A. INTRODUCTION

As described in Chapter 14, "Traffic and Parking," the proposed project and projected development would generate 374, 156, and 317 new subway trips, and 194, 58, and 97 new bus trips in the study area during the AM, midday, and PM peak hours, respectively. In addition, new pedestrian trips would be generated, which would either access the site on foot or walk to the site from other modes of travel. This chapter assesses these trips' potential impacts on transit and pedestrian facilities in the vicinity of the project site. The analysis results show that the proposed action would not result in significant adverse impacts to any of the analyzed transit and pedestrian elements.

B. METHODOLOGY

Based on the trip generation estimates developed for the proposed action and criteria specified in the 2001 *New York City Environmental Quality Review (CEQR) Technical Manual*, it was determined that a quantified assessment of transit station operations and pedestrian circulation was required using the methodology described below. Because the project would not trigger impact thresholds for subway line-haul and buses (the threshold for these analyses is 200 peak hour rail or bus transit riders), these elements are addressed qualitatively.

SUBWAY STATION ELEMENTS

Subway station operations were assessed according to methods specified in New York City Transit's (NYCT) *Station Planning and Design Guidelines* (January 2001) and evaluation criteria presented in the *CEQR Technical Manual*.

The methodology for assessing subway stairway and control area (turnstiles, service gates, etc.) operations compares the user volume to 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 required area for circulation. For control area elements, capacity is measured by the number and/or width of an element and the NYCT optimum capacity per element. For both stairways and control areas, volumes and capacities are presented for 15-minute intervals.

The computed v/c ratio is compared to NYCT criteria to determine a level of service (LOS) for the operation of an element. Table 15-1 shows the LOS and corresponding v/c ratios for stairways and control area elements.

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 conflict 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.

Table 15-1
Level of Service Criteria
for Subway Station Elements

LOS	V/C Ratio
A	0.00 to 0.45
B	0.45 to 0.70
C	0.70 to 1.00
D	1.00 to 1.33
E	1.33 to 1.67
F	1.67 or greater

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

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 insufficient area to bypass others and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming. NYCT's minimum standard for pedestrian conditions has traditionally been the breakpoint between LOS C and LOS D (v/c ratio of 1.00), which is used to determine the design capacity of station elements during peak travel periods.

The determination of significant impacts for station elements varies based on their type and use. For turnstiles, service gates, and escalators, an increase in volume that results in a v/c ratio of greater than 1.00 may be considered significant, since a value of 1.00 represents the design capacity of the element. For stairways, impacts are considered significant based on the amount of additional capacity that would mitigate the location to its no action or LOS C/D (v/c ratio of 1.0) operating conditions. For a location with a proposed action LOS D or better, a widening of 6 inches or more is considered significant; for a proposed action LOS E condition, a widening of 3 inches or more is considered significant; and for a proposed action LOS F condition, a widening of 1 inch or more is considered significant. A widening of less than 1 inch is not considered significant because its benefit would be barely perceptible to users.

PEDESTRIAN OPERATIONS

Using the methodologies presented in the *Highway Capacity Manual (HCM) Special Report 209* (Transportation Research Board, 1985), the adequacy of the study area's sidewalk, corner reservoir, and crosswalk capacities in relation to the demand imposed on them was assessed. Sidewalks were analyzed in terms of pedestrian flow. The calculation of the average pedestrians per foot of effective walkway width per minute (PFM) is the basis for LOS analysis. However, walkways are directly influenced by other elements of the transportation network; thus, to more accurately estimate the dynamics of walking, a platoon factor is applied in the calculation of pedestrian flow. This reflects the tendency of pedestrians to move in congregated groups (platoons) and generally results in a LOS one level poorer than average flow conditions.

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 other street or moving around the corner). The HCM applies 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 and expressed as 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 area available (the crosswalk width multiplied by the width of the street) and the signal's "walk" cycle. This measure is expressed as 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 average crossing time to the time-space available in the crosswalk is the LOS measurement of available SFP. Additionally, in the first seconds of the "walk" cycle, the pedestrians queued to cross the street create a surge effect as they begin to cross. Therefore, the crosswalk LOS analysis incorporates a factor for this "surge" to estimate worst-case conditions. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk during the "walk" phase.

Table 15-2 shows the LOS standards[1] for sidewalks, corner reservoirs, and crosswalks. The description of these standards is similar to those described above for subway station circulation. The *CEQR Technical Manual* specifies that a LOS D condition or better is considered reasonable for sidewalks, corner reservoirs, and crosswalks within the Manhattan Central Business District (CBD). For crosswalks and corner reservoirs, a LOS D condition requires a minimum of 15 SFP. For sidewalks, a LOS D condition requires a maximum of 15 PFM.

Table 15-2
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, *CEQR Technical Manual* (December 2001).

For most areas of Manhattan, project-related sidewalk impacts are considered significant and require examination of mitigation if there is an increase of 2 PFM over a no action condition that is characterized by flow rates greater than 15 PFM (the breakpoint between LOS D and LOS E). For corners and crosswalks, a decrease of 1 SFP resulting from the proposed action when the no action condition has an average occupancy of less than 15 SFP (the breakpoint between LOS D and LOS E) is considered significant. However, adverse conditions at an analysis element

[1] The 1985 HCM provides different thresholds for LOS determination than the 2001 *CEQR Technical Manual* The reported LOS results in this chapter are based on the latest CEQR LOS criteria, as defined in Table 15-2, which may differ from those determined in the HCS analysis outputs

resulting from a project increment of less than 200 peak hour trips would not be considered significant since this increase would not be perceptible when distributed over an hour.

C. EXISTING CONDITIONS

Figure 15-1 depicts the available transit service in the study area. Facilities determined for analysis reflect the likely points of access to the project site for transit riders and pedestrians. A detailed analysis was conducted for one NYCT subway station and pedestrian circulation at six intersections and 12 midblock sidewalks.

TRANSIT SERVICE IN THE STUDY AREA

The project site is located on Manhattan's far West Side. The closest subway station is located at Columbus Circle, approximately three blocks away. There are also four nearby bus routes with stops along Columbus, Amsterdam and West End Avenues, as well as West 57th and West 65th Streets.

