

3.4 TRANSIT AND PEDESTRIANS

INTRODUCTION

This section of the EIS describes transit and pedestrian conditions associated with the proposed rezoning project for Non-Game Day (without Yankee game) and Game Day (pre-game peak period with Yankee game) scenarios. Data used in the analysis are based on field counts conducted in June and September 2008 and compiled from current data published by MTA New York City Transit for the E. 161st Street corridor study area. Subsequent data was collected in July 2009 to support an analysis of the station access fare control conditions at the 161st Street River Avenue subway station.

3.4.1 TRANSIT ANALYSIS

SUBWAY & METRO-NORTH RAILROAD - Existing Condition

Subway service to the E. 161st Street corridor is provided at the E. 161st Street-Yankee Stadium subway station complex. This station serves the New York City Transit (NYCT) IND B and D and IRT No. 4 lines, which are commonly known as the Concourse and Jerome Avenue lines, respectively. The E. 161st Street station complex is configured with separate access locations and fare control areas, contains both above- and below-grade elements, and operates more as two subway stations rather than one. Free connections between the two subway lines are available

The IND Concourse line runs between Stillwell Avenue in Coney Island and 205th Street in Norwood and carries trains of the D local service as well as the D express during rush hours in the peak direction. Express trains run to Manhattan from 6:30 AM to 9:30 PM and from Manhattan from 4:00 PM to 7:00 PM. The Concourse line also carries trains B local service that runs from 205th Street station to Brighton Beach station during AM and PM rush hours and from 145th Street station to Brighton Beach station during off peak hours. In The Bronx, the Concourse line operates between E. 161st Street-Yankee Stadium subway station and its terminus at Norwood 205th Street station. The Jerome Avenue line runs between Utica Avenue in Brooklyn and Woodlawn in the Bronx and carries trains of the No. 4 local service. Some express trains run especially for New York Yankee games. The Jerome Avenue line tracks are generally elevated in the Bronx and run underground between 149th Street/Third Avenue and the Brooklyn Utica Avenue terminus. In the Bronx, the Jerome Avenue line operates between the 138th Street-Grand Concourse station and its terminus at Norwood 205th Street station.

Both of the 161st Street “stations” for the Jerome Avenue and Concourse Lines are configured with a three-track, two-side platform setting that was recently renovated to include ADA-compliant elevators located towards the middle portion of the platforms. The elevators provide access to the Jerome Avenue Line elevated tracks, the Concourse Line underground tracks and to street level at E. 161st Street and River Avenue. The station complex features a full-time mezzanine below the intersection of E. 161st Street and River Avenue with four street staircases. A part-time entrance at Walton Avenue has two street staircases and a passageway to E. 161st Street.

The stairway entrances to the 161st Street River Avenue station were observed during the collection of field data to support the transit and pedestrian analysis. Based on observations in the field, it was determined that the stairway at the northeast corner of the intersection of E. 161st Street and River Avenue had the highest level of pedestrian activity. In addition, this location is the full-time subway entrance that is closest to the bulk of the projected development sites within the proposed rezoning area. For these reason, it was determined that this stairway location would be most affected by pedestrian activity generated by the proposed rezoning and was therefore selected for analysis (see Figure 3.4-1).

There are three main fare control areas that provide access to subway service at the 161st Street River Avenue station. The mezzanine located above E. 161st Street and River Avenue provides the primary fare control access to the station's elevated Jerome Avenue Line tracks and is controlled by six turnstiles, two high entry/exit turnstiles (HEET) and one high exit turnstile (HET). The underground mezzanine, which is the primary fare control access point for the tracks of the Concourse Avenue Line is controlled by five turnstiles and one HET. The station's access point at Walton Avenue is controlled by four turnstiles. The station has a secondary mezzanine, located adjacent to the former Yankee Stadium, with fare control access, however, this control area is only open during Yankee games and other special events.

The IRT E. 161st Street station complex is a key transportation hub within the study area, providing connections between the Concourse and Jerome Avenue lines and the Bx6 and Bx13 local bus lines. Figure 3.4-1 shows respective locations of the 161st Street Station within the 161st Street corridor.

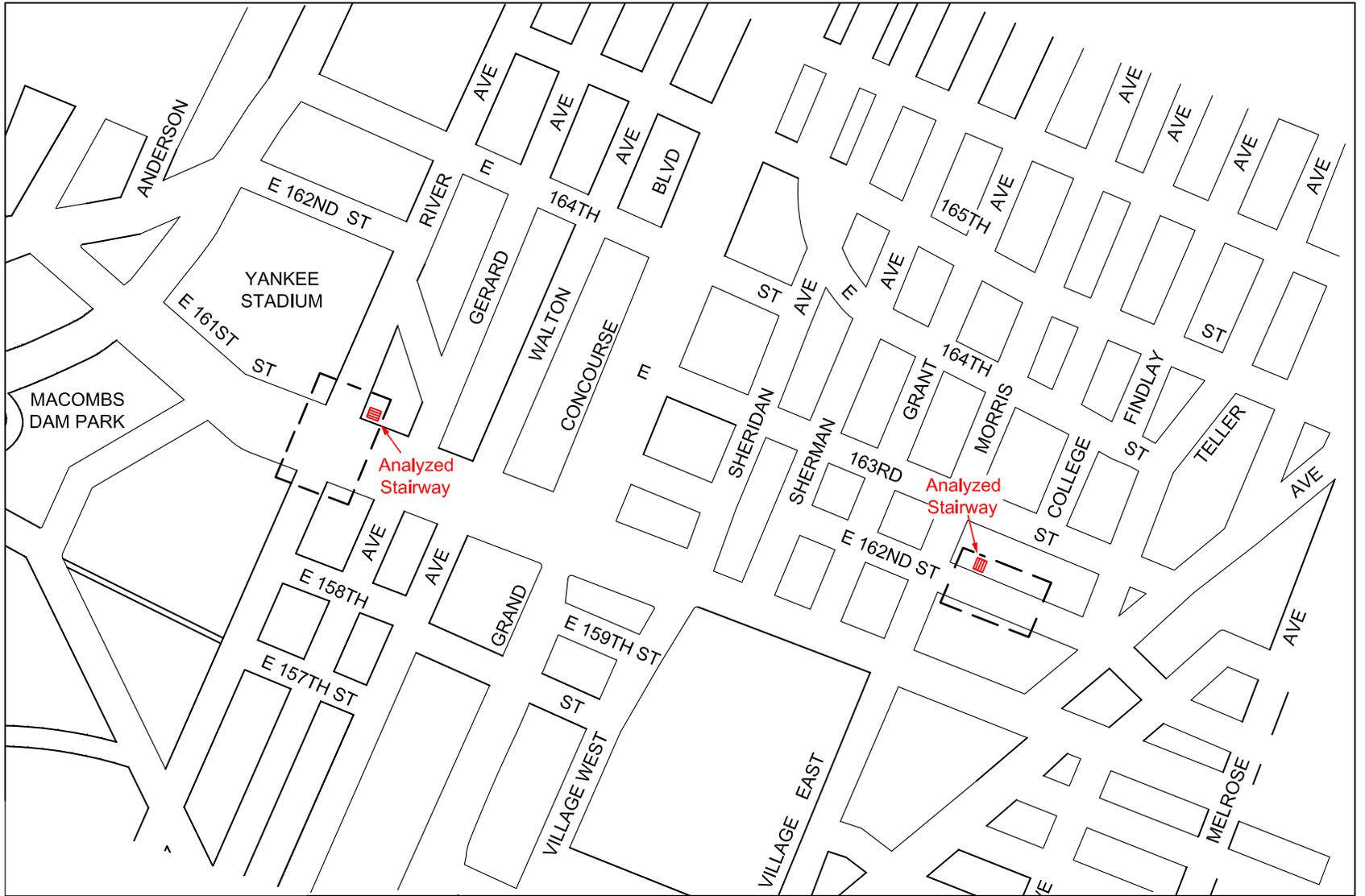
The most recent four-year ridership data for the 161st Street station from the 2006 MTA *Subway and Bus Ridership Report* are summarized in Table 3.4-1 along with annual changes in ridership for the analyzed consecutive years. Overall ridership at this station increased from the 2003 base year level of 7,060,571 to 7,462, 504 in 2006 (1.4% per year on the average), with an increase of 5.6% in 2004 followed by a decrease of 3.1% in 2005 (see Table 3.4-1). Based on the 2006 annual ridership, the 161st Street station is currently ranked number 39 among 422 stations included the MTA ranking.

**Table 3.4-1
Total Annual Subway Ridership Summary at 161st Station**

Rank	2003	2004	2005	2006	2003-2004 Change	2004-2005 Change	2005-2006 Change	2004-2006 Avg. Change/Year
39	7,060,571	7,455,364	7,221,332	7,462,504	+ 5.6%	- 3.1%	+ 3.3%	+ 1.4%

Source: New York City Transit (2006 Subway & Bus Ridership Report, May 2007).

