A. INTRODUCTION

This chapter evaluates the potential impacts of the proposed project on transit and pedestrian facilities within the transportation study area. As described in Chapter 1, "Project Description," the proposed project would result in the development of residential, retail/commercial, community facility uses, and open space along the East River waterfront.

It should be noted that subsequent to the publication of the DEIS, the *City Environmental Quality Review (CEQR) Technical Manual* has been updated. To reflect the updated methodologies in the *CEQR Technical Manual*, the transit analyses in the FEIS have been revised accordingly. Therefore, the detailed transit analyses presented in this chapter are conducted pursuant to the new 2010 CEQR methodologies, using the specific criteria and procedures developed as part of the update.

Furthermore, subsequent to the publication of the DEIS, the Metropolitan Transportation Authority-New York City Transit (NYCT) has restructured the bus service in the study area, resulting in changes to the B61and Q59 bus routes. Specifically, the B61 bus route has been replaced by B62 bus route in the study area and the terminus for the Q59 bus route in Brooklyn has been extended to Williamsburg Bridge Plaza instead of the Broadway/Kent Avenue intersection as analyzed in the DEIS. Moreover, due to the reconfiguration of Kent Avenue into a one-way northbound roadway from a two-way north-south roadway (discussed in detail in Chapter 17, "Traffic and Parking"), the Q59 bus route in the study area has been modified by shifting the southbound bus operations from Kent Avenue to Wythe Avenue between Grand Street and Broadway.

Lastly, the Metropolitan Transportation Agency (MTA), the parent agency of NYCT, recently approved a plan to reduce its projected budget deficit. This plan would result in citywide service modifications or reductions that would impact subway and bus routes within the transit study area. The service changes approved by MTA, which will take effect on June 27, 2010, would replace the current V line with the extended M line that would provide service between Forest Hills-71st Avenue and Middle Village-Metropolitan Avenue in Queens via Sixth Avenue in Manhattan. The "V" designation would be changed to "M," with the orange color designating the route (Sixth Avenue) in Manhattan. M line service between Essex Street and Bay Parkway would also be discontinued as part of the approved plan. For buses, the plan includes elimination of the B39 route operating between Williamsburg Bridge Plaza in Brooklyn and the Lower East Side of Manhattan because of low ridership. The bus riders displaced by the elimination of the B39 route could use the J/M/Z subway lines at the Marcy Avenue station to reach destinations in Manhattan. The transit analyses prepared for the FEIS and presented in this chapter take into account the approved service changes.

PRINCIPAL CONCLUSIONS

PEDESTRIANS

The proposed project would result in a significant adverse pedestrian impact on the south crosswalk at Bedford Avenue and North 7th Street. Potential measures to mitigate this projected significant adverse impact are described in Chapter 23, "Mitigation."

TRANSIT

The distribution of project-generated trips to the L and J/M/Z subway lines would result in fewer than 5 additional peak hour passengers per subway car—the CEQR-recommended threshold for undertaking subway line haul capacity analyses. Therefore, based on the CEQR criteria, quantified line haul analyses will not be warranted for the L and J/M/Z subway lines, since any project-generated increase in subway ridership would remain within practical capacity and would not result in any significant adverse impacts.

Based on the result of the transit analysis, the proposed project would not result in significant adverse stairway impacts at either the Bedford Avenue or Marcy Avenue stations during any analysis peak periods. However, the proposed project would result in significant adverse impacts to the Marcy Avenue station's Manhattan-bound control area during the AM peak period and to the Queens-bound control area during the PM peak period. Measures to mitigate the projected significant adverse impact at the Marcy Avenue Manhattan-bound control area have been developed in consultation with NYCT and are described in Chapter 23, "Mitigation."

The proposed project would result in the following significant adverse impacts to bus line haul levels: the northbound and southbound B62 and the eastbound and westbound Q59 bus routes during both the AM and PM peak periods. Potential measures to mitigate the projected significant adverse bus line haul impacts are described in Chapter 23, "Mitigation."

B. METHODOLOGY

As described in Chapter 17, "Traffic and Parking," a travel demand projection was developed to identify the transportation elements likely to be affected by the proposed project. Because the number of peak hour transit and pedestrian trips generated by the proposed project would exceed the 200-trip-per-hour threshold specified in the 2010 *CEQR Technical Manual*, quantified pedestrian analysis is required for the weekday AM, midday, PM, and Saturday midday peak periods. In terms of transit, quantified analysis of the transit conditions is required for the weekday AM, midday, and PM peak periods. However, based on the travel demand projection, quantified analysis of transit conditions is not required for the Saturday midday peak period.

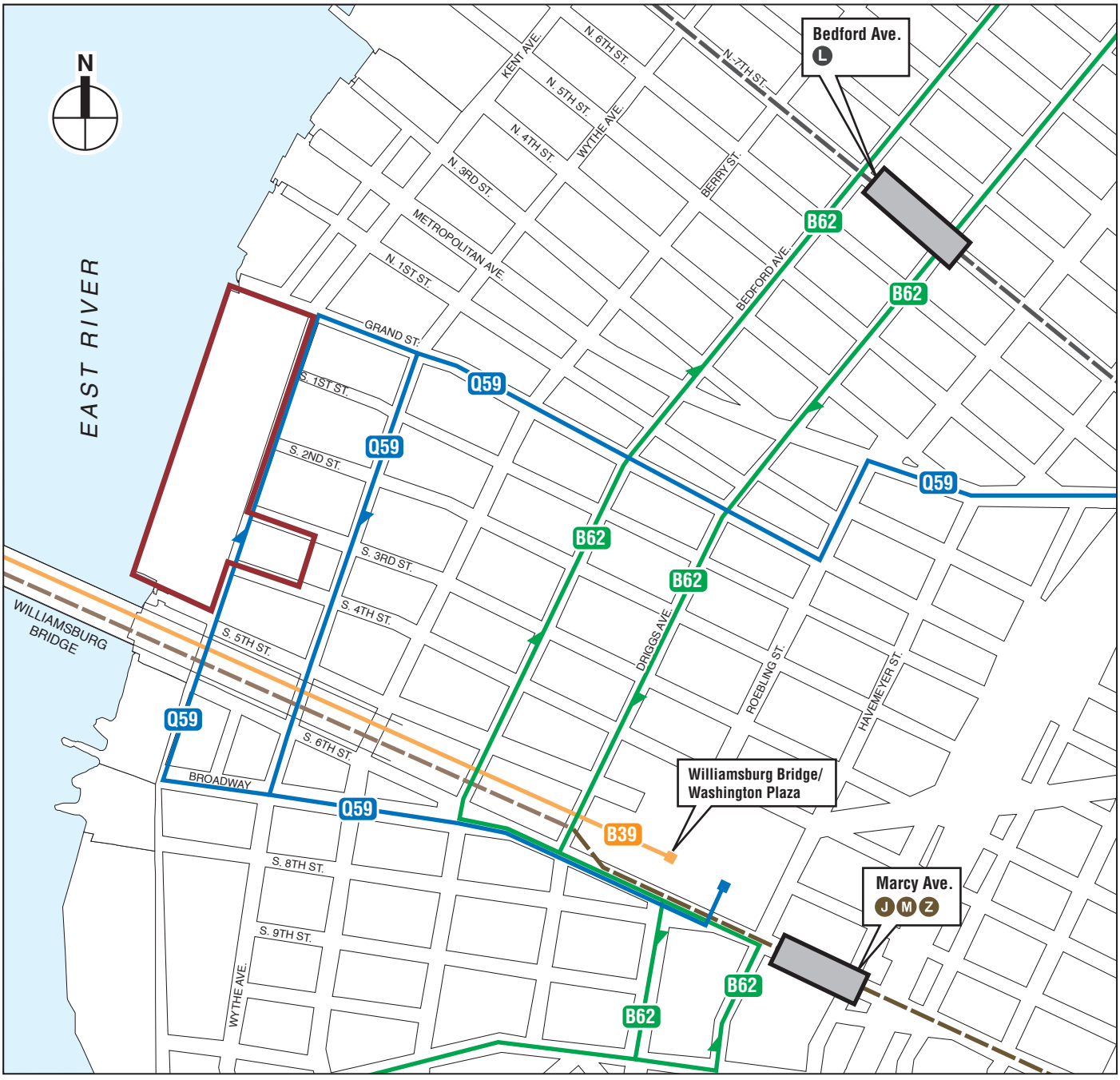
TRANSIT AND PEDESTRIAN STUDY AREAS

Mass transit options serving the project site and surrounding area are shown in Figure 18-1. The mass transit options include the NYCT J/M/Z and L subway lines, and the Q59, B39, and B62 (formerly B61) buses.

SUBWAY SERVICE

As shown in Figure 18-1, the mass transit subway options mostly likely to be used for project site access include the NYCT J/M /Z and L subway lines.

5.14.10



NOTE: This figure has been revised for the FEIS

Transit Routes
Figure 18-1

J/M/Z Subway Lines

The J/M/Z lines operate between Bensonhurst, Brooklyn and Jamaica, Queens via lower Manhattan. As mentioned above, starting June 27, 2010, the existing M subway line would be extended, replacing the existing V line. With this proposed change, the modified M line would operate between Forest Hills-71st Avenue and Middle Village-Metropolitan Avenue in Queens via Sixth Avenue in Manhattan. Within the study area, the extended M line would now provide direct connections to and from Midtown Manhattan, as well as transfer opportunities to other subway lines.

L Subway Line

The L train operates between Eighth Avenue in Manhattan and Canarsie in Brooklyn.

BUS SERVICE

The study area is currently served by the Q59, B39, and B62 bus routes operated by NYCT. Within the study area, the Q59 and B62 routes have been restructured since the publication of the DEIS, as shown in Figure 18-1. Currently, the B39 route operates between Williamsburg, Brooklyn and the Lower East Side of Manhattan. As part of the service reductions described above, the B39 bus route would be eliminated due to low ridership. The B62 route operates between Downtown Brooklyn and Queens Plaza in Long Island City, Queens. The Q59 connects the Brooklyn waterfront area just south of the Williamsburg Bridge to the Rego Park neighborhood in Queens. Within the study area, the newly configured Q59 route terminates at the Williamsburg Bridge Bus Plaza and provides services to and from the Marcy Avenue subway station (J/M/Z lines). Table 18-1 provides a summary of the weekday service headways for the B39, B62, and Q59 bus routes, which are included in this study's bus line haul analyses. It should be noted that due to its elimination as part of the service modifications described above, the bus line haul analysis for the B39 route was performed only for the 2010 Baseline conditions.

Table 18-1
Local Bus Routes Serving the Study Area

Bus Route	Start Point	End Point	Routing	Scheduled Bus Service (Headway in Minutes)		
				AM	Midday	PM
B39	Williamsburg, Brooklyn	Lower East Side, Manhattan	Via Williamsburg Bridge	4	4	4
B62	Downtown Brooklyn	Long Island City, Queens	Bedford Avenue (eastbound) and Driggs Avenue (westbound)	7	4	8
Q59	Williamsburg, Brooklyn	Rego Park, Queens	Kent Avenue / Wythe Avenue/ Grand Street / Metropolitan Avenue	5	3	4

Sources: NYCT *Brooklyn and Queens Bus Time Tables* (2010).

PEDESTRIAN ELEMENTS

This chapter analyzes locations where most of the project-generated pedestrian trips would be anticipated, specifically sidewalks, corner reservoirs, and crosswalks, as shown in Figure 18-2. The resultant study area includes three signalized intersections and one unsignalized intersection near the project site, as listed below:

- Bedford Avenue and North 7th Street (signalized);
- Bedford Avenue and Metropolitan Avenue (signalized);



Pedestrian Analysis Locations

Figure 18-2

- Bedford Avenue and Grand Street (signalized); and
- Berry Street and North 4th Street[1] (unsignalized);

OPERATIONAL ANALYSIS METHODOLOGY

SUBWAY STATION ELEMENTS

Subway station operations were assessed according to methods and evaluation criteria presented in the *2010 CEQR Technical Manual*. The methodology for assessing subway stairway, and control area (turnstiles, service gates, etc.) operations compares the user volume with the element's design capacity, resulting in a volume-to-capacity (v/c) ratio.