SUBWAY SERVICE

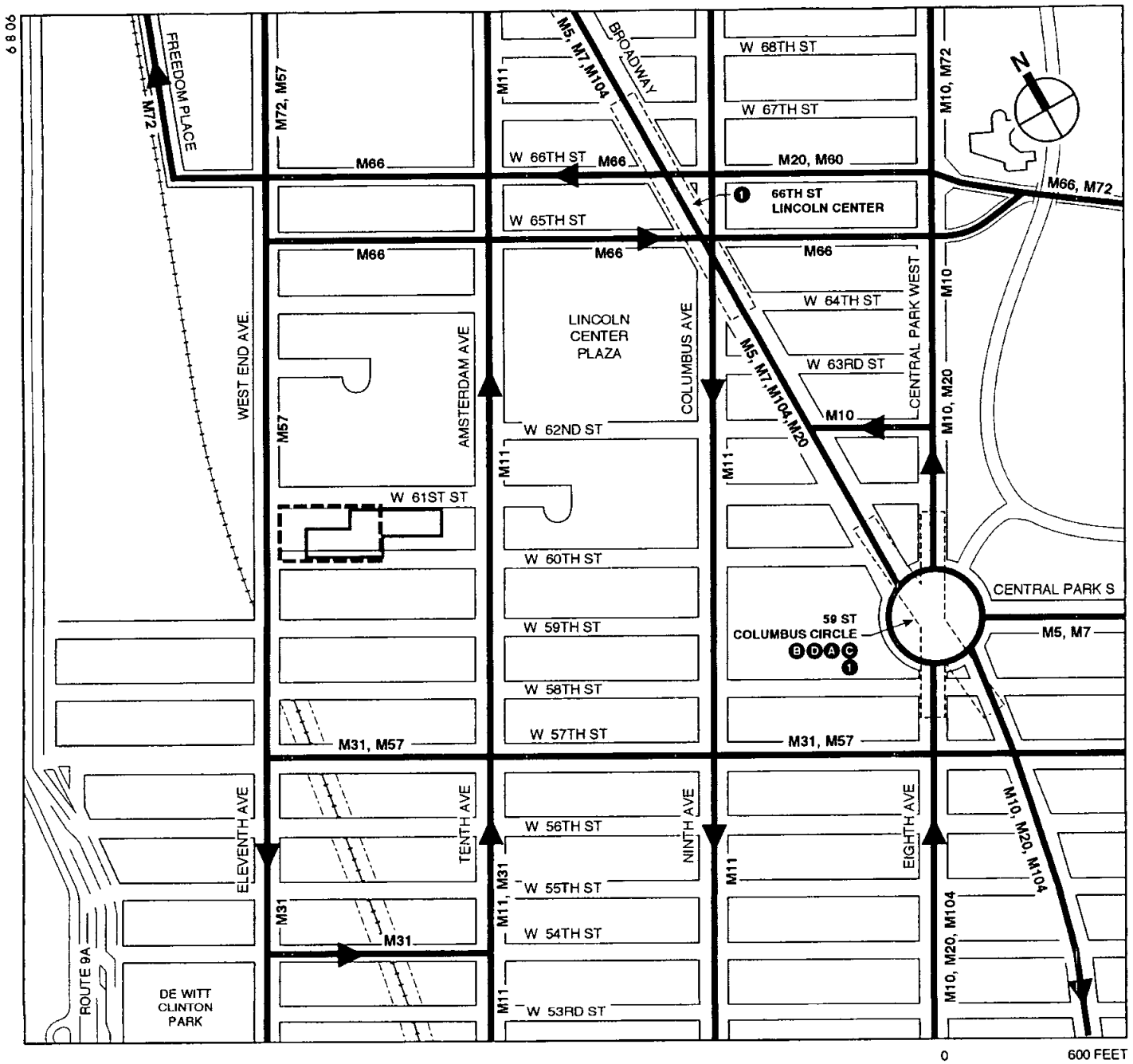
The 59th Street-Columbus Circle Station is located at the intersection of West 59th Street, Eighth Avenue, and Broadway. It is served by three NYCT subway lines (five subway routes): the Eighth Avenue A and C routes, the Sixth Avenue B and D routes, and the Broadway-Seventh Avenue 1 route. Table 15-3 presents the routing and schedule of these subway lines.

Table 15-3
Subway Service in the Study Area

Line	Train	Operating Hours	Route
Sixth Avenue Line	B (Express)	Weekdays (6:00AM – 9:30PM)	Bedford Park Blvd., Bronx to Brighton Beach, Brooklyn
	D (Express)	All times	Norwood/205th St., Bronx to Coney Island, Brooklyn
Broadway-Seventh Avenue Line	1 (Local)	All times	Van Cortlandt Park/242nd St., Bronx to South Ferry, Manhattan
Eighth Avenue Line	A (Express)	All times	Inwood/207th St., Manhattan to Ozone Park/Lefferts Blvd. or Far Rockaway, Queens
	C (Local)	5:30AM – 11PM	168th St./Washington Heights, Manhattan to Euclid Ave., Brooklyn
Source: www.mta.info (May 2005)			

BUS SERVICE

NYCT operates four local bus routes with stops in the vicinity of the project site. Table 15-4 lists these routes, their weekday hours of operation, and the terminals of their runs.



Rezoning Area Boundary

Algin Property Site Boundary

Bus Route

Direction of Bus Travel (If no arrow is shown, buses travel in two directions)

M31 Bus Route Name

Subway Station

A Subway Route Name

Transit Study Area

Figure 15-1

Table 15-4
NYCT Bus Routes in the Study Area

Route	Weekday Operating Hours	Terminals
M11: Ninth-Columbus/Tenth-Amsterdam Aves.	Northbound: 4:00AM – 12:30AM Southbound: 4:45AM – 1:00AM	Bethune/Hudson Sts. to/from West 133rd St./Broadway or Riverbank State Park
M31: 57th Street/York Avenue	Eastbound: 5:42AM – 1:15AM Westbound: 5:30AM – 1:00AM	West 54th St./Eleventh Ave. to/from East 92nd St./York Ave.
M57: 57th Street Crosstown	Eastbound: 5:39AM – 12:35AM Westbound: 5:24AM – 1:06AM	West 72nd St./Broadway to/from East 60th St./York Ave.
M66: 66th and 67th Streets Crosstown	Eastbound: All times Westbound: All times	West 66th St./West End Ave. to/from East 67th St./York Ave.

