Chapter 18: Transit and Pedestrians

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.

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

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.

The proposed project would result in the following significant adverse impacts to bus line haul levels: the eastbound B39 during the PM peak period; the westbound B39 during the AM peak period; and the northbound and southbound B61 and eastbound and westbound Q59 bus routes during both the AM and PM peak periods. Potential measures to mitigate the projected significant adverse control area and 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 *City Environmental Quality Review (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 Metropolitan Transportation Authority-New York City Transit (NYCT) J/M/Z and L subway lines, and the Q59, B39, and B61 buses.

SUBWAY SERVICE

As shown on 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.

J/M/Z Subway Line

The J/M/Z trains operate between Bensonhurst, Brooklyn and Jamaica, Queens via lower Manhattan.

L Subway Line

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

BUS SERVICE

The study area is served by the Q59, B39, and B61 bus routes operated by NYCT. The B39 route operates between Williamsburg, Brooklyn and the Lower East Side of Manhattan. The B61 route operates between Red Hook, Brooklyn and Court Square 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. Table 18-1 provides a summary of the weekday service headways for the B39, B61, and Q59 bus routes, which are included in this study's bus line haul analyses.

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	LES, Manhattan	Via Williamsburg Bridge	3	4	4
B61	Red Hook, Brooklyn	LIC, Queens	Bedford Avenue (northbound) and Driggs Avenue (southbound)	8	5	8
Q59	Williamsburg, Brooklyn	Rego Park, Queens	Kent Avenue / Grand Street / Metropolitan Avenue	6	3	5

Sources: NYCT *Brooklyn Bus Map* Notes (2009) and *Queens Bus Map* Notes (2009).

Kent Avenue Reconfiguration

Recently, Kent Avenue has been reconfigured in terms of traffic flow direction and geometric configuration in the study area. Specifically, since late September/early October 2009 the traffic flow direction on Kent Avenue has been changed from two-way north-south operation to one-way northbound operation between Clymer and North 14th Streets. The reconfiguration of Kent Avenue has resulted in the rerouting of the southbound Q59 bus route from Kent Avenue to Wythe Avenue between Grand Street and Broadway.

As discussed in Chapter 17, "Traffic and Parking," the traffic patterns resulting from the reconfiguration of Kent Avenue have not yet stabilized. Further, DOT is planning to assess the efficacy of the new Kent Avenue configuration to determine whether additional network modifications are needed. Given the not yet stabilized network, this DEIS has undertaken the



DOMINO SUGAR REZONING

Transit Routes
Figure 18-1

bus analysis for the Q59 bus route assuming bus stops on southbound Kent Avenue. Once the travel patterns have stabilized, the transit analyses will incorporate the Q59 bus rerouting in the study area as well as the reassignment of Q59-related pedestrian trips from Kent Avenue to Wythe Avenue between the DEIS and FEIS.

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);
- 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 *CEQR Technical Manual*. The methodology for assessing subway stairway, ramp, 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, and the average area required for circulation. For control area elements, capacity is measured by the number and width of an element and the NYCT optimum capacity per element. 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.

[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.



Pedestrian Analysis Locations

Figure 18-2

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

LOS	V/C Ratio	
	Stairways	Turnstiles/Gates
A	0.00 to 0.45	0.00 to 0.20
B	0.45 to 0.70	0.20 to 0.40
C	0.70 to 1.00	0.40 to 0.60
D	1.00 to 1.33	0.60 to 0.80
E	1.33 to 1.67	0.80 to 1.00
F	1.67 or Greater	Greater than 1.00

Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (December 2001).

For stairways, 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.

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, a widening of 6 inches or more needed to restore LOS to the same level as the No Action or LOS C/D conditions is considered significant; for a future with the proposed project LOS E condition, a widening of 3 inches or more is considered significant; and for a future with the proposed project LOS F condition, a widening of 1 inch or more is considered significant. For control areas, impacts are considered significant if the NYCT optimum capacity is exceeded and the increase in v/c ratio between the future with the proposed project and No Action conditions exceeds 0.01.