For stairways, the design capacity considers the effective width of a tread, which accounts for railings or other obstructions, the friction between upward and downward patrons, a surging factor for the exiting patrons and the average area required for circulation. For control area elements, capacity is measured by the number of elements and the NYCT optimum capacity per element which considers the friction between entering and exiting patrons, and a surging factor for the exiting patrons. In the analysis for each of these elements, volumes and capacities are presented for 15-minute intervals.

The estimated v/c ratio is compared to NYCT criteria to determine a level-of-service (LOS) for the operation of an element. This v/c ratio is also commonly referred to as V/SVCD, where SVCD is the service volume at LOS C/D. Table 18-2 shows the LOS and corresponding v/c ratios for subway station elements.

Table 18-2
Level of Service Criteria for Subway Station Elements

LOS	V/C Ratio Stairways/Turnstiles
A	0.00 to 0.45 Free flow
B	0.45 to 0.70 Fluid flow
C	0.70 to 1.00 Fluid, somewhat restricted
D	1.00 to 1.33 Crowded, walking speed restricted
E	1.33 to 1.67 Congested, some shuffling and queuing
F	Above 1.67 Severely congested

Source: New York City Mayor's Office of Environmental Coordination, 2010 *CEQR Technical Manual.*

For stairways and turnstiles, at LOS A and B, there is sufficient area to allow pedestrians to freely select their walking speed and bypass slower pedestrians. When cross and reverse flow movement exists, only minor conflicts may occur. At LOS C, movement is fluid, although somewhat restricted. While there is sufficient room for standing without personal contact, circulation through queuing areas may require adjustments to walking speed. At LOS D, walking speed is restricted and reduced. Reverse and cross flow movement is severely restricted because of congestion and the difficult passage of slower moving pedestrians. At LOS E and F, walking speed is restricted. There is also insufficient area to bypass others, and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming.

[1] Analyses for the crosswalks and corner reservoirs are not required for unsignalized intersections. For the same reason, the analyses of crosswalks and corner reservoirs were not conducted for the intersection of Berry Street and North 4th Street.

The determination of significant impacts for station elements varies based on their type and use. For stairways, impacts are considered significant based on the minimum amount of additional capacity that would be required either to mitigate the location to its service conditions (LOS) under the future without the proposed project (the "No Action" condition), or to LOS C/D operating conditions. For a stairway location with LOS D for the future with the proposed project, significant stairway impacts are defined in terms of the width increment threshold (WIT) needed to bring the stairway back to its No-Action v/c ratio, or to bring it to a v/c ratio of 1.00, whichever is greater.

For control areas, impacts are considered significant if the proposed project causes a v/c ratio to increase from below 1.00 to 1.00 or greater. Where a facility is already at or above its capacity (a v/c of 1.00 or greater) in the No Action condition, a 0.01 increase in v/c ratio is also considered significant.

SUBWAY AND BUS LINE HAUL CAPACITIES

In accordance with the *2010 CEQR Technical Manual*, line haul capacities (i.e., the ability of transit systems to accommodate passenger loads) are evaluated when a proposed action is anticipated to generate a perceptible number of passengers to particular subway and bus routes. For subways, if, on average, a subway car for a particular route is expected to be used by five or more riders from a proposed action, a review of ridership level at its maximum load point and/or other project-specific load points would be required to determine if the route's practical capacity would be exceeded.

To determine the incremental subway riders per train car, the subway trips for the proposed project were distributed between the L and J/M/Z subway lines based on the availability of transfer opportunities and major destinations served. As discussed in Chapter 17, "Traffic and Parking," the proposed project would generate approximately 1,120 (308 in/815 out) and 1,350 (821 in/531 out) subway trips during the AM and PM peak periods, respectively. Of these project-generated subway trips, approximately 60 percent were assigned to the J/M/Z lines at the Marcy Avenue station, and the remaining 40 percent were assigned to the L train at the Bedford Avenue station. In terms of distribution of subway trips based on destinations, approximately 90 percent of out[1] trips during the AM peak period were assigned to Manhattan-bound J/M/Z and L lines at the Marcy Avenue and Bedford Avenue stations, and the remaining 10 percent were assigned to the Brooklyn- and Queens-bound lines at the same stations. During the PM peak period, approximately 90 percent of in[2] trips were assumed to use the Brooklyn- and Queens-bound J/M/Z and L lines at the Marcy Avenue and Bedford Avenue stations, and the remaining 10 percent were assumed to use the Manhattan-bound lines at the same stations.

The average number of subway cars on a typical NYCT subway train during peak periods is approximately 8 to 10.[3] During the AM peak hour, the Manhattan-bound L and J/M/Z subway lines operate with a frequency of 17 and 18 trains per hour, respectively. This translates to approximately 136 and 144 peak direction subway cars available for the AM trips generated by the proposed project. During the PM peak hour, the Brooklyn-bound L and Queens-bound J/M/Z subway lines operate with a frequency of 15 and 18 trains per hour, respectively. This translates

[1] Trips leaving the project site to board subway trains at the Marcy Avenue (J/M/Z) and Bedford Avenue (L) stations.

[2] Trips accessing the project site from the Marcy Avenue (J/M/Z) and Bedford Avenue (L) stations.

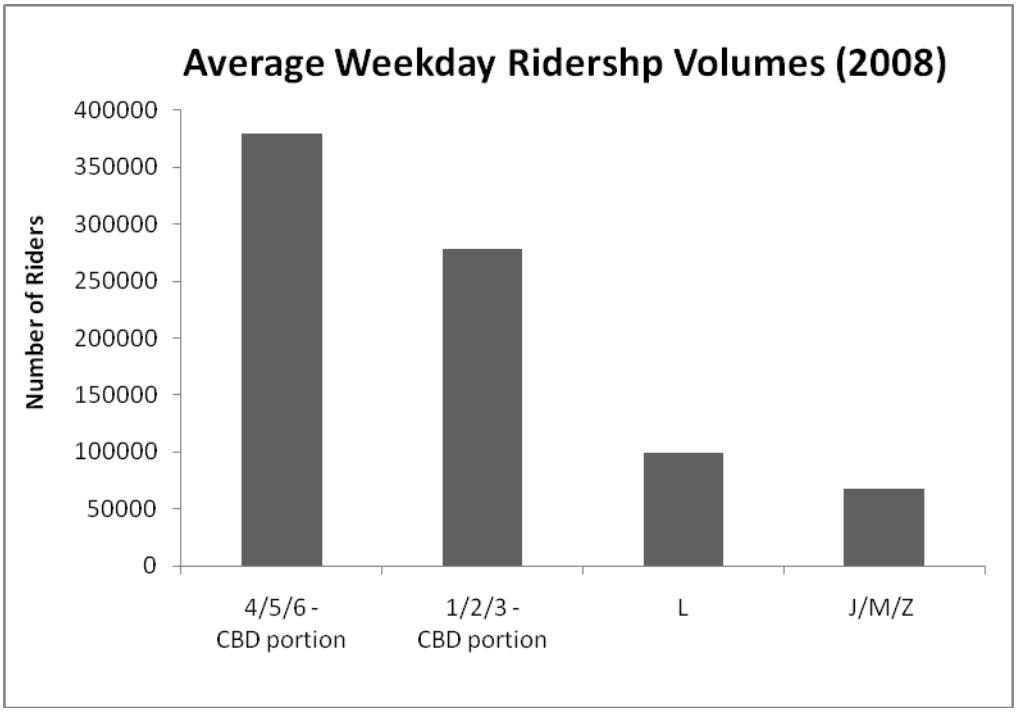
[3] Peak hour train information based on the *2008 Weekday Cordon Count*, published by NYCT.

to approximately 120 and 144 peak direction subway cars available for the PM trips generated by the proposed project.

Based on the total number of cars available at the J/M/Z and L subway lines during the AM and PM peak periods, the distribution of project-generated trips to these subway lines would result in fewer than 5 additional peak hour passengers per subway car. Therefore, based on the CEQR criteria identified above, quantified line haul analyses will not be warranted for the L and J/M/Z subway lines due to the project-generated demand, and any project-generated increase in subway ridership would remain within practical capacity and would not result in any significant adverse impacts.

In terms of ridership[1] levels, the L and the J/M/Z subway lines experience an average of approximately 99,000 and 68,000 riders, respectively, during the typical weekday. Although high, these ridership levels are far less than the ridership levels on some of NYCT's most crowded subway lines such as the Lexington Avenue (Nos. 4/5/6) or the Broadway-Seventh Avenue (Nos. 1/2/3) lines, which carry an average of approximately 380,000 and 280,000 riders during a typical weekday, respectively, as presented in Figure 18-3.

Figure 18-3



[1] Average weekday subway ridership data are from the *2008 Weekday Cordon Counts* published by NYCT.

As discussed in Chapter 17, "Traffic and Parking," the proposed project would generate approximately 270 and 350 bus trips[1] during the AM and PM peak periods, respectively. In addition to the patrons whose primary mode of transportation is a bus, subway riders who take a bus to/from the stations were included in the total bus ridership increments. It should be noted that bus line haul capacities are evaluated when a proposed action is anticipated to generate a perceptible increase in the number of passengers on a particular bus route. Typically, when numerous bus routes are available within the transit study area, projected trips would be dispersed and would not overburden one or more nearby bus routes. However, if a substantial number of new bus trips are anticipated for an already heavily used bus route, its peak load point and its bus stops closest to the project site are evaluated to identify the potential for the buses to exceed their practical capacities. To evaluate service conditions at the bus stops most closely serving the project site, in addition to the area-wide peak load points, local area load points near the proposed project were examined to determine the impact of the project-generated trips on bus services within the study area.

NYCT operates two types of buses: standard and articulated. During peak hours, standard buses operate with up to 54 passengers per bus, while articulated buses operate with up to 85 passengers per bus. According to NYCT guidelines, an increase in bus load levels greater than the maximum capacity at any load point is defined as a significant adverse impact. While subject to operational and fiscal constraints, bus impacts can typically be mitigated by increasing service frequency. Therefore, mitigation of bus line haul capacity impacts, where appropriate, would be recommended for NYCT approval.

PEDESTRIAN OPERATIONS

Sidewalks, corner reservoirs, and crosswalks are the pedestrian facilities commonly analyzed for potential impacts from a proposed action. The adequacy of sidewalks and crosswalks in relation to the demand imposed on them is assessed using methodologies presented in the 2000 *Highway Capacity Manual (HCM)*. Sidewalks are analyzed in terms of pedestrian flow. The calculation of the average pedestrians per foot per minute (PFM) of effective walkway width is the basis for the LOS analysis. However, due to the tendency of pedestrians to move in congregated groups, a platoon factor (+4 PFM) is applied in the calculation of pedestrian flow to more accurately estimate the dynamics of walking. This procedure generally results in a LOS one level poorer than the average flow.

Crosswalks and street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The HCM methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians. The total "time-space" available for these activities, which is expressed in square feet per minute, is the net area of the corner (in square feet) multiplied by the cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner (expressed as pedestrians per minute). The ratio of net time-space divided by pedestrian circulation time provides the LOS measurement of square feet per pedestrian (SFP).

Crosswalk LOS is also a function of time and space. Crosswalk conditions are expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the

[1] Numbers do not include the bus-to-subway transfers.

permitted crossing time as determined by nearby traffic signals. This measure is expressed in square feet per minute. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the average crossing time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk.

Table 18-3 shows the LOS standards for sidewalks, corner reservoirs, and crosswalks. The description of these LOS is similar to those described above for subway station elements. The 2001 *CEQR Technical Manual* specifies that a mid-LOS D condition or better is considered reasonable for sidewalks, corners, and crosswalks outside of the Manhattan Central Business District (CBD). For corners and crosswalks, a mid-LOS D condition requires a minimum of 20 SFP, while for sidewalks a mid-LOS D condition requires a maximum of 13 PFM.

