

**A. INTRODUCTION**

This chapter examines the potential effects of the proposed actions on the study area's transportation systems. Specifically, it compares conditions in the future with the proposed actions (the With Action condition) against conditions in the future without the proposed actions (the No Action condition) in order to determine the potential for significant adverse impacts to transportation systems. The analyses consider the 2023 analysis year to identify potential impacts, and if warranted, identify mitigation measures that would be appropriate to address those impacts. The travel demand projections, trip assignments, and capacity analysis presented in this chapter were conducted pursuant to the methodologies outlined in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*.

**BACKGROUND**

As detailed in Chapter 1, "Project Description," the co-applicants, the New York City Educational Construction Fund (ECF) and AvalonBay Communities, Inc. (AvalonBay), are seeking a rezoning and other actions to allow the construction of a mixed-use building which includes a replacement facility for an existing school, a new facility for the relocation of two existing neighborhood public high schools, and relocation of an existing jointly operated playground on the project site. The project site is located in the East Harlem neighborhood of Manhattan on the full block bounded by East 96th Street to the south, East 97th Street to the north, Second Avenue to the west, and First Avenue to the east.

The western portion of the project site is currently occupied by the Marx Brothers Playground, which is jointly operated by the Department of Education (DOE) and the New York City Department of Parks and Recreation (NYC Parks). The portion of the playground area facing Second Avenue is currently in use by the Metropolitan Transportation Authority (MTA) New York City Transit (NYCT) as a staging area for Second Avenue Subway construction. The eastern portion of the project site is occupied by an approximately 103,498 gross square foot (gsf) school building, currently in use by the School of Cooperative Technical Education (COOP Tech). Absent the proposed project, in the No Action condition, the existing jointly operated playground and technical facility for high school students (with its 961 seats and 34 informal accessory parking spaces) would remain ~~unchanged~~. In addition, the new Judith Kaye High School is projected to be temporarily housed within the COOP Tech building starting in the fall of 2017, utilizing space currently occupied by a small P2K (GED) program, which is being phased out. Construction on this segment of the Second Avenue Subway was completed at the end of 2016. Following its use of the site, the staging area would be reconstructed by MTA and revert back to open space use.

In the With Action condition, the project site would be developed with a mixed-use building on the western portion of the site and a school building on the eastern portion of the site. The western building would be developed with approximately 1,200 residential units<sup>1</sup>, 25,000 gsf of local retail, and an approximately 135,000 gsf technical school (1,100 seats) to replace the existing COOP Tech. It is anticipated that the Judith Kaye High School would be relocated from the COOP Tech building to an appropriate setting within the surrounding area that will meet the facility's needs. The proposed project would include a special permit waiver to eliminate the requirement for providing any parking on the project site, with an option to provide up to 120 accessory parking spaces (with 111 spaces allocated for residential use, and the remaining 9 spaces allocated for school staff use). The eastern portion of the project site would be developed with an approximately 135,000 gsf building housing two public high schools (450 seats each, for a total of 900 seats) that would relocate from nearby locations within Community Board 11. Lastly, the existing jointly operated playground would be relocated to the middle of the project site, between these two buildings. The relocated playground would be equivalent in size to the existing playground.

Table 11-1 provides a comparison of the development program between the No Action and With Action conditions.

**Table 11-1**  
**Future No Action and With Action Development Programs**

Use	Existing/ No Action	With Action	Increment
Residential (dwelling units)		1,200 <sup>1</sup>	1,200
Local Retail (gsf)		25,000	25,000
Technical School (gsf)	103,498	135,000	31,502
Students*	<del>96</del> 196 <sup>2</sup>	1,100	139
Staff*	60	103	43
High School (gsf)		135,000	135,000
Students*		900	900
Staff*		112	112
Accessory Parking (Spaces)	<del>34</del> <sup>3</sup> 34 <sup>3</sup>	<del>120</del> <sup>4</sup> 120 <sup>4</sup>	(34) or <del>86</del> <sup>3</sup> 86 <sup>4</sup>
Jointly Operated Playground (gsf)	64,150	64,150	0

**Note:** \* Based on information provided by ECF.  
<sup>1</sup> Depending on unit sizing, the project could contain between 1,100 and 1,200 dwelling units. For the purposes of a reasonable worst-case analysis, the EIS will assess potential project impacts based on 1,200 units.  
<sup>2</sup> The new Judith Kaye High School would be temporarily housed within the COOP Tech building under the No Action condition, utilizing space currently occupied by a small P2K (GED) program, which is being phased out. The Judith Kaye High School would have a comparable program size as the P2K program such that the full COOP Tech program would essentially be the same under the existing and No Action conditions. Under the With Action condition, the Judith Kaye High School would be relocated from the COOP Tech to an appropriate setting within the surrounding area.  
<sup>3</sup> The loading area is used as informal staff parking for 34 cars.  
<sup>4</sup> With the proposed special permit to waive accessory off-street parking requirements for non-income restricted dwelling units, no parking would be provided. It is possible that the proposed project would include an accessory parking facility with up to 120 enclosed parking spaces.  
**Sources:** AvalonBay Communities and ECF, 2016

As described above, the proposed project would include a special permit waiver to eliminate the requirement for providing any parking on the project site, with an option to provide up to 120

<sup>1</sup> Depending on unit sizing, the project could contain between 1,100 and 1,200 dwelling units. For the purposes of a reasonable worst-case analysis, the EIS will assess potential project impacts based on 1,200 units.

accessory parking spaces. With regards to traffic, the project-generated trips would be more dispersed under the parking waiver scenario as compared to the 120 on-site parking spaces scenario. Correspondingly, the potential significant adverse traffic impacts associated with the parking waiver scenario would likely be less severe and expected to be within the envelope of impacts identified for the 120 on-site parking spaces scenario. Therefore, for a conservative analysis, the traffic analysis presented below assumes the 120 on-site parking spaces scenario. For parking, a discussion of the potential implications from the parking waiver and the 120 on-site spaces scenarios are provided at the end of this chapter.

**PRINCIPAL CONCLUSIONS**

*TRAFFIC*

Based on a detailed assignment of project-generated vehicle trips, ten intersections were identified as warranting detailed analysis for the weekday AM, midday, and PM peak hours. There would be the potential for significant adverse impacts at seven intersections during the weekday AM peak hour, five intersections during the midday peak hour, and six intersections during the PM peak hour.

**Table 11-2** provides a summary of the impacted locations by lane group and analysis time period. Potential measures to mitigate the projected traffic impacts are described in Chapter 18, “Mitigation.” As detailed in that chapter, the majority of the locations where significant adverse traffic impacts are predicted to occur could be fully mitigated with the implementation of standard traffic mitigation measures (e.g., signal timing changes). However, the significant adverse impacts at the intersections of East 96th Street at York Avenue/FDR Northbound Ramp, East 96th Street at FDR Southbound Ramp, East 96th Street at First Avenue, and East 96th Street at Second Avenue could not be fully mitigated during one or more analysis peak hours. It should be noted that there are often traffic enforcement agents present to direct traffic flow at these study area intersections. Hence, although unmitigatable impacts were identified, the actual traffic conditions are likely more favorable than shown by the analysis results.

**Table 11-2  
Summary of Significant Adverse Traffic Impacts**

Intersection		Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour
EB/WB Street	NB/SB Street			
East 96th Street	First Avenue	WB-R NB-L NB-R	NB-L	NB-L
East 97th Street	First Avenue	EB-L		
East 97th Street	Second Avenue	WB-LT	WB-LT	WB-LT
East 96th Street	Second Avenue	WB-L	WB-L	WB-L SB-L
East 96th Street	Third Avenue	EB-LT WB-TR	EB-LT	EB-DefL WB-TR
East 96th Street	York Avenue/FDR Northbound Ramp	NB-L (FDR Ramp) NB-LT (FDR Ramp)		NB-L (FDR Ramp) NB-LT (FDR Ramp)
East 96th Street	FDR Southbound Ramp	EB-R WB-LT SB-LT	EB-R	EB-R
<b>Total Impacted Intersections/Lane Groups</b>		<b>7/13</b>	<b>5/5</b>	<b>6/89</b>

**Notes:** L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.

### *TRANSIT*

Based on a detailed assignment of project-generated subway and bus trips, detailed analyses of station circulation elements and control areas were conducted for the 96th Street-Lexington Avenue Station (No. 6 line) and the 96th Street-Second Avenue Station (Q line). Subway line-haul (No. 6 line) and bus line-haul (M96, M15, and M15 Select Bus Service [SBS]) analyses were conducted for the weekday AM and PM peak hours.

Based on the subway station analysis results, a potential significant adverse stairway impact was identified for the S4 stairway at the 96th Street-Lexington Avenue Station during the weekday AM peak hour. With the recent opening of the Second Avenue Subway line, ridership at the 96th Street-Lexington Avenue Station has yet to be normalized and the actual ridership may be lower than what was estimated in this analysis, ~~such that the projected impact at the S4 stairway may not materialize.~~ ~~Also~~ Furthermore, the analysis conservatively assumed, in accordance with CEQR guidelines, that the timings of peak travel by the proposed project's residential and school uses take place during the same commuter peak hours, while in reality, they typically stagger over an approximately two-hour window in the morning and minimally overlap in the afternoon. Furthermore, one of the future high schools to be relocated to the project site would have community preference student enrollment where they are expected to draw students primarily from the local neighborhood (i.e., East Harlem). Students from the local neighborhood are more likely to walk to/from school than take public transit to school such that the actual student subway ridership may be less than what has been assumed for a conservative transit analysis. Therefore, given the above reasons, the projected significant adverse impact at the S4 stairway may not materialize. Nonetheless, discussions with NYCT are underway to identify mitigation needs and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and the discussions with NYCT do not identify any ~~no~~ feasible mitigation measures ~~were found~~, the identified significant adverse stairway impact would be unmitigated.

The line-haul analyses showed that the proposed project would not result in the potential for a significant adverse subway line-haul impact. It would however have the potential to yield significant adverse bus line-haul impacts on the westbound M96, and the northbound and southbound M15 SBS during the PM peak period. Potential measures to mitigate the projected significant adverse bus line-haul impacts are described in Chapter 18, "Mitigation."

### *PEDESTRIANS*

Weekday peak period pedestrian conditions were evaluated at key area sidewalk, corner reservoir, and crosswalk locations. Based on the detailed assignment of pedestrian trips, 5 sidewalks, 11 corners, and 6 crosswalks were selected for detailed analysis for the weekday AM, midday, and PM peak hours. Significant adverse impacts were identified for 1 crosswalk during the weekday AM and PM peak hours. Potential measures (i.e., signal timing adjustments) were identified to mitigate the projected pedestrian impacts, as described in Chapter 18, "Mitigation."

### *VEHICULAR AND PEDESTRIAN SAFETY*

Crash data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between January 1, 2013 and December 31, 2015. During this period, a total of 255 reportable and non-reportable crashes, 2 fatalities, 155 injuries, and 46 pedestrian/bicyclist-related accidents occurred at the study area intersections. A

rolling total of accident data identifies two study area intersections, First Avenue at East 96th Street and Third Avenue at East 96th Street, as high crash locations in the 2013 to 2015 period. A summary of the identified high crash locations, prevailing trends, project-specific effects, and recommended safety measures is provided in **Table 11-3**.

**Table 11-3  
Summary of High Crash Locations**

High Crash Intersections	Prevailing Trends	Peak Hour Project-Specific Effects	Recommended Safety Measures
Third Avenue and East 96th Street	None	Incremental trips: 75 vehicles and 470 peds	<u>Restriping faded crosswalks</u> Subsequent to the publication of the DEIS, DOT has independently restriped all four crosswalks into high visibility crosswalks and also introduced two new safety measures to temper speeds and maneuvers at this intersection. These include a hardened centerline and a slow turn wedge/enhanced daylighting. These safety measures are expected to further improve pedestrian safety at this intersection such that no additional safety measures are recommended at this time.
First Avenue and East 96th Street	None	Incremental trips: 110 vehicles and 140 peds	Installing a countdown timer and repositioning bicycle signal head
<b>Source:</b> NYSDOT crash data; January 1, 2013 to December 31, 2015.			

**PARKING**

The proposed project would include a special permit waiver to eliminate the requirement for providing any parking on the project site, with an option to provide up to 120 accessory parking spaces (with 111 spaces allocated for residential use, and the remaining 9 spaces allocated for school staff use). Accounting for the parking supply and demand generated by the proposed project, the With Action public parking utilization is expected to result in a parking shortfall in the ¼-mile study area during the weekday midday time period if the up to 120 on-site parking spaces are not constructed. In consideration of this potential parking shortfall, an additional inventory of off-street parking resources was conducted to determine if the overflow demand could be accommodated at a slightly longer walking distance from the project site. This undertaking concluded that the additional parking resources available between ¼-mile and ½-mile of the project site would yield 942 additional available parking spaces during the peak weekday parking demand midday time period, such that the overflow demand could be adequately accommodated. Therefore, while a ¼-mile parking shortfall would be expected with the proposed parking waiver, it would not result in a significant adverse parking impact.

If the proposed project includes accessory parking for up to 120 spaces, accounting for the parking supply and demand generated by the proposed project, the With Action public parking utilization is expected to increase to just below 98 percent during the weekday midday peak period within the ¼-mile study area. Since this parking utilization level would be within the study area’s parking capacity, the proposed project is not expected to result in the potential for a parking shortfall or a significant adverse parking impact in this scenario.

## **B. PRELIMINARY ANALYSIS METHODOLOGY AND SCREENING ASSESSMENT**

The *CEQR Technical Manual* recommends a two-tier screening procedure for the preparation of a “preliminary analysis” to determine if quantified analyses of transportation conditions are warranted. As discussed below, the preliminary analysis begins with a trip generation analysis (Level 1) to estimate the volume of person and vehicle trips attributable to the proposed project. If the proposed project is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (Level 2) are performed to estimate the incremental trips at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the proposed project would result in 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety.

### **LEVEL 1 SCREENING ASSESSMENT**

A Level 1 trip generation screening assessment was conducted to estimate the number of person and vehicle trips by mode expected to be generated by the proposed project during the weekday AM, midday, and PM peak hours. These estimates were then compared to the *CEQR Technical Manual* thresholds to determine if a Level 2 screening and/or quantified operational analyses would be warranted.

### *TRANSPORTATION PLANNING ASSUMPTIONS*

Trip generation factors for the proposed project were developed based on information from the *CEQR Technical Manual*, U.S. Census Data, and other approved EASs and EISs—as summarized in **Table 11-4**.

#### *Residential*

The daily person trip rate and temporal distribution for the residential component are from the *CEQR Technical Manual*. The directional distribution is from the 2012 *West Harlem Rezoning FEIS*. Journey-to-Work (JTW) data for the 2010-2014 U.S. Census Bureau American Community Survey (ACS) for Manhattan census tracts 152, 156.01, 156.02, 158.01, 158.02, 162, 164, and 166 were used to estimate modal splits for the standard weekday AM (8 AM to 9 AM), midday (12 PM to 1 PM), and PM (5 PM to 6 PM) analysis peak hours. The vehicle occupancies are from the 2010-2014 U.S. Census ACS for autos and from the 2012 *West Harlem Rezoning FEIS* for taxis. The daily delivery trip rate and temporal and directional distributions are from the *CEQR Technical Manual*.

**Table 11-4  
Travel Demand Assumptions**

Use	Residential			Local Retail			High School/ Technical School – Staff			High School – Students			Technical School – Students		
<b>Total Daily Person Trip</b>	(1) Weekday 8.075 Trips / DU			(1)(4) Weekday 205.0 Trips / KSF			(1) Weekday 2.0 Trips / Staff			(1) Weekday 2.0 Trips / Student			(1) Weekday 2.0 Trips / Student		
<b>Trip Linkage</b>	0%			15%			0%			0%			0%		
<b>Temporal</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
	(1)			(1)			(1)			(1)			(8)		
	10%	5%	11%	3%	19%	10%	40%	0%	40%	49.5%	0.0%	49.5%	20.0%	40.0%	30.0%
<b>Direction</b>	(2)			(2)			(5)			(5)			(8)		
	In	16%	50%	67%	50%	50%	50%	100%	50%	0%	100%	50%	0%	100%	50%
Out	84%	50%	33%	50%	50%	50%	0%	50%	100%	0%	50%	100%	0%	50%	65%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Modal Split</b>	(3)			(2)			(6)			(5)			(5)		
	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
Auto	9.0%	9.0%	9.0%	2.0%	2.0%	2.0%	26.0%	26.0%	26.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Taxi	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Subway	58.0%	58.0%	58.0%	6.0%	6.0%	6.0%	47.0%	47.0%	47.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Bus	12.0%	12.0%	12.0%	6.0%	6.0%	6.0%	13.0%	13.0%	13.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Walk	18.0%	18.0%	18.0%	83.0%	83.0%	83.0%	11.0%	11.0%	11.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Vehicle Occupancy</b>	(2)			(2)			(5,6)			(5)			(5)		
	Weekday			Weekday			Weekday			Weekday			Weekday		
Auto	1.09			2.00			1.14			1.30			1.30		
Taxi	1.40			2.00			1.20			1.40			1.40		
<b>Daily Delivery Trip Generation Rate</b>	(1)			(1)						(7)			(7)		
	Weekday 0.06 Delivery Trips / DU			Weekday 0.35 Delivery Trips / KSF						Weekday 0.03 Delivery Trips / Student			Weekday 0.03 Delivery Trips / Student		
<b>Delivery Temporal</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>				<b>AM</b>	<b>MD</b>	<b>PM</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
	(1)			(1)						(7)			(7)		
	12%	9%	2%	8%	11%	2%				9.6%	11.0%	1.0%	9.6%	11.0%	1.0%
<b>Delivery Direction</b>	(1)			(1)						(7)			(7)		
	In	50%	50%	50%	50%	50%				50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%				50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%				100%	100%	100%	100%	100%	100%
<b>Sources:</b>	(1) 2014 CEQR Technical Manual. (2) West Harlem Rezoning FEIS (2012). (3) U.S. Census Bureau, ACS 2010-2014 Five-Year Estimates – Journey-to-Work (JTW) Data. (4) The 15 percent linked trip credit applies only to the walk mode for local retail. (5) I.S./H.S. at 10 East 15th Street EAF (2010). All student auto trips assumed to be pick-up/drop-off. (6) U.S. Census Bureau, ACS 2006-2010 Five-Year Estimates – Reverse Journey-to-Work (RJTW) Data. (7) East New York Rezoning Proposal FEIS (2016). (8) Based on information provided by ECF. Students divided into two daytime sessions and one evening session.														

*Local Retail*

The daily trip generation and delivery vehicle trip generation rates for the local neighborhood retail component are from the *CEQR Technical Manual*. In consultation with the New York City Department of Transportation (DOT), a 15-percent linked trip credit was applied only to the local retail walk mode trips. The temporal and directional distributions for all three weekday analysis peak hours are from the *CEQR Technical Manual* and the 2012 *West Harlem Rezoning FEIS*, respectively. The modal splits and vehicle occupancies are from the 2012 *West Harlem Rezoning FEIS*. The temporal distributions for the delivery trips are from the *CEQR Technical Manual*.

*High School/Technical School*

The two future high schools to be relocated to the project site are typical high schools. Travel demand assumptions for these two schools are from the *CEQR Technical Manual* and other previously approved school projects. In line with accepted *CEQR* guidance, the school peak hour

trip-making were conservatively overlaid on top of the weekday AM and PM peak hours for the proposed project's other typical uses, including residential and local retail uses.

The existing COOP Tech is a specialized, technical high school offering students vocational and hands on training on a variety of trade areas. Under the No Action condition, the new Judith Kaye High School would be temporarily housed within the COOP Tech building, utilizing space currently occupied by a small P2K (GED) program, which is being phased out. The P2K program currently occupies a small portion of the COOP Tech building; this use will be phased out and the Judith Kaye High School students would use that space. The Judith Kaye High School would have a comparable program size as the P2K program such that the full COOP Tech program would essentially be the same under the existing and No Action conditions. Under the With Action condition, the Judith Kaye High School would be relocated from the COOP Tech building to an appropriate setting within the surrounding area.

Based on information provided by ECF, it currently operates with two main sessions during the day and a much smaller session at night. Specifically, the first session students (approximately 380 students for the existing school and 435 students for the proposed school) would arrive during the AM peak hour; for the midday peak hour, the first session students would depart and the second session students (approximately 380 students for the existing school and 435 students for the proposed school) would arrive; and for the PM peak hour, the second session students would depart and the evening session students (approximately 200 students for the existing school and 230 students for the proposed school) would arrive.

The high school and technical school trip generation factors are further described below.

#### *High School/Technical School Staff*

The daily person trip rate and temporal distribution for high school and technical school staff are from the *CEQR Technical Manual*. The directional distribution is from the 2010 *SCA – IS/HS at 10 East 15th Street EAF*<sup>1</sup>. The modal splits are from the Reverse-Journey-to-Work (RJTW) data for the 2006-2010 U.S. Census ACS for Manhattan census tracts 152, 156.01, 156.02, 158.01, 158.02, 162, 164, and 166. The vehicle occupancies are from 2006-2010 U.S. Census ACS for autos and from the 2010 *SCA – IS/HS at 10 East 15th Street EAF* for taxis.

#### *High School Students*

The daily person trip rate and temporal distribution for high school students are from the *CEQR Technical Manual*. The directional distribution, modal splits, and vehicle occupancies are from the 2010 *SCA – IS/HS at 10 East 15th Street EAF*. Auto trips are assumed to be pick-ups and drop-offs made by parents. The school delivery travel demand factors are from the 2016 *East New York Rezoning Proposal FEIS*.

#### *COOP Tech School Students*

The daily person trip rate for technical school students are from the *CEQR Technical Manual*. The temporal and directional distributions were developed based on information provided by ECF assuming students would be divided into two main daytime sessions and a smaller evening session. The modal splits and vehicle occupancies from the 2010 *SCA – IS/HS at 10 East 15th*

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<sup>1</sup> This previous school project included separate trip generation factors for intermediate school students and high school students. The high school student trip generation factors were assumed for the proposed project's existing and future technical and high schools.

*Street EAF.* Auto trips are assumed to be pick-ups and drop-offs made by parents. The school delivery travel demand factors are from the 2016 *East New York Rezoning Proposal FEIS*.

*Playground*

As described above, the existing jointly operated playground would be relocated to the middle of the project site from its current location on the western portion of the project site. The relocated playground would be equivalent in size to the existing playground. Because the playground already exists on the project site and would remain the same size in the future with the proposed actions, it would not result in new incremental trips to the project site.

*TRAVEL DEMAND PROJECTION SUMMARY*

As summarized in **Table 11-5**, in the future without the proposed actions, a total of 428, 761, and 627 person trips would be generated during the weekday AM, midday, and PM peak hours, respectively. Approximately 57, 84, and 75 vehicle trips would be generated during the same respective peak hours.

As summarized in **Table 11-6**, in the future with the proposed actions, a total of 2,604, 2,208, and 3,242 person trips would be generated during the weekday AM, midday, and PM peak hours, respectively. Approximately 317, 196, and 361 vehicle trips would be generated during the same respective peak hours.

**Table 11-5**

**Trip Generation Summary: Future Without the Proposed Actions**

Program	Peak Hour	In/Out	Person Trip					Vehicle Trip				
			Auto	Taxi	Subway	Bus	Walk	Total	Auto	Taxi	Delivery	Total
COOP Tech School – Staff	AM	In	12	1	23	6	5	47	11	1	0	12
		Out	0	0	0	0	0	0	0	1	0	1
		Total	12	1	23	6	5	47	11	2	0	13
	Midday	In	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0
	PM	In	0	0	0	0	0	0	0	1	0	1
		Out	12	1	23	6	5	47	11	1	0	12
		Total	12	1	23	6	5	47	11	2	0	13
COOP Tech School – Student	AM	In	19	8	154	96	104	381	15	6	1	22
		Out	0	0	0	0	0	0	15	6	1	22
		Total	19	8	154	96	104	381	30	12	2	44
	Midday	In	19	8	154	96	103	380	30	10	2	42
		Out	19	8	154	96	104	381	30	10	2	42
		Total	38	16	308	192	207	761	60	20	4	84
	PM	In	10	4	81	50	55	200	23	8	0	31
		Out	19	8	154	96	103	380	23	8	0	31
		Total	29	12	235	146	158	580	46	16	0	62
Total	AM	In	31	9	177	102	109	428	26	7	1	34
		Out	0	0	0	0	0	0	15	7	1	23
		Total	31	9	177	102	109	428	41	14	2	57
	Midday	In	19	8	154	96	103	380	30	10	2	42
		Out	19	8	154	96	104	381	30	10	2	42
		Total	38	16	308	192	207	761	60	20	4	84
	PM	In	10	4	81	50	55	200	23	9	0	32
		Out	31	9	177	102	108	427	34	9	0	43
		Total	41	13	258	152	163	627	57	18	0	75

Table 11-6

**Trip Generation Summary: Future With the Proposed Actions**

Program	Peak Hour	In/Out	Person Trip					Total	Vehicle Trip			
			Auto	Taxi	Subway	Bus	Walk		Auto	Taxi	Delivery	Total
Residential	AM	In	14	5	90	19	28	156	13	17	4	34
		Out	73	24	472	98	147	814	67	17	4	88
		Total	87	29	562	117	175	970	80	34	8	122
	Midday	In	22	7	141	29	44	243	20	8	3	31
		Out	22	7	141	29	44	243	20	8	3	31
		Total	44	14	282	58	88	486	40	16	6	62
	PM	In	64	21	414	86	129	714	59	20	1	80
		Out	32	11	204	42	63	352	29	20	1	50
		Total	96	32	618	128	192	1,066	88	40	2	130
Local Retail	AM	In	2	2	5	5	54	68	1	2	0	3
		Out	2	2	5	5	54	68	1	2	0	3
		Total	4	4	10	10	108	136	2	4	0	6
	Midday	In	10	15	29	29	343	426	5	14	0	19
		Out	10	15	29	29	343	426	5	14	0	19
		Total	20	30	58	58	686	852	10	28	0	38
	PM	In	5	8	15	15	181	224	3	7	0	10
		Out	5	8	15	15	181	224	3	7	0	10
		Total	10	16	30	30	362	448	6	14	0	20
High School/ COOP Tech School – Staff	AM	In	45	5	81	22	19	172	39	3	0	42
		Out	0	0	0	0	0	0	0	3	0	3
		Total	45	5	81	22	19	172	39	6	0	45
	Midday	In	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0
	PM	In	0	0	0	0	0	0	0	4	0	4
		Out	45	5	81	22	19	172	39	4	0	43
		Total	45	5	81	22	19	172	39	8	0	47
High School – Student	AM	In	45	18	356	223	249	891	35	11	1	47
		Out	0	0	0	0	0	0	35	11	1	47
		Total	45	18	356	223	249	891	70	22	2	94
	Midday	In	0	0	0	0	0	0	0	0	1	1
		Out	0	0	0	0	0	0	0	0	1	1
		Total	0	0	0	0	0	0	0	0	2	2
	PM	In	0	0	0	0	0	0	35	12	0	47
		Out	45	18	356	223	249	891	35	12	0	47
		Total	45	18	356	223	249	891	70	24	0	94
COOP Tech School – Student	AM	In	22	9	176	110	118	435	17	6	2	25
		Out	0	0	0	0	0	0	17	6	2	25
		Total	22	9	176	110	118	435	34	12	4	50
	Midday	In	22	9	176	110	118	435	34	11	2	47
		Out	22	9	176	110	118	435	34	11	2	47
		Total	44	18	352	220	236	870	68	22	4	94
	PM	In	12	5	92	58	63	230	26	9	0	35
		Out	22	9	176	110	118	435	26	9	0	35
		Total	34	14	268	168	181	665	52	18	0	70
Total	AM	In	128	39	708	379	468	1,722	105	39	7	151
		Out	75	26	477	103	201	882	120	39	7	166
		Total	203	65	1,185	482	669	2,604	225	78	14	317
	Midday	In	54	31	346	168	505	1,104	59	33	6	98
		Out	54	31	346	168	505	1,104	59	33	6	98
		Total	108	62	692	336	1,010	2,208	118	66	12	196
	PM	In	81	34	521	159	373	1,168	123	52	1	176
		Out	149	51	832	412	630	2,074	132	52	1	185
		Total	230	85	1,353	571	1,003	3,242	255	104	2	361

The net incremental trips generated in the future without and with the proposed project are shown in **Table 11-7**.

**Table 11-7  
Trip Generation Summary: Net Incremental Trips**

Program	Peak Hour	In/Out	Person Trip						Vehicle Trip			
			Auto	Taxi	Subway	Bus	Walk	Total	Auto	Taxi	Delivery	Total
Net Increments	AM	In	97	30	531	277	359	1,294	79	32	6	117
		Out	75	26	477	103	201	882	105	32	6	143
		Total	172	56	1,008	380	560	2,176	184	64	12	260
	Midday	In	35	23	192	72	402	724	29	23	4	56
		Out	35	23	192	72	401	723	29	23	4	56
		Total	70	46	384	144	803	1,447	58	46	8	112
	PM	In	71	30	440	109	318	968	100	43	1	144
		Out	118	42	655	310	522	1,647	98	43	1	142
		Total	189	72	1,095	419	840	2,615	198	86	2	286

*TRAFFIC*

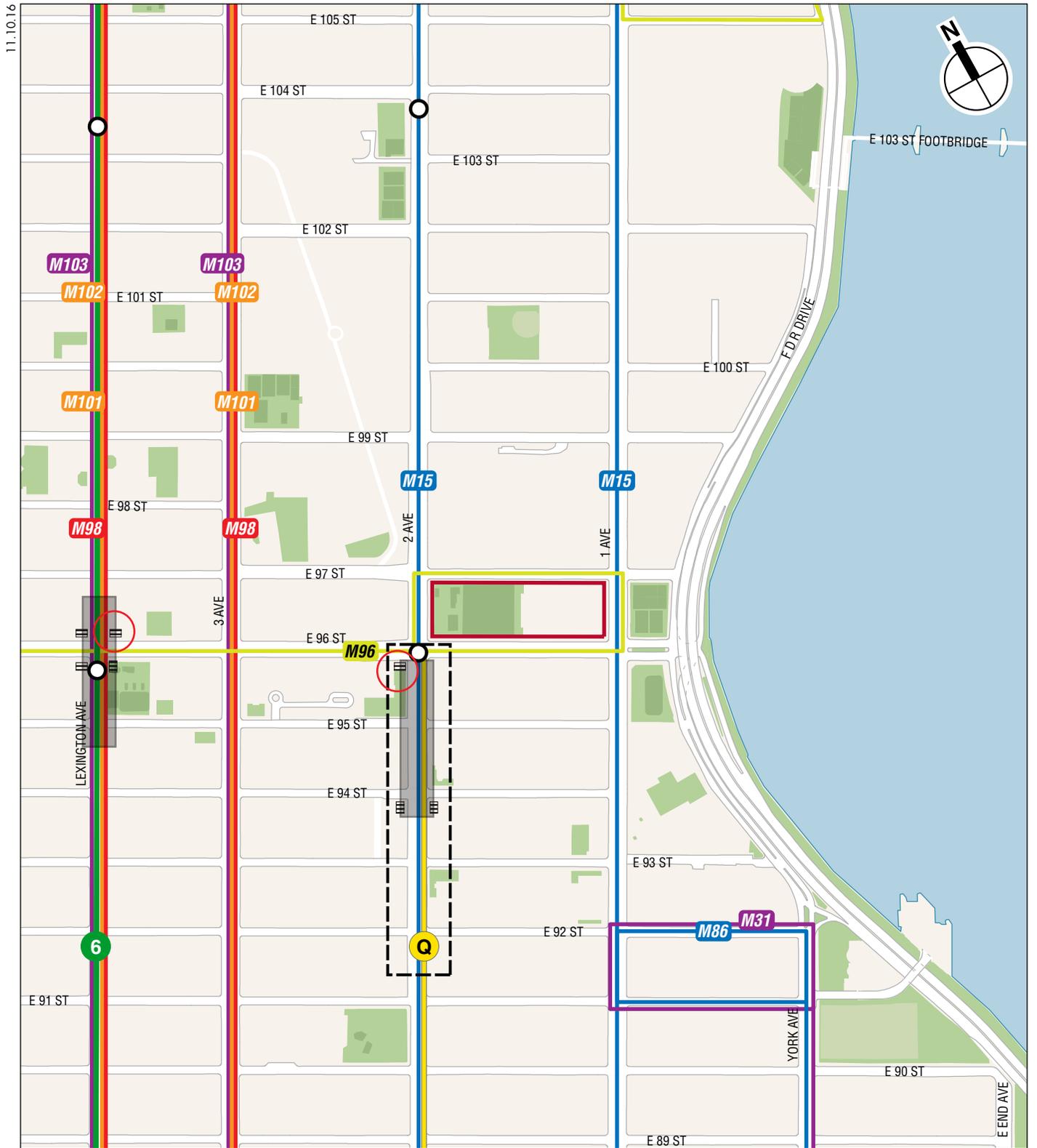
As shown in **Table 11-7**, the incremental trips generated by the proposed project would be 260, 112, and 286 vehicle trips during the weekday AM, midday, and PM peak hours, respectively. Since the incremental vehicle trips would be greater than 50 vehicles during the weekday AM, midday, and PM peak hours, a Level 2 screening assessment (presented in the section below) was conducted to determine if a quantified traffic analysis is warranted.

*TRANSIT*

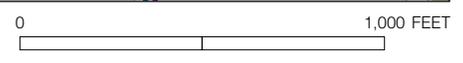
Existing public transit options to and from the study area are shown in **Figure 11-1**. The project site is served by the New York City Transit (NYCT) Lexington Avenue line at East 96th Street, the M15 and M15 SBS bus route along First and Second Avenues, the crosstown M96 bus route along East 96th Street, and other local bus routes in the study area. With completion of the first phase of the Second Avenue Subway line at the end of 2016, many subway riders in the area are expected to shift from the Lexington Avenue line to the Second Avenue line. Most future subway riders from the project site are similarly expected to take advantage of the shorter walk to Second Avenue. As detailed in **Table 11-7**, the incremental transit trips generated by the proposed project would be 1,008, 384, and 1,095 person trips by subway, and 380, 144, and 419 person trips by bus during the weekday AM, midday, and PM peak hours, respectively. Since the incremental subway trips would be greater than 200 during all three peak hours, a Level 2 screening assessment (presented in the section below) was conducted to determine if a quantified subway analysis is warranted for station operational analysis and subway line-haul analysis. Since the incremental bus trips would be greater than 50 during all three peak hours, a Level 2 screening assessment was conducted to determine if a quantified bus line-haul analysis is warranted.

*PEDESTRIANS*

All incremental person trips generated by the proposed project would traverse the pedestrian elements (i.e., sidewalks, corners, and crosswalks) surrounding the project site. As shown in **Table 11-7**, the net incremental pedestrian trips would be greater than 200 during the weekday AM, midday, and PM peak hours. A Level 2 screening assessment (presented in the section



- Project Site
- M101 Bus Route
- Subway Stop
- Subway Route
- Subway Station
- Analysis Stairway
- Phase 1 Second Avenue Subway



below) was conducted to determine if there is a need for additional quantified pedestrian analyses.

## **LEVEL 2 SCREENING ASSESSMENT**

As part of the Level 2 screening assessment, project-generated trips were assigned to specific intersections and pedestrian elements near the project site. As previously stated, further quantified analyses to assess the potential impacts of the proposed project on the transportation system would be warranted if the trip assignments were to identify key intersections incurring 50 or more peak hour vehicle-trips or pedestrian elements incurring 200 or more peak hour pedestrian-trips. Similarly, for transit elements, the projected trips were considered in determining the likely transit facilities requiring a detailed analysis of potential impacts.

### *SITE ACCESS AND EGRESS*

For the proposed project, the residential entrance would be located along the north side of East 96th Street between First and Second Avenues and along the east side of Second Avenue between East 96th Street and East 97th Streets. Retail entrances would ~~primarily~~ be located along the east side of Second Avenue between East 96th Street and East 97th Street. The two relocated schools would have entrances located at the east end of the relocated open space. The technical school would have its main entrance on the south side of East 97th Street between First and Second Avenues, toward the northwest end of the proposed project site. The potential on-site parking facility would be accessed from a driveway facing East 96th Street. This driveway would also provide access to the loading area for the western building. Loading for the technical school and access to instructional automotive shops within the ground floor of the technical school will both be from a driveway facing East 97th Street. One additional curb cut, on East 97th Street, would serve the relocated playground.

### *TRAFFIC*

As shown in **Table 11-7**, incremental vehicle trips resulting from the proposed project would exceed the *CEQR* Level-1 screening threshold during the weekday AM, midday, and PM peak hours. These vehicle trips were assigned to area intersections based on the most likely travel routes to and from the project site, prevailing travel patterns, commuter origin-destination (O-D) summaries from the census data, the configuration of the roadway network, the anticipated locations of site access and egress, locations of parking facilities, and nearby land use and population characteristics. Non-pick-up and drop-off auto trips were assigned to the potential on-site parking facility and off-street parking facilities identified within ¼-mile of the project site. Taxi trips were distributed to the various project site entrances. Delivery trips were assigned to the project site driveways and project site curbsides via DOT-designated truck routes. Traffic assignments for autos, taxis, and deliveries for the various development uses are discussed below.

#### *Residential*

Auto trips generated by the residential uses were assigned to the surrounding roadway network based on the 2006-2010 U.S. Census ACS JTW origin-destination estimates. Many of the residential trips would be traveling to work destinations within the local region of Manhattan (48 percent), with the remaining trips traveling to Brooklyn (6 percent), New Jersey (6 percent), Queens (9 percent), Upstate New York (8 percent), Connecticut (7 percent), Staten Island (1 percent), the Bronx (10 percent), and Long Island (5 percent). Residential trips would originate

from the potential on-site parking facility and off-site parking facilities identified within ¼-mile of the project site with available overnight capacity, and use the most direct routes for travel to their destinations. Overall, vehicle trips generated by the residential uses were distributed to the study area roadway network in the following manner: approximately 25 percent of outbound trips were assigned to the FDR Drive northbound, 40 percent to FDR Drive southbound, 20 percent to major southbound avenues, 9 percent to major northbound avenues, and 6 percent to points west. Taxi trips generated by the residential uses were assigned to the Second Avenue and East 96th Street curbsides facing the site.

#### *Local Retail*

The proposed local retail uses are expected to serve patrons primarily from the immediate area. Auto trips were generally assigned from local origins within the neighborhood and adjacent residential areas. Approximately 40 percent of vehicle trips would originate from the north of the site, 50 percent from the south of the site, and 10 percent from the west of the site, and were assigned to several of the closest off-street parking garages to the site. Taxi trips were assigned to the Second Avenue and East 97th Street curbsides facing the site.

#### *High School/COOP Tech School*

##### *High School/COOP Tech School Staff*

Auto trips generated by the staff were assigned to the surrounding roadway network based on the 2006-2010 U.S. Census ACS RJTW origin-destination estimates. The staff trips would originate from Queens (23 percent), Brooklyn (4 percent), New Jersey (13 percent), Long Island and others (10 percent), Manhattan (20 percent), the Bronx (12 percent), Staten Island (5 percent), and Upstate New York (13 percent). As described above in the With Action condition, nine out of the 120 potential on-site accessory parking spaces would be allocated for school staff use. There is also limited on-street school parking regulations surrounding the current project site including the west curbside of First Avenue between East 97th Street and East 96th Streets; and along a small section of the south curbside of East 97th Street between First and Second Avenues. While these on-street school parking regulations will likely remain in place in the future with the proposed actions, staff trips were assigned to the potential on-site parking spaces. Any remaining trips not accommodated by the potential on-site parking were conservatively assigned to the nearby off-site parking garages using the most direct route along major roadways from their points of origin. Staff vehicle trips for the existing technical school were assigned to the on-site informal parking lot accessed from East 97th Street. Staff vehicle trips for the proposed school facilities were assigned to spaces within the potential on-site parking garage allocated for staff members, and to off-street parking garages nearby. Taxi trips were assigned to the East 97th Street and First Avenue curbsides facing the existing school facility. For the proposed school facilities, taxi trips were assigned to those curbsides as well as the Second Avenue curbside.

##### *High School Students*

All of the student auto and taxi pick-up and drop-off trips for the proposed high school facilities in the easternmost building of the project site were assigned to the East 97th Street, East 96th Street, and First Avenue curbsides. The origins of these vehicle trips were based on nearby land use and population characteristics, with 40 percent originating from the north, 50 percent originating from the south, and 10 percent originating from the west.

*COOP Tech School Students*

All of the student auto and taxi pick-up and drop-off trips for the existing technical school facility were assigned to the East 97th Street and First Avenue curbsides. The student auto and taxi pick-up and drop-off trips for the proposed technical school facility were assigned to these curbsides, and the Second Avenue and East 96th Street curbsides, as the technical school would be relocated to the westernmost building of the project site. The origins of these vehicle trips were based on nearby land use and population characteristics, with 40 percent originating from the north, 50 percent originating from the south, and 10 percent originating from the west.

*Deliveries*

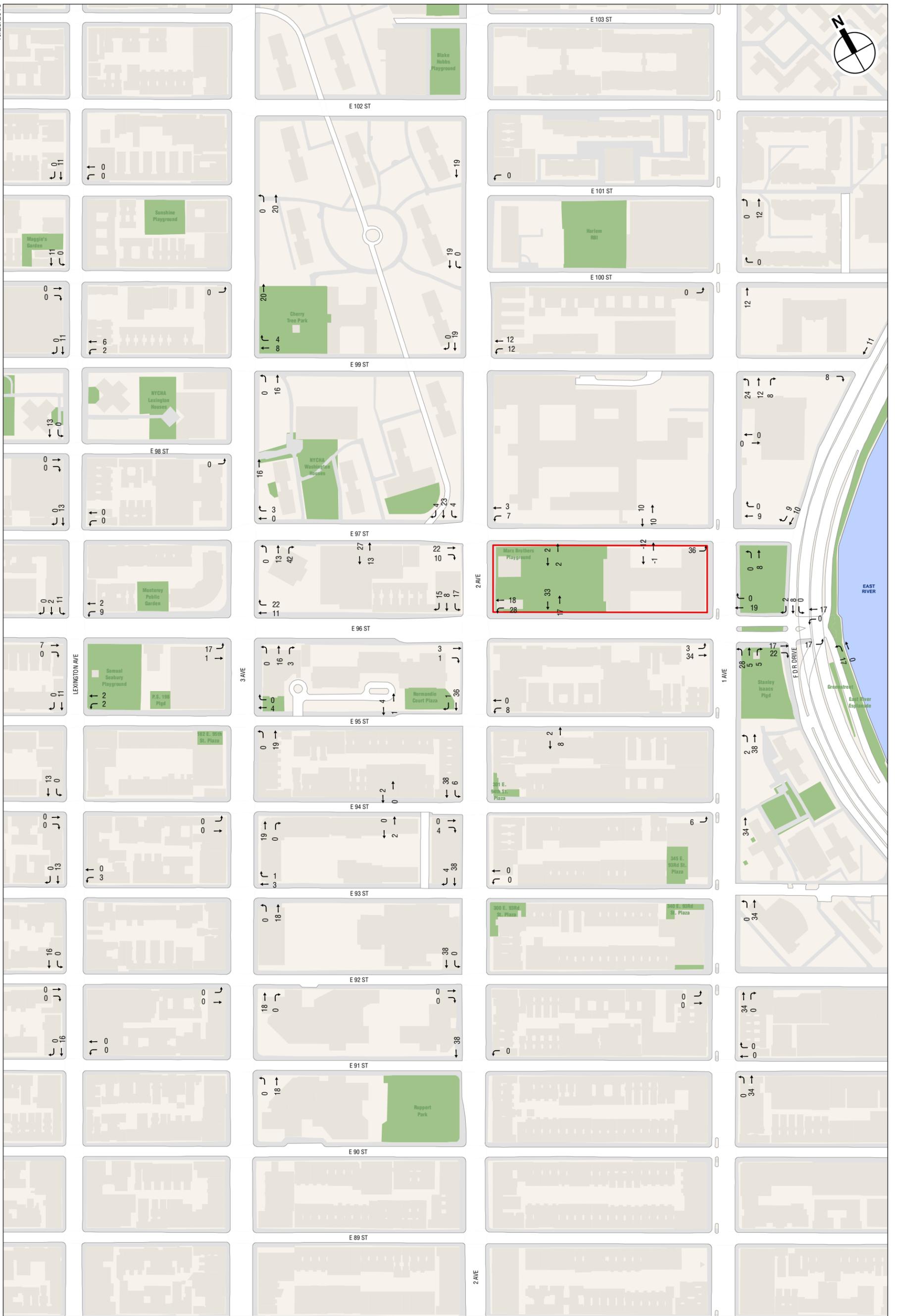
Truck delivery trips for all land uses were assigned to DOT-designated truck routes as long as possible until reaching the area surrounding the project site. Truck trips generated by the existing technical school facility were assigned to loading facilities facing East 97th Street. Truck trips generated by the proposed technical school facility were assigned to the project driveway that would face East 97th Street. Truck trips generated by the proposed high school facilities were assigned to the project site curbsides. Lastly, truck trips generated by the proposed residential units were assigned to the driveway accessed from East 96th Street.

*Summary*

**Figures 11-2 through 11-4** show the net incremental vehicle trips for the proposed project for the weekday AM, midday, and PM peak hours, respectively. According to the *CEQR Technical Manual*, intersections expected to incur 50 or more incremental peak hour vehicle trips as a result of a proposed project would have the potential for significant adverse traffic impacts and should be assessed in a quantified traffic impact analysis. As presented in **Figure 11-5** and **Table 11-8**, ten intersections comprising the traffic study area have been selected for analysis. These intersections include those expected to incur 50 or more project-generated incremental vehicle trips during the weekday AM, midday, and PM peak hours, as well as other locations selected for analysis per consultation with DOT.