SUBWAY AND BUS LINE HAUL CAPACITIES

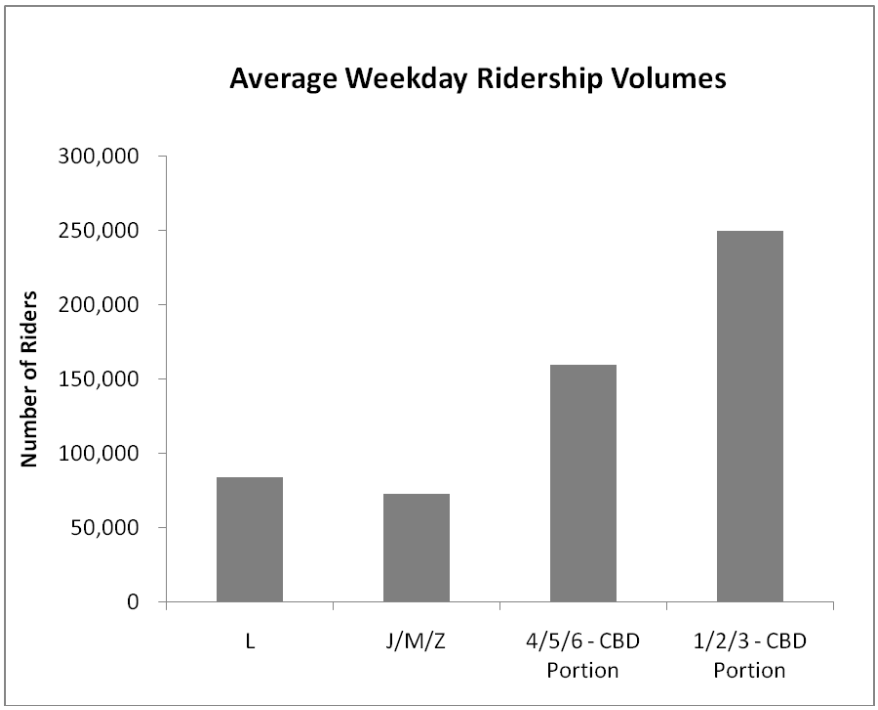
In accordance with the *CEQR Technical Manual*, line haul capacities (i.e., the ability of transit systems to accommodate passenger loads) are evaluated when a proposed action is anticipated to generate a perceptible number of passengers to particular subway and bus routes. For subways, if, on average, 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.

In terms of ridership,[1] levels, the L and the J/M/Z subway lines experience an average of approximately 84,000 and 73,000 riders, respectively during the typical weekday. Although

[1] Average weekday subway ridership data for 2006 are from the *2006 Subway and Bus Ridership Report,* published by NYCT.

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 160,000 and 250,000 riders during a typical weekday, as presented in Figure 18-3.

Figure 18-3



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. The average number of subway cars on a typical NYCT subway train during peak periods is approximately 8 to 10.[1] 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. 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 19 trains per hour, respectively. This translates to approximately 120 and 152 peak direction subway cars available for the PM trips generated by the proposed project. Distributing the 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. 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.

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

[1] Peak hour train information are from the *2007 Weekday Cordon Count*, published by NYCT.

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. 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 93 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 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 *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. EXISTING CONDITIONS

June 2008 and February 2009 field surveys provided the existing conditions for the analysis of sidewalks, corners, crosswalks, and subway station elements. Data gathered in 2008 were adjusted for the 2009 existing year by applying the *CEQR* recommended growth rate of 1.0%. 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 analysis.

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.

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 Marcy Avenue station's Manhattan-bound control area, which operates at LOS C with a 0.49 v/c ratio during the AM peak period and of the Queens-bound control area, which operates at LOS C with a 0.46 v/c during the PM peak period .

Table 18-4
2009 Existing Conditions: Subway Station Stairway Analysis

Stairway	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute		
			Up	Down		SVCD Capacity	V/SVCD Ratio	LOS
AM Peak Period								
Bedford Avenue (L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	48	231	0.80	540	0.52	B
Bedford Avenue / N 7th Street (S3, SE Corner)	5.5	4.5	52	268	0.80	540	0.59	B
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	20	96	0.80	552	0.21	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	54	172	0.80	576	0.39	A
Marcy Avenue (J/M/Z)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	127	72	0.90	675	0.29	A
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	17	52	0.80	600	0.12	A
MD Peak Period								
Bedford Avenue (L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	90	59	0.90	608	0.25	A
Bedford Avenue / N 7th Street (S3, SE Corner)	5.5	4.5	79	101	0.90	608	0.30	A
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	25	20	0.90	621	0.07	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	61	47	0.90	648	0.17	A
Marcy Avenue (J/M/Z)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	38	24	0.90	675	0.09	A
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	12	72	0.80	600	0.14	A
PM Peak Period								
Bedford Avenue (L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	226	83	0.80	540	0.57	B
Bedford Avenue / N 7th Street (S3, SE Corner)	5.5	4.5	262	138	0.90	608	0.66	B
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	103	28	0.80	552	0.24	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	165	61	0.80	576	0.39	A
Marcy Avenue (J/M/Z)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	55	23	0.80	600	0.13	A
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	32	125	0.80	600	0.26	A

Note: Capacities were calculated based on rates presented in the NYCT *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.

Table 18-5
2009 Existing Conditions: Subway Station Control Area Analysis

Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
AM Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	458	300	1920	0.39	B
Driggs Avenue Control Area	3	285	9	900	0.33	B
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	126	22	300	0.49	C
Broadway/Havemeyer south (Queens-bound) Control Area	1	12	52	300	0.21	B
MD Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	170	182	1920	0.18	A
Driggs Avenue Control Area	3	93	21	900	0.13	A
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	36	24	300	0.20	B
Broadway/Havemeyer south (Queens-bound) Control Area	1	12	64	300	0.25	B
PM Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	173	517	1920	0.36	B
Driggs Avenue Control Area	3	93	123	900	0.24	B
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	63	8	300	0.24	B
Broadway/Havemeyer south (Queens-bound) Control Area	1	22	117	300	0.46	C

Note: Capacities were calculated based on rates presented in the NYCT *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.