Table 18-3
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks	Corner Reservoirs and Crosswalks
A	5 PFM or less	60 SFP or More
B	5 to 7 PFM	40 to 60 SFP
C	7 to 10 PFM	24 to 40 SFP
D	10 to 15 PFM	15 to 24 SFP
E	15 to 23 PFM	8 to 15 SFP
F	More than 23 PFM	Less than 8 SFP

Notes: PFM=pedestrians per foot per minute; SFP=square feet per pedestrian.
Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

Project-related sidewalk impacts are considered significant and require the examination of mitigation measures if there is an increase of 2 PFM more than a no action condition with pedestrian flow rates greater than 13 PFM (mid-LOS D). For corners and crosswalks, a decrease of 1 SFP under the action condition when the no action condition has an average occupancy of less than 20 SFP (mid-LOS D) is considered significant. In addition, a service deterioration from LOS A, B, or C to mid-LOS D or worse for sidewalks, corners, or crosswalks is considered a significant adverse impact. However, if there is less than a 200-person increase at a location within the peak hour, no impact is considered significant, since such increases typically would not be perceptible.

C. BASELINE CONDITIONS

June 2008 and February 2009 field surveys provided the baseline conditions for the analysis of sidewalks, corners, crosswalks, and subway station elements. Data gathered in 2008 and 2009 were adjusted for the 2010 baseline year by applying the *CEQR* recommended growth rates. The most recent bus ridership data available obtained from NYCT was used for the bus line haul analyses.

For station operations, the weekday AM, midday, and PM peak periods were analyzed, while for pedestrian facilities, the weekday AM, midday, PM, and Saturday midday peak periods were analyzed. For bus line haul, the AM and PM peak periods were analyzed.

To determine peak conditions for subway station elements and pedestrian facilities, weekday 15-minute counts were conducted during the 7:30 to 10:00 AM, 12:00 PM to 2:00 PM, and 4:00 PM to 6:30 PM time periods. In addition, pedestrian counts were conducted during the Saturday 11:00 AM to 4:00 PM time period to establish the Saturday baseline conditions. The highest 15-minute volumes were selected for analysis from each of these peak periods.

Peak conditions for bus line haul analyses were determined by reviewing NYCT loading data. The highest hourly volumes for each route were selected for area-wide bus line haul analyses. Service capacities of bus lines within the study area were also examined at local load points to determine the impact of the project-generated trips on local bus services.

SUBWAY STATION OPERATIONS

The transit analyses include an evaluation of operational conditions at the two subway stations nearest the project site: the J/M/Z Marcy Avenue station and at the L train Bedford Avenue station during the weekday AM, midday, and PM peak periods. Within the study area, the J/M/Z trains are elevated above Broadway, while the L train runs underground.

The Marcy Avenue station runs the length of Broadway between Havemeyer Street and Marcy Avenue. There are stairways at both the Havemeyer Street and Marcy Avenue ends of the station. Stairways on the north side of Broadway provide access to the Manhattan-bound platform while stairways on the south side of Broadway provide access to the Queens-bound platform. The stairways closest to the project site, those at the intersection of Broadway and Havemeyer Street, were analyzed because project-generated subway trips are most likely to use these stairways.

It should be noted that at the Manhattan-bound Marcy Avenue station, there is one high entry-exit turnstile (HEET) and one emergency gate. Patrons entering the station must use the HEET, while patrons exiting the station could either use the HEET or the emergency gate. During the AM peak hour, many patrons exiting the station use the emergency gate to avoid conflict with the patrons entering the station through the HEET (see Table 18-5).

The Bedford Avenue station occupies the block length beneath North 7th Street between Bedford and Driggs Avenues. Stairways located on the northeast and southeast corners at both Bedford Avenue and Driggs Avenue provide access to two separate control areas. Each control area provides access to the center platform and, therefore, both Manhattan-bound and Brooklyn-bound trains. The analyses include all four stairways and both control areas.

Based on the travel demand estimates detailed in Chapter 17, "Traffic and Parking," it was determined that quantified analyses would be required for street-level stairways and control areas at both of the subway stations described above. As shown in Tables 18-4 and 18-5, all analyzed stairways and control areas currently operate at LOS A or LOS B during all three peak periods with the exception of the Bedford Avenue S3 stairway during the PM peak period.

BUS LINE HAUL LEVELS

To assess the potential impacts on the study area bus routes, the most recent line haul data for the B39[1], B62, and Q59 bus routes were acquired from NYCT.

For the B62 route, project-generated bus riders would likely be onboard the bus at the peak load points while travelling to and from major activity centers served by the bus route. During the AM peak period, the northbound area-wide peak load point is at Atlantic Avenue and Clinton Street, while the southbound area-wide peak load point is at Driggs Avenue and Union Avenue. During the PM peak period, the northbound area-wide peak load point is at Bedford Avenue and North 11th Street, while the southbound area-wide peak load point is at Atlantic Avenue and

[1] The recently approved MTA service changes include elimination of the B39 route. Therefore, the bus line haul analysis for the B39 was performed only for the 2010 baseline conditions.

Henry Street. It was assumed that a majority of project-generated subway riders taking the L train would take the B62 bus to and from the Bedford Avenue Station and would be onboard for a limited time in each direction. The largest ridership addition would likely take place near the subway station. Therefore, a bus line haul analysis was also performed at the local load points near the Bedford Avenue station (L line) (see Table 18-6).

Table 18-4

2010 Baseline Conditions: Subway Station Stairway Analysis

Stairway	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes Up	15-Minute Pedestrian Volumes Down	Surging Factor	Friction Factor	15-Minute V/SVCD Ratio	15-Minute LOS
AM Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	48	231	0.80	0.90	0.48	B
Bedford Avenue / N 7th Street (S3, SE Corner)	5.5	4.5	52	268	0.80	0.90	0.55	B
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	20	96	0.80	0.90	0.19	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	54	172	0.80	0.90	0.37	A
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	127	72	0.80	0.90	0.40	A
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	17	52	0.80	0.90	0.15	A
MD Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	90	59	0.80	0.90	0.28	A
Bedford Avenue / N 7th Street (S3, SE Corner)	5.5	4.5	79	101	0.80	0.90	0.33	A
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	25	20	0.80	0.90	0.08	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	61	47	0.80	0.90	0.19	A
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	38	24	0.80	0.90	0.13	A
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	12	72	0.80	0.90	0.19	A
PM Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	226	83	0.80	0.90	0.60	B
Bedford Avenue / N 7th Street (S3, SE Corner)	5.5	4.5	262	138	0.80	0.90	0.77	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	103	28	0.80	0.90	0.25	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	165	61	0.80	0.90	0.41	A
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	55	23	0.80	0.90	0.16	A
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	32	125	0.80	0.90	0.35	A

Note: Capacities were calculated based on rates presented in the 2010 *CEQR Technical Manual* .

V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)]

Where

Vin = Peak 15-minute entering passenger volume

Vx= Peak 15-minute exiting passenger volume

We= Effective width of stairs

Sf = Surging factor (if applicable)

Ff= Friction factor (if applicable)

Sample Calculation: Existing AM

S4 Stairway at Bedford Ave

$V/C = [231 (Vol_{In}) / 150 * 4.5 * 1.0 * 0.9] +$

$[48 (Vol_{Exit}) / 150 * 4.5 * 0.8 * 0.9]$

= 0.48

Table 18-5
2010 Baseline Conditions: Subway Station Control Area Analysis

Control Area Elements	Quantity	15-Minute Pedestrian Volumes In	15-Minute Pedestrian Volumes Out	Surging Factor	Friction Factor	15-Minute V/SVCD Ratio	15-Minute LOS
AM Peak Period							
Bedford Avenue Station (L)							
Bedford Avenue : Two-way Turnstile	4	487	112	0.80	0.90	0.38	A
Bedford Avenue : Emergency Gate	2	0	8				
Driggs Avenue: HEET (Exit only)	1	0	63	0.80	1.00	0.14	A
Driggs Avenue: Emergency Gate	1	8	2				
Driggs Avenue: HEET	3	285	10	0.80	1.00	0.38	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	64	--	--	--	--
Broadway/Havemeyer (Manhattan-bound):HEET	1	127	23	0.75	0.90	0.62	B
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	0	10	--	--	--	--
Broadway/Havemeyer (Queens-bound): HEET	1	13	52	0.75	0.90	0.20	A
MD Peak Period							
Bedford Avenue (L)							
Bedford Avenue : Two-way Turnstile	4	170	182	0.80	0.90	0.21	A
Bedford Avenue : Emergency Gate	2	14	7	--	--	--	--
Driggs Avenue: HEET (Exit only)	1	0	77	0.80	1.00	0.17	A
Driggs Avenue: Emergency Gate	1	0	12	--	--	--	--
Driggs Avenue: HEET	3	93	22	0.80	0.90	0.15	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	5	--	--	--	--
Broadway/Havemeyer (Manhattan-bound):HEET	1	37	25	0.75	0.90	0.23	A
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	2	28	--	--	--	--
Broadway/Havemeyer (Queens-bound): HEET	1	13	64	0.75	0.90	0.23	A
PM Peak Period							
Bedford Avenue (L)							
Bedford Avenue : Two-way Turnstile	4	173	518	0.80	0.90	0.39	A
Bedford Avenue : Emergency Gate	2	2	13	--	--	--	--
Driggs Avenue: HEET (Exit only)	1	0	112	0.80	1.00	0.25	A
Driggs Avenue: Emergency Gate	1	0	41	--	--	--	--
Driggs Avenue: HEET	3	93	124	0.80	0.90	0.24	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	6	--	--	--	--
Broadway/Havemeyer (Manhattan-bound):HEET	1	63	9	0.75	0.90	0.30	A
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	0	24	--	--	--	--
Broadway/Havemeyer (Queens-bound): HEET	1	23	118	0.75	0.90	0.42	A

Note: Capacities were calculated based on rates presented in the 2010 *CEQR Technical Manual.*
V/C = [Vin/ Cin* Ff] + [Vx/ Cx* Sf*Ff]
Where
Vin = Peak 15-minute entering passenger volume
Cin = Total 15-minute capacity of all turnstiles for entering passengers
Vx = Peak 15-minute exiting passenger
Cx = Total 15-minute capacity of all turnstile for exiting passengers
Sf = Surging factor (if applicable)
Ff = Friction factor

Sample Calculation: Existing AM
Two-way Turnstile at Bedford Ave
V/C = [487 (V_{in}) / 4*420 * 0.9] +
[112 (V_{Exit}) / 4 * 645* 0.8 * 0.9]
= 0.38

The Q59 line haul analyses were also conducted for the area-wide peak load points and for the local load points (see Table 18-6). During the AM peak period, the eastbound area-wide peak load point is at Grand Avenue and Van Horn Street, while the westbound peak load point is at Grand Avenue and Hospel Street. During the PM peak period, the eastbound area-wide peak load point is at Grand Avenue and 64th Street, while the westbound peak load point is at Grand Avenue and Gold/Smith Street. It was assumed that a majority of project-generated subway riders taking J/M/Z line would use the Q59 to and from the Marcy Avenue station and would be onboard for a limited time in each direction. The largest ridership addition would likely take place near the project site. Therefore, a bus line haul analysis was also performed at local load points near the project site.

STREET-LEVEL PEDESTRIAN OPERATIONS

The study area sidewalks, corner reservoirs, and crosswalks were assessed for the weekday AM, midday, PM, and Saturday midday peak periods. Existing peak 15-minute pedestrian volumes were developed from the 2008 and 2009 survey data.

As shown in Tables 18-7 through 18-9, all analyzed pedestrian elements currently operate at acceptable levels (13 PFM for sidewalks, 20 SFP for corners and crosswalks) during the analysis peak periods.

Table 18-6
2010 Baseline Conditions: Bus Line Haul Analysis

Route	Direction	Peak Load Point	Hourly Volumes	Buses/ Hour	AP
AM Peak Hour					
B39	**East**	Allen Street / Delancey Street (ALP)	52	3	18
	West	Washington Plaza / Havemeyer (ALP)	84	4	21
Q59	**East**	Grand Ave / Van Horn St (ALP)	262	6	44
	West	Grand Ave / Haspel St (ALP)	336	7	48
	East	Kent Ave / S.3rd St (LLP)	17	3	6
	West	Kent Ave / S.3rd St (LLP)	7	6	2
B62	**North**	Atlantic Ave / Clinton St (ALP)	339	7	49
	South	Driggs Ave / Union Ave (ALP)	328	6	(55)
	North	Bedford Ave / N. 5th St (LLP)	263	8	33
	South	Driggs Ave / N. 4th St (LLP)	160	5	32
PM Peak Hour					
B39	**East**	Allen Street / Delancey Street (ALP)	118	4	30
	West	Washington Plaza / Havemeyer (ALP)	35	4	9
Q59	**East**	Grand Ave & 64th St (ALP)	207	6	35
	West	Grand Ave & Gold Smith St (ALP)	182	3	(61)
	East	Kent Ave & S.3rd St (LLP)	3	4	1
	West	Kent Ave & S.3rd St (LLP)	6	4	2
B62	**North**	Bedford Ave & N 11th St (ALP)	309	10	31
	South	Atlantic Ave & Henry St (ALP)	248	8	28
	North	Bedford Ave & N. 5th St (LLP)	146	8	19
	South	Driggs Ave & N. 4th St (LLP)	182	6	31

Notes: ALP= Area-wide Peak Load Point; LLP = Local Load Point; AP=average passengers per bus;
(#)=exceeds NYCT guideline capacity.
Source: NYCT Bus ridership data (2008/2009).