The Metro-North Railroad Hudson, New Haven and Harlem lines traverse the study corridor. The closest stop on the Hudson line is at Morris Heights, approximately 2 miles north of E. 161st



LEGEND:

--- Station

▣ Stairway

Source: NYC Transit Authority Bronx Bus Map

Note: Drawing not to Scale

FIGURE 3.4-1

STAIRWAY ANALYSIS LOCATIONS

161st STREET REZONING EIS
BRONX, NY

Street corridor. The New Haven and Harlem lines have their nearest stops at the Melrose station east of Park Avenue and one block north of E. 161st Street. The Melrose station stairway located on the south side of 162nd Street between Park Avenue and Courtlandt Avenue was selected for this analysis (see Figure 3.4-1).

Pedestrian counts were conducted in June 2008 at the analyzed access stairways at the 161st Street station and the Melrose station for the weekday AM (7:00 – 9:00), midday (12:00 – 2:00) and PM (4:00 – 6:00) peak periods as well as the Saturday midday (12:00 – 2:00) peak. All analyses reflect peak 15-minute conditions in those four peak periods. A subway stairway level of service analysis was then performed for these locations, based on the *New York City Transit Authority (NYCTA) Station Planning and Design Guidelines* as well as on procedures set forth in *Pedestrian Planning and Design Guidelines* by John J. Fruin. The Fruin pedestrian methodology equates pedestrian flow per minute per foot (PFM) of stairway width with qualitative measures of pedestrian comfort. Six levels of service (A to F) are defined. LOS A is representative of free flow conditions without pedestrian conflicts, and LOS F depicts capacity limitations and inconvenience. The 2001 *CEQR Technical Manual* recommends using the criteria shown in Table 3.4-2 for level of service determination.

**Table 3.4-2
Stairway Level of Service Definitions**

Level Of Service	Flow Rate Pedestrians/Foot/Minute (PFM)	State of Pedestrian Flow	V/C
A	5 or less	Unrestricted	0.5
B	5-7	Slightly restricted	0.7
C	7-10	Restricted, but fluid	1.0
D	10-13	Restricted, necessary to continuously alter walking stride and direction	1.3
E	13-17	Severely restricted	1.7
F	17 or more	Forward progress only by shuffling; no reverse movement possible	>1.7

Source: 2001 CEQR Technical Manual

Table 3.4-3 summarizes the level of service analysis for the existing (2008) condition, including the effective widths of the access station stairways, the associated peak 15-minute pedestrian flow rates, stairway capacity, volume-to-capacity (v/c) ratios and levels of service. The analyzed stairways operated at LOS "A" or better.

**Table 3.4-3
Stairway Analysis - Existing Condition**

Facility	Effective Width (feet) (1)	Peak Period	Friction Adjust. Factor (2)	Maximum 15 min. Capacity (3)	Peak 15 min. Volume (4)	Flow Rate PFM (5)	Volume to Capacity Ratio	Level of Service LOS
Stairwell at Northeast Corner 161st Street and River Avenue	6.8	AM	0.9	918	359	3.91	0.39	A
		MD	0.9	918	169	1.84	0.18	A
		PM	0.9	918	304	3.31	0.33	A
		SAT	0.9	918	158	1.72	0.17	A
Stairwell at south side of 162nd Street between Park Avenue and Courtlandt Avenue	3.1	AM	0.9	420	48	1.14	0.11	A
		MD	1.0	467	5	0.11	0.01	A
		PM	0.8	373	30	0.80	0.08	A
		SAT	1.0	467	6	0.13	0.01	A

Notes:

- (1) Effective width measured between the handrails.
- (2) Friction adjustment factors to account for reverse flows.
- (3) Stairway capacity based on NYCTA guidelines of 10 PFM
- (4) Source: Urbitran field stairway counts, 2008.
- (5) PFM - Persons per foot width of stairway, per minute.

***Table has been revised subsequent to the release of DEIS*.**

Pedestrian counts at the 161st Street Station's three access points were collected in July 2009. Data was collected during the PM peak period, as this represents the heaviest period for pedestrian traffic. Operating conditions for turnstiles, HEETs, and HETs are described in terms of LOS and volume-to-capacity ratios, with LOS A corresponding to a v/c ratio of less than 0.2, LOS B corresponding to 0.2 to 0.4, LOS C corresponding to 0.4 to 0.6, LOS D corresponding to 0.6 to 0.8, LOS E corresponding to 0.8 to 1.0, and LOS F corresponding to a v/c ratio of greater than 1.0. Any volume-to-capacity ratio greater than 1.0 signifies volumes beyond capacity and extended queuing.

Table 3.4-4 summarizes the level of service analysis for the existing condition at the 161st Street Subway Station fare control area access points. The analyzed control areas operate at LOS "A".

**Table 3.4-4
 Subway Control Area Analysis – Existing Condition**

Facility	Maximum 15 Min. Capacity	Peak 15 min. Volume	Volume to Capacity Ratio	Level of Service LOS
161st Street Station - Jerome Avenue Line Primary Access 6 Turnstiles, 2 HEET, 1 HET	3,930	556	0.14	A
161st Street Station - Concourse Line Primary Access 5 Turnstiles, 1 HET	2,850	473	0.17	A
161st Street Station - Walton Avenue Access 4 Turnstiles	1,920	266	0.14	A

Note: Capacity based on 32 ppm for turnstiles, 20 ppm for HEET, and 30 ppm for HET as per CEQR Technical Manual.
 Table has been added subsequent to the release of DEIS.

Future Without the Proposed Action (No-Action)

Subway demand in the influence area of the 161st Street corridor is expected to increase in the No-Action condition mainly as a result of background growth. The No-Action analysis of access stairways at the selected stations assumes no changes in existing train frequencies or operations, travel patterns or in the characteristics of the stations’ stairways or other passenger-carrying elements (elevators, escalators). The demand analysis for the 2018 No-Action condition was based on historical ridership trends at the 161st Street station. Published ridership data for the four-year span 2003-2006 from the 2006 MTA *Subway and Bus Ridership Report* (Table 3.4-1) have shown changes in ridership between consecutive years ranging from –3.1 to +5.6 percent, with an overall an average annual increase of 1.4 percent over the four-year period. A growth factor of 1.14 that results from an average annual increase of 1.4 percent over a period of 10 years was applied to the 2008 ridership volumes to project the 2018 No-Action volumes (see Table 3.4-5).

As shown in Table 3.4-5, the analyzed 161st Street station stairway would continue to operate at LOS “A.” The Melrose station would continue to operate at LOS “A.” In addition, as shown in Table 3.4-6, the analyzed fare control access points to the station would all continue to operate at LOS “A,” in the future no-action condition.

**Table 3.4-5
Stairway Analysis - 2018 No-Action Condition**

Facility	Effective Width (feet) (1)	Peak Period	Friction Adjust. Factor (2)	Maximum 15 min. Capacity (3)	Peak 15 min. Volume (4)	Flow Rate PFM (5)	Volume to Capacity Ratio	Level of Service LOS
Stairwell at Northeast Corner 161st Street and River Avenue	6.8	AM	0.9	918	409	4.46	0.45	A
		MD	0.9	918	193	2.10	0.21	A
		PM	0.9	918	347	3.78	0.38	A
		SAT	0.9	918	180	1.96	0.20	A
Stairwell at south side of 162nd Street between Park Avenue and Courtlandt Avenue	3.1	AM	0.9	420	55	1.30	0.12	A
		MD	1.0	467	6	0.12	0.01	A
		PM	0.8	373	34	0.92	0.08	A
		SAT	1.0	467	7	0.15	0.01	A

Notes

- (1) Effective width measured between the handrails.
- (2) Friction adjustment factors to account for reverse flows.
- (3) Stairway capacity based on NYCTA guidelines of 10 PFM
- (4) Source: Urbitran field stairway counts, 2008.
- (5) PFM - Persons per foot width of stairway, per minute.

***Table has been revised subsequent to the release of DEIS*.**

**Table 3.4-6
Subway Control Area Analysis – Future No-Action Condition**

Facility	Maximum 15 Min. Capacity	Peak 15 min. Volume	Volume to Capacity Ratio	Level of Service LOS
161st Street Station - Jerome Avenue Line Primary Access 6 Turnstiles, 2 HEET, 1 HET	3,930	634	0.16	A
161st Street Station - Concourse Line Primary Access 5 Turnstiles, 1 HET	2,850	539	0.19	A
161st Street Station - Walton Avenue Access 4 Turnstiles	1,920	304	0.16	A

Note: Capacity based on 32 ppm for turnstiles, 20 ppm for HEET, and 30 ppm for HET as per CEQR Technical Manual.