BUS LINE HAUL LEVELS

To assess the potential impacts on the study area bus routes, the most recent line haul data for the B39, B61, and Q59 bus routes were acquired from NYCT.

For the B39 bus, project-generated trips would board buses at the peak load points; therefore line haul analyses were conducted for the peak load points. During the AM and PM peak periods, the eastbound peak load point is at Allen Street and Delancey Street in Manhattan, while the westbound peak load point is in Brooklyn just east of the Williamsburg Bridge Plaza near the intersection of Broadway and Havemeyer Street.

For the B61 bus, project-generated trips 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 peak load point is at Atlantic Avenue and Hicks Street, while the southbound peak load point is at Manhattan Avenue and Nassau Avenue. During the PM peak period, the northbound peak load point is at Atlantic Avenue and Hick Street, while the southbound peak load point is at Jackson Avenue and Queens Plaza South.

The Q59 line haul analyses were also conducted for the peak load points (see Table 18-6). During the AM peak period, the eastbound peak load point is at Metropolitan Bridge, while the westbound peak load point is at Grand Avenue and Flushing Avenue. During the PM peak period, the eastbound peak load point is at Metropolitan Bridge, while the westbound peak load point is at Grand Avenue and Queens Boulevard.

Table 18-6
2009 Existing Conditions: Bus Line Haul Analysis at Peak Load Points

Route	Peak Period	Buses Per Hour	Eastbound Load Point	AP	Buses Per Hour	Westbound Load Point	AP
B39	AM	3	Allen Street & Delancey Street	10	4	Washington Street and Havemeyer Street	24
	PM	4	Allen Street & Delancey Street	24	4	Washington Street and Havemeyer Street	14
			Northbound			**Southbound**	
B61	AM	7	Atlantic Avenue & Hicks Street	52	7	Manhattan Avenue and Nassau Avenue	39
	PM	7	Atlantic Avenue & Chicks Street	38	6	Jackson Avenue and Queens Plaza South	46
			Eastbound			**Westbound**	
Q59	AM	6	Metropolitan Bridge	46	6	Grand Avenue and Flushing Avenue	(59)
	PM	4	Metropolitan Bridge	42	5	Grand Avenue and Queens Boulevard	42

Notes: 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. 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 18-7
2009 Existing Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average PFM	Average LOS	Platoon PFM	Platoon 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	121	1.0	A	5.0	B
	South	8.0	293	2.4	A	6.4	B
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	194	1.1	A	5.1	B
	West	10.5	165	1.0	A	5.0	B
Bedford Ave. between N 7th St. and N 6th St.	East	12	221	1.2	A	5.2	B
	West	10.3	177	1.1	A	5.1	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

Table 18-7 (cont'd)
2009 Existing 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 (cont'd)							
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	130	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	142	1.2	A	5.2	B
	South	8.0	311	2.6	A	6.6	B
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	195	1.1	A	5.1	B
	West	10.5	181	1.1	A	5.1	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	253	1.4	A	5.4	B
	West	10.3	225	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	98	0.6	A	4.6	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	100	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	85	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	108	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	131	1.0	A	5.0	A
	South	10.7	92	0.6	A	4.6	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	188	1.6	A	5.6	B
	South	8.0	406	3.4	A	7.4	C

Table 18-7 (cont'd)
2009 Existing Conditions: 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	236	1.3	A	5.3	B
	West	10.5	177	1.1	A	5.1	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	291	1.6	A	5.6	B
	West	10.3	287	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	105	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	138	0.9	A	4.9	A
	West	11.0	103	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	122	0.7	A	4.7	A
Saturday Midday Peak Period							
N 4th St. between Wythe Ave. and Berry St.	North	3.0	3	0.1	A	4.1	A
	South	11.6	6	0.0	A	4.0	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	10	0.1	A	4.1	A
	South	7.3	7	0.1	A	4.1	A
Berry St. between N 5th St. and N 4th St.	East	7.0	15	0.1	A	4.1	A
	West	10.0	10	0.1	A	4.1	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	6	0.1	A	4.1	A
	West	12.3	6	0.0	A	4.0	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	60	0.4	A	4.4	A
	South	10.7	34	0.2	A	4.2	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	64	0.5	A	4.5	A
	South	8.0	83	0.7	A	4.7	A
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	67	0.4	A	4.4	A
	West	10.5	250	1.6	A	5.6	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	204	1.1	A	5.1	B
	West	10.3	254	1.6	A	5.6	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	4	0.0	A	4.0	A
	South	13.3	30	0.2	A	4.2	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	257	1.1	A	5.1	B
	South	17.0	10	0.0	A	4.0	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	19	0.1	A	4.1	A
	West	10.7	95	0.6	A	4.6	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	248	1.5	A	5.5	B
	West	11.0	124	0.8	A	4.8	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	35	0.2	A	4.2	A
	South	9.0	22	0.2	A	4.2	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	36	0.3	A	4.3	A
	South	8.0	17	0.1	A	4.1	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	157	1.2	A	5.2	B
	West	11.2	109	0.6	A	4.6	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	127	0.9	A	4.9	A
	West	12.0	116	0.6	A	4.6	A

Note: PFM = pedestrians per foot per minute.

