

A. INTRODUCTION

The proposed project is expected to be ready for occupancy in 2013. This chapter assesses the potential impacts resulting from the proposed project on transit and pedestrian facilities within the transportation study area.

The proposed project would generate 1,005, 3,437, 3,790, and 6,265 person trips during the weekday AM, weekday midday, weekday PM, and weekend midday peak hours, respectively. These trips would include 403, 1,392, 1,575, and 2,741 auto trips; 32, 109, 130, and 321 taxi trips; 174, 541, 605, 657 subway trips; 138, 471, 507, and 1,073 bus trips; and 258, 924, 973, and 1,473 walk-only trips over the same time periods. The analysis results show that overlaying these trips onto the future baseline transportation network would not result in significant adverse impacts to subway station control areas or stairways, bus lines, nor would they result in any significant adverse pedestrian impacts.

B. METHODOLOGY

As described in Chapter 13, “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 2001 *City Environmental Quality Review (CEQR) Technical Manual*, quantified transit and pedestrian analyses are required.

PEDESTRIAN OPERATIONS

The adequacy of the study area’s sidewalks, crosswalks, and corner reservoir capacities in relation to the demand imposed on them was assessed using the methodologies presented in the 2000 *Highway Capacity Manual (HCM 2000)*. The analysis considers the weekday midday and PM and Saturday midday peak hours. Sidewalks were 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 *Level of Service (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 is the net area of the corner (in square feet) multiplied by the cycle length, which is expressed in square feet per minute. 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. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. 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 14-1 shows the LOS standards for sidewalks, corner reservoirs, and crosswalks.

**Table 14-1
Level of Service Criteria for Pedestrian Elements**

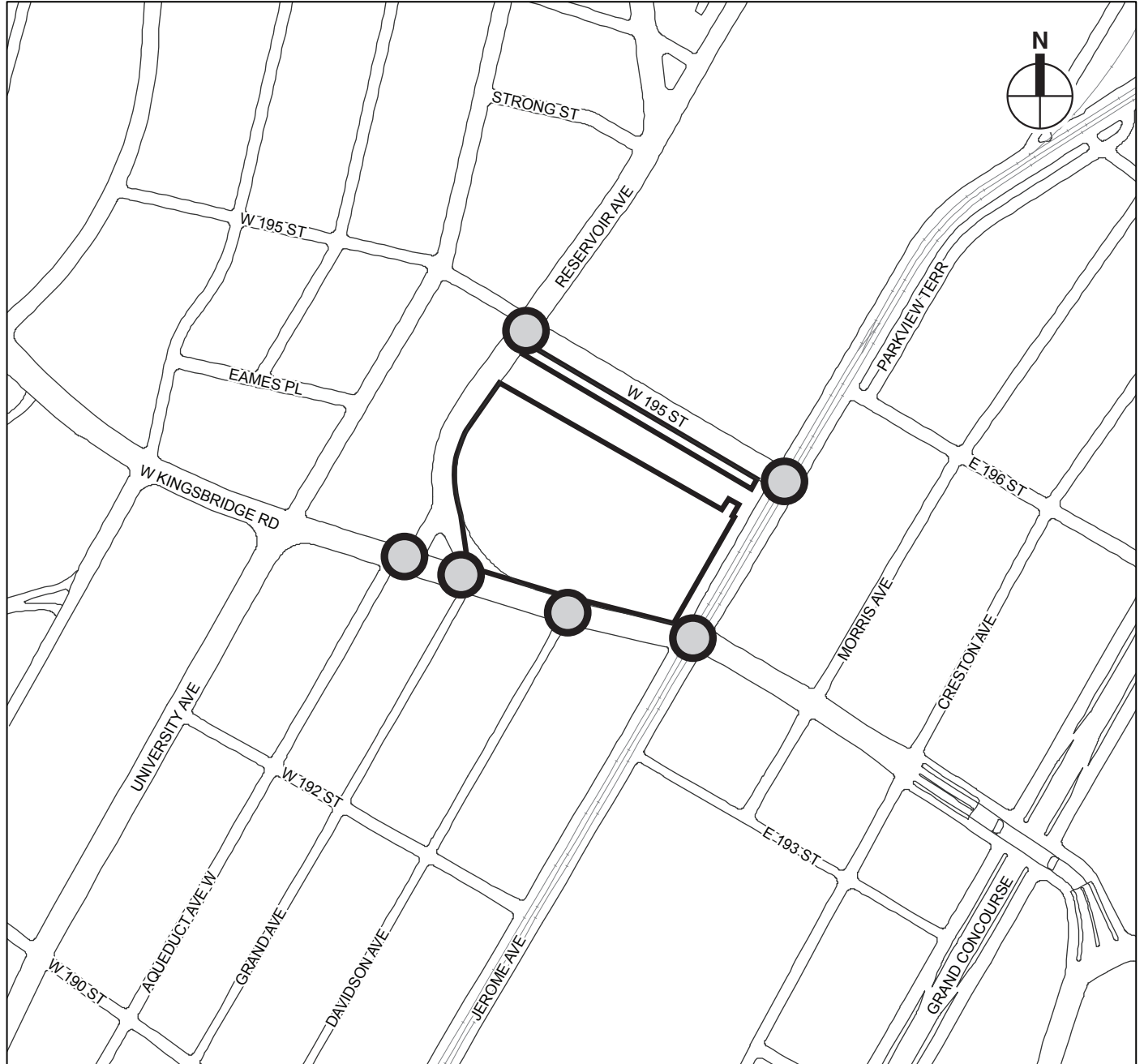
LOS	Sidewalks	Corner Reservoirs and Crosswalks
A	5 PFM or less	60 SFP or More
B	5 to 7 PFM	40 to 60 SFP
C	7 to 10 PFM	24 to 40 SFP
D	10 to 15 PFM	15 to 24 SFP
E	15 to 23 PFM	8 to 15 SFP
F	More than 23 PFM	Less than 8 SFP
Notes: PFM = pedestrians per foot per minute. SFP = square feet per pedestrian. Source: New York City Mayor’s Office of Environmental Coordination, City Environmental Quality Review Technical Manual (December 2001).		

The *CEQR Technical Manual* specifies that a mid-LOS D condition or better is considered reasonable for sidewalks, corner reservoirs, and crosswalks outside the Manhattan Central Business District (CBD) which includes the study area for this project. For crosswalks and corner reservoirs, 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.

For areas akin to the study area, project-related sidewalk impacts are considered significant and require examination of mitigation if there is an increase of 2 PFM over No Build conditions that are characterized by flow rates greater than 13 PFM (mid-LOS D). For corners and crosswalks, a decrease of 1 SFP under the Build condition when the No Build condition has an average occupancy of less than 20 SFP (mid-LOS D) is considered significant. However, if there is less than a 200-person increase at a location within the peak hour, any impact is not considered significant since such increases would not typically be perceptible.

PEDESTRIAN STUDY AREA

The pedestrian study area considers the sidewalks, corner reservoirs, and crosswalks that would be most affected by new trips generated by the proposed project. Since transit trips also contain a walking component, the pedestrian network considers the major routes from the subway station and bus stops. The study area includes five signalized intersections and one un-signalized intersection as listed below. These pedestrian analysis locations are shown in **Figure 14-1. Appendix C** contains figures depicting the existing, No Build, and Build peak 15-minute pedestrian volumes at these locations.



- Project Site
- Intersection Analyzed



- Reservoir Avenue and West 195th Street;
- Jerome Avenue and West 195th Street;
- Jerome Avenue and Kingsbridge Road;
- Davidson Avenue and Kingsbridge Road;
- Aqueduct Avenue and Kingsbridge Road; and
- Grand Avenue and Kingsbridge Road (Unsignalized Intersection).

TRANSIT STUDY AREA

The project site is located in an area served by Kingsbridge Road Stations for No. 4, and B and D subway lines. In terms of bus service, the area is well served by Bx3, Bx9, Bx22, Bx28, and Bx32 bus routes. The study area's transit network is shown in **Figure 14-2**. A description of each of these transit modes that would be affected by trips associated with the proposed project is provided below.

SUBWAY SERVICE

Based on the travel demand estimates, it was determined that approximately 48, 150, 168, and 183 project-generated subway trips will be spread across several station elements at the Kingsbridge Road station during each of the weekday AM, weekday midday, weekday PM, and weekend midday peak 15-minute periods.

The project site is located adjacent to the Kingsbridge Road Station which provides service to No. 4 subway line operating between Woodlawn-Jerome Avenue, Bronx and New Lots Avenue, Brooklyn. In addition, the Kingsbridge Road subway station serving the B and D subway lines is located at Grand Concourse and East Kingsbridge Road, approximately ¼-mile from the project site.