Source: www.mta.info (May 2005)

SUBWAY STATION OPERATIONS

An analysis of stairway and control area operations was conducted for the 59th Street-Columbus Circle subway station. This station has multiple entrances and control areas, but quantified analysis was limited to the elements that would be most likely used by future patrons to the project site. A detailed analysis was conducted for the two station entrances along West 60th Street. The S3 stairway leads from the median of Broadway to the R158 control area on the downtown Broadway-Seventh Avenue line. Between Broadway and Central Park West just north of Columbus Circle, the S5A/B street-level stairway connects to a mezzanine level, where connections to the N51 control area could be made via the M16A/B or M17A/B stairways. At this control area, access is available to both the Sixth Avenue and Eighth Avenue lines. In addition to the above stairways, entry and exit facilities (turnstiles and gates) within the two control areas were also analyzed.

Patron counts were collected in October 2004. Peak 15-minute volumes were calculated and analyzed for the station elements identified. Table 15-5 summarizes the results for the weekday AM and PM peak period operations. Processing capacities for the station elements were calculated based on rates presented in NYCT's *Station Planning and Design Guidelines* (January 2001). Currently, all analysis locations operate at acceptable LOS C or better during these time periods, except the S5A/B street-level stairway operates at LOS D with a v/c ratio of 1.01 during the PM peak period.

PEDESTRIAN CIRCULATION

The existing operation of the study area's sidewalks, corner reservoirs, and crosswalks was assessed for the weekday AM, midday, and PM peak periods based on counts conducted in November 2002. Additional counts were conducted in 2004 and 2005. Peak 15-minute volumes were calculated and an analysis was conducted according to the methodology described above.

The intersection of Broadway and West 60th Street operates with a three-phase signal timing plan, including a pedestrian-only phase. During this phase, the intersection functions similar to a "Barnes Dance," at which all vehicular traffic is stopped and pedestrians are given the entire area of the intersection to cross. This area is up to 120 feet wide east–west and 80 feet wide north–south. For analysis purposes, pedestrians crossing Broadway on the north and south sides of the intersection were assumed to be accommodated by separate 30-feet-wide crosswalks.

Table 15-5
59th Street-Columbus Circle Subway Station Analysis: 2004 Baseline Conditions

Stairways: AM Peak Hour

Stairways	Width (feet)	Effective Width (feet)	15-Min Volume		Friction Factor	15-Minute		
			Up	Down		SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area								
S3 Stairway	5.0	4.0	258	136	0.90	540	0.73	C
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	838	112	0.80	1200	0.79	C
M16A/B Mezzanine Stairway	8.3	6.3	541	112	0.80	756	0.86	C
M17A/B Mezzanine Stairway	7.8	5.8	297	0	1.00	870	0.34	A

Control Area Elements: AM Peak Hour

Control Area Elements	Number	15-Min Volume		15-Minute		
		In	Out	SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area						
Turnstiles	4	136	245	1800	0.21	A
Service Gate	1	0	13	750	0.02	A
N51 Control Area						
Turnstiles	5	104	459	2250	0.25	A
Service Gate I	1	2	18	750	0.03	A
Service Gate II	1	6	3	750	0.01	A
Exit Gate I	2	0	5	900	0.01	A
Exit Gate II	2	0	352	900	0.39	A

Stairways: PM Peak Hour

Stairways	Width (feet)	Effective Width (feet)	15-Min Volume		Friction Factor	15-Minute		
			Up	Down		SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area								
S3 Stairway	5.0	4.0	176	263	0.90	540	0.81	C
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	839	378	0.80	1200	1.01	D
M16A/B Mezzanine Stairway	8.3	6.3	378	364	0.90	851	0.87	C
M17A/B Mezzanine Stairway	7.8	5.8	461	14	0.80	696	0.68	B

Control Area Elements: PM Peak Hour

Control Area Elements	Number	15-Min Volume		15-Minute		
		In	Out	SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area						
Turnstiles	4	263	167	1800	0.24	A
Service Gate	1	0	9	750	0.01	A
N51 Control Area						
Turnstiles	5	371	284	2250	0.29	A
Service Gate I	1	1	14	750	0.02	A
Service Gate II	1	6	3	750	0.01	A
Exit Gate I	2	0	5	900	0.01	A
Exit Gate II	2	0	532	900	0.59	B

The area surrounding the project site is not heavily traveled by pedestrians; therefore, there is little or no congestion on sidewalks, corners, or crosswalks. As shown in Tables 15-6, 15-7, and 15-8, all analysis locations currently operate at acceptable LOS D or better during the weekday AM, midday, and PM peak periods.

Table 15-6

2004 Baseline Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
AM Peak Period							
W 61st Street between Amsterdam and West End Avenues	North	12	73	0	A	4	A
	South	12	37	0	A	4	A
West End Avenue between W.60th and W.61st Streets	East	11	40	0	A	4	A
	West	11	22	0	A	4	A
W.60th Street between Amsterdam and West End Avenues	North	10	17	0	A	4	A
	South	10	25	0	A	4	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	110	1	A	5	A
	West	12	202	1	A	5	A
W.60th Street between Columbus and Amsterdam Avenues	North	15	242	1	A	5	B
	South	9	139	1	A	5	B
W.60th Street between Broadway and Columbus Avenue	North	10	315	2	A	6	B
	South	18	499	2	A	6	B
Midday Peak Period							
W 61st Street between Amsterdam and West End Avenues	North	12	145	1	A	5	A
	South	12	30	0	A	4	A
West End Avenue between W.60th and W.61st Streets	East	11	24	0	A	4	A
	West	11	37	0	A	4	A
W 60th Street between Amsterdam and West End Avenues	North	10	17	0	A	4	A
	South	10	14	0	A	4	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	70	0	A	4	A
	West	12	158	1	A	5	A
W.60th Street between Columbus and Amsterdam Avenues	North	15	87	0	A	4	B
	South	9	71	1	A	5	B
W 60th Street between Broadway and Columbus Avenue	North	10	257	2	A	6	B
	South	18	498	2	A	6	B
PM Peak Period							
W 61st Street between Amsterdam and West End Avenues	North	12	110	1	A	5	A
	South	12	25	0	A	4	A
West End Avenue between W.60th and W.61st Streets	East	11	39	0	A	4	A
	West	11	28	0	A	4	A
W.60th Street between Amsterdam and West End Avenues	North	10	40	0	A	4	A
	South	10	27	0	A	4	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	57	0	A	4	A
	West	12	187	1	A	5	A
W.60th Street between Columbus and Amsterdam Avenues	North	15	180	1	A	5	B
	South	9	109	1	A	5	B
W.60th Street between Broadway and Columbus Avenue	North	10	274	2	A	6	B
	South	18	624	2	A	6	B