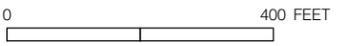
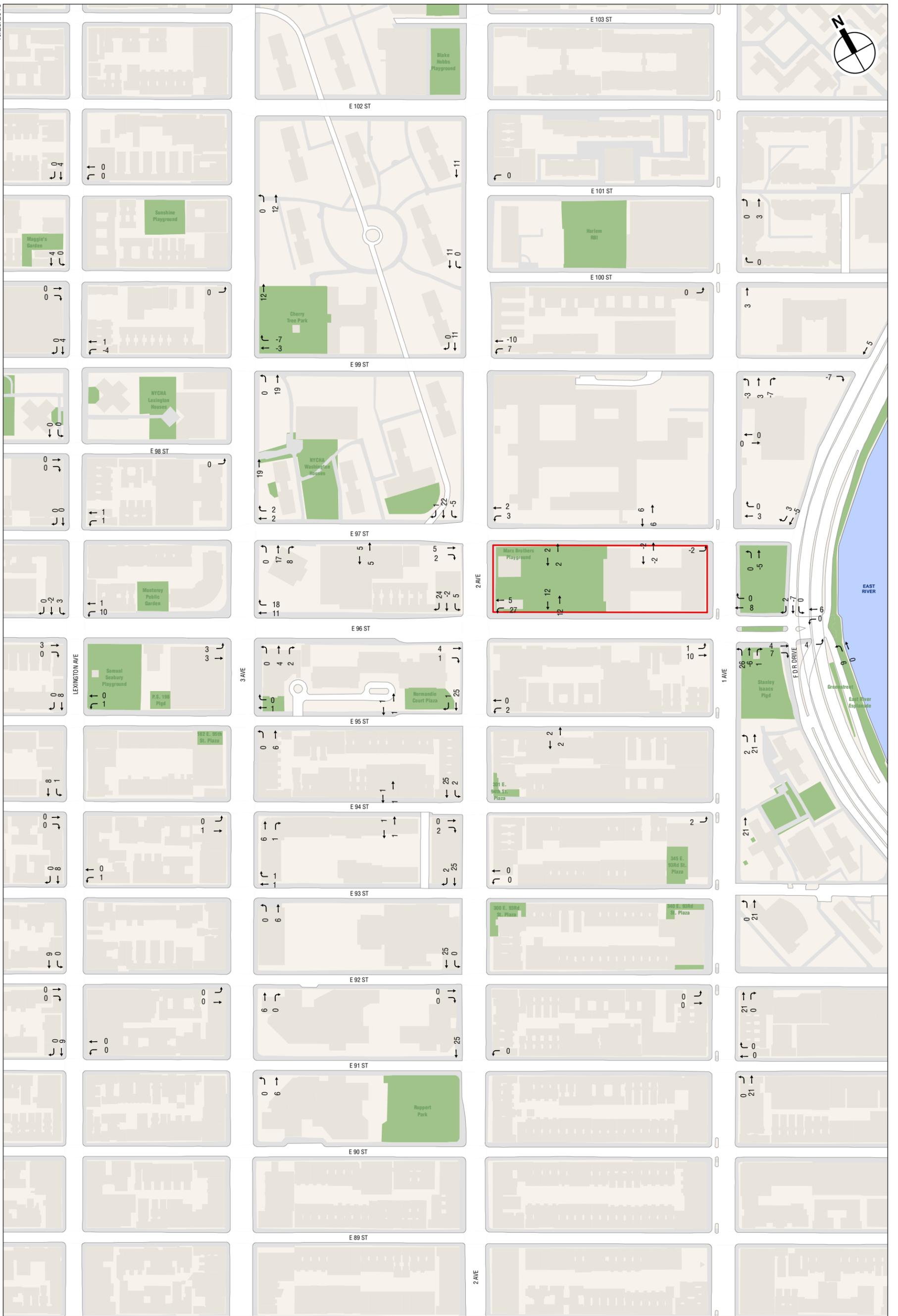
*TRANSIT*

Currently, the proposed project is located near two NYCT subway stations: the 96th Street Station (No. 6 train), and the 96th Street Station (Q), which went into service as part of the new Second Avenue Subway line on December 31, 2016. Therefore, in the With Action condition, the proposed project is assumed to generate subway trips to and from both stations. As summarized in **Table 11-7**, the proposed project is expected to generate 1,008, 384, and 1,095 peak hour incremental subway trips during the weekday AM, midday, and PM peak hours, respectively. Based on discussions with NYCT, it is expected that approximately two-thirds (67 percent) of the project-generated subway trips would be distributed to the 96th Street (Q) Station and one-third (33 percent) of the project-generated subway trips would be distributed to the 96th Street (No. 6 train) Station. Therefore, quantified analyses of affected elements at these two stations and subway line-haul for No. 6 line for the weekday AM and PM peak hours would be warranted. Since the Second Avenue Subway has only been operational for a very short time, there is no historical line haul data for the Q line along the Upper East Side. Therefore, a line-haul analysis for the Q line could not be conducted. It is expected that the estimated project-generated subway trips would be a nominal addition to the future ridership on the Q line and would not have the potential to result in a significant adverse impact on its line-haul capacity.



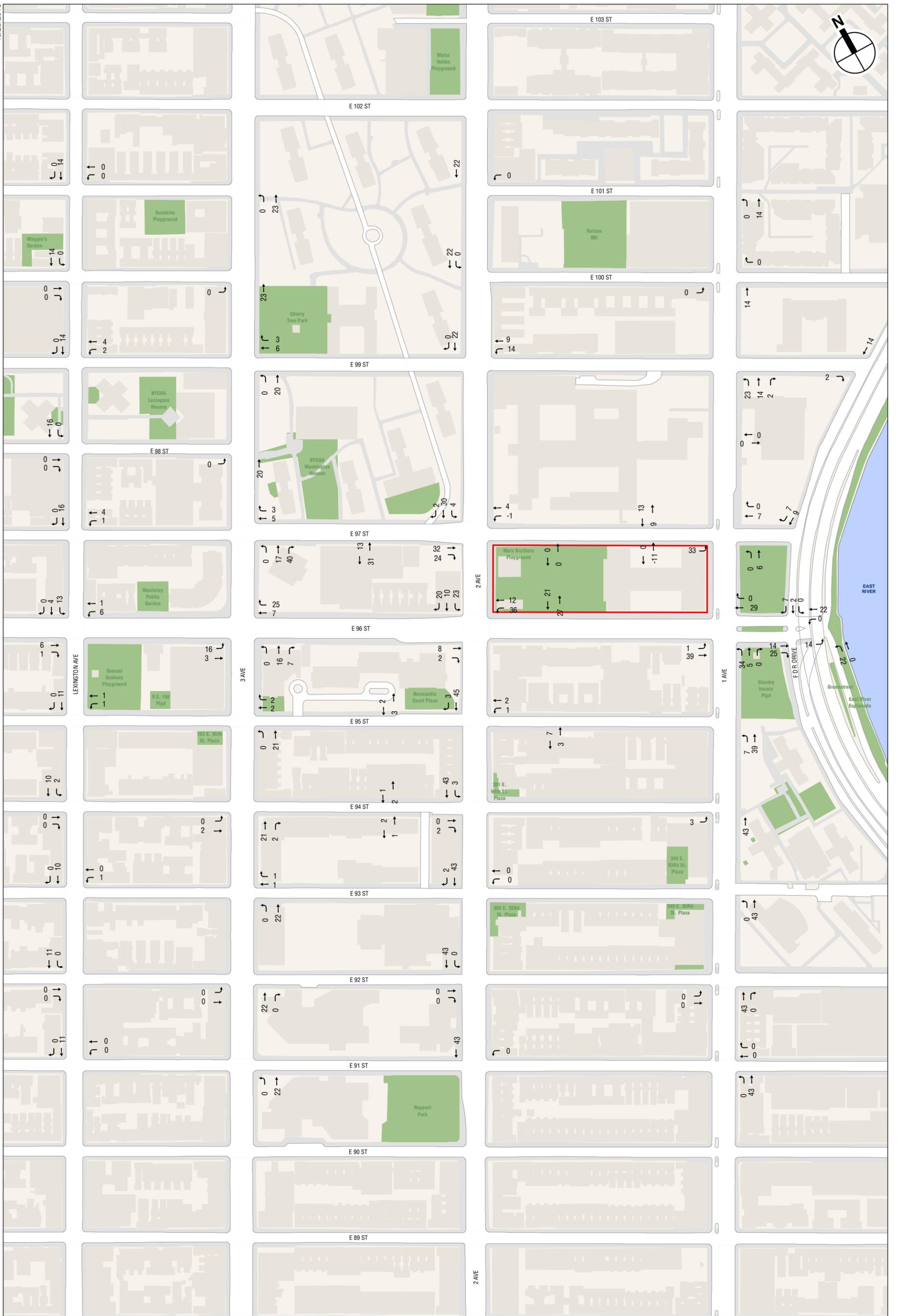
Project Site

Proposed Project Incremental Vehicle Trips  
Weekday AM Peak Hour  
Figure 11-2



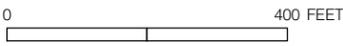
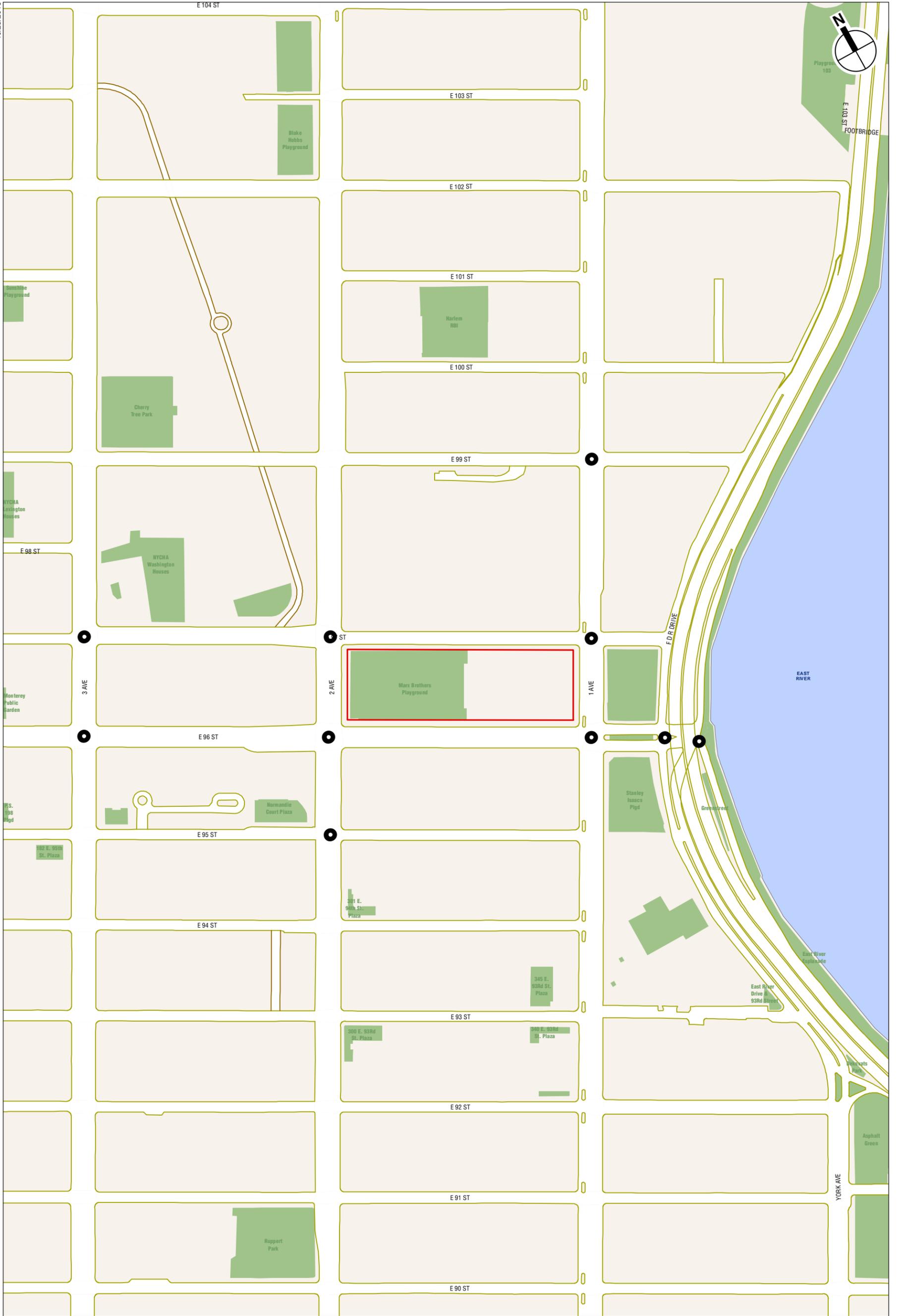
Project Site

Proposed Project Incremental Vehicle Trips  
 Weekday Midday Peak Hour  
**Figure 11-3**



Project Site

Proposed Project Incremental Vehicle Trips  
Weekday PM Peak Hour  
Figure 11-4



 Traffic Analysis Location

 Project Site

**Table 11-8  
Traffic Level 2 Screening Analysis Results—Selected Analysis Locations**

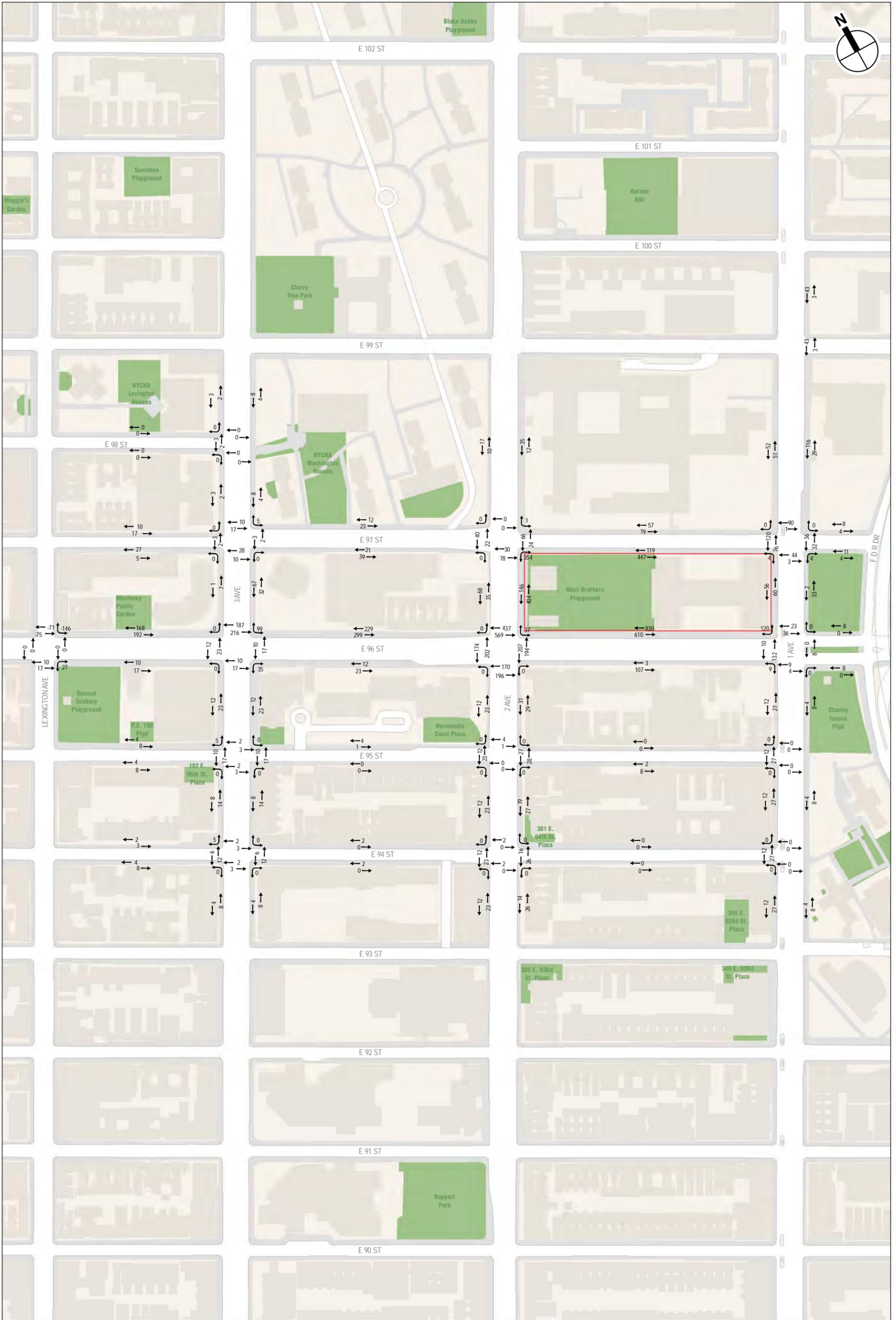
Intersection	Incremental Vehicle Trips (Weekday)			Analysis Locations	
	AM	Midday	PM	Selected	Control
<b>First Avenue and East 99th Street</b>	<b>44</b>	<b>-7</b>	<b>39</b>	✓	<b>Signalized</b>
<b>First Avenue and East 97th Street</b>	<b>53</b>	<b>-4</b>	<b>46</b>	✓	<b>Signalized</b>
<b>First Avenue and East 96th Street</b>	<b>94</b>	<b>40</b>	<b>108</b>	✓	<b>Signalized</b>
First Avenue and East 95th Street	40	23	46		Signalized
First Avenue and East 94th Street	40	23	46		Signalized
First Avenue and East 93rd Street	34	21	43		Signalized
First Avenue and East 92nd Street	34	21	43		Signalized
First Avenue and East 91st Street	34	21	43		Signalized
Second Avenue and East 101st Street	19	11	22		Signalized
Second Avenue and East 100th Street	19	11	22		Signalized
Second Avenue and East 99th Street	43	8	45		Signalized
<b>Second Avenue and East 97th Street</b>	<b>73</b>	<b>30</b>	<b>95</b>	✓	<b>Signalized</b>
<b>Second Avenue and East 96th Street</b>	<b>90</b>	<b>64</b>	<b>111</b>	✓	<b>Signalized</b>
<b>Second Avenue and East 95th Street</b>	<b>45</b>	<b>28</b>	<b>51</b>	✓	<b>Signalized</b>
Second Avenue and East 94th Street	48	29	48		Signalized
Second Avenue and East 93rd Street	42	27	45		Signalized
Second Avenue and East 92nd Street	38	25	43		Signalized
Second Avenue and East 91st Street	38	25	43		Signalized
Third Avenue and East 101st Street	20	12	23		Signalized
Third Avenue and East 100th Street	20	12	23		Signalized
Third Avenue and East 99th Street	28	9	29		Signalized
Third Avenue and East 98th Street	16	19	20		Signalized
<b>Third Avenue and East 97th Street</b>	<b>58</b>	<b>29</b>	<b>65</b>	✓	<b>Signalized</b>
<b>Third Avenue and East 96th Street</b>	<b>70</b>	<b>41</b>	<b>74</b>	✓	<b>Signalized</b>
Third Avenue and East 95th Street	23	7	25		Signalized
Third Avenue and East 94th Street	19	8	25		Signalized
Third Avenue and East 93rd Street	22	8	24		Signalized
Third Avenue and East 92nd Street	18	6	22		Signalized
Third Avenue and East 91st Street	18	6	22		Signalized
Lexington Avenue and East 99th Street	19	1	20		Signalized
Lexington Avenue and East 97th Street	13	2	21		Signalized
Lexington Avenue and East 96th Street	31	15	31		Signalized
<b>FDR Southbound Service Road and East 96th Street</b>	<b>66</b>	<b>12</b>	<b>70</b>	✓	<b>Signalized</b>
<b>FDR Northbound Service Road and East 96th Street*</b>	<b>34</b>	<b>10</b>	<b>36</b>	✓	<b>Signalized</b>

**Notes:** ✓ denotes intersections selected for the detailed traffic analysis.  
 \*Although projected vehicle-trip increments are under 50, this intersection is included due to its link with the adjacent FDR Southbound Service Road intersection.  
 Intersections with fewer than 20 incremental vehicle trips in all peak hours were not presented in this table.

There are numerous bus routes with stops adjacent to or near the development parcels, including the M15, M15 SBS, M96, M98, M101, and M102 bus routes. As summarized in **Table 11-7**, the proposed project is expected to generate 380, 144, and 419 incremental bus trips during the weekday AM, midday, and PM peak hours, respectively. Based on a distribution of the projected bus trips, including transfers, it was determined that a quantified bus line-haul analysis would be warranted for the M15, M15 SBS, and M96 bus routes.

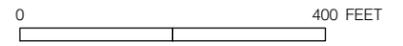
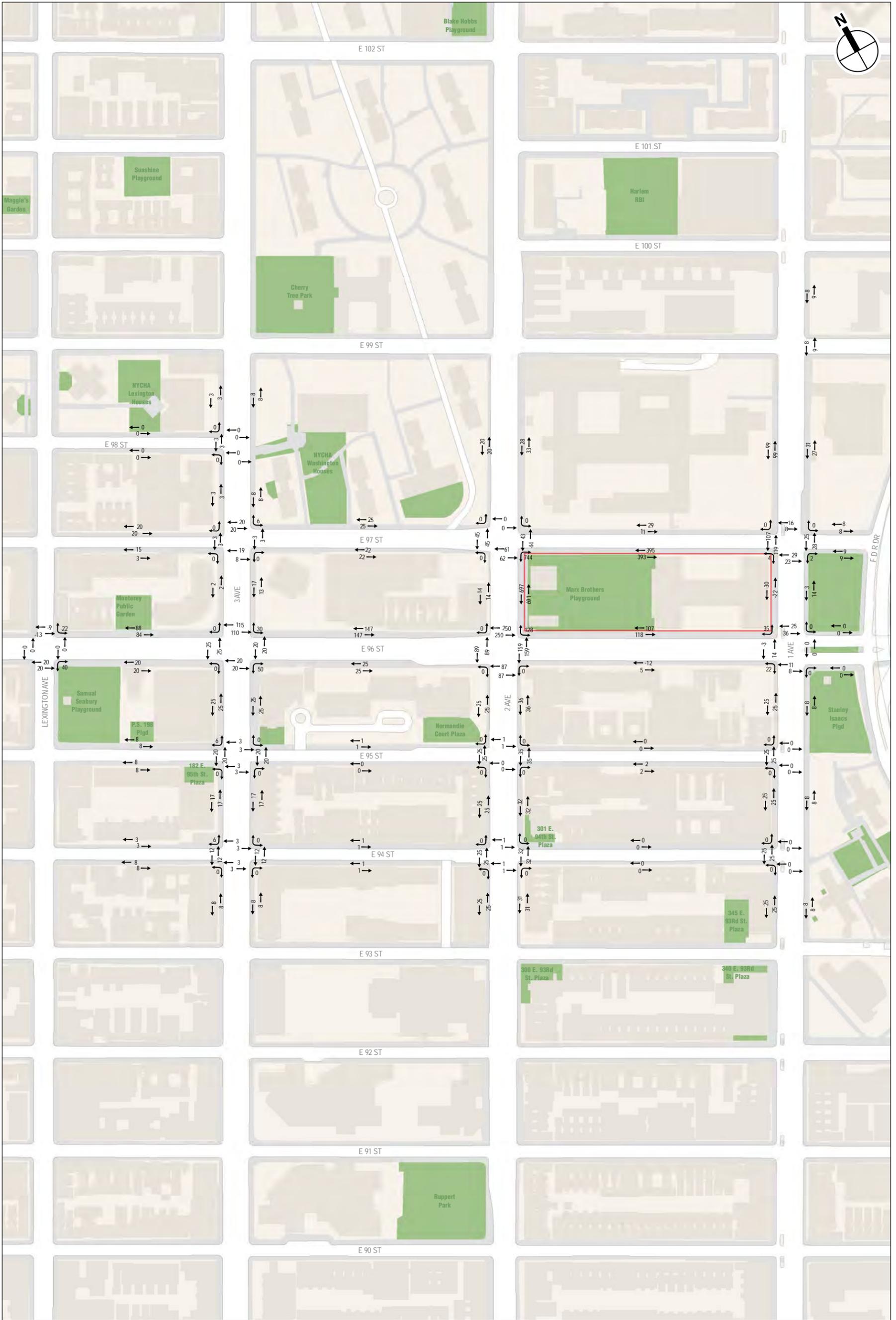
**PEDESTRIANS**

As shown in **Table 11-7**, the projected peak hour incremental pedestrian trips would exceed the *CEQR* analysis threshold of 200 pedestrians during all peak hours. Level 2 pedestrian trip assignments were individually developed for all of the proposed project components. **Figures 11-6 through 11-8** show the net incremental pedestrian trips for the proposed project for the



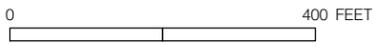
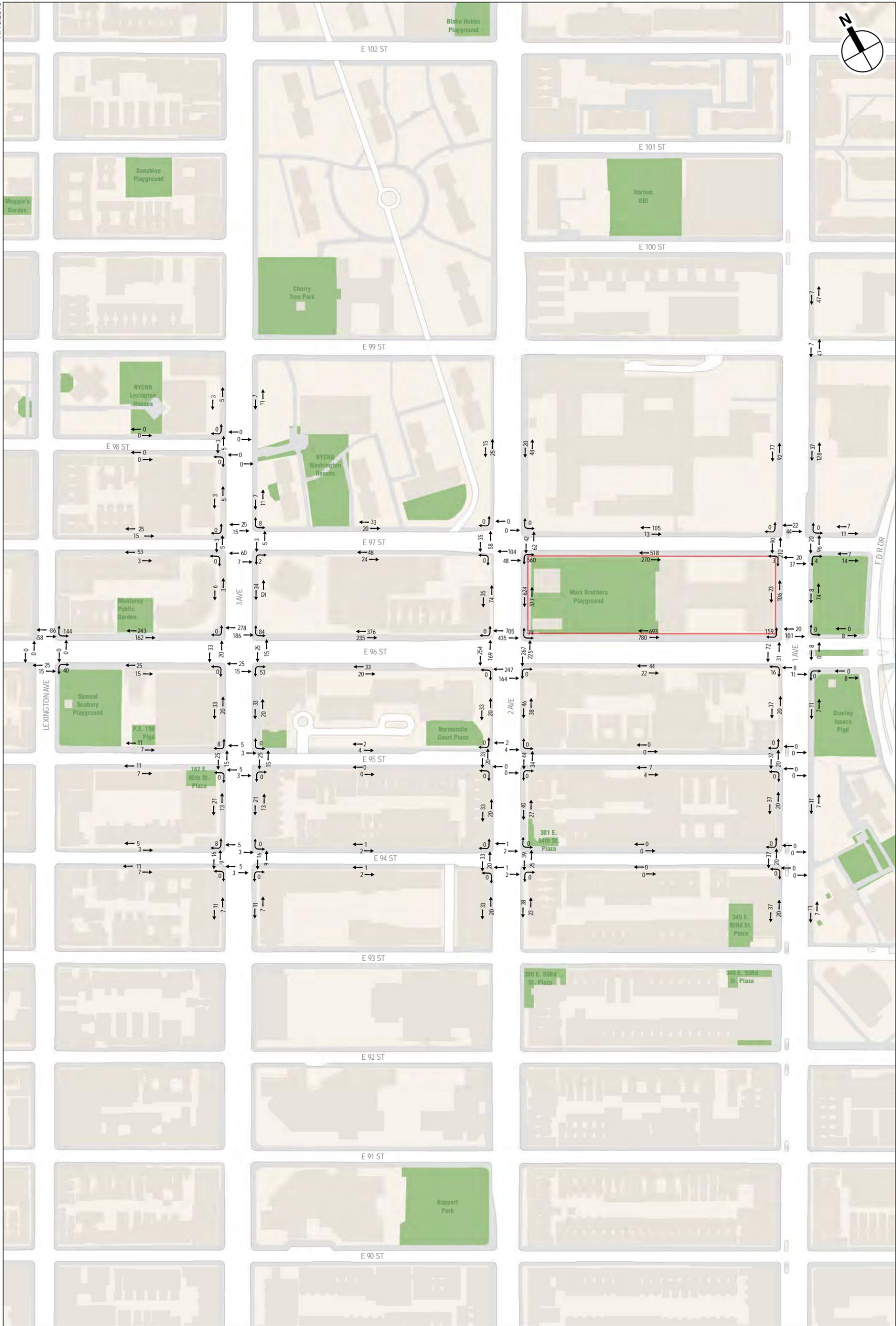
Project Site

Proposed Project Incremental Pedestrian Trips  
Weekday AM Peak Hour  
**Figure 11-6**



Project Site

Proposed Project Incremental Pedestrian Trips  
 Weekday Midday Peak Hour  
**Figure 11-7**



 Project Site

Proposed Project Incremental Pedestrian Trips  
Weekday PM Peak Hour  
**Figure 11-8**

**ECF East 96th Street**

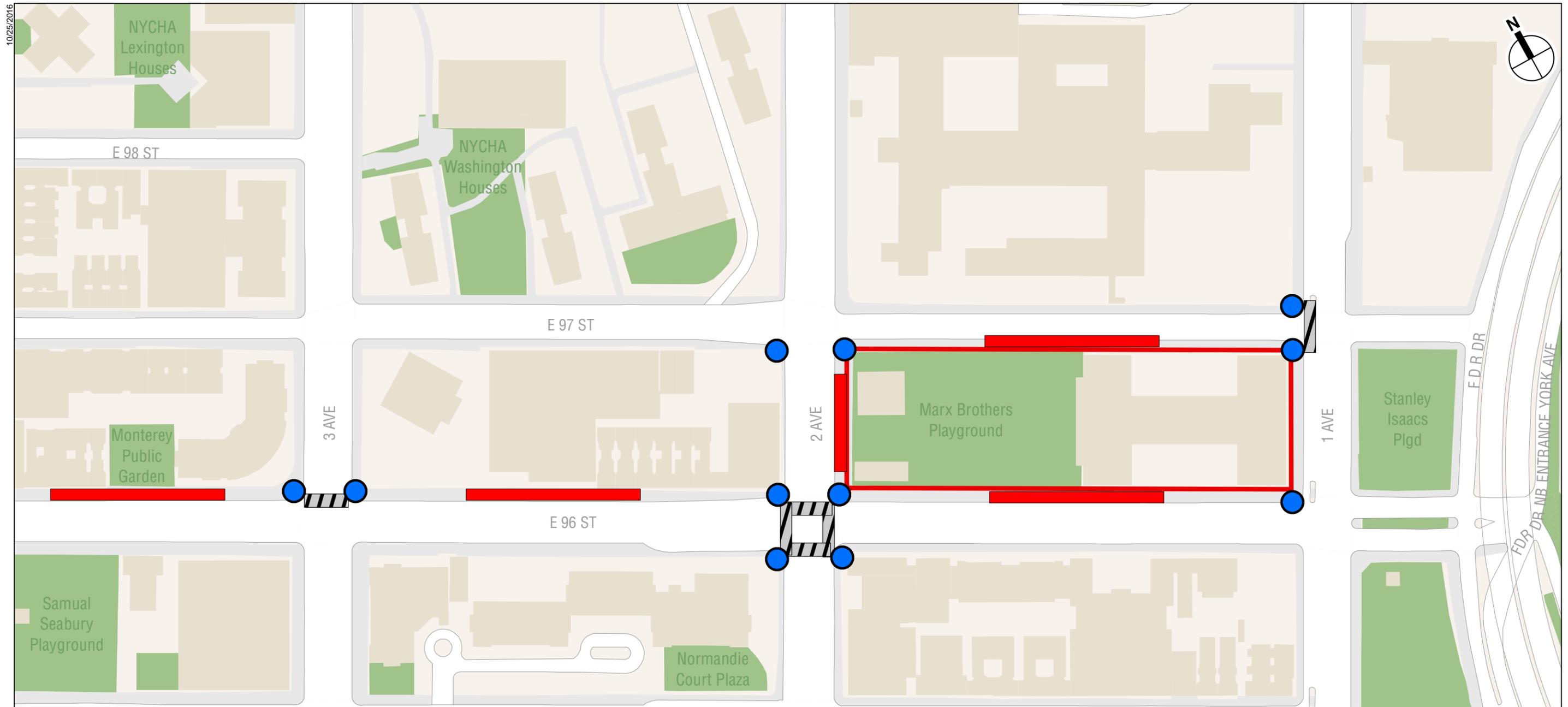
weekday AM, midday, and PM peak hours, respectively. Pedestrian assignments for the various travel modes are discussed below.

- Auto Trips – All of the student auto pick-up and drop-off trips were assigned to the East 97th Street and First Avenue curbsides for the existing technical school facility, and to the East 96th Street, East 97th Street, First Avenue, and Second Avenue curbsides surrounding the site for the proposed school facilities. Other motorists would primarily seek parking at off-street parking facilities in the study area, with a portion assigned to the project site to account for the potential on-site parking. Motorists parking at off-site facilities would walk to and from these off-street parking facilities.
- Taxi Trips – Taxi patrons would get dropped off and picked up along First Avenue, Second Avenue, East 96th Street, and East 97th Street.
- City Bus Trips – City bus riders would take buses stopping on First Avenue, Second Avenue, East 96th Street, and East 97th Street.
- Subway Trips – Subway riders were assigned to the existing 96th Street Station (No. 6 trains), and the 96th Street Station (Q train), which is currently under construction and is expected to be opened in late December 2016.
- Walk-Only Trips – Pedestrian walk-only trips were developed by distributing project-generated person trips to area pedestrian facilities (i.e., sidewalks, corner reservoirs, and crosswalks) based on population data as well as the land use characteristics of the surrounding neighborhood.

Based on the detailed assignment of pedestrian trips, five sidewalks, 11 corners, and six crosswalks were selected for detailed analysis for the weekday AM, midday, and PM peak hours, as presented in **Table 11-9** and **Figure 11-9**.

**Table 11-9**  
**Pedestrian Level 2 Screening Analysis Results—Selected Analysis Locations**

Pedestrian Elements	Weekday			Selected Analysis Location Weekday
	AM	Midday	PM	
<b>First Avenue and East 97th Street</b>				
North Sidewalk along E. 97th Street between First Avenue and the FDR Drive	12	16	18	
South Sidewalk along E. 97th Street between First Avenue and the FDR Drive	15	18	21	
North Sidewalk along E. 97th Street between First Avenue and Second Avenue	76	40	118	
South Sidewalk along E. 97th Street between First Avenue and Second Avenue	566	788	788	✓
East Sidewalk along First Avenue between E. 97th Street and E. 99th Street	145	58	165	
West Sidewalk along First Avenue between E. 97th Street and E. 99th Street	103	198	169	
East Sidewalk along First Avenue between E. 97th Street and E. 96th Street	35	17	82	
West Sidewalk along First Avenue between E. 97th Street and E. 96th Street	116	-52	129	
Northeast Corner	159	77	182	
Southeast Corner	119	107	177	
Northwest Corner	287	250	368	✓
Southwest Corner	247	282	362	✓
North Crosswalk	91	24	66	
South Crosswalk	47	52	57	
East Crosswalk	68	53	116	
West Crosswalk	196	226	302	✓



 Project Site

*Pedestrian Analysis Locations*

 Crosswalk

 Corner

 Sidewalk



**Table 11-9 (cont'd)**  
**Pedestrian Level 2 Screening Analysis Results—Selected Analysis Locations**

Pedestrian Elements	Weekday			Selected Analysis Location
	AM	Midday	PM	Weekday
<b>First Avenue and East 96th Street</b>				
North Sidewalk along E. 96th Street between First Avenue and the FDR Drive	8	0	8	
South Sidewalk along E. 96th Street between First Avenue and the FDR Drive	8	0	8	
North Sidewalk along E. 96th Street between First Avenue and Second Avenue	1,440	225	1,473	✓
South Sidewalk along E. 96th Street between First Avenue and Second Avenue	110	-7	66	
East Sidewalk along First Avenue between E. 96th Street and E. 95th Street	12	16	18	
West Sidewalk along First Avenue between E. 96th Street and E. 95th Street	39	50	57	
Northeast Corner	67	61	129	
Southeast Corner	21	19	27	
Northwest Corner	321	107	383	✓
Southwest Corner	164	52	138	
North Crosswalk	59	61	121	
South Crosswalk	13	19	19	
East Crosswalk	8	0	8	
West Crosswalk	142	11	103	
<b>Second Avenue and East 97th Street</b>				
North Sidewalk along E. 97th Street between Second Avenue and Third Avenue	35	50	53	
South Sidewalk along E. 97th Street between Second Avenue and Third Avenue	60	44	72	
East Sidewalk along Second Avenue between E. 97th Street and E. 99th Street	47	61	68	
West Sidewalk along Second Avenue between E. 97th Street and E. 99th Street	27	40	40	
East Sidewalk along Second Avenue between E. 97th Street and E. 96th Street	550	1,388	1,001	✓
West Sidewalk along Second Avenue between E. 97th Street and E. 96th Street	103	28	109	
Northeast Corner	91	87	104	
Southeast Corner	552	954	816	✓
Northwest Corner	62	90	93	
Southwest Corner	170	213	245	✓
North Crosswalk	0	0	0	
South Crosswalk	108	123	152	
East Crosswalk	90	87	104	
West Crosswalk	62	90	93	
<b>Second Avenue and East 96th Street</b>				
North Sidewalk along E. 96th Street between Second Avenue and Third Avenue	528	294	611	✓
South Sidewalk along E. 96th Street between Second Avenue and Third Avenue	35	50	53	
East Sidewalk along Second Avenue between E. 96th Street and E. 95th Street	60	72	84	
West Sidewalk along Second Avenue between E. 96th Street and E. 95th Street	35	50	53	
Northeast Corner	1,444	946	1,711	✓
Southeast Corner	767	492	903	✓
Northwest Corner	1,382	678	1,563	✓
Southwest Corner	742	352	834	✓
North Crosswalk	1,006	500	1,140	✓
South Crosswalk	366	174	411	✓
East Crosswalk	401	318	492	✓
West Crosswalk	376	178	423	✓
<b>Third Avenue and East 96th Street</b>				
North Sidewalk along E. 96th Street between Third Avenue and Lexington Avenue	360	172	405	✓
South Sidewalk along E. 96th Street between Third Avenue and Lexington Avenue	27	40	40	
East Sidewalk along Third Avenue between E. 96th Street and E. 95th Street	35	50	53	
West Sidewalk along Third Avenue between E. 96th Street and E. 95th Street	35	50	53	
Northeast Corner	529	295	588	✓
Southeast Corner	89	130	133	
Northwest Corner	438	275	517	✓
Southwest Corner	62	90	93	
North Crosswalk	403	225	464	✓
South Crosswalk	27	40	40	
East Crosswalk	27	40	40	
West Crosswalk	35	50	53	

**Table 11-9 (cont'd)**  
**Pedestrian Level 2 Screening Analysis Results—Selected Analysis Locations**

Pedestrian Elements	Weekday			Selected Analysis Location
	AM	Midday	PM	Weekday
<b>Lexington Avenue and East 96th Street</b>				
Northeast Corner	-146	-22	-144	
Southeast Corner	27	40	40	
North Crosswalk	-146	-22	-144	
South Crosswalk	27	40	40	
East Crosswalk	0	0	0	
West Crosswalk	0	0	0	
<b>Notes:</b> ✓ denotes pedestrian elements selected for the detailed analysis.				

## C. TRANSPORTATION ANALYSIS METHODOLOGIES

### TRAFFIC OPERATIONS

The operations of all of the signalized intersections in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5)*. The *HCM* procedure evaluates the levels of service (LOS) for signalized intersections using average stop control delay, in seconds per vehicle, as described below.

#### SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The levels of service are defined in **Table 11-10**.

**Table 11-10**  
**Level of Service Criteria for Signalized Intersections**

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds
<b>Source:</b> Transportation Research Board. <i>Highway Capacity Manual</i> , 2000.	

Although the *HCM* methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the *HCM*. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum capacity with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where

congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. Conditions at LOS E and F reflect poor service levels, and cycle breakdowns are frequent. The *HCM* methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (the worst case from each roadway) and calculates a summary critical v/c ratio. The overall intersection delay, which determines the intersection's LOS, is based on a weighted average of control delays of the individual lane groups. Within New York City, the midpoint of LOS D (45 seconds of delay) is generally considered as the threshold between acceptable and unacceptable operations.

*Significant Impact Criteria*

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the With Action condition of 5 or more seconds of delay in a lane group over No Action levels beyond mid-LOS D. For No Action LOS E, a 4-second increase in delay is considered significant. For No Action LOS F, a 3-second increase in delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the No Action condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the With Action condition.

**TRANSIT OPERATIONS**

*SUBWAY STATION ELEMENTS*

The methodology for assessing station circulation (stairs, escalators, and passageways) and fare control (regular turnstiles, high entry/exit turnstiles, and high exit turnstiles) elements compares the user volume with the analyzed element's design capacity, resulting in a v/c ratio. For stairs, the design capacity considers the effective width of a tread, which accounts for railings or other obstructions, the friction or counter-flow between upward and downward pedestrians (up to 10 percent capacity reduction is applied to account for counter-flow friction), surging of entering and exiting pedestrians (up to 25 percent capacity reduction is applied to account for surged flows off of platforms and onto platforms), and the average area required for circulation. For passageways, similar considerations are made. For escalators and turnstiles, capacities are measured by the number and width of an element and the NYCT optimum capacity per element, also account for the potential for surging of entering and exiting pedestrians. In the analysis for each of these elements, volumes and capacities are presented for 15-minute intervals. The estimated v/c ratio is compared with NYCT criteria to determine a LOS for the operation of an element, as summarized in **Table 11-11**.

**Table 11-11  
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	Above 1.67
<b>Source:</b> New York City Mayor's Office of Environmental Coordination, <i>CEQR Technical Manual</i> .	

At LOS A (“free flow”) and B (“fluid flow”), there is sufficient area to allow pedestrians to freely select their walking speed and bypass slower pedestrians. When cross and reverse flow movement exists, only minor conflicts may occur. At LOS C (“fluid, somewhat restricted”), 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 (“crowded, walking speed restricted”), walking speed is restricted and reduced. Reverse and cross flow movement is severely restricted because of congestion and the difficult passage of slower moving pedestrians. At LOS E (“congested, some shuffling and queuing”) and F (“severely congested, queued”), walking speed is restricted. There is also insufficient area to bypass others, and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming.

*Significant Impact Criteria*

The determination of significant impacts for station elements varies based on their type and use. For stairs and passageways, significant impacts are defined in term of width increment threshold (WIT) based on the minimum amount of additional capacity that would be required either to mitigate the location to its service conditions (LOS) under the No Action levels, or to bring it to a v/c ratio of 1.00 (LOS C/D), whichever is greater. Significant impacts are typically considered to occur once the WITs in **Table 11-12** are reached or exceeded.

**Table 11-12  
Significant Impact Guidance for Stairs and Passageways**

With Action V/C Ratio	WIT for Significant Impact (inches)	
	Stairway	Passageway
1.00 to 1.09	8.0	13.0
1.10 to 1.19	7.0	11.5
1.20 to 1.29	6.0	10.0
1.30 to 1.39	5.0	8.5
1.40 to 1.49	4.0	6.0
1.50 to 1.59	3.0	4.5
1.60 and up	2.0	3.0
<b>Notes:</b> WIT = Width Increment Threshold		
<b>Sources:</b> New York City Mayor’s Office of Environmental Coordination, <i>CEQR Technical Manual</i> .		

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

**SUBWAY AND BUS LINE-HAUL CAPACITIES**

As per the *CEQR Technical Manual*, line-haul capacities are evaluated when a proposed project is anticipated to generate a perceptible number of passengers on particular subway and bus routes. For subways, if a subway line is expected to incur 200 or more passengers in one direction of travel during the commuter peak hours, a detailed review of ridership level at its maximum load point and/or other project-specific load points would be required to determine if the route’s guideline (or practical) capacity would be exceeded. NYCT operates six different types of subway cars with different seating and guideline capacities. The peak period guideline capacity of a subway car, which ranges from 110 to 175 passengers, is compared with ridership levels to determine the acceptability of conditions.

Bus line-haul capacities are evaluated when a proposed project is anticipated to generate 50 or more bus passengers to a single bus line in one direction. The assessment of bus line-haul conditions involves analyzing bus routes at their peak load points and, if necessary, also their bus stops closest to the project site to identify the potential for the analyzed routes to exceed their guideline (or practical) capacities. NYCT and the MTA Bus Company operate three types of buses: standard and articulated buses, and over-the-road coaches. During peak hours, standard buses operate with up to 54 passengers per bus, articulated buses operate with up to 85 passengers per bus, and over-the-road coaches operate with up to 55 passengers per bus.

#### *Significant Impact Criteria*

For subways, projected increases from the No Action condition within guideline capacity to a With Action condition that exceeds guideline capacity may be considered a significant adverse impact, if a subway car for a particular route is expected to incur five or more riders from a proposed project. Since there are constraints on what service improvements are available to NYCT, significant line-haul capacity impacts on subway routes are generally disclosed but would usually remain unmitigated. For buses, an increase in bus load levels greater than the maximum capacity at any load point is defined as a significant adverse impact. While subject to operational and fiscal constraints, bus impacts can typically be mitigated by increasing service frequency. Therefore, mitigation of bus line-haul capacity impacts, where appropriate, would be recommended for NYCT's approval.

### **PEDESTRIAN OPERATIONS**

The adequacy of the study area's sidewalk, crosswalk, and corner reservoir capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the 2010 *HCM*, pursuant to procedures detailed in the *CEQR Technical Manual*.

The primary performance measure for sidewalks and walkways is pedestrian space, expressed as square feet per pedestrian (SFP), which is an indicator of the quality of pedestrian movement and comfort. The calculation of the sidewalk SFP is based on the pedestrian volumes by direction, the effective sidewalk or walkway width, and average walking speed. The SFP forms the basis for a sidewalk Level of Service (LOS) analysis. The determination of sidewalk LOS is also dependent on whether the pedestrian flow being analyzed is best described as "non-platoon" or "platoon." Non-platoon flow occurs when pedestrian volume within the peak 15-minute period is relatively uniform, whereas, platoon flow occurs when pedestrian volumes vary significantly with the peak 15-minute period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway's pedestrian volume.

Crosswalks and street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The *HCM* methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians.

The total "time-space" available for these activities, expressed in square feet-second, is calculated by multiplying the net area of the corner (in square feet) by the signal's cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the

total pedestrian circulation volume per signal cycle provides the LOS measurement of square feet per pedestrian (SFP).

Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in square feet-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk.

The LOS standards for sidewalks, crosswalks, and corner reservoirs are summarized in **Table 11-13**. The *CEQR Technical Manual* specifies acceptable LOS in Central Business District (CBD) areas is mid-LOS D or better.