***Table has been added subsequent to the release of DEIS*.**

Future With the Proposed Action

The 2001 CEQR Technical Manual identifies a significant impact for stairways in terms of the width increment threshold (WIT) needed to restore future No-Action conditions. Significant stairway impacts are considered to have occurred when the following thresholds are reached:

- an Action LOS “D” condition, with a WIT of 6 inches
- an Action LOS “E” condition with a WIT of 3 inches
- an Action LOS “F” condition, with a WIT of 1 inch

For turnstiles, escalators, and high-wheel exit gates, the *CEQR Technical Manual* defines a significant impact as an increase from a No Action volume-to-capacity ratio of below 1.00 to a v/c ratio of 1.00 or greater. Where a facility is already at a v/c ratio of 1.00 or greater, a 0.01 change in v/c ratio is also considered significant.

The proposed rezoning project would generate 407, 438, 507, and 298, subway person-trips in the weekday AM, midday and PM and Saturday midday peak hours, respectively. It would also generate 23, 27, 26, and 5 railroad person-trips in the weekday AM, midday and PM and Saturday peak hours. (See Table 3.3-5B for the bases for these projections.) The projected pedestrian volumes to be added in the peak 15-minute period in each peak hour were then assigned among the stations’ passenger-carrying elements, including the analyzed stairways, and superimposed on the 2018 No-Action volumes at those locations to yield the 2018 Action volumes.

The results shown in Table 3.4-7 indicate that the analyzed stairway at the 161st Street Station would operate at LOS A in all peak periods, and the analyzed Melrose Station stairway would continue to operate at LOS A in all four peak periods. In addition, as shown in Table 3.4-8, the analyzed fare control access points to the station would all continue to operate at LOS “A,” in the future action condition.

**Table 3.4-7
Stairway Analysis – Future Action Condition**

Facility	Effective Width (1) (feet)	Peak Period	Friction Adjust. Factor (2)	Maximum 15 min. Capacity (3)	Action Increment Peak 15 min.	Peak 15 min. Volume (4)	Flow Rate PFM (5)	No-Action volume to Capacity Ratio	Action Volume to Capacity Ratio	Action Level of Service LOS
Stairwell at Northeast Corner 161st Street and River Avenue	6.8	AM	0.9	918	15	425	4.62	0.45	0.46	A
		MD	0.9	918	16	209	2.28	0.21	0.23	A
		PM	0.9	918	19	366	3.98	0.38	0.40	A
		SAT	0.9	918	11	191	2.08	0.20	0.21	A
Stairwell at south side of 162nd Street between Park Avenue and Courtlandt Avenue	3.1	AM	0.9	420	3	58	1.37	0.12	0.12	A
		MD	1.0	467	3	9	0.19	0.01	0.02	A
		PM	0.8	373	3	37	1.00	0.08	0.09	A
		SAT	1.0	467	1	7	0.16	0.01	0.01	A

Notes

- (1) Effective width measured between the handrails.
- (2) Friction adjustment factors to account for reverse flows.
- (3) Stairway capacity based on NYCTA guidelines of 10 PFM
- (4) Source: Urbitran field stairway counts, 2008.
- (5) PFM - Persons per foot width of stairway, per minute.

Table has been revised subsequent to the release of DEIS

**Table 3.4-8
Subway Control Area Analysis – Future Action Condition**

Facility	Maximum 15 Min. Capacity	Peak 15 min. Volume	Volume to Capacity Ratio	Level of Service LOS
161st Street Station - Jerome Avenue Line Primary Access 6 Turnstiles, 2 HEET, 1 HET	3,930	634	0.16	A
161st Street Station - Concourse Line Primary Access 5 Turnstiles, 1 HET	2,850	539	0.19	A
161st Street Station - Walton Avenue Access 4 Turnstiles	1,920	304	0.16	A

Note: Capacity based on 32 ppm for turnstiles, 20 ppm for HEET, and 30 ppm for HET as per CEQR Technical Manual.

***Table has been added subsequent to the release of DEIS*.**

BUS - Existing Conditions

The local bus analysis includes two routes on 161st Street (Bx6 and Bx13) and four north-south routes that traverse the study corridor: Bx1, Bx2, Bx32, and Bx41. Figure 3.4-2 shows the bus routes in the study area. The above routes are briefly described in terms of location of terminals, land uses serviced, and respective rank among 193 (City-wide) local bus routes listed in the 2006 *MTA Subway and Bus Ridership Report*. (Refer to Figure 3.4-1 for the path of these routes through the project area.) A Summary of 2006 Annual Ridership of selected buses servicing the study corridor is presented in Table 3.4-9. The existing conditions analysis of the bus routes is summarized in Table 3.4-10.

Bx1/2. The BX1/2 provides local and limited stop service in the Bronx between Kingsbridge/Riverdale and the Hub/Mott Haven. The BX 1 operates primarily on the Grand Concourse, Sedgwick Avenue, and W 231st Street. The Bx2 operates primarily on Lincoln Avenue; 3rd Avenue, 149th Street the Grand Concourse and Sedgwick Avenue. Service is provided to Dewitt Clinton and Bronx Science High Schools, Fordham Road, 231st Street and 149th Street Hub shopping areas, Bronx Lebanon and Lincoln Hospitals and the Bronx County Court House. In 2006, the Bx1 and Bx2 were ranked number 7 in annual ridership (13,323,706 passengers) based on a MTA ranking that includes 193 local bus routes.

Bx6. The Bx6 provides local service between Hunts Point Food Center in the East Bronx and Riverside Drive at West 158th Street in Manhattan. It operates primarily on Hunts Point Avenue, E.163rd Street, E. 161st Street, Macombs Dam Bridge and W. 155th Street. The Bx6 route provides feeder service for a number of transit stations and cross-town service between upper Manhattan and the South Bronx. Additionally, the route services the Bronx Municipal Courts, Concourse Village Shopping Center, Yankee Stadium, and the Museum. In 2006, the Bx6 was ranked number 27 in annual ridership (6,750,809 passengers) based on a MTA ranking that includes 193 local bus routes.

Bx13. The Bx13 provides local northbound and southbound service along the Highbridge section of the Bronx. It is a feeder route supplying service from its southern terminal at 161st Street and River Avenue (Yankee Stadium, Bronx) to its northern terminal at W. 179th Street and Broadway (Washington Heights, Manhattan). It operates primarily along the Washington Bridge, 175th Street, University Avenue, 167th Street and Ogden Avenue to 161st Street and River Avenue. The route also provides feeder service to the No. 4 and D trains in the River Avenue shopping district. In 2006, the Bx13 was ranked number 89 in annual ridership (3,047,085 passengers) based on a MTA ranking that includes 193 local bus routes.

Bx32. The Bx32 is a grid route that provides local service and operates primarily on Morris Avenue and Jerome Avenue. It connects the 138th Street/Lincoln Avenue in the Mott Haven section with the United States Veterans Hospital in the Kingsbridge section of the Bronx. The route services Veterans and Lincoln Hospitals, the Fordham Road shopping area, Concourse Village and various schools. In 2006, the Bx32 was ranked number 131 in annual ridership (1,719,907 passengers) based on a MTA ranking that includes 193 local bus routes.



LEGEND:

-  Project Site
-  Bus Route
-  Direction of Service
-  Bus Route Number

Source: NYC Transit Authority Bronx Bus Map

FIGURE 3.4-2

BUS SERVICE

**161st STREET REZONING EIS
BRONX, NY**

Note: Drawing not to Scale

Bx41. The Bx41 provides local service between the Wakefield section in the North Bronx and with the Mott Haven section in the South Bronx. It also provides limited stop service in the morning and evening rush hours in both directions. It operates on White Plains Road, Webster Avenue, Melrose Avenue and Third Avenue. It is a feeder route that supplies service from its northern terminal at 241st Street to its southern terminus at Lincoln Avenue. The route services of Fordham Road and the 149th Street Hub. In 2006, the Bx41 was ranked number 13 in annual ridership (9,374,410 passengers) based on a MTA ranking that includes 193 local bus routes.

The analysis results in Table 3.4-10 indicate that the identified bus routes reviewed above presently operate with no capacity deficits through their peak load points during the weekday AM, midday and PM. The analysis was based on a maximum scheduled load of 65 passengers on a typical 40-foot bus and 93 passengers on a typical articulated bus.

**Table 3.4-9
 2006 Summary of Annual Ridership**

Route	Rank	2006
Bx1/2	7	13,323,706
Bx6	27	6,750,809
Bx13	89	3,047,085
Bx32	131	1,719,907
Bx41	13	9,374,410
All Bronx		169,898,556

Source: MTA Subway and Bus Ridership Report (2007).

Table has been revised subsequent to the release of DEIS

Future Without the Proposed Action (No-Action)

The 2018 No-Action analysis of MTA local buses expected to serve the study corridor assumes no changes in existing routes, frequencies, services or areas of maximum loading. The demand analysis is based on a CEQR background growth rate of 0.5 percent annual growth rate, or 5 percent over the ten year analysis period (2008-2018). For the purpose of this study, the existing ridership at the peak load points or areas of maximum loading for individual routes was projected to 2018 based on the average annual increase of 0.5 percent. Table 3.4-11 shows no capacity deficit would likely occur analyzed routes during the studied peak hours.