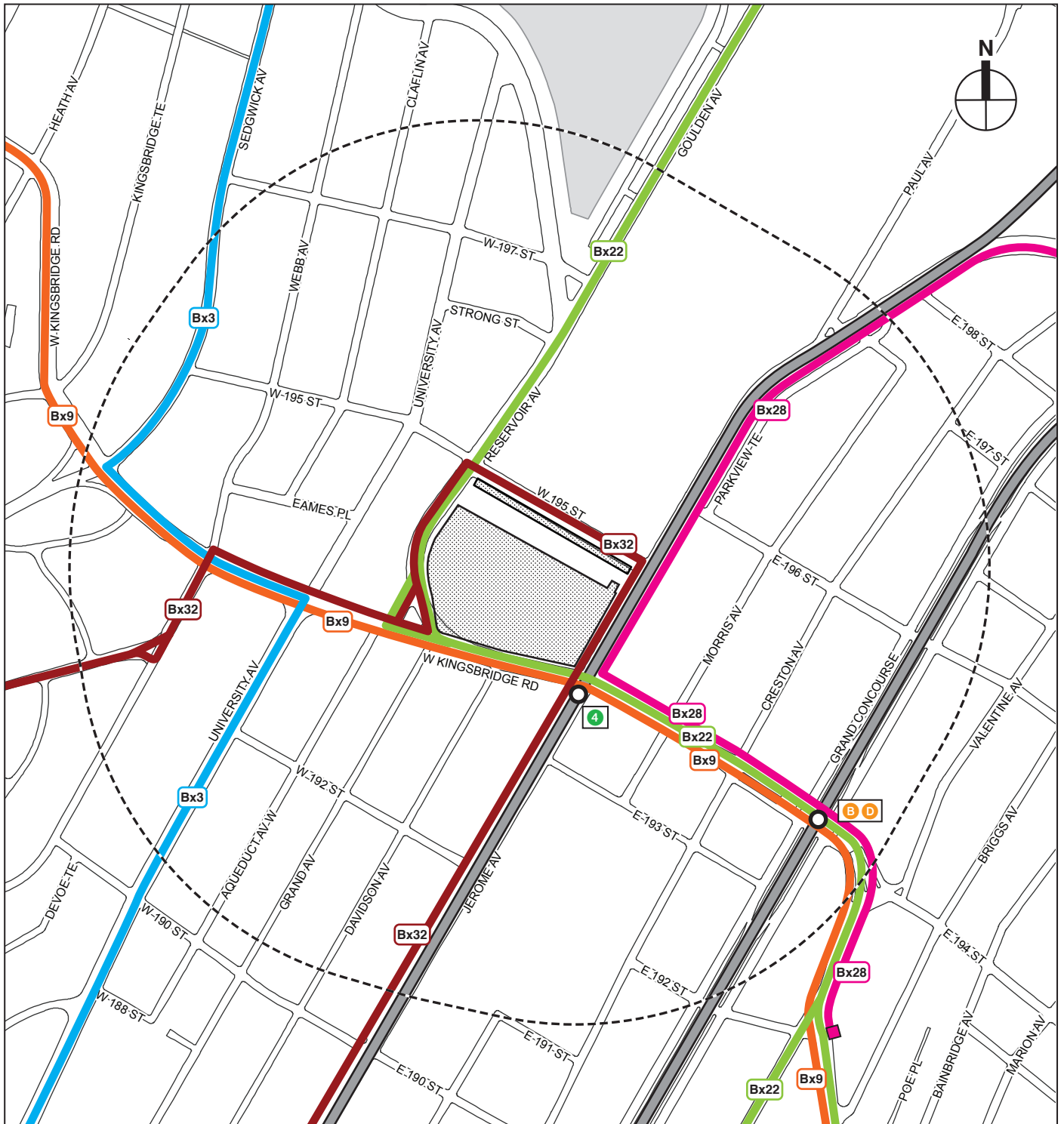
In terms of service, both No. 4 and B and D lines serve same neighborhoods north of 161st Street, with No. 4 line operating along Jerome Avenue, and B and D lines along Grand Concourse. Regarding connections between various subway lines in the study area, the 161st Street/Yankee Stadium station provides connections between the No. 4 and the B and D subway lines, whereas the 149th Street/Grand Concourse station provides connections between the No. 4 and No. 2 and 5 subway lines. Due to the close proximity of the project site to the Kingsbridge Road Station (No. 4 subway line), and the availability of easy transfer options at the 161st Street/Yankee Stadium and 149th Street/Grand Concourse stations, it was conservatively assumed that nearly all of the project-generated subway trips would use the No. 4 subway line in the future conditions.

BUS SERVICE

There are five study area bus routes, Bx3, Bx9, Bx22, Bx28, and Bx32. **Table 14-2** provides a summary of the NYCT local bus routes, which provide regular service to the study area, and their weekday and weekend frequencies of operation. All of these routes use articulated buses with a guideline capacity of 93 passengers per bus except for the Bx32 route which uses standard bus with a guideline capacity of 54 passengers per bus.

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.









-  Project Site
-  Study Area Boundary (1/4-Mile Perimeter)
-  Bus Route
-  Bus Route Terminus
-  Subway Line
-  Subway Station



Table 14-2
NYCT Local Bus Routes Serving The Study Area

Bus Route	Start Point	End Point	Routing	Freq. of Bus Service (Headway in Minutes)			
				Weekday AM	Weekday Midday	Weekday PM	Weekend Midday
Bx3	Riverdale	Washington Heights, Manhattan	University Ave/ Kingsbridge Rd	6	6	6	7
Bx9	Riverdale	West Farms Square	Broadway/ Kingsbridge Rd	5	8	7	9
Bx22	Castle Hill	Bedford Pk Blvd	Kingsbridge Rd/Fordham Rd	12	9	8	10
Bx28	Co-op City	Fordham	Jerome Ave	10	9	9	9
Bx32	Bronx VA Medical Center	Mott Haven	Jerome Ave/ Morris Ave	10	15	12	20

Source: New York City Transit, Bronx Bus Map/Timetable (2008).

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 14-3** shows the LOS and corresponding v/c ratios for subway station elements.

Table 14-3
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 action or to LOS C/D operating conditions. For a stairway location with LOS D for the future with the proposed action, a widening of 6 inches or more needed to restore LOS to the same level as the future without the proposed action or LOS C/D conditions is considered significant; for a future with the proposed action LOS E condition, a widening of 3 inches or more is considered significant; and for a future with the proposed action 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 and without the proposed 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 capacity, NYCT operates three different types of subway cars with different seating and practical capacities. The practical capacity of a subway car, which ranges from 110 to 175 passengers, is compared with ridership levels to determine the acceptability of conditions. Projected increases from a future condition without the proposed action within practical capacity to a future condition with the proposed action that exceeds practical capacity may be considered a significant impact. Since there are constraints on what service improvements are available to NYCT, significant line-haul capacity impacts on subway routes are generally disclosed but would usually remain unmitigated.

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 is 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 and the MTA Bus Company operate 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's approval.

C. EXISTING CONDITIONS

Existing pedestrian levels are based on field surveys conducted in November 2007 and September 2008. The selected count periods of weekday 8:00 to 10:00 AM, 12:00 to 2:00 PM, 4:00 to 6:00 PM, and Saturday 11:00 AM to 2:00 PM represent the weekday AM, weekday midday, weekday PM, and weekend midday peak hours of pedestrian and transit activities in the study area, respectively.

The Shops at the Armory FEIS

Bus ridership data for the Bx3, Bx9, Bx22, Bx28, and Bx32 bus routes and subway ridership data were obtained from NYCT.

To determine peak conditions for subway stairwells and pedestrian facilities, weekday counts were conducted during the 8:00 to 10:00 AM, 12:00 noon to 2:00 PM, and 4:00 to 6:00 PM time periods. The weekend midday counts were conducted during the 11:00 AM to 2:00 PM. All counts were conducted at 15-minute intervals, and the highest 15-minute volumes were selected for analysis from each of these peak periods.

SUBWAY STATION OPERATIONS

Since the Kingsbridge subway station has multiple entrances, the quantified analysis was focused on those elements that would most likely be used by riders traveling to and from the proposed project. Based on the travel demand estimates detailed in Chapter 13, it was determined that quantified analyses would be required for the stairways serving trips generated by the proposed Plan, as well as, control areas within the subway station.

Street-level stairways, leading to the elevated level control area, on the west side of Jerome Avenue was analyzed. On the elevated level, the main control area, containing five regular turnstiles, was analyzed.

Surveys were conducted in November 2007 and October 2008 to determine 15-minute pedestrian volumes at the street level stairway and control areas within the station. The stairway analysis was conducted for weekday AM, weekday midday, weekday PM, and weekend midday.

As shown in **Table 14-4**, the analyzed stairways operate at LOS A during all analysis peak periods.

Table 14-4
2008 Existing Conditions: Subway Station Vertical Circulation Analysis

Kingsbridge Road Station No. 4 Train Station Vertical Circulation Elements	Effective Width (feet)	Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute SVCD V/SVCD Ratio		LOS
			Up	Down		Capacity		
Weekday AM								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	160	48	0.80	684	0.30	A
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	55	123	0.80	684	0.26	A
Weekday midday								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	41	33	0.90	770	0.10	A
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	37	82	0.80	684	0.17	A
Weekday PM								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	86	93	0.90	770	0.23	A
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	68	31	0.80	684	0.14	A
Weekend midday								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	23	59	0.80	684	0.12	A
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	50	205	0.80	684	0.37	A
Note: Capacities were calculated based on rates presented in the New York City Transit, <i>Station Planning and Design Guidelines</i> (January 2001), in accordance with the <i>CEQR Technical Manual</i> .								

As shown in **Table 14-5**, the main control area currently operates at LOS B during the weekday AM peak 15-minute period and at LOS A during all other peak 15-minute periods.