Table 18-8
2009 Existing 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	150.1	A	110.1	A	82.6	A	71.1	A
	Southeast	257.5	A	188.4	A	128.5	A	131.9	A
	Southwest	157.6	A	130.6	A	88.2	A	152.0	A
	Northwest	152.4	A	138.6	A	88.0	A	172.8	A
Bedford Avenue and Metropolitan Avenue	Northeast	619.3	A	498.7	A	266.2	A	216.2	A
	Southeast	245.5	A	469.5	A	286.1	A	188.5	A
	Southwest	221.9	A	462.8	A	288.0	A	325.1	A
	Northwest	761.9	A	645.9	A	351.6	A	422.8	A
Bedford Avenue and Grand Street	Northeast	237.4	A	194.9	A	256.3	A	126.8	A
	Southeast	277.1	A	266.8	A	263.4	A	208.9	A
	Southwest	383.4	A	315.9	A	189.7	A	307.1	A
	Northwest	304.0	A	231.4	A	176.9	A	186.0	A

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

Table 18-9
2009 Existing 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	81.1	A	71.7	A	41.1	B	64.7	A
	East	24	13.5	160.7	A	107.2	A	88.4	A	77.3	A
	South	30	12.0	93.3	A	66.6	A	40.8	B	50.5	B
	West	30	13.5	141.9	A	131.4	A	94.9	A	181.3	A
Bedford Avenue and Metropolitan Avenue	North	30	12.0	497.8	A	274.2	A	134.9	A	561.4	A
	East	41	11.0	213.2	A	184.0	A	119.6	A	44.5	B
	South	30	15.0	89.1	A	369.0	A	215.5	A	583.9	A
	West	41	14.0	351.0	A	470.1	A	225.6	A	131.9	A
Bedford Avenue and Grand Street	North	30	11.0	316.4	A	156.8	A	217.5	A	190.3	A
	East	42	13.0	265.9	A	258.6	A	476.7	A	115.2	A
	South	30	11.0	246.8	A	174.6	A	125.3	A	371.9	A
	West	42	10.0	224.5	A	197.1	A	109.9	A	124.7	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.

TRANSIT AND PEDESTRIAN VOLUME PROJECTIONS

Estimates of peak hour transit and pedestrian volumes in the No Action condition were developed by applying the *CEQR* recommended 1.0 percent annual background growth rate to existing transit and 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 500 and 600 bus trips, 2,400 and 2,800 subway trips, and approximately 4,900 and 6,500 pedestrian trips during the AM and PM peak periods, respectively. The estimated transit and pedestrian trips generated by these projects were distributed throughout the transit and pedestrian networks based upon their proximity to subway stations and bus routes. These volumes were than added to the projected 2020 volumes to generate the 2020 No Action transit and pedestrian 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 except the Bedford Avenue station's S3 stairway, which would decline from LOS B under existing conditions to LOS C under the No Action condition during the PM peak period.

Table 18-10
2020 No Action Condition: Subway Station Stairway Analysis

Stairway	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute SVCD Capacity	15-Minute V/SVCD Ratio	LOS
			Up	Down				
AM Peak Period								
Bedford Avenue(L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	70	370	0.80	540	0.82	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	93	601	0.80	780	0.89	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	33	107	0.80	552	0.25	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	84	201	0.80	576	0.49	B
Marcy Avenue (J/M/Z)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	166	163	0.90	675	0.49	B
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	20	99	0.80	600	0.20	A
MD Peak Period								
Bedford Avenue(L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	129	103	0.90	608	0.38	A
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	150	214	0.90	878	0.41	A
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	44	22	0.90	621	0.11	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	105	55	0.90	648	0.25	A
Marcy Avenue (J/M/Z)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	70	35	0.90	675	0.16	A
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	23	111	0.80	600	0.22	A
PM Peak Period								
Bedford Avenue(L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	332	145	0.80	540	0.88	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	472	289	0.90	878	0.87	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	155	31	0.80	552	0.34	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	286	73	0.80	576	0.62	B
Marcy Avenue (J/M/Z)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	149	30	0.80	600	0.30	A
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	67	190	0.80	600	0.43	A

Note: Capacities were calculated based on rates presented in the NYCT *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.

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

Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
AM Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	926	386	1920	0.68	D
Driggs Avenue Control Area	3	327	30	900	0.40	B
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	257	42	300	1.00	E
Broadway/Havemeyer south (Queens-bound) Control Area	1	19	66	300	0.28	B
MD Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	329	292	1920	0.32	B
Driggs Avenue Control Area	3	106	51	900	0.17	A
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	68	35	300	0.34	B
Broadway/Havemeyer south (Queens-bound) Control Area	1	24	102	300	0.42	C
PM Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	381	834	1920	0.63	D
Driggs Avenue Control Area	3	108	211	900	0.35	B
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	110	18	300	0.43	C
Broadway/Havemeyer south (Queens-bound) Control Area	1	39	240	300	0.93	E

Note: Capacities were calculated based on rates presented in the NYCT *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.