Note: PFM = pedestrians per foot per minute

Table 15-7

2004 Baseline Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
West End Avenue and W.61st Street	Northeast	1095	A	426	A	625	A
	Southeast	1339	A	1913	A	1027	A
West End Avenue and W.60th Street	Northeast	1307	A	1036	A	930	A
	Southeast	1405	A	909	A	961	A
Amsterdam Avenue and W.61st Street	Northeast	103	A	266	A	558	A
	Southeast	161	A	277	A	648	A
	Southwest	142	A	283	A	282	A
	Northwest	101	A	276	A	269	A
Amsterdam Avenue and W.60th Street	Northeast	210	A	312	A	211	A
	Southeast	652	A	380	A	373	A
	Southwest	156	A	108	A	124	A
	Northwest	138	A	179	A	140	A
Columbus Avenue and W.60th Street	Northeast	70	A	79	A	43	B
	Southeast	104	A	129	A	116	A
	Southwest	85	A	59	B	45	B
	Northwest	151	A	160	A	79	A
Broadway and W.60th Street	Southwest	89	A	81	A	52	B
	Northwest	116	A	89	A	56	B

Note: SFP = square feet per pedestrian

D. THE FUTURE WITHOUT THE PROPOSED ACTION

Transit and pedestrian conditions in the future without the proposed action were assessed to establish a baseline, or the "No Build" condition, against which to evaluate the potential project impacts. The 2008 No Build analysis incorporates general background growth, effects of nearby developments, and transportation improvements that may affect transit service and pedestrian movements in the study area.

TRANSIT AND PEDESTRIAN VOLUME PROJECTIONS

Future 2008 No Build peak hour transit and pedestrian levels were estimated by first applying a background growth of 0.50 percent per year (as recommended by the *CEQR Technical Manual*), for a total of 2.0 percent by 2008. A number of nearby projects would also be in use by 2008 and generate new transit and pedestrian trips in the study area. Trips generated by each of these No Build projects were assigned to the transit and pedestrian analysis locations described earlier in this chapter.

TRANSPORTATION IMPROVEMENTS

BUS SERVICE

NYCT would continue its program of increasing capacity on crowded bus routes by replacing standard 70-passenger buses with 145-passenger articulated buses. NYCT has programmed for the purchase of these buses in its current capital plan; however, the implementation of articulated service is determined on an as-needed basis. As for operating schedules, there are currently no planned changes for the bus routes serving the study area.

Table 15-8

2004 Baseline Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Width (feet)	Without Vehicles		With Vehicles		Maximum Surge	
			SFP	LOS	SFP	LOS	SFP	LOS
AM Peak Period								
West End Avenue and W 61st Street	North	13 5	891	A	891	A	679	A
	East	14.0	2520	A	2328	A	651	A
	South	11.5	1265	A	1265	A	958	A
West End Avenue and W.60th Street	North	11.0	2723	A	2652	A	2061	A
	East	14.5	2424	A	2256	A	679	A
	South	10.0	1980	A	1929	A	1499	A
	West	14.5	1786	A	1745	A	506	A
Amsterdam Avenue and W.61st Street	North	13.0	81	A	76	A	53	B
	East	12.0	132	A	128	A	33	C
	South	14.0	321	A	321	A	211	A
	West	13.5	176	A	176	A	45	B
Amsterdam Avenue and W.60th Street	North	14.0	232	A	214	A	152	A
	East	13.0	708	A	672	A	284	A
	South	13.5	486	A	486	A	273	A
	West	14.0	256	A	256	A	72	A
Midday Peak Period								
West End Avenue and W.61st Street	North	13.5	181	A	181	A	138	A
	East	14 0	2184	A	2073	A	564	A
	South	11.5	2846	A	2846	A	2155	A
West End Avenue and W.60th Street	North	11.0	2178	A	2122	A	1649	A
	East	14.5	1414	A	1316	A	396	A
	South	10.0	1650	A	1607	A	1249	A
	West	14.5	1357	A	1326	A	385	A
Amsterdam Avenue and W.61st Street	North	13.0	310	A	297	A	202	A
	East	12.0	225	A	218	A	57	B
	South	14.0	630	A	630	A	413	A
	West	13.5	291	A	291	A	74	A
Amsterdam Avenue and W.60th Street	North	14.0	569	A	524	A	373	A
	East	13.0	341	A	312	A	137	A
	South	13.5	405	A	405	A	227	A
	West	14.0	160	A	160	A	45	B
PM Peak Period								
West End Avenue and W.61st Street	North	13.5	431	A	431	A	328	A
	East	14.0	1170	A	1111	A	302	A
	South	11.5	2846	A	2846	A	2155	A
West End Avenue and W.60th Street	North	11.0	1556	A	1515	A	1178	A
	East	14.5	1542	A	1400	A	432	A
	South	10.0	1100	A	1072	A	833	A
	West	14.5	1170	A	1143	A	332	A
Amsterdam Avenue and W.61st Street	North	13.0	510	A	477	A	332	A
	East	12.0	529	A	514	A	134	A
	South	14.0	1701	A	1701	A	1116	A
	West	13 5	262	A	262	A	66	A
Amsterdam Avenue and W.60th Street	North	14.0	218	A	192	A	143	A
	East	13.0	379	A	353	A	152	A
	South	13.5	334	A	334	A	187	A
	West	14.0	201	A	201	A	57	B

Note: SFP = square feet per pedestrian

Table 15-8 (cont'd)
2004 Baseline Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Width (feet)	Without Vehicles		With Vehicles		Maximum Surge	
			SFP	LOS	SFP	LOS	SFP	LOS
AM Peak Period								
Columbus Avenue and W.60th Street	North	14.0	99	A	99	A	48	B
	East	20.0	234	A	234	A	123	A
	South	12 0	134	A	110	A	61	A
	West	14.0	164	A	154	A	89	A
Broadway and W.60th Street	North	30.0*	121	A	121	A	116	A
	South	30.0*	83	A	83	A	27	C
	West	14.0	147	A	142	A	57	B
Midday Peak Period								
Columbus Avenue and W.60th Street	North	14.0	153	A	153	A	73	A
	East	20.0	156	A	156	A	82	A
	South	12.0	110	A	90	A	50	A
	West	14.0	99	A	93	A	54	A
Broadway and W.60th Street	North	30.0*	200	A	200	A	192	A
	South	30.0*	103	A	103	A	34	C
	West	14.0	80	A	78	A	31	C
PM Peak Period								
Columbus Avenue and W.60th Street	North	14.0	67	A	67	A	32	C
	East	20.0	112	A	112	A	59	B
	South	12.0	106	A	84	A	48	B
	West	14.0	65	A	61	A	35	C
Broadway and W.60th Street	North	30.0*	81	A	81	A	78	A
	South	30.0*	58	B	58	B	19	D
	West	14.0	62	A	61	A	24	C

Note: SFP = square feet per pedestrian. * Total available width assumed for pedestrian crossing.