Table 14-5
2008 Existing Conditions: Subway Station Control Area Analysis

Kingsbridge Road No. 4 Train Station Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM						
Main Control Area Turnstiles	5	292	295	2400	0.24	B
Weekday midday						
Main Control Area Turnstiles	5	117	134	2400	0.10	A
Weekday PM						
Main Control Area Turnstiles	5	240	193	2400	0.18	A
Weekend midday						
Main Control Area Turnstiles	5	60	107	2400	0.07	A
Note: Capacities were calculated based on rates presented in the New York City Transit, <i>Station Planning and Design Guidelines</i> (January 2001), in accordance with the <i>CEQR Technical Manual</i> .						

SUBWAY LINE HAUL LEVELS

A subway line-haul analysis typically considers the weekday commuter period leave load levels at the analysis routes' peak load points.

The No. 4 subway line operates 10-car trains. The guideline capacity of these cars is 110 passengers each. However, crush loads could reach as many as 165 passengers per car. The 2007 leave load peak hour passenger volumes and the number of peak period trains were obtained from NYCT. A 0.5-percent growth factor was applied to the 2007 leave load counts to generate the existing 2008 leave load volumes. As shown in **Table 14-6**, the No. 4 train currently operates within guideline capacities during the weekday midday and weekday PM peak periods.

Table 14-6
2008 Existing Condition: Peak Hour Subway Line Haul

No. 4 Train Direction of Travel	Station	Trains/ Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
Weekday midday Peak Period						
Manhattan-bound	86th Street- Lexington Ave	13	3,908	14,300	0.27	10,392
Bronx-bound	59th Street- Lexington Ave	12	3,528	13,200	0.27	9,672
Weekday PM Peak Period						
Manhattan-bound	86th Street- Lexington Ave	13	5,072	14,300	0.35	9,228
Bronx-bound	59th Street- Lexington Ave	13	13,207	14,300	0.92	1,093
Sources: New York City Transit						

BUS LINE HAUL LEVELS

To assess the potential impacts on the study area bus routes, the most recent ridership data were acquired from NYCT.

Per the *CEQR Technical Manual*, bus line-haul analysis was conducted for weekend midday peak period.

As shown in **Table 14-7**, all five bus routes presently operate within guideline capacities at their respective maximum load points.

Table 14-7

2008 Existing Conditions: Bus Line Haul at NYCT Maximum Load Points

Route	GC	Buses Per Hour	Northbound (Westbound)		Buses Per Hour	Southbound (Eastbound)	
			Max Load Point	AP		Max Load Point	AP
Weekend midday Peak Period							
Bx3	93	8	University/W 179th St	26	8	University/W 179th St	31
Bx9	93	6	E.Kingsbridge /Jerome	63	7	W 225th St/Broadway	51
Bx22	93	7	White Plains/Morris Park Ave	48	6	Bronx PK/Union Port Rd	40
Bx28	93	8	Bartow Ave/Edson Ave	27	8	E Gunhill Rd/White Plain	37
Bx32	54	3	Morris Ave/E 165th St	24	3	Morris Ave/E 165th St	18

Notes: GC = guideline capacity per bus, AP = average passengers per bus
Source: NYCT

STREET-LEVEL PEDESTRIAN OPERATIONS

As described above, the study area sidewalks, corner reservoirs, and crosswalks were assessed for the weekday AM, weekday midday, weekday PM, and weekend midday peak periods. Existing peak 15-minute volumes were developed for six intersections close to the project site where most pedestrian trips are anticipated. As shown in **Tables 14-8 through 14-10**, all analyzed pedestrian elements operate at acceptable levels during the weekday AM, weekday midday, weekday PM, and weekend Midday peak 15-minute periods.

Table 14-8

2008 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							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	278	1.3	A	5.3	B
	South	17.4	18	0.1	A	4.1	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	274	2.1	A	6.1	B
	South	10.0	18	0.1	A	4.1	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	72	0.3	A	4.3	A
	West	12.4	21	0.1	A	4.1	A
Reservoir Avenue between W 195th Street and W Kingsbridge Rd (North)	East	14.2	99	0.5	A	4.5	A
	West	12.2	42	0.2	A	4.2	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	104	0.5	A	4.5	A
	South	16.9	98	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	148	0.8	A	4.8	A
	West	10.8	219	1.4	A	5.4	B
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	141	0.7	A	4.7	A
	West	10.8	248	1.5	A	5.5	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	92	0.4	A	4.4	A
	South	17.0	116	0.5	A	4.5	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	72	0.4	A	4.4	A
	South	12.0	80	0.4	A	4.4	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	152	0.9	A	4.9	A
	West	10.0	52	0.3	A	4.3	A
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	83	0.3	A	4.3	A
	South	16.3	96	0.4	A	4.4	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	36	0.5	A	4.5	A
	West	4.0	9	0.2	A	4.2	A

Table 14-8 (cont'd)
2008 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)							
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	10	0.1	A	4.1	A
	West	9.0	2	0.0	A	4.0	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	16	0.4	A	4.4	A
	West	15.6	45	0.2	A	4.2	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	113	0.5	A	4.5	A
	South	17.0	75	0.3	A	4.3	A
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	89	0.4	A	4.4	A
	South	17.5	83	0.3	A	4.3	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	32	0.3	A	4.3	A
	West	8.0	24	0.2	A	4.2	A
Weekday Midday Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	40	0.2	A	4.2	A
	South	17.4	31	0.1	A	4.1	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	19	0.1	A	4.1	A
	South	10.0	10	0.1	A	4.1	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	29	0.1	A	4.1	A
	West	12.4	17	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	55	0.3	A	4.3	A
	West	12.2	15	0.1	A	4.1	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	21	0.1	A	4.1	A
	South	16.9	100	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	155	0.8	A	4.8	A
	West	10.8	155	1.0	A	5.0	A
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	108	0.6	A	4.6	A
	West	10.8	191	1.2	A	5.2	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	109	0.5	A	4.5	A
	South	17.0	114	0.4	A	4.4	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	81	0.5	A	4.5	A
	South	12.0	87	0.5	A	4.5	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	123	0.7	A	4.7	A
	West	10.0	81	0.5	A	4.5	A
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	64	0.2	A	4.2	A
	South	16.3	184	0.8	A	4.8	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	7	0.1	A	4.1	A
	West	4.0	14	0.2	A	4.2	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	15	0.1	A	4.1	A
	West	9.0	2	0.0	A	4.0	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	17	0.4	A	4.4	A
	West	15.6	74	0.3	A	4.3	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	149	0.6	A	4.6	A
	South	17.0	180	0.7	A	4.7	A
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	90	0.4	A	4.4	A
	South	17.5	189	0.7	A	4.7	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	32	0.3	A	4.3	A
	West	8.0	52	0.4	A	4.4	A

Table 14-8 (cont'd)

2008 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							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	60	0.3	A	4.3	A
	South	17.4	0	0.0	A	4.0	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	60	0.5	A	4.5	A
	South	10.0	0	0.0	A	4.0	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	46	0.2	A	4.2	A
	West	12.4	19	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	46	0.2	A	4.2	A
	West	12.2	19	0.1	A	4.1	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	59	0.3	A	4.3	A
	South	16.9	107	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	272	1.5	A	5.5	B
	West	10.8	142	0.9	A	4.9	A
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	349	1.8	A	5.8	B
	West	10.8	258	1.6	A	5.6	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	415	1.8	A	5.8	B
	South	17.0	149	0.6	A	4.6	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	236	1.3	A	5.3	B
	South	12.0	109	0.6	A	4.6	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	216	1.3	A	5.3	B
	West	10.0	153	1.0	A	5.0	B
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	151	0.5	A	4.5	A
	South	16.3	177	0.7	A	4.7	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	5	0.1	A	4.1	A
	West	4.0	22	0.4	A	4.4	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	17	0.1	A	4.1	A
	West	9.0	12	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	27	0.6	A	4.6	A
	West	15.6	129	0.6	A	4.6	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	169	0.7	A	4.7	A
	South	17.0	273	1.1	A	5.1	B
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	211	1.0	A	5.0	B
	South	17.5	192	0.7	A	4.7	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	25	0.3	A	4.3	A
	West	8.0	70	0.6	A	4.6	A
Weekend Midday Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	19	0.1	A	4.1	A
	South	17.4	39	0.1	A	4.1	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	38	0.3	A	4.3	A
	South	10.0	11	0.1	A	4.1	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	23	0.1	A	4.1	A
	West	12.4	21	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	48	0.2	A	4.2	A
	West	12.2	9	0.0	A	4.0	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	27	0.1	A	4.1	A
	South	16.9	52	0.2	A	4.2	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	170	0.9	A	4.9	A
	West	10.8	83	0.5	A	4.5	A
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	83	0.4	A	4.4	A
	West	10.8	108	0.7	A	4.7	A
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	49	0.2	A	4.2	A
	South	17.0	189	0.7	A	4.7	A

Table 14-8 (cont'd)
2008 Existing Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15 Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekend Midday Peak Period (cont'd)							
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	49	0.3	A	4.3	A
	South	12.0	255	1.4	A	5.4	B
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	128	0.8	A	4.8	A
	West	10.0	150	1.0	A	5.0	B
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	145	0.5	A	4.5	A
	South	16.3	171	0.7	A	4.7	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	13	0.2	A	4.2	A
	West	4.0	16	0.3	A	4.3	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	9	0.1	A	4.1	A
	West	9.0	17	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	47	1.0	A	5.0	B
	West	15.6	17	0.1	A	4.1	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	66	0.3	A	4.3	A
	South	17.0	274	1.1	A	5.1	B
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	150	0.7	A	4.7	A
	South	17.5	134	0.5	A	4.5	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	26	0.3	A	4.3	A
	West	8.0	29	0.2	A	4.2	A