**Table 11-13**  
**Level of Service Criteria for Pedestrian Elements**

LOS	Sidewalks		Corner Reservoirs
	Non-Platoon Flow	Platoon Flow	
A	> 60 SFP	> 530 SFP	> 60 SFP
B	> 40 and ≤ 60 SFP	> 90 and ≤ 530 SFP	> 40 and ≤ 60 SFP
C	> 24 and ≤ 40 SFP	> 40 and ≤ 90 SFP	> 24 and ≤ 40 SFP
D	> 15 and ≤ 24 SFP	> 23 and ≤ 40 SFP	> 15 and ≤ 24 SFP
E	> 8 and ≤ 15 SFP	> 11 and ≤ 23 SFP	> 8 and ≤ 15 SFP
F	≤ 8 SFP	≤ 11 SFP	≤ 8 SFP
<b>Notes:</b> SFP = square feet per pedestrian.			
<b>Sources:</b> New York City Mayor's Office of Environmental Coordination, <i>CEQR Technical Manual</i> .			

*SIGNIFICANT IMPACT CRITERIA*

The determination of significant pedestrian impacts considers the level of predicted decrease in pedestrian space between the No Action and With Action conditions. For different pedestrian elements, flow conditions, and area types, the *CEQR* procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

*Sidewalks*

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the determination of significant sidewalk impacts is based on the sliding scale using the following formula:  $Y \geq X/9.0 - 0.31$ , where Y is the decrease in pedestrian space in SFP and X is the No Action pedestrian space in SFP. For platoon flow, the sliding-scale formula is  $Y \geq X/(9.5 - 0.321)$ . Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, these formulas would apply only if the With Action pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 11-14** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Table 11-14  
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: $Y \geq X/9.0 - 0.31$				Sliding Scale Formula: $Y \geq X/(9.5 - 0.321)$			
Non-CBD Areas		CBD Areas		Non-CBD Areas		CBD Areas	
No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)	No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)	No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)	No Action Ped. Space (X, SFP)	With Action Ped. Space Reduc. (Y, SFP)
-	-	-	-	43.5 to 44.3	≥ 4.3	-	-
-	-	-	-	42.5 to 43.4	≥ 4.2	-	-
-	-	-	-	41.6 to 42.4	≥ 4.1	-	-
-	-	-	-	40.6 to 41.5	≥ 4.0	-	-
-	-	-	-	39.7 to 40.5	≥ 3.9	-	-
-	-	-	-	38.7 to 39.6	≥ 3.8	38.7 to 39.2	≥ 3.8
-	-	-	-	37.8 to 38.6	≥ 3.7	37.8 to 38.6	≥ 3.7
-	-	-	-	36.8 to 37.7	≥ 3.6	36.8 to 37.7	≥ 3.6
-	-	-	-	35.9 to 36.7	≥ 3.5	35.9 to 36.7	≥ 3.5
-	-	-	-	34.9 to 35.8	≥ 3.4	34.9 to 35.8	≥ 3.4
-	-	-	-	34.0 to 34.8	≥ 3.3	34.0 to 34.8	≥ 3.3
-	-	-	-	33.0 to 33.9	≥ 3.2	33.0 to 33.9	≥ 3.2
-	-	-	-	32.1 to 32.9	≥ 3.1	32.1 to 32.9	≥ 3.1
-	-	-	-	31.1 to 32.0	≥ 3.0	31.1 to 32.0	≥ 3.0
-	-	-	-	30.2 to 31.0	≥ 2.9	30.2 to 31.0	≥ 2.9
-	-	-	-	29.2 to 30.1	≥ 2.8	29.2 to 30.1	≥ 2.8
25.8 to 26.6	≥ 2.6	-	-	28.3 to 29.1	≥ 2.7	28.3 to 29.1	≥ 2.7
24.9 to 25.7	≥ 2.5	-	-	27.3 to 28.2	≥ 2.6	27.3 to 28.2	≥ 2.6
24.0 to 24.8	≥ 2.4	-	-	26.4 to 27.2	≥ 2.5	26.4 to 27.2	≥ 2.5
23.1 to 23.9	≥ 2.3	-	-	25.4 to 26.3	≥ 2.4	25.4 to 26.3	≥ 2.4
22.2 to 23.0	≥ 2.2	-	-	24.5 to 25.3	≥ 2.3	24.5 to 25.3	≥ 2.3
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1	23.5 to 24.4	≥ 2.2	23.5 to 24.4	≥ 2.2
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0	22.6 to 23.4	≥ 2.1	22.6 to 23.4	≥ 2.1
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9	21.6 to 22.5	≥ 2.0	21.6 to 22.5	≥ 2.0
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8	20.7 to 21.5	≥ 1.9	20.7 to 21.5	≥ 1.9
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7	19.7 to 20.6	≥ 1.8	19.7 to 20.6	≥ 1.8
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6	18.8 to 19.6	≥ 1.7	18.8 to 19.6	≥ 1.7
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5	17.8 to 18.7	≥ 1.6	17.8 to 18.7	≥ 1.6
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4	16.9 to 17.7	≥ 1.5	16.9 to 17.7	≥ 1.5
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3	15.9 to 16.8	≥ 1.4	15.9 to 16.8	≥ 1.4
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2	15.0 to 15.8	≥ 1.3	15.0 to 15.8	≥ 1.3
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1	14.0 to 14.9	≥ 1.2	14.0 to 14.9	≥ 1.2
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0	13.1 to 13.9	≥ 1.1	13.1 to 13.9	≥ 1.1
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9	12.1 to 13.0	≥ 1.0	12.1 to 13.0	≥ 1.0
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8	11.2 to 12.0	≥ 0.9	11.2 to 12.0	≥ 0.9
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7	10.2 to 11.1	≥ 0.8	10.2 to 11.1	≥ 0.8
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6	9.3 to 10.1	≥ 0.7	9.3 to 10.1	≥ 0.7
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5	8.3 to 9.2	≥ 0.6	8.3 to 9.2	≥ 0.6
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4	7.4 to 8.2	≥ 0.5	7.4 to 8.2	≥ 0.5
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3	6.4 to 7.3	≥ 0.4	6.4 to 7.3	≥ 0.4
< 5.1	≥ 0.2	< 5.1	≥ 0.2	< 6.4	≥ 0.3	< 6.4	≥ 0.3

**Notes:** SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.  
**Sources:** New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

*Corner Reservoirs and Crosswalks*

The determination of significant corner and crosswalks impacts is also based on a sliding scale using the following formula:  $Y \geq X/9.0 - 0.31$ , where Y is the decrease in pedestrian space in SFP and X is the No Action pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the With Action pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 11-15** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 11-15

Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: $Y \geq X/9.0 - 0.31$			
Non-CBD Areas		CBD Areas	
No Action Pedestrian Space (X, SFP)	With Action Pedestrian Space Reduction (Y, SFP)	No Action Pedestrian Space (X, SFP)	With Action Pedestrian Space Reduction (Y, SFP)
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2

**Notes:** SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.  
**Sources:** New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high crash locations, where 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent 3-year period for which data are available. For these locations, crash trends are identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic volumes, accident types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety are identified and coordinated with DOT for their approval.

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from parking displacement attributable to or additional demand generated by a proposed project. Typically, this analysis encompasses a study area within a ¼-mile of the project site. If the analysis concludes a shortfall in parking within the ¼-mile study area, the study area could sometimes be extended to a ½-mile to identify additional parking supply. For proposed projects located in Manhattan or other CBD areas, the inability of the proposed project or the surrounding area to accommodate the project's future parking demand is considered a parking

shortfall, but is generally not considered significant due to the magnitude of available alternative modes of transportation. For other areas in New York City, a parking shortfall that exceeds more than half the available on-street and off-street parking spaces within a ¼-mile of the project site may be considered significant. Additional factors, such as the availability and extent of transit in the area, proximity of the project to such transit, and patterns of automobile usage by area residents, could be considered to determine the significance of the identified parking shortfall. In some cases, if there is adequate parking supply within ½-mile of the project site, the projected parking shortfall may also not necessarily be considered significant.

## **D. DETAILED TRAFFIC ANALYSIS**

As described above in Section B, “Preliminary Analysis Methodology and Screening Assessment,” 10 signalized intersections have been selected for analysis in the weekday AM, midday, and PM peak hours.

### **2016 EXISTING CONDITIONS**

#### *ROADWAY NETWORK AND TRAFFIC STUDY AREA*

The key roadways in the study area include the Franklin D. Roosevelt (FDR) Drive, First Avenue, Second Avenue, Third Avenue, East 99th Street, East 97th Street, East 96th Street, and East 95th Street. The physical and operational characteristics of the study area roadways, which were collected prior to the completion of the Second Avenue Subway at the end of December 2016, are described below.

- FDR Drive is a major two-way northbound-southbound parkway open to passenger cars only and is closed to commercial traffic. The FDR Drive starts north of the Battery Park Underpass at South and Broad Streets and runs along the entire length of the East River to the 125th Street/Robert F. Kennedy Bridge exit, where it becomes the Harlem River Drive. The FDR Drive has three lanes in each direction for the majority of its span. It is elevated south of Montgomery Street, between East 18th Street and East 25th Street, between East 29th Street and East 38th Street, and between East 93rd Street and East 99th Street and is not elevated for the remaining stretch of roadway. FDR Drive entrance/exit ramps provide access/egress to the study area at East 96th Street.
- First Avenue is a major one-way northbound roadway with a curb-to-curb width of approximately 70 feet. First Avenue is a DOT-designated truck route and the M15 bus route operates northbound along First Avenue within designated bus-only lanes. Curbside parking is provided along both sides of the street.
- Second Avenue is a major one-way southbound roadway with a curb-to-curb width of approximately 70 feet along its entire stretch of roadway. As discussed above, within the study area, Second Avenue has been under construction for the Second Avenue subway (completed at the end of December 2016) and the curb-to-curb width measured at the time of field inventory is approximately 35 feet. Second Avenue is a DOT-designated truck route and the M15 bus route operates southbound along Second Avenue within designated bus-only lanes. Curbside parking is provided along both sides of the street; however, they have been temporarily unavailable in the vicinity of the project site due to the Second Avenue Subway construction.
- Third Avenue is a major one-way northbound roadway with a curb-to-curb width of approximately 70 feet. Third Avenue is a DOT-designated truck route and the M98, M101,

**ECF East 96th Street**

M102, and M103 bus routes operate northbound along Third Avenue. Curbside parking is provided along both sides of the street.

- East 99th Street is a local roadway that operates one-way eastbound east of First Avenue, one-way westbound west of First Avenue, and two-way eastbound-westbound between Park Avenue and Madison Avenue. East 99th Street has a curb-to-curb width of approximately 40 feet and curbside parking is provided along both sides of the street.
- East 97th Street is a local roadway that operates one-way westbound along its entire stretch of roadway, except between First Avenue and Third Avenue where it operates two-way eastbound-westbound. East 97th Street has a curb-to-curb width of approximately 40 feet and curbside parking is provided along both sides of the street. East 97th Street is a DOT-designated truck route between Madison Avenue and Broadway.
- East 96th Street is a major two-way eastbound-westbound roadway with a curb-to-curb width of approximately 60 feet. East 96th Street is a DOT-designated truck route between First Avenue and Broadway and the M96 bus route operates along 96th Street in both directions. Curbside parking is provided along both sides of the street.
- East 95th Street is a local one-way westbound roadway with a curb-to-curb width of approximately 30 feet. Curbside parking is provided along both sides of the street.

*TRAFFIC CONDITIONS*

Traffic data were collected in June 2016 for the weekday AM, midday, and PM peak periods via a combination of manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) counts. 2016 existing peak period traffic volumes were developed based on these counts. The standard peak hours in Manhattan south of 110th Street generally occur from 8:00 AM to 9:00 AM, 12:00 PM to 1:00 PM, and 5:00 PM to 6:00 PM on weekdays. For analysis, the highest peak hour traffic volumes (from 7:15 AM to 8:15 AM, 1:00 PM to 2:00 PM, and 4:30 PM to 5:30 PM) during the respective peak periods based on the collected data were used. Inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were recorded to provide appropriate inputs for the operational analyses. Official signal timings were also obtained from DOT for use in the analysis of the study area signalized intersections. **Figures 11-10 through 11-12** show the 2016 existing traffic volumes for the weekday AM, midday, and PM peak hours, respectively.

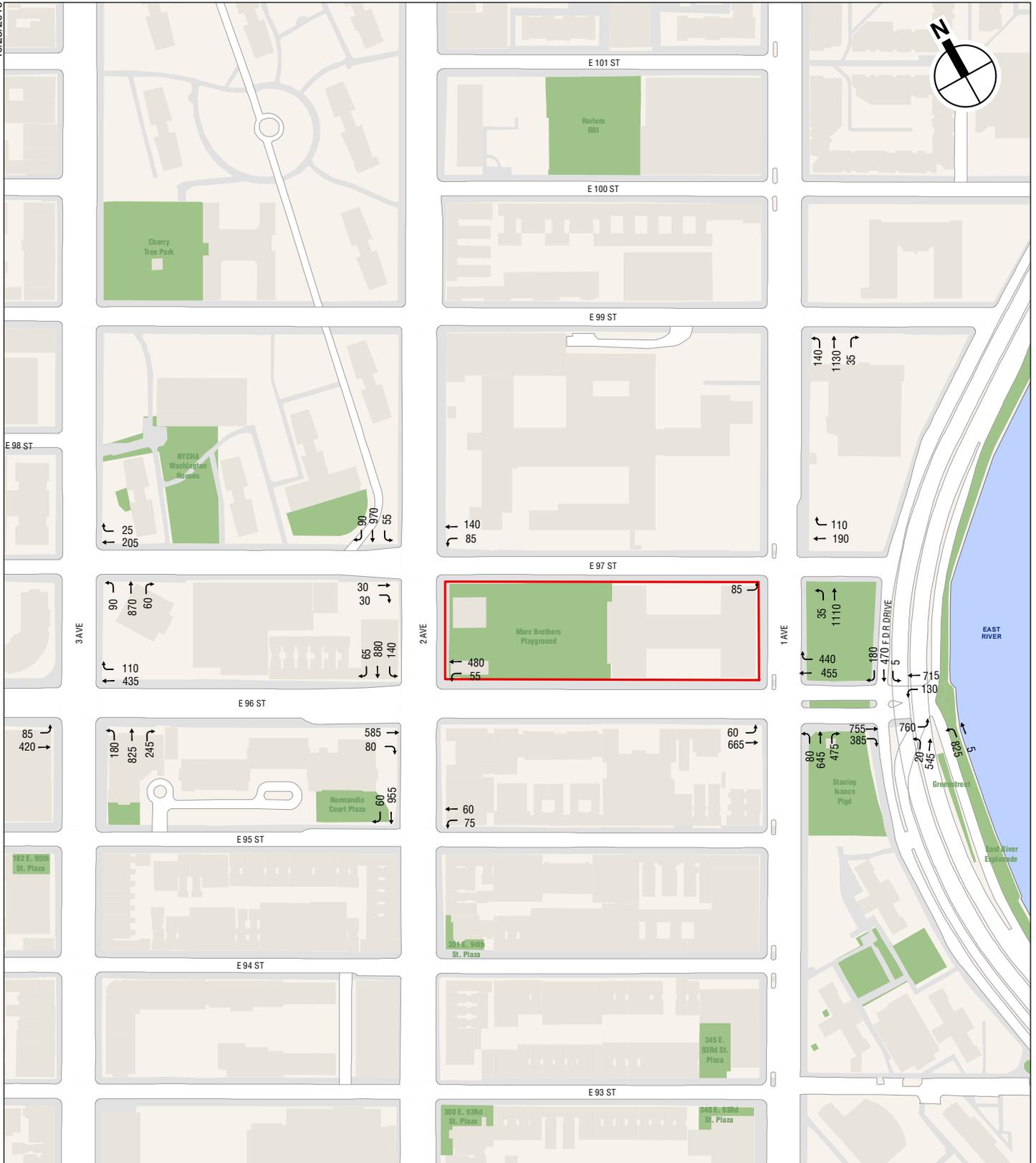
*LEVELS OF SERVICE*

A summary of the 2016 existing conditions traffic analysis results are presented in **Table 11-16**. Details on level-of-service, v/c ratios, and average delays are presented in **Table 11-17**. Overall, the capacity analysis indicates that most of the study area’s intersection approaches/lane groups operate acceptably—at mid-LOS D or better (delays of 45 seconds or less per vehicle for signalized intersections) for all peak hours. Approaches/lane groups operating beyond mid-LOS D and those with v/c ratios of 0.90 or greater are listed below.

**Table 11-16  
Summary of 2016 Existing Traffic Analysis Results**

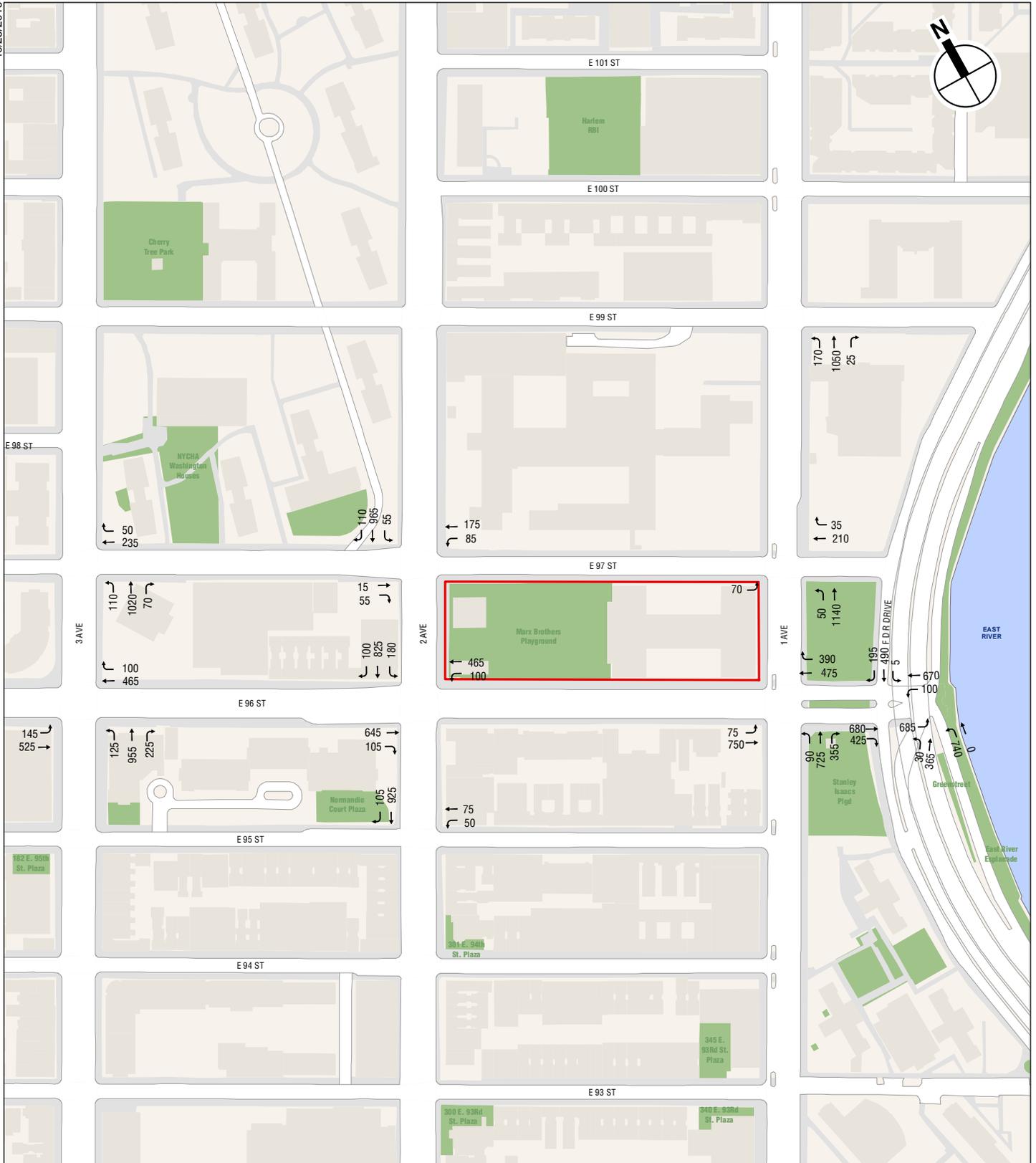
Level of Service	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Lane Groups at LOS A/B/C	22	26	27
Lane Groups at LOS D	10	6	6
Lane Groups at LOS E	1	5	3
Lane Groups at LOS F	6	2	2
Total	39	39	38
Lane Groups with v/c ≥ 0.90	11	9	3

**Notes:** LOS = Level-of-Service; v/c = volume-to-capacity ratio.

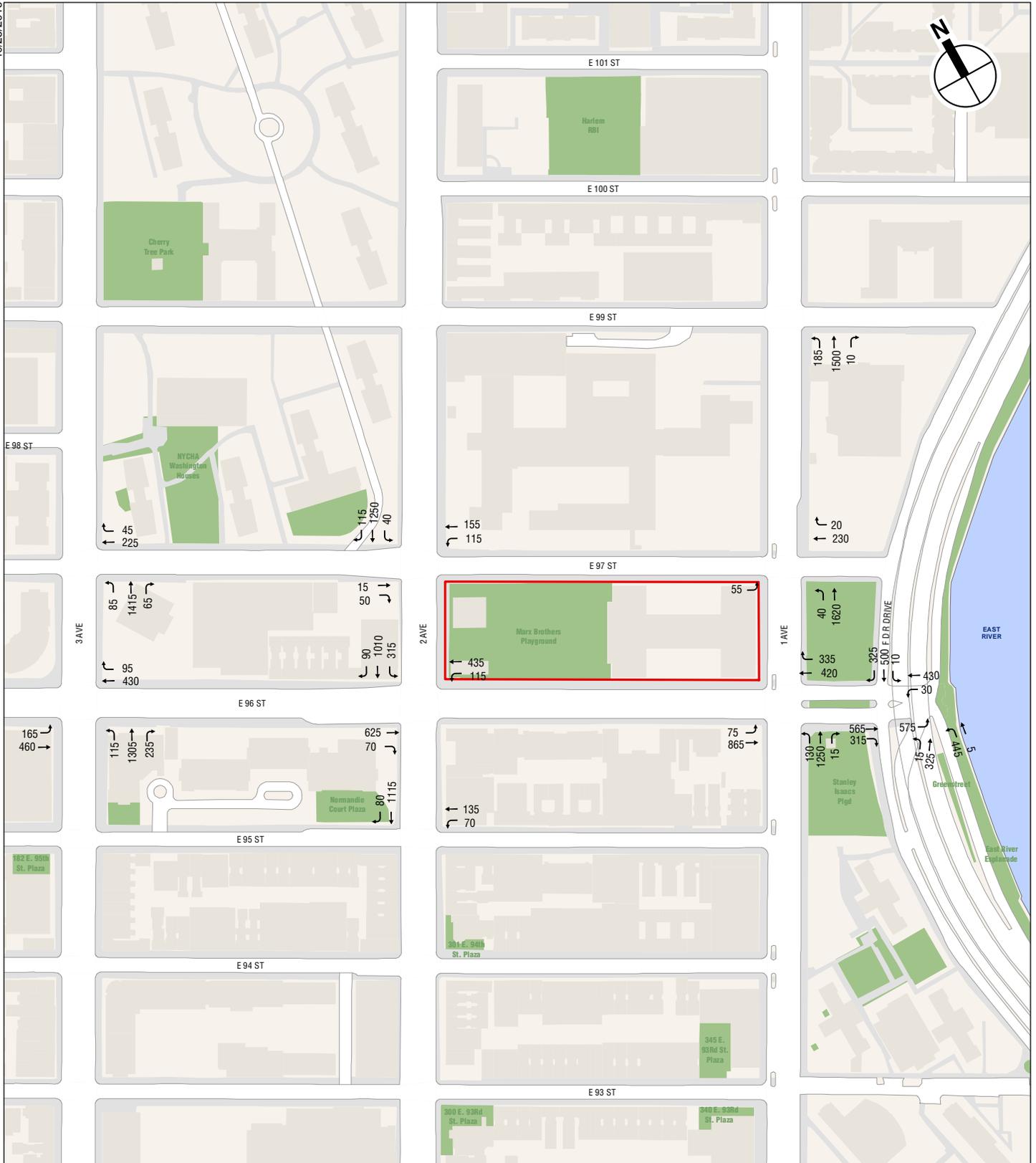


Project Site

2016 Existing Traffic Volumes  
 Weekday AM Peak Hour  
**Figure 11-10**



 Project Site



Project Site

2016 Existing Traffic Volumes  
 Weekday PM Peak Hour  
**Figure 11-12**

Table 11-17

2016 Existing Conditions Level of Service Analysis

Intersection	Weekday AM				Weekday Midday				Weekday PM					
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
<b>East 96th Street and First Avenue</b>														
EB	L	0.28	18.6	B	L	0.34	19.6	B	L	0.27	17.8	B		
	T	0.44	18.0	B	T	0.46	18.3	B	T	0.48	18.6	B		
WB	T	0.40	17.9	B	T	0.38	17.6	B	T	0.32	16.9	B		
	R	0.90	42.3	D	R	0.72	27.5	C	R	0.68	26.1	C		
NB	L	0.49	44.1	D	L	0.60	49.7	D	L	0.70	54.8	D		
	T	0.42	17.8	B	T	0.47	18.5	B	T	0.74	23.6	C		
	R	1.05	82.0	F	R	0.92	51.1	D	R	0.04	14.3	B		
	Intersection			32.5	C	Intersection			24.7	C	Intersection		22.8	C
<b>East 97th Street and First Avenue</b>														
EB	L	0.49	28.4	C	L	0.35	23.8	C	L	0.27	21.5	C		
	TR	0.37	20.7	C	TR	0.28	19.6	B	TR	0.25	19.2	B		
WB	L	0.07	11.9	B	L	0.10	12.2	B	L	0.08	11.9	B		
	T	0.69	19.4	B	T	0.69	19.5	B	T	0.88	26.5	C		
	Intersection			20.0	C	Intersection			19.4	B	Intersection		25.0	
<b>East 99th Street and First Avenue</b>														
NB	L	0.25	11.8	B	L	0.28	12.1	B	L	0.35	13.0	B		
	T	0.60	15.1	B	T	0.54	14.3	B	T	0.72	17.5	B		
	R	0.09	10.2	B	R	0.06	9.9	A	R	0.02	9.5	A		
	Intersection			14.6	B	Intersection			13.9	B	Intersection		16.8	
<b>East 97th Street and Second Avenue</b>														
EB	TR	0.15	21.0	C	TR	0.20	21.9	C	TR	0.19	23.7	C		
	LT	0.65	32.8	C	LT	0.70	34.6	C	LT	0.87	53.0	D		
WB	LT	0.87	27.5	C	LT	0.74	19.1	B	LT	0.87	24.5	C		
	R	0.25	13.7	B	R	0.30	12.9	B	R	0.26	12.2	B		
	Intersection			27.2	C	Intersection			21.6	C	Intersection		28.4	
<b>East 96th Street and Second Avenue</b>														
EB	TR	0.93	47.6	D	TR	0.90	40.0	D	TR	0.75	30.5	C		
	LT	0.80	35.4	D	LT	1.05	79.3	E	LT	0.96	55.9	E		
WB	LT	0.95	41.1	D	LT	0.92	35.3	D	LTR	0.87	28.1	C		
	R	0.20	15.8	B	R	0.31	17.5	B	-	-	-	-		
	Intersection			41.0	D	Intersection			45.8	D	Intersection		34.3	
<b>East 95th Street and Second Avenue</b>														
WB	LT	0.55	38.1	D	LT	0.36	24.5	C	LT	0.54	28.3	C		
	T	0.88	31.4	C	T	0.68	17.2	B	T	0.78	20.1	C		
	R	0.18	15.4	B	R	0.26	12.2	B	R	0.21	11.6	B		
	Intersection			31.3	C	Intersection			17.6	B	Intersection		20.9	
<b>East 97th Street and Third Avenue</b>														
WB	TR	0.31	22.5	C	TR	0.34	22.9	C	TR	0.37	23.3	C		
	LTR	0.38	12.1	B	LTR	0.42	12.5	B	LTR	0.51	13.5	B		
	Intersection			14.1	B	Intersection			14.6	B	Intersection		15.2	
<b>East 96th Street and Third Avenue</b>														
EB	LT	1.05	84.7	F	LT	1.05	80.8	F	LT	1.05	81.6	F		
	TR	0.85	40.8	D	TR	0.81	37.6	D	TR	0.75	34.8	C		
WB	LTR	0.67	22.6	C	LTR	0.62	21.6	C	LTR	0.73	23.7	C		
	Intersection			39.9	D	Intersection			40.0	D	Intersection		38.0	
<b>East 96th Street and York Avenue/FDR Northbound Ramp</b>														
EB	L	0.84	36.7	D	L	0.69	29.1	C	L	0.77	38.4	D		
	LT	1.00	70.7	E	LT	0.89	56.2	E	LT	0.83	53.5	D		
NB (York Avenue)	L	1.04	86.2	F	L	0.93	61.9	E	L	0.84	57.9	E		
NB (FDR NB Ramp)	LT	1.05	88.1	F	LT	0.93	61.5	E	LT	0.85	59.5	E		
	Intersection			65.2	E	Intersection			48.1	D	Intersection		49.2	
<b>East 96th Street and FDR Southbound Ramp</b>														
EB	T	0.82	35.6	D	T	0.71	29.5	C	T	0.73	36.3	D		
	R	1.05	90.1	F	R	0.95	59.1	E	R	0.87	48.3	D		
WB	LT	0.98	54.8	D	LT	0.85	40.5	D	LT	0.57	31.0	C		
	LT	1.05	90.1	F	LT	1.05	87.7	F	LT	1.05	88.3	F		
SB	R	0.25	9.2	A	R	0.27	8.5	A	R	0.40	9.9	A		
	Intersection			57.4	E	Intersection			46.5	D	Intersection		44.5	

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.

## ECF East 96th Street

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### *First Avenue*

- Westbound right-turn at the East 96th Street and First Avenue intersection (LOS D with a v/c ratio of 0.90 and a delay of 42.3 seconds per vehicle [spv] during the weekday AM peak hour);
- Northbound left-turn at the East 96th Street and First Avenue intersection (LOS D with a v/c ratio of 0.60 and a delay of 49.7 spv during the weekday midday peak hour; and LOS D with a v/c ratio of 0.70 and a delay of 54.8 spv during the weekday PM peak hour); and
- Northbound right-turn at the East 96th Street and First Avenue intersection (LOS F with a v/c ratio of 1.05 and a delay of 82.0 spv during the weekday AM peak hour; and LOS D with a v/c ratio of 0.92 and a delay of 51.1 spv during the weekday midday peak hour).

### *Second Avenue*

- Westbound approach at the East 97th Street and Second Avenue intersection (LOS D with a v/c ratio of 0.87 and a delay of 53.0 spv during the weekday PM peak hour);
- Eastbound approach at the East 96th Street and Second Avenue intersection (LOS D with a v/c ratio of 0.93 and a delay of 47.6 spv during the weekday AM peak hour; and LOS D with a v/c ratio of 0.90 and a delay of 40.0 spv during the weekday midday peak hour);
- Westbound approach at the East 96th Street and Second Avenue intersection (LOS E with a v/c ratio of 1.05 and a delay of 79.3 spv during the weekday midday peak hour; and LOS E with a v/c ratio of 0.96 and a delay of 55.9 spv during the weekday PM peak hour); and
- Southbound left-turn/through at the East 96th Street and Second Avenue intersection (LOS D with a v/c ratio of 0.95 and a delay of 41.1 spv during the weekday AM peak hour; and LOS D with a v/c ratio of 0.92 and a delay of 35.3 spv during the weekday midday peak hour).

### *Third Avenue*

- Eastbound approach at the East 96th Street and Third Avenue intersection (LOS F with a v/c ratio of 1.05 and a delay of 84.7 spv during the weekday AM peak hour; LOS F with a v/c ratio of 1.05 and a delay of 80.8 spv during the weekday midday peak hour; and LOS F with a v/c ratio of 1.05 and a delay of 81.6 spv during the weekday PM peak hour).

### *York Avenue/FDR Ramps*

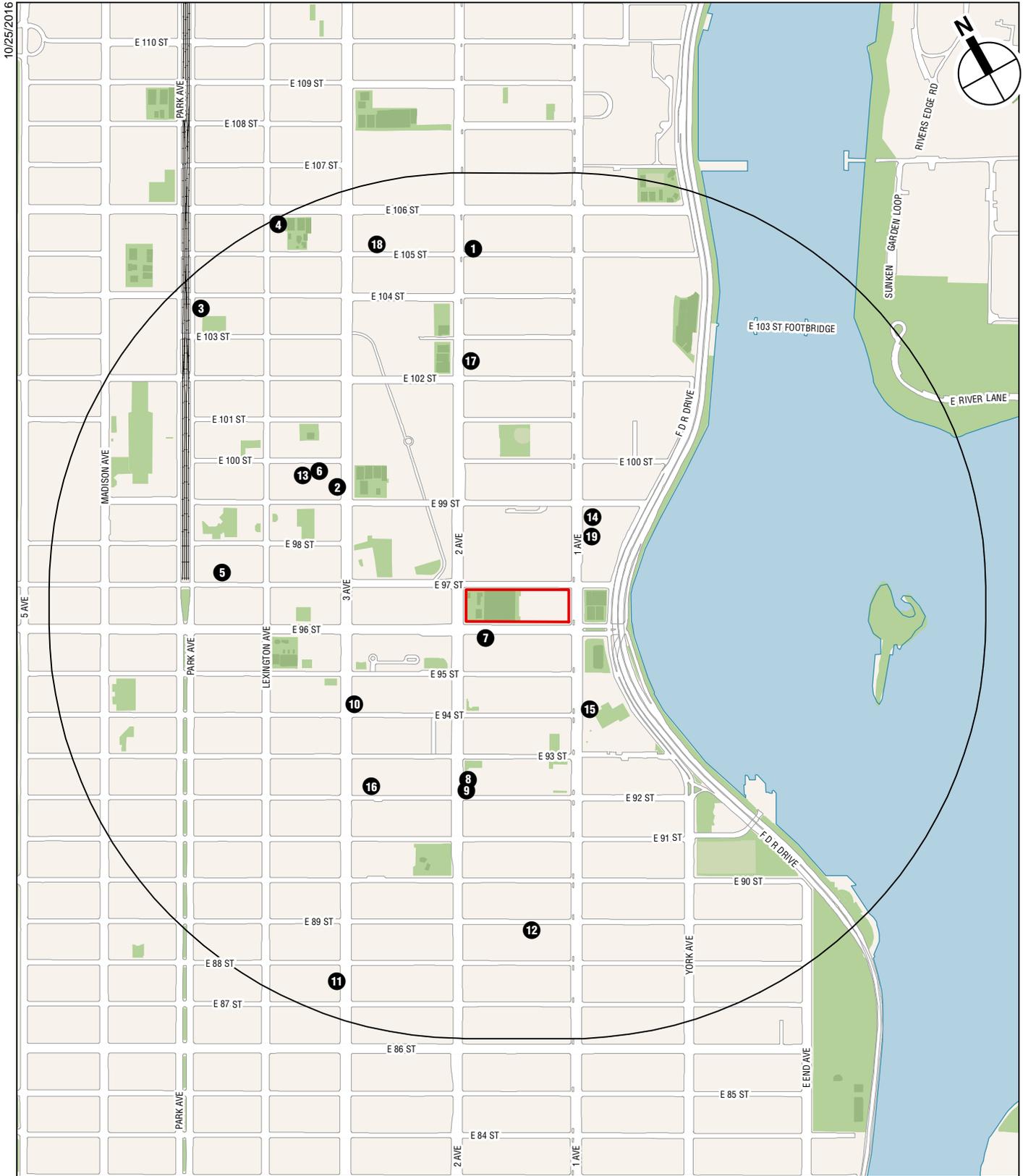
- Northbound York Avenue approach at the East 96th Street and York Avenue/FDR Northbound Ramp intersection (LOS E with a v/c ratio of 1.00 and a delay of 70.7 spv during the weekday AM peak hour; LOS E with a v/c ratio of 0.89 and a delay of 56.2 spv during the weekday midday peak hour; and LOS D with a v/c ratio of 0.83 and a delay of 53.5 spv during the weekday PM peak hour);
- Northbound FDR Ramp left-turn at the East 96th Street and York Avenue/FDR Northbound Ramp intersection (LOS F with a v/c ratio of 1.04 and a delay of 86.2 spv during the weekday AM peak hour; LOS E with a v/c ratio of 0.93 and a delay of 61.9 spv during the weekday midday peak hour; and LOS E with a v/c ratio of 0.84 and a delay of 57.9 spv during the weekday PM peak hour);
- Northbound FDR Ramp left-turn/through at the East 96th Street and York Avenue/FDR Northbound Ramp intersection (LOS F with a v/c ratio of 1.05 and a delay of 88.1 spv during the weekday AM peak hour; LOS E with a v/c ratio of 0.93 and a delay of 61.5 spv during the weekday PM peak hour);

- during the weekday midday peak hour; and LOS E with a v/c ratio of 0.85 and a delay of 59.5 spv during the weekday PM peak hour);
- Eastbound right-turn at the East 96th Street and FDR Southbound Ramp intersection (LOS F with a v/c ratio of 1.05 and a delay of 90.1 spv during the weekday AM peak hour; LOS E with a v/c ratio of 0.95 and a delay of 59.1 spv during the weekday midday peak hour; and LOS D with a v/c ratio of 0.87 and a delay of 48.3 spv during the weekday PM peak hour);
  - Westbound approach at the East 96th Street and FDR Southbound Ramp intersection (LOS D with a v/c ratio of 0.98 and a delay of 54.8 spv during the weekday AM peak hour); and
  - Southbound left-turn/through at the East 96th Street and FDR Southbound Ramp intersection (LOS F with a v/c ratio of 1.05 and a delay of 90.1 spv during the weekday AM peak hour; LOS F with a v/c ratio of 1.05 and a delay of 87.7 spv during the weekday midday peak hour; and LOS F with a v/c ratio of 1.05 and a delay of 88.3 spv during the weekday PM peak hour).

It should be noted that during peak hours, traffic enforcement agents are often present to direct traffic flow at the study area intersections along East 96th Street, a major east-west thoroughfare, such that the actual conditions are likely more favorable than what the analysis results show for these intersections.

#### THE FUTURE WITHOUT THE PROPOSED ACTIONS

The No Action condition was developed by increasing existing (2016) traffic levels by the expected growth in overall travel through and within the study area. As per *CEQR Technical Manual* guidelines, an annual background growth rate of 0.25 percent was assumed for the first five years (year 2016 to year 2021) and then 0.125 percent for the remaining years (year 2021 to year 2023). A total of 19 development projects expected to occur in the No Action condition (No Build projects) were identified as being planned for the ½-mile study area (see **Figure 11-13**). However, some of these planned projects are modest in size and would be very modest traffic generators. After reviewing the development programs for each of the planned projects, it was determined that background growth will address the increase in traffic and pedestrian levels for 6 of the small- to moderate-sized projects in the study area. Three of the No Build projects (projects 2, 6, and 13) were clustered together (cluster A) due to the close proximity to one another. **Table 11-18** and **Figure 11-13** summarize the projects that were accounted for in this future 2023 No Action condition, including those that were considered as part of the study area background growth. As discussed above, absent the proposed project, the existing jointly operated playground and technical facility for high school students would remain unchanged. In addition, the new Judith Kaye High School would be temporarily housed within the COOP Tech building, utilizing space currently occupied by a small P2K (GED) program, which is being phased out. The P2K program currently occupies a small portion of the COOP Tech building; this use will be phased out and the Judith Kaye High School students would use that space. The Judith Kaye High School would have a comparable program size as the P2K program such that the full COOP Tech program would essentially be the same under the existing and No Action conditions.



 Project Site

 Study Area (Half-Mile Boundary)

 No Build Project

0 1,000 FEET



**Table 11-18**  
**No Build Projects Expected to be Completed by 2023**

Map Ref. No. <sup>1</sup>	Project Name/ Address	Development Program	Transportation Assumptions	Status/ Build Year <sup>2</sup>
<b>Development Projects Within ½-Mile</b>				
1	2040 Second Avenue	53,850 gsf community facility (East Harlem Scholars Charter School)	Transportation assumptions from <i>CEQR Technical Manual, 203-205 East 92nd Street EAS</i> (2013), and U.S. Census Bureau American Community Survey 2006-2010 Reverse Journey to Work estimates	2023
2	1790 Third Avenue	Mixed commercial/residential: 4,012 gsf retail, 55 units	Transportation assumptions from <i>CEQR Technical Manual, West Harlem Rezoning FEIS</i> (2012), and U.S. Census Bureau American Community Survey 2010-2014 Journey to Work estimates	2016
3	102 East 104th Street/ 1399 Park Avenue	Mixed community facility/residential: 21,208 gsf community facility, 108 units	See project site 2, above	2023
4	152 East 106th Street	Mixed commercial/residential: 1,509 gsf retail, 10 units	Included in background growth	2023
5	115 East 97th Street	117,086 gsf community facility (East Harlem Scholars Charter School)	Transportation assumptions from <i>Marymount School of New York EAS</i> (2015)	2023
6	168 East 100th Street	Residential: 16 units	See project site 2, above	2017
7	302 East 96th Street	Residential: 48 units	Included in background growth	2023
8	1768 Second Avenue	Mixed commercial/residential: 2,009 gsf retail, 5 units	Included in background growth	2017
9	1766 Second Avenue	Mixed commercial/residential: 1,851 gsf retail, 20 units	Included in background growth	2023
10	1681 Third Avenue	Mixed commercial/residential: 13,886 gsf retail, 104 units	See project site 2, above	2017
11	1558 Third Avenue	Mixed commercial/residential: 55,623 gsf retail, 48 units	See project site 2, above	2023
12	360 East 89th Street	Mixed commercial/residential: 3,428 gsf retail, 81 units	Included in background growth	2023
13	166 East 100th Street	Mixed community facility/residential: 10,563 gsf community facility, 12 units	See project site 2, above	2017
14	1918 First Avenue	Residential: 203 units	See project site 2, above	2017
15	415 East 93rd Street	Mixed community facility/residential: 5,250 gsf community facility, 300 units	See project site 2, above	2023
16	203 East 92nd Street	Mixed commercial/community facility/residential: 35,138 gsf retail, 48,311 gsf community facility, 231 units	Transportation assumptions from <i>203-205 East 92nd Street EAS</i> (2013)	2016
17	1988-1996 Second Avenue	Residential: 102 units	See project site 3, above	2023
18	221 East 105th Street	Residential: 24 units	Included in background growth	2023
19	1880 First Avenue	Mixed community facility/residential: 683 gsf community facility, 153 units	See project site 2, above	2023
<b>Notes:</b>				
1. See <b>Figure 11-13</b> .				
2. Projects that are currently under construction are assumed to be complete by 2016; projects for which an expected date of completion date is not available are assumed to be complete by the proposed development's Build year of 2023.				

*CHANGES TO THE STUDY AREA STREET NETWORK*

With the recent completion of the Second Avenue Subway at the end of 2016, the geometries along Second Avenue and its cross street intersections (between East 93rd Street and East 97th Street) have been modified. As of the end of 2016 and analyzed in future conditions, Second Avenue is generally consisted were modified. The DEIS was prepared prior to the completion of the Second Avenue Subway construction, and the future physical inventory assumptions at the affected analysis locations were to be revisited between the DEIS and FEIS. Updated physical inventories along Second Avenue were collected in February 2017 after completion of the Second Avenue Subway construction and were incorporated into the FEIS future conditions analyses where appropriate. Based on the updated physical inventories, Second Avenue generally consists of a designated bus lane, three through lanes, a parking lane, and a bike lane. Designated left-turn lanes have also been included along Second Avenue at the East 97th Street and East 96th Street intersections. Other geometric changes along the cross streets include: an additional a parking lane for the eastbound lane approach at the intersection of Second Avenue and East 97th Street; an additional eastbound lane at the intersection of Second Avenue and East 96th Street; and a designated westbound left-turn lane at the intersection of Second Avenue and East 96th Street. Most of the geometric changes implemented at the Second Avenue intersections are consistent with what was assumed in the DEIS analyses. Lane widths at multiple lane groups for all analysis locations were updated to reflect actual field conditions post-Second Avenue Subway construction. The designated bus lane at the southbound approach of Second Avenue and East 96th Street operates with truck loading and unloading regulations during the weekday midday peak hour (10 AM to 2 PM). All changes described above have been incorporated into the No Action analysis for the analyzed intersections along Second Avenue. As noted above, since the analysis was prepared prior to the completion of the The post-Second Avenue Subway construction, the future physical inventory assumptions signal timings at the affected analysis locations will be revisited between the Draft and Final EIS analyzed Second Avenue intersections were observed to be the same as those under the existing conditions, and thus did not require any changes.