Table 3.4-10
Existing Bus Service Operating Conditions

PEAK HOUR ¹	ROUTE	DIRECTION	BUSES PER PEAK HOUR	PER BUS CAPACITY ²	HOURLY CAPACITY	HOURLY VOLUME	AVERAGE VOLUME PER BUS	HOURLY AVAILABLE CAPACITY	
AM	BX 1/2 ³	NB	15	93	1395	969	65	426	
		SB	15	93	1395	1019	68	376	
	BX 6	EB	12	65	780	663	55	117	
		WB	12	65	780	543	45	237	
	BX 13	EB	12	65	780	576	48	204	
		WB	10	65	650	361	36	289	
	BX 32	NB	5	65	325	212	42	113	
		SB	5	65	325	221	44	104	
	BX 41 ⁴	NB	12	93	1116	676	56	440	
		SB	12	93	1116	705	59	411	
	Midday	BX 1/2 ³	NB	16	93	1488	814	51	674
			SB	16	93	1488	654	41	834
		BX 6	EB	9	65	585	330	37	255
			WB	9	65	585	282	31	303
BX 13		EB	7	65	455	127	18	328	
		WB	7	65	455	240	34	215	
BX 32		NB	4	65	260	89	22	171	
		SB	4	65	260	94	24	166	
BX 41 ⁴		NB	7	93	651	293	42	358	
		SB	7	93	651	271	39	380	
PM		BX 1/2 ³	NB	14	93	1302	838	60	464
			SB	14	93	1302	703	50	599
		BX 6	EB	10	65	650	455	46	195
			WB	9	65	585	443	49	142
	BX 13	EB	8	65	520	241	30	279	
		WB	14	65	910	697	50	213	
	BX 32	NB	5	65	325	192	38	133	
		SB	5	65	325	113	23	212	
	BX 41 ⁴	NB	12	93	1116	616	51	500	
		SB	10	93	930	427	43	503	

Source: NYCT Ride Check Data (2004-2006)

Notes: 1- AM Peak Hour 7:30-8:30 a.m.; Midday Peak Hour 12:00-1:00 p.m.; PM Peak Hour 5:00-6:00 p.m.

2- Standard bus capacity assumed to be 65. Articulated bus capacity assumed to be 93.

3- Combines BX 1/2 Local and Limited volume and capacity

4- Combines BX 41 Local/Limited volume and capacity. B41 has no Limited service during Midday peak hour.

Table has been revised subsequent to the release of DEIS

**Table 3.4-11
Future No-Action Bus Service Operating Conditions**

PEAK HOUR ¹	ROUTE	DIRECTION	BUSES PER HOUR	PER BUS CAPACITY ²	HOURLY CAPACITY	HOURLY VOLUME	AVERAGE VOLUME PER BUS	HOURLY AVAILABLE CAPACITY
AM	BX 1/2 ³	NB	15	93	1395	1105	74	290
		SB	15	93	1395	1162	77	233
	BX 6	EB	12	65	780	756	63	24
		WB	12	65	780	619	52	161
	BX 13	EB	12	65	780	657	55	123
		WB	10	65	650	412	41	238
	BX 32	NB	5	65	325	242	48	83
		SB	5	65	325	252	50	73
BX 41 ⁴	NB	12	93	1116	771	64	345	
	SB	12	93	1116	804	67	312	
Midday	BX 1/2 ³	NB	16	93	1488	928	58	560
		SB	16	93	1488	746	47	742
	BX 6	EB	9	65	585	376	42	209
		WB	9	65	585	321	36	264
	BX 13	EB	7	65	455	145	21	310
		WB	7	65	455	274	39	181
	BX 32	NB	4	65	260	101	25	159
		SB	4	65	260	107	27	153
BX 41 ⁴	NB	7	93	651	334	48	317	
	SB	7	93	651	309	44	342	
PM	BX 1/2 ³	NB	14	93	1302	955	68	347
		SB	14	93	1302	801	57	501
	BX 6	EB	10	65	650	519	52	131
		WB	9	65	585	505	56	80
	BX 13	EB	8	65	520	275	34	245
		WB	14	65	910	795	57	115
	BX 32	NB	5	65	325	219	44	106
		SB	5	65	325	129	26	196
BX 41 ⁴	NB	12	93	1116	702	59	414	
	SB	10	93	930	487	49	443	

Source: NYCT Ride Check Data (2004-2006)

Notes: 1- AM Peak Hour 7:30-8:30 a.m.; Midday Peak Hour 12:00-1:00 p.m.; PM Peak Hour 5:00-6:00 p.m.

2- Standard bus capacity assumed to be 65. Articulated bus capacity assumed to be 93.

3- Combines BX 1/2 Local and Limited volume and capacity

4- Combines BX 41 Local/Limited volume and capacity. B41 has no Limited service during Midday peak hour.

Table has been revised subsequent to the release of DEIS

Future With the Proposed Action

The increase in local bus trips resulting from the proposed E. 161st Street Rezoning were superimposed on the 2018 No-Action volume levels at the maximum load points or areas of maximum loading in the prevailing peak directions based on the following considerations:

- The elements along the study corridor that influence the location of local bus activity include the 161st Street subway station complex, the Metro-North Melrose station, and the Grand Concourse and Morris Avenue bus routes.;
- The peak transit direction is generally Manhattan bound (i.e., southbound or westbound) in the AM peak hour, northbound or eastbound in the PM peak hour, and somewhat balanced during the midday peak periods;
- The analysis focused on the peak transit direction and the prevailing directional distribution (i.e., inbound or outbound) of the additional bus trips projected to occur during the analyzed peak hours;
- The five analyzed bus routes would handle approximately 90 percent of the total local bus trips generated by the proposed rezoned corridor;
- The corridor-generated bus trips were distributed among the study routes according to the present market share of each route – the ratio of each route’s trips to total trips on all routes in the peak direction -- during each of the three peak hours.

The proposed rezoning is projected to generate 172, 252, and 231 during the weekday AM, Midday, and PM peak hours, respectively. (See Table 3.3-5B for the basis for these projections.) The analysis was performed at maximum loading points. The analysis of 2018 No-Action conditions projected no capacity deficits for the analyzed bus routes over the 2008-2018 period.

Table 3.4-12 compares available bus capacities under the No-Action and Action conditions, along with the trip increment for individual bus routes, based on the assumptions and considerations noted above.

**Table 3.4-12
Future Action Bus Service Operating Conditions**

PEAK HOUR ¹	ROUTE	DIRECTION	BUSES PER HOUR	PER BUS CAPACITY ²	HOURLY CAPACITY	PROJECT GENERATED TRIPS	HOURLY VOLUME	AVERAGE VOLUME PER BUS	HOURLY AVAILABLE CAPACITY
AM	BX 1/2 ³	NB	15	93	1395	25	1043	70	352
		SB	15	93	1395	27	1096	73	299
	BX 6	EB	12	65	780	17	713	59	67
		WB	12	65	780	14	584	49	196
	BX 13	EB	12	65	780	15	620	52	160
		WB	10	65	650	9	388	39	262
	BX 32	NB	5	65	325	6	228	46	97
		SB	5	65	325	6	238	48	87
BX 41 ⁴	NB	12	93	1116	18	727	61	389	
	SB	12	93	1116	18	759	63	357	
Midday	BX 1/2 ³	NB	16	93	1488	58	913	57	575
		SB	16	93	1488	46	733	46	755
	BX 6	EB	9	65	585	23	370	41	215
		WB	9	65	585	20	316	35	269
	BX 13	EB	7	65	455	9	142	20	313
		WB	7	65	455	17	269	38	186
	BX 32	NB	4	65	260	6	100	25	160
		SB	4	65	260	7	105	26	155
BX 41 ⁴	NB	7	93	651	21	328	47	323	
	SB	7	93	651	19	304	43	347	
PM	BX 1/2 ³	NB	14	93	1302	37	917	65	385
		SB	14	93	1302	31	769	55	533
	BX 6	EB	10	65	650	20	498	50	152
		WB	9	65	585	19	485	54	100
	BX 13	EB	8	65	520	11	264	33	256
		WB	14	65	910	31	763	54	147
	BX 32	NB	5	65	325	8	210	42	115
		SB	5	65	325	5	124	25	201
BX 41 ⁴	NB	12	93	1116	27	674	56	442	
	SB	10	93	930	19	467	47	463	

Source: NYCT Ride Check Data (2004-2006)

Notes: 1- AM Peak Hour 7:30-8:30 a.m.; Midday Peak Hour 12:00-1:00 p.m.; PM Peak Hour 5:00-6:00 p.m.

2- Standard bus capacity assumed to be 65. Articulated bus capacity assumed to be 93.

3- Combines BX 1/2 Local and Limited volume and capacity

4- Combines BX 41 Local/Limited volume and capacity. B41 has no Limited service during Midday peak hour.