Note: PFM = pedestrians per foot per minute

Table 14-9
2008 Existing Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Locations	Corner	Weekday AM Peak Period		Weekday Midday Peak Period		Weekday PM Peak Period		Weekend Midday Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Reservoir Avenue and W.195th Street	Northeast	196.7	A	1081.5	A	420.8	A	1166.6	A
	Southeast	1024.7	A	1855.0	A	1720.3	A	1857.8	A
	Southwest	777.0	A	1462.8	A	4080.4	A	2288.2	A
	Northwest	95.0	A	686.0	A	285.6	A	561.0	A
Jerome Avenue and W. 195th Street	Southwest	352.5	A	358.6	A	365.8	A	939.6	A
	Northwest	217.9	A	346.9	A	319.8	A	515.7	A
Jerome Avenue and Kingsbridge Road	Northeast	483.5	A	470.1	A	168.2	A	349.9	A
	Southeast	314.6	A	363.6	A	221.3	A	142.5	A
	Southwest	507.1	A	405.5	A	245.8	A	131.3	A
	Northwest	634.1	A	652.7	A	257.4	A	344.9	A
Davidson Avenue and Kingsbridge Road	Southeast	486.7	A	298.9	A	228.6	A	236.8	A
	Southwest	618.5	A	310.8	A	244.6	A	261.5	A
Aqueduct Avenue and Kingsbridge Road	Southwest	380.9	A	226.4	A	122.6	A	175.6	A
	Northwest	725.7	A	516.4	A	283.3	A	375.3	A

Note: SFP = square feet per pedestrian

Table 14-10
2008 Existing Conditions: Pedestrian Crosswalk LOS Analysis

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles							
				Weekday AM		Weekday Midday		Weekday PM		Weekend Midday	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Reservoir Avenue and 195th Street	North	60.4	11.4	21.6	D	214.6	A	63.2	A	154.5	A
	East	60.0	16.3	406.6	A	771.7	A	624.3	A	2113.6	A
	South	64.6	14.0	603.6	A	1061.9	A	8491.4	A	1061.4	A
	West	32.0	14.0	429.5	A	1079.6	A	1962.6	A	2810.9	A
Jerome Avenue and 195th Street	North	68.8	13.0	90.5	A	427.0	A	179.3	A	129.9	A
	South	70.0	14.7	230.7	A	287.5	A	463.7	A	1020.9	A
	West	59.0	18.3	153.5	A	166.5	A	201.5	A	499.9	A
Jerome Avenue and Kingsbridge Rd	North	63.7	14.0	364.5	A	279.6	A	113.1	A	126.2	A
	East	60.0	18.0	179.9	A	217.0	A	131.6	A	170.8	A
	South	74.3	15.8	226.7	A	172.5	A	134.1	A	48.1	B
	West	67.4	15.5	296.7	A	194.8	A	115.2	A	115.1	A
Davidson Avenue and Kingsbridge Rd	East	67.8	13.7	712.4	A	2305.5	A	2894.0	A	958.3	A
	South	24.3	15.0	277.0	A	122.4	A	91.0	A	109.6	A
	West	67.8	13.7	837.4	A	1680.9	A	11766.3	A	781.6	A
Aqueduct Avenue and Kingsbridge Rd	North	47.0	14.3	232.1	A	221.9	A	95.2	A	165.8	A
	East	62.7	14.5	492.1	A	1006.1	A	2133.8	A	372.7	A
	South	31.1	16.3	306.3	A	178.5	A	102.0	A	246.3	A
	West	76.0	16.0	552.8	A	265.2	A	174.3	A	87.3	A

Note: SFP = square feet per pedestrian

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

Pedestrian conditions in the future without the proposed project were assessed to establish a baseline No Build condition against which to evaluate the potential project impacts. The No Build year incorporates general background growth and several No Build projects within a half-mile radius of the project.

TRANSIT AND PEDESTRIAN VOLUME PROJECTIONS

Future No Build peak period transit and pedestrian levels were estimated by applying a background growth rate of 0.5 percent per year (as recommended by the *CEQR Technical Manual*), projected over five years. As described in Chapter 13, "Traffic and Parking," there are several development projects scheduled for completion in the study area that would generate new transit and pedestrian trips. The estimated transit and pedestrian trips generated by these projects were distributed throughout the transit and pedestrian networks based upon their proximity to the subway station and bus routes. These volumes were then added to the projected 2013 volumes to generate the 2013 No Build transit and pedestrian volumes used in the analysis.

ANALYSIS RESULTS

SUBWAY STATION OPERATIONS

As shown in **Table 14-11**, the analyzed stairways would continue to operate at LOS A during all time periods.

Table 14-11
2013 No Build Conditions: Subway Station Vertical Circulation Analysis

Kingsbridge Road Station No. 4 Train Station Vertical Circulation Elements	Effective		15-Minute Pedestrian Volumes		Friction Factor	15-Minute			
	Width (feet)	Width (feet)	Up	Down		SVCD Capacity	V/SVCD Ratio	LOS	
Weekday AM									
Street to Mezzanine									
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	173	52	0.80	684	0.33	A	
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	56	126	0.80	684	0.27	A	
Weekday midday									
Street to Mezzanine									
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	45	37	0.90	770	0.11	A	
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	38	84	0.80	684	0.18	A	
Weekday PM									
Street to Mezzanine									
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	93	104	0.90	770	0.26	A	
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	70	32	0.80	684	0.15	A	
Weekend midday									
Street to Mezzanine									
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	28	66	0.80	684	0.14	A	
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	51	210	0.80	684	0.38	A	
Note: Capacities were calculated based on rates presented in the New York City Transit, <i>Station Planning and Design Guidelines</i> (January 2001), in accordance with the <i>CEQR Technical Manual</i> .									

As shown in **Table 14-12**, the main control area would continue to operate at LOS B during the weekday AM peak 15-minute period and at LOS A during all other peak 15-minute periods.

Table 14-12
2013 No Build Conditions: Subway Station Control Area Analysis

Kingsbridge Road No. 4 Train Station Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM						
Main Control Area Turnstiles	5	308	305	2400	0.26	B
Weekday midday						
Main Control Area Turnstiles	5	123	140	2400	0.11	A
Weekday PM						
Main Control Area Turnstiles	5	245	202	2400	0.19	A
Weekend midday						
Main Control Area Turnstiles	5	64	113	2400	0.07	A
Note: Capacities were calculated based on rates presented in the New York City Transit, <i>Station Planning and Design Guidelines</i> (January 2001), in accordance with the <i>CEQR Technical Manual</i> .						

SUBWAY LINE HAUL LEVELS

As shown in **Table 14-13**, the No. 4 train would continue to operate within guideline capacities during the weekday midday and weekday PM peak periods.

BUS LINE HAUL LEVELS

As shown in **Table 14-14**, all five bus routes would continue to operate within guideline capacities at their respective maximum load points.

Table 14-13

2013 No Build Condition: Peak Hour Subway Line Haul

No. 4 Train Direction of Travel	Station	Trains/Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
Weekday midday Peak Period						
Manhattan-bound	86th Street- Lexington Ave	13	4,026	14,300	0.28	10,274
Bronx-bound	59th Street- Lexington Ave	12	3,636	13,200	0.28	10,664
Weekday PM Peak Period						
Manhattan-bound	86th Street- Lexington Ave	13	5,219	14,300	0.36	9,081
Bronx-bound	59th Street- Lexington Ave	13	13,559	14,300	0.95	741

Sources: New York City Transit

Table 14-14

2013 No Build Conditions: Bus Line Haul at NYCT Maximum Load Points

Route	GC	Buses Per Hour	Northbound (Westbound)		Buses Per Hour	Southbound (Eastbound)	
			Max Load Point	AP		Max Load Point	AP
Weekend midday Peak Period							
Bx3	93	8	University/W 179th St	27	8	University/W 179th St	32
Bx9	93	6	E.Kingsbridge /Jerome	65	7	W 225th St/Broadway	53
Bx22	93	7	White Plains/Morris Park Ave	50	6	Bronx Pk/Union Port Rd	41
Bx28	93	8	Bartow Ave/Edson Ave	29	8	E Gunhill Rd/White Plain	38
Bx32	54	3	Morris Ave/E 165th St	25	3	Morris Ave/E 165th St	18

Notes: GC = guideline capacity per bus, AP = average passengers per bus
Source: NYCT

STREET-LEVEL PEDESTRIAN OPERATIONS

The No Build peak period volume projections were applied to the pedestrian analysis networks described previously. As shown in Tables 14-15 through 14-17, all sidewalks, crosswalks, and corner reservoir analysis locations would continue to operate at acceptable levels during the weekday AM, weekday midday, weekday PM, and weekend midday peak 15-minute periods.