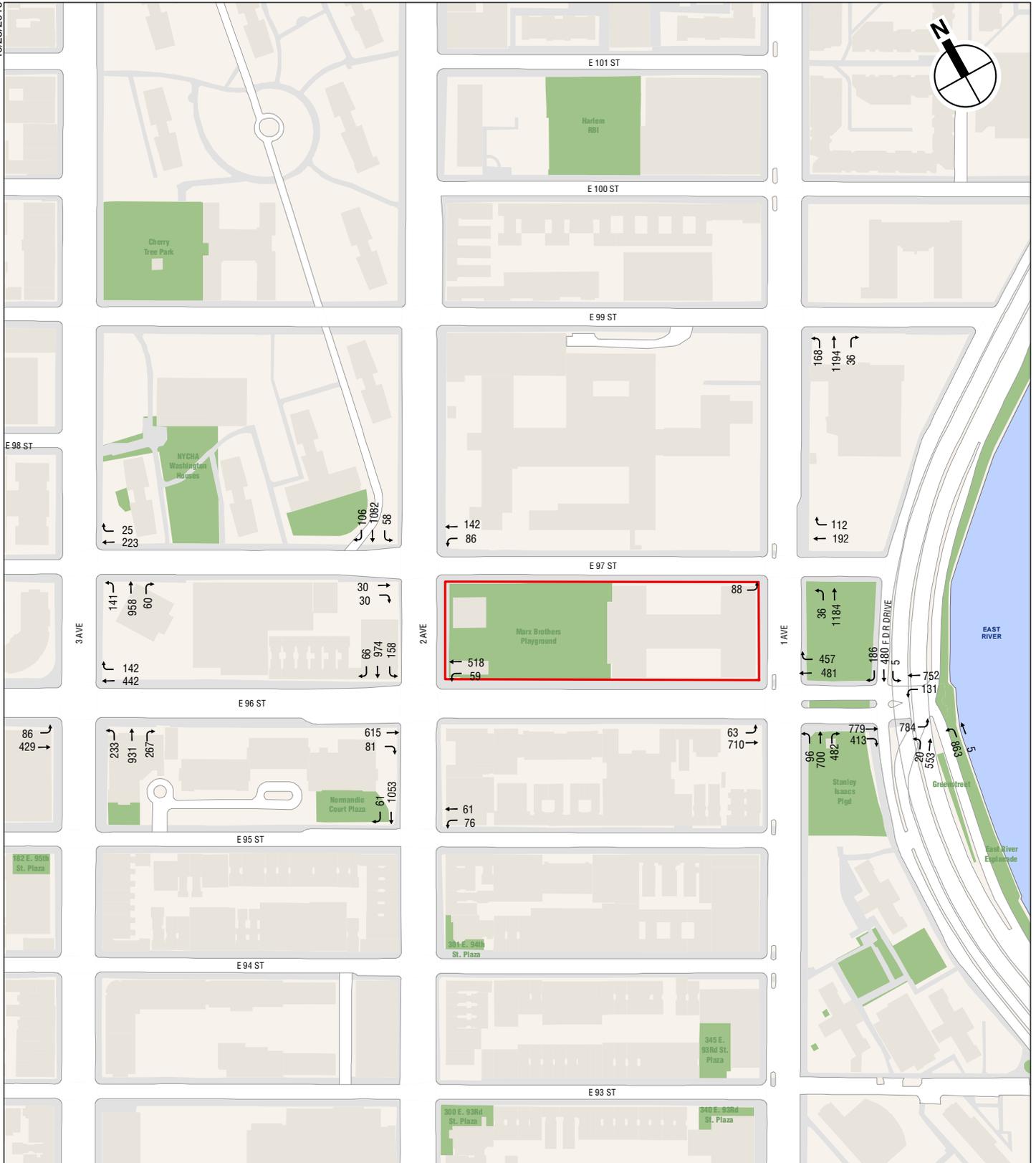
*TRAFFIC OPERATIONS*

The No Action condition traffic volumes are shown in Figures 11-14 through 11-16 for the weekday AM, midday, and PM peak hours, respectively. The No Action condition traffic volumes were projected by layering on top of the existing traffic volumes the following: background growth and trips generated by discrete No Build projects in the area. A summary of the 2023 No Action condition traffic analysis results is presented in Table 11-19. Details on level-of-service, v/c ratios, and average delays are presented in Table 11-20.

**Table 11-19  
Summary of 2023 No Action Traffic Analysis Results**

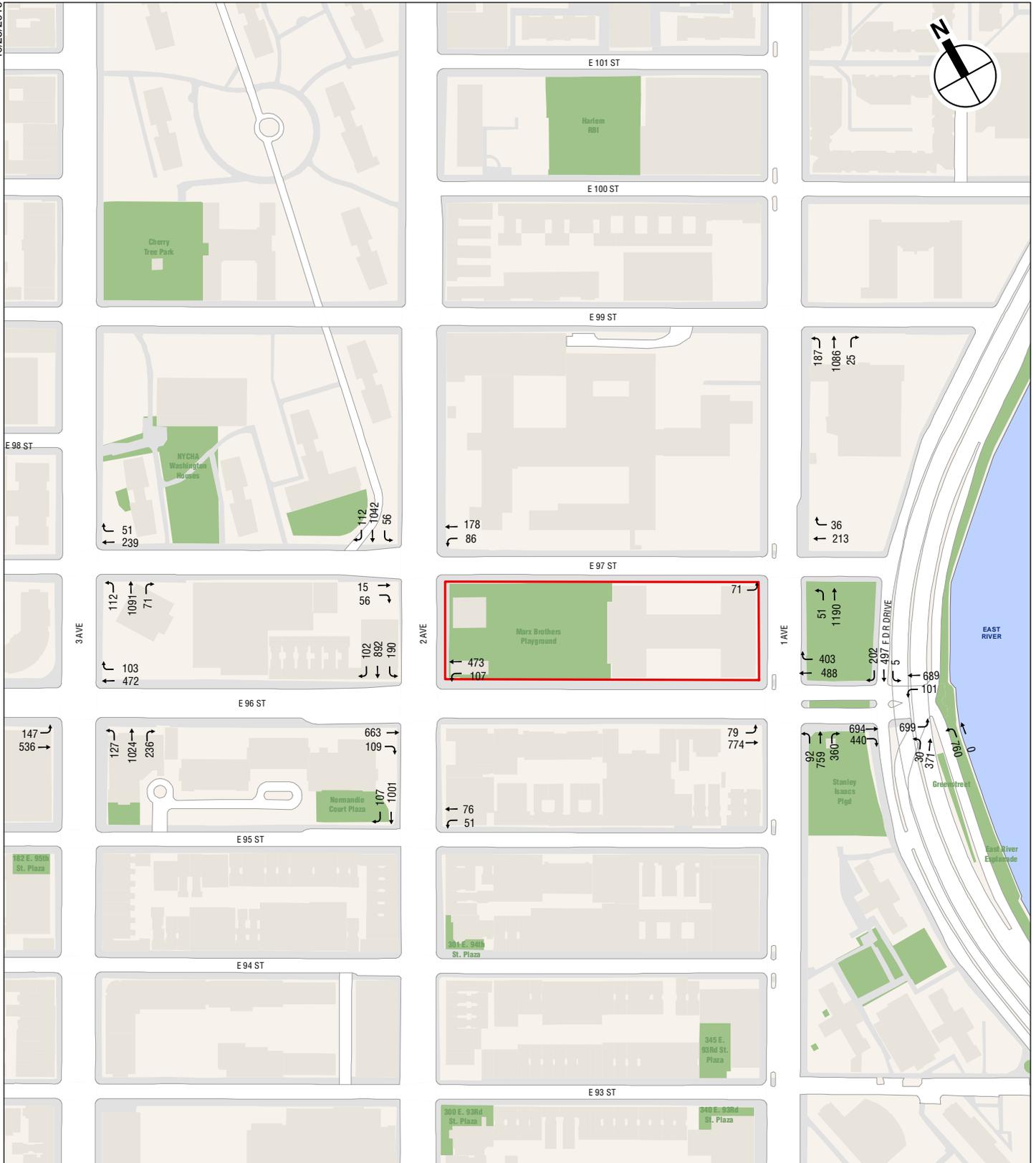
Level of Service	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Lane Groups at LOS A/B/C	27	3029	30
Lane Groups at LOS D	6	5	4
Lane Groups at LOS E	3	4	5
Lane Groups at LOS F	6	3	3
Total	42	4241	42
Lane Groups with v/c ≥ 0.90	10	8	8

Notes: LOS = Level-of-Service; v/c = volume-to-capacity ratio.

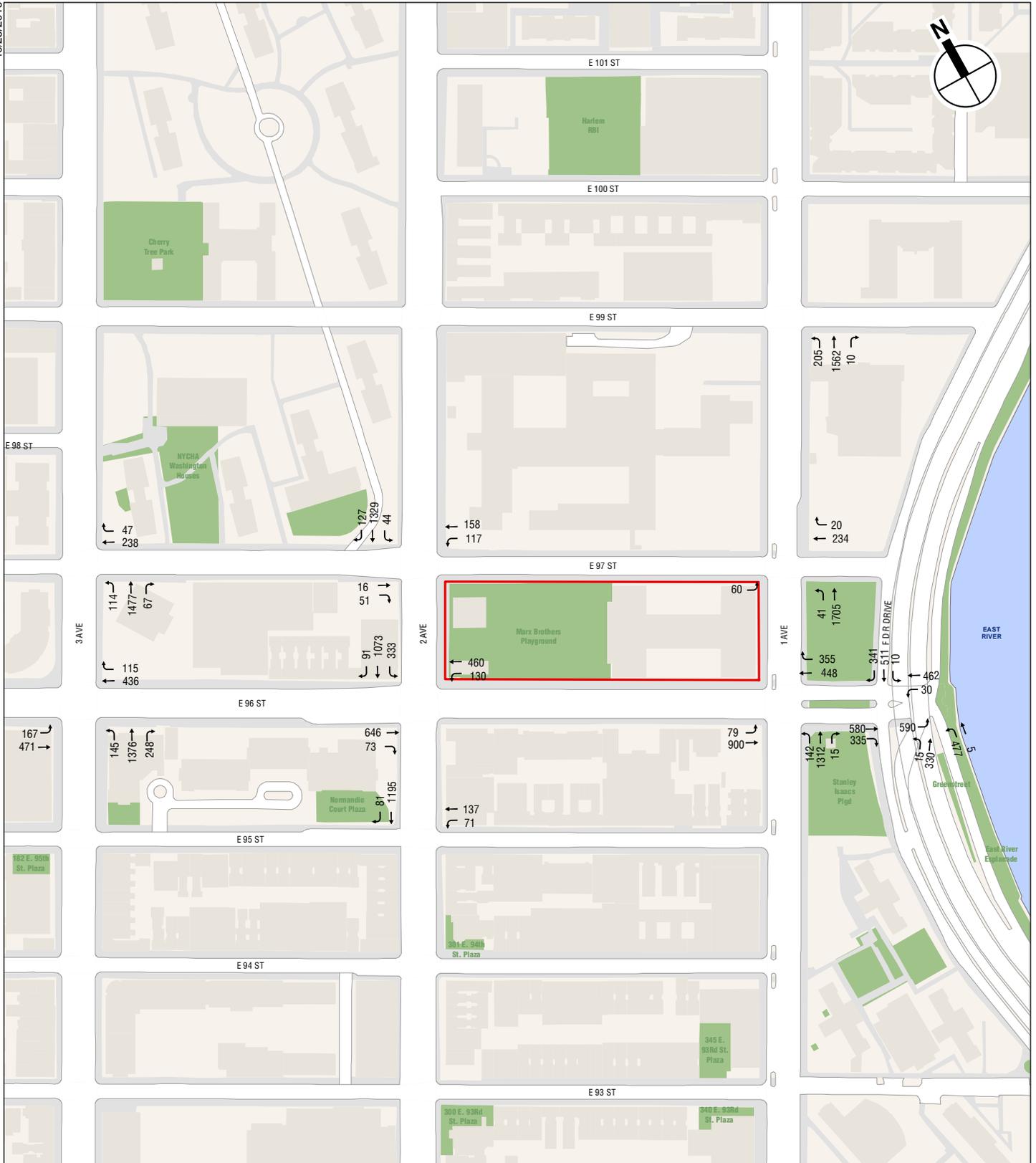


Project Site

2023 No Action Traffic Volumes  
 Weekday AM Peak Hour  
**Figure 11-14**



Project Site



Project Site

2023 No Action Traffic Volumes  
 Weekday PM Peak Hour  
**Figure 11-16**

## ECF East 96th Street

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Based on the analysis results presented in **Table 11-20**, the majority of the approaches/lane-groups in the No Action condition will operate at the same LOS as in the existing conditions or within acceptable mid-LOS D or better (delays of 45 seconds or less per vehicle for signalized intersections) for all peak hours. The following approaches/lane-groups in the No Action condition are expected to operate at deteriorated LOS when compared to the existing conditions:

### *First Avenue*

- Westbound right-turn at the East 96th Street and First Avenue intersection will deteriorate to LOS E with a v/c ratio of 0.97 and a delay of 55.5 spv during the weekday AM peak hour; and
- Northbound left-turn at the East 96th Street and First Avenue intersection will deteriorate within LOS D with a v/c ratio of 0.58 and a delay of 48.4 spv during the weekday AM peak hour and will deteriorate to LOS E with a v/c ratio of 0.76 and a delay of 60.4 spv during the weekday PM peak hour.

Table 11-20  
2016 Existing and 2023 No Action Conditions Level of Service Analysis

Intersection	Weekday AM								Weekday Midday								Weekday PM								
	2016 Existing				2023 No Build				2016 Existing				2023 No Build				2016 Existing				2023 No Build				
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
<b>East 96th Street and First Avenue</b>																									
EB	L	0.28	18.6	B	L	0.32	19.5	B	L	0.34	19.6	B	L	0.37	20.4	C	L	0.27	17.8	B	L	0.30	18.5	B	
	T	0.44	18.0	B	T	0.47	18.4	B	T	0.46	18.3	B	T	0.48	18.5	B	T	0.48	18.6	B	T	0.50	18.9	B	
WB	T	0.40	17.9	B	T	0.43	18.2	B	T	0.38	17.6	B	T	0.39	17.7	B	T	0.32	16.9	B	T	0.35	17.1	B	
	R	0.90	42.3	D	R	0.97	55.5	E	R	0.72	27.5	C	R	0.76	29.8	C	R	0.68	26.1	C	R	0.75	29.4	C	
NB	L	0.49	44.1	D	L	0.58	48.4	D	L	0.60	49.7	D	L	0.62	50.6	D	L	0.70	54.8	D	L	0.76	60.4	E	
	T	0.42	17.8	B	T	0.45	18.3	B	T	0.47	18.5	B	T	0.49	18.8	B	T	0.74	23.6	C	T	0.78	24.7	C	
	R	1.05	82.0	F	R	1.07	87.6	F	R	0.92	51.1	D	R	0.94	54.1	D	R	0.04	14.3	B	R	0.04	14.3	B	
	Intersection			C	Intersection			D	Intersection			C	Intersection			C	Intersection			22.8	22.8	Intersection			C
<b>East 97th Street and First Avenue</b>																									
EB	L	0.49	28.4	C	L	0.56	32.4	C	L	0.35	23.8	C	L	0.38	24.9	C	L	0.27	21.5	C	L	0.33	23.3	C	
WB	TR	0.37	20.7	C	TR	0.39	21.1	C	TR	0.28	19.6	B	TR	0.29	19.7	B	TR	0.25	19.2	B	TR	0.26	19.3	B	
NB	L	0.07	11.9	B	L	0.08	12.0	B	L	0.10	12.2	B	L	0.11	12.3	B	L	0.08	11.9	B	L	0.08	12.0	B	
	T	0.69	19.4	B	T	0.74	20.6	C	T	0.69	19.5	B	T	0.72	20.2	C	T	0.88	26.5	C	T	0.93	30.6	C	
	Intersection			C	Intersection			C	Intersection			B	Intersection			C	Intersection			25.0	C	Intersection			C
<b>East 99th Street and First Avenue</b>																									
NB	L	0.25	11.8	B	L	0.31	12.4	B	L	0.28	12.1	B	L	0.31	12.5	B	L	0.35	13.0	B	L	0.39	13.6	B	
	T	0.60	15.1	B	T	0.63	15.7	B	T	0.54	14.3	B	T	0.56	14.6	B	T	0.72	17.5	B	T	0.75	18.2	B	
	R	0.09	10.2	B	R	0.09	10.2	B	R	0.06	9.9	A	R	0.06	9.9	A	R	0.02	9.5	A	R	0.02	9.5	A	
	Intersection			B	Intersection			B	Intersection			B	Intersection			B	Intersection			16.8	B	Intersection			B
<b>East 97th Street and Second Avenue</b>																									
EB	TR	0.15	21.0	C	TR	0.0818	20.1217	C	TR	0.20	21.9	C	TR	0.1226	20.5231	C	TR	0.19	23.7	C	TR	0.1023	20.3224	C	
WB	LT	0.65	32.8	C	LT	0.7877	42.4415	D	LT	0.70	34.6	C	LT	0.82	45.5444	D	LT	0.87	53.0	D	LT	0.9394	62.7645	E	
SB	LT	0.87	27.5	C	L	0.1314	10.67	B	LT	0.74	19.1	B	L	0.1314	10.67	B	LT	0.87	24.5	C	L	0.0910	10.2	B	
	-	-	-	-	T	0.59	15.1	B	-	-	-	-	T	0.52	13.9	B	-	-	-	-	T	0.62	15.3	B	
	R	0.25	13.7	B	T	0.2524	12.0118	B	R	0.30	12.9	B	T	0.2726	12.31	B	R	0.26	12.2	B	T	0.2625	12.1118	B	
	Intersection			C	Intersection			B	Intersection			C	Intersection			B	Intersection			28.4	C	Intersection			C
<b>East 96th Street and Second Avenue</b>																									
EB	TR	0.93	47.6	D	TR	0.6164	25.8267	C	TR	0.90	40.0	D	TR	0.6670	2728.0	C	TR	0.75	30.5	C	TR	0.5559	24.8255	C	
WB	LT	0.80	35.4	D	L	0.56	39.8	D	LT	1.05	79.3	E	L	1.0402	115.3118.1	F	LT	0.96	55.9	E	L	1.04	116.2	F	
	-	-	-	-	T	0.5452	24.59	C	-	-	-	-	T	0.5557	25.27	C	-	-	-	-	T	0.4546	23.58	C	
SB	LT	0.95	41.1	D	L	0.3234	17.36	B	LT	0.92	35.3	D	L	0.4344	19.04	B	LTR	0.87	28.1	C	L	0.6366	23.925.2	C	
	-	-	-	-	T	0.6365	21.020.5	C	-	-	-	-	T	0.54	48.9	B	-	-	-	-	T	0.6567	20.721.2	C	
	R	0.20	15.8	B	R	0.22	16.21	B	R	0.31	17.5	B	RTR	0.3370	18.022.2	BC	-	-	-	-	R	0.2423	16.32	B	
	Intersection			D	Intersection			C	Intersection			D	Intersection			C	Intersection			34.3	C	Intersection			C
<b>East 95th Street and Second Avenue</b>																									
WB	LT	0.55	38.1	D	LT	0.3935	25.124.2	C	LT	0.36	24.5	C	LT	0.3834	24.823.9	C	LT	0.54	28.3	C	LT	0.5651	28.927.1	C	
SB	T	0.88	31.4	C	T	0.5961	15.45	B	T	0.68	17.2	B	T	0.5355	14.25	B	T	0.78	20.1	C	T	0.6463	15.37	B	
	R	0.18	15.4	B	R	0.4516	10.911.0	B	R	0.26	12.2	B	R	0.2729	12.48	B	R	0.21	11.6	B	R	0.4819	11.24	B	
	Intersection			C	Intersection			B	Intersection			B	Intersection			B	Intersection			20.9	C	Intersection			B

**Table 11-20 (cont'd)**  
**2016 Existing and 2023 No Action Conditions Level of Service Analysis**

Intersection	Weekday AM								Weekday Midday								Weekday PM							
	2016 Existing				2023 No Build				2016 Existing				2023 No Build				2016 Existing				2023 No Build			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
<b>East 97th Street and Third Avenue</b>																								
WB	TR	0.31	22.5	C	TR	0.33	22.8	C	TR	0.34	22.9	C	TR	0.35	23.0	C	TR	0.37	23.3	C	TR	0.39	23.6	C
NB	LTR	0.38	12.1	B	LTR	0.44	12.7	B	LTR	0.42	12.5	B	LTR	0.45	12.8	B	LTR	0.51	13.5	B	LTR	0.55	14.0	B
	Intersection	14.1	B	Intersection	14.6	B	Intersection	14.6	B	Intersection	14.7	B	Intersection	15.2	B	Intersection	15.2	B	Intersection	15.2	B	Intersection	15.6	B
<b>East 96th Street and Third Avenue</b>																								
EB	LT	1.05	84.7	F	LT	1.10	102.8	F	LT	1.05	80.8	F	LT	1.08	90.4	F	LT	1.05	81.6	F	LT	1.10	96.4	F
WB	TR	0.85	40.8	D	TR	0.94	51.5	D	TR	0.81	37.6	D	TR	0.83	38.9	D	TR	0.75	34.8	C	TR	0.81	38.2	D
NB	LTR	0.67	22.6	C	LTR	0.77	25.0	C	LTR	0.62	21.6	C	LTR	0.66	22.4	C	LTR	0.73	23.7	C	LTR	0.79	25.3	C
	Intersection	39.9	D	Intersection	46.1	D	Intersection	40.0	D	Intersection	42.6	D	Intersection	38.0	D	Intersection	38.0	D	Intersection	38.0	D	Intersection	42.2	D
<b>East 96th Street and York Avenue/FDR Northbound Ramp</b>																								
EB	L	0.84	36.7	D	L	0.86	38.6	D	L	0.69	29.1	C	L	0.71	29.5	C	L	0.77	38.4	D	L	0.79	39.4	D
NB (York Ave)	LT	1.00	70.7	E	LT	1.01	74.2	E	LT	0.89	56.2	E	LT	0.90	58.0	E	LT	0.83	53.5	D	LT	0.85	54.8	D
NB (FDR NB Rmp)	L	1.04	86.2	F	L	1.09	100.6	F	L	0.93	61.9	E	L	0.95	66.6	E	L	0.84	57.9	E	L	0.90	66.7	E
	LT	1.05	88.1	F	LT	1.10	103.5	F	LT	0.93	61.5	E	LT	0.95	66.6	E	LT	0.85	59.5	E	LT	0.92	68.9	E
	Intersection	65.2	E	Intersection	73.7	E	Intersection	48.1	D	Intersection	50.6	D	Intersection	49.2	D	Intersection	49.2	D	Intersection	49.2	D	Intersection	53.3	D
<b>East 96th Street and FDR Southbound Ramp</b>																								
EB	T	0.82	35.6	D	T	0.84	37.2	D	T	0.71	29.5	C	T	0.72	29.9	C	T	0.73	36.3	D	T	0.75	37.0	D
	R	1.05	90.1	F	R	1.13	116.8	F	R	0.95	59.1	E	R	0.98	66.4	E	R	0.87	48.3	D	R	0.93	56.9	E
WB	LT	0.98	54.8	D	LT	1.02	65.5	E	LT	0.85	40.5	D	LT	0.87	42.1	D	LT	0.57	31.0	C	LT	0.61	31.8	C
SB	LT	1.05	90.1	F	LT	1.07	97.0	F	LT	1.05	87.7	F	LT	1.06	92.2	F	LT	1.05	88.3	F	LT	1.08	95.4	F
	R	0.25	9.2	A	R	0.25	9.3	A	R	0.27	8.5	A	R	0.28	8.6	A	R	0.40	9.9	A	R	0.42	10.2	B
	Intersection	57.4	E	Intersection	66.8	E	Intersection	46.5	D	Intersection	49.0	D	Intersection	44.5	D	Intersection	44.5	D	Intersection	44.5	D	Intersection	47.5	D

**Notes:** L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.

*Second Avenue*

- Westbound approach at the East 97th Street and Second Avenue intersection will deteriorate to ~~LOS D with a v/c ratio of 0.82 and a delay of 45.5 spv during the midday peak hour and will deteriorate to~~ LOS E with a v/c ratio of 0.9394 and a delay of 62.764.5 spv during the weekday PM peak hour; and
- Westbound left-turn at the East 96th Street and Second Avenue intersection will deteriorate to LOS F with a v/c ratio of 1.0102 and a delay of 115.3118.1 spv during the weekday midday peak hour and will deteriorate to LOS F with a v/c ratio of 1.04 and a delay of 116.2 spv during the weekday PM peak hour.

*Third Avenue*

- Westbound approach at the East 96th Street and Third Avenue intersection will deteriorate within LOS D with v/c ratio of 0.94 and a delay of 51.5 spv during the weekday AM peak hour.

*York Avenue/FDR Ramps*

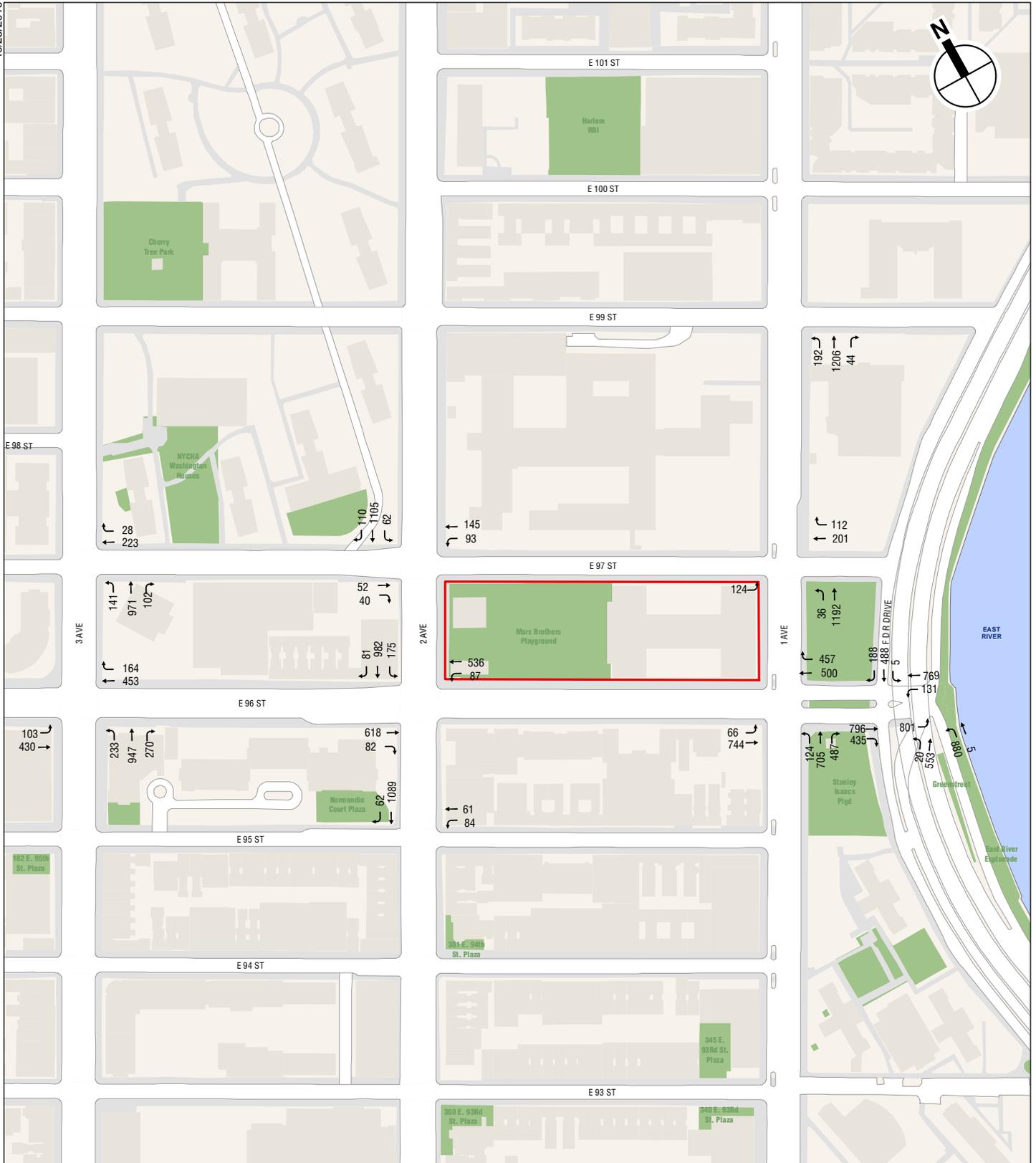
- Eastbound right-turn at the East 96th Street and FDR southbound Ramp intersection will deteriorate to LOS E with a v/c ratio of 0.93 and a delay of 56.9 spv during the weekday PM peak hour; and
- Westbound approach at the East 96th Street and FDR southbound Ramp intersection will deteriorate to LOS E with a v/c ratio of 1.02 and a delay of 65.5 spv during the weekday AM peak hour.

**THE FUTURE WITH THE PROPOSED ACTIONS**

In the future with the proposed actions, the project site would be redeveloped with approximately 1,200 residential units, 25,000 gsf of local retail, 135,000 gsf technical school (1,100 seats) to replace the existing COOP Tech, 135,000 gsf building housing two public high schools (450 seats each, for a total of 900 seats) that would relocate from nearby locations within Community Board 11, and possibly accessory parking for up to 120 spaces (with 111 spaces allocated for residential use, and the remaining 9 spaces allocated for school staff use). In addition, the Judith Kaye High School would be relocated from the COOP Tech building to an appropriate setting within the surrounding area. The proposed project would result in approximately 260, 112, and 286 incremental vehicle trips during the weekday AM, midday, and PM peak hours, respectively. The incremental auto trips were assigned to the potential on-site parking facility and off-street parking facilities. Taxi trips were distributed to the various project site entrances. All delivery trips were assigned to the development site via DOT-designated truck routes.

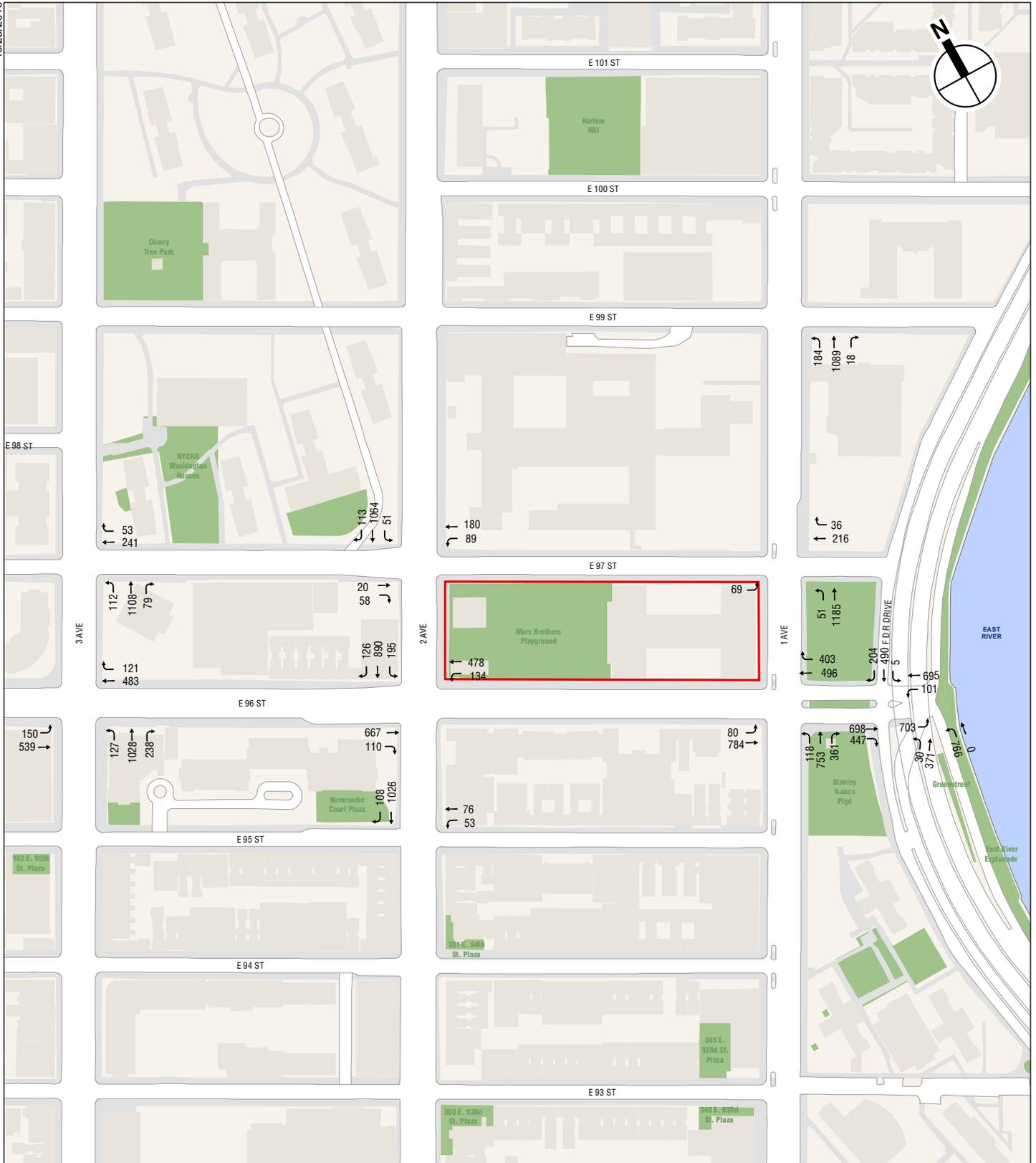
*TRAFFIC OPERATIONS*

The 2023 With Action condition traffic volumes are shown in **Figures 11-17 through 11-19** for the weekday AM, midday, and PM peak hours. The 2023 With Action traffic volumes were constructed by layering on top of the No Action condition traffic volumes the incremental vehicle trips shown in **Figures 11-2 through 11-4**. A summary of the 2023 With Action condition traffic analysis results is presented in **Table 11-21**.



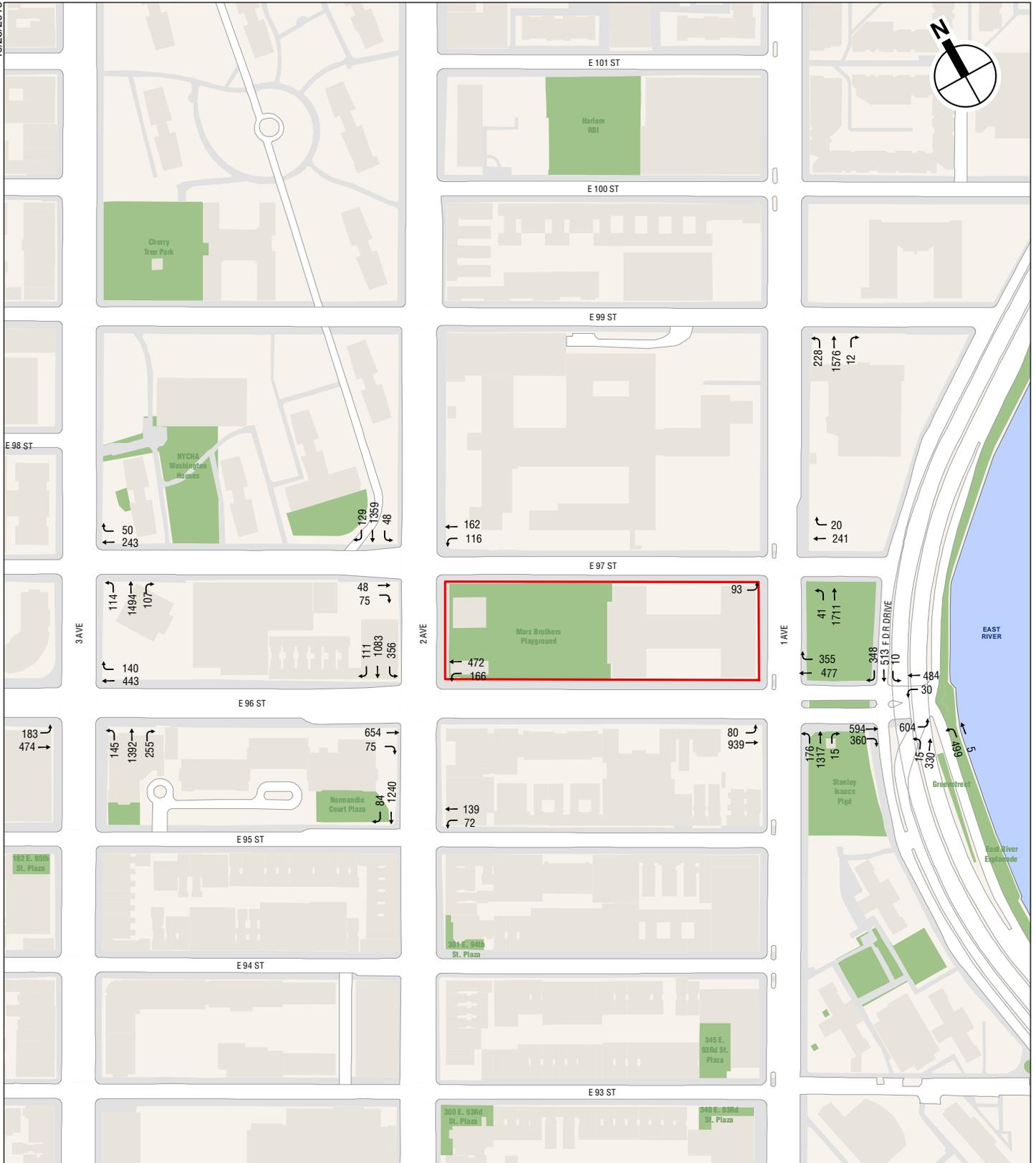
Project Site

2023 With Action Traffic Volumes  
 Weekday AM Peak Hour  
**Figure 11-17**



Project Site

2023 With Action Traffic Volumes  
 Weekday Midday Peak Hour  
**Figure 11-18**



Project Site

2023 With Action Traffic Volumes  
 Weekday PM Peak Hour  
**Figure 11-19**

*Significant Adverse Impacts*

Details on level-of-service, volume-to-capacity (v/c) ratios, and average delays are presented in **Table 11-22**. As discussed below, significant adverse traffic impacts were identified at ~~43~~<sup>15</sup> approaches/lane groups (of 7 different intersections). Potential measures that can be implemented to mitigate these significant adverse traffic impacts are discussed in Chapter 18, “Mitigation.”

**Table 11-21**  
**Summary of 2023 With Action Traffic Analysis Results**

Level of Service	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
Lane Groups at LOS A/B/C	26	<del>30</del> <sup>29</sup>	28
Lane Groups at LOS D	3	4	6
Lane Groups at LOS E	7	5	4
Lane Groups at LOS F	6	3	5
Total	42	<del>42</del> <sup>41</sup>	43
Lane Groups with v/c ≥ 0.90	10	8	<del>4</del> <sup>12</sup>
Number of intersections with significant impacts	7	5	6

**Notes:** LOS = Level-of-Service; v/c = volume-to-capacity ratio.

*First Avenue*

- Westbound right-turn at the East 96th Street and First Avenue intersection would deteriorate within LOS E (from a v/c ratio of 0.97 and 55.5 spv of delay to a v/c ratio of 1.02 and 67.0 spv of delay), an increase in delay of more than four seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact;
- Northbound left-turn at the East 96th Street and First Avenue intersection would deteriorate from LOS D (v/c ratio of 0.58 and 48.4 spv of delay) to LOS E (v/c ratio of 0.76 and 61.2 spv of delay), from LOS D (v/c ratio of 0.62 and 50.6 spv of delay) to LOS E (v/c ratio of 0.79 and 65.3 spv of delay), and from LOS E (v/c ratio of 0.76 and 60.4 spv of delay) to LOS F (v/c ratio of 0.94 and 87.7 spv of delay), increases in delay of more than five seconds, five seconds, and four seconds, during the weekday AM, midday and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts;
- Northbound right-turn at the East 96th Street and First Avenue intersection would deteriorate within LOS F (from a v/c ratio of 1.07 and 87.6 spv of delay to a v/c ratio of 1.08 and 91.1 spv of delay), an increase in delay of more than three seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact; and
- Eastbound approach at the East 97th Street and First Avenue intersection would deteriorate from LOS C (v/c ratio of 0.56 and 32.4 spv of delay) to LOS E (v/c ratio of 0.82 and 56.0 spv of delay), an increase in delay of more than five seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.

Table 11-22  
2023 No Action and 2023 With Action Conditions Level of Service Analysis

Intersection	Weekday AM								Weekday Midday								Weekday PM							
	2023 No Build				2023 Build				2023 No Build				2023 Build				2023 No Build				2023 Build			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
<b>East 96th Street and First Avenue</b>																								
EB	L	0.32	19.5	B	L	0.35	20.5	C	L	0.37	20.4	C	L	0.38	21.0	C	L	0.30	18.5	B	L	0.33	19.4	B
	T	0.47	18.4	B	T	0.49	18.7	B	T	0.48	18.5	B	T	0.48	18.6	B	T	0.50	18.9	B	T	0.53	19.2	B
WB	T	0.43	18.2	B	T	0.44	18.4	B	T	0.39	17.7	B	T	0.40	17.8	B	T	0.35	17.1	B	T	0.37	17.4	B
	R	0.97	55.5	E	R	1.02	67.0	E+	R	0.76	29.8	C	R	0.79	32.4	C	R	0.75	29.4	C	R	0.82	35.1	D
NB	L	0.58	48.4	D	L	0.76	61.2	E+	L	0.62	50.6	D	L	0.79	65.3	E+	L	0.76	60.4	E	L	0.94	87.7	F+
	T	0.45	18.3	B	T	0.45	18.3	B	T	0.49	18.8	B	T	0.48	18.7	B	T	0.78	24.7	C	T	0.78	24.8	C
	R	1.07	87.6	F	R	1.08	91.1	F+	R	0.94	54.1	D	R	0.94	54.6	D	R	0.04	14.3	B	R	0.04	14.3	B
	Intersection	35.5	D	Intersection	38.4	D	Intersection	25.5	C	Intersection	26.9	C	Intersection	24.1	C	Intersection	26.6	C						
<b>East 97th Street and First Avenue</b>																								
EB	L	0.56	32.4	C	L	0.82	56.0	E+	L	0.38	24.9	C	L	0.38	24.8	C	L	0.33	23.3	C	L	0.54	30.7	C
WB	TR	0.39	21.1	C	TR	0.41	21.4	C	TR	0.29	19.7	B	TR	0.29	19.7	B	TR	0.26	19.3	B	TR	0.27	19.4	B
NB	L	0.08	12.0	B	L	0.10	12.3	B	L	0.11	12.3	B	L	0.15	12.9	B	L	0.08	12.0	B	L	0.13	12.7	B
	T	0.74	20.6	C	T	0.74	20.8	C	T	0.72	20.2	C	T	0.72	20.1	C	T	0.93	30.6	C	T	0.93	31.0	C
	Intersection	21.2	C	Intersection	23.6	C	Intersection	20.0	C	Intersection	20.0	B	Intersection	28.5	C	Intersection	29.1	C						
<b>East 99th Street and First Avenue</b>																								
NB	L	0.31	12.4	B	L	0.35	13.0	B	L	0.31	12.5	B	L	0.31	12.5	B	L	0.39	13.6	B	L	0.43	14.3	B
	T	0.63	15.7	B	T	0.64	15.8	B	T	0.56	14.6	B	T	0.56	14.7	B	T	0.75	18.2	B	T	0.76	18.4	B
	R	0.09	10.2	B	R	0.11	10.4	B	R	0.06	9.9	A	R	0.05	9.8	A	R	0.02	9.5	A	R	0.03	9.6	A
	Intersection	15.1	B	Intersection	15.2	B	Intersection	14.2	B	Intersection	14.3	B	Intersection	17.5	B	Intersection	17.7	B						
<b>East 97th Street and Second Avenue</b>																								
EB	TR	0.0818	20.121.7	C	TR	0.1329	20.23.6	C	TR	0.1226	20.523.1	C	TR	0.1431	20.724.3	C	TR	0.1023	20.322.4	C	TR	0.2044	21.326.6	C
WB	LT	0.7877	42.441.5	D	LT	0.87	53.49	D+	LT	0.82	45.544.4	D	LT	0.8886	52.550.6	D+	LT	0.9394	62.764.5	E	LT	1.0415	90.9131.4	F+
SB	L	0.1314	10.67	B	L	0.1617	11.02	B	L	0.1314	10.67	B	L	0.14	10.78	B	L	0.0910	10.2	B	L	0.1213	10.46	B
	T	0.59	15.1	B	T	0.60	15.3	B	T	0.52	13.9	B	T	0.53	14.0	B	T	0.62	15.3	B	T	0.63	15.6	B
	R	0.2524	12.011.8	B	R	0.2726	12.41	B	R	0.2726	12.31	B	R	0.2928	12.64	B	R	0.2625	12.111.8	B	R	0.2827	12.42	B
	Intersection	19.21	B	Intersection	21.25	C	Intersection	19.65	B	Intersection	20.824.0	C	Intersection	22.723.1	C	Intersection	27.433.7	C						
<b>East 96th Street and Second Avenue</b>																								
EB	TR	0.6464	25.826.7	C	TR	0.6465	26.09	C	TR	0.6670	27.28.0	C	TR	0.6771	27.28.2	C	TR	0.5559	24.825.5	C	TR	0.5660	25.08	C
WB	L	0.56	39.8	D	L	0.8586	74.175.6	E+	L	1.0402	115.3118.1	F	L	1.30	216.0	F+	L	1.04	116.2	F	L	1.3839	238.7243.0	F+
	T	0.5452	24.59	C	T	0.5254	24.825.2	C	T	0.5557	25.27	C	T	0.5557	25.38	C	T	0.4546	23.68	C	T	0.4647	23.724.0	C
SB	L	0.3234	17.36	B	L	0.4749	21.720.8	C	L	0.4344	19.04	B	L	0.5558	23.24.0	C	L	0.6366	23.925.2	C	L	0.8994	44.954.8	D±
	T	0.6365	20.521.0	C	T	0.6466	20.621.2	C	T	0.54	18.9	B	T	0.54	18.9	B	T	0.6567	20.721.2	C	T	0.6568	20.821.3	C
	R	0.22	16.21	B	R	0.29	17.65	B	R	0.3370	18.022.2	BC	R	0.4273	19.923.1	BC	R	0.2423	16.32	B	R	0.32	17.87	B
	Intersection	23.46	C	Intersection	24.925.6	C	Intersection	26.428.2	C	Intersection	32.634.5	C	Intersection	27.06	C	Intersection	37.939.8	D						
<b>East 95th Street and Second Avenue</b>																								
WB	LT	0.3935	25.424.2	C	LT	0.4437	25.24.6	C	LT	0.3834	24.823.9	C	LT	0.3835	24.90	C	LT	0.5651	28.927.1	C	LT	0.5752	29.227.3	C
SB	T	0.6961	15.45	B	T	0.6463	15.49	B	T	0.6355	14.25	B	T	0.5557	14.37	B	T	0.6163	15.37	B	T	0.6366	15.716.1	B
	R	0.4516	40.911.0	B	R	0.4617	40.911.1	B	R	0.2729	12.48	B	R	0.2829	12.58	B	R	0.4819	11.24	B	R	0.4920	11.35	B
	Intersection	16.02	B	Intersection	16.46	B	Intersection	15.24	B	Intersection	15.46	B	Intersection	17.42	B	Intersection	17.56	B						

ECF East 96th Street

Table 11-22 (cont'd)  
2023 No Action and 2023 With Action Conditions Level of Service Analysis

Intersection	Weekday AM								Weekday Midday								Weekday PM							
	2023 No Build				2023 Build				2023 No Build				2023 Build				2023 No Build				2023 Build			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
<b>East 97th Street and Third Avenue</b>																								
WB	TR	0.33	22.8	C	TR	0.34	22.9	C	TR	0.35	23.0	C	TR	0.35	23.1	C	TR	0.39	23.6	C	TR	0.40	23.8	C
NB	LTR	0.44	12.7	B	LTR	0.46	13.0	B	LTR	0.45	12.8	B	LTR	0.46	12.9	B	LTR	0.55	14.0	B	LTR	0.58	14.4	B
	Intersection	14.6	B	Intersection	14.8	B	Intersection	14.7	B	Intersection	14.8	B	Intersection	15.6	B	Intersection	15.9	B	Intersection	15.6	B	Intersection	15.9	B
<b>East 96th Street and Third Avenue</b>																								
EB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DefL	1.46	273.6	F+
	LT	1.10	102.8	F	LT	1.23	153.9	F+	LT	1.08	90.4	F	LT	1.12	104.8	F+	LT	1.10	96.4	F	T	0.94	55.7	E
WB	TR	0.94	51.8	D	TR	1.02	71.8	E+	TR	0.83	38.9	D	TR	0.89	44.8	D	TR	0.81	38.2	D	TR	0.91	47.4	D+
NB	LTR	0.77	25.0	C	LTR	0.78	25.3	C	LTR	0.66	22.4	C	LTR	0.67	22.5	C	LTR	0.79	25.3	C	LTR	0.80	25.6	C
	Intersection	46.1	D	Intersection	61.3	E	Intersection	42.6	D	Intersection	47.6	D	Intersection	42.2	D	Intersection	48.4	D	Intersection	42.2	D	Intersection	48.4	D
<b>East 96th Street and York Avenue/FDR Northbound Ramp</b>																								
EB	L	0.86	38.6	D	L	0.88	40.2	D	L	0.71	29.5	C	L	0.71	29.6	C	L	0.79	39.4	D	L	0.81	40.5	D
NB (York Ave)	LT	1.01	74.2	E	LT	1.01	74.2	E	LT	0.90	58.0	E	LT	0.90	58.0	E	LT	0.85	54.8	D	LT	0.85	54.8	D
NB (FDR NB Ramp)	L	1.09	100.6	F	L	1.11	108.5	F+	L	0.95	66.6	E	L	0.96	68.2	E	L	0.90	66.7	E	L	0.94	73.8	E+
	LT	1.10	103.5	F	LT	1.12	110.6	F+	LT	0.95	66.6	E	LT	0.96	68.2	E	LT	0.92	68.9	E	LT	0.96	77.2	E+
	Intersection	73.7	E	Intersection	77.2	E	Intersection	50.6	D	Intersection	51.3	D	Intersection	53.3	D	Intersection	53.3	D	Intersection	53.3	D	Intersection	43.4	D
<b>East 96th Street and FDR Southbound Ramp</b>																								
EB	T	0.84	37.2	D	T	0.86	38.5	D	T	0.72	29.9	C	T	0.73	30.0	C	T	0.75	37.0	D	T	0.76	37.8	D
	R	1.13	116.8	F	R	1.19	139.1	F+	R	0.98	66.4	E	R	1.00	70.5	E+	R	0.93	56.9	E	R	1.00	71.8	E+
WB	LT	1.02	65.5	E	LT	1.04	71.3	E+	LT	0.87	42.1	D	LT	0.88	42.6	D	LT	0.61	31.8	C	LT	0.64	32.4	C
SB	LT	1.07	97.0	F	LT	1.09	102.8	F+	LT	1.06	92.2	F	LT	1.05	87.7	F	LT	1.08	95.4	F	LT	1.08	96.7	F
	R	0.25	9.3	A	R	0.26	9.3	A	R	0.28	8.6	A	R	0.28	8.6	A	R	0.42	10.2	B	R	0.43	10.3	B
	Intersection	66.8	E	Intersection	73.7	F	Intersection	49.0	D	Intersection	49.0	D	Intersection	49.0	D	Intersection	47.5	D	Intersection	47.5	D	Intersection	50.5	D

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.  
+ Denotes a significant adverse traffic impact

*Second Avenue*

- Westbound Approach at the East 97th Street and Second Avenue intersection would deteriorate within LOS D (from a v/c ratio of 0.7877 and 42.441.5 spv of delay to a v/c ratio of 0.87 and 53.49 spv of delay), within LOS D (from a v/c ratio of 0.82 and 45.544.4 spv of delay to a v/c ratio of 0.8886 and 52.550.6 spv of delay), and from LOS E (v/c ratio of 0.9394 and 62.764.5 spv of delay) to LOS F (v/c ratio of 1.0415 and 90.9131.4 spv of delay), increases in delay of more than five seconds, five seconds, and four seconds, during the weekday AM, midday and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts; and
- Westbound left-turn at the East 96th Street and Second Avenue intersection would deteriorate from LOS D (v/c ratio of 0.56 and 39.8 spv of delay) to LOS E (v/c ratio of 0.8586 and 74.175.6 spv of delay), within LOS F (from a v/c ratio of 1.0102 and 115.3118.1 spv of delay to a v/c ratio of 1.30 and 216.0 spv of delay), and within LOS F (from a v/c ratio of 1.04 and 116.2 spv of delay to a v/c ratio of 1.3839 and 238.7243.0 spv of delay), increases in delay of more than five seconds, three seconds, and three seconds, during the weekday AM, midday and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts; and
- Southbound left-turn at the East 96th Street and Second Avenue intersection would deteriorate from LOS C (v/c ratio of 0.66 and 25.2 spv of delay) to LOS D (v/c ratio of 0.94 and 54.8 spv of delay), an increase in delay of more than five seconds, during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact.

