	417	83	0	83	308	3	311	**2,424**
7-8	105	0	1	106	2,459	578	4	2	26	3,069	500	2	502	461	2	463	92	0	92	342	3	345	**4,577**
8-9	111	0	0	111	2,517	610	2	1	29	3,159	528	1	529	487	1	488	97	0	97	361	1	362	**4,746**
9-10	119	0	0	119	2,426	656	1	0	32	3,115	568	0	568	525	0	525	104	0	104	388	0	388	**4,819**
10-11	128	0	0	128	135	707	0	0	36	878	613	0	613	566	0	566	113	0	113	418	0	418	**2,716**
11-12	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**

This table has been revised for the FEIS.

Table 12-34
Saturday Hourly Parking Accumulation for the Proposed Project - 2016
Residential Variation

	Site 5				Arena Block						Block 1120			Block 1121			Block 1128			Block 1129			
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	**Project Total**
12-1 AM	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
1-2	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
2-3	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
3-4	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
4-5	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**
5-6	127	0	0	127	0	698	0	0	35	733	606	0	606	560	0	560	112	0	112	413	0	413	**2,551**
6-7	118	0	0	118	3	648	0	0	35	686	563	0	563	520	0	520	105	0	105	384	0	384	**2,376**
7-8	104	0	0	104	16	566	1	0	32	615	492	0	492	457	0	457	92	0	92	335	0	335	**2,095**
8-9	84	0	1	85	64	452	4	1	29	550	394	0	394	366	0	366	74	0	74	268	1	269	**1,738**
9-10	73	0	1	74	90	393	6	1	23	513	342	0	342	318	1	319	64	0	64	233	1	234	**1,546**
10-11	62	0	1	63	138	334	6	1	23	502	290	0	290	270	2	272	54	1	55	198	1	199	**1,381**
11-12	54	0	1	55	348	291	6	1	14	660	252	0	252	236	2	238	47	1	48	173	1	174	**1,427**
12-1 PM	37	0	1	38	500	200	6	2	33	741	172	0	172	162	2	164	33	1	34	119	1	120	**1,269**
1-2	37	0	2	39	2,424	200	6	3	35	2,668	172	0	172	162	2	164	33	1	34	119	1	120	**3,197**
2-3	39	0	3	42	2,461	212	7	4	32	2,716	182	0	182	171	2	173	35	1	36	126	1	127	**3,276**
3-4	49	0	3	52	2,382	267	7	4	14	2,674	231	1	232	216	2	218	44	1	45	159	1	160	**3,381**
4-5	49	0	2	51	201	267	5	3	16	492	231	1	232	216	2	218	44	1	45	159	1	160	**1,198**
5-6	75	0	2	77	86	415	1	3	18	523	359	1	360	334	2	336	67	1	68	245	1	246	**1,610**
6-7	92	0	1	93	26	510	0	3	21	560	442	1	443	410	2	412	82	0	82	300	0	300	**1,890**
7-8	110	0	0	110	0	609	0	1	22	632	528	1	529	489	2	491	98	0	98	358	0	358	**2,218**
8-9	122	0	0	122	0	673	0	0	26	699	584	1	585	540	2	542	108	0	108	395	0	395	**2,451**
9-10	127	0	0	127	0	698	0	0	31	729	606	1	607	561	1	562	112	0	112	411	0	411	**2,548**
10-11	129	0	0	129	0	708	0	0	35	743	615	0	615	569	0	569	114	0	114	418	0	418	**2,588**
11-12	130	0	0	130	0	714	0	0	36	750	620	0	620	573	0	573	115	0	115	422	0	422	**2,610**

This table has been revised for the FEIS.

Table 12-35
Weekday Hourly Parking Accumulation for the Proposed Project - 2016
Commercial Variation