Table 14-15

2013 No Build 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							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	285	1.3	A	5.3	B
	South	17.4	18	0.1	A	4.1	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	281	2.2	A	6.2	B
	South	10.0	18	0.1	A	4.1	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	74	0.3	A	4.3	A
	West	12.4	21	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	102	0.5	A	4.5	A
	West	12.2	43	0.2	A	4.2	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	107	0.5	A	4.5	A
	South	16.9	100	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	161	0.9	A	4.9	A
	West	10.8	224	1.4	A	5.4	B

Table 14-15 (cont'd)
2013 No Build 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)							
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	154	0.8	A	4.8	A
	West	10.8	254	1.6	A	5.6	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	94	0.4	A	4.4	A
	South	17.0	119	0.5	A	4.5	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	79	0.4	A	4.4	A
	South	12.0	87	0.5	A	4.5	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	155	0.9	A	4.9	A
	West	10.0	57	0.4	A	4.4	A
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	85	0.3	A	4.3	A
	South	16.3	106	0.4	A	4.4	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	37	0.5	A	4.5	A
	West	4.0	9	0.2	A	4.2	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	12	0.1	A	4.1	A
	West	9.0	2	0.0	A	4.0	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	16	0.4	A	4.4	A
	West	15.6	47	0.2	A	4.2	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	116	0.5	A	4.5	A
	South	17.0	83	0.3	A	4.3	A
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	91	0.4	A	4.4	A
	South	17.5	91	0.3	A	4.3	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	33	0.4	A	4.4	A
	West	8.0	24	0.2	A	4.2	A
Weekday Midday Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	41	0.2	A	4.2	A
	South	17.4	32	0.1	A	4.1	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	19	0.1	A	4.1	A
	South	10.0	10	0.1	A	4.1	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	30	0.1	A	4.1	A
	West	12.4	17	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	57	0.3	A	4.3	A
	West	12.2	15	0.1	A	4.1	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	21	0.1	A	4.1	A
	South	16.9	102	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	170	0.9	A	4.9	A
	West	10.8	159	1.0	A	5.0	A
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	121	0.6	A	4.6	A
	West	10.8	196	1.2	A	5.2	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	111	0.5	A	4.5	A
	South	17.0	116	0.5	A	4.5	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	85	0.5	A	4.5	A
	South	12.0	91	0.5	A	4.5	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	126	0.8	A	4.8	A
	West	10.0	85	0.6	A	4.6	A
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	66	0.2	A	4.2	A
	South	16.3	195	0.3	A	4.8	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	7	0.1	A	4.1	A
	West	4.0	14	0.2	A	4.2	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	17	0.1	A	4.1	A
	West	9.0	2	0.0	A	4.0	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	17	0.4	A	4.4	A
	West	15.6	76	0.3	A	4.3	A

Table 14-15 (cont'd)

2013 No Build 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)							
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	153	0.7	A	4.7	A
	South	17.0	189	0.7	A	4.7	A
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	92	0.4	A	4.4	A
	South	17.5	198	0.8	A	4.8	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	32	0.3	A	4.3	A
	West	8.0	54	0.5	A	4.5	A
Weekday PM Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	62	0.3	A	4.3	A
	South	17.4	0	0.0	A	4.0	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	62	0.5	A	4.5	A
	South	10.0	0	0.0	A	4.0	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	48	0.2	A	4.2	A
	West	12.4	19	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	48	0.2	A	4.2	A
	West	12.2	19	0.1	A	4.1	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	61	0.3	A	4.3	A
	South	16.9	109	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	291	1.6	A	5.6	B
	West	10.8	146	0.9	A	4.9	A
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	369	1.9	A	5.9	B
	West	10.8	264	1.6	A	5.6	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	426	1.8	A	5.8	B
	South	17.0	153	0.6	A	4.6	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	247	1.4	A	5.4	B
	South	12.0	117	0.7	A	4.7	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	221	1.3	A	5.3	B
	West	10.0	160	1.1	A	5.1	B
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	155	0.5	A	4.5	A
	South	16.3	192	0.4	A	4.8	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	5	0.1	A	4.1	A
	West	4.0	22	0.4	A	4.4	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	20	0.1	A	4.1	A
	West	9.0	12	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	27	0.6	A	4.6	A
	West	15.6	133	0.6	A	4.6	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	173	0.8	A	4.8	A
	South	17.0	288	1.1	A	5.1	B
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	216	1.1	A	5.1	B
	South	17.5	205	0.8	A	4.8	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	25	0.3	A	4.3	A
	West	8.0	72	0.6	A	4.6	A
Weekend Midday Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	19	0.1	A	4.1	A
	South	17.4	40	0.2	A	4.2	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	39	0.3	A	4.3	A
	South	10.0	11	0.1	A	4.1	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	23	0.1	A	4.1	A
	West	12.4	21	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	50	0.2	A	4.2	A
	West	12.2	9	0.0	A	4.0	A

Table 14-15 (cont'd)
2013 No Build Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15 Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekend Midday Peak Period (cont'd)							
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	27	0.1	A	4.1	A
	South	16.9	53	0.2	A	4.2	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	186	1.0	A	5.0	A
	West	10.8	85	0.5	A	4.5	A
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	96	0.5	A	4.5	A
	West	10.8	111	0.7	A	4.7	A
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	50	0.2	A	4.2	A
	South	17.0	194	0.8	A	4.8	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	54	0.3	A	4.3	A
	South	12.0	266	1.5	A	5.5	B
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	131	0.8	A	4.8	A
	West	10.0	157	1.0	A	5.0	B
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	149	0.5	A	4.5	A
	South	16.3	183	0.5	A	4.7	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	13	0.2	A	4.2	A
	West	4.0	16	0.3	A	4.3	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	11	0.1	A	4.1	A
	West	9.0	17	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	3.0	49	1.1	A	5.1	B
	West	15.6	17	0.1	A	4.1	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	67	0.3	A	4.3	A
	South	17.0	286	1.1	A	5.1	B
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	154	0.7	A	4.7	A
	South	17.5	143	0.5	A	4.5	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	26	0.3	A	4.3	A
	West	8.0	29	0.2	A	4.2	A

Note: PFM = pedestrians per foot per minute

Table 14-16
2013 No Build Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Locations	Corner	Weekday AM Peak Period		Weekday Midday Peak Period		Weekday PM Peak Period		Weekend Midday Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Reservoir Avenue and W.195th Street	Northeast	191.5	A	1065.9	A	409.3	A	1131.4	A
	Southeast	1010.1	A	1855.0	A	1680.1	A	1811.4	A
	Southwest	777.0	A	1462.8	A	4080.4	A	2288.2	A
	Northwest	92.8	A	671.7	A	277.5	A	541.6	A
Jerome Avenue and W. 195th Street	Northeast	343.4	A	349.3	A	357.7	A	918.8	A
	Northwest	211.8	A	338.8	A	312.6	A	506.5	A
Jerome Avenue and Kingsbridge Road	Northeast	471.4	A	456.0	A	163.7	A	341.9	A
	Southeast	306.0	A	354.5	A	216.0	A	138.4	A
	Southwest	459.4	A	385.5	A	231.9	A	125.6	A
	Northwest	567.1	A	603.5	A	240.2	A	322.3	A
Davidson Avenue and Kingsbridge Road	Southeast	444.6	A	285.9	A	214.5	A	225.1	A
	Southwest	537.3	A	293.8	A	226.2	A	245.6	A
Aqueduct Avenue and Kingsbridge Road	Southwest	349.6	A	216.3	A	115.8	A	167.6	A
	Northwest	719.0	A	506.2	A	274.9	A	367.9	A

Note: SFP = square feet per pedestrian

Table 14-17

2013 No Build Conditions: Pedestrian Crosswalk LOS Analysis

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles							
				Weekday AM		Weekday Midday		Weekday PM		Weekend Midday	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Reservoir Avenue and 195th Street	North	60.4	11.4	21.0	D	207.9	A	61.1	A	147.5	A
	East	60.0	16.3	399.0	A	771.1	A	607.2	A	2112.0	A
	South	64.6	14.0	603.6	A	1061.9	A	8491.4	A	1061.4	A
	West	32.0	14.0	428.9	A	1077.3	A	1956.8	A	2804.9	A
Jerome Avenue and 195th Street	North	68.8	13.0	87.2	A	427.0	A	175.1	A	127.7	A
	South	70.0	14.7	223.3	A	277.6	A	462.8	A	1018.8	A
	West	59.0	18.3	149.6	A	161.7	A	196.4	A	489.0	A
Jerome Avenue and Kingsbridge Rd	North	63.7	14.0	356.4	A	269.9	A	109.8	A	123.0	A
	East	60.0	18.0	175.7	A	210.4	A	128.1	A	166.6	A
	South	74.3	15.8	219.2	A	167.6	A	131.2	A	46.6	B
	West	67.4	15.5	246.0	A	180.0	A	104.7	A	105.6	A
Davidson Avenue and Kingsbridge Rd	East	67.8	13.7	669.7	A	2304.1	A	2313.8	A	884.1	A
	South	24.3	15.0	247.0	A	116.6	A	85.4	A	103.5	A
	West	67.8	13.7	650.9	A	1306.6	A	2349.0	A	650.5	A
Aqueduct Avenue and Kingsbridge Rd	North	47.0	14.3	228.9	A	215.6	A	92.2	A	162.3	A
	East	62.7	14.5	491.5	A	1004.8	A	2128.6	A	360.5	A
	South	31.1	16.3	275.6	A	168.3	A	95.5	A	227.5	A
	West	76.0	16.0	550.5	A	264.3	A	167.3	A	85.1	A

Note: SFP = square feet per pedestrian

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The future with the proposed actions, or the “Build” condition, would result in increased transit and pedestrian trips compared to the No Build condition. This section describes the projected travel patterns of the project-generated trips and assesses their potential impacts on nearby transit and pedestrian facilities.