*Third Avenue*

- Eastbound approach at the East 96th Street and Third Avenue intersection would deteriorate within LOS F (from a v/c ratio of 1.10 and 102.8 spv of delay to a v/c ratio of 1.23 and 153.9 spv of delay), within LOS F (from a v/c ratio of 1.08 and 90.4 spv of delay to a v/c ratio of 1.12 and 104.8 spv of delay), and within LOS F (from a v/c ratio of 1.10 and 96.4 spv of delay to a v/c ratio of 1.46 and 273.6 spv of delay), increases in delay of more than three seconds during the weekday AM, midday, and PM peak hours. These projected increases in delay constitute significant adverse impacts; and
- Westbound approach at the East 96th Street and Third Avenue intersection would deteriorate from LOS D (v/c ratio of 0.94 and 51.5 spv of delay) to LOS E (v/c ratio of 1.02 and 71.8 spv of delay) and within LOS D (from a v/c ratio of 0.81 and 38.2 spv of delay to a v/c ratio of 0.91 and 47.4 spv of delay), increases in delay of more than five seconds during the weekday AM and PM peak hours. These projected increases in delay constitute significant adverse impacts.

*York Avenue/FDR Ramps*

- Northbound left-turn of FDR Northbound Ramp at the East 96th Street and York Avenue/FDR Northbound Ramp intersection would deteriorate within LOS F (from a v/c ratio of 1.09 and 100.6 spv of delay to a v/c ratio of 1.11 and 108.5 spv of delay) and within LOS E (from a v/c ratio of 0.90 and 66.7 spv of delay to a v/c ratio of 0.94 and 73.8 spv of delay), increases in delay of more than three seconds and four seconds, during the weekday AM and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts;

- Northbound left-turn/through lane of FDR Northbound Ramp at the East 96th Street and York Avenue/FDR Northbound Ramp intersection would deteriorate within LOS F (from a v/c ratio of 1.10 and 103.5 spv of delay to a v/c ratio of 1.12 and 110.6 spv of delay) and within LOS E (from a v/c ratio of 0.92 and 68.9 spv of delay to a v/c ratio of 0.96 and 77.2 spv of delay), increases in delay of more than three seconds and four seconds, during the weekday AM and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts;
- Eastbound right-turn at the East 96th Street and FDR Southbound Ramp intersection would deteriorate within LOS F (from a v/c ratio of 1.13 and 116.8 spv of delay to a v/c ratio of 1.19 and 139.1 spv of delay), within LOS E (from a v/c ratio of 0.98 and 66.4 spv of delay to a v/c ratio of 1.00 and 70.5 spv of delay), and within LOS E (from a v/c ratio of 0.93 and 56.9 spv of delay to a v/c ratio of 1.00 and 71.8 spv of delay), increases in delay of more than three seconds, four seconds, and four seconds, during the weekday AM, midday and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts;
- Westbound approach at the East 96th Street and FDR Southbound Ramp intersection would deteriorate within LOS E (from a v/c ratio of 1.02 and 65.5 spv of delay to a v/c ratio of 1.04 and 71.3 spv of delay), an increase in delay of more than four seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact; and
- Southbound left-turn/through at the East 96th Street and FDR Southbound Ramp intersection would deteriorate within LOS F (from a v/c ratio of 1.07 and 97.0 spv of delay to a v/c ratio of 1.09 and 102.8 spv of delay), an increase in delay of more than three seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.

## **E. DETAILED TRANSIT ANALYSIS**

As described above in Section B, “Preliminary Analysis Methodology and Screening Assessment,” the 96th Street and Lexington Avenue Station (No.6 line) and 96th Street and Second Avenue Station (Q line) have been selected for station analysis for the weekday AM and PM peak hours. Subway line-haul analysis for No.6 line and Q line were also conducted for weekday AM and PM Peak hours. In addition, a quantified bus line-haul analysis was conducted for the M15, M15 SBS, and M96 bus routes.

### **SUBWAY SERVICE**

Below is a summary of the subway lines that serve the project site from the two nearby subway stations.

- The No. 6 subway line (Lexington Avenue Local) operates between Pelham Bay Park, Bronx and Brooklyn Bridge-City Hall, Manhattan.
- With the recent opening of the Second Avenue Subway, the Q subway line (Broadway Express) now operates between 96th Street and Second Avenue, Manhattan and Coney Island-Stillwell Avenue, Brooklyn.

### **BUS SERVICE**

The project area is served by multiple bus lines including the M15, M15 SBS, M96, M98, M101, and M102 bus routes. **Table 11-23** provides a summary of the NYCT bus routes that provide

regular service to the study area and their weekday frequency of operation. The M96 route operates standard buses with a guideline capacity of 54 passengers per bus, while the M15 and M15 SBS both operate articulated buses with a guideline capacity of 85 passengers per bus.

**Table 11-23  
NYCT Bus Routes Serving The Study Area**

Bus Route	Start Point	End Point	Routing in Study Area	Freq. of Bus Service (Headway in Minutes)	
				AM Peak Period	PM Peak Period
M15 N/S	East Harlem	South Ferry	First/Second Ave	7/10	10/10
M15 SBS N/S	East Harlem	South Ferry	First/Second Ave	5/2-3	5/6
M96 E/W	Yorkville	Upper West Side	96th Street	3-5/3-4	4-5/3-4
M101 N/S	Washington Heights	East Village	Lexington/Third Ave	7/5-7	5-7/7
M102 N/S	Harlem	East Village	Lexington/Third Ave	10-12/10	10-12/8-12

**Notes:** N/S = North/South; E/W = East/West.  
**Source:** MTA NYCT Bus Timetables (2016).

**2016 EXISTING CONDITIONS**

*SUBWAY SERVICE*

Subway station data collection was conducted on June 16, 2016 during the hours of 7:00 to 10:00 AM and 4:00 to 7:00 PM to establish the baseline volumes for the subway station analysis. As shown in **Tables 11-24 and 11-25**, all analyzed vertical circulation elements and control areas currently operate at acceptable levels during the weekday AM and PM peak periods, with the exception of the S4 stairway (Northeast) at the 96th Street-Lexington Avenue Station during the AM peak period ( $v/c= 1.24$ ).

With regard to subway line-haul conditions, data from the MTA Cordon Count report were reviewed to identify ridership levels for the No. 6 line’s peak load points in the peak direction of travel. As summarized in **Table 11-26**, the No. 6 line is currently operating at near capacity levels in the peak southbound direction during the weekday AM peak hour and at approximately 80-percent capacity in the peak northbound direction during the weekday PM peak hour.

**Table 11-24  
2016 Existing Conditions Subway Vertical Circulation Element Analysis  
96th Street-Lexington Avenue Station**

Stair	Location	Effective Width (ft)	Peak Hour Volumes		Peak 15-Minute Volumes		Friction Factor	Surge Factor		V/C Ratio	LOS
			Entry (Down)	Exit (Up)	Entry (Down)	Exit (Up)		Up	Down		
<b>AM Peak Hour</b>											
P1 A+B	SB Lexington Platform	9.08	1,790	845	559	264	0.9	0.75	1.00	0.74	C
P3 A+B	SB Lexington Platform	9.00	1,736	404	543	126	0.9	0.75	1.00	0.59	B
P2 A+B	NB Lexington Platform	9.00	164	1,405	51	439	0.9	0.75	1.00	0.52	B
P4 A+B	NB Lexington Platform	8.83	80	1,102	25	344	0.9	0.75	1.00	0.41	A
S4	Street Level	4.33	1,044	1,018	326	318	0.9	0.80	1.00	1.24	D
<b>PM Peak Hour</b>											
P1 A+B	SB Lexington Platform	9.08	1,324	326	414	102	0.9	0.75	1.00	0.45	A
P3 A+B	SB Lexington Platform	9.00	1,146	79	358	25	0.9	0.75	1.00	0.32	A
P2 A+B	NB Lexington Platform	9.00	517	848	162	265	0.9	0.75	0.90	0.42	A
P4 A+B	NB Lexington Platform	8.83	372	513	116	160	0.9	0.75	1.00	0.28	A
S4	Street Level	4.33	760	509	238	159	0.9	0.80	1.00	0.75	C

**Table 11-25**  
**2016 Existing Conditions Fare Array Analysis**  
**96th Street-Lexington Avenue Station**

Control Element	Quantity	Peak Hour Pedestrian Volume		15 Minute		Surging Factor	Friction Factor	v/c Ratio	LOS
		Entry	Exit	Entry	Exit				
<b>AM Peak hour</b>									
Two-way Turnstile	6	3,272	1,560	1,023	488	0.8	0.9	0.63	B
High Exit Only	2	0	1,391	0	435	0.8	1.0	0.16	A
<b>PM Peak Hour</b>									
Two-way Turnstile	6	3,093	627	967	196	0.8	0.9	0.5	B
High Exit Only	2	0	1,163	0	363	0.8	1.0	0.14	A

**Table 11-26**  
**2016 Existing Conditions Subway Line-haul Analysis**  
**No. 6 Line**

Subway line	Max. Load Point	Trains/hr	Cars/Train	Total Number of Cars/hr	Passenger/hr	Peak Hour Capacity	V/C Ratio
<b>Weekday AM Peak Hour</b>							
No.6 SB	68th/Lex.	22	10	220	23,891	24,200	0.99
<b>Weekday PM Peak Hour</b>							
No.6 NB	59th/Lex.	20	10	200	17,659	22,000	0.80

**Source:** MTA 2014 Cordon Count.

*BUS SERVICE*

The existing bus ridership information was obtained from NYCT. As summarized in **Table 11-27**, all of the analyzed bus lines are operating within their bus line capacity except for the southbound M15 SBS, which is currently experiencing capacity short-fall during the PM Peak hour.

**Table 11-27**  
**2016 Existing Conditions Bus Line-haul Analysis**  
**M96, M15, M15 SBS**

Route Direction	Max. Load Point	2016 Hourly Volume	Buses/Hr	2016 Passengers/Bus	Capacity/Bus	Capacity Shortfall (Yes/No)
<b>AM Peak Hour</b>						
M96 WB	Fifth Ave & 97th St	598	15	40	54	No
M96 EB	Central Park W. & W.96th St	709	15	48	54	No
M15 SB	Second Ave & E.75th St	345	7	50	85	No
M15 NB	First Ave & E.64th St	226	6	38	85	No
M15 SBS SB	Second Ave & E.79th St	1,185	15	79	85	No
M15 SBS NB	First Ave & E.42nd St	1,157	21	56	85	No
<b>PM Peak Hour</b>						
M96 WB	Fifth Ave & 97th St	741	15	50	54	No
M96 EB	Central Park W & W.96th St	484	15	33	54	No
M15 SB	Second Ave & E.54th St	252	6	42	85	No
M15 NB	First Ave & E.77th St	298	6	50	85	No
M15 SBS SB	Second Ave & E.42nd St	703	6	118	85	Yes
M15 SBS NB	First Ave & E.67th St	829	10	83	85	No
<b>Source:</b> MTA NYCT 2015.						

## THE FUTURE WITHOUT THE PROPOSED ACTIONS

### *SUBWAY SERVICE*

As described above, the first phase of the Second Avenue Subway went into service at the end of 2016, and many subway riders in the area are expected to shift from the Lexington Avenue line to the Second Avenue line. Based on discussions with NYCT, approximately 31 percent of southbound entries and 32 percent of northbound exits from the Lexington Avenue line at the 96th Street station are expected to shift to the 96th Street station on the Second Avenue line. As shown in **Tables 11-28 to 11-30**, the subway station vertical circulation elements and control area level of service will improve for the 96th Street-Lexington Avenue station due to the ridership shift to the Second Avenue Subway line. The line-haul capacity for the Lexington Avenue line will also improve.

**Table 11-28**  
**2023 No Action Condition Subway Vertical Circulation Element Analysis**  
**96th Street-Lexington Avenue and 96th Street-Second Avenue Stations**

Stair	Location	Effective Width (ft)	Peak Hour Volumes		Peak 15-Minute Volumes		Friction Factor	Surge Factor		V/C Ratio	LOS
			Entry (Down)	Exit (Up)	Entry (Down)	Exit (Up)		Up	Down		
<b>96th Street-Lexington Avenue Station</b>											
<b>AM Peak Hour</b>											
P1 A+B	SB Lexington Platform	9.08	1,355	898	423	281	0.9	0.75	1.00	0.65	B
P3 A+B	SB Lexington Platform	9.00	1,314	429	411	134	0.9	0.75	1.00	0.49	B
P2 A+B	NB Lexington Platform	9.00	179	1,014	56	317	0.9	0.75	1.00	0.39	A
P4 A+B	NB Lexington Platform	8.83	88	796	28	249	0.9	0.75	1.00	0.30	A
S4	Street Level	4.33	825	839	258	262	0.9	0.80	1.00	1.00	D
<b>PM Peak Hour</b>											
P1 A+B	SB Lexington Platform	9.08	1,003	358	313	112	0.9	0.75	1.00	0.38	A
P3 A+B	SB Lexington Platform	9.00	868	88	271	28	0.9	0.75	1.00	0.25	A
P2 A+B	NB Lexington Platform	9.00	567	647	177	202	0.9	0.75	0.90	0.37	A
P4 A+B	NB Lexington Platform	8.83	409	391	128	122	0.9	0.75	1.00	0.24	A
S4	Street Level	4.33	635	426	198	133	0.9	0.80	1.00	0.62	B
<b>96th Street-Second Avenue Station<sup>1</sup></b>											
<b>AM Peak Hour</b>											
P-S1	Stair -96h St	5.17	500	49	156	15	0.9	0.75	1.00	0.25	A
P-Esc 1	Escalator- 96th St(UP)	3.33	-	147	-	46	1.0	0.75	1.00	0.06	A
P-S2	Stair- 96th St South	10.08	-	220	-	69	1.0	0.75	1.00	0.06	A
P-S3	Stair- Center	5.17	-	55	-	17	1.0	0.75	1.00	0.03	A
P-Esc 2	Escalator- Center(UP)	3.33	-	165	-	52	1.0	0.75	1.00	0.07	A
M-Esc 1	Escalator- 96th St (DN)	3.33	1250	-	391	-	1.0	0.80	1.00	0.47	B
M-Esc 2	Escalator- 96th St(UP)	3.33	-	360	-	113	1.0	0.80	1.00	0.13	A
<b>PM Peak Hour</b>											
P-S1	Stair -96h St	5.17	363	153	114	48	0.9	0.75	1.00	0.26	A
P-Esc 1	Escalator- 96th St(UP)	3.33	-	311	-	97	1.0	0.75	1.00	0.12	A
P-S2	Stair- 96th St South	10.08	-	538	-	168	1.0	0.75	1.00	0.15	A
P-S3	Stair- Center	5.17	-	178	-	56	1.0	0.75	1.00	0.10	A
P-Esc 2	Escalator- Center(UP)	3.33	-	360	-	113	1.0	0.75	1.00	0.14	A
M-Esc 1	Escalator- 96th St (DN)	3.33	908	-	284	-	1.0	0.80	1.00	0.34	A
M-Esc 2	Escalator- 96th St(UP)	3.33	-	785	-	245	1.0	0.80	1.00	0.29	A
<b>Note:</b> <sup>1</sup> Vertical Circulation Elements' projected volumes were provided by NYCT.											

**Table 11-29**  
**2023 No Action Condition Fare Array Analysis**  
**96th Street-Lexington Avenue and 96th Street-Second Avenue Stations**

Control Element	Quantity	Peak Hour Pedestrian Volume		15 Minute		Surging Factor	Friction Factor	v/c Ratio	LOS
		Entry	Exit	Entry	Exit				
<b>96th Street-Lexington Avenue Station</b>									
<b>AM Peak hour</b>									
Two-way Turnstile	6	2,576	1,479	805	462	0.8	0.9	0.52	B
High Exit Only	2	0	1,336	0	418	0.8	1.0	0.16	A
<b>PM Peak Hour</b>									
Two-way Turnstile	6	2,638	622	824	194	0.8	0.9	0.43	B
High Exit Only	2	0	1,061	0	332	0.8	1.0	0.12	A
<b>96th Street-Second Avenue Station<sup>1</sup></b>									
<b>AM Peak Hour</b>									
Two-Way Turnstile	4	1,250	360	391	113	0.8	0.9	0.21	A
<b>PM Peak Hour</b>									
Two-Way Turnstile	4	908	785	284	245	0.8	1	0.19	A
<b>Note:</b> <sup>1</sup> Projected Turnstile volumes are provided by NYCT.									

**Table 11-30**  
**2023 No Action Condition Subway Line-haul Analysis**  
**No. 6 Line**

Subway line	Max. Load Point	Trains/hr	Cars/Train	Total Number of Cars/hr	Passenger/hr	Peak Hour Capacity	V/C Ratio
<b>Weekday AM Peak Hour</b>							
No.6 SB	68th/Lex.	22	10	220	23,316	24,200	0.96
<b>Weekday PM Peak Hour</b>							
No.6 NB	59th/Lex.	20	10	200	17,582	22,000	0.80

### *BUS SERVICE*

Estimates of peak hour bus volumes in the No Action condition were developed by applying *CEQR Technical Manual* recommended annual background growth rates as mentioned above. In addition, bus trips generated by No Action projects in the study area were added to the projected 2023 volumes to generate the 2023 No Action bus volumes used in the analysis. Bus trips were split among the various study area bus routes—the M96, M15, M15 SBS, M101, M102, and M103 bus routes. As shown in **Table 11-31**, under the No Action condition, during the PM peak period, the southbound M15 SBS will continue to exceed the route’s guideline capacity (85 passengers per bus).

**Table 11-31**  
**2023 No Action Condition Bus Line-haul Analysis**  
**M96, M15, M15 SBS**

Route Direction	Max. Load Point	2023 Hourly Volume	Buses/hr	2023 Passengers/Bus	Capacity/Bus	Capacity Shortfall (Yes/No)
<b>AM Peak Hour</b>						
M96 WB	Fifth Ave & 97th St	625	15	42	54	No
M96 EB	Central Park W. & W.96th St	734	15	49	54	No
M15 SB	Second Ave & E.75th St	359	7	52	85	No
M15 NB	First Ave & E.64th St	231	6	39	85	No
M15 SBS SB	Second Ave & E.79th St	1,208	15	81	85	No
M15 SBS NB	First Ave & E.42nd St	1,176	21	56	85	No
<b>PM Peak Hour</b>						
M96 WB	Fifth Ave & 97th St	774	15	52	54	No
M96 EB	Central Park W & W.96th St	504	15	34	54	No
M15 SB	Second Ave & E.54th St	266	6	45	85	No
M15 NB	First Ave & E.77th St	306	6	51	85	No
M15 SBS SB	Second Ave & E.42nd St	719	6	120	85	Yes
M15 SBS NB	First Ave & E.67th St	844	10	85	85	No

**THE FUTURE WITH THE PROPOSED ACTIONS**

*SUBWAY SERVICE*

Based on discussions with NYCT, approximately two-thirds (67 percent) of the project-generated subway trips are expected to be distributed to the 96th Street (Q) Station and one-thirds (33 percent) of the project-generated subway trips would be distributed to the 96th Street (No. 6 train) Station. The subway station analysis results presented in **Table 11-32** show that a potential significant adverse stairway impact would be expected for the S4 stairway at the 96th Street-Lexington Avenue Station during the weekday AM peak hour.

**Table 11-32**

**2023 With Action Condition Subway Vertical Circulation Element Analysis  
96th Street-Lexington Avenue and 96th Street-Second Avenue Stations**

Stair	Location	Effective Width (ft)	Peak Hour Volumes		Peak 15-Minute Volumes		Friction Factor	Surge Factor		V/C Ratio	LOS
			Entry (Down)	Exit (Up)	Entry (Down)	Exit (Up)		Up	Down		
<b>96th Street-Lexington Avenue Station</b>											
<b>AM Peak Hour</b>											
P1 A+B	SB Lexington Platform	9.08	1,465	974	458	304	0.9	0.75	1.00	0.70	C
P3 A+B	SB Lexington Platform	9.00	1,421	466	444	146	0.9	0.75	1.00	0.53	B
P2 A+B	NB Lexington Platform	9.00	194	1,100	61	344	0.9	0.75	1.00	0.43	A
P4 A+B	NB Lexington Platform	8.83	95	864	30	270	0.9	0.75	1.00	0.33	A
S4	Street Level	4.33	1,064	1,106	333	346	0.9	0.80	1.00	1.31	D+
<b>PM Peak Hour</b>											
P1 A+B	SB Lexington Platform	9.08	1,119	412	350	129	0.9	0.75	1.00	0.43	A
P3 A+B	SB Lexington Platform	9.00	968	104	303	33	0.9	0.75	1.00	0.29	A
P2 A+B	NB Lexington Platform	9.00	633	763	198	238	0.9	0.75	0.90	0.42	A
P4 A+B	NB Lexington Platform	8.83	456	461	143	144	0.9	0.75	1.00	0.28	A
S4	Street Level	4.33	964	682	301	213	0.9	0.80	1.00	0.97	C
<b>96th Street-Second Avenue Station</b>											
<b>AM Peak Hour</b>											
P-S1	Stair -96h St	5.17	820	78	256	24	0.9	0.75	1.0	0.41	A
P- Esc 1	Escalator- 96th St(UP)	3.33	-	229	-	72	1.0	0.75	1.0	0.09	A
P-S2	Stair- 96th St South	10.08	-	345	-	108	1.0	0.75	1.0	0.10	A
P-S3	Stair- Center	5.17	-	87	-	27	1.0	0.75	1.0	0.05	A
P-Esc 2	Escalator- Center(UP)	3.33	-	258	-	81	1.0	0.75	1.0	0.10	A
M-Esc 1	Escalator- 96th St (DN)	3.33	1570	-	491	-	1.0	0.80	1.0	0.58	B
M- Esc 2	Escalator- 96th St(UP)	3.33	-	721	-	225	1.0	0.80	1.0	0.27	A
<b>PM Peak hour</b>											
P-S1	Stair -96h St	5.17	804	183	251	57	0.9	0.75	1.0	0.47	B
P- Esc 1	Escalator- 96th St(UP)	3.33	-	370	-	116	1.0	0.75	1.0	0.15	A
P-S2	Stair- 96th St South	10.08	-	641	-	200	1.0	0.75	1.0	0.18	A
P-S3	Stair- Center	5.17	-	213	-	67	1.0	0.75	1.0	0.12	A
P-Esc 2	Escalator- Center(UP)	3.33	-	428	-	134	1.0	0.75	1.0	0.17	A
M-Esc 1	Escalator- 96th St (DN)	3.33	1349	-	422	-	1.0	0.80	1.0	0.50	B
M- Esc 2	Escalator- 96th St(UP)	3.33	-	1080	-	338	1.0	0.80	1.0	0.40	A
<b>Note:</b> + Denotes a significant adverse subway stairway impact.											

With the opening of the Second Avenue Subway line, ridership at the 96th Street-Lexington Avenue Station has yet to be normalized and the actual ridership may be lower than what was estimated in this analysis, such that the projected impact at the S4 stairway may not materialize. Also Furthermore, the analysis conservatively assumed, in accordance with CEQR guidelines, that the timings of peak travel by the proposed project’s residential and school uses take place during the same commuter peak hours, while in reality, they typically stagger over an approximately two-hour window in the morning and minimally overlap in the afternoon. Furthermore, one of the future high schools to be relocated to the project site would have community preference student enrollment where they are expected to draw students primarily

from the local neighborhood (i.e., East Harlem). Students from the local neighborhood are more likely to walk to/from school than take public transit to school such that the actual student subway ridership may be less than what has been assumed for a conservative transit analysis. Therefore, given the above reasons, the projected significant adverse impact at the S4 stairway may not materialize. Nonetheless, discussions with NYCT are underway to identify mitigation needs and will continue.

As shown in Table 11-33, control areas will continue to operate within operational capacities.

**Table 11-33**  
**2023 With Action Condition Fare Array Analysis**  
**96th Street-Lexington Avenue and 96th Street-Second Avenue Stations**

Control Element	Quantity	Peak Hour Pedestrian Volume		15 Minute		Surging Factor	Friction Factor	v/c Ratio	LOS
		Entry	Exit	Entry	Exit				
<b>96th Street-Lexington Avenue Station</b>									
<b>AM Peak hour</b>									
Two-way Turnstile	6	2,815	1,619	880	506	0.8	0.9	0.57	B
High Exit Only	2	0	1,463	0	457	0.8	1.0	0.17	A
<b>PM Peak Hour</b>									
Two-way Turnstile	6	2,967	703	927	220	0.8	0.9	0.49	B
High Exit Only	2	0	1,200	0	375	0.8	1.0	0.14	A
<b>96th Street-Second Avenue Station</b>									
<b>AM Peak hour</b>									
Two-way Turnstile	4	1,570	718	491	224	0.8	0.9	0.30	A
<b>PM Peak Hour</b>									
Two-way Turnstile	4	1,349	1,080	422	338	0.8	0.9	0.31	A

With regard to subway line-haul conditions, trip increments associated with the proposed project would be expected to result in increases in ridership levels for the Lexington Avenue No. 6 line. However, as shown in Table 11-34, no significant adverse line-haul impacts would be expected from these increases in ridership levels.

**Table 11-34**  
**2023 With Action Condition Subway Line-haul Analysis**  
**No. 6 Line**

Subway line	Max. Load Point	Trains/Hr	Cars/Train	Total Number of Cars/Hr	Passenger/Hr	Peak Hour Capacity	V/C Ratio
<b>Weekday AM Peak Hour</b>							
No.6 SB	68th/Lex.	22	10	220	23,453	24,200	0.97
<b>Weekday PM Peak Hour</b>							
No.6 NB	59th/Lex.	20	10	200	17,698	22,000	0.80

**BUS SERVICE**

The bus line-haul analysis showed that increased ridership attributed to the proposed project would result in significant adverse impacts on the westbound M96 and the northbound and southbound M15 SBS during the PM peak period, as summarized in Table 11-35. Potential

measures to mitigate the projected significant adverse bus line-haul impacts are described in Chapter 18, “Mitigation.”

**Table 11-35**  
**2023 With Action Condition Bus Line-haul Analysis**  
**M96, M15, and M15 SBS**

Route Direction	Max. Load Point	2023 Hourly Volume	Buses/hr	2023 Passengers/Bus	Capacity/Bus	Capacity Shortfall (Yes/No)
<b>AM Peak Hour</b>						
M96 WB	Fifth Ave & 97th St	651	15	44	54	No
M96 EB	Central Park W. & W.96th St	803	15	54	54	No
M15 SB	Second Ave & E.75th St	366	7	53	85	No
M15 NB	First Ave & E.64th St	249	6	42	85	No
M15 SBS SB	Second Ave & E.79th St	1,226	15	82	85	No
M15 SBS NB	First Ave & E.42nd St	1,217	21	58	85	No
<b>PM Peak Hour</b>						
M96 WB	Fifth Ave & 97th St	851	15	57	54	<b>Yes</b>
M96 EB	Central Park W & W.96th St	531	15	36	54	No
M15 SB	Second Ave & E.54th St	287	6	48	85	No
M15 NB	First Ave & E.77th St	314	6	53	85	No
M15 SBS SB	Second Ave & E.42nd St	766	6	128	85	<b>Yes</b>
M15 SBS NB	First Ave & E.67th St	865	10	87	85	<b>Yes</b>

**F. DETAILED PEDESTRIAN ANALYSIS**

As described above in Section B, “Preliminary Analysis Methodology and Screening Assessment,” Level 1 and Level 2 screening analyses were prepared to identify the pedestrian elements that warranted a detailed analysis. Based on the assignment of pedestrian trips, five sidewalks, 11 corner reservoirs, and six crosswalks were selected for analysis for the weekday AM, midday, and PM peak hours.

**2016 EXISTING CONDITIONS**

Pedestrian data were collected in June 2016 in accordance with procedures outlined in the *CEQR Technical Manual* during the weekday hours of 7:00 AM to 10:00 AM, 11:00 AM to 2:00 PM, and 4:00 PM to 7:00 PM.

*STREET-LEVEL PEDESTRIAN OPERATIONS*

Peak hours were determined by comparing rolling hourly averages and the highest 15-minute volumes within the selected peak hours were selected for analysis. As noted above, existing physical and operational characteristics in the study area were collected prior to the completion of the Second Avenue Subway at the end of December 2016. Therefore, a number of study area

pedestrian analysis elements were closed or had temporarily augmented geometries during the existing data collection. Closed pedestrian elements are noted in the pedestrian analysis tables below; elements whose geometries were affected by construction will have updated geometry measurements in the No Action and With Action conditions analyses.

The existing peak hour pedestrian volumes are shown in Figures 11-20 through 11-22. A summary of the 2016 existing conditions pedestrian analysis results is presented in Table 11-36.

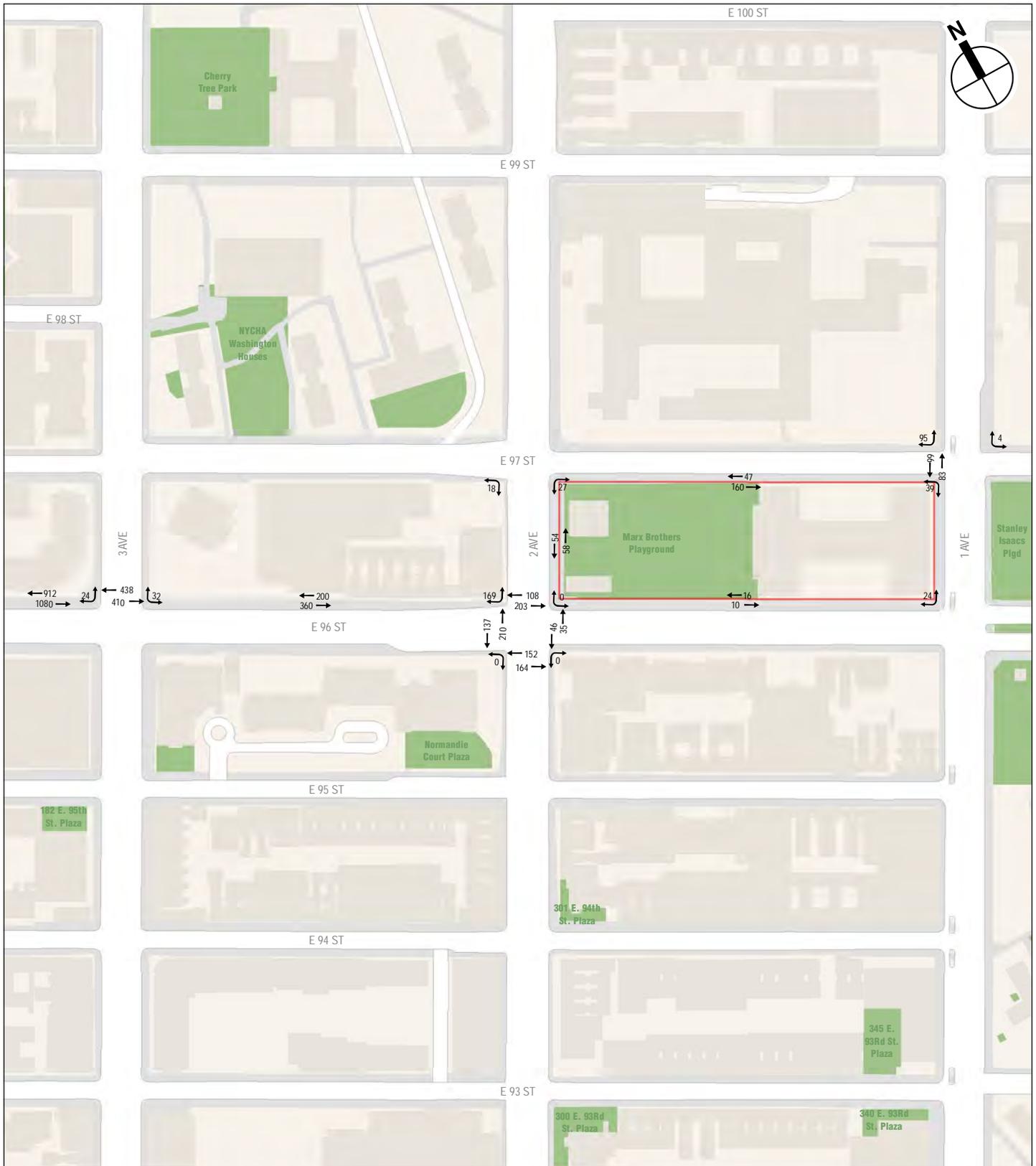
**Table 11-36  
Summary of 2016 Existing Pedestrian Analysis Results**

Level of Service	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
<b>Sidewalks</b>			
Sidewalks at LOS A/B/C	4	4	4
Sidewalks at LOS D	0	0	0
Sidewalks at LOS E	0	0	0
Sidewalks at LOS F	0	0	0
Total	4	4	4
<b>Corner Reservoirs</b>			
Corners at LOS A/B/C	9	9	9
Corners at LOS D	0	0	0
Corners at LOS E	0	0	0
Corners at LOS F	0	0	0
Total	9	9	9
<b>Crosswalks</b>			
Crosswalks at LOS A/B/C	6	6	6
Crosswalks at LOS D	0	0	0
Crosswalks at LOS E	0	0	0
Crosswalks at LOS F	0	0	0
Total	6	6	6
<b>Note:</b> LOS = Level-of-Service			

As shown in Tables 11-37 through 11-39, all sidewalk, corner reservoir, and crosswalk analysis locations currently operate at favorable LOS C or better.

**Table 11-37  
2016 Existing Conditions: Sidewalk Analysis**

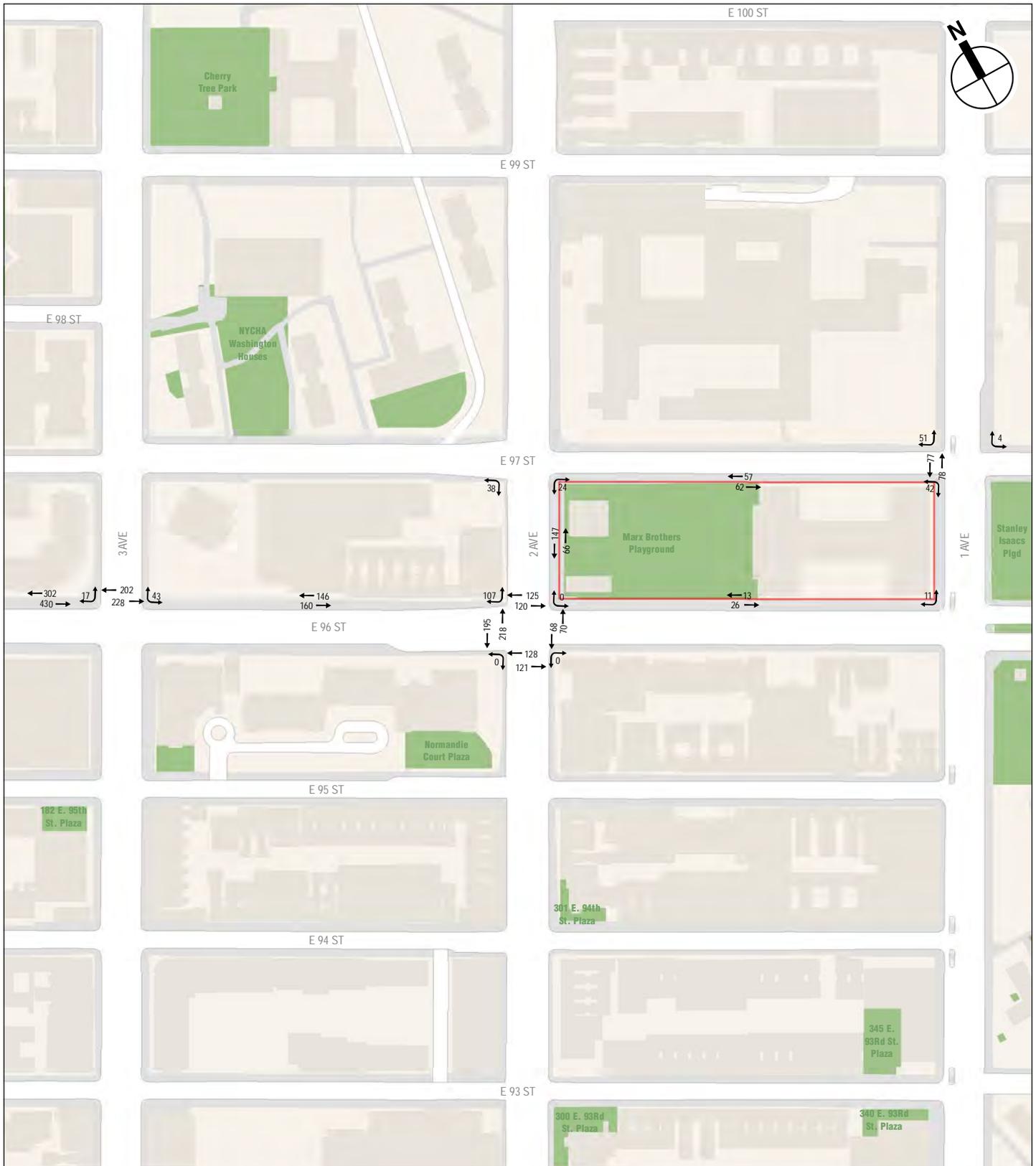
Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
<b>Weekday AM Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	207	0.67	385.57	B
East 96th Street between First Avenue and Second Avenue	North	11.5	26	0.93	6,505.71	A
Second Avenue between East 97th Street and East 96th Street	East	N/A	N/A	N/A	N/A	N/A
East 96th Street between Second Avenue and Third Avenue	North	4.0	560	0.92	103.69	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	1,992	0.91	97.18	B
<b>Weekday Midday Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	119	0.68	674.92	A
East 96th Street between First Avenue and Second Avenue	North	11.5	39	0.65	3,035.98	A
Second Avenue between East 97th Street and East 96th Street	East	N/A	N/A	N/A	N/A	N/A
East 96th Street between Second Avenue and Third Avenue	North	4.0	306	0.84	173.75	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	732	0.94	273.96	B
<b>Weekday PM Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	127	0.72	674.92	A
East 96th Street between First Avenue and Second Avenue	North	11.5	53	0.74	2,529.98	A
Second Avenue between East 97th Street and East 96th Street	East	N/A	N/A	N/A	N/A	N/A
East 96th Street between Second Avenue and Third Avenue	North	4.0	467	0.79	107.25	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	998	0.93	198.46	B
<b>Notes:</b>						
N/A: Not analyzable due to construction.						
SFP = square feet per pedestrian.						