The control area operations would decline under the No Action condition. During the AM peak period, the Bedford Avenue control area at the Bedford Avenue station would decline from LOS B under existing conditions to LOS D under the No Action condition. The Manhattan-bound control area at the Marcy Avenue station would decline from LOS C under existing conditions to LOS E. During the PM peak, the Bedford Avenue control area would decline from LOS B under existing conditions to LOS D under the No Action condition. The Queens-bound control area at the Marcy Avenue station would decline from LOS C under existing conditions to LOS E under the No Action condition.

BUS LINE HAUL LEVELS

The 2020 No Action condition bus line haul analysis incorporates a 1.0 percent annual growth rate as well as bus trips generated by No Action projects in the study area. Bus trips were split evenly among the three study area bus routes with one-third of trips assigned to each of the B39, B61, and Q59 bus routes. This trip assignment was based upon the anticipated destinations of potential riders in nearby activity centers like downtown Brooklyn and Long Island City, Queens.

For the B39 route, inbound trips were assigned to the eastbound bus, and outbound trips were assigned to the westbound bus. It was assumed that 50 percent of B61 trips would travel to/from the north and the remaining 50 percent would travel to/from the south. For the Q59 route, inbound trips were assigned to the southbound bus and outbound trips were assigned to the northbound 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 westbound B39, the B61 (both directions), and the Q59 (both directions) would exceed guideline capacity. During the PM peak period, the eastbound B39, the B61 (both directions), and the Q59 (both directions) would exceed guideline capacity.

Table 18-12
2020 No Action Condition: Bus Line Haul Analysis at Peak Load Points

Route	Peak Period	Buses Per Hour	Eastbound Load Point	AP	Buses Per Hour	Westbound Load Point	AP
B39	AM	3	Allen Street and Delancey Street	20	4	Washington Street and Havemeyer Street	(59)
	PM	4	Allen Street and Delancey Street	(60)	4	Washington Street and Havemeyer Street	32
			Northbound			**Southbound**	
B61	AM	7	Atlantic Avenue and Hicks Street	(94)	7	Manhattan Avenue and Nassau Avenue	(71)
	PM	7	Atlantic Avenue and Hicks Street	(77)	6	Jackson Avenue and Queens Plaza S.	(97)
			Eastbound			**Westbound**	
Q59	AM	6	Metropolitan Bridge	(77)	6	Grand Avenue and Flushing Avenue	(73)
	PM	4	Metropolitan Bridge	(70)	5	Grand Avenue and Queens Boulevard	(77)

Note: 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 20.3 SFP (LOS D), 24.6 SFP (LOS C), 11.1 SFP (LOS E), and 22.4 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 20.0 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 PFM	Average LOS	Platoon PFM	Platoon 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	192	1.4	A	5.4	B
	South	10.7	188	1.2	A	5.2	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	274	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	275	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	322	2.1	A	6.1	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	51	0.3	A	4.3	A
	South	13.3	68	0.3	A	4.3	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 AM Peak Period (cont'd)							
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	46	0.2	A	4.2	A
	South	17.0	65	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	77	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	80	0.5	A	4.5	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	65	0.5	A	4.5	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	102	0.9	A	4.9	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	84	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	80	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	46	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	45	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	35	0.2	A	4.2	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	207	1.5	A	5.5	B
	South	10.7	178	1.1	A	5.1	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	233	1.9	A	5.9	B
	South	6.0	541	6.0	A	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	71	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	98	0.4	A	4.4	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	80	0.5	A	4.5	A
	West	10.7	108	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	66	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	78	0.7	A	4.6	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	97	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	103	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	79	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	277	2.1	A	6.1	B
	South	10.7	247	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	839	9.3	C	13.3	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	294	1.6	A	5.6	B
	West	10.5	215	1.4	A	5.4	B

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 PM Peak Period (cont'd)							
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	437	2.4	A	6.4	B
	West	10.3	469	3.0	A	7.0	C
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	71	0.4	A	4.4	A
	South	13.3	89	0.4	A	4.4	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	115	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	100	0.6	A	4.6	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	153	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	74	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	91	0.8	A	4.8	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	104	0.8	A	4.8	A
	West	11.2	90	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
Saturday Midday Peak Period							
N 4th St. between Wythe Ave and Berry St.	North	3.0	47	1.0	A	5.0	B
	South	11.6	29	0.2	A	4.2	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	36	0.2	A	4.2	A
	South	7.3	39	0.4	A	4.4	A
Berry St. between N 5th St. and N 4th St.	East	7.0	24	0.2	A	4.2	A
	West	10.0	21	0.1	A	4.1	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	31	0.3	A	4.3	A
	West	12.3	13	0.1	A	4.1	A
N 7th St. between Berry St. and Bedford Ave.	North	9.0	126	0.9	A	4.9	A
	South	10.7	114	0.7	A	4.7	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	139	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	91	0.5	A	4.5	A
	West	10.5	294	1.9	A	5.9	B
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	279	1.6	A	5.6	B
	West	10.3	347	2.2	A	6.2	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	6	0.0	A	4.0	A
	South	13.3	53	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	287	1.3	A	5.3	B
	South	17.0	30	0.1	A	4.1	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	22	0.1	A	4.1	A
	West	10.7	107	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	137	0.8	A	4.8	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	41	0.3	A	4.3	A
	South	9.0	25	0.2	A	4.2	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	40	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	176	1.3	A	5.3	B
	West	11.2	121	0.7	A	4.7	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	140	1.0	A	5.0	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	84.9	A	78.9	A	50.6	B	55.1	B
	Southeast	93.8	A	104.0	A	57.6	B	84.0	A
	Southwest	64.5	A	78.0	A	45.9	B	89.2	A
	Northwest	94.9	A	100.8	A	58.8	B	121.7	A
Bedford Avenue and Metropolitan Avenue	Northeast	555.8	A	449.4	A	237.4	A	192.1	A
	Southeast	211.6	A	371.2	A	235.0	A	159.2	A
	Southwest	191.0	A	356.4	A	230.5	A	261.8	A
	Northwest	678.9	A	580.0	A	312.2	A	374.3	A
Bedford Avenue and Grand Street	Northeast	197.4	A	166.5	A	210.2	A	111.9	A
	Southeast	231.2	A	227.9	A	219.8	A	182.4	A
	Southwest	330.3	A	275.3	A	167.3	A	271.4	A
	Northwest	261.0	A	201.5	A	155.5	A	165.5	A