SUBWAY STATION OPERATIONS

Future No Build peak 15-minute volumes were computed by adding the discrete trips associated with the nearby No Build projects as well as general background growth to the existing subway station volumes. Table 15-10 summarizes the weekday AM and PM peak period operating levels for the analysis station elements. The analysis determined that the S3 stairway and S5A/B street-level stairway would operate at LOS D in the PM peak period, and the M16A/B mezzanine stairway would operate at LOS D in the AM and PM peak periods.

STREET-LEVEL PEDESTRIAN OPERATIONS

Trips associated with general background growth and new developments in the study area were superimposed onto the existing pedestrian networks to generate No Build peak period volumes for analysis. Tables 15-11, 15-12, and 15-13 show the No Build conditions analysis results for the study area's sidewalks, corner reservoirs, and crosswalks. As with existing conditions, all analysis locations would continue to operate at acceptable LOS D or better in the No Build condition.

Table 15-10
59th Street-Columbus Circle Subway Station Analysis: 2008 No Build Conditions

Stairways: AM Peak Hour

Stairways	Width (feet)	Effective Width (feet)	15-Min Volume		Friction Factor	15-Minute		
			Up	Down		SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area								
S3 Stairway	5.0	4.0	287	186	0.90	540	0.88	C
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	907	232	0.80	1200	0.95	C
M16A/B Mezzanine Stairway	8.3	6.3	587	212	0.80	756	1.06	D
M17A/B Mezzanine Stairway	7.8	5.8	320	20	0.80	696	0.49	B

Control Area Elements: AM Peak Hour

Control Area Elements	Number	15-Min Volume		15-Minute		
		In	Out	SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area						
Turnstiles	4	186	273	1800	0.25	A
Service Gate	1	0	14	750	0.02	A
N51 Control Area						
Turnstiles	5	216	497	2250	0.32	A
Service Gate I	1	4	19	750	0.03	A
Service Gate II	1	12	3	750	0.02	A
Exit Gate I	2	0	6	900	0.01	A
Exit Gate II	2	0	381	900	0.42	A

Stairways: PM Peak Hour

Stairways	Width (feet)	Effective Width (feet)	15-Min Volume		Friction Factor	15-Minute		
			Up	Down		SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area								
S3 Stairway	5.0	4.0	243	312	0.90	540	1.03	D
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	1000	495	0.90	1350	1.11	D
M16A/B Mezzanine Stairway	8.3	6.3	485	462	0.90	851	1.11	D
M17A/B Mezzanine Stairway	7.8	5.8	515	34	0.80	696	0.79	C

Control Area Elements: PM Peak Hour

Control Area Elements	Number	15-Min Volume		15-Minute		
		In	Out	SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area						
Turnstiles	4	312	231	1800	0.30	A
Service Gate	1	0	12	750	0.02	A
N51 Control Area						
Turnstiles	5	486	339	2250	0.37	A
Service Gate I	1	1	16	750	0.02	A
Service Gate II	1	8	4	750	0.02	A
Exit Gate I	2	0	6	900	0.01	A
Exit Gate II	2	0	634	900	0.70	C

Table 15-11

2008 No Build Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
AM Peak Period							
W.61st Street between Amsterdam and West End Avenues	North	12	76	0	A	4	A
	South	12	46	0	A	4	A
West End Avenue between W.60th and W.61st Streets	East	11	118	1	A	5	A
	West	11	37	0	A	4	A
W 60th Street between Amsterdam and West End Avenues	North	10	100	1	A	5	A
	South	10	94	1	A	5	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	119	1	A	5	A
	West	12	213	1	A	5	A
W 60th Street between Columbus and Amsterdam Avenues	North	15	466	2	A	6	B
	South	9	216	2	A	6	B
W 60th Street between Broadway and Columbus Avenue	North	10	478	3	A	7	B
	South	18	666	2	A	6	B
Midday Peak Period							
W.61st Street between Amsterdam and West End Avenues	North	12	148	1	A	5	A
	South	12	42	0	A	4	A
West End Avenue between W.60th and W.61st Streets	East	11	74	0	A	4	A
	West	11	50	0	A	4	A
W.60th Street between Amsterdam and West End Avenues	North	10	64	0	A	4	A
	South	10	63	0	A	4	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	80	0	A	4	A
	West	12	170	1	A	5	A
W.60th Street between Columbus and Amsterdam Avenues	North	15	284	1	A	5	B
	South	9	184	1	A	5	B
W.60th Street between Broadway and Columbus Avenue	North	10	410	3	A	7	B
	South	18	667	2	A	6	B
PM Peak Period							
W.61st Street between Amsterdam and West End Avenues	North	12	114	1	A	5	A
	South	12	32	0	A	4	A
West End Avenue between W.60th and W 61st Streets	East	11	115	1	A	5	A
	West	11	46	0	A	4	A
W.60th Street between Amsterdam and West End Avenues	North	10	117	1	A	5	A
	South	10	110	1	A	5	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	68	0	A	4	A
	West	12	200	1	A	5	A
W.60th Street between Columbus and Amsterdam Avenues	North	15	558	2	A	6	B
	South	9	276	2	A	6	B
W 60th Street between Broadway and Columbus Avenue	North	10	547	4	A	8	C
	South	18	937	3	A	7	B

Note: PFM = pedestrians per foot per minute

Table 15-12

2008 No Build Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
West End Avenue and W.61st Street	Northeast	408	A	301	A	291	A
	Southeast	499	A	614	A	359	A
West End Avenue and W.60th Street	Northeast	272	A	361	A	246	A
	Southeast	252	A	269	A	203	A
Amsterdam Avenue and W.61st Street	Northeast	98	A	241	A	475	A
	Southeast	148	A	240	A	518	A
	Southwest	132	A	245	A	250	A
	Northwest	95	A	247	A	245	A
Amsterdam Avenue and W.60th Street	Northeast	132	A	214	A	140	A
	Southeast	322	A	262	A	217	A
	Southwest	94	A	81	A	79	A
	Northwest	96	A	131	A	95	A
Columbus Avenue and W.60th Street	Northeast	41	B	49	B	23	D
	Southeast	80	A	93	A	71	A
	Southwest	48	B	34	C	25	C
	Northwest	89	A	92	A	46	B
Broadway and W.60th Street	Southwest	73	A	67	A	42	B
	Northwest	80	A	62	A	38	C