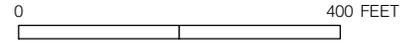
Project Site

0 400 FEET

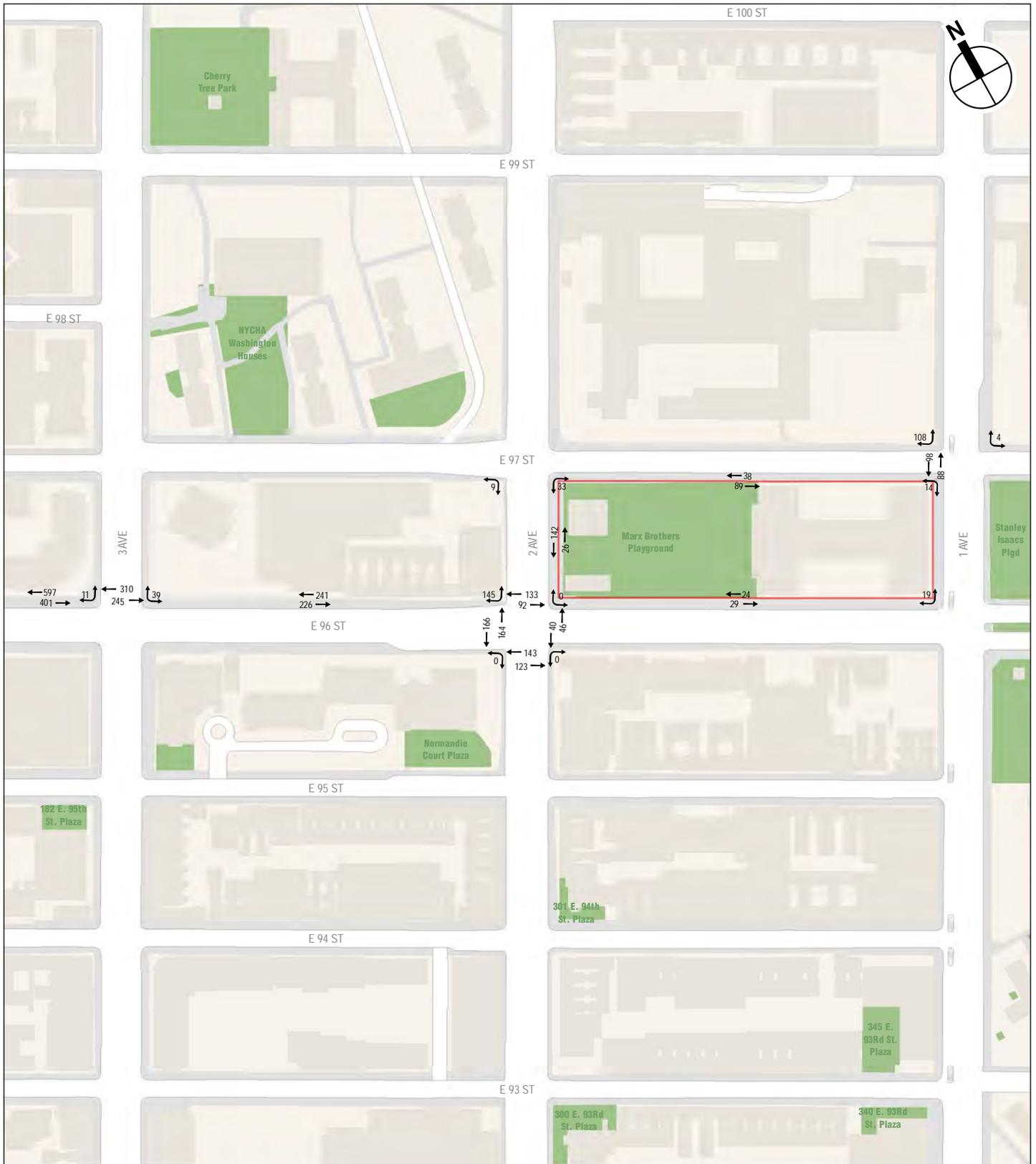
2016 Existing Pedestrian Volumes  
Weekday AM Peak Hour



Project Site



2016 Existing Pedestrian Volumes  
Weekday MIDDAY Peak Hour



Project Site



2016 Existing Pedestrian Volumes  
Weekday PM Peak Hour

Table 11-38

2016 Existing Conditions: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS
First Avenue and East 97th Street	Northwest	268.38	A	382.45	A	281.71	A
	Southwest	641.44	A	570.05	A	670.83	A
First Avenue and East 96th Street	Northwest	945.77	A	931.55	A	822.10	A
Second Avenue and East 97th Street	Southwest	263.75	A	234.13	A	268.71	A
	Southeast	594.57	A	472.54	A	572.38	A
Second Avenue and East 96th Street	Northwest	328.64	A	355.80	A	402.83	A
	Northeast	N/A	N/A	N/A	N/A	N/A	N/A
	Southwest	N/A	N/A	N/A	N/A	N/A	N/A
	Southeast	N/A	N/A	N/A	N/A	N/A	N/A
Third Avenue and East 96th Street	Northwest	182.32	A	370.48	A	267.72	A
	Northeast	140.74	A	232.71	A	176.75	A

**Notes:**  
 N/A: Not analyzable due to construction.  
 SFP = square feet per pedestrian.

Table 11-39

2016 Existing Conditions: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	2-way Peak Hour Volume	SFP	LOS
<b>Weekday AM Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	182	261.34	A
Second Avenue and East 96th Street	North	52.0	15.0	311	106.47	A
	East	62.0	15.0	81	395.73	A
	South	52.0	17.0	316	114.45	A
	West	62.0	15.0	347	126.60	A
Third Avenue and East 96th Street	North	70.0	18.0	848	28.43	C
<b>Weekday Midday Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	155	261.37	A
Second Avenue and East 96th Street	North	52.0	15.0	245	123.62	A
	East	62.0	15.0	138	281.40	A
	South	52.0	17.0	249	141.32	A
	West	62.0	15.0	413	106.40	A
Third Avenue and East 96th Street	North	70.0	18.0	430	54.46	B
<b>Weekday PM Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	186	255.16	A
Second Avenue and East 96th Street	North	52.0	15.0	225	156.18	A
	East	62.0	15.0	86	445.72	A
	South	52.0	17.0	266	119.69	A
	West	62.0	15.0	330	143.93	A
Third Avenue and East 96th Street	North	70.0	18.0	555	40.38	B

**Note:** SFP = square feet per pedestrian.

THE FUTURE WITHOUT THE PROPOSED ACTIONS

Future 2023 No Action condition pedestrian volumes were estimated by increasing existing pedestrian levels to reflect expected growth in overall travel through and within the study area. As per CEQR guidelines, an annual background growth rate of 0.25 percent was assumed for the years 2016 to 2021, and an annual background growth rate of 0.125 percent was assumed for the years 2021 to 2023. While the new Second Avenue Subway service will be in operation, overall pedestrian trip-making patterns in the area are not expected to be materially different from existing conditions, especially since both the new station along the Second Avenue line and the existing station along the Lexington Avenue line are accessible along the same east-west cross-street (i.e., East 96th Street). Some trips currently made between the far east-side and Lexington

Avenue will be truncated at Second Avenue, resulting in a reduction in pedestrian flow between Second and Lexington Avenues. Portion of this reduction is also likely be negated by trips to/from west of Second Avenue that are currently made to Lexington Avenue. This redistribution of subway trips is expected to result in an overall reduction in trips at some of the pedestrian elements analyzed in this EIS. For a conservative assessment, this reduction was not accounted for in the No Action pedestrian analyses.

Pedestrian volumes from projects that are anticipated to be completed in the study area were also added to determine the No Action condition pedestrian volumes. The total No Action peak hour pedestrian volumes for the weekday AM, midday, and PM peak periods are presented in **Figures 11-23 through 11-25**. As outlined above under existing conditions, during data collection, a number of pedestrian elements were partially or completely closed to facilitate construction activities for the Second Avenue Subway. ~~In~~For the DEIS, in order to analyze these elements, sample counts were conducted in September 2016 for re-opened locations, and physical characteristics (such as sidewalk widths, street furniture, and corner dimensions) were assumed to be restored to those in existence prior to their closure.<sup>3</sup>~~For the east sidewalk of Second Avenue between East 96th Street and East 97th Street, which was closed for construction staging for the Second Avenue Subway during existing pedestrian counts, the total sidewalk width used in the No Action analysis was determined by reviewing available geometries gathered prior to the beginning of Second Avenue Subway construction, and the street furniture used to develop the sidewalk effective width were identified with archival photographs of the sidewalk. These methods were also used to determine the No Action physical characteristics of the northeast, southeast, and southwest corners of Second Avenue and East 96th Street, which were partially or fully closed for Second Avenue Subway construction staging during existing pedestrian counts~~As described above under Section D, "Detailed Traffic Analysis", the DEIS was prepared prior to the completion of the Second Avenue Subway construction, and the future physical inventory assumptions at the affected analysis locations were to be revisited between the DEIS and FEIS. Subsequent to the publication of the DEIS and with completion of the Second Avenue Subway construction at the end of 2016, the geometries of pedestrian elements along Second Avenue and those of its cross street intersections (between East 93rd Street and East 97th Street) were modified. Updated pedestrian physical inventories along Second Avenue were collected in February 2017 after completion of the Second Avenue Subway construction and were incorporated into the future conditions analyses where appropriate. These updates have been incorporated into the No Action analysis for the analyzed pedestrian elements along Second Avenue.

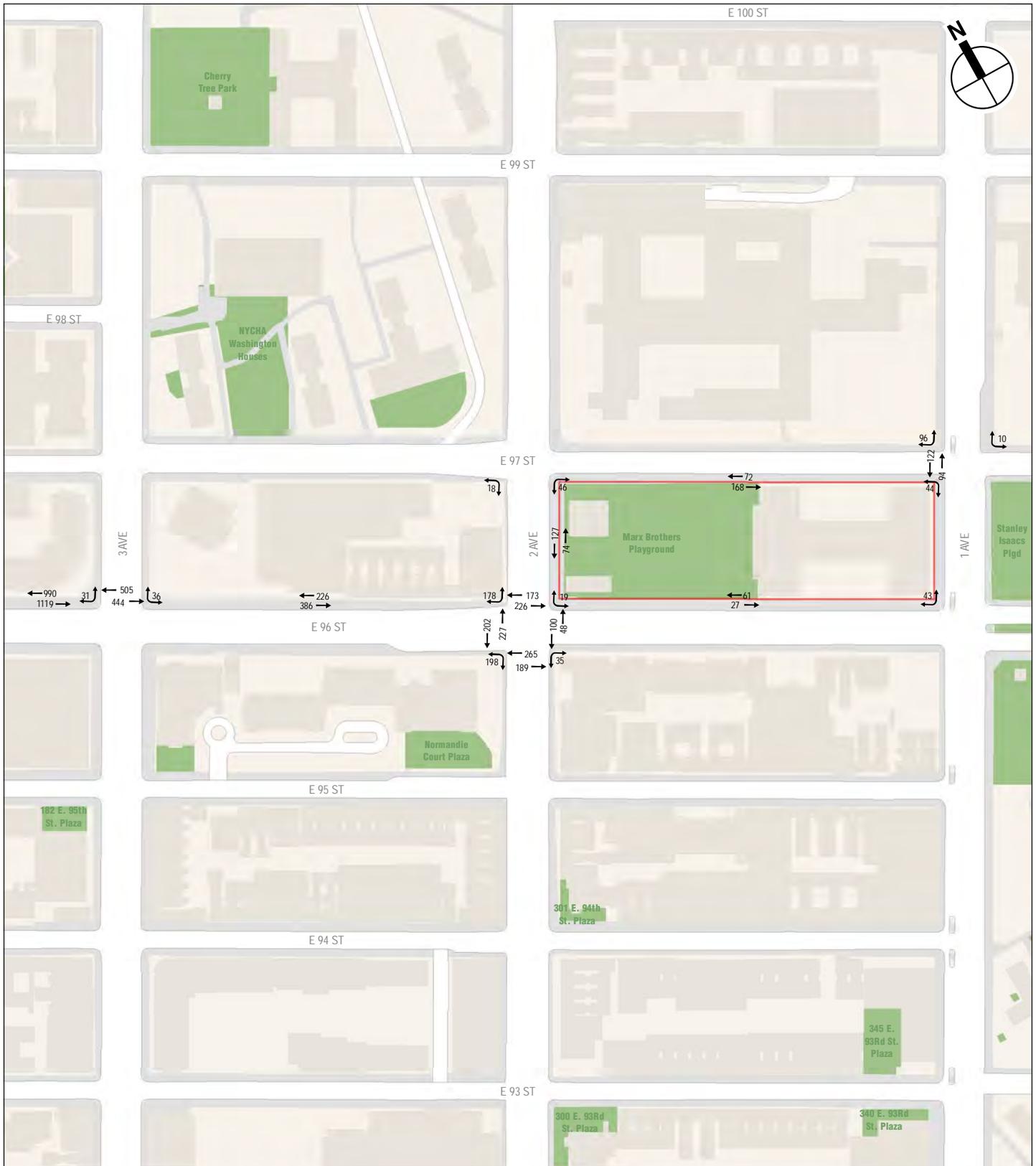
#### *STREET-LEVEL PEDESTRIAN OPERATIONS*

A summary of the 2023 No Action condition pedestrian analysis results is presented in **Table 11-40**.

As shown in **Tables 11-41 to 11-43**, all sidewalk, corner reservoir, and crosswalk analysis locations will operate at ~~acceptable mid-LOS D~~C or better service levels (31.5 SFP platoon

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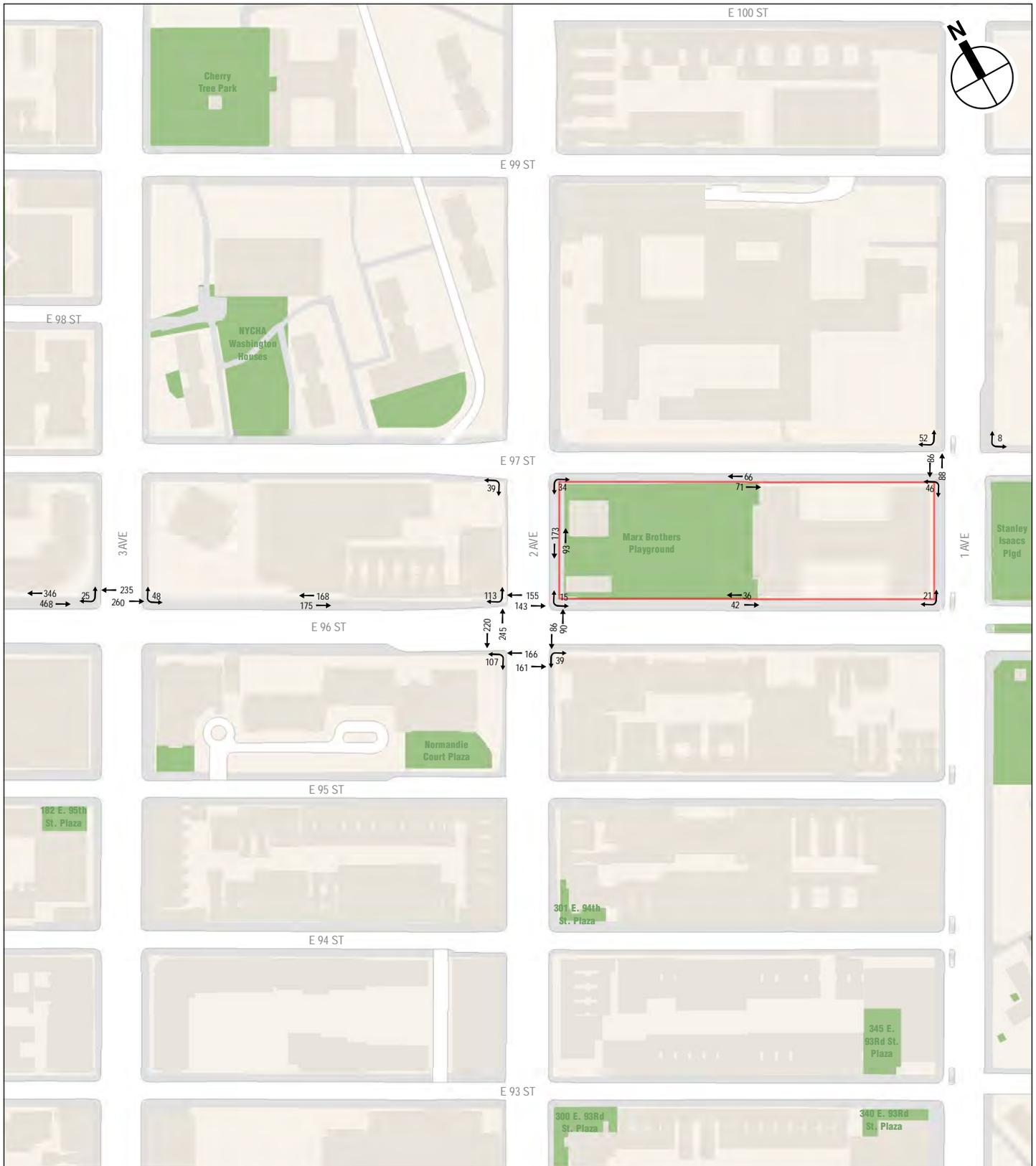
<sup>3</sup>~~The Second Avenue Subway construction was completed at the end of December 2016 and the above analysis was completed prior to its completion. The future physical inventory assumptions at the affected analysis locations will be revisited between the Draft and Final EIS.~~



*Project Site*



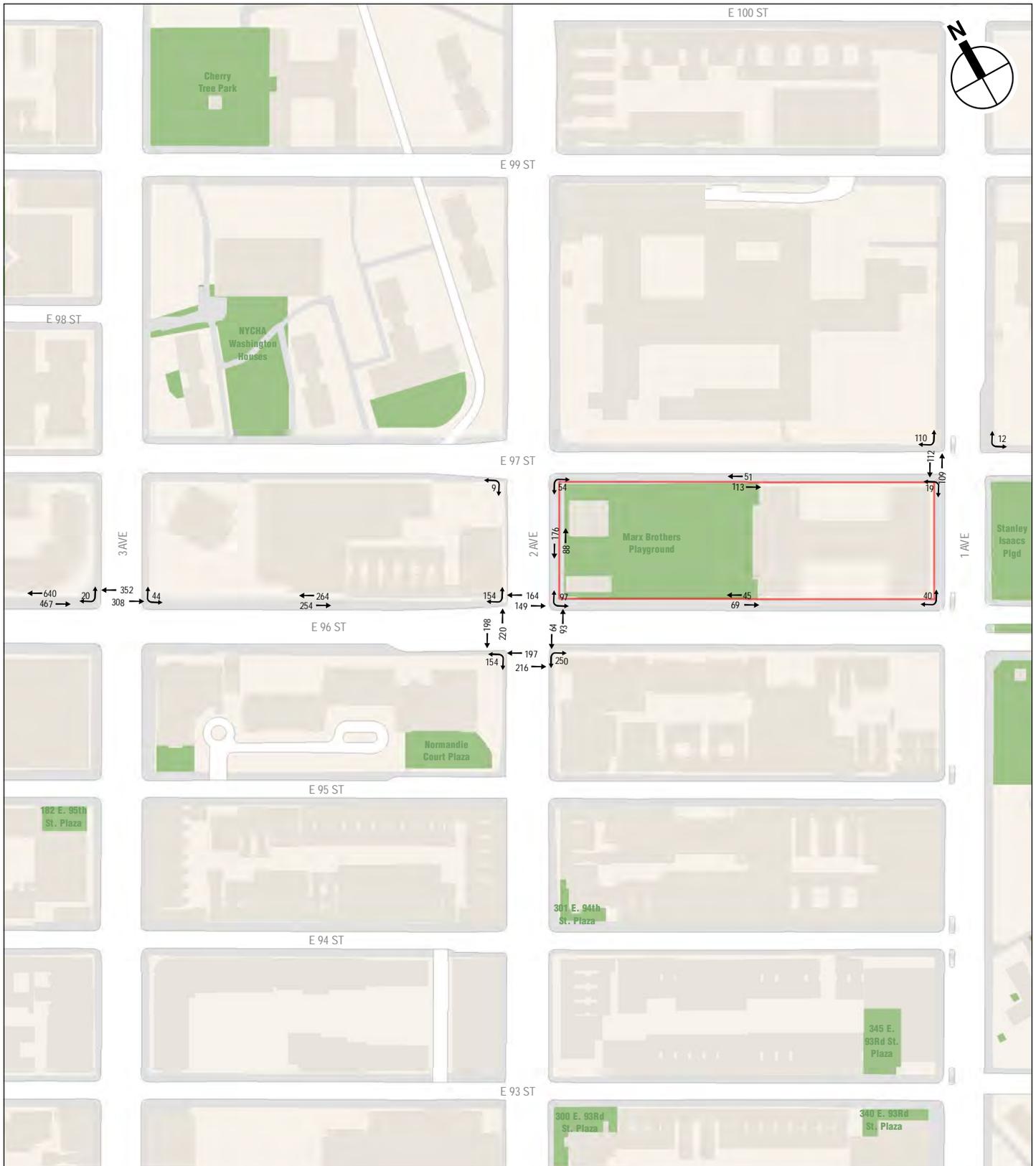
2023 No Action Pedestrian Volumes  
Weekday AM Peak Hour



Project Site



2023 No Action Pedestrian Volumes  
Weekday Middy Peak Hour



Project Site

0  400 FEET

**ECF East 96th Street**

flows for sidewalks; minimum of 19.5 SFP for corners and crosswalks) or will operate at the same LOS as in the existing conditions.

**Table 11-40**  
**Summary of 2023 No Action Pedestrian Analysis Results**

Level of Service	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
<b>Sidewalks</b>			
Sidewalks at LOS A/B/C	5	5	5
Sidewalks at LOS D	0	0	0
Sidewalks at LOS E	0	0	0
Sidewalks at LOS F	0	0	0
Total	5	5	5
<b>Corner Reservoirs</b>			
Corners at LOS A/B/C	11	11	11
Corners at LOS D	0	0	0
Corners at LOS E	0	0	0
Corners at LOS F	0	0	0
Total	11	11	11
<b>Crosswalks</b>			
Crosswalks at LOS A/B/C	6	6	6
Crosswalks at LOS D	0	0	0
Crosswalks at LOS E	0	0	0
Crosswalks at LOS F	0	0	0
Total	6	6	6

**Notes:** LOS = Level-of-Service.

**Table 11-41**  
**2023 No Action Condition: Sidewalk Analysis**

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
<b>Weekday AM Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	240	0.67	332.52	B
East 96th Street between First Avenue and Second Avenue	North	11.5	88	0.93	1922.11	A
Second Avenue between East 97th Street and East 96th Street	East	11.5	201	N/A	634.30	A
East 96th Street between Second Avenue and Third Avenue	North	15.5	612	0.92	369.36	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	2,109	0.91	91.72	<del>C</del> B
<b>Weekday Midday Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	137	0.68	586.22	A
East 96th Street between First Avenue and Second Avenue	North	11.5	78	0.65	1517.96	A
Second Avenue between East 97th Street and East 96th Street	East	11.5	266	0.95	651.10	A
East 96th Street between Second Avenue and Third Avenue	North	15.5	343	0.84	601.66	A
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	814	0.94	246.32	B
<b>Weekday PM Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	164	0.72	522.61	B
East 96th Street between First Avenue and Second Avenue	North	11.5	114	0.74	1176.18	A
Second Avenue between East 97th Street and East 96th Street	East	11.5	264	0.71	491.08	B
East 96th Street between Second Avenue and Third Avenue	North	15.5	518	0.79	376.30	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	1,107	0.93	178.86	B

**Note:** SFP = square feet per pedestrian.

**Table 11-42**  
**2023 No Action Condition: Corner Analysis**

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS
First Avenue and East 97th Street	Northwest	173.76	A	280.88	A	178.73	A
	Southwest	486.31	A	483.95	A	500.71	A
First Avenue and East 96th Street	Northwest	671.27	A	741.27	A	607.21	A
Second Avenue and East 97th Street	Southwest	<del>380.4828</del> 0.26	A	<del>354.18261</del> 09	A	<del>381.57281.9</del> 1	A
	Southeast	<del>423.8639</del> 0.66	A	<del>396.90395.</del> 73	A	<del>389.59359.0</del> 6	A
Second Avenue and East 96th Street	Northwest	265.73	A	305.17	A	315.41	A
	Northeast	436.66	A	513.84	A	490.42	A
	Southwest	<del>336.5624</del> 5.84	A	<del>427.06312.</del> 12	A	<del>399.33284.9</del> 2	A
	Southeast	386.05	A	482.18	A	313.01	A
Third Avenue and East 96th Street	Northwest	162.42	A	304.43	A	225.29	A
	Northeast	124.42	A	183.74	A	147.58	A

**Note:** SFP = square feet per pedestrian.

**Table 11-43**  
**2023 No Action Condition: Crosswalk Analysis**

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	2-way Peak Hour Volume	SFP	LOS
<b>Weekday AM Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	216	219.32	A
Second Avenue and East 96th Street	North	5260.0	15.0	399	<del>82.5184.</del> 61	A
	East	6260.0	15.0	148	<del>213.052</del> 11.45	A
	South	5260.0	17.0	454	<del>78.4781.</del> 69	A
	West	6260.0	15.0	429	<del>101.892</del> 5	A
Third Avenue and East 96th Street	North	70.0	18.0	949	24.46	C
<b>Weekday Midday Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	174	229.78	A
Second Avenue and East 96th Street	North	5260.0	15.0	298	<del>401.441</del> 03.60	A
	East	6260.0	15.0	176	<del>218.932</del> 17.17	A
	South	5260.0	17.0	327	<del>405.981</del> 11.28	A
	West	6260.0	15.0	465	<del>94.0993.</del> 44	A
Third Avenue and East 96th Street	North	70.0	18.0	495	46.89	B
<b>Weekday PM Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	221	213.93	A
Second Avenue and East 96th Street	North	5260.0	15.0	313	<del>411.541</del> 14.22	A
	East	6260.0	15.0	157	<del>240.522</del> 37.93	A
	South	5260.0	17.0	413	<del>76.0278.</del> 71	A
	West	6260.0	15.0	418	<del>112.962</del> 1	A
Third Avenue and East 96th Street	North	70.0	18.0	660	32.66	C

**Note:** SFP = square feet per pedestrian.

## THE FUTURE WITH THE PROPOSED ACTIONS

Project-generated pedestrian volumes were assigned to the pedestrian network considering current land uses in the area, population distribution, nearby parking locations, available transit services, and surrounding pedestrian facilities.<sup>4</sup> As detailed above, with the completion of the Second Avenue Subway at the end of 2016, the geometries of pedestrian elements along Second Avenue and those of its cross street intersections (between East 93rd Street and East 97th Street) were modified. Updated pedestrian physical inventories along Second Avenue were collected in February 2017 after completion of the Second Avenue Subway construction and were incorporated into the future conditions analyses where appropriate. These changes have been incorporated into the With Action analysis for the analyzed pedestrian elements along Second Avenue.

The hourly incremental pedestrian volumes presented above in **Figures 11-6 through 11-8**, were added to the projected 2023 No Action volumes to generate the 2023 With Action pedestrian volumes for analysis (see **Figures 11-26 through 11-28**).

### *STREET-LEVEL PEDESTRIAN OPERATIONS AND SIGNIFICANT ADVERSE IMPACTS*

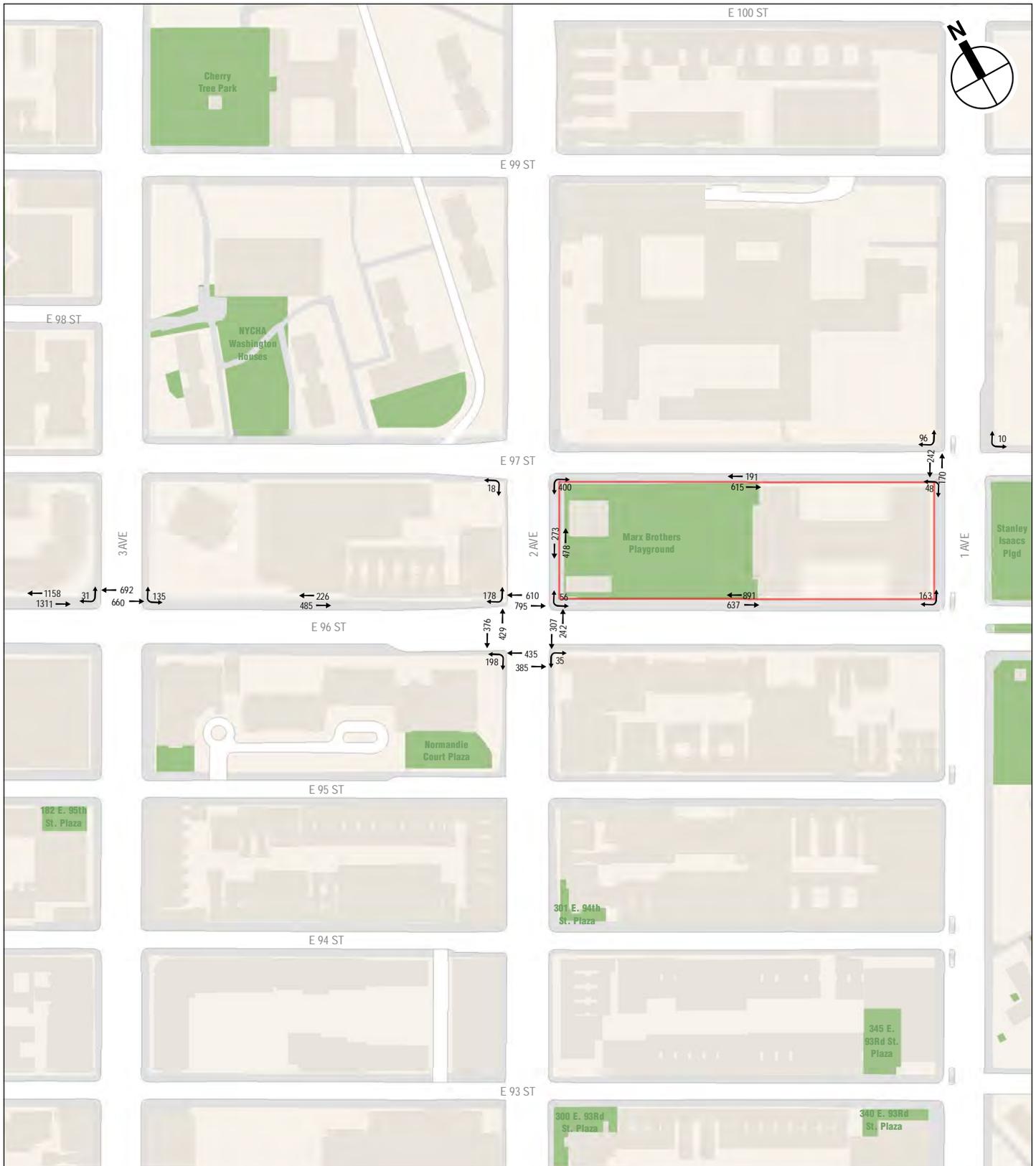
A summary of the 2023 With Action condition pedestrian analysis results is presented in **Table 11-44**. Details on SFP and level-of-service are presented in **Tables 11-45 to 11-47**. Based on the *CEQR Technical Manual* sliding scale impact thresholds, significant adverse pedestrian impacts, as detailed below, were identified for one crosswalk during the weekday AM and PM peak hours. Potential measures that can be implemented to mitigate these significant adverse pedestrian impacts are discussed in Chapter 18, “Mitigation.”

#### *Crosswalks*

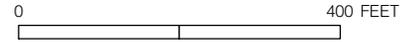
- The north crosswalk of Third Avenue and East 96th Street would deteriorate from LOS C with 24.46 and LOS C with 32.66 SFP to LOS D with 16.13 and 18.02 SFP during the weekday AM and PM peak hours, respectively. These degradations in pedestrian operations constitute significant adverse impacts.

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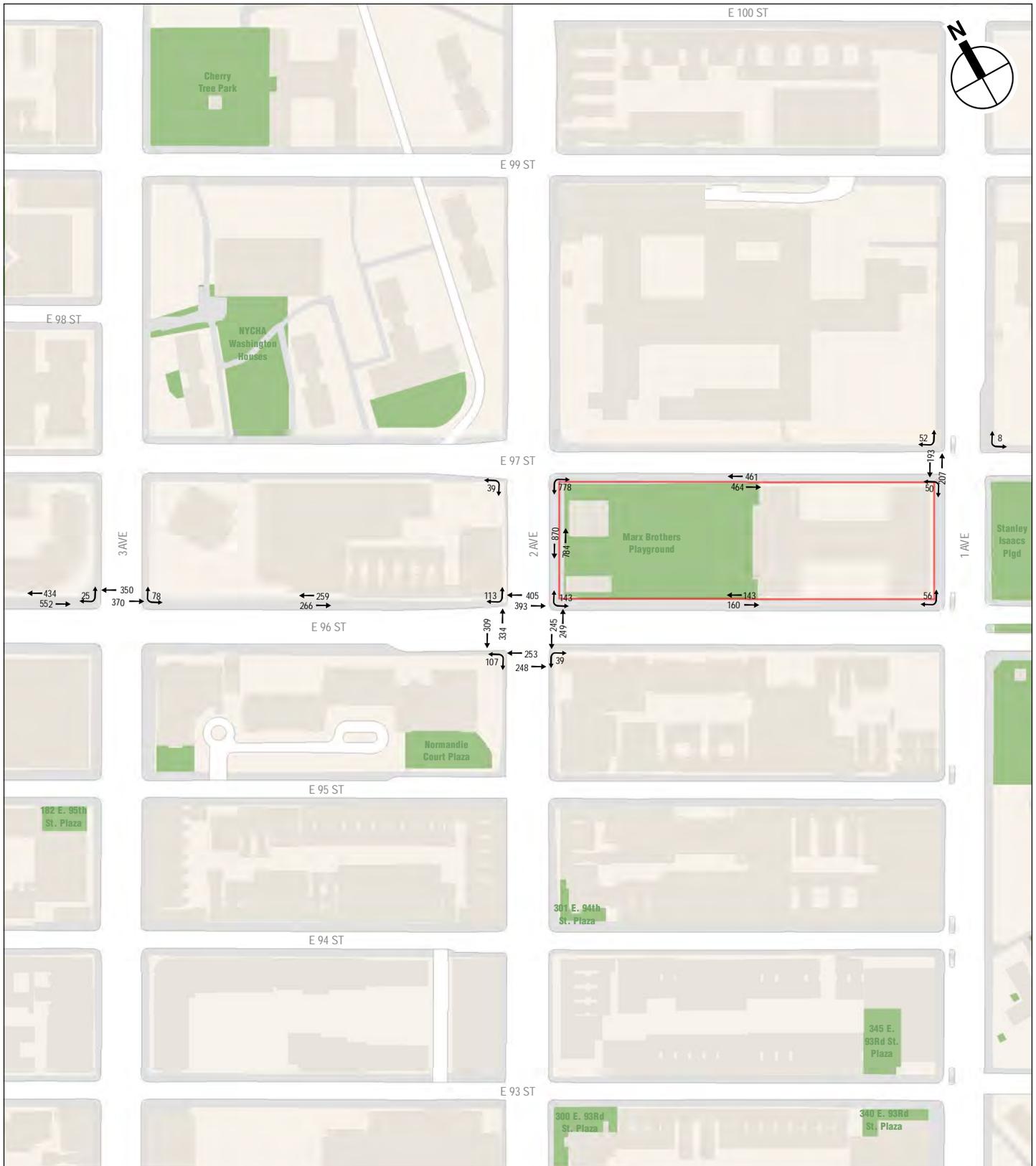
<sup>4</sup>The Second Avenue Subway construction was completed at the end of December 2016 and the above analysis was completed prior to its completion. The future physical inventory assumptions at the affected analysis locations will be revisited between the Draft and Final EIS.



 Project Site



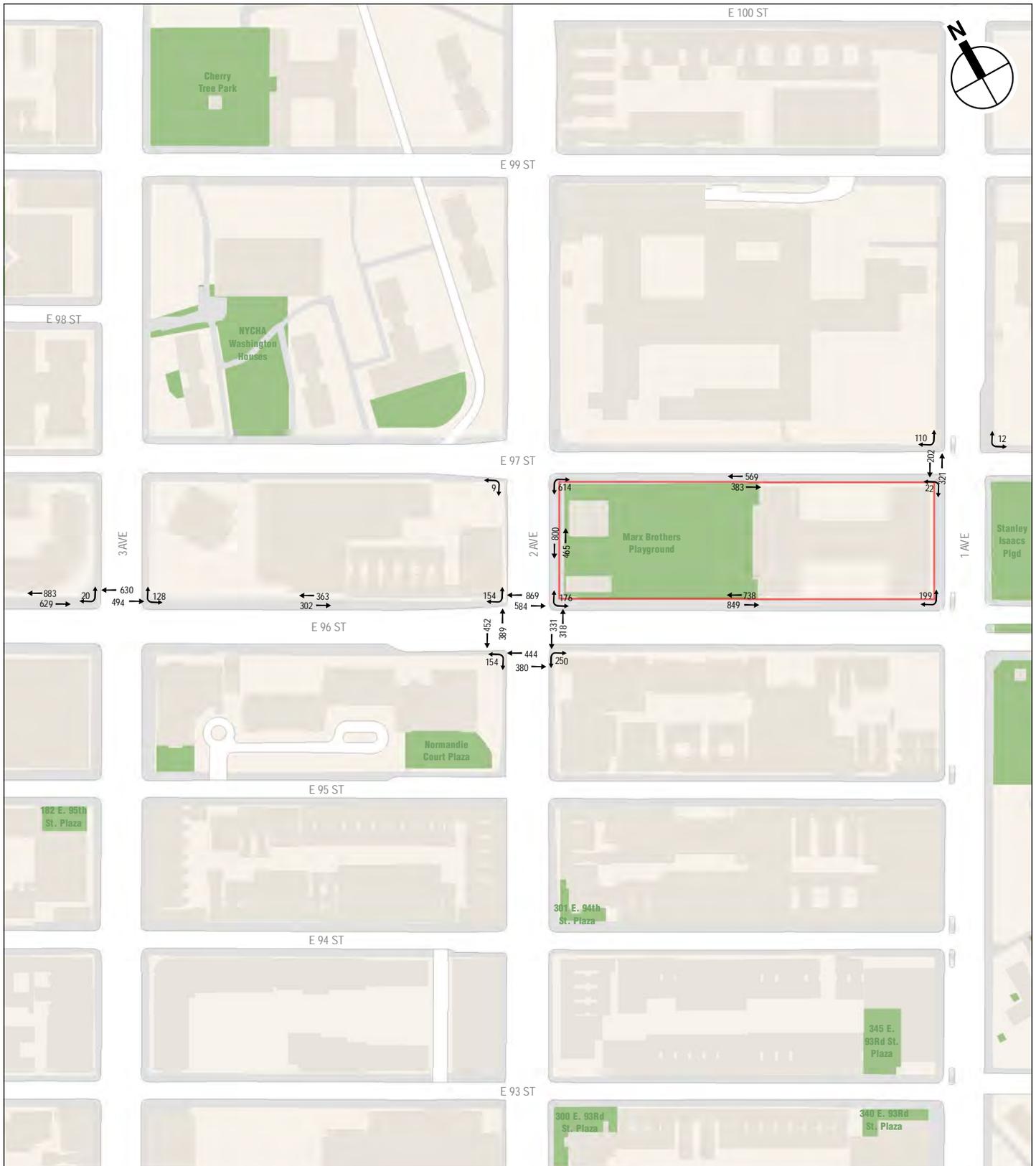
2023 With Action Pedestrian Volumes  
Weekday AM Peak Hour



 Project Site



2023 With Action Pedestrian Volumes  
Weekday Middy Peak Hour



 Project Site



2023 With Action Pedestrian Volumes  
Weekday PM Peak Hour

**Table 11-44  
Summary of 2023 With Action Pedestrian Analysis Results**

Level of Service	Analysis Peak Hours		
	Weekday AM	Weekday Midday	Weekday PM
<b>Sidewalks</b>			
Sidewalks at LOS A/B/C	5	5	5
Sidewalks at LOS D	0	0	0
Sidewalks at LOS E	0	0	0
Sidewalks at LOS F	0	0	0
Total	5	5	5
# of sidewalks with significant impacts	0	0	0
<b>Corner Reservoirs</b>			
Corners at LOS A/B/C	11	11	11
Corners at LOS D	0	0	0
Corners at LOS E	0	0	0
Corners at LOS F	0	0	0
Total	11	11	11
# of corners with significant impacts	0	0	0
<b>Crosswalks</b>			
Crosswalks at LOS A/B/C	4	6	4
Crosswalks at LOS D	2	0	2
Crosswalks at LOS E	0	0	0
Crosswalks at LOS F	0	0	0
Total	6	6	6
# of crosswalks with significant impacts	1	0	1

**Note:** LOS = Level-of-Service.

**Table 11-45  
2023 With Action Condition: Sidewalk Analysis**

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
<b>Weekday AM Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	806	0.67	98.51	B
East 96th Street between First Avenue and Second Avenue	North	11.5	1528	0.93	110.21	B
Second Avenue between East 97th Street and East 96th Street	East	11.5	751	0.70	169.47	B
East 96th Street between Second Avenue and Third Avenue	North	15.5	711	0.92	317.88	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	2,469	0.91	78.16	C
<b>Weekday Midday Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	925	0.68	86.21	C
East 96th Street between First Avenue and Second Avenue	North	11.5	303	0.65	390.63	B
Second Avenue between East 97th Street and East 96th Street	East	11.5	1654	0.95	104.21	B
East 96th Street between Second Avenue and Third Avenue	North	15.5	525	0.84	393.00	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	986	0.94	203.26	B
<b>Weekday PM Peak Hour</b>						
East 97th Street between First Avenue and Second Avenue	South	7.5	952	0.72	89.44	C
East 96th Street between First Avenue and Second Avenue	North	11.5	1,587	0.74	83.85	C
Second Avenue between East 97th Street and East 96th Street	East	11.5	1,265	0.71	101.98	B
East 96th Street between Second Avenue and Third Avenue	North	15.5	665	0.79	293.04	B
East 96th Street between Third Avenue and Lexington Avenue	North	13.5	1,512	0.93	130.76	B

**Note:** SFP = square feet per pedestrian.

Table 11-46

2023 With Action Condition: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS
First Avenue and East 97th Street	Northwest	120.62	A	168.62	A	113.46	A
	Southwest	265.89	A	232.12	A	222.88	A
First Avenue and East 96th Street	Northwest	319.13	A	505.40	A	267.41	A
Second Avenue and East 97th Street	Southwest	<u>282.54</u> 20 6.93	A	<u>255.69</u> 187 51	A	<u>258.02</u> 189 3	A
	Southeast	<u>185.29</u> 17 0.67	A	<u>117.45</u> 108 10	A	<u>127.79</u> 117 5	A
Second Avenue and East 96th Street	Northwest	104.81	A	162.85	A	110.07	A
	Northeast	114.71	A	167.29	A	112.37	A
	Southwest	<u>198.57</u> 14 3.65	A	<u>306.45</u> 222 33	A	<u>206.31</u> 149 3	A
	Southeast	159.59	A	243.08	A	140.46	A
Third Avenue and East 96th Street	Northwest	122.62	A	226.27	A	150.27	A
	Northeast	87.79	A	139.91	A	93.71	A

Note: SFP = square feet per pedestrian.

Table 11-47

2023 With Action Condition: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	2-way Peak Hour Volume	SFP	LOS
<b>Weekday AM Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	412	112.88	A
Second Avenue and East 96th Street	North	<u>5260</u> 0	15.0	1,405	<u>21.52</u> 22 27	D
	East	<u>6260</u> 0	15.0	549	<u>55.02</u> 54 54	AB
	South	<u>5260</u> 0	17.0	820	<u>41.34</u> 43 31	B
	West	<u>6260</u> 0	15.0	805	<u>52.60</u> 22	A
Third Avenue and East 96th Street	North	70.0	18.0	1,352	16.13	D+
<b>Weekday Midday Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	400	97.59	A
Second Avenue and East 96th Street	North	<u>5260</u> 0	15.0	798	<u>36.02</u> 37 10	C
	East	<u>6260</u> 0	15.0	494	<u>76.05</u> 75 38	A
	South	<u>5260</u> 0	17.0	501	<u>66.64</u> 70 34	A
	West	<u>6260</u> 0	15.0	643	<u>66.49</u> 65 99	A
Third Avenue and East 96th Street	North	70.0	18.0	720	31.13	C
<b>Weekday PM Peak Hour</b>						
First Avenue and East 97th Street	West	37.0	14.0	523	87.77	A
Second Avenue and East 96th Street	North	<u>5260</u> 0	15.0	1,453	<u>21.84</u> 22 60	D
	East	<u>6260</u> 0	15.0	649	<u>55.59</u> 54 91	B
	South	<u>5260</u> 0	17.0	824	<u>35.20</u> 37 26	C
	West	<u>6260</u> 0	15.0	841	<u>54.20</u> 53 79	B
Third Avenue and East 96th Street	North	70.0	18.0	1,124	18.02	D+

Notes: SFP = square feet per pedestrian.  
+ Denotes a significant adverse pedestrian impact.

## G. VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

Crash data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between January 1, 2013 and December 31, 2015. The data obtained quantify the total number of reportable crashes (involving fatality, injury, or more than \$1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of vehicular crashes with pedestrians and bicycles at each location.

During the January 1, 2013 and December 31, 2015 three-year period, a total of 255 reportable and non-reportable crashes, 2 fatalities, 155 injuries, and 46 pedestrian/bicyclist-related crashes occurred at the study area intersections. A rolling total of crash data identifies two study area intersections, First Avenue at East 96th Street and Third Avenue at East 96th Street, as high crash locations in the 2013 to 2015 period. **Table 11-48** depicts total crash characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle crashes by year and location.

**Table 11-49** shows a detailed description of each pedestrian/bicyclist-related crash at the high crash locations listed above during the three year period.

**Table 11-48**  
**Crash Data**

Intersection		Study Period					Crashes by Year					
North-South Roadway	East-West Roadway	All Crashes by Year			Total Fatalities	Total Injuries	Pedestrian			Bicycle		
		2013	2014	2015			2013	2014	2015	2013	2014	2015
<b>Third Avenue</b>	<b>E. 96th Street</b>	7	10	9	1	12	1	4	2	2	1	0
Third Avenue	E. 97th Street	5	5	7	0	10	0	2	3	1	0	1
Second Avenue	E. 95th Street	3	8	1	0	13	0	0	0	0	0	0
Second Avenue	E. 96th Street	10	8	13	0	20	1	2	1	2	0	2
Second Avenue	E. 97th Street	5	12	5	0	20	0	2	1	2	0	0
<b>First Avenue</b>	<b>E. 96th Street</b>	16	22	21	0	23	0	2	3	2	1	0
First Avenue	E. 97th Street	7	2	6	0	17	1	0	0	1	0	2
First Avenue	E. 99th Street	4	3	2	0	4	1	1	1	0	0	0
FDR Drive service roads/ramps (SB)	E. 96th Street	7	4	12	0	11	0	0	0	0	0	0
FDR Drive service roads/ramps (NB)	E. 96th Street	13	6	22	1	25	0	0	1	0	0	0

Source: NYSDOT January 1, 2013 to December 31, 2015 crash data.  
Bold intersections are high pedestrian crash locations.