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

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	32.1	C	39.5	C	20.0	D	37.9	C
	East	24	13.5	127.7	A	90.2	A	73.5	A	67.3	A
	South	30	12.0	20.3	D	24.6	C	11.1	E	22.4	D
	West	30	13.5	123.3	A	113.9	A	79.7	A	153.4	A
Bedford Avenue and Metropolitan Avenue	North	30	12.0	441.1	A	244.9	A	119.1	A	459.4	A
	East	41	11.0	190.9	A	164.8	A	107.1	A	39.3	C
	South	30	15.0	75.0	A	236.5	A	153.6	A	323.9	A
	West	41	14.0	308.8	A	420.0	A	198.7	A	118.3	A
Bedford Avenue and Grand Street	North	30	11.0	258.7	A	134.7	A	185.7	A	166.9	A
	East	42	13.0	213.3	A	216.6	A	344.8	A	100.9	A
	South	30	11.0	206.1	A	150.3	A	109.0	A	308.6	A
	West	42	10.0	192.6	A	171.7	A	96.8	A	111.4	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 upon 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 L train because it offers more opportunities for transfer to other subway lines and the remaining 40 percent were assigned to the J/M/Z trains. 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 B61 bus routes to 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 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 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.

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 or LOS C/D is greater than the minimum widening recommended by the *CEQR Technical Manual*. For a stairway location with LOS D for the future with a proposed action, a widening of 6 inches or more needed to restore LOS to the same level as the No Action or LOS C/D conditions is considered significant; for a future with the proposed project LOS E condition, a widening of 3 inches or more is considered significant; and for a future with the proposed project LOS F condition, a widening of 1 inch or more is considered significant.

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 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.

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

Stairway	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute		
			Up	Down		SVCD Capacity	V/SVCD Ratio	LOS
AM Peak Period								
Bedford Avenue(L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	72	435	0.80	540	0.88	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	98	671	0.80	780	1.07	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	48	107	0.80	552	0.26	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	108	201	0.90	648	0.71	B
Marcy Avenue (J/M)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	191	217	0.90	675	0.60	B
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	22	126	0.80	600	0.25	A
MD Peak Period								
Bedford Avenue(L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	131	128	0.90	608	0.43	A
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	156	128	0.90	878	0.45	B
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	60	22	0.80	552	0.15	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	130	55	0.80	576	0.32	A
Marcy Avenue (J/M)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	92	43	0.80	600	0.23	A
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	31	134	0.80	600	0.28	A

Table 18-16 (cont'd)
2020 Future with the Proposed Project Conditions: Subway Station Stairway Analysis

Stairway	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes Up	15-Minute Pedestrian Volumes Down	Friction Factor	15-Minute SVCD Capacity	15-Minute V/SVCD Ratio	15-Minute LOS
PM Peak Period								
Bedford Avenue(L)								
Bedford Avenue / N 7th Street (S4, NE Corner)	5.5	4.5	337	185	0.90	608	0.86	C
Bedford Avenue / N 7th Street (S3, SE Corner)	7.5	6.5	488	331	0.90	878	0.93	C
Driggs Avenue / N 7th Street (S2, NE Corner)	5.6	4.6	200	31	0.80	552	0.42	A
Driggs Avenue / N 7th Street (S1, SE Corner)	5.8	4.8	355	73	0.80	576	0.74	C
Marcy Avenue (J/M)								
Broadway / Havemeyer (S5, NE Corner)	6.0	5.0	210	34	0.80	600	0.41	A
Broadway / Havemeyer (S6, SE Corner)	6.0	5.0	88	235	0.80	600	0.54	B

Note: Capacities were calculated based on rates presented in the NYCT *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual.*
"+" implies significant adverse impact

For control areas, impacts are considered significant if the NYCT optimum capacity is exceeded and if the increase in v/c ratio between the future with the proposed project and No Action conditions exceeds 0.01. 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. Furthermore, the increase in v/c ratio between the No Action and future with the proposed project conditions is more than 0.01 resulting in a significant adverse impact to the Marcy Avenue station's Manhattan-bound and Queens-bound control areas.