Table has been revised subsequent to the release of DEIS

3.4.2 Pedestrians

Existing Conditions

The 161st Street corridor is a mix of residential, institutional, commercial, retail and governmental land uses, which collectively generate a considerable amount of pedestrian traffic. Eventually, all persons using other modes of transportation (vehicle, taxi, bus, subway, etc.) to make trips within the study area include a walking component as the first or last mode of travel. These walk trips produce pedestrian volumes using the study area's sidewalks, street corners and crosswalks, and on the subway station's staircases, escalators and elevators in the vicinity of the project site. The pedestrian facilities in the study area consist of crosswalks and sidewalks, pedestrian ramps and street corner areas.

Two types of pedestrian analysis -- crosswalk and corner analyses -- were performed for those locations likely to be most heavily affected by the proposed 161st Street rezoning project. These analyses were performed for the following intersections:

- 161st Street/Concourse Village West-Sheridan Avenue
- 161st Street/Concourse Village East-Morris Avenue
- 161st Street/Grand Concourse Boulevard
- 161st Street/River Avenue
- 161st Street/Sherman Avenue

Pedestrian flow conditions were analyzed using the *2000 Highway Capacity Manual (HCM2000)* methodology for crosswalks and street corners in the peak 15-minute periods during the weekday AM, midday and PM peak hours and the Saturday peak hour.

A targeted Game Day analysis was also performed for crosswalks and corners at the intersection of 161st Street and River Avenue for pre-game peak-hour conditions for the weekday night games and Saturday early-afternoon games.

The methodology for crosswalks and street corners is based on pedestrian density expressed as square feet/person. The LOS ranges are show in Table 3.4-13.

**Table 3.4-13
Crosswalk and Street Corner Level of Service Ranges**

LOS A (free flow)	at least 60 square feet/person
LOS B	40 to 60 square feet/person
LOS C	24 to 40 square feet/person
LOS D	15 to 24 square feet/person
LOS E (capacity)	8 to 15 square feet/person
LOS F	less than 8 square feet/person.

All of the analyzed crosswalks at 161st Street and Concourse Village West/Sheridan Avenue, 161st Street and Concourse Village East/Morris Avenue, 161st Street and Grand Concourse Boulevard, and 161st Street and Sherman Avenue are either of the ladder or high visibility type. At the intersection of 161st Street and River Avenue, all crosswalks are regular crosswalks.

Field counts and observations of pedestrian conditions were conducted in June 2008 at the analyzed locations during the weekday AM, midday, PM, and Saturday peak hours for Non-Game Day scenario (i.e., when no game was being played at Yankee Stadium). Table 3.4-14 shows the results for the analyzed pedestrian facilities (crosswalks and street corners) for the weekday AM, midday, and PM peak hours and the Saturday midday peak hour under Existing (2008) conditions. The following is a summary of Existing 2008 Non-Game Day conditions at each of the analyzed locations in these four peak hours:

NON-GAME DAY

The results for the five crosswalk locations analyzed are summarized as follows:

- **161st Street and Concourse Village West-Sheridan Avenue** -- Except for the LOS “C” conditions on the west crosswalk during the weekday AM and LOS “B” during the Midday peak hour, the four analyzed crosswalks operate at LOS “A”.
- **161st Street and Concourse Village East-Morris Avenue** -- The analyzed crosswalks operate at LOS “A” during all peak hours.
- **161st Street and Grand Concourse Boulevard** -- Except for LOS “B” conditions on the north crosswalk in the Midday peak hour, the four analyzed crosswalks operate at LOS “A” during all peak hours.
- **161st Street and River Avenue** -- The west crosswalk operates at LOS “C” during the PM peak hour and the east crosswalk operates at LOS “B” during the Saturday peak period. All other crosswalks operate at LOS “A” during all peak periods.
- **161st Street and Sherman Avenue** -- The west crosswalk operates at LOS “B” and “C” during the weekday midday and PM peak period. The north crosswalk operates at LOS “B” during the midday peak hour. All other crosswalks operate at LOS “A” during all peak hours.

At the five analyzed street corner locations -- 161st Street and Concourse Village West-Sheridan Avenue, 161st Street and Concourse Village East-Morris Avenue, 161st Street and Grand Concourse Boulevard, 161st Street and River Avenue and 161st Street and Sherman Avenue—these street corners all currently operate at LOS “A” during all four peak hours.

GAME DAY

The analysis results for crosswalks and corners at the intersection of 161st Street and River Avenue for the pre-game weekday peak hour (5:00-6:00 PM) and pre-game Saturday midday peak hour (12:15-1:15 PM) are shown in Table 3.4-15. Although the pedestrian data were collected during the last two days of the regular baseball season, the results would rather

represent “play-off” conditions with the Yankees playing the last two home games at the existing stadium¹.

During the weekday PM peak hour, the west and south crosswalks (the most critical) experienced LOS “E.” During the Saturday peak hour, all but the north crosswalk operated at LOS “F.”

The analyzed corners operated at LOS C or better during the weekday PM peak hour and LOS “D” or better during the Saturday peak hour. Levels of service at the northwest and southeast corner reflect construction at the new stadium and pedestrian by-pass conditions through the McDonald’s open space area, respectively.

¹ Thursday September 18 and Saturday September 20, 2008. A new stadium was built just across the street on the north side of 161st Street.

**Table 3.4-14
 Peak Hour Pedestrian Level of Service -- Year 2008 Existing Conditions**

Location	Side	Weekday 7:45-8:45 AM		Weekday 1:00-2:00 PM		Weekday 5:00-6:00 PM		Saturday 12:15-1:15 PM	
		Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS
Crosswalks									
161 st St/ Concourse Village W-Sheridan Ave	E	123.7	A	68.3	A	113.6	A	174.8	A
	W	32.3	C	48.4	B	78.0	A	69.8	A
	N	85.4	A	128.6	A	130.0	A	178.5	A
	S	183.6	A	117.7	A	167.3	A	161.9	A
161 st St/ Concourse Village W-Morris Ave	E	142.2	A	175.1	A	120.5	A	222.1	A
	W	140.1	A	130.9	A	159.1	A	461.6	A
	N	128.9	A	154.7	A	251.9	A	486.4	A
	S	131.0	A	126.2	A	145.8	A	179.1	A
161 st St/ Grand Concourse Blvd	E	749.4	A	249.1	A	323.9	A	483.9	A
	W	445.2	A	109.4	A	115.8	A	677.6	A
	N	91.1	A	44.1	B	85.5	A	136.6	A
	S	67.4	A	91.4	A	90.3	A	136.6	A
161 st St/ River Ave	E	75.5	A	66.0	A	82.3	A	54.3	B
	W	120.5	A	125.2	A	29.1	C	84.3	A
	N	88.7	A	131.9	A	124.3	A	122.2	A
	S	247.6	A	317.6	A	283.3	A	200.8	A
161 st St/ Sherman Ave	E	107.7	A	172.9	A	235.9	A	250.3	A
	W	63.2	A	53.8	B	29.8	C	140.3	A
	N	60.4	A	59.1	B	176.0	A	345.8	A
Street Corners									
161 st St/ Concourse Village W-Sheridan Ave	NW	70.5	A	103.8	A	135.7	A	145.5	A
	NE	138.0	A	146.8	A	188.5	A	275.5	A
	SW	93.8	A	104.6	A	155.1	A	145.7	A
	SE	582.1	A	360.8	A	528.4	A	615.0	A
161 st St/ Concourse Village W-Morris Ave	NW	128.9	A	154.7	A	251.9	A	486.4	A
	NE	131.0	A	126.2	A	145.8	A	179.1	A
	SW	142.2	A	173.5	A	120.5	A	222.1	A
	SE	140.1	A	130.9	A	159.1	A	461.6	A
161 st St/ Grand Concourse Blvd	NW	176.3	A	84.3	A	164.3	A	256.4	A
	NE	319.5	A	131.0	A	287.3	A	414.8	A
	SW	171.9	A	208.8	A	209.3	A	357.8	A
	SE	191.3	A	187.0	A	211.3	A	358.6	A
161 st St/ River Ave	NW	121.4	A	174.7	A	128.9	A	212.9	A
	NE	385.0	A	418.8	A	422.2	A	627.0	A
	SW	549.2	A	765.6	A	425.8	A	667.6	A
	SE	398.4	A	313.6	A	336.4	A	396.6	A
161 st St/ Sherman Ave	NW	87.8	A	88.7	A	142.8	A	368.6	A
	NE	136.9	A	131.0	A	371.1	A	628.5	A

Table 3.4-15
Peak Hour Pedestrian Level of Service
Year 2008 Existing Pre-Game Peak Hour Conditions

		Weekday PM 5:00-6:00 PM	Saturday MD 12:15-1:15 PM		
Crosswalks					
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS
161st St/ River Ave	E	19.7	D	6.2	F
	W	13.8	E	3.6	F
	N	42.1	B	70.8	A
	S	14.7	E	7.2	F
Corners					
161st St/ River Ave	NW	26.3	C	16.9	D
	NE	116.8	A	85.6	A
	SW	43.8	B	29.1	C
	SE	30.3	C	17.1	D

Future Without the Proposed Action (No-Action)

The level of pedestrian activity in the study area at the analyzed crosswalks and street corners is expected to increase under the 2018 No-Action conditions, due to background growth, trips generated by other developments in the study area, and by the anticipated overall increase in transit ridership. Given these factors, existing pedestrian volumes were assumed to grow by a conservative 1.4 percent annually for Non-Game days. For the Game Day scenario, the pedestrian volumes collected included the background traffic and the Yankee Stadium traffic. The CEQR growth rate of 0.5 percent was used for the Game Day.