**Table 11-49  
Vehicle and Pedestrian Crash Details**

Intersection	Year	Date	Time	Crash Class		Action of Vehicle	Action of Pedestrian	Cause of Crash			
				Injured	Killed			Left / Right Turns	Pedestrian Error/ Confusion	Driver Inattention	Other
Third Avenue @ E. 96th Street	2013	2/27	11:45 AM	X		Making left turn – West	Crossing with signal	X			View obstructed / limited
		3/22	12:05 AM	X		Making left turn – North	Going straight – South	X			
		5/9	5:45 PM	X		Making right turn – East	Going straight – North	X	X		Passing too closely, Failure to keep right
	2014	1/11	4:48 PM	X		Slowed or stopping – West	Crossing, No signal or crosswalk		X		
		1/18	6:16 PM	X		Slowed or stopping – West	Unknown				Unknown
		3/2	7:30 PM	X		Making right turn – North	Going straight – North	X	X	X	
		10/10	1:36 PM		X	Making right turn – Northwest	Crossing with signal	X			Failure to yield R.o.W.
		11/26	6:15 AM	X		Making left turn – North	Crossing with signal	X		X	Failure to yield R.o.W.
		3/21	10:50 PM	X		Making left turn – North	Crossing with signal	X			Failure to yield R.o.W.
		11/6	1:15 PM	X		Making right turn – Northeast	Crossing with signal	X		X	Failure to yield R.o.W.
First Avenue @ E. 96th Street	2013	12/18	6:15 AM	X		Making left turn – Northwest	Crossing with signal	X			
		12/22	12:30 AM	X		Going straight – West	Going straight				Traffic control devices disregarded
	2014	1/16	6:30 PM	X		Going straight – West	Other actions in roadway				Unknown
		5/23	6:25 PM	X		Backing – East	Not in roadway		X		Failure to yield R.o.W.
		8/25	12:20 PM	X		Backing – West	Along highway against traffic				Backing unsafely
	2015	2/5	8:51 PM	X		Going straight – West	Crossing with signal			X	
		4/6	11:15 PM	X		Going straight – Unknown	Crossing with signal				Unknown
		10/26	7:00 PM	X		Going straight – East	Other actions in roadway		X		

**THIRD AVENUE AND EAST 96TH STREET**

Based on the review of the crash history at the intersection of Third Avenue and East 96th Street, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded crashes. Notably, eight of ten crashes involved turning vehicles from the intersection’s approaches. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Third Avenue and East 96th Street is signalized and provides three school crosswalks; the south crosswalk is currently paved over and has not been restriped. In addition, countdown timers are present on all crosswalks. In terms of project-generated activity, this intersection would experience incremental peak hour volume increases of approximately 75 or fewer vehicle trips and 470 or fewer pedestrian trips at any crosswalk during each of the three analysis peak hours. As described in Chapter 18, “Mitigation,” the predicted impact at this intersection could be fully mitigated with standard traffic engineering measures. Therefore, the proposed project is not anticipated to exacerbate any of the current

causes of pedestrian-related crashes. Additional safety measures, such as restriping the intersection's west and south crosswalks, can be implemented to further improve pedestrian safety at this intersection.

Subsequent to the publication of the DEIS, a follow-up field visit was conducted to determine what additional safety measures could be proposed to further improve pedestrian safety at this intersection. It was observed during the field visit that DOT has independently restriped all four crosswalks into high visibility crosswalks. In addition, DOT has also introduced two new safety measures to temper speeds and maneuver angles at this intersection as part of its Vision Zero initiative. A hardened centerline has been installed on the eastbound approach of East 96th Street, and a slow turn wedge/enhanced daylighting has been created on the intersection's southwest corner, both part of the Vision Zero initiative's 100 location pilot program that was implemented and evaluated in 2016. These safety measures are expected to further improve pedestrian safety at this intersection such that no additional safety measures are recommended at this time.

### **FIRST AVENUE AND EAST 96TH STREET**

Based on the review of the crash history at the intersection of First Avenue and East 96th Street, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded crashes. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of First Avenue and East 96th Street is signalized and provides four high visibility crosswalks. In addition, countdown timers are present on the north, east and south crosswalks; a normal pedestrian signal is present on the west crosswalk. A buffered bicycle lane is present along the west side of First Avenue south of the intersection; this transitions into a physically protected bicycle lane north of the intersection. There is also a bicycle signal head on the northwest corner of the intersection, which is skewed to the southeast, obscuring visibility. In terms of project-generated activity, this intersection would experience incremental peak hour volume increases of approximately 110 or fewer vehicle trips and 140 or fewer pedestrian trips at any crosswalk during each of the three analysis peak hours. Additional safety measures, such as installing a countdown timer on the west crosswalk, and repositioning the bicycle signal head, can be implemented to further improve pedestrian and bicycle safety at this intersection.

## **H. PARKING ASSESSMENT**

### **2016 EXISTING CONDITIONS**

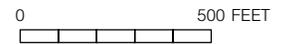
An inventory of on- and off-street parking within a ¼-mile of the project site was conducted in April and June 2016. The on-street survey involved recording curbside regulations and performing general observations of daytime utilization. The off-street survey provided an inventory of the area's public parking facilities and their legal capacities and daytime utilization.

#### *ON-STREET PARKING*

Curbside parking regulations within a ¼-mile of the project site are illustrated in **Figure 11-29** and summarized in **Table 11-50**. The curbside regulations in the area generally include limited one-hour metered parking, no standing or no parking anytime except authorized vehicles, and alternate-side parking to accommodate street-cleaning. Based on field observations, on-street parking in the area is generally at or near full utilization during weekday daytime hours.



- Project Site
- Quarter-mile boundary
- B Bus Stop
- 19.** Parking Regulation



**Table 11-50  
Summary of On-Street Parking Regulations**

No.	Regulation	No.	Regulation
1	NS Anytime	24	NS 7AM-10AM, 4PM-7PM Mon-Fri.
2	NP Anytime	25	NS 10AM-4PM Mon-Fri.
3	NS 8:30-10:00AM Mon. & Thurs.	26	NP 8:00-8:30AM Mon. & Thurs.
4	NS 8:30-10:00AM Tue. & Fri.	27	NP 8:00-8:30AM Tue. & Fri.
5	NS Ex Authorized Vehicles	28	NP 8:30-9:00AM Mon., Tue., Thurs., Fri.
6	NS Ex Farmers Market Vehicles 6AM-7PM Fri. July-Nov	29	NP 7AM-4PM School Days
7	NP 9:30-11:00AM Mon. & Thurs.	30	1-Hr Metered Parking 8AM-7PM Except Sun.
8	NP 9:30-11:00AM Tue. & Fri.	31	NS Ex. Trucks Loading & Unloading 7AM-7PM Ex Sun.
9	No Stopping Anytime	32	NS Hotel Loading Zone
10	NP 8AM-6PM Mon-Fri.	33	1-Hr Parking 8:30AM-7PM Except Sun.
11	NP 7AM-4PM School Days	34	Farmer's Market Only, July 1-Nov. 30, Sunday 8AM-6PM
12	Non-MTA Bus Layover Only	35	NP 10:00-11:30AM Mon. & Thurs.
13	NP 7:30AM-8AM Except Sun.	36	NP 10:00-11:30AM Tue. & Fri.
14	2-Hr Metered Parking 8AM-7PM Except Sun.	37	NS 7AM-10AM, 2PM-7PM Mon-Fri. Ex. Trucks Loading & Unloading 10AM-2PM Mon-Fri.
15	NP 9:00-10:30AM Mon. & Thurs.	38	NS Ex. Trucks Loading & Unloading 8AM-6PM Mon-Fri.
16	NP 9:00-10:30AM Tue. & Fri.	39	NS Ex. Trucks Loading & Unloading 7AM-10PM Ex Sun.
17	NP 7:30-8:00AM Mon. & Thurs.	40	NS 7AM-1PM Except Sun.
18	NP 7:30-8:00AM Tue. & Fri.	41	NS 8AM-10AM, 4PM-6PM Mon-Fri.
19	NP 8:30-10:00AM Mon. & Thurs.	42	NS Anytime Temporary Construction Regulation
20	NP 8:30-10:00AM Tue. & Fri.	43	Bus Layover Area, NS 7AM-Midnight Mon-Fri., MTA
21	1-Hr Metered Parking 9AM-7PM Except Sun.	44	NS 7AM-6PM Mon-Fri.
22	NP 8:30-9:00AM Except Sun.	45	NS Hotel Loading Zone
23	NS 4PM-7PM Mon-Fri.		

**Notes:** NP = No Parking; NS = No Standing; Mon = Monday; Tue = Tuesday; Wed = Wednesday; Thu = Thursday; Fri = Friday.  
**Source:** Surveys conducted by AKRF, Inc. in June 2016.

**OFF-STREET PARKING**

Off-street publicly accessible parking lots and garages (see **Figure 11-30**) within ¼-mile of the project site were surveyed in April 2016. Each facility’s operating license and legal capacity were noted. Based on responses given by parking attendants and visual inspections, where possible, estimates were made on the parking occupancy or utilization at each facility for the weekday morning, midday, evening, and overnight time periods. A summary of the recorded information and the area’s overall off-street public parking supply and utilization is presented in **Table 11-51**.

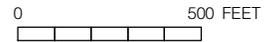
**Table 11-51  
2016 Existing Off-Street Parking Utilization—1/4 Mile Study Area**

Map #	Name/Address	License Number	Licensed Capacity	Utilization Rate				Utilized Spaces				Available Spaces			
				AM	MD	PM	ON	AM	MD	PM	ON	AM	MD	PM	ON
1	1955 1st Parking Corp / 1955 1st Avenue	1183389	109	75%	90%	60%	50%	82	98	65	55	27	11	44	54
2	Metropolitan Storage Corp / 1918 1st Avenue	1026540	233	65%	95%	45%	20%	151	221	105	47	82	12	128	186
3	Metropolitan Storage Corp / 1901 1st Avenue	1130472	95	90%	90%	70%	30%	86	86	67	29	9	9	28	66
4	MP 97 LLC / 217 East 96th Street	1230416	200	50%	80%	70%	40%	100	160	140	80	100	40	60	120
5	East 97th Street Parking Corp / 175 East 96th Street	1116799	209	75%	85%	50%	25%	157	178	105	52	52	31	104	157
6	1501 Garage Management Parking / 1501 Lexington	1397588	150	75%	85%	50%	25%	113	128	75	38	37	22	75	112
7	Gallant Parking LLC / 182-184 East 95th Street	769326	112	90%	95%	60%	25%	101	106	67	28	11	6	45	84
8	215 East 95th Street Parking LLC / 201-205 and 207-239 East 95th Street	1199450/ 1199399	320	60%	70%	50%	50%	192	224	160	160	128	96	160	160
9	9495 Parking Corp / 1832 2nd Avenue	427239	180	75%	75%	70%	60%	135	135	126	108	45	45	54	72
10	Quik Park East 94th Street LLC / 1829 1st Avenue	2027740	36	90%	90%	90%	90%	32	32	32	32	4	4	4	4
11	Rockmill Garage Corp / 340 East 94th Street	892164	124	45%	80%	45%	20%	56	99	56	25	68	25	68	99
12	GMC / 231 East 94th Street	1192245	390	60%	80%	80%	50%	234	312	312	195	156	78	78	195
13	EPS / 245 East 93rd Street	1026203	112	80%	90%	80%	70%	90	101	90	78	22	11	22	34
14	Carnegie Garage LTD / 1675 3rd Avenue	816759	90	75%	75%	75%	75%	68	68	68	68	22	22	22	22
15	MP 93 LLC / 340 East 93rd Street	1376929	146	45%	80%	45%	20%	66	117	66	29	80	29	80	117
16	92nd Realty LLC / 441 East 92nd Street	1070436	137	60%	60%	60%	60%	82	82	82	82	55	55	55	55
17	River York Borday LLC / 1755 York Avenue	1071281	150	60%	60%	60%	60%	90	90	90	90	60	60	60	60
18	Knickerbocker Plaza Carpark LLC / 1751 2nd Avenue	2030422	104	90%	95%	60%	25%	94	99	62	26	10	5	42	78
19	Yorkville Carpark LLC / 1635 3rd Avenue	2030398	301	65%	75%	80%	50%	196	226	241	151	105	75	60	150
			<b>3,198</b>	<b>66%</b>	<b>80%</b>	<b>63%</b>	<b>43%</b>	<b>2,125</b>	<b>2,562</b>	<b>2,009</b>	<b>1,373</b>	<b>1,073</b>	<b>636</b>	<b>1,189</b>	<b>1,825</b>

**Notes:** MD = Midday; ON = Overnight  
**Source:** Survey conducted by AKRF Inc., April 2016.



- Project Site
- Quarter-mile boundary
- 1 Off-Street Parking Facility



Within the ¼-mile parking study area, 19 public parking facilities were inventoried. The combined capacity of these facilities totals 3,198 parking spaces. Overall, they were 66, 80, 63, and 43-percent utilized, with 1,073, 636, 1,189, and 1,825 parking spaces available during the weekday morning, midday, evening, and overnight time periods, respectively.

**THE FUTURE WITHOUT THE PROPOSED ACTIONS**

Overall off-street public parking utilization is expected to experience the same growth as projected for traffic. In the No Action condition, No Build projects are expected to displace one public parking facility with 233 parking spaces. However, the No Build projects are expected to include a total of up to 210 off-street accessory parking spaces. As presented in **Table 11-52**, accounting for the displacement of the public parking spaces, the addition of the off-street accessory parking spaces, and the parking demand generated from background growth and discrete projects that would advance absent the proposed project, the No Action condition public parking utilization is expected to increase to 80, 94, 74, and 54-percent utilized during the weekday morning, midday, evening, and overnight time periods, respectively.

**THE FUTURE WITH THE PROPOSED ACTIONS**

As described above, the proposed project would include a special permit waiver to eliminate the requirement for providing any parking on the project site. The weekday parking demand generated by the proposed project is presented in **Table 11-53**.

As presented in **Table 11-54**, accounting for the No Action parking supply and demand utilization, and the parking demand generated by the proposed project, the With Action public parking utilization is expected to increase to 87, 100, 80, and 62-percent utilized during the weekday morning, midday, evening, and overnight time periods, respectively. Per *CEQR Technical Manual* parking analysis guidance, 98 percent parking utilization is considered to be “at capacity”. Therefore, the approximately 100 percent parking utilization within the ¼-mile parking study area during the weekday midday time period would be considered a parking shortfall.

**Table 11-52**  
**2016 Existing and 2023 No Action Parking Supply and Utilization**

	Weekday AM	Weekday Midday	Weekday PM	Weekday Overnight
2016 Existing Public Parking Supply	3,198	3,198	3,198	3,198
2016 Existing Public Parking Demand	2,125	2,562	2,009	1,373
2016 Existing Public Parking Utilization	66%	80%	63%	43%
2016 Existing Public Parking Supply	3,198	3,198	3,198	3,198
Displaced Public Parking Supply Total	-233	-233	-233	-233
2023 No Action Background Incremental Parking Demand	32	39	30	21
Discrete No Build Projects Accessory Parking Supply	210	210	210	210
Discrete No Build Projects Parking Demand	275	235	201	273
Discrete No Build Projects Parking Demand Accommodated by Public Parking	218	187	155	206
2023 No Action Public Parking Supply Total	2,965	2,965	2,965	2,965
2023 No Action Public Parking Demand Total	2,375	2,788	2,194	1,600
2023 No Action Public Parking Utilization	80%	94%	74%	54%
2023 No Action Available Spaces (Shortfall)	590	177	771	1,365
<b>Note:</b>				
<u>Sample Calculation.</u>				
2023 No Action Parking Demand Total = 2016 Existing Public Parking Demand + 2023 No Action Background Incremental Parking Demand + Discrete No Build Projects Parking Demand Accommodated by Public Parking.				
2023 No Action Weekday AM Public Parking Demand Total = 2,125 + 32 + 218 = 2,375.				

**Table 11-53**  
**Proposed Project Parking Demand—Weekday**

Hour	Residential	Local Retail	High/Tech School Staff	High School Students	Tech School Students	Total
12 AM - 01 AM	252	0	0	0	0	252
01 AM - 02 AM	252	0	0	0	0	252
02 AM - 03 AM	252	0	0	0	0	252
03 AM - 04 AM	252	0	0	0	0	252
04 AM - 05 AM	252	0	0	0	0	252
05 AM - 06 AM	252	0	0	0	0	252
06 AM - 07 AM	252	0	0	0	0	252
07 AM - 08 AM	227	1	5	0	0	233
08 AM - 09 AM	173	1	44	0	0	218
09 AM - 10 AM	142	1	49	0	0	192
10 AM - 11 AM	122	1	49	0	0	172
11 AM - 12 PM	115	1	49	0	0	165
12 PM - 01 PM	115	1	49	0	0	165
01 PM - 02 PM	115	1	49	0	0	165
02 PM - 03 PM	115	1	49	0	0	165
03 PM - 04 PM	116	1	49	0	0	166
04 PM - 05 PM	129	1	49	0	0	179
05 PM - 06 PM	159	1	10	0	0	170
06 PM - 07 PM	189	1	3	0	0	193
07 PM - 08 PM	216	1	0	0	0	217
08 PM - 09 PM	227	1	0	0	0	228
09 PM - 10 PM	237	0	0	0	0	237
10 PM - 11 PM	245	0	0	0	0	245
11 PM - 12 AM	252	0	0	0	0	252

**Table 11-54**  
**2023 No Action and With Action (Parking Waiver) Parking Supply and Utilization**

	Weekday AM	Weekday Midday	Weekday PM	Weekday Overnight
2023 No Action Public Parking Supply Total	2,965	2,965	2,965	2,965
2023 No Action Public Parking Demand Total	2,375	2,788	2,194	1,600
2023 No Action Public Parking Utilization	80%	94%	74%	54%
Proposed Project Accessory Parking Supply	0	0	0	0
Proposed Project Parking Demand	218	165	170	252
Proposed Project Parking Demand Accommodated by Accessory Parking	0	0	0	0
Proposed Project Parking Demand Accommodated by Public Parking	218	165	170	252
2023 With Action Public Parking Supply Total	2,965	2,965	2,965	2,965
2023 With Action Public Parking Demand Total	2,593	2,953	2,364	1,852
2023 With Action Public Parking Utilization	87%	100%	80%	62%
2023 With Action Available Spaces (Shortfall)	372	12	601	1,113
<b>Note:</b>				
<u>Sample Calculation:</u>				
2023 With Action Parking Demand Total = 2023 No Action Public Parking Demand Total + Proposed Project Parking Demand Accommodated by Public Parking.				
2023 With Action Weekday AM Public Parking Demand Total = 2,375 + 218 = 2,593.				

In consideration of this potential parking shortfall, an additional inventory of off-street parking resources was conducted to determine if the overflow demand could be accommodated at a slightly longer walking distance from the project site. As shown in **Table 11-55**, there are 32 additional parking facilities between ¼-mile and ½-mile of the project site that would yield 942 additional available parking spaces during the peak weekday parking demand midday time period. These additional parking resources would adequately accommodate the overflow demand from the proposed project. Therefore, while a ¼-mile parking shortfall would be

expected with the proposed parking waiver, it would not result in a significant adverse parking impact.

**Table 11-55  
2016 Existing Off-Street Parking Utilization—Between 1/4-Mile and 1/2-Mile of the Project Site**

Map #	Name/Address	License Number	Licensed Capacity	Utilization Rate				Utilized Spaces				Available Spaces			
				AM	MD	PM	ON	AM	MD	PM	ON	AM	MD	PM	ON
20	Central Parking System / 115 E. 87th Street	2020004	198	60%	75%	75%	50%	119	149	149	99	79	49	49	99
21	Quik Park / 160 E. 88th Street	1416368	36	75%	90%	90%	80%	27	32	32	29	9	4	4	7
22	SCR Parking Corp / 169 E. 87th Street	427311	175	80%	80%	70%	70%	140	140	123	123	35	35	52	52
23	Claridge 87 Parking LLC / 201-215 E. 87th Street	1380047	218	65%	80%	80%	55%	142	174	174	120	76	44	44	98
24	Royal 89 Parking LLC / 200-210 E. 89th Street	1124818	70	90%	90%	90%	90%	63	63	63	63	7	7	7	7
25	Whitney 90 Parking / 200 E. 90th Street	2025565	109	50%	70%	75%	60%	55	76	82	65	54	33	27	44
26	Ruppert Car Park LLC / 1601 3rd Avenue	2030397	220	65%	85%	70%	50%	143	187	154	110	77	33	66	110
27	SP Plus Corp / 1749-1753 1st Avenue	N/A	39	80%	95%	90%	80%	31	37	35	31	8	2	4	8
28	Eli's Leasing Inc / 422 E. 91st Street	928927	135	85%	85%	85%	85%	115	115	115	115	20	20	20	20
29	York & 90th Parking LLC / 1735 York Avenue	N/A	92	70%	90%	90%	66%	64	83	83	61	28	9	9	31
30	90 St. Operating Corp / 412 E. 90th Street	1434903	150	50%	66%	66%	50%	75	99	99	75	75	51	51	75
31	Gracie Public Parking Corp / 401 E. 89th Street	901963	114	80%	85%	75%	70%	91	97	86	80	23	17	28	34
32	1725 Parking LLC / 1725 York Avenue	1078653	104	60%	80%	60%	40%	62	83	62	42	42	21	42	62
33	88th Street Realty L.P. / 1675 York Avenue	1250870	136	60%	60%	70%	50%	82	82	95	68	54	54	41	68
34	S.A.B. Parking Inc / 200 East End Avenue	1452993	41	100%	100%	100%	100%	41	41	41	41	0	0	0	0
35	Waterview Parking Inc / 180 East End Avenue	1076044	115	80%	90%	70%	70%	92	104	81	81	23	11	34	34
36	Manson 88 Parking LLC / 170 East End Avenue	1298783	35	90%	90%	90%	90%	32	32	32	32	3	3	3	3
37	LAZ Parking NY/NJ LLC / 501 E. 87th Street	2028691	66	75%	85%	90%	60%	50	56	59	40	16	10	7	26
38	401 E. 86th St Parking LLC / 401 E. 86th Street	1196478	46	80%	90%	90%	90%	37	41	41	41	9	5	5	5
39	Safeway Parking Corp / 345 E. 86th Street	888537	56	90%	90%	90%	90%	50	50	50	50	6	6	6	6
40	Quik Park Cooper LLC / 301-329 E. 86th Street	1415834	168	70%	100%	90%	80%	118	168	151	134	50	0	17	34
41	Newbury Operating LLC / 249 E. 86th Street	692051	146	60%	90%	70%	50%	88	131	102	73	58	15	44	73
42	Icon / 156-158 E. 105th Street	1109621	89	70%	80%	60%	60%	62	71	53	53	27	18	36	36
43	E. 102nd St Realty LLC / 333 E. 102nd Street	1182251	155	50%	75%	60%	40%	78	116	93	62	77	39	62	93
44	Quik Park E. 102nd St / 315 E. 102nd Street	1461276	196	64%	79%	71%	50%	125	155	139	98	71	41	57	98
45	MP Uptown LLC / 440 E. 110th Street	1301293	270	55%	70%	65%	35%	149	189	176	95	121	81	94	175
46	MP 99 LLC / 1559 Lexington Avenue	1392680	80	80%	85%	80%	60%	64	68	64	48	16	12	16	32
47	Mt. Sinai Medical Center / 86 E. 99th Street	1122851	581	40%	65%	55%	55%	232	378	320	320	349	203	261	261
48	1510 Lexington Garage Corp / 1510 Lexington Ave	1366871	170	80%	80%	80%	80%	136	136	136	136	34	34	34	34
49	1199 PA LLC / 1199 Park Avenue	2036650	74	75%	90%	70%	70%	56	67	52	52	18	7	22	22
50	Carnegie Car Park LLC / 40-60 E. 94th Street	1076844	110	75%	90%	70%	70%	83	99	77	77	27	11	33	33
51	Champion Parking 90 LLC / 60-72 E. 90th Street	1439430	268	65%	75%	80%	70%	174	201	214	188	94	67	54	80
<b>Between 1/4-Mile and 1/2-Mile Area Total</b>			<b>4,462</b>	<b>64%</b>	<b>79%</b>	<b>72%</b>	<b>61%</b>	<b>2,876</b>	<b>3,520</b>	<b>3,233</b>	<b>2,702</b>	<b>1,586</b>	<b>942</b>	<b>1,229</b>	<b>1,760</b>
<b>Notes:</b> MD = Midday; ON = Overnight; N/A = Not Available															
<b>Sources:</b> Survey conducted by AKRF Inc., October 2016															

As concluded above, the future With Action parking utilization levels are projected to result in a parking shortfall within ¼-mile of the project site during the weekday midday time period. However, with the additional parking resources available between ¼-mile and ½-mile of the project site, the overflow demand during the weekday midday time period could be adequately accommodated and would not result in a significant adverse parking impact.

As described above, the proposed project would include a special permit waiver to eliminate the requirement for providing any parking on the project site, with an option to provide up to 120 accessory parking spaces. Accounting for the potential up to 120 on-site parking spaces (with 111 spaces allocated for residential use, and the remaining 9 spaces allocated for school staff use) and the parking demand generated by the proposed project (see **Table 11-53**), the With Action public parking utilization is expected to increase to 85, 98, 77, and 59-percent utilized during the weekday morning, midday, evening, and overnight time periods, respectively (see

**Table 11-56).** The parking utilization levels for the proposed project would be within the ¼-mile study area’s parking capacity. Therefore, the proposed project is not expected to result in the potential for parking shortfalls or significant adverse parking impacts with the 120 on-site parking spaces scenario.

**Table 11-56**  
**2023 No Action and With Action (120 Spaces) Parking Supply and Utilization**

	<b>Weekday AM</b>	<b>Weekday Midday</b>	<b>Weekday PM</b>	<b>Weekday Overnight</b>
2023 No Action Public Parking Supply Total	2,965	2,965	2,965	2,965
2023 No Action Public Parking Demand Total	2,375	2,788	2,194	1,600
2023 No Action Public Parking Utilization	80%	94%	74%	54%
Proposed Project Accessory Parking Supply	120	120	120	120
Proposed Project Parking Demand	218	165	170	252
Proposed Project Parking Demand Accommodated by Accessory Parking	85	60	72	111
Proposed Project Parking Demand Accommodated by Public Parking	133	105	98	141
2023 With Action Public Parking Supply Total	2,965	2,965	2,965	2,965
2023 With Action Public Parking Demand Total	2,508	2,893	2,292	1,741
2023 With Action Public Parking Utilization	85%	98%	77%	59%
2023 With Action Available Spaces (Shortfall)	457	72	673	1,224
<b>Note:</b>				
<u>Sample Calculation:</u>				
2023 With Action Parking Demand Total = 2023 No Action Public Parking Demand Total + Proposed Project Parking Demand Accommodated by Public Parking.				
2023 With Action Weekday AM Public Parking Demand Total = 2,375 + 133 = 2,508.				

\*

## A. INTRODUCTION

This chapter examines the potential for the proposed actions to result in significant adverse air quality impacts. As described in Chapter 1, “Project Description,” the co-applicants, the New York City Educational Construction Fund (ECF) and AvalonBay Communities, Inc. (AvalonBay), are seeking a rezoning and other actions to allow the construction of a mixed-use building which would include residential use and a replacement facility for an existing technical school (COOP Tech), as well as a new facility for the relocation of two existing neighborhood public high schools and relocation and enhancement of an existing jointly operated playground on Block 1668, Lot 1, in the East Harlem neighborhood of Manhattan.

Air quality impacts can be either direct or indirect. Direct impacts result from emissions generated by stationary sources at a development site, such as emissions from on-site fuel combustion for heat and hot water systems, or emissions from parking garage ventilation systems. Indirect impacts are caused by off-site emissions associated with a project, such as emissions from nearby existing stationary sources (i.e., impacts on the development site) or by emissions from on-road vehicle trips (“mobile sources”) generated by the proposed project or other changes to future traffic conditions due to the project.

The maximum hourly incremental traffic volumes generated by the proposed project would not exceed the 2014 *City Environmental Quality Review (CEQR) Technical Manual* carbon monoxide (CO) screening threshold of 170 peak-hour vehicle trips at a single intersection in the study area. Project generated volumes would not exceed the particulate matter (PM) emission screening thresholds discussed in Chapter 17, Sections 210 and 311, of the *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from project-generated traffic was not warranted.

The proposed building on the western portion of the project site would potentially include an on-site, below-grade accessory parking garage. Therefore, an analysis was conducted to evaluate potential future pollutant concentrations from the potential parking garage.

Boiler plants would provide space heating and domestic hot water to the proposed buildings. The residential tower, the replacement COOP Tech facility, and the public high school building would each use separate heating and hot water systems with individual exhausts. Therefore, a stationary source analysis was conducted to evaluate potential future pollutant concentrations from the proposed project on both the surrounding neighborhood (project-on-existing) and the proposed project itself (project-on-project).

The heating and hot water system exhaust for the replacement COOP Tech facility would initially be directed to the roof of the new school building. Upon completion of the residential tower, the heating and hot water system exhaust for COOP Tech would be directed to the top of the residential tower roof. Therefore, both potential exhaust locations were evaluated.

The proposed building on the eastern portion of the project site would house two public high schools that would include science laboratories. Therefore, this chapter examines the expected use of potentially hazardous materials in the proposed laboratories, and the procedures and systems that would be employed in the proposed laboratories to ensure the safety of staff and the surrounding community in the event of a chemical spill in one of the proposed laboratories. In addition, emissions associated with COOP Tech's instructional activities were evaluated for their potential air quality impacts on the proposed residential tower on the project site.

The project site is in the vicinity of large sources of emissions. Therefore, potential air quality impacts from these sources on the proposed buildings were evaluated.

## **PRINCIPAL CONCLUSIONS**

As presented in this chapter, the maximum predicted pollutant concentrations and concentration increments from the project's potential accessory parking garage would not result in any significant adverse air quality impacts. Therefore, the proposed project would not have significant adverse impacts from mobile source emissions.

Analysis of the emissions and dispersion of nitrogen dioxide (NO<sub>2</sub>) and particulate matter less than 10 microns in diameter (PM<sub>10</sub>) from the proposed project's heating and hot water systems indicate that these emissions would not result in a violation of National Ambient Air Quality Standards (NAAQS). In addition, the maximum predicted PM<sub>2.5</sub> incremental concentrations from the proposed project would be less than the applicable 24-hour and annual average criteria. To ensure that there are no significant adverse impacts resulting from the proposed project due to heating and hot water system emissions, certain restrictions would be required.

An analysis of the laboratory exhaust system for the proposed public high schools determined there would be no significant impacts in the proposed buildings or on the surrounding community in the event of a chemical spill in a laboratory.

The analysis of the COOP Tech's industrial source emissions demonstrates that there would be no predicted significant adverse air quality impacts on the proposed project.

Based on the analysis of the emission sources from the New York Health & Hospitals Corporation (HHC) Metropolitan Hospital on the proposed project, no significant adverse air quality impacts are predicted to occur.

## **B. POLLUTANTS FOR ANALYSIS**

Ambient air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Ambient concentrations of CO are predominantly influenced by mobile source emissions. PM, volatile organic compounds (VOCs), and nitrogen oxides (NO and NO<sub>2</sub>, collectively referred to as NO<sub>x</sub>) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NO<sub>x</sub>, sulfur oxides (SO<sub>x</sub>), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of SO<sub>2</sub> are associated mainly with stationary sources, and some sources utilizing non-road diesel such as large international marine engines. On-road diesel vehicles currently contribute very little to SO<sub>2</sub> emissions since the sulfur content of on-road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NO<sub>x</sub> and VOCs. Ambient concentrations of CO,

PM, NO<sub>2</sub>, SO<sub>2</sub>, and lead are regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act (CAA), and are referred to as “criteria pollutants;” emissions of VOCs, NO<sub>x</sub>, and other precursors to criteria pollutants are also regulated by EPA.

### **CARBON MONOXIDE**

CO, a colorless and odorless gas, is produced in the urban environment primarily by the incomplete combustion of gasoline and other fossil fuels. In urban areas, approximately 80 to 90 percent of CO emissions are from motor vehicles. CO concentrations can diminish rapidly over relatively short distances; elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. Consequently, CO concentrations must be predicted on a local, or microscale, basis.

The proposed actions would not result in an increase in vehicle trips higher than the 2014 *CEQR Technical Manual* screening threshold of 170 trips at any intersection. Therefore, a mobile source analysis to evaluate future CO concentrations was not warranted. However, an assessment of CO impacts from the proposed project’s potential parking garage was conducted.

### **NITROGEN OXIDES, VOCS, AND OZONE**

NO<sub>x</sub> are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow, and occur as the pollutants are advected downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. Therefore, the effects of NO<sub>x</sub> and VOC emissions from all sources are generally examined on a regional basis. The contribution of any action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions.

In addition to being a precursor to the formation of ozone, NO<sub>2</sub> (one component of NO<sub>x</sub>) is also a regulated pollutant. Since NO<sub>2</sub> is mostly formed from the transformation of NO in the atmosphere, it has mostly been of concern further downwind from large stationary point sources, and is not a local concern from mobile sources. (NO<sub>x</sub> emissions from fuel combustion are typically greater than 90 percent NO with the remaining fraction primarily NO<sub>2</sub> at the source.<sup>1</sup>) However, with the promulgation of the 2010 1-hour average standard for NO<sub>2</sub>, local sources such as mobile sources have become of greater concern for this pollutant. The proposed project would include natural gas-fired heating and hot water systems; therefore, emissions of NO<sub>2</sub> from the proposed project’s stationary sources were analyzed.

### **LEAD**

Airborne lead emissions are currently associated principally with industrial sources. Lead in gasoline has been banned under the CAA, and therefore, lead is not a pollutant of concern for the proposed actions; therefore, an analysis of this pollutant from stationary or mobile sources is not warranted.

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<sup>1</sup> EPA Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: *Stationary Point and Area Sources*, Section 1.3, Table 1.3-1.

## RESPIRABLE PARTICULATE MATTER—PM<sub>10</sub> AND PM<sub>2.5</sub>

PM is a broad class of air pollutants that includes discrete particles of a wide range of sizes and chemical compositions, as either liquid droplets (aerosols) or solids suspended in the atmosphere. The constituents of PM are both numerous and varied, and they are emitted from a wide variety of sources (both natural and anthropogenic). Natural sources include the condensed and reacted forms of naturally occurring VOCs; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, bacteria, and material from live and decaying plant and animal life; particles eroded from beaches, soil, and rock; and particles emitted from volcanic and geothermal eruptions, and forest fires. Naturally occurring PM is generally greater than 2.5 micrometers in diameter. Major anthropogenic sources include the combustion of fossil fuels (e.g., vehicular exhaust, power generation, boilers, engines, and home heating), chemical and manufacturing processes, construction and agricultural activities, and wood-burning stoves and fireplaces. PM also acts as a substrate for the adsorption (accumulation of gases, liquids, or solutes on the surface of a solid or liquid) of other pollutants, often toxic, and some likely carcinogenic compounds.

As described below, PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers, or PM<sub>2.5</sub>, and particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM<sub>10</sub>, which includes PM<sub>2.5</sub>). PM<sub>2.5</sub> has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles, and is also extremely persistent in the atmosphere. PM<sub>2.5</sub> is directly emitted from combustion material that has volatilized and then condensed to form primary PM (often soon after the release from a source exhaust) or from precursor gases reacting in the atmosphere to form secondary PM.

Diesel-powered vehicles, especially heavy-duty trucks and buses, are a significant source of respirable PM, most of which is PM<sub>2.5</sub>; PM concentrations may, consequently, be locally elevated near roadways with high volumes of heavy diesel-powered vehicles. The proposed project would not result in any significant increases in truck traffic near the development site or in the region or other potentially significant increase in PM<sub>2.5</sub> vehicle emissions as defined in Chapter 17, Sections 210 and 311, of the *2014-CEQR Technical Manual*. Therefore, an analysis of potential mobile source impacts of PM from the proposed actions was not warranted. However, an analysis of PM<sub>2.5</sub> from the proposed project's potential parking garage was conducted.

The proposed project would include natural gas-fired heating and hot water systems; therefore, emissions of PM from the proposed project's stationary sources were analyzed.

## SULFUR DIOXIDE

SO<sub>2</sub> emissions are primarily associated with the combustion of sulfur-containing fuels (oil and coal). SO<sub>2</sub> is also of concern as a precursor to PM<sub>2.5</sub> and is regulated as a PM<sub>2.5</sub> precursor under the New Source Review permitting program for large sources. Due to the federal restrictions on the sulfur content in diesel fuel for on-road vehicles, no significant quantities are emitted from vehicular sources. Vehicular sources of SO<sub>2</sub> are not significant, and, therefore, an analysis of SO<sub>2</sub> from mobile sources is not warranted.

Natural gas would be used in the proposed project's heating and hot water systems. The sulfur content of natural gas is negligible; therefore, no SO<sub>2</sub> analysis was required.

## AIR TOXICS

In addition to the criteria pollutants discussed above, non-criteria air pollutants, also called air toxics, may be of concern. Air toxics are those pollutants that are known or suspected to cause serious health effects in small doses. Air toxics are emitted by a wide range of man-made and naturally occurring sources. Emissions of air toxics from industries are regulated by EPA.

Federal ambient air quality standards do not exist for noncriteria pollutants; however, the New York State Department of Environmental Conservation (DEC) has issued standards for certain noncriteria compounds, including beryllium, gaseous fluorides, and hydrogen sulfide. DEC has also developed guideline concentrations for numerous noncriteria pollutants. The DEC guidance document DAR-1 (July 2016) contains a compilation of annual and short term (1-hour) guideline concentrations for these compounds. The DEC guidance thresholds represent ambient levels that are considered safe for public exposure. EPA has also developed guidelines for assessing exposure to noncriteria pollutants. These exposure guidelines are used in health risk assessments to determine the potential effects to the public.

As the project site is located within 400 feet of a manufacturing zoned district, an analysis was performed to examine the potential for impacts from industrial emissions on the proposed project.

## C. AIR QUALITY STANDARDS, REGULATIONS AND BENCHMARKS

### NATIONAL AND STATE AIR QUALITY STANDARDS

As required by the CAA, primary and secondary NAAQS have been established for six major air pollutants: CO, NO<sub>2</sub>, ozone, respirable PM (both PM<sub>2.5</sub> and PM<sub>10</sub>), SO<sub>2</sub>, and lead. The primary standards represent levels that are requisite to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary and secondary standards are the same for NO<sub>2</sub> (annual), ozone, lead, and PM, and there is no secondary standard for CO and the 1-hour NO<sub>2</sub> standard. The NAAQS are presented in **Table 12-1**. The NAAQS for CO, annual NO<sub>2</sub>, and SO<sub>2</sub> have also been adopted as the ambient air quality standards for New York State, but are defined on a running 12-month basis rather than for calendar years only. New York State also has standards for total suspended PM, settleable particles, non-methane hydrocarbons, and ozone that correspond to federal standards that have since been revoked or replaced, and for beryllium, fluoride, and hydrogen sulfide.

EPA recently lowered the primary annual average PM<sub>2.5</sub> standard from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup>, effective March 2013.

The current 8-hour ozone standard of 0.075 parts per million (ppm) is effective as of May 2008, and the previous 1997 ozone standard was fully revoked effective April 1, 2015. Effective December 2015, EPA further reduced the 2008 ozone NAAQS, lowering the primary and secondary NAAQS from the current 0.075 ppm to 0.070 ppm. EPA expects to issue final area designations by October 1, 2017; those designations likely would be based on 2014-2016 air quality data.

EPA lowered the primary and secondary standards for lead to  $0.15 \mu\text{g}/\text{m}^3$ , effective January 12, 2009. EPA revised the averaging time to a rolling 3-month average and the form of the standard to not-to-exceed across a 3-year span.

EPA established a new 1-hour average  $\text{NO}_2$  standard of 0.100 ppm, effective April 10, 2010, in addition to the current annual standard. The statistical form is the 3-year average of the 98th percentile of daily maximum 1-hour average concentration in a year.

EPA also established a 1-hour average  $\text{SO}_2$  standard of 0.075 ppm, replacing the 24-hour and annual primary standards, effective August 23, 2010. The statistical form is the 3-year average of the 99th percentile of the annual distribution of the daily maximum 1-hour average concentration (the 4th highest daily maximum corresponds approximately to 99th percentile for a year.)~~In January 2017, New York State recommended that EPA designate the entire State of New York, with the exception of Seneca, St. Lawrence and Tompkins Counties, as in attainment for this standard; the remaining counties will be designated upon the completion of required monitoring by December 31, 2020.~~

Federal ambient air quality standards do not exist for noncriteria pollutants; however, as mentioned above, DEC has issued standards for three noncriteria compounds. As described above, DEC has also developed a guidance document DAR-1, which contains a compilation of annual and short term (1-hour) guideline concentrations for numerous other noncriteria compounds. The DEC guidance thresholds represent ambient levels that are considered safe for public exposure.

#### **NAAQS ATTAINMENT STATUS AND STATE IMPLEMENTATION PLANS**

The CAA, as amended in 1990, defines non-attainment areas (NAA) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by EPA, the state is required to develop and implement a State Implementation Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA, followed by a plan for maintaining attainment status once the area is in attainment.

In 2002, EPA re-designated New York City as in attainment for CO. Under the resulting maintenance plans, New York City is committed to implementing site-specific control measures throughout the city to reduce CO levels, should unanticipated localized growth result in elevated CO levels during the maintenance period. The second CO maintenance plan for the region was approved by EPA on May 30, 2014.

Manhattan, which had been designated as a moderate NAA for  $\text{PM}_{10}$ , was reclassified by EPA as in attainment on July 29, 2015.

The five New York City counties and Nassau, Suffolk, Rockland, Westchester, and Orange Counties, which had been designated as a  $\text{PM}_{2.5}$  NAA (New York Portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT NAA), ~~was~~were re-designated as in attainment for the standard on April 18, 2014, and ~~is~~are now under a maintenance plan. As stated above, EPA lowered the annual average primary standard to  $12 \mu\text{g}/\text{m}^3$ , effective March 2013. EPA designated the area as in attainment for the new  $12 \mu\text{g}/\text{m}^3$  NAAQS, effective April 15, 2015.

**Table 12-1  
National Ambient Air Quality Standards (NAAQS)**

Pollutant	Primary		Secondary	
	ppm	µg/m <sup>3</sup>	ppm	µg/m <sup>3</sup>
<b>Carbon Monoxide (CO)</b>				
8-Hour Average	9 <sup>1</sup>	10,000	None	
1-Hour Average	35 <sup>1</sup>	40,000		
<b>Lead</b>				
Rolling 3-Month Average <sup>2</sup>	NA	0.15	NA	0.15
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>				
1-Hour Average <sup>3</sup>	0.100	188	None	
Annual Average	0.053	100	0.053	100
<b>Ozone (O<sub>3</sub>)</b>				
8-Hour Average <sup>4,5</sup>	0.070	140	0.070	140
<b>Respirable Particulate Matter (PM<sub>10</sub>)</b>				
24-Hour Average <sup>1</sup>	NA	150	NA	150
<b>Fine Respirable Particulate Matter (PM<sub>2.5</sub>)</b>				
Annual Mean <sup>6</sup>	NA	12	NA	15
24-Hour Average <sup>7</sup>	NA	35	NA	35
<b>Sulfur Dioxide (SO<sub>2</sub>)<sup>8</sup></b>				
1-Hour Average <sup>9</sup>	0.075	196	NA	NA
Maximum 3-Hour Average <sup>1</sup>	NA	NA	0.50	1,300
<b>Notes:</b> ppm – parts per million (unit of measure for gases only) µg/m <sup>3</sup> – micrograms per cubic meter (unit of measure for gases and particles, including lead) NA – not applicable All annual periods refer to calendar year. Standards are defined in ppm. Approximately equivalent concentrations in µg/m <sup>3</sup> are presented.				
<sup>1</sup> Not to be exceeded more than once a year. <sup>2</sup> EPA has lowered the NAAQS down from 1.5 µg/m <sup>3</sup> , effective January 12, 2009. <sup>3</sup> 3-year average of the annual 98th percentile daily maximum 1-hr average concentration. Effective April 12, 2010. <sup>4</sup> 3-year average of the annual fourth highest daily maximum 8-hr average concentration. <sup>5</sup> EPA has lowered the NAAQS down from 0.075 ppm, effective December 2015. <sup>6</sup> 3-year average of annual mean. EPA has lowered the primary standard from 15 µg/m <sup>3</sup> , effective March 2013. <sup>7</sup> Not to be exceeded by the annual 98th percentile when averaged over 3 years. <sup>8</sup> EPA revoked the 24-hour and annual primary standards, replacing them with a 1-hour average standard. Effective August 23, 2010. <sup>9</sup> 3-year average of the annual 99th percentile daily maximum 1-hr average concentration.				
<b>Source:</b> 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards.				

Effective June 15, 2004, EPA designated Nassau, Rockland, Suffolk, Westchester, and the five New York City counties as in moderate nonattainment for the 1997 8-hour average ozone standard. In March 2008 EPA strengthened the 8-hour ozone standards. EPA designated these same areas as a marginal NAA for the 2008 ozone NAAQS, effective July 20, 2012. On April 11, 2016, as requested by New York State, EPA reclassified the area as a moderate NAA. New York State ~~has begun~~ has begun submitting SIP documents in December 2014. The state is expected to be able to meet its SIP obligations for both the 1997 and 2008 standards by satisfying the requirements for a moderate attainment plan for the 2008 ozone NAAQS.

New York City is currently in attainment of the annual average NO<sub>2</sub> standard. EPA has designated the entire state of New York as “unclassifiable/attainment” for the new 1-hour NO<sub>2</sub> standard effective February 29, 2012. Since additional monitoring is required for the 1-hour standard, areas will be reclassified once three years of monitoring data are available (2016 or 2017).

EPA has established a new 1-hour SO<sub>2</sub> standard, replacing the former 24-hour and annual standards, effective August 23, 2010. Based on the available monitoring data, all New York State counties currently meet the 1-hour standard. ~~Additional monitoring will be required. In January 2017, New York State recommended that EPA designate most of State of New York, including New York City, as in attainment for this standard; the remaining areas will be designated upon the completion of required monitoring by December 31, 2020. Additional monitoring will be required. Draft attainment designations were published by EPA in February 2013, indicating that EPA is deferring action to designate areas in New York State and expects to proceed with designations once additional monitoring data are gathered.~~

## **DETERMINING THE SIGNIFICANCE OF AIR QUALITY IMPACTS**

The State Environmental Quality Review Act (SEQRA) regulations and the *CEQR Technical Manual* state that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large, or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.<sup>2</sup> In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS (see **Table 12-1**) would be deemed to have a potential significant adverse impact. In addition, in order to maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in non-attainment areas, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

### *CO DE MINIMIS CRITERIA*

New York City has developed *de minimis* criteria to assess the significance of the increase in CO concentrations that would result from the impact of proposed projects or actions on mobile sources, as set forth in the *CEQR Technical Manual*. These criteria set the minimum change in CO concentration that defines a significant environmental impact. Significant increases of CO concentrations in New York City are defined as: (1) an increase of 0.5 ppm or more in the maximum 8-hour average CO concentration at a location where the predicted No Action 8-hour concentration is equal to or between 8 and 9 ppm; or (2) an increase of more than half the difference between baseline (i.e., No Action) concentrations and the 8-hour standard, when No Action concentrations are below 8.0 ppm.