Note: SFP = square feet per pedestrian

Table 15-13
2008 No Build Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Width (feet)	Without Vehicles		With Vehicles		Maximum Surge	
			SFP	LOS	SFP	LOS	SFP	LOS
AM Peak Period								
West End Avenue and W.61st Street	North	13 5	304	A	296	A	231	A
	East	14 0	697	A	644	A	180	A
	South	11 5	632	A	616	A	479	A
West End Avenue and W.60th Street	North	11.0	1815	A	1768	A	1374	A
	East	14.5	653	A	592	A	183	A
	South	10.0	619	A	603	A	469	A
	West	14.5	1095	A	1045	A	310	A
Amsterdam Avenue and W.61st Street	North	13.0	79	A	73	A	52	B
	East	12.0	123	A	119	A	31	C
	South	14.0	288	A	288	A	189	A
	West	13.5	161	A	161	A	41	B
Amsterdam Avenue and W.60th Street	North	14.0	105	A	93	A	69	A
	East	13.0	573	A	534	A	229	A
	South	13.5	158	A	158	A	88	A
	West	14.0	216	A	216	A	60	A
Midday Peak Period								
West End Avenue and W.61st Street	North	13.5	150	A	146	A	114	A
	East	14.0	840	A	776	A	217	A
	South	11.5	949	A	924	A	718	A
West End Avenue and W.60th Street	North	11.0	1361	A	1326	A	1031	A
	East	14.5	575	A	535	A	161	A
	South	10.0	660	A	643	A	500	A
	West	14.5	998	A	975	A	283	A
Amsterdam Avenue and W.61st Street	North	13.0	304	A	284	A	198	A
	East	12 0	197	A	191	A	50	B
	South	14.0	515	A	515	A	338	A
	West	13.5	250	A	250	A	63	A
Amsterdam Avenue and W.60th Street	North	14.0	223	A	201	A	146	A
	East	13.0	302	A	272	A	121	A
	South	13.5	185	A	185	A	104	A
	West	14.0	144	A	144	A	40	B
PM Peak Period								
West End Avenue and W.61st Street	North	13.5	206	A	200	A	157	A
	East	14.0	489	A	452	A	126	A
	South	11.5	393	A	382	A	297	A
West End Avenue and W.60th Street	North	11 0	908	A	884	A	687	A
	East	14.5	478	A	423	A	134	A
	South	10.0	521	A	508	A	395	A
	West	14.5	828	A	809	A	235	A
Amsterdam Avenue and W.61st Street	North	13 0	479	A	438	A	312	A
	East	12.0	423	A	411	A	107	A
	South	14.0	1215	A	1215	A	797	A
	West	13.5	234	A	234	A	59	B
Amsterdam Avenue and W.60th Street	North	14.0	107	A	90	A	70	A
	East	13.0	336	A	308	A	135	A
	South	13.5	123	A	123	A	69	A
	West	14.0	177	A	177	A	46	B

Note: SFP = square feet per pedestrian

Table 15-13 (cont'd)
2008 No Build Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Width (feet)	Without Vehicles		With Vehicles		Maximum Surge	
			SFP	LOS	SFP	LOS	SFP	LOS
AM Peak Period								
Columbus Avenue and W.60th Street	North	14.0	59	B	59	B	28	C
	East	20.0	158	A	158	A	83	A
	South	12.0	76	A	62	A	35	C
	West	14.0	108	A	101	A	59	B
Broadway and W.60th Street	North	30.0*	74	A	74	A	71	A
	South	30 0*	67	A	67	A	22	D
	West	14.0	129	A	125	A	50	B
Midday Peak Period								
Columbus Avenue and W.60th Street	North	14 0	80	A	80	A	39	C
	East	20 0	132	A	132	A	70	A
	South	12.0	63	A	51	B	28	C
	West	14.0	68	A	64	A	37	C
Broadway and W.60th Street	North	30.0*	94	A	94	A	90	A
	South	30.0*	81	A	81	A	26	C
	West	14.0	70	A	68	A	27	C
PM Peak Period								
Columbus Avenue and W 60th Street	North	14.0	37	C	37	C	18	D
	East	20.0	79	A	79	A	41	B
	South	12 0	51	B	40	B	23	D
	West	14.0	50	B	47	B	27	C
Broadway and W.60th Street	North	30.0*	46	B	46	B	44	B
	South	30.0*	46	B	46	B	15	D
	West	14.0	56	B	54	B	22	D

Note: SFP = square feet per pedestrian. * Total available width assumed for pedestrian crossing

E. PROBABLE IMPACTS OF THE PROPOSED ACTION

The future with the proposed action would result in an increase in transit and pedestrian trips near the project block and eastward toward the Columbus Circle subway station. This section describes the projected travel patterns of these trips and assesses their potential impacts on nearby transit and pedestrian facilities.

TRIP GENERATION AND ASSIGNMENT

Trip generation projections were detailed in Chapter 14, "Traffic and Parking." The following discussion highlights the assumptions used to assign trips to transit and pedestrian facilities within the study area. The Build transit and pedestrian networks incorporate trips from the project increment and those established for the future No Build conditions.

- As shown in Table 15-13, the proposed action would generate, not including those associated with student pick-ups and drop-offs, 65 auto person trips during the AM peak hour, 42 during the midday peak hour, and 72 during the PM peak hour. These trips were assigned to the on-site accessory garage.
- The taxi and pick-up/drop-off person trips, which total 117 during the AM peak hours, 34 during the midday peak hour, and 61 during the PM peak hour, would be accommodated near the various building entrances located within the project block.

- Subway person trips would be made with the various subway lines available at the Columbus Circle station, east of the project site. In total, there would be 374 AM peak hour, 156 midday peak hour, and 317 PM peak hour subway trips.
- Nearby bus stops for the four bus routes serving the study area are located along West End Avenue, Amsterdam Avenue, Columbus Avenue, and West 57th Street and West 65th Street. In total, 194 bus person trips during the AM peak hour, 58 during the midday peak hour, and 97 during the PM peak hour were estimated.
- While all trips would require a walk component that connects the origins and destinations with the primary transportation modes, some trips are made by walk only. This component was estimated to be approximately 40 percent of all trips made during the AM and PM peak hours, and nearly 70 percent during the midday peak hour. These walk only trips, totaling 461, 654, and 428, respectively, for the three peak hours, were assigned to likely nearby uses within a reasonable walking distance from the project site.