Table 18-7

2010 Baseline Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday AM Peak Period							
N 4th St. between Wythe Ave. and Berry St.	North	3.0	32	0.7	A	4.7	A
	South	11.6	25	0.1	A	4.1	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	20	0.1	A	4.1	A
	South	7.3	27	0.2	A	4.2	A
Berry St. between N 5th St. and N 4th St.	East	7	21	0.2	A	4.2	A
	West	10	9	0.1	A	4.1	A
Berry St. between N 4th St. and N 3rd St.	East	6	16	0.2	A	4.2	A
	West	12.3	19	0.1	A	4.1	A
N 7th St. between Berry St. and Bedford Ave.	North	9	82	0.6	A	4.6	A
	South	10.7	60	0.4	A	4.4	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	122	1.0	A	5.0	B
	South	8.0	296	2.5	A	6.5	B
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	196	1.1	A	5.1	B
	West	10.5	167	1.1	A	5.1	B
Bedford Ave. between N 7th St. and N 6th St.	East	12	223	1.2	A	5.2	B
	West	10.3	179	1.2	A	5.2	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13	45	0.2	A	4.2	A
	South	13.3	52	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	41	0.2	A	4.2	A
	South	17	49	0.2	A	4.2	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	69	0.4	A	4.4	A
	West	10.7	68	0.4	A	4.4	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	84	0.5	A	4.5	A
	West	11	71	0.4	A	4.4	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	52	0.4	A	4.4	A
	South	9	45	0.3	A	4.3	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	41	0.3	A	4.3	A
	South	8	81	0.7	A	4.7	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	71	0.5	A	4.5	A
	West	11.2	69	0.4	A	4.4	A
Bedford Ave. between Grand St. and S 1st St.	East	9	74	0.5	A	4.5	A
	West	12	72	0.4	A	4.4	A
Weekday Midday Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	25	0.6	A	4.6	A
	South	11.6	22	0.1	A	4.1	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	21	0.1	A	4.1	A
	South	7.3	32	0.3	A	4.3	A
Berry St. between N 5th St. and N 4th St.	East	7.0	33	0.3	A	4.3	A
	West	10.0	8	0.1	A	4.1	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	20	0.2	A	4.2	A
	West	12.3	29	0.2	A	4.2	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	132	1.0	A	5.0	A
	South	10.7	88	0.5	A	4.5	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	143	1.2	A	5.2	B
	South	8.0	314	2.6	A	6.6	B
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	197	1.1	A	5.1	B
	West	10.5	183	1.2	A	5.2	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	255	1.4	A	5.4	B
	West	10.3	227	1.5	A	5.5	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	64	0.3	A	4.3	A
	South	13.3	44	0.2	A	4.2	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	56	0.2	A	4.2	A
	South	17.0	71	0.3	A	4.3	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	72	0.5	A	4.5	A
	West	10.7	99	0.6	A	4.6	A

Table 18-7 (cont'd)
2010 Baseline Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday Midday Peak Period (cont'd)							
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	101	0.6	A	4.6	A
	West	11.0	83	0.5	A	4.5	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	38	0.3	A	4.3	A
	South	9.0	59	0.4	A	4.4	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	29	0.2	A	4.2	A
	South	8.0	63	0.5	A	4.5	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	86	0.6	A	4.6	A
	West	11.2	66	0.4	A	4.4	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	109	0.8	A	4.8	A
	West	12.0	92	0.5	A	4.5	A
Weekday PM Peak Period							
N 4th St. between Wythe Ave. and Berry St.	North	3.0	20	0.4	A	4.4	A
	South	11.6	16	0.1	A	4.1	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	42	0.3	A	4.3	A
	South	7.3	29	0.3	A	4.3	A
Berry St. between N 5th St. and N 4th St.	East	7.0	38	0.4	A	4.4	A
	West	10.0	11	0.1	A	4.1	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	26	0.3	A	4.3	A
	West	12.3	38	0.2	A	4.2	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	133	1.0	A	5.0	A
	South	10.7	93	0.6	A	4.6	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	190	1.6	A	5.6	B
	South	8.0	410	3.4	A	7.4	C
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	238	1.3	A	5.3	B
	West	10.5	179	1.1	A	5.1	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	294	1.6	A	5.6	B
	West	10.3	290	1.9	A	5.9	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	63	0.3	A	4.3	A
	South	13.3	62	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	102	0.4	A	4.4	A
	South	17.0	88	0.3	A	4.3	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	106	0.7	A	4.7	A
	West	10.7	89	0.6	A	4.6	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	140	0.9	A	4.9	A
	West	11.0	104	0.6	A	4.6	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	61	0.4	A	4.4	A
	South	9.0	58	0.4	A	4.4	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	66	0.5	A	4.5	A
	South	8.0	70	0.6	A	4.6	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	87	0.6	A	4.6	A
	West	11.2	81	0.5	A	4.5	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	73	0.5	A	4.5	A
	West	12.0	124	0.7	A	4.7	A

Table 18-7 (cont'd)
2010 Baseline Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Saturday Midday Peak Period							
N 4th St. between Wythe Ave. and Berry St.	North	3.0	4	0.1	A	4.1	A
	South	11.6	8	0.0	A	4.0	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	12	0.1	A	4.1	A
	South	7.3	9	0.1	A	4.1	A
Berry St. between N 5th St. and N 4th St.	East	7.0	17	0.2	A	4.2	A
	West	10.0	12	0.1	A	4.1	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	8	0.1	A	4.1	A
	West	12.3	8	0.0	A	4.0	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	62	0.5	A	4.5	A
	South	10.7	36	0.2	A	4.2	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	66	0.6	A	4.6	A
	South	8.0	85	0.7	A	4.7	A
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	69	0.4	A	4.4	A
	West	10.5	254	1.6	A	5.6	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	207	1.2	A	5.2	B
	West	10.3	258	1.7	A	5.7	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	6	0.0	A	4.0	A
	South	13.3	32	0.2	A	4.2	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	260	1.1	A	5.1	B
	South	17.0	12	0.0	A	4.0	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	21	0.1	A	4.1	A
	West	10.7	97	0.6	A	4.6	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	251	1.6	A	5.6	B
	West	11.0	126	0.8	A	4.8	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	37	0.3	A	4.3	A
	South	9.0	24	0.2	A	4.2	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	38	0.3	A	4.3	A
	South	8.0	19	0.2	A	4.2	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	159	1.2	A	5.2	B
	West	11.2	111	0.7	A	4.7	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	129	1.0	A	5.0	A
	West	12.0	118	0.7	A	4.7	A

Note: PFM = pedestrians per foot per minute.

Table 18-8
2010 Baseline Conditions: Pedestrian LOS Analysis for Corners

Location	Corner	Weekday AM Peak Period		Weekday Midday Peak Period		Weekday PM Peak Period		Saturday Midday Peak period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Bedford Avenue and N 7th Street	Northeast	147.8	A	108.9	A	81.7	A	70.2	A
	Southeast	255.3	A	186.6	A	127.3	A	130.1	A
	Southwest	156.3	A	129.3	A	87.4	A	149.0	A
	Northwest	150.7	A	137.1	A	87.1	A	169.2	A
Bedford Avenue and Metropolitan Avenue	Northeast	619.3	A	498.7	A	263.7	A	211.5	A
	Southeast	244.4	A	469.5	A	284.7	A	184.7	A
	Southwest	220.9	A	462.8	A	288.0	A	314.4	A
	Northwest	761.9	A	645.9	A	349.7	A	408.9	A
Bedford Avenue and Grand Street	Northeast	237.4	A	194.9	A	256.3	A	124.0	A
	Southeast	277.1	A	266.8	A	263.4	A	203.3	A
	Southwest	383.4	A	313.7	A	188.1	A	296.9	A
	Northwest	304.0	A	229.9	A	175.1	A	181.1	A

Note: SFP = square feet per pedestrian.

Table 18-9
2010 Baseline Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	With Conflicting Vehicles							
				Weekday AM Peak		Weekday Midday Peak		Weekday PM Peak		Saturday Midday Peak	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Bedford Avenue and N 7th Street	North	30	13.0	80.9	A	71.6	A	40.9	B	64.1	A
	East	24	13.5	158.4	A	106.2	A	87.9	A	76.6	A
	South	30	12.0	94.2	A	66.4	A	40.9	B	50.2	B
	West	30	13.5	135.0	A	125.2	A	90.6	A	171.9	A
Bedford Avenue and Metropolitan Avenue	North	30	12.0	544.7	A	298.5	A	146.1	A	545.9	A
	East	41	11.0	250.8	A	215.4	A	139.7	A	51.3	B
	South	30	15.0	101.7	A	419.0	A	244.9	A	617.9	A
	West	41	14.0	377.7	A	505.4	A	243.1	A	139.7	A
Bedford Avenue and Grand Street	North	30	11.0	316.4	A	156.8	A	217.5	A	182.1	A
	East	42	13.0	265.9	A	258.6	A	476.7	A	113.6	A
	South	30	11.0	246.8	A	174.6	A	125.3	A	343.9	A
	West	42	10.0	224.5	A	194.2	A	108.1	A	122.4	A

Note: SFP = square feet per pedestrian; * = school crosswalks.

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

The analyses assessed transit and pedestrian conditions in the No Action condition to establish the baseline 2020 No Action condition against which to evaluate the potential impacts of the proposed project. The No Action analyses incorporate background growth in transit and pedestrian trips, new trips associated with other developments that will be complete by the 2020 Build year, trips associated with the commercial and industrial development that would occur on the project site absent the proposed project, and changes in the transportation environment that would affect transit service and pedestrian movements in the study area.

PEDESTRIAN VOLUME PROJECTIONS

Estimates of peak hour pedestrian volumes in the No Action condition were developed by applying the *CEQR* recommended 1.0 percent annual background growth rate to baseline pedestrian volumes to obtain projected 2020 volumes, and then adding trips associated with other anticipated projects. As discussed in Chapter 2, "Analytical Framework," numerous projects near the project site, including those which will be developed as part of the Greenpoint-Williamsburg Rezoning, are anticipated to be completed by 2020 independent of the proposed project. Overall, these projects are expected to generate approximately 4,900 and 6,500 pedestrian trips during the AM and PM peak periods, respectively. The estimated pedestrian trips generated by these projects were distributed throughout the pedestrian networks. These volumes were than added to the projected 2020 volumes to generate the 2020 No Action pedestrian volumes used in the analysis.

TRANSIT VOLUME PROJECTIONS

Estimates of peak hour transit volumes in the No Action condition were developed by applying 2010 *CEQR Technical Manual* recommended annual background growth rates. Based on this information, an annual compounded background growth rate of 0.5 percent was applied to the transit volumes from 2010 to 2015, and an annual compounded background growth rate of 0.25 percent was applied to the transit volumes from 2015 to 2020 to obtain projected 2020 volumes. In addition, as discussed above, numerous projects near the project site are anticipated to be

completed by 2020 independent of the proposed project. Overall, these projects are expected to generate approximately 500 and 600 bus trips during the AM and PM peak periods, respectively, and 2,400 and 2,800 subway trips during the AM and PM peak periods, respectively. The estimated transit trips generated by these projects were distributed throughout the transit network based on their proximity to subway stations and bus routes. These volumes were added to the projected 2020 volumes to generate the 2020 No Action transit volumes used in the analysis.