NON-GAME DAY

The results of this projected growth in pedestrian volumes under the 2018 No-Action conditions are presented in Table 3.4-16 and discussed below.

The crosswalk levels of service for the No-Action conditions are comparable to the Existing conditions with a few exceptions, as follows:

- **161st Street and Concourse Village West-Sheridan Avenue** -- The east crosswalk LOS would change from “A” to “B” during the weekday midday peak hour. The west crosswalk LOS would change from “A” to “B” during the Saturday midday peak hour.
- **161st Street and Concourse Village East-Morris Avenue** -- All crosswalks would continue to operate at LOS “A” during all peak hours.
- **161st Street and Grand Concourse Boulevard** -- The south crosswalk LOS would change from “A” to “B” during the weekday AM peak hour. The north crosswalk LOS would change from “B” to “C” during the weekday midday peak hour. All other crosswalks would continue to operate at LOS “A” during all peak hours.
- **161st Street and River Avenue** -- The east crosswalk LOS would change from “B” to “A” during the Saturday midday peak hour. All other crosswalks would continue to operate at LOS “A” during all peak hours, except the west crosswalk LOS which would continue to operate at LOS “C” during the weekday PM peak hour.
- **161st Street and Sherman Avenue** -- There would be no change in the operation of the east crosswalk (LOS “A”). The west crosswalk LOS would change from “A” to “B” during the weekday AM peak hour and from “C” to “D” during the Saturday peak hour. The north crosswalk LOS would change from “A” to “B” during the weekday AM and midday peak hours.

At the five analyzed street corner locations -- 161st Street and Concourse Village West-Sheridan Avenue, 161st Street and Concourse Village East-Morris Avenue, 161st Street and Grand Concourse Boulevard, 161st Street and River Avenue and 161st Street and Sherman Avenue—all street corners would continue to operate at LOS “A” during all four peak hours.

**Table 3.4-16
 Peak Hour Pedestrian Level of Service -- 2018 No-Action Condition**

Location	Side	Weekday AM	Weekday MD	Weekday PM	Saturday MD					
		7:45-8:45 AM	1:00-2:00 PM	5:00-6:00 PM	12:15-1:15 PM					
		Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	
Crosswalks										
161 St Concourse Village	St/ W-	E	104.1	A	59.1	B	95.2	A	153.4	A
		W	27.1	C	41.9	B	61.5	A	59.9	B
	W-	N	73.3	A	112.5	A	112.1	A	154.7	A
		S	159.6	A	102.0	A	145.4	A	140.7	A
161 St Concourse Village	St/ W-	E	123.3	A	151.4	A	104.0	A	193.4	A
		W	120.2	A	113.2	A	137.4	A	408.4	A
	W-	N	111.1	A	133.9	A	218.1	A	423.2	A
		S	112.2	A	108.7	A	125.0	A	155.9	A
161 St Grand Concourse Blvd	St/ W-	E	614.3	A	209.2	A	274.0	A	409.8	A
		W	384.2	A	94.0	A	99.8	A	589.4	A
	W-	N	78.6	A	37.0	C	71.4	A	116.3	A
		S	57.8	B	78.6	A	77.9	A	118.0	A
161 St River Ave	St/ W-	E	227.8	A	80.0	A	170.9	A	90.5	A
		W	134.2	A	156.3	A	24.8	C	76.7	A
	W-	N	76.7	A	95.4	A	108.8	A	157.8	A
		S	216.0	A	229.2	A	247.2	A	308.0	A
161 St Sherman Ave	St/ W-	E	94.0	A	150.5	A	207.4	A	495.7	A
		W	55.2	B	45.7	B	23.6	D	116.4	A
		N	51.8	B	50.7	B	153.0	A	314.4	A
Street Corners										
161 St Concourse Village	St/ W-	NW	70.1	A	103.3	A	135.0	A	144.7	A
		NE	134.6	A	144.7	A	186.2	A	206.2	A
		SW	93.2	A	104.3	A	154.0	A	140.9	A
		SE	578.1	A	359.3	A	524.6	A	573.5	A
161 St Concourse Village	St/ W-	NW	232.3	A	247.2	A	340.0	A	769.7	A
		NE	385.5	A	456.1	A	483.5	A	699.7	A
		SW	254.0	A	242.9	A	257.2	A	438.0	A
		SE	397.2	A	435.7	A	405.3	A	523.0	A
161 St Grand Concourse Blvd	St/ W-	NW	175.2	A	83.8	A	163.3	A	249.5	A
		NE	317.0	A	130.1	A	285.3	A	333.9	A
		SW	168.8	A	203.3	A	202.8	A	314.5	A
		SE	185.6	A	181.5	A	205.1	A	315.2	A
161 St River Ave	St/ W-	NW	121.4	A	174.7	A	128.9	A	212.9	A
		NE	385.0	A	418.8	A	422.2	A	600.0	A
		SW	549.2	A	765.6	A	425.8	A	659.4	A
		SE	398.4	A	313.6	A	336.4	A	275.4	A
161 St Sherman Ave	St/ W-	NW	86.8	A	87.4	A	142.8	A	360.8	A
		NE	136.0	A	129.7	A	371.1	A	695.4	A

GAME DAY

Pedestrian traffic patterns in the influence area of the stadium and the intersection of E. 161st Street and River Avenue are projected to change due to the following:

- the relocation of the stadium to the north side of E. 161st Street,
- the construction of three proposed parking garages (one to the north of, and two to the south of the new stadium), and
- the construction of new pedestrian facilities (including walkways and plazas, generally along E. 161st Street to the west of River Avenue).

These changes would result in greater usage of the north and east crosswalks and lesser usage of the south and west crosswalks.

The Yankee Stadium FEIS has listed several elements of a new pedestrian facility system that would improve pedestrian flows between the proposed parking garages and the new stadium and transportation system elements (transit, roadways, vehicular traffic). The temporary extension to the west of analyzed west crosswalk (resulting overall width of 115 feet approximately) at the intersection of River Avenue and E. 161st Street during the game periods is, for example, one of the pedestrian improvement measures that were proposed to ease pedestrian flows at this location (3,800 pedestrians during the peak 15 minutes). Pedestrian circulation is expected to increase at the northwest corner and decrease at the southeast corner of the intersection of River Avenue and E. 161st Street. Conditions at the southeast and northeast corners are not expected to significantly change. Although pedestrian demand at the northeast subway stairway would increase as a result of the relocation of the stadium, pedestrian circulation at the corner would not due to the “by-pass” condition associated with the “McDonald” circuitry path.

Table 3.4-17 shows the No-Action analysis results of the crosswalks and corners at the intersection of River Avenue and E. 161st Street during the pre-game weekday and Saturday peak hours for the Game Day scenario. They were derived from the Yankee Stadium redevelopment pedestrian volume projections and assumptions from the Yankee Stadium FEIS.

During the weekday PM peak hour, the north crosswalk would experience LOS “F,” the east crosswalk LOS “E,” and the west and south crosswalks LOS “D.” During the Saturday peak hour, all crosswalks would operate at LOS “E” except the east crosswalk, which would operate at LOS “F.”

The analyzed corners would operate at LOS “D” or better during the weekday PM peak hour and during the Saturday peak hour would operate at LOS “D” or better, except the northwest crosswalk, which would operate at LOS “E.”

Table 3.4-17
Peak Hour Pedestrian Level of Service
2018 No-Action Pre-Game Peak Hour Conditions

		Weekday PM 5:00-6:00 PM	Saturday MD 12:15-1:15 PM		
Crosswalks					
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS
161st St/ River Ave	E	12.4	E	4.5	F
	W	16.7	D	11.3	E
	N	7.4	F	9.3	E
	S	20.9	D	8.3	E
Corners					
161st St/ River Ave	NW	16.6	D	11.7	E
	NE	116.8	A	85.6	A
	SW	49.3	B	30.3	C
	SE	30.0	C	17.6	D

Future With the Proposed Action

The projected increase in development along the E. 161st Street corridor due to the proposed rezoning would increase pedestrian trips within the study area’s pedestrian facilities, including the analyzed crosswalks and street corners noted above, during the analyzed peak hours. The assignment of pedestrian trips was based on “desire” travel lines -- the likely paths that people would take to walk among the projected development sites and key points in the study area, and various pedestrian facilities (sidewalks, street corners, etc.) located along those paths. Pedestrians were distributed separately by four modes of travel — walk-only, subway, railroad, and bus — and then assigned to the pedestrian facilities by summing the totals of each mode, where applicable.