SUBWAY STATION OPERATIONS

Future Build peak 15-minute volumes were computed by incorporating the estimated increments from the proposed action onto the No Build volumes. Table 15-14 summarizes the weekday AM and PM peak period operating levels for the analysis station elements. Generally, control elements would continue to operate at LOS C or better with the proposed project and projected development in place. However, the S3 stairway would operate at LOS D in the PM peak period, and the S5A/B street-level stairway and the M16A/B mezzanine stairway would operate at LOS D in the AM and PM peak periods. Based on the impact criteria discussed earlier (see page 15-2), the additional widths required to mitigate operating levels at these subway stairways to their No Build conditions or LOS C/D were determined, as shown in Table 15-15. Since the required widening to revert their service levels to No Build conditions or LOS C/D are less than 6 inches (within LOS D), the project increments are not expected to result in significant adverse stairway impacts.

Table 15-14

59th Street-Columbus Circle Subway Station Analysis: 2008 Build Conditions

Stairways: AM Peak Hour								
Stairways	Width (feet)	Effective Width (feet)	15-Min Volume		Friction Factor	15-Minute		
			Up	Down		SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area								
S3 Stairway	5.0	4.0	300	202	0.90	540	0.93	C
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	938	271	0.80	1200	1.01	D
M16A/B Mezzanine Stairway	8.3	6.3	608	245	0.80	756	1.13	D
M17A/B Mezzanine Stairway	7.8	5.8	330	27	0.80	696	0.51	B

Control Area Elements: AM Peak Hour						
Control Area Elements	Number	15-Min Volume		15-Minute		
		In	Out	SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area						
Turnstiles	4	202	285	1800	0.27	A
Service Gate	1	0	15	750	0.02	A
N51 Control Area						
Turnstiles	5	253	514	2250	0.34	A
Service Gate I	1	5	20	750	0.03	A
Service Gate II	1	14	4	750	0.02	A
Exit Gate I	2	0	6	900	0.01	A
Exit Gate II	2	0	394	900	0.44	A

Stairways: PM Peak Hour								
Stairways	Width (feet)	Effective Width (feet)	15-Min Volume		Friction Factor	15-Minute		
			Up	Down		SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area								
S3 Stairway	5.0	4.0	259	320	0.90	540	1.07	D
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	1039	515	0.90	1350	1.15	D
M16A/B Mezzanine Stairway	8.3	6.3	511	479	0.90	851	1.16	D
M17A/B Mezzanine Stairway	7.8	5.8	528	37	0.80	696	0.81	C

Control Area Elements: PM Peak Hour						
Control Area Elements	Number	15-Min Volume		15-Minute		
		In	Out	SVCD Cap.	V/SVCD Ratio	LOS
R158 Control Area						
Turnstiles	4	320	247	1800	0.31	A
Service Gate	1	0	13	750	0.02	A
N51 Control Area						
Turnstiles	5	506	352	2250	0.38	A
Service Gate I	1	1	17	750	0.02	A
Service Gate II	1	8	4	750	0.02	A
Exit Gate I	2	0	6	900	0.01	A
Exit Gate II	2	0	659	900	0.73	C

Table 15-15
2008 Build Impact Assessment: 59th Street-Columbus Circle Subway Station

Stairway	Width (ft)	Effective Width (ft)	Service Capacity (ped/15-m)	No Build V/SVCD Ratio	LOS	Build V/SVCD Ratio	LOS	Width Increment Threshold (WIT) To LOS C/D or No Build (in.)
AM Peak Period								
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	1200	0.95	C	1.01	D	0.91 < 6
M16A/B Mezzanine Stairway	8.3	6.3	756	1.06	D	1.13	D	5.04 < 6
PM Peak Period								
P158 Control Area								
S3 Stairway	5.0	4.0	540	1.03	D	1.07	D	2.14 < 6
N51 Control Area								
S5A/B Street-Level Stairway	12.0	10.0	1350	1.11	D	1.15	D	4.77 < 6
M16A/B Mezzanine Stairway	8.3	6.3	851	1.11	D	1.16	D	3.44 < 6

STREET-LEVEL PEDESTRIAN OPERATIONS

The proposed action would result in an increase in pedestrian activities within the study area. Overall, 1,211, 944, and 975 person trips would be generated during the AM, midday, and PM peak hours, respectively. Most of these trips, with the exception of those entering at or exiting from the accessory parking garage, would appear on the analysis pedestrian network. Tables 15-16 through 15-18 present the Build analysis results. As with the No Build conditions, all analysis locations would continue to operate at acceptable LOS D or better in the Build conditions. Therefore, based on the CEQR criteria discussed earlier, no significant adverse pedestrian impacts were identified.

Table 15-16

2008 Build Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
AM Peak Period							
W.61st Street between Amsterdam and West End Avenues	North	12	76	0	A	4	A
	South	12	216	1	A	5	A
West End Avenue between W.60th and W.61st Streets	East	11	142	1	A	5	A
	West	11	37	0	A	4	A
W.60th Street between Amsterdam and West End Avenues	North	10	269	2	A	6	B
	South	10	94	1	A	5	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	165	1	A	5	A
	West	12	241	1	A	5	A
W.60th Street between Columbus and Amsterdam Avenues	North	15	609	3	A	7	B
	South	9	243	2	A	6	B
W.60th Street between Broadway and Columbus Avenue	North	10	621	4	A	8	C
	South	18	693	3	A	7	B
Midday Peak Period							
W.61st Street between Amsterdam and West End Avenues	North	12	148	1	A	5	A
	South	12	150	1	A	5	A
West End Avenue between W.60th and W 61st Streets	East	11	100	1	A	5	A
	West	11	50	0	A	4	A
W.60th Street between Amsterdam and West End Avenues	North	10	253	2	A	6	B
	South	10	63	0	A	4	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	80	0	A	4	A
	West	12	90	1	A	5	A
W 60th Street between Columbus and Amsterdam Avenues	North	15	368	2	A	6	B
	South	9	197	1	A	5	A
W.60th Street between Broadway and Columbus Avenue	North	10	494	3	A	7	B
	South	18	680	3	A	7	B
PM Peak Period							
W.61st Street between Amsterdam and West End Avenues	North	12	114	1	A	5	A
	South	12	86	0	A	4	A
West End Avenue between W 60th and W.61st Streets	East	11	132	1	A	5	A
	West	11	46	0	A	4	A
W.60th Street between Amsterdam and West End Avenues	North	10	343	2	A	6	B
	South	10	110	1	A	5	A
Amsterdam Avenue between W.60th and W.61st Streets	East	11	69	0	A	4	A
	West	12	207	1	A	5	A
W.60th Street between Columbus and Amsterdam Avenues	North	15	687	3	A	7	B
	South	9	283	2	A	6	B
W.60th Street between Broadway and Columbus Avenue	North	10	676	5	A	9	C
	South	18	944	3	A	7	B