	Site 5				Arena Block						Block 1120			Block 1121			Block 1128			Block 1129			
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	**Project Total**
12-1 AM	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
1-2	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
2-3	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
3-4	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
4-5	0	0	0	0	0	401	0	0	0	401	617	0	617	571	0	571	114	0	114	420	0	420	**2,123**
5-6	0	1	0	1	0	390	2	0	0	392	599	0	599	554	0	554	111	0	111	408	0	408	**2,065**
6-7	0	8	0	8	3	367	30	0	0	400	565	0	565	523	0	523	105	0	105	386	0	386	**1,987**
7-8	0	29	0	29	27	333	108	0	0	468	514	0	514	475	0	475	94	0	94	350	0	350	**1,930**
8-9	0	85	0	85	76	281	318	0	0	675	433	0	433	400	0	400	79	0	79	294	0	294	**1,966**
9-10	0	111	1	112	106	260	422	1	0	789	402	0	402	371	1	372	73	0	73	273	1	274	**2,022**
10-11	0	112	2	114	110	234	429	2	0	775	363	2	365	335	2	337	66	1	67	246	3	249	**1,907**
11-12	0	107	2	109	104	216	409	2	0	731	335	3	338	309	2	311	61	2	63	228	4	232	**1,784**
12-1 PM	0	104	2	106	91	217	399	2	0	709	337	3	340	310	2	312	62	2	64	229	4	233	**1,764**
1-2	0	108	2	110	102	212	416	2	0	732	329	2	331	302	2	304	61	1	62	224	3	227	**1,766**
2-3	0	111	2	113	109	209	429	2	0	749	326	2	328	298	2	300	61	1	62	221	4	225	**1,777**
3-4	0	111	3	114	111	222	429	2	0	764	346	2	348	316	2	318	63	1	64	235	4	239	**1,847**
4-5	0	91	3	94	108	232	351	2	0	693	360	2	362	330	2	332	66	1	67	245	4	249	**1,797**
5-6	0	28	3	31	294	263	112	2	0	671	407	2	409	374	2	376	75	1	76	277	4	281	**1,844**
6-7	0	16	1	17	501	292	65	1	0	859	451	2	453	415	2	417	83	0	83	308	3	311	**2,140**
7-8	0	4	1	5	2,459	324	18	1	0	2,802	500	2	502	461	2	463	92	0	92	342	3	345	**4,209**
8-9	0	2	0	2	2,517	343	12	0	0	2,872	528	1	529	487	1	488	97	0	97	361	1	362	**4,350**
9-10	0	1	0	1	2,426	369	6	0	0	2,801	568	0	568	525	0	525	104	0	104	388	0	388	**4,387**
10-11	0	0	0	0	135	397	0	0	0	532	613	0	613	566	0	566	113	0	113	418	0	418	**2,242**
11-12	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**

This table has been revised for the FEIS.

Table 12-36
Saturday Hourly Parking Accumulation for the Proposed Project - 2016
Commercial Variation

	Site 5				Arena Block						Block 1120			Block 1121			Block 1128			Block 1129			
	Residential	Office	Local Retail	Total	Arena	Residential	Office	Local Retail	Hotel	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	Residential	Local Retail	Total	**Project Total**
12-1 AM	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
1-2	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
2-3	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
3-4	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
4-5	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**
5-6	0	0	0	0	0	393	0	0	0	393	606	0	606	560	0	560	112	0	112	413	0	413	**2,084**
6-7	0	0	0	0	3	365	1	0	0	369	563	0	563	520	0	520	105	0	105	384	0	384	**1,941**
7-8	0	1	0	1	16	317	5	0	0	338	492	0	492	457	0	457	92	0	92	335	0	335	**1,715**
8-9	0	4	1	5	64	253	15	1	0	333	394	0	394	366	0	366	74	0	74	268	1	269	**1,441**
9-10	0	6	1	7	90	220	20	1	0	331	342	0	342	318	1	319	64	0	64	233	1	234	**1,297**
10-11	0	6	1	7	138	187	20	1	0	346	290	0	290	270	2	272	54	1	55	198	1	199	**1,169**
11-12	0	6	1	7	348	163	20	1	0	532	252	0	252	236	2	238	47	1	48	173	1	174	**1,251**
12-1 PM	0	6	1	7	500	112	20	2	0	634	172	0	172	162	2	164	33	1	34	119	1	120	**1,131**
1-2	0	6	2	8	2,424	112	20	3	0	2,559	172	0	172	162	2	164	33	1	34	119	1	120	**3,057**
2-3	0	7	3	10	2,461	119	21	4	0	2,605	182	0	182	171	2	173	35	1	36	126	1	127	**3,133**
3-4	0	7	3	10	2,382	151	21	3	0	2,557	231	1	232	216	2	218	44	1	45	159	1	160	**3,222**
4-5	0	5	2	7	201	151	11	2	0	365	231	1	232	216	2	218	44	1	45	159	1	160	**1,027**
5-6	0	1	2	3	86	232	1	3	0	322	359	1	360	334	2	336	67	1	68	245	1	246	**1,335**
6-7	0	0	1	1	26	286	1	3	0	316	442	1	443	410	2	412	82	0	82	300	0	300	**1,554**
7-8	0	0	0	0	0	341	1	1	0	343	528	1	529	489	2	491	98	0	98	358	0	358	**1,819**
8-9	0	0	0	0	0	377	0	0	0	377	584	1	585	540	2	542	108	0	108	395	0	395	**2,007**
9-10	0	0	0	0	0	392	0	0	0	392	606	1	607	561	1	562	112	0	112	411	0	411	**2,084**
10-11	0	0	0	0	0	398	0	0	0	398	615	0	615	569	0	569	114	0	114	418	0	418	**2,114**
11-12	0	0	0	0	0	402	0	0	0	402	620	0	620	573	0	573	115	0	115	422	0	422	**2,132**