To identify potential significant adverse pedestrian impacts due to the proposed action, changes in pedestrian Non-Game Day and Game Day scenarios under 2018 No-Action and 2018 Action scenarios were compared, respectively. The impact criteria in the *2001 CEQR Technical Manual* were then used to determine potential significant impacts. For crosswalks and street corners, a significant impact is defined as a decrease of 1 square foot per person due to the proposed action

when the Future No-Action condition has average occupancies under 15 square feet per pedestrian (the threshold between LOS levels D and E).

NON-GAME DAY

For the Non-Game Day scenario, Table 3.4-18 presents projected pedestrian operations in the four peak hours at the analyzed street corners and crosswalks under 2018 Action conditions, and Tables 3.4-19 through 3.4-22 compare pedestrian operations under Future No-Action and Action conditions for the weekday AM, weekday midday, weekday PM, and Saturday midday peak hours, respectively. The results indicate no significant impacts for the analyzed crosswalks and street corners for the Non-Game Day scenario.

GAME DAY

Table 3.4-23 presents the projected 2018 Action conditions for crosswalks and corners at the intersection of River Avenue and E. 161st Street during the pre-game weekday and Saturday peak hours for the Game Day scenario. During the weekday PM peak hour, the north crosswalk experience LOS “F” and the west and south crosswalks (the most critical) experience LOS “D.” During the Saturday peak hour, all crosswalks operate at LOS “F” except the west crosswalk, which operates at LOS “E.”

Tables 3.4-24 and 3.4-25 compare pedestrian operations under Future No-Action and Action conditions for the weekday PM peak and Saturday midday peak hours, respectively. As discussed in the Mitigation section below, the results indicate marginal impact for the analyzed crosswalks. The results of the analysis account for a peak surge of pedestrians during worst-case (i.e. a sold out stadium) conditions. During pre-game periods, normal traffic operations are expected to be adjusted and NYPD traffic enforcement officers are expected to manage the flow of pedestrians and traffic to help mitigate any pedestrian impacts and enhance safety.

Similar to the No-Action conditions, the analyzed corners operate at LOS “D” or better during the weekday PM peak hour and at LOS “D” or better during the Saturday peak hour, except the northwest crosswalk, which operates at LOS “E.” Therefore, there are no impacts.

**Table 3.4-18
 Peak Hour Pedestrian Level of Service -- 2018 Action Conditions**

		Weekday AM 7:45-8:45 AM		Weekday MD 1:00-2:00 PM		Weekday PM 5:00-6:00 PM		Saturday MD 12:15-1:15 PM	
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS						
Crosswalks									
161 st St/ Concourse Village W-Sheridan Ave	E	75.1	A	38.3	C	59.0	A	66.6	A
	W	23.7	C	28.6	C	37.1	B	36.5	C
	N	62.0	A	69.2	A	77.4	A	85.7	A
	S	123.5	A	68.8	A	99.2	A	86.0	A
161 st St/ Concourse Village W-Morris Ave	E	112.1	A	117.9	A	90.5	A	145.8	A
	W	108.9	A	92.6	A	115.9	A	236.6	A
	N	103.2	A	113.0	A	180.8	A	276.5	A
	S	104.5	A	92.8	A	109.8	A	126.2	A
161 st St/ Grand Concourse Blvd	E	207.3	A	70.9	A	108.6	A	94.5	A
	W	188.8	A	51.1	B	63.3	A	82.7	A
	N	60.8	A	27.4	C	46.2	A	61.4	A
	S	48.0	B	50.3	B	53.6	B	66.4	A
161 st St/ River Ave	E	111.4	A	47.8	B	70.2	A	34.4	C
	W	72.7	A	65.3	A	17.4	D	22.6	D
	N	57.4	B	30.5	C	60.6	A	61.8	A
	S	108.1	A	33.7	C	85.8	A	75.6	A
161 st St/ Sherman Ave	E	67.7	A	59.2	B	83.1	A	85.3	A
	W	45.4	B	31.1	C	19.6	D	53.2	B
	N	48.4	B	43.3	B	117.7	A	176.0	A
Street Corners									
161 st St/ Concourse Village W-Sheridan Ave	NW	68.8	A	97.2	A	127.2	A	133.1	A
	NE	131.1	A	135.8	A	175.3	A	189.0	A
	SW	91.1	A	98.6	A	145.0	A	130.9	A
	SE	554.0	A	338.3	A	491.3	A	522.2	A
161 st St/ Concourse Village W-Morris Ave	NW	230.4	A	241.9	A	332.0	A	721.3	A
	NE	381.9	A	443.8	A	472.3	A	671.2	A
	SW	251.7	A	237.8	A	252.6	A	421.7	A
	SE	393.3	A	424.4	A	397.4	A	506.8	A
161 st St/ Grand Concourse Blvd	NW	165.4	A	78.6	A	150.0	A	209.8	A
	NE	296.8	A	121.3	A	258.0	A	285.2	A
	SW	162.1	A	183.0	A	188.1	A	269.0	A
	SE	179.6	A	168.4	A	193.0	A	278.0	A
161 st St/ River Ave	NW	114.4	A	145.7	A	116.6	A	171.3	A
	NE	357.9	A	362.5	A	373.9	A	498.6	A
	SW	429.1	A	552.5	A	368.9	A	492.0	A
	SE	351.8	A	253.6	A	282.4	A	223.3	A
161 st St/ Sherman Ave	NW	85.9	A	85.0	A	138.4	A	318.8	A
	NE	134.4	A	125.3	A	347.9	A	512.3	A

Table 3.4-19
2018 No-Action and Action Pedestrian LOS Comparison
Weekday AM Peak Hour (7:45-8:45)

		No-Action Conditions		Action Conditions		
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Impact?
Crosswalks						
161 st Concourse Village Sheridan Ave	St/ E	104.1	A	75.1	A	
	St/ W	27.1	C	23.7	C	
	W- N	73.3	A	62.0	A	
	W- S	159.6	A	123.5	A	
161 st Concourse Village Morris Ave	St/ E	123.3	A	112.1	A	
	St/ W	120.2	A	108.9	A	
	E- N	111.1	A	103.2	A	
	E- S	112.2	A	104.5	A	
161 st St/ Grand Concourse Blvd	E	614.3	A	207.3	A	
	W	384.2	A	188.8	A	
	N	78.6	A	60.8	A	
	S	57.8	B	48.0	B	
161 st St/ River Ave	E	227.8	A	111.4	A	
	W	134.2	A	72.7	A	
	N	76.7	A	57.4	B	
	S	216.0	A	108.1	A	
161 st Sherman Ave	St/ E	94.0	A	67.7	A	
	St/ W	55.2	B	45.4	B	
	St/ N	51.8	B	48.4	B	
Street Corners						
161 st Concourse Village Sheridan Ave	St/ NW	70.1	A	68.8	A	
	St/ NE	134.6	A	131.1	A	
	W- SW	93.2	A	91.1	A	
	W- SE	578.1	A	554.0	A	
161 st Concourse Village Morris Ave	St/ NW	232.3	A	230.4	A	
	St/ NE	385.5	A	381.9	A	
	E- SW	254.0	A	251.7	A	
	E- SE	397.2	A	393.3	A	
161 st St/ Grand Concourse Blvd	NW	175.2	A	165.4	A	
	NE	317.0	A	296.8	A	
	SW	168.8	A	162.1	A	
	SE	185.6	A	179.6	A	
161 st St/ River Ave	NW	121.4	A	114.4	A	
	NE	385.0	A	357.9	A	
	SW	549.2	A	429.1	A	
	SE	398.4	A	351.8	A	
161 st Sherman Ave	St/ NW	86.8	A	85.9	A	
	St/ NE	136.0	A	134.4	A	

Table 3.4-20
2018 No-Action and Action Pedestrian LOS Comparison
Weekday Midday Peak Hour (1:00PM – 2:00PM)