NEW ROADWAY DESIGN

As discussed in Chapter 13, “Traffic and Parking,” as part of the proposed project, geometric changes would be implemented at the intersection of West Kingsbridge Road and Reservoir Avenue/Aqueduct Avenue, and along West 195th Street between Reservoir Avenue and Jerome Avenue.

The proposed geometric changes at the intersection of West Kingsbridge Road and Reservoir Avenue/Aqueduct Avenue would result in a wider pedestrian plaza at the northeast corner of this intersection, and would extend the sidewalk on the west side of Reservoir Avenue to better accommodate pedestrian flow. In addition to the geometric changes, the new roadway design would include signal phasing and timing modifications, and crosswalk relocations. The geometric change proposed for West 195th Street would narrow the roadway width between Reservoir Avenue and Jerome Avenue, thereby reducing the pedestrian crossing distance on the east and west crosswalks of West 195th Street at Reservoir Avenue and Jerome Avenue, respectively. All of these geometric measures were incorporated in the future Build conditions pedestrian analysis and are reflected in the analysis results presented for the street-level pedestrian operations in the proceeding section.

TRIP DISTRIBUTION AND ASSIGNMENT

The Build condition transit and pedestrian networks incorporate project-generated increases in transit and pedestrian volumes, as well as proposed changes to study area pedestrian facilities. Project-generated volumes presented in Chapter 13, “Traffic and Parking,” were added to the No Build volumes to generate Build condition transit and pedestrian volumes. These volumes were then assigned to the Build condition transit and pedestrian network analysis locations.

One hundred percent of project-generated subway trips were conservatively assigned to the Kingsbridge Road subway station of No. 4 subway line. Ninety percent of project-generated patrons traveling to the project site were assigned to the south stairway on the northwest corner of Jerome Avenue and West Kingsbridge Road. The remaining 10 percent of project-generated patrons traveling to the project site were assigned to the north stairway on the same sidewalk.

Pedestrian circulation would occur primarily along West Kingsbridge Road. The following assumptions were used to assign the auto, taxi, subway, bus, and walk-only pedestrian trips:

- Auto trips were assigned to on-site parking facilities for all weekday peak periods. During the weekend midday peak period, 40 percent of vehicular trips were assigned to on-site parking facilities and the remaining 60 percent were assigned to off-site parking facilities near the project site. For the walk portion of these trips, those patrons who parked on-site were assumed to be making direct connections between the on-site parking facilities and the project site without going through any analysis locations. The patrons who parked at off-site parking facilities were assumed to make the walk trip to the project site following the logical paths from the parking facilities to the project site.
- Taxi trips were assigned to entrances of the proposed project and therefore would not add any additional walk trips to the analysis locations.
- Due to close proximity to the project site 100 percent of the subway riders were assigned to the Kingsbridge Road subway station. Travel paths between the Kingsbridge Road subway station and the proposed project site entrances were developed to assign subway riders to the pedestrian analysis locations.
- Travel paths between nearby bus stops and the project site were developed based on the proximity of the bus stops to the project site and frequency of service. The Bx3 route was assumed to serve 30 percent of the project-generated bus riders while the Bx9, Bx22, and Bx28 were each assumed to serve 20 percent, and the Bx32 was assumed to serve the remaining 10 percent. Although the Bx22 route does not service the project site on weekends, it is anticipated that in the future conditions with the proposed project, the demand for ridership on this route would increase with the increase in ridership to the shopping center. To accommodate the increase in bus ridership, New York City Transit (NYCT) could extend the weekend service on Bx22 up to the project site.
- Similarly, logical travel paths were developed in assigning walk-only trips to the pedestrian analysis locations. Travel paths for walk trips were developed based on existing land-use characteristics, with 30 percent of all walk only trips assigned to the north of the project site, 30 percent to the south, 30 percent to the east, and the remaining 10 percent to the west.

SUBWAY STATION OPERATIONS

The same subway station control area and vertical circulation elements analyzed for the existing and No Build conditions were evaluated to determine how these elements would function under the

The Shops at the Armory FEIS

Build condition. Project-generated subway trips were added to the 2013 No Build volumes to generate the 2013 Build volumes for the analysis of station operations. The subway stairway operations under the 2013 Build conditions are summarized in **Table 14-18**. As shown in **Table 14-18**, based on the CEQR impact criteria for subway stairways, there would be no significant adverse impacts to stairways under the Build condition. Also, as shown in **Table 14-19** all subway station elements would continue to operate at acceptable levels of service during the analysis peak periods. Therefore, the proposed project would not result in any significant adverse subway impacts.

Table 14-18
2013 Build Conditions: Subway Station Vertical Circulation Analysis

Kingsbridge Road Station No. 4 Train Station Vertical Circulation Elements	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute		
			Up	Down		SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	187	82	0.80	684	0.39	A
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	58	129	0.80	684	0.27	A
Weekday midday								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	106	111	0.90	770	0.28	A
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	45	92	0.80	684	0.20	A
Weekday PM								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	172	176	0.90	770	0.45	B
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	79	40	0.90	770	0.15	A
Weekend midday								
Street to Mezzanine								
W Kingsbridge Road and Jerome Ave- South Stair	6.7	5.7	106	152	0.90	770	0.34	A
W Kingsbridge Road and Jerome Ave- North Stair	6.7	5.7	60	220	0.80	684	0.41	A
Note: Capacities were calculated based on rates presented in the New York City Transit, <i>Station Planning and Design Guidelines</i> (January 2001), in accordance with the <i>CEQR Technical Manual</i> .								

Table 14-19
2013 Build Conditions: Subway Station Control Area Analysis

Kingsbridge Road No. 4 Train Station Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM						
Main Control Area Turnstiles	5	323	338	2400	0.28	B
Weekday midday						
Main Control Area Turnstiles	5	191	222	2400	0.17	A
Weekday PM						
Main Control Area Turnstiles	5	333	282	2400	0.26	B
Weekend midday						
Main Control Area Turnstiles	5	151	209	2400	0.15	A
Note: Capacities were calculated based on rates presented in the New York City Transit, <i>Station Planning and Design Guidelines</i> (January 2001), in accordance with the <i>CEQR Technical Manual</i> .						

SUBWAY LINE HAUL LEVELS

As shown in **Table 14-20**, the No. 4 train would continue to operate within guideline capacities during the weekday midday and weekday PM peak periods.

BUS LINE HAUL LEVELS

As shown in **Table 14-21**, all five bus routes would continue to operate within guideline capacities at their respective maximum load points.

Table 14-20
2013 Build Condition: Peak Hour Subway Line Haul

No. 4 Train Direction of Travel	Station	Trains/Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
Weekday midday Peak Period						
Manhattan-bound	86th Street- Lexington Ave	13	4,297	14,300	0.30	10,003
Bronx-bound	59th Street- Lexington Ave	12	3,907	13,200	0.30	9,293
Weekday PM Peak Period						
Manhattan-bound	86th Street- Lexington Ave	13	5,522	14,300	0.39	8,778
Bronx-bound	59th Street- Lexington Ave	13	13,862	14,300	0.97	438
Sources: New York City Transit						

Table 14-21
2013 Build Conditions: Bus Line Haul at NYCT Maximum Load Points

Route	GC	Buses Per Hour	Northbound (Westbound)		Buses Per Hour	Southbound (Eastbound)	
			Max Load Point	AP		Max Load Point	AP
Weekend midday Peak Period							
Bx3	93	8	University/W 179th St	44	8	University/W 179th St	47
Bx9	93	6	E.Kingsbridge /Jerome	83	7	W 225th St/Broadway	68
Bx22	93	7	White Plains/Morris Park Ave	65	6	Bronx Pk/Union Port Rd	59
Bx28	93	8	Bartow Ave/Edson Ave	42	8	E Gunhill Rd/White Plain	51
Bx32	54	3	Morris Ave/E 165th St	48	3	Morris Ave/E 165th St	49
Notes: GC = guideline capacity per bus, AP = average passengers per bus							
Source: NYCT							

STREET-LEVEL PEDESTRIAN OPERATIONS

Pedestrian trips associated with the proposed project would result in increased volumes at the study area analysis locations. The analyses conducted for the Build condition account for the distribution of project-generated trips overlaid onto the No Build pedestrian network’s sidewalks, corner reservoirs, and crosswalks for the weekday AM, weekday midday, weekday PM, and Weekend midday peak periods. **Tables 14-22 through 14-24** present the future build operating conditions for the pedestrian analysis elements.

As shown in the tables, all pedestrian elements would continue to operate at acceptable levels of service during the analysis peak periods. Therefore, the proposed project would not result in any significant adverse pedestrian impacts.