SUBWAY STATION OPERATIONS

The same station elements previously analyzed for existing conditions were analyzed for the No Action condition. No Action condition subway riders were distributed to the stairways at the Bedford Avenue and Marcy Avenue subway stations based on the relative proximity to each station and to individual stairways at the two stations. In addition, widening of the Bedford Avenue station's S3 stairway by two feet, which was proposed as a mitigation measure in the *Greenpoint-Williamsburg Rezoning FEIS*, was incorporated in the No Action analysis.

Tables 18-10 and 18-11 detail the operating levels for the street-level stairways and control areas at the two analysis stations. Based on the analysis results, the stairway operating conditions are expected to remain at acceptable levels (LOS A, B, C) at all analysis locations under the No Action condition. Control area elements are also expected to remain at acceptable levels (LOS A, B, C) at all analysis locations under the No Action condition except the Marcy Avenue station's Manhattan-bound control area HEET, which operates at LOS D with a 1.26 v/c ratio during the AM peak period.

BUS LINE HAUL LEVELS

Estimates of peak hour bus volumes in the No Action condition were developed by applying 2010 *CEQR Technical Manual* recommended annual background growth rates. Based on this information, an annual compounded background growth rate of 0.5 percent were applied to the bus volumes from 2010 to 2015, and an annual compounded background growth rate of 0.25 percent were applied to the bus volumes from 2015 to 2020 to obtain projected 2020 volumes. In addition, bus trips generated by No Action projects in the study area were added to the projected 2020 volumes to generate the 2020 No Action bus volumes used in the analysis. Bus trips were split evenly among the two[1] study area bus routes—the B62 and Q59 bus routes.

The bus trips were assigned based on the anticipated destinations of potential riders in nearby activity centers like downtown Brooklyn and Long Island City, Queens. It was assumed that 65 percent of B62 trips would travel to/from the south (Downtown Brooklyn) and the remaining 35 percent would travel to/from the north. For the Q59 route, inbound trips were assigned to the westbound bus and outbound trips were assigned to the eastbound bus. These bus trips were added to the projected 2020 volumes to generate the 2020 No Action bus volumes, as summarized in Table 18-12. During the AM peak period, the B62 (both directions), and the Q59 (both directions) would exceed guideline capacity. During the PM peak period, the southbound B62 and the Q59 (both directions) would exceed guideline capacity.

[1] With proposed NYCT service cuts, the B39 bus route will be eliminated by June 27, 2010, and the study area will be served by the B62 and Q59 bus routes.

Table 18-10

2020 No Action Condition: Subway Station Stairway Analysis

Stairway	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes Up	15-Minute Pedestrian Volumes Down	Surging Factor	Friction Factor	15-Minute V/SVCD Ratio	15-Minute LOS
AM Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	67	353	0.80	0.90	0.72	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	89	580	0.80	0.90	0.79	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	29	100	0.80	0.90	0.22	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	81	189	0.80	0.90	0.45	A
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	264	90	0.80	0.90	0.70	B
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	35	72	0.80	0.90	0.23	A
MD Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	122	98	0.80	0.90	0.41	A
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	144	206	0.80	0.90	0.44	A
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	39	21	0.80	0.90	0.11	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	99	52	0.80	0.90	0.27	A
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	69	36	0.80	0.90	0.21	A
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	35	114	0.80	0.90	0.33	A
PM Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	319	138	0.80	0.90	0.88	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	447	277	0.80	0.90	0.95	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	149	29	0.80	0.90	0.35	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	275	68	0.80	0.90	0.64	B
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	99	38	0.80	0.90	0.27	A
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	58	236	0.80	0.90	0.65	B

Note: Capacities were calculated based on rates presented in the 2010 *CEQR Technical Manual).*

V/C = [Vin / (150 * We * Sf * Ff)] + [Vx/ (150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx= Peak 15-minute exiting passenger volume
We= Effective width of stairs
Sf = Surging factor (if applicable)
Ff= Friction factor (if applicable)

Sample Calculation: No Action AM
S4 Stairway at Bedford Ave
V/C = [353 (Vol_{in}) / 150 * 4.5 * 1.0 * 0.9] +
[67 (Vol_{Exit}) / 150 * 4.5 * 0.8 * 0.9]
= 0.72

Table 18-11
2020 No Action Condition: Subway Station Control Area Analysis

Control Area Elements	Quantity	15-Minute Pedestrian Volumes In	15-Minute Pedestrian Volumes Out	Surging Factor	Friction Factor	15-Minute V/SVCD Ratio	15-Minute LOS
AM Peak Period							
Bedford Avenue Station (L)							
Bedford Avenue : Two-way Turnstile	4	921	172	0.80	0.90	0.70	C
Bedford Avenue : Emergency Gate	2	0	9	--	--	--	--
Driggs Avenue: HEET (Exit only)	1	0	92	0.80	1.00	0.21	A
Driggs Avenue: Emergency Gate	1	9	3	--	--	--	--
Driggs Avenue: HEET	3	307	15	0.80	1.00	0.41	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	67	--	--	--	--
Broadway/Havemeyer (Manhattan-bound):HEET	1	264	39	0.75	0.90	1.26	D
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	0	11	--	--	--	--
Broadway/Havemeyer (Queens-bound): HEET	1	31	72	0.75	0.90	0.33	A
MD Peak Period							
Bedford Avenue (L)							
Bedford Avenue : Two-way Turnstile	4	315	282	0.80	0.90	0.36	A
Bedford Avenue : Emergency Gate	2	15	8	--	--	--	--
Driggs Avenue: HEET (Exit only)	1	0	115	0.80	1.00	0.26	A
Driggs Avenue: Emergency Gate	1	0	13	--	--	--	--
Driggs Avenue: HEET	3	100	36	0.80	0.90	0.18	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	6	--	--	--	--
Broadway/Havemeyer (Manhattan-bound):HEET	1	69	37	0.75	0.90	0.40	A
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	3	30	--	--	--	--
Broadway/Havemeyer (Queens-bound): HEET	1	37	106	0.75	0.90	0.45	B
PM Peak Period							
Bedford Avenue (L)							
Bedford Avenue : Two-way Turnstile	4	366	806	0.80	0.90	0.68	B
Bedford Avenue : Emergency Gate	2	3	14	--	--	--	--
Driggs Avenue: HEET (Exit only)	1	0	171	0.80	1.00	0.39	A
Driggs Avenue: Emergency Gate	1	0	43	--	--	--	--
Driggs Avenue: HEET	3	102	211	0.80	0.90	0.33	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	7	--	--	--	--
Broadway/Havemeyer (Manhattan-bound):HEET	1	108	24	0.75	0.90	0.54	B
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	0	25	--	--	--	--
Broadway/Havemeyer (Queens-bound): HEET	1	49	229	0.75	0.90	0.84	C

Note: Capacities were calculated based on rates presented in the 2010 *CEQR Technical Manual.*

V/C = [Vin/ Cin* Ff] + [Vx/ Cx* Sf*Ff]

Where

Vin = Peak 15-minute entering passenger volume

Cin = Total 15-minute capacity of all turnstiles for entering passengers

Vx = Peak 15-minute exiting passenger

Cx = Total 15-minute capacity of all turnstile for exiting passengers

Sf = Surging factor (if applicable)

Ff = Friction factor

Sample Calculation: No Action AM
Two-way Turnstile at Bedford Ave
$V/C = [487 (V_{in}) / 4*420 * 0.9] +$
$[112 (V_{Exit}) / 4 * 645* 0.8 * 0.9]$
= 0.38

Table 18-12
2020 No Build Conditions: Bus Line Haul Analysis

Route	Direction	Peak Load Point	Hourly Volumes	Buses/ Hour	AP	Shortfall Amount
AM Peak Hour						
Q59	East	Grand Ave / Van Horn St (ALP)	472	6	(79)	3
	West	Grand Ave / Haspel St (ALP)	398	7	(57)	1
	East	Kent Ave / S.3rd St (LLP)	225	3	(75)	2
	West	Kent Ave / S.3rd St (LLP)	66	6	11	0
B62	North	Atlantic Ave / Clinton St (ALP)	378	7	54	0
	South	Driggs Ave / Union Ave (ALP)	355	6	(59)	1
	North	Bedford Ave / N. 5th St (LLP)	482	8	(60)	1
	South	Driggs Ave / N. 4th St (LLP)	221	5	44	0
PM Peak Hour						
Q59	East	Grand Ave & 64th St (ALP)	323	6	54	0
	West	Grand Ave & Gold Smith St (ALP)	390	3	(130)	5
	East	Kent Ave & S.3rd St (LLP)	119	4	30	0
	West	Kent Ave & S.3rd St (LLP)	219	4	(55)	1
B62	North	Bedford Ave & N 11th St (ALP)	355	10	36	0
	South	Atlantic Ave & Henry St (ALP)	296	8	37	0
	North	Bedford Ave & N. 5th St (LLP)	279	8	34	0
	South	Driggs Ave & N. 4th St (LLP)	391	6	(65)	2

Notes: ALP= Area-wide Peak Load Point; LLP = Local Load Point; AP=average passengers per bus; (#)=exceeds NYCT guideline capacity.

STREET-LEVEL PEDESTRIAN OPERATIONS

The study area sidewalks, corner reservoirs, and crosswalks were assessed for the weekday AM, midday, PM, and Saturday midday peak periods using the No Action peak 15-minute pedestrian volumes. As shown in Tables 18-13 through 18-15, all analyzed pedestrian elements would continue to operate at acceptable levels (13 PFM for sidewalks, 20 SFP for corners and crosswalks) during the analysis peak periods, except for the north and south crosswalks of Bedford Avenue and North 7th Street. The service level for the south crosswalk would deteriorate to 20.6 SFP (LOS D), 24.9 SFP (LOS C), 11.3 SFP (LOS E), and 22.5 SFP (LOS D) during the weekday AM, midday, PM, and Saturday midday peak periods, respectively. The service level for the north crosswalk would deteriorate to LOS D, with an average pedestrian space of 20.2 SFP during the weekday PM peak period.

Table 18-13
2020 No Action Condition: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday AM Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	67	1.5	A	5.5	B
	South	11.6	45	0.3	A	4.3	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	43	0.3	A	4.3	A
	South	7.3	59	0.5	A	4.5	A
Berry St. between N 5th St. and N 4th St.	East	7.0	37	0.4	A	4.4	A
	West	10.0	27	0.2	A	4.2	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	36	0.4	A	4.4	A
	West	12.3	24	0.1	A	4.1	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	191	1.4	A	5.4	B
	South	10.7	185	1.2	A	5.2	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	272	2.3	A	6.3	B
	South	6.0	683	7.6	C	11.6	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	272	1.5	A	5.5	B
	West	10.5	196	1.2	A	5.2	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	353	2.0	A	6.0	B
	West	10.3	321	2.1	A	6.1	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	50	0.3	A	4.3	A
	South	13.3	68	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	46	0.2	A	4.2	A
	South	17.0	64	0.3	A	4.3	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	76	0.5	A	4.5	A
	West	10.7	76	0.5	A	4.5	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	93	0.6	A	4.6	A
	West	11.0	79	0.5	A	4.5	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	63	0.4	A	4.4	A
	South	9.0	51	0.4	A	4.4	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	47	0.3	A	4.3	A
	South	8.0	97	0.8	A	4.8	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	81	0.6	A	4.6	A
	West	11.2	76	0.5	A	4.5	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	82	0.6	A	4.6	A
	West	12.0	79	0.4	A	4.4	A
Weekday Midday Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	71	1.6	A	5.6	B
	South	11.6	45	0.3	A	4.3	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	48	0.3	A	4.3	A
	South	7.3	66	0.6	A	4.6	A
Berry St. between N 5th St. and N 4th St.	East	7.0	44	0.4	A	4.4	A
	West	10.0	17	0.1	A	4.1	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	47	0.5	A	4.5	A
	West	12.3	34	0.2	A	4.2	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	208	1.5	A	5.5	B
	South	10.7	177	1.1	A	5.1	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	232	1.9	A	5.9	B
	South	6.0	541	6.0	B	10.0	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	238	1.3	A	5.3	B
	West	10.5	218	1.4	A	5.4	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	338	1.9	A	5.9	B
	West	10.3	320	2.1	A	6.1	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	70	0.4	A	4.4	A
	South	13.3	68	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	62	0.3	A	4.3	A
	South	17.0	97	0.4	A	4.4	A