		No-Action Conditions		Action Conditions		
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Impact?
Crosswalks						
161 St Concourse Village Sheridan Ave	St/ E	59.1	B	38.3	C	
	St/ W	41.9	B	28.6	C	
	W- N	112.5	A	69.2	A	
	W- S	102.0	A	68.8	A	
161 St Concourse Village Morris Ave	St/ E	151.4	A	117.9	A	
	St/ W	113.2	A	92.6	A	
	E- N	133.9	A	113.0	A	
	E- S	108.7	A	92.8	A	
161 St St/ Grand Concourse Blvd	E	209.2	A	70.9	A	
	W	94.0	A	51.1	B	
	N	37.0	C	27.4	C	
	S	78.6	A	50.3	B	
161 St St/ River Ave	E	80.0	A	47.8	A	
	W	156.3	A	65.3	A	
	N	95.4	B	30.5	C	
	S	229.2	A	33.7	C	
161 St Sherman Ave	St/ E	150.5	A	59.2	B	
	St/ W	45.7	B	31.1	C	
	St/ N	50.7	B	43.3	B	
Street Corners						
161 St Concourse Village Sheridan Ave	St/ NW	103.3	A	97.2	A	
	St/ NE	144.7	A	135.8	A	
	W- SW	104.3	A	98.6	A	
	W- SE	359.3	A	338.3	A	
161 St Concourse Village Morris Ave	St/ NW	247.2	A	241.9	A	
	St/ NE	456.1	A	443.8	A	
	E- SW	242.9	A	237.8	A	
	E- SE	435.7	A	424.4	A	
161 St St/ Grand Concourse Blvd	NW	83.8	A	78.6	A	
	NE	130.1	A	121.3	A	
	SW	203.3	A	183.0	A	
	SE	181.5	A	168.4	A	
161 St St/ River Ave	NW	174.7	A	145.7	A	
	NE	418.8	A	362.5	A	
	SW	765.6	A	552.5	A	
	SE	313.6	A	253.6	A	
161 St Sherman Ave	St/ NW	87.4	A	85.0	A	
	St/ NE	129.7	A	125.3	A	

Table 3.4-21
2018 No-Action and Action Pedestrian LOS Comparison
Weekday PM Peak Hour (5:00-6:00)

		No-Action Conditions		Action Conditions		
Location	Side	Circulation Per Ped. (ft ² /p)	Area LOS	Circulation Per Ped. (ft ² /p)	Area LOS	Impact?
Crosswalks						
161 St St/ Concourse Village W-Sheridan Ave	E	95.2	A	59.0	A	
	W	61.5	A	37.1	B	
	N	112.1	A	77.4	A	
	S	145.4	A	99.2	A	
161 St St/ Concourse Village E-Morris Ave	E	104.0	A	90.5	A	
	W	137.4	A	115.9	A	
	N	218.1	A	180.8	A	
	S	125.0	A	109.8	A	
161 St St/ Grand Concourse Blvd	E	274.0	A	108.6	A	
	W	99.8	A	63.3	A	
	N	71.4	A	46.2	A	
	S	77.9	A	53.6	B	
161 St St/ River Ave	E	170.9	A	70.2	A	
	W	24.8	C	17.4	D	
	N	108.8	A	60.6	A	
	S	247.2	A	85.8	A	
161 St St/ Sherman Ave	E	207.4	A	83.1	A	
	W	23.6	D	19.6	D	
	N	153.0	A	117.7	A	
Street Corners						
161 St St/ Concourse Village W-Sheridan Ave	NW	135.0	A	127.2	A	
	NE	186.2	A	175.3	A	
	SW	154.0	A	145.0	A	
	SE	524.6	A	491.3	A	
161 St St/ Concourse Village E-Morris Ave	NW	340.0	A	332.0	A	
	NE	483.5	A	472.3	A	
	SW	257.2	A	252.6	A	
	SE	405.3	A	397.4	A	
161 St St/ Grand Concourse Blvd	NW	163.3	A	150.0	A	
	NE	285.3	A	258.0	A	
	SW	202.8	A	188.1	A	
	SE	205.1	A	193.0	A	
161 St St/ River Ave	NW	128.9	A	116.6	A	
	NE	422.2	A	373.9	A	
	SW	425.8	A	368.9	A	
	SE	336.4	A	282.4	A	
161 St St/ Sherman Ave	NW	142.8	A	138.4	A	
	NE	371.1		347.9	B	

Table 3.4-22
2018 No-Action and Action Pedestrian LOS Comparison
Saturday Midday Peak Hour (12:15-1:15)

Location	Side	No-Action Conditions		Action Conditions		Impact?
		Circulation Per Ped. (ft ² /p)	Area LOS	Circulation Per Ped. (ft ² /p)	Area LOS	
Crosswalks						
161 st St / Concourse Village W-Sheridan Ave	E	153.4	A	66.6	A	
	W	59.9	A	36.5	C	
	N	154.7	A	85.7	A	
	S	140.7	A	86.0	A	
161 st St / Concourse Village E-Morris Ave	E	193.4	A	145.8	A	
	W	408.4	A	236.6	A	
	N	423.2	A	276.5	A	
	S	155.9	A	126.2	A	
161 st St/ Grand Concourse Blvd	E	409.8	A	94.5	A	
	W	589.4	A	82.7	A	
	N	116.3	A	61.4	A	
	S	118.0	A	66.4	A	
161 st St/ River Ave	E	90.5	B	34.4	C	
	W	76.7	C	22.6	D	
	N	157.8	A	61.8	A	
	S	308.0	A	75.6	A	
161 st St/ Sherman Ave	E	495.7	A	85.3	A	
	W	116.4	A	53.2	B	
	N	314.4	A	176.0	A	
Street Corners						
161 st St / Concourse Village W-Sheridan Ave	NW	144.7	A	133.1	A	
	NE	206.2	A	189.0	A	
	SW	140.9	A	130.9	A	
	SE	573.5	A	522.2	A	
161 st St / Concourse Village E-Morris Ave	NW	769.7	A	721.3	A	
	NE	699.7	A	671.2	A	
	SW	438.0	A	421.7	A	
	SE	523.0	A	506.8	A	
161 st St/ Grand Concourse Blvd	NW	249.5	A	209.8	A	
	NE	333.9	A	285.2	A	
	SW	314.5	A	269.0	A	
	SE	315.2	A	278.0	A	
161 st St/ River Ave	NW	212.9	A	171.3	A	
	NE	600.0	A	498.6	A	
	SW	659.4	A	492.0	A	
	SE	275.4	A	223.3	A	
161 st St/ Sherman Ave	NW	360.8	A	318.8	A	
	NE	695.4	A	512.3	A	

Table 3.4-23
Peak Hour Pedestrian Level of Service
2018 Action Pre-Game Peak Hour Conditions

		Weekday PM 5:00-6:00 PM	Saturday MD 12:15-1:15 PM		
Crosswalks					
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS
161st St/ River Ave	E	10.4	E	3.9	F
	W	16.3	D	11.0	E
	N	6.6	F	8.0	F
	S	16.6	D	7.2	F
Corners					
161st St/ River Ave	NW	16.3	D	11.5	E
	NE	113.5	A	83.1	A
	SW	48.4	B	29.9	C
	SE	29.5	C	17.4	D

Table 3.4-24
2018 No-Action and Action Pedestrian LOS Comparison
Weekday Pre-Game PM Peak Hour (5:00-6:00)

		No-Action Conditions		Action Conditions		
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Impact?
Crosswalks						
161 st St/ River Ave	E	12.4	E	10.4	E	Y
	W	16.7	D	16.3	D	
	N	7.4	F	6.6	F	
	S	20.9	D	16.6	D	
Street Corners						
161 st St/ River Ave	NW	16.6	D	16.3	D	
	NE	116.8	A	113.5	A	
	SW	49.3	B	48.4	B	
	SE	30.0	C	29.5	D	

Table 3.4-25
2018 No-Action and Action Pedestrian LOS Comparison
Saturday Pre-Game Midday Peak Hour (12:15-1:15)

		No-Action Conditions		Action Conditions		
Location	Side	Circulation Area Per Ped. (ft ² /p)	LOS	Circulation Area Per Ped. (ft ² /p)	LOS	Impact?
Crosswalks						
161 st St/ River Ave	E	4.5	F	3.9	F	
	W	11.3	E	11.0	E	
	N	9.3	E	8.0	F	Y
	S	8.3	E	7.2	F	Y
Street Corners						
161 st St/ River Ave	NW	11.7	E	11.5	E	
	NE	85.6	A	83.1	A	
	SW	30.3	C	29.9	C	
	SE	17.6	D	17.4	D	

3.4.3 MITIGATION

Subway Service

As discussed above, the proposed action would not result in any significant adverse impacts to analyzed subway stations in any of the peak periods analyzed. Therefore, no subway service mitigation is required for the proposed action.

Bus Service

As discussed above, the proposed action would not result in any significant adverse impacts to analyzed bus service in any of the peak periods analyzed. Therefore, no bus service mitigation is required for the proposed action.

Pedestrians

As shown in tables 3.4-24 and 3.4-25, pedestrian impacts would occur under Future Action conditions for the weekday PM peak and Saturday midday peak hours. Specifically there would be a marginal impact in the east crosswalk of 161st Street and River Avenue intersection during the PM peak period and the north and south crosswalk of the 161st Street and River Avenue during the Saturday midday peak period.

The results of the analysis account for a peak surge of pedestrians during worst-case (i.e. a sold out stadium) conditions. During pre-game periods, normal traffic operations are expected to be adjusted and NYPD traffic enforcement officers are expected to manage the flow of pedestrians and traffic to help mitigate any pedestrian impacts and enhance safety. Therefore, no mitigation is proposed for the potential impacts to these crosswalks.