This table has been revised for the FEIS.

Table 12-37
Future With the Proposed Project Off-Street Parking Conditions - 2016
Residential Variation

Peak Period	2016 No Build Conditions			2016 Future with the Proposed Project					
	Total Capacity (1)	Estimated Demand (2)	Net Spaces Available	Existing Public Spaces Displaced (3)	New Spaces Provided (4)	Total Parking Capacity (5)	Project Increment Demand (6)	Total Parking Demand (6)	Net Spaces Available (5)
Weekday AM (7AM)	3,791	2,555	1,236	0	3,670	7,461	2,397	4,952	2,509
Weekday Midday (Noon)	3,791	3,559	232	0	3,670	7,461	1,641	5,200	2,261
Weekday Evening (7PM)	3,791	2,018	1,773	0	3,670	7,461	4,819	6,837	624
Saturday Midday (2PM)	3,696	1,845	1,851	0	3,670	7,366	3,381	5,226	2,140

Notes:

(1) Includes 931 new public spaces and 431 public spaces displaced by No Build development within 1/2-mile of the arena.

(2) Includes 0.5 percent/year background growth for the 2005 to 2016 period and demand from No Build sites.

(3) No public parking spaces displaced due to development on the project site.

(4) Includes 400 spaces on Site 5, 350 spaces on the Arena Block, 800 spaces on Block 1120 (in two garages), 150 spaces on Block 1128, and 1,970 spaces on Block 1129.

(5) Includes spaces provided on-site and in public parking facilities within 1/2-mile of the arena.

(6) Weekday evening and Saturday midday demand includes peak demand from the proposed project during a Nets basketball game.

This table has been revised for the FEIS.

Table 12-38
Future With the Proposed Project Off-Street Parking Conditions - 2016
Commercial Variation

Peak Period	2016 No Build Conditions			2016 Future with the Proposed Project					
	Total Capacity (1)	Estimated Demand (2)	Net Spaces Available	Existing Public Spaces Displaced (3)	New Spaces Provided (4)	Total Parking Capacity (5)	Project Increment Demand (6)	Total Parking Demand (6)	Net Spaces Available (5)
Weekday AM (7AM)	3,791	2,555	1,236	0	3,670	7,461	1,987	4,542	2,919
Weekday Midday (Noon)	3,791	3,559	232	0	3,670	7,461	1,784	5,343	2,118
Weekday Evening (7PM)	3,791	2,018	1,773	0	3,670	7,461	4,387	6,405	1,056
Saturday Midday (2PM)	3,696	1,845	1,851	0	3,670	7,366	3,222	5,067	2,299

Notes:

(1) Includes 931 new public spaces and 431 public spaces displaced by No Build development within 1/2-mile of the arena.

(2) Includes 0.5 percent/year background growth for the 2005 to 2016 period and demand from No Build sites.

(3) No public parking spaces displaced due to development on the project site.

(4) Includes 400 spaces on Site 5, 350 spaces on the Arena Block, 800 spaces on Block 1120 (in two garages), 150 spaces on Block 1128, and 1,970 spaces on Block 1129.

(5) Includes spaces provided on-site and in public parking facilities within 1/2-mile of the arena.

(6) Weekday evening and Saturday midday demand from the proposed project during a Nets basketball game.

This table has been revised for the FEIS.

Under both variations, the proposed project would include sufficient off-street parking capacity in 2016 to fully accommodate all project-generated parking demand in the weekday AM and midday periods. During weekday evening and weekend afternoon Nets basketball games, sufficient parking capacity would be available both on-site and at existing public off-street facilities within ½-mile of the arena to accommodate all project demand. Under the residential mixed-use variation, the study area would continue to operate with 624 and 2,140 spaces available during these periods, respectively, after serving the demand generated by the proposed project. Under the commercial mixed-use variation, the numbers of spaces available within the study area during these periods would total 1,056 and 2,299, respectively. Therefore, no significant adverse impacts to off-street parking conditions would result from implementation of either of the proposed project's two variations in 2016.