Table 18-13 (cont'd)
2020 No Action Condition: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday Midday Peak Period (cont'd)							
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	79	0.5	A	4.5	A
	West	10.7	109	0.7	A	4.7	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	111	0.7	A	4.7	A
	West	11.0	92	0.6	A	4.6	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	45	0.3	A	4.3	A
	South	9.0	65	0.5	A	4.5	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	32	0.2	A	4.2	A
	South	8.0	75	0.6	A	4.6	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	98	0.7	A	4.7	A
	West	11.2	73	0.4	A	4.4	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	120	0.9	A	4.9	A
	West	12.0	101	0.6	A	4.6	A
Weekday PM Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	74	1.6	A	5.6	B
	South	11.6	48	0.3	A	4.3	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	78	0.5	A	4.5	A
	South	7.3	75	0.7	A	4.7	A
Berry St. between N 5th St. and N 4th St.	East	7.0	58	0.6	A	4.6	A
	West	10.0	32	0.2	A	4.2	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	59	0.7	A	4.7	A
	West	12.3	46	0.2	A	4.2	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	278	2.1	A	6.1	B
	South	10.7	245	1.5	A	5.5	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	367	3.1	A	7.1	C
	South	6.0	838	9.3	C	13.3	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	291	1.6	A	5.6	B
	West	10.5	216	1.4	A	5.4	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	437	2.4	A	6.4	B
	West	10.3	468	3.0	A	7.0	C
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	70	0.4	A	4.4	A
	South	13.3	88	0.4	A	4.4	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	113	0.5	A	4.5	A
	South	17.0	117	0.5	A	4.5	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	117	0.7	A	4.7	A
	West	10.7	99	0.6	A	4.6	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	154	1.0	A	5.0	A
	West	11.0	115	0.7	A	4.7	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	70	0.5	A	4.5	A
	South	9.0	65	0.5	A	4.5	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	73	0.5	A	4.5	A
	South	8.0	87	0.7	A	4.7	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	100	0.7	A	4.7	A
	West	11.2	89	0.5	A	4.5	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	81	0.6	A	4.6	A
	West	12.0	136	0.8	A	4.8	A

Table 18-13 (cont'd)
2020 No Action Condition: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Saturday Midday Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	48	1.1	A	5.1	B
	South	11.6	32	0.2	A	4.2	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	39	0.2	A	4.2	A
	South	7.3	41	0.4	A	4.4	A
Berry St. between N 5th St. and N 4th St.	East	7.0	27	0.3	A	4.3	A
	West	10.0	23	0.2	A	4.2	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	33	0.4	A	4.4	A
	West	12.3	15	0.1	A	4.1	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	128	0.9	A	4.9	A
	South	10.7	116	0.7	A	4.7	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	141	1.2	A	5.2	B
	South	6.0	274	3.0	A	7.0	C
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	92	0.5	A	4.5	A
	West	10.5	296	1.9	A	5.9	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	280	1.6	A	5.6	B
	West	10.3	349	2.3	A	6.3	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	8	0.0	A	4.0	A
	South	13.3	54	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	288	1.3	A	5.3	B
	South	17.0	33	0.1	A	4.1	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	24	0.2	A	4.2	A
	West	10.7	109	0.7	A	4.7	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	276	1.7	A	5.7	B
	West	11.0	139	0.8	A	4.8	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	43	0.3	A	4.3	A
	South	9.0	27	0.2	A	4.2	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	41	0.3	A	4.3	A
	South	8.0	24	0.2	A	4.2	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	177	1.3	A	5.3	B
	West	11.2	122	0.7	A	4.7	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	142	1.1	A	5.1	B
	West	12.0	129	0.7	A	4.7	A

Note: PFM = pedestrians per foot per minute.

Table 18-14
2020 No Action Condition: Pedestrian LOS Analysis for Corners

Location	Corner	Weekday AM Peak Period		Weekday Midday Peak Period		Weekday PM Peak Period		Saturday Midday Peak period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Bedford Avenue and N 7th Street	Northeast	84.2	A	78.6	A	50.5	B	54.8	B
	Southeast	94.0	A	104.2	A	57.8	B	83.8	A
	Southwest	64.6	A	78.2	A	46.1	B	88.6	A
	Northwest	94.8	A	100.8	A	58.6	B	120.2	A
Bedford Avenue and Metropolitan Avenue	Northeast	555.8	A	449.4	A	237.3	A	190.2	A
	Southeast	211.6	A	371.2	A	237.9	A	158.3	A
	Southwest	191.8	A	356.4	A	233.9	A	256.1	A
	Northwest	686.3	A	580.0	A	312.3	A	365.5	A
Bedford Avenue and Grand Street	Northeast	202.8	A	171.7	A	216.5	A	111.4	A
	Southeast	238.6	A	236.7	A	225.1	A	182.6	A
	Southwest	337.7	A	280.3	A	168.0	A	266.4	A
	Northwest	265.0	A	203.8	A	156.1	A	163.0	A

Note: SFP = square feet per pedestrian.

Table 18-15
2020 No Action Condition: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	With Conflicting Vehicles							
				Weekday AM Peak		Weekday Midday Peak		Weekday PM Peak		Saturday Midday Peak	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Bedford Avenue and N 7th Street	North	30	13.0	32.4	C	39.9	C	20.2	D	37.8	C
	East	24	13.5	120.3	A	90.6	A	74.1	A	67.5	A
	South	30	12.0	20.6	D	24.9	C	11.3	E	22.5	D
	West	30	13.5	118.2	A	109.3	A	76.5	A	146.9	A
Bedford Avenue and Metropolitan Avenue	North	30	12.0	483.6	A	266.9	A	129.4	A	415.1	A
	East	41	11.0	224.3	A	192.9	A	126.6	A	45.5	B
	South	30	15.0	86.3	A	268.9	A	178.3	A	353.5	A
	West	41	14.0	339.0	A	451.6	A	217.1	A	126.6	A
Bedford Avenue and Grand Street	North	30	11.0	258.7	A	139.0	A	189.6	A	163.7	A
	East	42	13.0	224.4	A	225.0	A	366.6	A	101.5	A
	South	30	11.0	211.2	A	155.9	A	110.3	A	309.1	A
	West	42	10.0	198.2	A	171.7	A	96.0	A	109.5	A

Note: SFP = square feet per pedestrian; * = school crosswalks.

E. THE FUTURE WITH THE PROPOSED PROJECT

The future with the proposed project condition would result in increased transit and pedestrian volumes within the study area. This section describes the projected travel patterns of the site-related trips and assesses their potential impacts on nearby transit and pedestrian facilities.

TRANSIT AND PEDESTRIAN VOLUME PROJECTIONS

Estimates of peak hour transit and pedestrian trips were developed using rates from standard industry sources such as the *CEQR Technical Manual* and Census data. These rates determined how many trips would be generated by each individual land use comprising the project, the percentage of trips that would occur during the analysis peak periods, and the percentage of trips allocated to the different modes of transportation. For example, for the proposed project's residential component (which generates approximately 96 percent of the total project-generated transit trips during the peak hours), information from 2000 US Census Data regarding the modes of transportation for the project study area was used. Based on this information, approximately 63 percent of the potential residents in the proposed project would use public transit (subway and buses) to commute to and from the project site. In total, the proposed project would generate approximately 270 and 350 bus trips and 1,120 and 1,350 subway trips during the AM and PM peak periods, respectively. The proposed project would also generate approximately 3,060 and 4,630 pedestrian trips during the AM and PM peak periods, respectively.

The project-generated transit and pedestrian volumes were distributed throughout the transit and pedestrian networks based on their proximity to subway stations and bus routes. These volumes were added to the projected 2020 No Action volumes to generate the 2020 future with the proposed project transit and pedestrian volumes for analysis.

TRIP DISTRIBUTION AND ASSIGNMENT

The future with the proposed project condition transit and pedestrian networks incorporate project-generated increases in transit and pedestrian volumes, as well as proposed changes to study area transit and pedestrian facilities. Project-generated volumes presented in Chapter 17, "Traffic and Parking," were added to the No Action volumes to generate future with the

proposed project condition transit and pedestrian volumes. These volumes were then assigned to the future with the proposed project condition transit and pedestrian network analysis locations.

It is anticipated that the development could also be served by water taxi service and/or shuttle bus service to transit locations, and the implementation of these would be explored as demand is created by the proposed project's development. While the project could accommodate a water taxi service, it would require its own approval process for dock designs and operations, and the design and location have not been specified at this time. For EIS impact analyses, it is conservatively assumed that neither the ferry nor the shuttle buses would be in place.

SUBWAY STATION OPERATIONS

The same station elements previously analyzed for the existing and No Action conditions were analyzed under the future with the proposed project condition. Project-generated subway trips were added to the 2020 No Action volumes to generate the 2020 future with the proposed project volumes for the analysis of station operations.

Project-generated subway trips were distributed as follows: 60 percent to the J/M/Z trains at the Marcy Avenue station, and the remaining 40 percent were assigned to the L train. It should be noted that more patrons were assigned to the Marcy Avenue station for the FEIS transit analysis since, as discussed, the modified M train service would offer direct connections to midtown Manhattan as well as offer more transfer opportunities to other subway lines.

Since the L train subway station at Bedford Avenue is located at a considerable distance from the project site, it was assumed that 80 percent of subway patrons would ride the Q59 and B62 buses to/from the Bedford Avenue station, while the remaining 20 percent would walk. At the Bedford Avenue station, bus-to-subway trips (and vice-versa) were dispersed to station stairways based on the relative location of bus stops. The Marcy Avenue station (J/M/Z) is also located approximately ¾ mile from the project site. The reconfigured Q59 route terminates at the Williamsburg Bridge Bus Plaza, near the Marcy Avenue station. With convenient access to Q59 service, 80 percent of the patrons taking J/M/Z lines at the Marcy Avenue station were assumed to take the Q59 to and from the station, while the remaining 20 percent would walk.

The project-generated subway trips were distributed to-and-from the L train Bedford Avenue station as follows:

- Eighty percent of project-generated patrons who would use local buses to travel to the project site were assigned to the S1 (SE corner) and S2 (NE corner) stairways at the Driggs Avenue and North 7th Street intersection;
- Twenty percent of project-generated patrons walking to the project site from the Bedford Avenue station were distributed to all four stairways, with majority of the patrons assigned to S3 (SE corner) and S4 (NE corner) stairways at the Bedford Avenue and North 7th Street intersection;
- Eighty percent of project-generated patrons who would take local buses to the Bedford Avenue station were assigned to the S3 (SE corner) and S4 (NE corner) stairways at the Bedford Avenue and North 7th Street intersection; and
- Twenty percent of project-generated patrons walking to the Bedford Avenue station were assigned to the S3 (SE corner) stairway at the Bedford Avenue and North 7th Street intersection.

For the J/M/Z trains, trips to the site and trips from the site were distributed to the Queens-bound and Manhattan-bound platforms (and their respective stairways) based on existing travel patterns as

revealed in stairway counts performed during the data collection phase. It was assumed that for patrons entering the subway station, approximately 90 percent of J/M/Z patrons would utilize the stairways closest to the project site while the remaining 10 percent would bypass those stairways in order to use the main control area. For patrons exiting the subway station, it was assumed that approximately 70 percent of J/M/Z subway riders would utilize stairways closest to the project site, while the remaining 30 percent would exit through the main control area.

As described in section B, "Methodology," station stairway impacts are considered significant when the minimum amount of additional capacity required to mitigate a stairway location to its No Action condition is greater than the minimum widening recommended by the *2010 CEQR Technical Manual or* to bring it to a v/c ratio of 1.00, whichever is greater.

The subway stairway operations under the 2020 future with the proposed project condition are summarized in Table 18-16. As shown in Table 18-16, based on the *2010 CEQR* impact criteria for subway stairways, there would be no significant adverse impacts at any of the stairways during the analysis peak periods under the future with the proposed project condition.

For subway control areas, impacts are considered significant if the proposed project causes a v/c ratio to increase from v/c below 1.00 to v/c of 1.00 or greater. Where a facility is already at or above its capacity (a v/c of 1.00 or greater) in the No Action condition, a 0.01 increase in v/c ratio is also considered significant.