Table 18-17
2020 Future With the Proposed Project Condition: Subway Station Control Area Analysis

Control Area Elements	Quantity	15-Minute Pedestrian Volumes In	15-Minute Pedestrian Volumes Out	15-Minute SVCD Capacity	15-Minute V/SVCD Ratio	15-Minute LOS
AM Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	1061	393	1920	0.76	D
Driggs Avenue Control Area	3	327	47	900	0.42	C
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	334	60	300	1.31	**F+**
Broadway/Havemeyer south (Queens-bound) Control Area	1	23	75	300	0.33	B
MD Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	381	300	1920	0.35	B
Driggs Avenue Control Area	3	106	71	900	0.20	A
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	91	43	300	0.45	C
Broadway/Havemeyer south (Queens-bound) Control Area	1	32	124	300	0.52	C
PM Peak Period						
Bedford Avenue (L)						
Bedford Avenue Control Area	4	463	856	1920	0.69	D
Driggs Avenue Control Area	3	108	268	900	0.42	C
Marcy Avenue (J/M/Z)						
Broadway/Havemeyer north (Manhattan-bound) Control Area	1	146	25	300	0.57	D
Broadway/Havemeyer south (Queens-bound) Control Area	1	52	315	300	1.22	**F+**

Note: Capacities were calculated based on rates presented in the NYCT *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.
"**+**" indicates significant adverse impact

Additionally, as discussed above, potential new subway riders could be diverted to alternate modes of transportation, such as water taxi service between the project site and Manhattan or provision of an express bus service, providing a direct connection between the study area and activity centers in Manhattan.

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 B39, B61, and Q59 bus routes, since these bus routes serve major activity centers in Manhattan, Brooklyn, and Queens. In terms of connections, the B39 connects the study area with Manhattan's Lower East Side; the B61 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 L train subway riders would take the bus to and from the Bedford Avenue station.

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 eastbound B39 would exceed guideline capacity (54 passengers per bus) during the PM peak period, while the westbound B39 would exceed guideline capacity during the AM peak period. The northbound and southbound B61 would exceed guideline capacity during both peak periods, as would the eastbound and westbound Q59. These projected increases in bus ridership beyond guideline capacities constitute significant adverse bus line haul impacts.

Table 18-18
2020 Future With the Proposed Project
Condition: Bus Line Haul Analysis at Peak Load Points

Route	Peak Period	Buses Per Hour	Eastbound		Buses Per Hour	Westbound	
			Load Point	AP		Load Point	AP
B39	AM	3	Allen St. and Delancey St.	30	4	Washington St. and Havemeyer St.	(72)
	PM	4	Allen St. and Delancey St.	(75)	4	Washington St. and Havemeyer St.	44
			Northbound			**Southbound**	
B61	AM	7	Atlantic Avenue and Hicks St.	(153)	7	Atlantic Avenue and Hicks St.	(97)
	PM	7	Manhattan Ave. and Nassau Ave.	(120)	6	Manhattan Ave. and Nassau Ave.	(170)
			Eastbound		**Westbound**		
Q59	AM	6	Metropolitan Bridge	(151)	6	Grand Avenue and Flushing Avenue	(101)
	PM	4	Metropolitan Bridge	(142)	5	Grand Avenue and Queens Boulevard	(168)

Note: AP = average passengers per bus; (#) = exceeds NYCT guideline capacity.

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."

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 18.7 SFP (LOS D), 23.7 SFP (LOS D), 10.7 SFP (LOS E), and 21.6 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 19.6 SFP during the weekday PM peak period.

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 (20.3 SFP to 18.7 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."