Table 14-22

2013 Build 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							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	285	1.3	A	5.3	B
	South	17.4	18	0.1	A	4.1	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	281	2.2	A	6.2	B
	South	10.0	25	0.2	A	4.2	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	81	0.4	A	4.4	A
	West	12.4	21	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	116	0.5	A	4.5	A
	West	12.2	43	0.2	A	4.2	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	107	0.5	A	4.5	A
	South	16.9	100	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	161	0.9	A	4.9	A
	West	10.8	224	1.4	A	5.4	B
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	154	0.8	A	4.8	A
	West	10.8	254	1.6	A	5.6	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	94	0.4	A	4.4	A
	South	17.0	119	0.5	A	4.5	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	79	0.4	A	4.4	A
	South	12.0	87	0.5	A	4.5	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	155	0.9	A	4.9	A
	West	10.0	57	0.4	A	4.4	A
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	106	0.4	A	4.4	A
	South	16.3	106	0.4	A	4.4	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	44	0.6	A	4.6	A
	West	4.0	9	0.2	A	4.2	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	12	0.1	A	4.1	A
	West	9.0	9	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	2.0	16	0.5	A	4.5	A
	West	15.6	47	0.2	A	4.2	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	123	0.5	A	4.5	A
	South	17.0	83	0.3	A	4.3	A
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	98	0.5	A	4.5	A
	South	17.5	91	0.3	A	4.3	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	33	0.4	A	4.4	A
	West	8.0	24	0.2	A	4.2	A
Weekday Midday Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	41	0.2	A	4.2	A
	South	17.4	32	0.1	A	4.1	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	19	0.1	A	4.1	A
	South	10.0	36	0.2	A	4.2	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	56	0.2	A	4.2	A
	West	12.4	17	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	108	0.5	A	4.5	A
	West	12.2	15	0.1	A	4.1	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	21	0.1	A	4.1	A
	South	16.9	128	0.5	A	4.5	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	196	1.0	A	5.0	B
	West	10.8	185	1.1	A	5.1	B
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	147	0.8	A	4.8	A
	West	10.8	263	1.6	A	5.6	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	227	1.0	A	5.0	A
	South	17.0	116	0.5	A	4.5	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	453	2.5	A	6.5	B
	South	12.0	104	0.6	A	4.6	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	146	0.9	A	4.9	A
	West	10.0	130	0.9	A	4.9	A
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	143	0.5	A	4.5	A
	South	16.3	195	0.8	A	4.8	A

Table 14-22 (cont'd)
2013 Build 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)							
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	33	0.4	A	4.4	A
	West	4.0	14	0.2	A	4.2	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	17	0.1	A	4.1	A
	West	9.0	28	0.2	A	4.2	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	2.0	17	0.6	A	4.6	A
	West	15.6	76	0.3	A	4.3	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	179	0.8	A	4.8	A
	South	17.0	189	0.7	A	4.7	A
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	118	0.6	A	4.6	A
	South	17.5	198	0.8	A	4.8	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	32	0.3	A	4.3	A
	West	8.0	54	0.5	A	4.5	A
Weekday PM Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	62	0.3	A	4.3	A
	South	17.4	0	0.0	A	4.0	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	62	0.5	A	4.5	A
	South	10.0	27	0.2	A	4.2	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	75	0.3	A	4.3	A
	West	12.4	19	0.1	A	4.1	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	103	0.5	A	4.5	A
	West	12.2	19	0.1	A	4.1	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	61	0.3	A	4.3	A
	South	16.9	137	0.5	A	4.5	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	318	1.7	A	5.7	B
	West	10.8	173	1.1	A	5.1	B
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	396	2.1	A	6.1	B
	West	10.8	336	2.1	A	6.1	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	549	2.4	A	6.4	B
	South	17.0	153	0.6	A	4.6	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	647	3.6	A	7.6	C
	South	12.0	130	0.7	A	4.7	A
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	242	1.5	A	5.5	B
	West	10.0	208	1.4	A	5.4	B
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	236	0.8	A	4.8	A
	South	16.3	192	0.8	A	4.8	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	32	0.4	A	4.4	A
	West	4.0	22	0.4	A	4.4	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	20	0.1	A	4.1	A
	West	9.0	39	0.3	A	4.3	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	2.0	27	0.9	A	4.9	A
	West	15.6	133	0.6	A	4.6	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	200	0.9	A	4.9	A
	South	17.0	288	1.1	A	5.1	B
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	243	1.2	A	5.2	B
	South	17.5	205	0.8	A	4.8	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	25	0.3	A	4.3	A
	West	8.0	72	0.6	A	4.6	A
Weekend Midday Peak Period							
W 195th Street between Jerome Avenue and Reservoir Avenue (West)	North	14.2	19	0.1	A	4.1	A
	South	17.4	40	0.2	A	4.2	A
W 195th Street between Reservoir Ave and University Avenue	North	8.7	39	0.3	A	4.3	A
	South	10.0	79	0.5	A	4.5	A
Reservoir Avenue between Strong Street and W 195th Street	East	15.0	233	1.0	A	5.0	B
	West	12.4	21	0.1	A	4.1	A

Table 14-22 (cont'd)

2013 Build Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15 Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekend Midday Peak Period (cont'd)							
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (North)	East	14.2	329	1.5	A	5.5	B
	West	12.2	9	0.0	A	4.0	A
W 195th Street between Jerome Avenue and Reservoir Avenue (East)	North	15.0	27	0.1	A	4.1	A
	South	16.9	113	0.4	A	4.4	A
Jerome Avenue between E 196th St and W 195th St	East	12.5	227	1.2	A	5.2	B
	West	10.8	285	1.8	A	5.8	B
Jerome Avenue between W 195th Street and W Kingsbridge Rd	East	12.7	137	0.7	A	4.7	A
	West	10.8	390	2.4	A	6.4	B
W Kingsbridge Rd between Morris Ave and Jerome Avenue	North	15.5	262	1.1	A	5.1	B
	South	17.0	194	0.8	A	4.8	A
W Kingsbridge Rd between Jerome Ave and Davidson Ave	North	12.0	716	4.0	A	8.0	C
	South	12.0	287	1.6	A	5.6	B
Jerome Ave between E 193rd St and W Kingsbridge Rd	East	11.0	176	1.1	A	5.1	B
	West	10.0	288	1.9	A	5.9	B
W Kingsbridge Rd between Grand Ave and Davidson Ave	North	19.0	523	1.8	A	5.8	B
	South	16.3	183	0.7	A	4.7	A
Davidson Ave between W Kingsbridge Rd and W 192nd St	East	5.0	54	0.7	A	4.7	A
	West	4.0	16	0.3	A	4.3	A
Grand Ave between W Kingsbridge Rd and W 192nd St	East	9.0	11	0.1	A	4.1	A
	West	9.0	81	0.6	A	4.6	A
Reservoir Avenue between W. 195th Street and W Kingsbridge Rd (South)	East	2.0	49	1.6	A	5.6	B
	West	15.6	17	0.1	A	4.1	A
W Kingsbridge Rd between University Ave and Aqueduct Ave	North	15.3	108	0.5	A	4.5	A
	South	17.0	318	1.2	A	5.2	B
W Kingsbridge Rd between Aqueduct Ave and Grand Ave	North	13.7	195	0.9	A	4.9	A
	South	17.5	175	0.7	A	4.7	A
Aqueduct Ave between W Kingsbridge Rd and W 192nd Street	East	6.2	26	0.3	A	4.3	A
	West	8.0	29	0.2	A	4.2	A

Note: PFM = pedestrians per foot per minute

Table 14-23

2013 Build Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Locations	Corner	Weekday AM Peak Period		Weekday Midday Peak Period		Weekday PM Peak Period		Weekend Midday Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Reservoir Avenue and W.195th Street	Northeast	188.9	A	778.8	A	356.6	A	269.7	A
	Southeast	842.1	A	790.8	A	747.9	A	211.4	A
	Southwest	674.5	A	711.4	A	1041.8	A	362.1	A
	Northwest	92.8	A	671.7	A	279.0	A	541.6	A
Jerome Avenue and W. 195th Street	Northeast	343.3	A	285.3	A	287.9	A	233.5	A
	Northwest	211.5	A	293.8	A	272.0	A	181.6	A
Jerome Avenue and Kingsbridge Road	Northeast	431.6	A	243.9	A	121.4	A	156.4	A
	Southeast	306.0	A	314.9	A	199.2	A	123.8	A
	Southwest	459.4	A	214.6	A	151.3	A	72.9	A
	Northwest	511.4	A	158.1	A	104.6	A	84.3	A
Davidson Avenue and Kingsbridge Road	Southeast	401.1	A	229.5	A	179.5	A	170.4	A
	Southwest	537.3	A	293.8	A	226.2	A	245.6	A
Aqueduct Avenue and Kingsbridge Road	Southwest	349.7	A	216.3	A	116.2	A	144.0	A
	Northwest	1050.1	A	671.5	A	385.4	A	475.2	A