As shown in Table 18-17, under the future with the proposed project condition, the Manhattan-bound control area at Marcy Avenue station would exceed optimum capacity during the AM peak period, while the Queens-bound control area would exceed the optimum capacity during the PM peak period resulting in a significant adverse impact to the Marcy Avenue station's Manhattan-bound and Queens-bound control areas. Measures to mitigate the projected significant adverse impact at the control areas have been developed in consultation with NYCT and are described in Chapter 23, "Mitigation."

BUS LINE HAUL LEVELS

Peak period bus ridership for the future with the proposed project condition was generated by adding the incremental trips associated with the proposed project to the No Action bus line haul volumes. Project-generated bus trips were split equally between the B62 and Q59 bus routes, since these bus routes serve major activity centers in Brooklyn and Queens. In terms of connections, the B62 connects to/from downtown Brooklyn and Long Island City, Queens, both of which are developing office districts outside Manhattan and the Q59 connects the study area to Grand Street and Metropolitan Avenue, which have a substantial amount of retail development. In addition, it was assumed that 80 percent of subway riders would take the bus to and from the Bedford Avenue (B62) and Marcy Avenue (Q59) stations.

As described in section B, "Methodology," impacts to bus line haul levels are considered significant if a proposed action would result in operating conditions above guideline capacities. As shown in Table 18-18, under the future with the proposed project condition, the northbound and southbound B62 would exceed guideline capacity (54 passengers per bus) during both peak periods for all local load point locations, while the guideline capacity would be exceeded for all the area-wide peak load point locations during the AM peak period.

Table 18-16
2020 Future with the Proposed Project: Subway Station Stairway Analysis

Stairway	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes Up	15-Minute Pedestrian Volumes Down	Surging Factor	Friction Factor	15-Minute V/SVCD Ratio	15-Minute LOS
AM Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	68	396	0.80	0.90	0.79	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	93	627	0.80	0.90	0.85	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	39	100	0.80	0.90	0.24	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	96	189	0.80	0.90	0.48	B
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	369	110	0.80	0.90	0.94	C
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	51	84	0.80	0.90	0.29	A
MD Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	123	115	0.80	0.90	0.44	A
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	148	224	0.80	0.90	0.47	B
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	50	21	0.80	0.90	0.13	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	116	52	0.80	0.90	0.30	A
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	91	47	0.80	0.90	0.28	A
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	60	138	0.80	0.90	0.43	A
PM Peak Period								
Bedford Avenue (L)								
			Exit	Enter				
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	323	164	0.80	0.90	0.93	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	458	306	0.80	0.90	1.00	D
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	179	29	0.80	0.90	0.41	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	321	68	0.80	0.90	0.72	C
Marcy Avenue (J/M/Z)								
			Enter	Exit				
Broadway / Havemeyer (S5, NE Corner)	5.0	4.0	142	51	0.80	0.90	0.38	A
Broadway / Havemeyer (S6, SE Corner)	5.0	4.0	88	318	0.80	0.90	0.90	C

Note: Capacities were calculated based on rates presented in the 2010 *CEQR Technical Manual*.

V/C = [Vin / (150 * We * Sf * Ff)] + [Vx/ (150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx= Peak 15-minute exiting passenger volume
We= Effective width of stairs
Sf = Surging factor (if applicable)
Ff= Friction factor (if applicable)

Sample Calculation: Future with the Proposed Project AM
S4 Stairway at Bedford Ave
V/C = [396 (Vol_{in}) / 150 * 4.5 * 1.0 * 0.9] +
[68 (Vol_{Exit}) / 150 * 4.5 * 0.8 * 0.9]
= 0.79

Table 18-17

2020 Future with the Proposed Project: Subway Station Control Area Analysis

Control Area Elements	Quantity	15-Minute Pedestrian Volumes In	15-Minute Pedestrian Volumes Out	Surging Factor	Friction Factor	15-Minute V/SVCD Ratio	15-Minute LOS
AM Peak Period							
Bedford Avenue Station (L)							
Bedford Avenue : Two-way Turnstile	4	1,011	176	0.80	0.90	0.76	C
Bedford Avenue : Emergency Gate	2	0	9				
Driggs Avenue: HEET (Exit only)	1	0	114	0.80	1.00	0.26	A
Driggs Avenue: Emergency Gate	1	9	3				
Driggs Avenue: HEET	3	307	19	0.80	0.90	0.46	B
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	67				
Broadway/Havemeyer (Manhattan-bound):HEET	1	369	59	0.75	0.90	1.77	F+
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	0	11				
Broadway/Havemeyer (Queens-bound): HEET	1	47	84	0.75	0.90	0.44	A
MD Peak Period							
Bedford Avenue (L)							
Bedford Avenue : Two-way Turnstile	4	350	288	0.80	0.90	0.39	A
Bedford Avenue : Emergency Gate	2	15	8				
Driggs Avenue: HEET (Exit only)	1	0	135	0.80	1.00	0.30	A
Driggs Avenue: Emergency Gate	1	0	13				
Driggs Avenue: HEET	3	100	44	0.80	0.90	0.18	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	6				
Broadway/Havemeyer (Manhattan-bound):HEET	1	91	48	0.75	0.90	0.53	B
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	3	30				
Broadway/Havemeyer (Queens-bound): HEET	1	62	130	0.75	0.90	0.63	B
PM Peak Period							
Bedford Avenue (L)							
Bedford Avenue : Two-way Turnstile	4	421	821	0.80	0.90	0.72	C
Bedford Avenue : Emergency Gate	2	3	14				
Driggs Avenue: HEET (Exit only)	1	0	201	0.80	1.00	0.45	B
Driggs Avenue: Emergency Gate	1	0	43				
Driggs Avenue: HEET	3	102	257	0.80	0.90	0.37	A
Marcy Avenue (J/M/Z)							
Broadway/Havemeyer (Manhattan-bound): Emergency Gate	1	0	7				
Broadway/Havemeyer (Manhattan-bound):HEET	1	151	37	0.75	0.90	0.76	C
Broadway/Havemeyer (Queens-bound): Emergency Gate	1	0	25				
Broadway/Havemeyer (Queens-bound): HEET	1	79	311	0.75	0.90	1.20	D+

Note: Capacities were calculated based on rates presented in the 2010 *CEQR Technical Manual.*

"+" implies significant adverse impact

V/C = [Vin/ Cin* Ff] + [Vx/ Cx* Sf*Ff]

Where
Vin = Peak 15-minute entering passenger volume
Cin = Total 15-minute capacity of all turnstiles for entering passengers
Vx = Peak 15-minute exiting passenger
Cx = Total 15-minute capacity of all turnstile for exiting passengers
Sf = Surging factor (if applicable)
Ff = Friction factor

Sample Calculation: Future with the Proposed Project AM

Two-way Turnstile at Bedford Ave

V/C = [1011 (V_{in}) / 4*420 * 0.9] +

[176 (V_{Exit}) / 4 * 645* 0.8 * 0.9]

= 0.76

Table 18-18
2020 Future with the Proposed Project Condition: Bus Line Haul Analysis

Route	Direction	Peak Load Point	Hourly Volumes	Buses/ Hour	AP	Shortfall Amount
AM Peak Hour						
Q59	**East**	Grand Ave / Van Horn St (ALP)	557	6	(93)	5
	West	Grand Ave / Haspel St (ALP)	439	7	(63)	2
	East	Kent Ave / S.3rd St (LLP)	454	3	(151)	6
	West	Kent Ave / S.3rd St (LLP)	506	6	(84)	4
B62	**North**	Atlantic Ave / Clinton St (ALP)	411	7	(59)	1
	South	Driggs Ave / Union Ave (ALP)	373	6	(63)	1
	North	Bedford Ave / N. 5th St (LLP)	772	8	(97)	7
	South	Driggs Ave / N. 4th St (LLP)	334	5	(67)	2
PM Peak Hour						
Q59	**East**	Grand Ave & 64th St (ALP)	391	6	(66)	2
	West	Grand Ave & Gold Smith St (ALP)	485	3	(162)	6
	East	Kent Ave & S.3rd St (LLP)	590	4	(148)	7
	West	Kent Ave & S.3rd St (LLP)	564	4	(141)	7
B62	**North**	Bedford Ave & N 11th St (ALP)	383	10	39	0
	South	Atlantic Ave & Henry St (ALP)	347	8	44	0
	North	Bedford Ave & N. 5th St (LLP)	470	8	(59)	1
	South	Driggs Ave & N. 4th St (LLP)	687	6	(115)	7

Notes: ALP= Area-wide Peak Load Point; LLP = Local Load Point; AP=average passengers per bus; (#)=exceeds NYCT guideline capacity.

The eastbound and westbound Q59 bus route would exceed the guideline capacity during both peak periods for both the local and area-wide load point locations. These projected increases in bus ridership beyond guideline capacities constitute significant adverse bus line haul impacts.

Potential measures to mitigate the significant adverse bus line haul impacts include scheduling additional buses to increase capacity. NYCT routinely monitors changes in bus ridership and would make the necessary service adjustments where warranted. These service adjustments are subject to fiscal and operational constraints and, if implemented, are expected to occur over time. These measures are discussed in greater detail in Chapter 23, "Mitigation."

SUPPLEMENTAL TRANSIT IMPROVEMENT MEASURES

It should be noted that in addition to the mitigation measures for the significant adverse impacts to bus line haul and the Marcy Avenue station control area described in Chapter 23, "Mitigation," other supplemental measures could be employed to improve the overall transit conditions in the study area, including:

- Shuttle Bus Service: This measure could include provision of a shuttle bus route to provide a direct connection between the project site and the Marcy Avenue (J/M/Z subway lines) station. The shuttle bus route would shift project-generated transit trips from the Marcy Avenue station's secondary control areas (in the vicinity of Havemeyer Street) to the main control area, thereby reducing the number of project generated transit trips using the secondary control areas during the AM and PM peak periods.
- Water Taxi Service: A water taxi service would provide additional connections between Manhattan and the project area, and would benefit the subway service in the area by shifting some of the demand from the J/M/Z and L subway lines to the ferry service. A water taxi

service would require additional discretionary approvals for permitting of dock designs and operations, as well as other site plan and open space plan approvals to accommodate the passenger dock.

STREET-LEVEL PEDESTRIAN OPERATIONS

Pedestrian trips associated with the proposed project would result in increased volumes at the analysis locations. The analysis conducted for the future with the proposed project condition accounts for the distribution of project-generated trips overlaid onto the No Action network's sidewalks, corner reservoirs, and crosswalks. Tables 18-19 to 18-21 present the future with the proposed project operating conditions for the analysis elements. All sidewalks, crosswalks, and corner reservoir analysis locations would continue to operate at acceptable levels (20 SFP for crosswalks and corners, 13 PFM for sidewalks) during the weekday AM, midday, PM, and Saturday midday peak 15-minute periods, with the exception of the north and south crosswalks of Bedford Avenue and North 7th Street. The service level for the south crosswalk would deteriorate to 19.1 SFP (LOS D), 23.6 SFP (LOS D), 10.6 SFP (LOS E), and 21.5 SFP (LOS D) during the weekday AM, midday, PM, and Saturday midday peak periods, respectively. The service level for the north crosswalk would remain at LOS D with an average pedestrian space of 19.9 SFP during the weekday PM peak period.