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	195	1.4	A	5.4	B
	South	10.7	206	1.3	A	5.3	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	340	2.8	A	6.8	B
	South	6.0	752	8.4	B	12.4	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	383	2.1	A	6.1	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	339	2.2	A	6.2	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	51	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	65	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	89	0.6	A	4.6	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	93	0.6	A	4.6	A
	West	11.0	92	0.6	A	4.6	A
Grand St. between Berry St. and Bedford Ave.	North	9.6	101	0.7	A	4.7	A
	South	9.0	86	0.6	A	4.6	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	47	0.3	A	4.3	A
	South	8.0	264	2.2	A	6.2	A
Bedford Ave. between N 1st St. and Grand St.	East	9.0	192	1.4	A	5.4	A
	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	80	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	46	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	45	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	41	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	188	1.2	A	5.2	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	259	2.2	A	6.2	B
	South	6.0	569	6.3	B	10.3	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	280	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	330	2.1	A	6.1	B
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	71	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	98	0.4	A	4.4	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 Midday Peak Period (continued)							
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	80	0.5	A	4.5	A
	West	10.7	136	0.8	A	4.8	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	86	0.6	A	4.6	A
	South	9.0	132	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	194	1.6	A	5.6	B
Bedford Ave. between N 1st St. and Grand St.	East	9.0	139	1.0	A	5.0	B
	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	103	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	79	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	284	2.1	A	6.1	B
	South	10.7	266	1.7	A	5.7	B
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	407	3.4	A	7.4	C
	South	6.0	882	9.8	C	13.8	D
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	360	2.0	A	6.0	B
	West	10.5	215	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	486	3.1	A	7.1	C
Metropolitan Ave. between Berry St. and Bedford Ave.	North	13.0	71	0.4	A	4.4	A
	South	13.3	89	0.4	A	4.4	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	115	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	124	0.8	A	4.8	A
Bedford Ave. between Metropolitan Ave. and N 1st St.	East	10.7	153	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	182	1.3	A	5.3	B
	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	297	2.5	A	6.5	B
Bedford Ave. between N 1st St. and Grand St.	East	9.0	170	1.3	A	5.3	B
	West	11.2	114	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	47	1.0	A	5.0	B
	South	11.6	29	0.2	A	4.2	A
N 4th St. between Berry St. and Bedford Ave.	North	11.2	36	0.2	A	4.2	A
	South	7.3	39	0.4	A	4.4	A
Berry St. between N 5th St. and N 4th St.	East	7.0	24	0.2	A	4.2	A
	West	10.0	25	0.2	A	4.2	A
Berry St. between N 4th St. and N 3rd St.	East	6.0	31	0.3	A	4.3	A
	West	12.3	17	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	122	0.8	A	4.8	A
N 7th St. between Bedford Ave. and Driggs Ave.	North	8.0	160	1.3	A	5.3	B
	South	6.0	296	3.3	A	7.3	C
Bedford Ave. between N 8th St. and N 7th St.	East	12.1	125	0.7	A	4.7	A
	West	10.5	294	1.9	A	5.9	B

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
Saturday Midday Peak Period (continued)							
Bedford Ave. between N 7th St. and N 6th St.	East	12.0	279	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	6	0.0	A	4.0	A
	South	13.3	53	0.3	A	4.3	A
Metropolitan Ave. between Bedford Ave. and Driggs Ave.	North	15.2	287	1.3	A	5.3	B
	South	17.0	30	0.1	A	4.1	A
Bedford Ave. between N 3rd St. and Metropolitan Ave.	East	10.6	22	0.1	A	4.1	A
	West	10.7	132	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	162	1.0	A	5.0	B
Grand St. between Berry St. and Bedford Ave.	North	9.6	77	0.5	A	4.5	A
	South	9.0	87	0.6	A	4.6	A
Grand St. between Bedford Ave. and Driggs Ave.	North	9.3	40	0.3	A	4.3	A
	South	8.0	126	1.1	A	5.1	B
Bedford Ave. between N 1st St. and Grand St.	East	9.0	210	1.6	A	5.6	B
	West	11.2	146	0.9	A	4.9	A
Bedford Ave. between Grand St. and S 1st St.	East	9.0	140	1.0	A	5.0	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	67.3	A	71.5	A	45.1	B	52.0	B
	Southeast	84.4	A	99.0	A	54.9	B	81.2	A
	Southwest	59.9	B	75.7	A	44.3	B	86.6	A
	Northwest	94.2	A	100.1	A	58.2	B	121.0	A
Bedford Avenue and Metropolitan Avenue	Northeast	555.8	A	449.4	A	237.4	A	192.1	A
	Southeast	211.6	A	371.2	A	235.0	A	159.2	A
	Southwest	182.1	A	294.5	A	206.0	A	229.6	A
	Northwest	600.6	A	460.0	A	277.9	A	324.8	A
Bedford Avenue and Grand Street	Northeast	99.6	A	111.9	A	90.4	A	86.7	A
	Southeast	112.3	A	130.1	A	93.6	A	119.2	A
	Southwest	220.5	A	167.8	A	101.5	A	172.6	A
	Northwest	190.6	A	144.3	A	97.7	A	127.7	A

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

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	31.6	C	38.9	C	19.6	D	37.5	C
	East	24	13.5	93.8	A	83.0	A	66.3	A	63.9	A
	South	30	12.0	18.7	**D+**	23.7	D	10.7	E	21.6	D
	West	30	13.5	123.3	A	113.9	A	79.7	A	153.4	A
Bedford Avenue and Metropolitan Avenue	North	30	12.0	441.1	A	244.9	A	119.1	A	459.4	A
	East	41	11.0	190.9	A	164.8	A	107.1	A	39.3	C
	South	30	15.0	75.0	A	236.5	A	153.6	A	323.9	A
	West	41	14.0	249.1	A	239.5	A	150.7	A	98.5	A
Bedford Avenue and Grand Street	North	30	11.0	166.0	A	103.4	A	87.5	A	122.2	A
	East	42	13.0	79.2	A	118.5	A	97.0	A	74.7	A
	South	30	11.0	109.6	A	75.4	A	48.0	B	111.9	A
	West	42	10.0	134.1	A	106.2	A	61.6	A	82.0	A

Note: SFP = square feet per pedestrian; * = school crosswalks.
"**+**" indicates significant adverse impact

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