Note: PFM = pedestrians per foot per minute

Table 15-17

2008 Build Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
West End Avenue and W.61st Street	Northeast	232	A	213	A	231	A
	Southeast	254	A	361	A	285	A
West End Avenue and W.60th Street	Northeast	202	A	242	A	191	A
	Southeast	213	A	227	A	183	A
Amsterdam Avenue and W.61st Street	Northeast	91	A	202	A	409	A
	Southeast	108	A	185	A	376	A
	Southwest	95	A	167	A	203	A
	Northwest	88	A	196	A	224	A
Amsterdam Avenue and W.60th Street	Northeast	77	A	114	A	79	A
	Southeast	247	A	210	A	185	A
	Southwest	76	A	66	A	69	A
	Northwest	63	A	80	A	61	A
Columbus Avenue and W.60th Street	Northeast	33	C	42	C	20	D
	Southeast	77	A	91	A	70	A
	Southwest	46	B	33	C	24	C
	Northwest	72	A	81	A	41	B
Broadway and W.60th Street	Southwest	72	A	66	A	42	B
	Northwest	64	A	56	B	34	C

Note: SFP = square feet per pedestrian

Table 15-18

2008 Build Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Width (feet)	Without Vehicles		With Vehicles		Maximum Surge	
			SFP	LOS	SFP	LOS	SFP	LOS
AM Peak Period								
West End Avenue and W.61st Street	North	13.5	181	A	171	A	138	A
	East	14 0	356	A	320	A	92	A
	South	11.5	632	A	600	A	479	A
West End Avenue and W.60th Street	North	11.0	1089	A	1033	A	825	A
	East	14.5	446	A	395	A	125	A
	South	10.0	619	A	587	A	469	A
	West	14.5	1095	A	1020	A	310	A
Amsterdam Avenue and W 61st Street.	North	13.0	75	A	67	A	49	B
	East	12.0	115	A	108	A	29	C
	South	14.0	132	A	132	A	87	A
	West	13.5	144	A	144	A	37	C
Amsterdam Avenue and W.60th Street	North	14 0	60	A	52	B	39	C
	East	13.0	349	A	320	A	140	A
	South	13 5	135	A	135	A	76	A
	West	14.0	165	A	165	A	46	B
Midday Peak Period								
West End Avenue and W.61st Street	North	13.5	127	A	121	A	97	A
	East	14 0	425	A	382	A	110	A
	South	11.5	949	A	900	A	718	A
West End Avenue and W.60th Street	North	11.0	1089	A	1033	A	825	A
	East	14.5	419	A	380	A	117	A
	South	10.0	660	A	626	A	500	A
	West	14.5	998	A	953	A	283	A
Amsterdam Avenue and W.61st Street.	North	13.0	239	A	219	A	156	A
	East	12.0	170	A	161	A	43	B
	South	14.0	279	A	279	A	183	A
	West	13.5	201	A	201	A	51	B
Amsterdam Avenue and W.60th Street	North	14.0	89	A	79	A	58	B
	East	13.0	217	A	191	A	87	A
	South	13.5	162	A	162	A	91	A
	West	14.0	116	A	116	A	32	C
PM Peak Period								
West End Avenue and W.61st Street	North	13.5	176	A	167	A	134	A
	East	14.0	360	A	323	A	93	A
	South	11.5	393	A	372	A	297	A
West End Avenue and W.60th Street	North	11.0	681	A	645	A	515	A
	East	14.5	386	A	332	A	108	A
	South	10.0	521	A	494	A	395	A
	West	14.5	828	A	790	A	235	A
Amsterdam Avenue and W.61st Street.	North	13.0	465	A	415	A	303	A
	East	12.0	343	A	323	A	87	A
	South	14.0	567	A	567	A	372	A
	West	13.5	210	A	210	A	53	B
Amsterdam Avenue and W.60th Street	North	14.0	54	B	45	B	36	C
	East	13.0	240	A	216	A	96	A
	South	13.5	117	A	117	A	66	A
	West	14.0	147	A	147	A	41	B

Note: SFP = square feet per pedestrian

Table 15-18 (cont'd)
2008 Build Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Width (feet)	Without Vehicles		With Vehicles		Maximum Surge	
			SFP	LOS	SFP	LOS	SFP	LOS
AM Peak Period								
Columbus Avenue and W.60th Street	North	14 0	46	B	46	B	22	D
	East	20.0	158	A	158	A	83	A
	South	12.0	71	A	58	B	32	C
	West	14.0	108	A	101	A	59	B
Broadway and W.60th Street	North	30.0*	56	B	56	B	54	B
	South	30.0*	65	A	65	A	21	D
	West	14.0	129	A	125	A	50	B
Midday Peak Period								
Columbus Avenue and W 60th Street	North	14.0	65	A	65	A	31	C
	East	20.0	132	A	132	A	70	A
	South	12.0	61	A	50	B	28	C
	West	14.0	68	A	64	A	37	C
Broadway and W.60th Street	North	30.0*	76	A	76	A	72	A
	South	30.0*	79	A	79	A	26	C
	West	14.0	70	A	68	A	27	C
PM Peak Period								
Columbus Avenue and W.60th Street	North	14.0	32	C	32	C	15	D
	East	20.0	79	A	79	A	41	B
	South	12.0	50	B	40	B	23	D
	West	14.0	50	B	47	B	27	C
Broadway and W.60th Street	North	30 0*	39	C	39	C	37	C
	South	30 0*	45	B	45	B	15	D
	West	14.0	56	B	54	B	22	D

Note: SFP = square feet per pedestrian. * Total available width assumed for pedestrian crossing.