Table 18-19
2020 Future With the Proposed Project Condition: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday AM Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	67	1.5	A	5.5	B
	South	11.6	45	0.3	A	4.3	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	43	0.3	A	4.3	A
	South	7.3	59	0.5	A	4.5	A
Berry St. between N 5th St. and N 4th St.	East	7.0	37	0.4	A	4.4	A
	West	10.0	37	0.2	A	4.2	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	36	0.4	A	4.4	A
	West	12.3	34	0.2	A	4.2	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	193	1.4	A	5.4	B
	South	10.7	197	1.2	A	5.2	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	317	2.6	A	6.6	B
	South	6.0	735	8.2	C	12.2	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	344	1.9	A	5.9	B
	West	10.5	196	1.2	A	5.2	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	353	2.0	A	6.0	B
	West	10.3	333	2.2	A	6.2	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	50	0.3	A	4.3	A
	South	13.3	68	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	46	0.2	A	4.2	A
	South	17.0	64	0.3	A	4.3	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	76	0.5	A	4.5	A
	West	10.7	88	0.5	A	4.5	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	93	0.6	A	4.6	A
	West	11.0	91	0.6	A	4.6	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	87	0.6	A	4.6	A
	South	9.0	86	0.6	A	4.6	A

Table 18-19 (cont'd)
2020 Future With the Proposed Project
Condition: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday AM Peak Period (cont'd)							
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	47	0.3	A	4.3	A
	South	8.0	211	1.8	A	5.8	B
Bedford Ave. between N 1st St. and Grand St.	East	9.0	153	1.1	A	5.1	B
	West	11.2	88	0.5	A	4.5	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	82	0.6	A	4.6	A
	West	12.0	79	0.4	A	4.4	A
Weekday Midday Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	71	1.6	A	5.6	B
	South	11.6	45	0.3	A	4.3	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	48	0.3	A	4.3	A
	South	7.3	66	0.6	A	4.6	A
Berry St. between N 5th St. and N 4th St.	East	7.0	44	0.4	A	4.4	A
	West	10.0	23	0.2	A	4.2	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	47	0.5	A	4.5	A
	West	12.3	40	0.2	A	4.2	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	210	1.6	A	5.6	B
	South	10.7	184	1.1	A	5.1	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	251	2.1	A	6.1	B
	South	6.0	564	6.3	B	10.3	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	266	1.5	A	5.5	B
	West	10.5	218	1.4	A	5.4	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	338	1.9	A	5.9	B
	West	10.3	327	2.1	A	6.1	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	70	0.4	A	4.4	A
	South	13.3	68	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	62	0.3	A	4.3	A
	South	17.0	97	0.4	A	4.4	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	79	0.5	A	4.5	A
	West	10.7	137	0.9	A	4.9	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	111	0.7	A	4.7	A
	West	11.0	120	0.7	A	4.7	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	72	0.5	A	4.5	A
	South	9.0	131	1.0	A	5.0	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	32	0.2	A	4.2	A
	South	8.0	164	1.4	A	5.4	B
Bedford Ave. between N 1st St. and Grand St.	East	9.0	126	0.9	A	4.9	A
	West	11.2	101	0.6	A	4.6	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	120	0.9	A	4.9	A
	West	12.0	101	0.6	A	4.6	A
Weekday PM Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	74	1.6	A	5.6	B
	South	11.6	48	0.3	A	4.3	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	78	0.5	A	4.5	A
	South	7.3	75	0.7	A	4.7	A
Berry St. between N 5th St. and N 4th St.	East	7.0	58	0.6	A	4.6	A
	West	10.0	43	0.3	A	4.3	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	59	0.7	A	4.7	A
	West	12.3	57	0.3	A	4.3	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	283	2.1	A	6.1	B
	South	10.7	258	1.6	A	5.6	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	398	3.3	A	7.3	C
	South	6.0	881	9.8	C	13.8	D

Table 18-19 (cont'd)
2020 Future With the Proposed Project
Condition: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday PM Peak Period (cont'd)							
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	335	1.8	A	5.8	B
	West	10.5	216	1.4	A	5.4	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	437	2.4	A	6.4	B
	West	10.3	481	3.1	A	7.1	C
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	70	0.4	A	4.4	A
	South	13.3	88	0.4	A	4.4	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	113	0.5	A	4.5	A
	South	17.0	117	0.5	A	4.5	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	117	0.7	A	4.7	A
	West	10.7	123	0.8	A	4.8	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	154	1.0	A	5.0	A
	West	11.0	139	0.8	A	4.8	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	143	1.0	A	5.0	A
	South	9.0	127	0.9	A	4.9	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	73	0.5	A	4.5	A
	South	8.0	235	2.0	A	6.0	B
Bedford Ave. between N 1st St. and Grand St.	East	9.0	144	1.1	A	5.1	B
	West	11.2	113	0.7	A	4.7	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	81	0.6	A	4.6	A
	West	12.0	136	0.8	A	4.8	A
Saturday Midday Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	48	1.1	A	5.1	B
	South	11.6	32	0.2	A	4.2	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	39	0.2	A	4.2	A
	South	7.3	41	0.4	A	4.4	A
Berry St. between N 5th St. and N 4th St.	East	7.0	27	0.3	A	4.3	A
	West	10.0	27	0.2	A	4.2	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	33	0.4	A	4.4	A
	West	12.3	19	0.1	A	4.1	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	130	1.0	A	5.0	A
	South	10.7	121	0.8	A	4.8	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	157	1.3	A	5.3	B
	South	6.0	294	3.3	A	7.3	C
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	115	0.6	A	4.6	A
	West	10.5	296	1.9	A	5.9	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	280	1.6	A	5.6	B
	West	10.3	354	2.3	A	6.3	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	8	0.0	A	4.0	A
	South	13.3	54	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	288	1.3	A	5.3	B
	South	17.0	33	0.1	A	4.1	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	24	0.2	A	4.2	A
	West	10.7	134	0.8	A	4.8	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	276	1.7	A	5.7	B
	West	11.0	164	1.0	A	5.0	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	67	0.5	A	4.5	A
	South	9.0	89	0.7	A	4.7	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	41	0.3	A	4.3	A
	South	8.0	103	0.9	A	4.9	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	200	1.5	A	5.5	B
	West	11.2	147	0.9	A	4.9	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	142	1.1	A	5.1	B
	West	12.0	129	0.7	A	4.7	A

Note: PFM = pedestrians per foot per minute.

Table 18-20
2020 Future With the Proposed Project
Condition: Pedestrian LOS Analysis for Corners

Location	Corner	Weekday AM Peak Period		Weekday Midday Peak Period		Weekday PM Peak Period		Saturday Midday Peak period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Bedford Avenue and N 7th Street	Northeast	71.9	A	73.7	A	46.7	B	52.6	B
	Southeast	86.7	A	99.6	A	54.7	B	81.0	A
	Southwest	61.0	A	75.8	A	44.2	B	85.9	A
	Northwest	94.3	A	100.3	A	58.1	B	119.5	A
Bedford Avenue and Metropolitan Avenue	Northeast	555.8	A	449.4	A	237.3	A	190.2	A
	Southeast	211.6	A	371.2	A	237.9	A	158.3	A
	Southwest	182.8	A	294.5	A	208.8	A	225.1	A
	Northwest	606.4	A	460.0	A	278.0	A	318.1	A
Bedford Avenue and Grand Street	Northeast	121.9	A	129.0	A	114.5	A	93.8	A
	Southeast	135.9	A	149.3	A	114.2	A	129.7	A
	Southwest	239.5	A	179.4	A	111.2	A	178.2	A
	Northwest	208.6	A	154.5	A	108.9	A	132.4	A

Note: SFP = square feet per pedestrian.

Table 18-21
2020 Future With the Proposed Project
Condition: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	With Conflicting Vehicles							
				Weekday AM Peak		Weekday Midday Peak		Weekday PM Peak		Saturday Midday Peak	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Bedford Avenue and N 7th Street	North	30	13.0	32.1	C	39.4	C	19.9	D	37.4	C
	East	24	13.5	100.9	A	85.8	A	68.9	A	65.1	A
	South	30	12.0	19.1	D+	23.6	D	10.6	E	21.5	D
	West	30	13.5	118.2	A	109.3	A	76.5	A	146.9	A
Bedford Avenue and Metropolitan Avenue	North	30	12.0	483.6	A	266.9	A	129.4	A	415.1	A
	East	41	11.0	224.3	A	192.9	A	126.6	A	45.5	B
	South	30	15.0	86.3	A	268.9	A	178.3	A	353.5	A
	West	41	14.0	272.5	A	257.7	A	164.2	A	105.5	A
Bedford Avenue and Grand Street	North	30	11.0	191.2	A	115.5	A	108.3	A	133.5	A
	East	42	13.0	104.1	A	143.8	A	132.7	A	82.5	A
	South	30	11.0	121.2	A	82.8	A	55.3	B	120.4	A
	West	42	10.0	147.0	A	112.4	A	66.4	A	83.9	A

Note: SFP = square feet per pedestrian
"**+**" indicates significant adverse impact

As discussed earlier in Section B, "Methodology," impacts to corners and crosswalks are considered significant if a proposed action would result in a deterioration in LOS from No Action mid-LOS D or better to future with the proposed project LOS E or F, or when the available circulation space is decreased by 1 SFP or more at a location with a No Action operation of mid-LOS D or worse. Project-related sidewalk impacts are considered significant and require examination of mitigation if there is an increase of 2 PFM over No Action conditions that are characterized by flow rates greater than 15 PFM (LOS D). Based on these criteria, a significant adverse pedestrian impact was identified for the south crosswalk at the

Bedford Avenue and North 7th Street intersection during the weekday AM peak period, as detailed below.

BEDFORD AVENUE AND NORTH 7TH STREET

- *Weekday AM peak period:* The south crosswalk would deteriorate within LOS D (20.6 SFP to 19.1 SFP).

Potential measures to mitigate the significant adverse impact to the crosswalk include restriping the crosswalk to increase capacity. Specific mitigation measures are discussed in greater detail in Chapter 23, "Mitigation."

F. PUBLIC SCHOOL OPTION

As described in Chapter 23, "Mitigation," the New York City School Construction Authority (SCA) may locate an approximately 100,000-square-foot public elementary and intermediate school within the community facility space in the Refinery complex. The proposed school is expected to primarily accommodate the demand for school seats generated by the proposed project. Additionally, the school could also accommodate the demand generated by other future developments in the immediate area that are expected to be completed by 2020. Since nearly all the future student population is anticipated to reside either in the proposed project's residential buildings or in the immediate vicinity of the project site, a vast majority of the students are expected to walk to and from the proposed school.

In the weekday AM, midday, PM, and Saturday midday peak hours, the inclusion of a public school in the proposed project would generate fewer subway and bus trips than the medical office and museum community facility space assumed in the detailed quantitative analyses. In terms of pedestrian trips, the inclusion of a public school would generate fewer overall pedestrian trips than the analyzed program's medical office and museum community facility space during the weekday PM and Saturday midday peak hours. However, the potential school would generate approximately 310 and 220 more pedestrian trips (accounting for all modes of transportation that contain a walk component) during the weekday AM and midday peak hours, respectively, than the trips generated by the analyzed program's medical office and museum community facility use.

It should be noted that majority of these walk trips would be generated by students residing in the new Domino project, and are thereby not expected to result in students crossing Kent Avenue during the weekday AM and midday peak hours to access and egress the school. The exception would be the students residing in the upland parcel (Site E) and other nearby residential developments, who are expected to cross Kent Avenue at South 2nd and South 3rd Streets to access and egress the school. Under either the existing signal timing at the intersection of South 3rd Street at Kent Avenue or the proposed signal timing (recommended as part of traffic mitigation discussed in detail in Chapter 23, "Mitigation") at the intersection of South 2nd Street at Kent Avenue, the analysis concluded that the students would have sufficient "walk" time available to cross both Kent Avenue and South 2nd and South 3rd Streets. In general, school-related pedestrian circulation due to the school would be expected to occur primarily along Kent Avenue's western sidewalks and along the internal walkways within the project site.

The majority of the pedestrian circulation is expected to occur within the project site and along the sidewalks adjacent to the project site. The proposed project would replace the existing sidewalks along Kent Avenue with new sidewalks 15 in width along the western edge of the

project site, except for in front of the Refinery where the sidewalks would remain 10 feet wide. The new sidewalks would provide sufficient capacity to accommodate the demand generated by the proposed school during the AM and PM peak periods. Therefore, no new significant adverse pedestrian impacts are expected with the proposed public school option.

Additionally, based on the review of accident data obtained from the New York State Department of Transportation (NYSDOT), none of the intersections on Kent and Wythe Avenues in the proximity of the proposed public school in the Refinery complex are high pedestrian and bicycle accident locations based on the *CEQR* criteria. However, to enhance pedestrian safety, consistent with SCA's standard operating practices and procedures, pedestrian improvements such as striping high-visibility crosswalks, installation of "School Crossing" signage, and provision of "School Crossing Guards" at crosswalks bordering the project site would be incorporated as part of the school's design. With these improvements in place, it is expected that the projected increases in pedestrian levels generated by the proposed public school in the Refinery complex site could be accommodated safely at the intersections bordering the project site. ✶