ON-STREET PARKING

As discussed in "Probable Impacts of the Proposed Project—2010," with development of the proposed project, 5th Avenue would be permanently closed between Flatbush and Atlantic Avenues, and Pacific Street would be permanently closed between Flatbush and 6th Avenues, and between Carlton and Vanderbilt Avenues. These closures would result in the elimination of approximately 130 on-street parking spaces along Pacific Street. (There is no parking currently allowed along the segment of 5th Avenue that would be closed.) The proposed reconfiguration of Atlantic Avenue adjacent to the project site (described previously and shown in Figure 12-5a/b), would also require the reduction of the double parking lane along the north curb of Atlantic Avenue between Fort Greene Place and S. Portland Avenue to a single 10-foot-wide parking lane. Further changes in operational conditions, such as the conversion from one-way to two-way operation of portions of Pacific Street and 6th and Carlton Avenues, would also require adjustments to on-street parking regulations that may affect the amount of available on-street parking capacity in the vicinity of the project site during certain periods of the day. For example, the conversion of 6th Avenue to two-way operation would likely require the replacement of the perpendicular parking of police vehicles along the east curb of 6th Avenue between Dean and Bergen Streets with parallel parking. As a result, the approximate number of spaces available for authorized police vehicle parking along this curb would be reduced from 24 spaces to ten. The parallel parking of police vehicles along the west curb on this block (approximately ten spaces) would be displaced to accommodate two moving lanes for southbound traffic. Off-street parking located on the project site, at a location proximate and convenient to the 78th Precinct, would be provided for the displaced NYPD vehicles. Overall, excluding the reduction in police parking, a total of approximately 180 on-street parking spaces would be eliminated as a result of the proposed project. These would include approximately 99 spaces on or adjacent to the arena block, 77 spaces along Pacific Street adjacent to blocks 1121 and 1129, and four spaces along Pacific Street adjacent to Site 5 where a new parking lane with a capacity of approximately 13 spaces would replace approximately 17 existing spaces.

As discussed above, in 2016 the proposed project would include sufficient new off-street parking capacity to fully accommodate all project-generated parking demand during the weekday AM and midday peak periods, and there would be sufficient parking capacity available both on-site and in public off-street facilities within ½ mile of the proposed arena to fully accommodate all project demand during a weekday evening and a weekend afternoon Nets basketball game. However, it is expected that some drivers en route to the project site, especially those en route to an event at the arena, would choose to park on-street if spaces were available. It is therefore likely that during an event at the arena, much of the on-street parking capacity

available in the immediate vicinity of the arena would be utilized by project-generated demand. Accounting for the reduction in on-street parking capacity as a result of project-related changes to the street network, the number of on-street parking spaces available to accommodate project demand within ¼-mile of the project site in 2016 would total approximately 1,559 in the weekday 5-6 PM peak hour, 2,911 in the weekday 7-8 PM peak hour, and 1,823 in the Saturday 1-2 PM peak hour.

In addition to general parking demand, the proposed project would generate new demand for curbside space for pick-up and drop-off activity by autos, taxis and livery vehicles ("black cars"). This activity would be most concentrated during the weekday AM and PM peak commuter periods (for the project's residential and commercial components), and immediately prior to and following an event at the arena. To accommodate this demand, the proposed project would incorporate lay-by lanes adjacent to the arena block along Atlantic Avenue (approximately 34 spaces), Flatbush Avenue (16 spaces), 6th Avenue (six spaces) and Dean Street (seven spaces). All of the proposed commercial buildings would also incorporate sufficient off-street loading facilities to accommodate delivery and service vehicles.

As discussed above, sufficient off-street parking capacity would be available both on-site and at existing public off-street facilities to fully accommodate peak demand from either of the proposed project's two variations in 2016. Street closures and operational changes are expected to result in a reduction of approximately 180 on-street spaces (plus an additional 24 spaces of parking for police vehicles along 6th Avenue which would be relocated to parking facilities on the project site), and overall, on-street parking in the vicinity of the project site would likely be fully utilized during major events at the arena, such as a Nets basketball game. However, as sufficient off-street parking capacity would be available both on-site and at existing public off-street facilities to fully accommodate all project demand in all peak periods, no significant adverse impacts to parking conditions would result from implementation of the proposed project. ✷