Note: SFP = square feet per pedestrian

Table 14-24

2013 Build Conditions: Pedestrian Crosswalk LOS Analysis

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles							
				Weekday AM		Weekday Midday		Weekday PM		Weekend Midday	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Reservoir Avenue and 195th Street	North	60.4	11.4	22.8	D	216.9	A	69.6	A	147.5	A
	East	60.0	16.3	336.8	A	<u>394.5</u>	A	<u>320.4</u>	A	<u>97.4</u>	A
	South	64.6	14.0	436.5	A	259.1	A	353.0	A	91.2	A
	West	32.0	14.0	409.3	A	1052.5	A	1818.4	A	2750.5	A
Jerome Avenue and 195th Street	North	68.8	13.0	101.8	A	427.0	A	180.9	A	127.7	A
	South	70.0	14.7	264.5	A	277.0	A	477.7	A	1002.2	A
	West	59.0	18.3	135.9	A	134.7	A	157.6	A	93.8	A
Jerome Avenue and Kingsbridge Rd	North	63.7	14.0	267.4	A	76.7	A	<u>51.8</u>	B	38.2	C
	East	60.0	18.0	<u>175.6</u>	A	<u>210.2</u>	A	<u>128.0</u>	A	<u>166.3</u>	A
	South	74.3	15.8	218.6	A	130.5	A	<u>107.9</u>	A	39.1	C
	West	67.4	15.5	246.0	A	82.8	A	<u>61.8</u>	A	35.5	C
Davidson Avenue and Kingsbridge Rd	East	67.8	13.7	<u>404.4</u>	A	<u>263.6</u>	A	<u>253.1</u>	A	<u>149.0</u>	A
	South	24.3	15.0	247.0	A	116.6	A	85.4	A	103.5	A
	West	67.8	13.7	650.9	A	1306.6	A	2349.0	A	650.5	A
Aqueduct Avenue and Kingsbridge Rd	North	34.0	14.3	<u>103.9</u>	A	<u>70.2</u>	A	<u>26.8</u>	C	<u>32.8</u>	C
	East	62.7	14.5	<u>357.4</u>	A	276.9	A	328.7	A	67.7	A
	South	31.1	16.3	279.9	A	172.0	A	100.2	A	183.4	A
	West	62.7	16.0	494.1	A	211.8	A	123.0	A	51.8	B
Grand Avenue and Kingsbridge Rd	North	34.0	14.3	<u>113.9</u>	A	<u>113.5</u>	A	<u>38.4</u>	C	<u>32.8</u>	C

Note: SFP = square feet per pedestrian

F. PEDESTRIAN SAFETY

Accident data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between January 1, 2005 and December 31, 2007. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than \$1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. According to the *City Environmental Quality Review (CEQR) Technical Manual*, a high pedestrian accident location is one where there were five or more pedestrian-related accidents in any year of the most recent three-year period for which data are available.

During this period, a total of 184 reportable accidents, zero fatalities, 226 injuries, and 53 pedestrian-related accidents occurred at the study area intersections. **Table 14-25** depicts total accident characteristics by intersection during the study period, as well as, a breakdown of pedestrian and bicycle accidents by year and location. A rolling total of accident data identifies two study area intersections as high pedestrian accident locations in the 2005 to 2007 period. These locations are: Jerome Avenue at W. Kingsbridge Road and Jerome Avenue at W. Fordham Road.

**Table 14-25
Accident Data**

Intersection		Study Period			Accidents by Year					
North-South Roadway	East-West Roadway	Reportable Accidents	Total Fatalities	Total Injuries	Pedestrian			Bicycle		
					2005	2006	2007	2005	2006	2007
Bailey Avenue	W. 225th Street	14	0	14	0	0	1	0	0	0
Sedgwick Avenue	W. Kingsbridge Rd	11	0	18	1	2	1	0	0	0
Webb Avenue	W. Kingsbridge Rd	8	0	6	2	2	0	0	0	0
MLK Blvd/University	W. Kingsbridge Rd	20	0	25	0	2	1	0	1	0
Aqueduct Avenue	W. Kingsbridge Rd	2	0	0	0	0	0	0	0	0
Reservoir Avenue	W. 195th Street	0	0	0	0	0	0	0	0	0
Grand Avenue	W. Kingsbridge Rd	0	0	0	0	0	0	0	0	0
Davidson Avenue	W. Kingsbridge Rd	4	0	7	0	0	1	0	0	0
Jerome Avenue	W. Kingsbridge Rd	14	0	14	1	3	2	0	0	0
Jerome Avenue	W. 195th Street	4	0	4	1	0	1	0	0	0
Morris Avenue	W. Kingsbridge Rd	5	0	5	2	0	1	0	0	1
Creston Avenue	Kingsbridge Road	4	0	9	0	1	0	0	0	0
Grand Blvd. / Conc.	Kingsbridge Road	25	0	32	2	0	1	0	1	0
MLK Boulevard	W. Fordham Road	27	0	38	1	4	1	0	0	1
Jerome Avenue	W. Fordham Road	35	0	40	5	7	2	0	0	1
E. Kingsbridge Road / Tiebout Avenue	E. Fordham Road	0	0	0	0	0	0	0	0	0
Tiebout Avenue	E. Fordham Road	6	0	9	0	1	1	0	0	0
Elm Place	E. Fordham Road	5	0	5	1	0	2	0	0	0

Source: New York State Department of Transportation (NYSDOT)

With the proposed project, these intersections would experience increases in vehicular and pedestrian traffic in the future conditions. Specifically, the intersection of Jerome Avenue at W. Kingsbridge Road is projected to experience a total of up to 900 and 1680 peak hour pedestrian trips during the weekday and Saturday conditions, respectively. In terms of project generated vehicle trips, this intersection could experience peak-hour volume increases of up to approximately 270 and 410 vehicles during the weekday and Saturday conditions, respectively. However, in terms of turning vehicles which could potentially conflict with the pedestrians in the crosswalks, the intersection of Jerome Avenue at W. Kingsbridge Road could experience up to 40 project-generated vehicles executing a left or a right turn during any of the four peak hours analyzed. This would result in approximately one turning vehicle in every one-and-a-half minute during any given peak hour.

The intersection of Jerome Avenue at W. Fordham Road would experience minimal project generated pedestrian trips, since the majority of the walk trips would be dispersed into a broader network before travelling through this intersection. In terms of project generated vehicle trips, this intersection could experience peak-hour volume increases of up to 53 vehicles during the four peak hours. However, in terms of turning vehicles which could potentially conflict with the pedestrians in the crosswalks, the intersection of Jerome Avenue at W. Fordham Road could experience up to 10 project-generated vehicles executing a left or a right turn during the four peak hours analyzed. This would result in approximately one turning vehicle in every 6 minutes during any given peak hour.

As presented in **Table 14-24**, the majority of the pedestrian-related accidents were caused by inattentiveness, signal disregard, and other human factors by the driver or the pedestrian. With respect to geometric deficiencies that could potentially cause safety hazards, both of the intersections are signalized, and are clearly painted with high-visibility crosswalks (with the exception of the north-leg of Jerome Avenue and W. Kingsbridge Road intersection which is painted with a regular crosswalk). In addition, school crossing signage is provided at the east and west crosswalks at the Jerome Avenue and W. Kingsbridge Road intersection to warn motorists about the presence of school children at these locations. Based on the review of the

accident history at these intersections, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents.

As discussed above, the projected increases in vehicular and pedestrian levels at the intersection Jerome Avenue at W. Fordham Road would be minimal and are not expected to exacerbate any of the current causes of pedestrian-related accidents. However, the pedestrian levels at the intersection of Jerome Avenue at W. Kingsbridge Road would notably increase with the proposed project during the peak activity hours; similarly, the number of peak hour project generated vehicle trips that could potentially conflict with the pedestrians using the crosswalks would also increase. Overall, the geometry, sight lines and crossing patterns at this location would be characteristic of that of a major urban activity center and would not present any unusual safety conditions. In order to enhance pedestrian safety, high-visibility crosswalk could be provided at the north-leg of the Jerome Avenue and W. Kingsbridge Road intersection which is currently painted with a regular crosswalk. In addition, signage directing motorists to “Yield to Pedestrians in the Crosswalks” could be installed at all four intersection approaches to further enhance the pedestrian safety conditions. With these proposed safety improvement measures in place, the proposed project is not expected to result in any significant adverse pedestrian safety impacts in the study area.

SCHOOL SAFETY

The proposed project would result in increased pedestrian and traffic volumes at the intersections of W. 195th Street at Jerome and Reservoir Avenues, located along the northern periphery of the project site adjacent to P.S. 86 Elementary School and Walton High School. Specifically, with the proposed project, the intersections of W. 195th Street at Jerome and Reservoir Avenues are projected to experience up to 28 and 42 peak hour pedestrian trips during the weekday and Saturday conditions, respectively. In terms of project generated vehicle trips, the intersection of W. 195th Street at Jerome Avenue could experience peak-hour volume increases of up to approximately 120 and 180 vehicles during the weekday and Saturday conditions, respectively. As for the project generated vehicle trips at the intersection of Reservoir Avenue at W. 195th Street, this intersection could experience a total of up to 230 and 335 vehicles during the weekday and Saturday conditions, respectively. Although, there would be notable increases in vehicular traffic at these two intersections with the proposed project, it should be noted that the highest peak activity hours of the proposed project—including the weekday evening and Saturday midday peak hours—would not coincide with the peak hours of school activities which generally occurs during the weekday morning (7-9 AM) and afternoon (2-4 PM) periods.

In terms of intersection control, both of these intersections are signalized, and are striped with school crosswalks at majority of the approaches. (The exceptions are the east-leg of Jerome Avenue and W. 195th intersection and the west-leg of Reservoir Avenue and W. 195th intersection which are painted with regular crosswalks.) In addition, these intersections provide “school crossing” signage to warn motorists about the presence of school children at these locations.

Since the pedestrian safety measures are already in place at these intersections, and also since these intersections are not categorized as high pedestrian accident locations (based on the data obtained from NYSDOT and summarized in **Table 14-25**), the projected increases in vehicular and pedestrian levels due to the proposed project are not expected to adversely affect the pedestrian safety conditions at these locations. *