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<sup>2</sup> New York City. *CEQR Technical Manual*. Chapter 1, section 222. March 2014; and New York State Environmental Quality Review Regulations, 6 NYCRR § 617.7

### *PM<sub>2.5</sub> DE MINIMIS CRITERIA*

For projects subject to CEQR, the *de minimis* criteria currently employed for determination of potential significant adverse PM<sub>2.5</sub> impacts are as follows:

- Predicted increase of more than half the difference between the background concentration and the 24-hour standard; or
- Annual average PM<sub>2.5</sub> concentration increments that are predicted to be greater than 0.1 µg/m<sup>3</sup> at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or
- Annual average PM<sub>2.5</sub> concentration increments that are predicted to be greater than 0.3 µg/m<sup>3</sup> at a discrete or ground-level receptor location.

Actions under CEQR predicted to increase PM<sub>2.5</sub> concentrations by more than the CEQR *de minimis* criteria above will be considered to have a potential significant adverse impact.

The above *de minimis* criteria have been used to evaluate the significance of predicted impacts on PM<sub>2.5</sub> concentrations and determine the need to minimize particulate matter emissions resulting from the proposed actions.

## **D. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS**

### **MOBILE SOURCES**

The proposed project would potentially include an accessory parking facility with up to 120 spaces. Emissions from vehicles using the parking facility could potentially affect ambient levels of pollutants at adjacent receptors. Since the parking facility would be used by automobiles, the primary pollutants of concern are CO and PM (both PM<sub>2.5</sub> and PM<sub>10</sub>). An analysis was performed using the methodology delineated in the *CEQR Technical Manual* to calculate pollutant levels.

An analysis of the emissions from the outlet vents and their dispersion in the environment was performed, calculating pollutant levels in the surrounding area, using the methodology set forth in the *CEQR Technical Manual*. Emissions from vehicles entering, parking, and exiting the garages were estimated using the EPA Motor Vehicle Emission Simulator (MOVES) mobile source emission model as referenced in the *CEQR Technical Manual*. For all arriving and departing vehicles, an average speed of 5 miles per hour was conservatively assumed for travel within the parking garages. In addition, all departing vehicles were assumed to idle for one minute before proceeding to the exit. The concentration of CO and PM within the garages was calculated assuming a minimum ventilation rate, based on New York City Building Code requirements, of 1 cubic foot per minute of fresh air per gross square foot of garage area. To determine compliance with the NAAQS, CO concentrations were determined for the maximum 8-hour average period.

To determine pollutant concentrations, the outlet vents were analyzed as a “virtual point source” using the methodology in EPA’s *Workbook of Atmospheric Dispersion Estimates, AP-26*. This methodology estimates CO and PM concentrations at various distances from an outlet vent by

assuming that the concentration in the garage is equal to the concentration leaving the vent, and determining the appropriate initial horizontal and vertical dispersion coefficients at the vent faces.

The CO concentrations were determined for the time periods when overall garage usage would be the greatest, considering the hours when the greatest number of vehicles would enter and exit the facility (PM concentrations were determined on a 24-hour and annual average basis). Traffic data for the parking garage analysis were derived from the trip generation analysis, described in Chapter 11, "Transportation."

The potential parking garage would be located below-grade, with entrance/egress from East 96th Street between First Avenue and Second Avenue. Since design information regarding the garage's mechanical ventilation system is not yet available, the worst-case assumption was used that the air from the potential parking garage would be vented through a single outlet. Second Avenue was assumed for the vent location since background traffic volumes are higher than East 96th Street, and therefore, has a higher potential for total pollutant concentrations. The vent face was modeled to directly discharge at a height of approximately 10 feet above grade, and "near" and "far" receptors were placed along the sidewalks at a pedestrian height of 6 feet at a distance of approximately five feet and 81 feet, respectively, from the vent. In addition, receptors were placed on the building façade at a height of six feet above the vent. A persistence factor of 0.70, was used to convert the calculated 1-hour average maximum CO concentrations to an 8-hour average, accounting for meteorological variability over the longer averaging periods, as referenced in the *CEQR Technical Manual*, while persistence factors of 0.6, and 0.1 were used for the PM<sub>2.5</sub> 24-hour and annual average concentrations, respectively.<sup>3</sup>

Background and on-street concentrations were added to the modeling results to obtain the total ambient levels of CO and PM<sub>10</sub>.

#### VEHICLE EMISSIONS

Vehicular CO and PM engine emission factors were computed using the EPA mobile source emissions model, MOVES2014a.<sup>4</sup> This emissions model is capable of calculating engine emission factors for various vehicle types, based on the fuel type (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway type and grade, number of starts per day, engine soak time, and various other factors that influence emissions, such as inspection maintenance programs. The inputs and use of MOVES incorporate the most current guidance available from DEC.

Vehicle classification data were based on field studies. Appropriate credits were used to accurately reflect the inspection and maintenance program. The inspection and maintenance programs require inspections of automobiles and light trucks to determine if pollutant emissions from each vehicle exhaust system are lower than emission standards. Vehicles failing the emissions test must undergo maintenance and pass a repeat test to be registered in New York State.

County-specific hourly temperature and relative humidity data obtained from DEC were used.

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<sup>3</sup> EPA, AERSCREEN User Guide, ~~July 2015~~December 2015~~2016~~.

<sup>4</sup> EPA, Motor Vehicle Emission Simulator (MOVES), User Guide for MOVES2014a, November 2015.

*BACKGROUND CONCENTRATIONS*

Background concentrations are those pollutant concentrations originating from distant sources that are not directly included in the modeling analysis, which directly accounts for vehicular emissions on the streets within 1,000 feet and in the line of sight of the analysis site. Background concentrations must be added to modeling results to obtain total pollutant concentrations at an analysis site.

The background concentrations for the nearest monitored location are presented in **Table 12-2**. CO concentrations are based on the latest available five years of monitored data (2011–2015). Consistent with the NAAQS, the second-highest value is used. These values were used as the background concentrations for the mobile source analysis.

**Table 12-2**  
**Maximum Background Pollutant Concentrations  
for Mobile Source Sites**

Pollutant	Average Period	Location	Concentration	NAAQS
CO	1-hour	CCNY, Manhattan	2.7 ppm	35 ppm
	8-hour		1.8 ppm	9 ppm
PM <sub>10</sub>	24-hour	Division Street, Manhattan	44 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
<b>Note:</b> Values are the highest of the latest 5 years.				
<b>Source:</b> New York State Air Quality Report Ambient Air Monitoring System, DEC, 2011–2015.				

**STATIONARY SOURCES**

*HEATING AND HOT WATER SYSTEMS*

A stationary source analysis was conducted to evaluate potential impacts from heating and hot water systems associated with the proposed residential and school buildings. Based on design information, each building would have a separate boiler installation that would generate hot water for building heating and domestic hot water, and would utilize natural gas exclusively. It was assumed that the exhaust stack would be located on the tallest portion of the roof of the building. However, for the COOP Tech school, it was assumed that following completion of the adjacent residential development, the boiler exhaust would be vented to an exhaust stack located on the roof of the residential development.

Stack exhaust parameters and emission estimates for the proposed heating and hot water systems were conservatively estimated based on a conceptual level of design. Maximum boiler emissions were determined based on the estimated equipment sizing, with conservative assumptions on seasonal utilization.

Annual boiler fuel usage was obtained from conceptual design estimates, or based on the size (in gross square feet [sf]) and type of development when design estimates were not yet available. Emissions rates for the boilers were calculated based on emissions factors obtained from the EPA *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources*. PM<sub>10</sub> and PM<sub>2.5</sub> emissions include both the filterable and condensable fractions. **Table 12-3** presents the stack parameters and emission rates used in the heating and hot water system analysis.

**Table 12-3  
Boiler Stack Parameters and Emission Rates**

Parameter	Proposed Buildings			
	Residential Tower	COOP Tech	Public High Schools	
Building Size (gsf) <sup>(5)</sup>	1,104,000	135,000	135,000	
Building Height (ft)	760/710	185	185	
Boiler Capacity (MMBtu/hr) <sup>(2)</sup>	34.9	12.0	3.37	
Stack Exhaust Temp. (°F) <sup>(6)</sup>	180	180	180	
Stack Exhaust Height (ft)	763/713	188 / 763 <sup>(3)</sup>	188	
Height Above Roof (ft)	3	3	3	
Stack Exhaust Diameter (ft) <sup>(7)</sup>	3 <sup>(4)</sup>	2	1	
Stack Exhaust Flow (ACFM) <sup>(1)(8)</sup>	7,335 <sup>(4)</sup>	2,466	587	
Stack Exhaust Velocity (ft/s) <sup>(8)</sup>	17.3 <sup>(4)</sup>	1.2	12.5	
Fuel Type	Natural Gas	Natural Gas	Natural Gas	
<b>Short-term Emission Rates:</b>				
g/s <sup>(3)</sup>	NO <sub>x</sub>	1.63x10 <sup>-1 (4)</sup>	5.49x10 <sup>-2</sup>	1.31x10 <sup>-2</sup>
	PM <sub>10</sub>	3.35x10 <sup>-2 (4)</sup>	6.57x10 <sup>-3</sup>	2.68x10 <sup>-3</sup>
	PM <sub>25</sub>	3.35x10 <sup>-2 (4)</sup>	6.57x10 <sup>-3</sup>	2.68x10 <sup>-3</sup>
<b>Annual Emission Rates:</b>				
g/s <sup>(4)</sup>	NO <sub>x</sub>	1.41x10 <sup>-2 (4)</sup>	1.50x10 <sup>-2</sup>	4.25x10 <sup>-3</sup>
	PM <sub>25</sub>	2.89x10 <sup>-3 (4)</sup>	3.09x10 <sup>-3</sup>	8.72x10 <sup>-4</sup>
<b>Notes:</b>				
(1) ACFM = actual cubic feet per minute.				
(2) British Thermal Units, or BTUs, are a measure of energy used to compare consumption of energy from different sources, such as gasoline, electricity, etc., taking into consideration how efficiently those sources are converted to energy. One BTU is the quantity of heat required to raise the temperature of one pound of water by one Fahrenheit degree.				
(3) The COOP Tech boiler plant would initially exhaust from the roof of the COOP Tech building during the construction of the residential tower. Upon completion of the residential tower, the exhaust would be directed to top of the residential tower. Unless otherwise noted modeling parameters represent a co-located stack of both the residential tower and COOP Tech boiler plants.				
(4) Data is representative of only the residential tower. Emissions from the COOP Tech and the residential tower were modeled cumulatively as a single co-located stack with an effective diameter of 3.6 feet and combined stack exhaust flowrate.				
<b>Reference:</b>				
(5) The square footage for each building was estimated based on the breakdown provided in the ULURP application on the zoning square footage for each of the buildings, and the total gross square footage for each of the project components.				
(6) Emission factors are based on EPA AP-42 data, while stack parameters are based on conceptual design data.				
(7) The stack diameter is based on data obtained from a survey of New York City boilers from buildings of a similar size.				
(8) The stack exhaust flow rate is estimated based on the type of fuel and heat input rates.				

*AERSCREEN Analysis*

Potential NO<sub>2</sub> (1-hour and annual average), PM<sub>10</sub> (24-hour), and PM<sub>2.5</sub> (24-hour and annual) impacts from the proposed heat and hot water systems' emissions were evaluated using the EPA's AERSCREEN model (Version ~~15181-16216~~ EPA, ~~2015~~2016). The AERSCREEN model predicts worst-case one-hour impacts downwind from a point, area, or volume source. AERSCREEN generates application-specific worst-case meteorology using representative minimum and maximum ambient air temperatures, and site-specific surface characteristics such as albedo, Bowen ratio, and surface roughness length.<sup>5</sup> The AERSCREEN model was used to calculate worst-case ambient concentrations of criteria pollutants from the proposed buildings downwind of the stack.

<sup>5</sup> The albedo is the fraction of the total incident solar radiation reflected by the ground surface. The Bowen ratio is the ratio of the sensible heat flux to the latent (evaporative) heat flux. The surface roughness length is related to the height of obstacles to the wind flow and represents the height at which the mean horizontal wind speed is zero based on a logarithmic profile.

The AERSCREEN model was run both with and without the influence of building downwash, using urban diffusion coefficients that were based on a review of land-use maps of the area. Other model options were selected based on EPA guidance.

*Methodology Utilized for Estimating NO<sub>2</sub> Concentrations*

Annual and 1-hour NO<sub>2</sub> concentrations from heating and hot water system emissions were estimated using a NO<sub>2</sub> to NO<sub>x</sub> ratio of 0.75 and 0.8, respectively, as described in EPA’s *Guideline on Air Quality Models* at 40 CFR part 51 Appendix W, Section 5.2.4.<sup>6</sup>

*Receptor Placement*

Receptors are generally placed at windows in residential or other sensitive buildings, air intakes, and publicly accessible open space locations, as applicable. The minimum distance between sources and the nearest building of similar or greater height was conservatively used in the analysis, per *CEQR Technical Manual* guidance; receptors representing the nearer buildings at lower heights at various distances were also included. In addition, ground level receptors were modeled to determine the maximum concentration at the relocated open space on the project site, as well as any nearby sidewalk or other publicly accessible locations.

*Background Concentrations*

To estimate the maximum expected total pollutant concentrations, the calculated impacts from the emission sources must be added to a background value that accounts for existing pollutant concentrations from other sources (see **Table 12-4**). The background levels are based on concentrations monitored at the nearest DEC ambient air monitoring stations over the most recent five-year period for which data are available (2011-2015), with the exception of PM<sub>10</sub>, which is based on three years of data, consistent with current New York City Department of Environmental Preservation (DEP) guidance (2013-2015). For the 24-hour PM<sub>10</sub> concentration the highest second-highest measured values over the specified period were used.

**Table 12-4  
Maximum Background Pollutant Concentrations**

Pollutant	Average Period	Location	Concentration (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )
NO <sub>2</sub>	1-hour	IS 52, Bronx	120.9	188
	Annual	IS 52, Bronx	39.2	100
PM <sub>2.5</sub>	24-hour	JHS 45, Manhattan	23.7	196
PM <sub>10</sub>	24-hour	Division Street, Manhattan	44	150

**Source:** New York State Air Quality Report Ambient Air Monitoring System, DEC, 2011-2015.

**CHEMICAL SPILL ANALYSIS**

Emissions from the proposed public high school building’s fume hood exhaust system were evaluated, in the event of an accidental chemical spill in one of the laboratories. Impacts were evaluated using information, procedures, and methodologies described in the *CEQR Technical Manual*. Maximum concentrations were compared to the short-term exposure levels (STELs) or

<sup>6</sup> [http://www.epa.gov/scram001/guidance/guide/appw\\_05.pdf](http://www.epa.gov/scram001/guidance/guide/appw_05.pdf).

to the ceiling levels recommended by the U.S. Occupational Safety and Health Administration (OSHA) for each chemical examined.

The following section details the expected usage of potentially hazardous chemicals, as well as the ventilation system that would be employed at the public high schools to ensure the safety of the students and staff and the surrounding community in the event of an accidental laboratory chemical spill in the science laboratories. Two quantitative analyses employing mathematical modeling were prepared to determine potential impacts (1) at operable windows and air intakes in nearby buildings and at nearby places of public access; and (2) at the school itself due to recirculation into air intake systems, windows, and open air terraces.

#### *Laboratory Fume Hood Exhausts*

All laboratories in which hazardous chemicals are used would be equipped with fume hoods. Fume hoods are workstation enclosures that are maintained under negative pressure and continuously vented to the outside when work is taking place. Their function is to protect teachers, staff, and students from potentially harmful fumes. By providing an exhaust from laboratory rooms, they also prevent any fumes released within the laboratory from escaping into other areas of the building, or through windows to the outside.

Since design information is not yet available on the fume hood exhaust system, a set of conservative assumptions was used. While the fume hood exhausts would likely be combined and vented to the building roof through a single stack, the worst-case analysis assumed a single fume hood vented separately to the roof. The fume hood exhaust stack height was assumed to be 10 feet above the building roof. An exhaust fan sufficient to maintain a minimum exit velocity of 1,500 feet per minute through a 12-inch stack discharge was also assumed.

#### *Chemicals for Analysis*

An inventory of the types and quantities of typical chemicals that are likely to be used in a public school laboratory was used for the analysis. From the chemical inventory, 14 chemicals were selected for further examination, based on their toxicity and potential for air quality impacts. Common buffers, salts, enzymes, nucleotides, peptides, and other bio-chemicals were not considered in the analysis since they are not typically categorized as air pollutants. Nonvolatile chemicals (i.e., with a vapor pressure of less than 10 mm Hg) were excluded as well since they would largely not be released in a spill.

The hazardous chemicals selected are presented in **Table 12-5**. The vapor pressure shown for each chemical is a measure of its volatility (tendency to evaporate) or to form vapors, which is a critical parameter in determining potential airborne impacts from chemical spills. Exposure standards are safety- and health-based standards indicative of the chemical's toxicity—substances with higher toxicity have lower exposure standards. These include OSHA's permissible exposure limit (PEL), National Institute for Occupational Safety and Health (NIOSH) and/or OSHA's STEL, ceiling, and immediately dangerous to life or health (IDLH) values.

**Table 12-5**

**Expected Hazardous Materials in the Proposed School Laboratories**

Chemical [CAS #]	Vapor Pressure mm Hg	PEL PPM	STEL PPM	IDLH PPM	Ceiling PPM
Acetone [67-64-1]	180	1,000	-	2,500	250
Allyl Alcohol [107-18-6]	17	2	4	20	2
Benzene [71-43-2]	75	1	1	500	-
Cyclohexene [110-83-8]	67	300	-	2,000	300
Ether [60-29-7]	442	400	-	1,900	-
Ethyl Acetate [141-78-6]	76	400	-	1,900	-
Ethyl Alcohol [64-17-5]	44	1,000	-	3,300	1,000
Isopropyl Alcohol [67-63-0]	33	400	500	2,000	400
Methyl Alcohol [67-56-1]	96	200	250	6,000	200
Nitric Acid [7697-37-2]	48	2	4	25	2
n-Butyl Acetate [123-86-4]	10	150	200	1,700	150
Petroleum distillates (Naphtha) [80002-05-9]	40	500	-	1,100	1,800
t-Butyl Alcohol [76-65-0]	31	100	-	1,600	100
Toluene [108-88-3]	21	100	150	500	100

**Notes:**  
 PEL: Permissible Exposure Limit, Time Weighted Average (TWA) for up to a 10-hour workday during a 40-hour workweek.  
 STEL: Short-Term Exposure Limit, a 15-minute TWA exposure that should not be exceeded at any time during a workday.  
 IDLH: Immediately Dangerous to Life or Health.  
 Ceiling: Level set by NIOSH or OSHA not to be exceeded in any working exposure.  
 PPM: parts per million.  
 Where a hyphen (-) appears there is no recommended corresponding guideline value.

#### *Estimates of Worst-Case Emission Rates*

The dispersion of hazardous chemicals from a chemical spill within one of the proposed school laboratories was analyzed to assess the potential for exposure of the general public, and of students and staff within the school to hazardous vapors in the event of an accident. Evaporation rates for volatile hazardous chemicals expected to be used in the proposed laboratory were estimated using the model developed by the Shell Development Company.<sup>7</sup> The Shell model, which was developed specifically to assess air quality impacts from chemical spills, calculates evaporation rates based on physical properties of the compound, temperature, and rate of air flow over the spill surface. Room temperature conditions of 20°C and an air-flow rate of 0.5 meters per second were assumed for calculating evaporation rates.

Based on relative STELs and the vapor pressures of the chemicals listed in **Table 12-5**, the most potentially hazardous chemicals, shown in **Table 12-6**, were selected for the “worst-case” spill analysis. Besides the relative toxicities, other factors such as molecular weight, container size, and frequency of use were also considered. Chemicals with high vapor pressures evaporate most rapidly. The chemicals selected also have the lowest STEL. Since the chemicals selected for detailed analysis are most likely to have a relatively higher emission rate and the lowest exposure standards, if the analysis of these chemicals results in no significant adverse air quality

<sup>7</sup> Fleischer, M.T. *An Evaporation/Air Dispersion Model for Chemical Spills on Land*. Shell Development Company. December 1980.

impacts, it would indicate that the other chemicals listed in **Table 12-5** would also not present any significant potential impacts.

The analysis conservatively assumes that a chemical spill in a fume hood would extend to an area of 12 square feet (approximately 1.11 square meters). The emission rates were determined using the evaporation rates and assuming this maximum spill area. For modeling purposes, the emission rates shown in **Table 12-6** are assumed to continue for a 15-minute time period after which the spill would be contained. The vapor from the spill would be drawn into the fume hood exhaust system and released into the atmosphere via the roof exhaust fans. The high volume of air drawn through this system provides a high degree of dilution for hazardous fumes before they are released above the roof. The exhaust height of the fan would be at an elevation of 10 feet above the building roof.

**Table 12-6**  
**Chemicals Selected for Worst-Case Spill Analysis**

Chemical	Quantity (liters)	Evaporation Rate (gram/meter <sup>2</sup> /sec)	Emission Rate* (gram/sec)
Allyl Alcohol	0.104	0.07	0.08
Benzene	0.404	0.36	0.41
Nitric Acid	0.202	0.27	0.30
<b>Note:</b> * Average emission rate.			

*Dispersion Modeling—Recirculation in the Laboratory Building Intakes*

The potential for recirculation of the fume hood emissions back into the proposed laboratory building air intakes was assessed using the Wilson method.<sup>8</sup> This empirical procedure, which has been verified by both wind-tunnel and full-scale testing, is a refinement of the 1981 *ASHRAE Handbook* procedure, and takes into account such factors as plume momentum, stack-tip downwash, and cavity recirculation effects. The procedure determines the worst-case, absolute minimum dilution between exhaust vent and air intake. Three separate effects determine the eventual dilution: internal system dilution, obtained by combining exhaust streams (i.e., mixing in plenum chambers of multiple exhaust streams, and introducing fresh air supplied from roof intakes); wind dilution, dependent on the distance from vent to intake and the exit velocity; and dilution from the stack, caused by stack height and plume rise from vertical exhaust velocity. The critical wind speed for worst-case dilution is dependent on the exit velocity, the distance from vent to intake, and the cross-sectional area of the exhaust stack.

*Dispersion Modeling—Dispersion in the Surrounding Area*

Maximum concentrations at elevated receptors downwind of the fume exhausts were estimated using the EPA AERMOD dispersion model. AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain and includes updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and handling of terrain interactions.

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<sup>8</sup> D.J. Wilson. *A Design Procedure for Estimating Air Intake Contamination from Nearby Exhaust Vents*, ASHRAE TRAS 89, Part 2A, pp. 136-152, 1983.

The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, and has the capability of calculating pollutant concentrations at locations when the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. The analyses of potential impacts from exhaust stacks were made assuming stack tip downwash, urban dispersion and surface roughness length (with and without building downwash), and elimination of calms.

The AERMOD model also incorporates the algorithms from the PRIME model, which is designed to predict impacts in the “cavity region” (i.e., the area around a structure which, under certain conditions, may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). The Building Profile Input Program (BPIP) program for the PRIME model (BPIPRM) was used to determine the projected building dimensions modeling with the building downwash algorithm enabled. The modeling of downwash from sources accounts for all obstructions within a radius equal to five obstruction heights of the stack.

The analysis was performed both with and without downwash in order to assess the worst case at elevated receptors close to the height of the sources, which would occur without downwash, as well as the worst case at lower elevations and ground level, which would occur with downwash.

Concentrations were evaluated at nearby buildings and publicly accessible areas. This included locations along the façades and roof of the buildings, operable windows, intake vents, and otherwise accessible locations. Multiple elevations were analyzed at spaced intervals on the buildings.

The power law relationship was used to convert the calculated 1-hour average maximum concentrations to short-term 15-minute averages. The 15-minute average concentrations were then compared to the STELs or to the ceiling levels for the chemicals examined.

#### *ANALYSIS OF INDUSTRIAL SOURCES FROM COOP TECH*

The replacement COOP Tech facility would include both woodworking and welding processes as part of its curriculum. These activities have the potential result in additional emissions, and may require DEP and DEC air permitting. Woodworking activities would involve the cutting and shaping of wood pieces and have the potential to result in dust emissions. A fabric filtration system designed for carpentry work would be utilized for the exhaust system to control particulate matter emissions. Welding activities would include common welding processes (i.e., gas tungsten arc welding) and would have the potential to result in additional emissions of non-criteria pollutants associated with the use of filler metal. Therefore, the potential impacts of these activities on nearby sensitive receptor locations were analyzed.

A review of representative DEP and DEC air permit information from similar sized woodworking and welding permits was compiled to conservatively estimate air emission rates and stack parameters to perform the analysis. Common woodworking activities included the operation of power saws, power sanders and various hand tools, and the welding processes included trace emissions from welding wires and rods used in welding stations.

Maximum potential pollutant concentrations from the source were estimated based on the reference values found in Table 17-3 in the *CEQR Technical Manual*. The table consists of a screening database that provides factors for estimating maximum concentrations based on distance from the source, which were derived from generic AERMOD dispersion modeling for the New York City area. Impact distance selected for the source was the minimum distance

between the property boundary of the replacement COOP Tech facility and the nearest existing sensitive receptor. Predicted worst-case impacts on the proposed residential tower were compared with the short-term guideline concentrations (SGCs) and annual guideline concentrations (AGCs) recommended in DEC's *DAR-1 AGS/SGC Tables*.<sup>9</sup> These guideline concentrations present the airborne concentrations, which are applied as a screening threshold to determine whether COOP Tech's industrial sources could significantly impact nearby receptors.

#### ADDITIONAL SOURCES

The *CEQR Technical Manual* requires an analysis of projects that may result in a significant adverse impact due to certain types of new uses located near a "large" or "major" emissions source. Major sources are defined as those located at facilities that have a Title V or Prevention of Significant Deterioration air permit, while large sources are defined as those located at facilities that require a State Facility Permit. To assess the potential effects of these existing sources on the projected and potential development sites, a review of existing permitted facilities was conducted. Sources of information reviewed included the EPA's Envirofacts database<sup>10</sup>, the DEC Title V and State Facility Permit websites<sup>11</sup>, the New York City Department of Buildings website, and DEP permit data. One facility with a State Facility Permit was identified, the New York Health & Hospitals Corporation (HHC) Metropolitan Hospital located directly north of the project site. The facility operates under a DEC State Facility Permit dated April, 2016. Previously, the facility operated under a DEC Title V permit.

Pollutant concentrations were estimated from this facility to evaluate its potential impact on the proposed project. The AERMOD dispersion model was used in the analysis (see *Chemical Spill Analysis*).

Based on the information obtained, the hospital has three boilers each rated at a heat input capacity of 42.1 MMBtu/hr. The boilers vent through a single exhaust stack. The facility would only utilize No. 2 fuel oil in the case of an emergency, in case natural gas service was interrupted. Therefore, the analysis was performed assuming the use of natural gas exclusively for both the annual and short term periods. The facility's NO<sub>x</sub> emissions are capped at 24.5 tons per year as per the DEC State Facility Permit, and use boilers fitted with low NO<sub>x</sub> burners. The short-term emissions from the hospital were modeled based on a maximum operated load of two boilers operating at 60 percent capacity, based on information provided by HHC (the boiler plant includes one stand-by unit, which is designed to provide a maximum 45,000 pounds of steam per hour). Annual emission rates were based on annual fuel consumption developed from data reported as part of the requirements for the State Facility Permit and the previous Title V Facility Permit.

The hospital boiler stack is approximately 235 feet above grade, and slightly taller than the tallest building at HHC Metropolitan Hospital. The boiler stack plume exhaust is therefore influenced by the hospital building massing under all wind conditions, and would be further influenced by the proposed residential tower. Furthermore, there are no intervening buildings

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<sup>9</sup> DEC Division of Air Resources, Bureau of Stationary Sources, April 2016.

<sup>10</sup> EPA, Envirofacts Data Warehouse, [http://oaspub.epa.gov/enviro/ef\\_home2.air](http://oaspub.epa.gov/enviro/ef_home2.air)

<sup>11</sup> DEC Title V and State Facility permit websites:  
[http://www.dec.ny.gov/dardata/boss/afs/issued\\_atv.html](http://www.dec.ny.gov/dardata/boss/afs/issued_atv.html);  
[http://www.dec.ny.gov/dardata/boss/afs/issued\\_asf.html](http://www.dec.ny.gov/dardata/boss/afs/issued_asf.html)

between the hospital boiler stack and the proposed residential tower that would restrict or otherwise affect the boiler plume exhaust in such a way as to limit the dispersion of the plume downwind from the stack. Therefore, the AERMOD model was run with downwash only, rather than with and without downwash as per the *CEQR Technical Manual*.

The facility emission rates were estimated using the information obtained for the facility, and applying the EPA’s AP-42 emission factors for natural gas-fired boilers. **Table 12-7** presents the emission rates and stack parameters used in the AERMOD analysis.

**Table 12-7  
Metropolitan Hospital Boiler Stack  
Parameters and Emission Rates**

Parameter		Value
Boiler Peak Capacity (MMBtu/hr) <sup>1</sup>		50.5
Boiler Annual Usage (MMBtu/hr) <sup>2</sup>		23.0
Stack Exhaust Temp. (°F)		300
Stack Exhaust Height (ft)		235.5
Stack Exhaust Diameter (ft)		6.78
Stack Exhaust Flow (ACFM) <sup>5</sup>		12,328
Stack Exhaust Velocity (ft/s)		5.68
Fuel Type <sup>3</sup>		Natural Gas
<b>Short-term Emission Rates:</b>		
g/s <sup>4</sup>	NO <sub>x</sub>	0.312
	PM <sub>10</sub>	0.047
	PM <sub>25</sub>	0.047
<b>Annual Emission Rates:</b>		
g/s <sup>4</sup>	NO <sub>x</sub>	0.142
	PM <sub>25</sub>	0.022
<b>Notes:</b>		
<sup>1</sup> The <u>HHC</u> Metropolitan Hospital boiler plant consists of three dual fuel-fired (natural gas-fired and No. 2 oil) boilers each rated at a heat input capacity of 42.1 MMBtu/hr. The boiler plant is designed to provide a maximum 45,000 pounds of steam per hour, and includes one stand-by unit as part of the design.		
<sup>2</sup> Annual energy consumption based on report data.		
<sup>3</sup> The facility would only utilize No. 2 fuel oil in the case of an emergency and natural gas service was interrupted. Therefore, the analysis considered the use of natural gas exclusively for both the annual and short term periods.		
<b>References:</b>		
<sup>4</sup> Emission factors are based on EPA AP-42 data, while stack parameters are based on reported data.		
<sup>5</sup> The stack exhaust flow rate is estimated based on the type of fuel and heat input rates.		

*Meteorological Data*

The meteorological data set consisted of five consecutive years of meteorological data: surface data collected at La Guardia Airport (2011–2015), and concurrent upper air data collected at Brookhaven, New York. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and temperature inversion elevation over the five-year period. These data were processed using the EPA AERMET program to develop data in a format ~~which~~ that can be readily processed by the AERMOD model. The land uses around the site where meteorological surface data were available were classified using categories defined in digital United States Geological Survey (USGS) maps to determine surface parameters used by the AERMET program.

*Receptor Placement*

A comprehensive receptor network (i.e., locations with continuous public access) was developed for the modeling analyses. Discrete receptors were analyzed and included locations on the façades of the project site at potential locations of operable windows, air intakes, and publicly accessible ground-level locations.

*Methodology Utilized for Estimating NO<sub>2</sub> Concentrations*

For the analysis of the 1-hour average NO<sub>2</sub> concentration from the HHC Metropolitan Hospital’s boiler plant, AERMOD model’s Plume Volume Molar Ratio Method (PVMRM) module was used to analyze chemical transformation within the model. The PVMRM module incorporates hourly background ozone concentrations to estimate NO<sub>x</sub> transformation within the source plume. The model applied ozone concentrations measured in 2011–2015 at the nearest available DEC ozone monitoring station—the New York Botanical Garden monitoring station in Bronx county. An initial NO<sub>2</sub> to NO<sub>x</sub> ratio of 10 percent at the source exhaust stack was assumed, which is considered representative for boilers.

**E. EXISTING CONDITIONS**

Recent concentrations of all criteria pollutants at DEC air quality monitoring stations nearest the study area are presented in **Table 12-8**. All data statistical forms and averaging periods are consistent with the definitions of the NAAQS. It should be noted that these values are somewhat different than the background concentrations presented in **Table 12-4**, above.

These existing concentrations are based on recent published measurements, averaged according to the NAAQS (e.g., PM<sub>2.5</sub> concentrations are averaged over the three years); the background concentrations are the highest values in past years, and are used as a conservative estimate of the highest background concentrations for future conditions.

There were no monitored violations of the NAAQS for the pollutants at these sites in 2015.

**Table 12-8  
Representative Monitored Ambient Air Quality Data**

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	CCNY, Manhattan	ppm	1-hour	2.3	35
	CCNY, Manhattan		8-hour	1.5	9
SO <sub>2</sub>	IS 52, Bronx	µg/m <sup>3</sup>	3-hour	46.6	1,300
			1-hour	45.5	196
PM <sub>10</sub>	Division Street, Manhattan	µg/m <sup>3</sup>	24-hour	44	150
PM <sub>2.5</sub>	JHS 45, Manhattan	µg/m <sup>3</sup>	Annual	8.8	12
			24-hour	23.7	35
NO <sub>2</sub>	IS 52, Bronx	µg/m <sup>3</sup>	Annual	39.1	100
	IS 52, Bronx		1-hour	120.8	188
Lead	IS 52, Bronx	µg/m <sup>3</sup>	3-month	0.0061	0.15
Ozone	CCNY, Manhattan	ppm	8-hour	0.066	0.070
<b>Notes:</b>	The CO, PM <sub>10</sub> , and 3-hour SO <sub>2</sub> concentrations for short-term averages are the second-highest from the most recent year with available data. PM <sub>2.5</sub> annual concentrations are the average of 2013–2015 annual concentrations, and the 24-hour concentration is the average of the annual 98th percentiles in the same period. 8-hour average ozone concentrations are the average of the 4 4th highest-daily values from 2013 to 2015. SO <sub>2</sub> 1-hour and NO <sub>2</sub> 1-hour concentrations are the average of the 99th percentile and 98th percentile, respectively, of the highest daily 1-hour maximum from 2013 to 2015.				
<b>Source:</b>	New York State Air Quality Report Ambient Air Monitoring System, DEC, 2011–2015.				

## F. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, mobile source and stationary source emissions in the vicinity of the project site would be similar to existing conditions.

## G. THE FUTURE WITH THE PROPOSED ACTIONS

The proposed project would result in increased mobile source emissions in the immediate vicinity of the project site and also have the potential to affect the surrounding community with emissions from the proposed buildings' heating and hot water systems. The following sections describe the results of the studies performed to analyze the potential impacts on the surrounding community from these sources for the 2023 analysis year. An analysis was also performed to evaluate potential air quality impacts from the HHC Metropolitan Hospital boilers on the proposed project.

### MOBILE SOURCES

Based on the methodology previously described, the maximum predicted 8-hour average CO and PM<sub>2.5</sub> concentrations from the potential parking garage was analyzed using several receptor points, a “near” side receptor on Second Avenue as adjacent to the potential parking garage, and a “far” side receptor on the opposite side of Second Avenue, since the traffic volumes on Second Avenue would be the highest. The total CO impacts included both background CO levels and contributions from traffic on adjacent roadways (for the far side receptor only). There was also a receptor placed on the façade of the proposed residential tower, above the parking garage.

The maximum predicted 8-hour average CO concentration of all the sensitive receptors described above for any of the proposed buildings would be 1.9 ppm for the far side receptor. This value includes a predicted concentration of 0.01 ppm from the parking garage vent, and includes a background level of 1.7 ppm. This concentration is substantially below the applicable standard of 9 ppm. In addition, the predicted concentration of 1.9 ppm is below the CEQR *de minimis* criteria, which is approximately 3.7 ppm.

The maximum predicted 24-hour and annual average PM<sub>2.5</sub> increments, including consideration of on street incremental traffic associated with the proposed project, are 0.18 µg/m<sup>3</sup> and 0.03 µg/m<sup>3</sup>, at the near side receptor, respectively. The maximum predicted PM<sub>2.5</sub> increments are well below the PM<sub>2.5</sub> *de minimis* criteria of 5.5 µg/m<sup>3</sup> for the 24-hour average concentration and 0.3 µg/m<sup>3</sup> for the annual concentration.

Therefore, the potential parking garage would not result in any significant adverse air quality impacts for CO or PM<sub>2.5</sub>.

### STATIONARY SOURCES

#### *HEATING AND HOT WATER SYSTEMS*

**Tables 12-9 and 12-10** present the maximum predicted concentrations from the heating and hot water systems of the proposed residential tower, COOP Tech building, and high school building at off-site and project receptors, respectively. Maximum concentrations at off-site receptors were predicted to occur on elevated locations on HHC Metropolitan Hospital. The maximum concentrations would be higher from the COOP Tech interim exhaust stack design, and would decrease upon relocation of the exhaust stack to the roof of the residential tower.

Maximum overall concentrations at receptors on the project site were predicted to occur on the public high school building from the COOP Tech heat and hot water system, at the interim exhaust stack location. For the completed project, (i.e., the completion of the residential tower and relocation of the COOP Tech exhaust stack), the maximum concentration at receptors on the project site ~~were~~ was predicted to occur on the COOP Tech building from the public high school building.

As shown in the tables, maximum predicted concentrations from the proposed project's buildings are below the NAAQS and PM<sub>2.5</sub> *de minimis* criteria. Maximum predicted concentrations on other existing and proposed buildings, as well as at ground level receptors, would be much lower. Therefore, the proposed project would not result in a significant impact due to its heating and hot water system emissions.

**Table 12-9**  
**Maximum Modeled Pollutant Concentrations**  
**from Heating and Hot Water Systems**  
**Off-Site Receptors (µg/m<sup>3</sup>)**

Pollutant	Averaging Period	Maximum Modeled Impact	Background	Total Concentration	Criterion
<b>COOP Tech Interim Exhaust Location<sup>(5)</sup></b>					
NO <sub>2</sub>	1-hour	38.0 <sup>(1)</sup>	120.8	158.8	188 <sup>(2)</sup>
	Annual	0.98 <sup>(1)</sup>	39.2	40.2	100 <sup>(2)</sup>
PM <sub>2.5</sub>	24-hour	3.4	23.7	N/A	5.65 <sup>(3)</sup>
	Annual	0.16	N/A	N/A	0.3 <sup>(4)</sup>
PM <sub>10</sub>	24-hour	3.4	44	47.4	150
<b>Residential Tower and COOP Tech Permanent Exhaust Location</b>					
NO <sub>2</sub>	1-hour	<del>9.0</del> 12.9 <sup>(1)</sup>	120.8	<del>429.8</del> 133.7	188 <sup>(2)</sup>
	Annual	<del>0.44</del> 13 <sup>(1)</sup>	39.2	39.3	100 <sup>(2)</sup>
PM <sub>2.5</sub>	24-hour	<del>4.2</del> 1.8	23.7	N/A	5.65 <sup>(3)</sup>
	Annual	0.03	N/A	N/A	0.3 <sup>(4)</sup>
PM <sub>10</sub>	24-hour	<del>4.2</del> 1.8	44	<del>45.2</del> 45.8	150
<b>Public High School Building</b>					
NO <sub>2</sub>	1-hour	18.7 <sup>(1)</sup>	120.8	139.5	188 <sup>(2)</sup>
NO <sub>2</sub>	Annual	0.57 <sup>(1)</sup>	39.2	39.8	100 <sup>(2)</sup>
PM <sub>2.5</sub>	24-hour	2.9	23.7	N/A	5.65 <sup>(3)</sup>
	Annual	0.16	N/A	N/A	0.3 <sup>(4)</sup>
PM <sub>10</sub>	24-hour	2.9	44	46.9	150

**Notes:**

N/A – Not Applicable.

(1) The annual and 1-hour NO<sub>2</sub> concentrations are estimated using NO<sub>2</sub> to NO<sub>x</sub> ratio of 0.75 and 0.8, respectively, as per EPA guidance.

(2) 1-hour average NAAQS.

(3) PM<sub>2.5</sub> *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m<sup>3</sup>.

(4) PM<sub>2.5</sub> *de minimis* criteria—annual (discrete receptor), 0.3 µg/m<sup>3</sup>.

(5) The COOP Tech boiler plant would exhaust from the roof of the COOP Tech building during the construction of the residential tower. Upon completion of the residential tower, the exhaust would be redirected to top of the residential tower.

**Table 12-10**  
**Maximum Modeled Pollutant Concentrations**  
**from Heating and Hot Water Systems**  
**On the Proposed Project ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	Averaging Period	Maximum Modeled Impact	Background	Total Concentration	Criterion
<b>COOP Tech Interim Exhaust Location<sup>(5)</sup></b>					
NO <sub>2</sub>	1-hour	17.4 <sup>(1)</sup>	120.8	138.2	188 <sup>(2)</sup>
	Annual	0.26 <sup>(1)</sup>	39.2	39.5	100 <sup>(2)</sup>
PM <sub>2.5</sub>	24-hour	1.6	23.7	N/A	5.65 <sup>(3)</sup>
	Annual	0.07	N/A	N/A	0.3 <sup>(4)</sup>
PM <sub>10</sub>	24-hour	1.6	44	45.6	150
<b>Residential Tower and COOP Tech Permanent Exhaust Location</b>					
NO <sub>2</sub>	1-hour	<del>9.6</del> 12.9 <sup>(1)</sup>	120.8	<del>130.4</del> 133.7	188 <sup>(2)</sup>
	Annual	<del>0.09</del> 13 <sup>(1)</sup>	39.2	39.3	100 <sup>(2)</sup>
PM <sub>2.5</sub>	24-hour	<del>4.3</del> 1.8	23.7	N/A	5.65 <sup>(3)</sup>
	Annual	0.03	N/A	N/A	0.3 <sup>(4)</sup>
PM <sub>10</sub>	24-hour	<del>4.3</del> 1.8	44	<del>45.3</del> 45.8	150
<b>Public High School Building</b>					
NO <sub>2</sub>	1-hour	12.0 <sup>(1)</sup>	120.8	132.8	188 <sup>(2)</sup>
	Annual	0.37 <sup>(1)</sup>	39.2	39.6	100 <sup>(2)</sup>
PM <sub>2.5</sub>	24-hour	1.9	23.7	N/A	5.65 <sup>(3)</sup>
	Annual	0.10	N/A	N/A	0.3 <sup>(4)</sup>
PM <sub>10</sub>	24-hour	1.9	44	45.9	150
<b>Notes:</b>					
N/A – Not Applicable.					
<sup>(1)</sup> The Annual and 1-hour NO <sub>2</sub> concentration are estimated using NO <sub>2</sub> to NO <sub>x</sub> ratio of 0.75 and 0.8, respectively as per EPA guidance.					
<sup>(2)</sup> 1-hour average NAAQS.					
<sup>(3)</sup> PM <sub>2.5</sub> <i>de minimis</i> criteria — 24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu\text{g}/\text{m}^3$ .					
<sup>(4)</sup> PM <sub>2.5</sub> <i>de minimis</i> criteria—annual (discrete receptor), 0.3 $\mu\text{g}/\text{m}^3$ .					
<sup>(5)</sup> The COOP Tech boiler plant would exhaust from the roof of the COOP Tech building during the construction of the residential tower. Upon completion of the residential tower, the exhaust would be redirected to top of the residential tower. Therefore, the residential tower would not be considered as a project receptor for the interim exhaust location.					

## CHEMICAL SPILL ANALYSIS

### Recirculation in Laboratory Building Intakes

The recirculation analysis indicates that the minimum potential dilution factor between the fan exhausts and the nearest sensitive receptor is over 180 (i.e., pollutant concentrations at the nearest intake to the exhaust fan would be 180 times less than the concentration at the fan exhaust).

The results of the recirculation analysis are presented in **Table 12-11**. The results indicate that a spill in a fume hood as described above would produce a maximum concentration at the nearest intake location well below the corresponding STELs or ceiling values set by OSHA and/or NIOSH for each of the chemicals analyzed. Consequently, it can be concluded that no significant impact would be expected due to recirculation of fume hood emissions back into the proposed public high school building's air intakes in the event of a chemical spill.

**Table 12-11**  
**Fume Hood Recirculation Analysis**  
**Maximum Predicted Concentrations (ppm)**

Chemical	STEL/OSHA Ceiling	15-Minute Average
Allyl Alcohol	2	0.002
Benzene	1	0.104
Nitric Acid	2	0.007
<b>Note:</b> * 15-Minute Average emission rate.		

*Dispersion in Surrounding Area*

The results of the analysis of potential emissions from the fume hood exhaust system in the surrounding area are shown in **Table 12-12**. As shown in the table, the maximum predicted concentrations at elevated receptors downwind of the fume hood exhausts were determined to be below the STEL/OSHA levels. The results of the dispersion analysis demonstrate that would be no significant adverse impacts from the exhaust system of the proposed public high school laboratories to the proposed project or the surrounding community.

**Table 12-12**  
**Maximum Predicted Concentrations (ppm)**

Chemical	STEL/OSHA Ceiling	15-Minute Average
Allyl Alcohol	2	0.16
Benzene	1	0.62
Nitric Acid	2	0.56
<b>Note:</b> * 15-Minute Average emission rate.		

*INDUSTRIAL SOURCES FROM COOP TECH*

The screening procedure used to estimate the pollutant concentrations from emissions associated with the replacement facility for COOP Tech are based on information contained in certificates to operate obtained from DEP-BEC for representative processes. The information describes contaminants emitted by the proposed processes, hours of operation per day, and days per year, and the characteristics of the emission exhaust systems (temperature, exhaust velocity, height, and dimensions of the exhaust) not specified.

**Table 12-13** presents the maximum modeled short-term and long-term impacts from the facility on the proposed project. The table also lists the SGC and AGC for each toxic air pollutant.

**Table 12-13**  
**Maximum Modeled Pollutant Concentrations ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	CAS No.	Short-term impact ( $\mu\text{g}/\text{m}^3$ )	SGC ( $\mu\text{g}/\text{m}^3$ ) <sup>(1)</sup>	Long-term impact ( $\mu\text{g}/\text{m}^3$ )	AGC ( $\mu\text{g}/\text{m}^3$ ) <sup>(1)</sup>
Particulate	NY075-00-0	6.0	88	0.07	12
Ammonium Chloride	12125-02-9	1.6	380	0.02	4.8
Boric Acid Vapors	10043-35-3	1.6	---	0.02	5
Manganese Vapors	07439-96-5	1.6	---	0.02	0.05
Copper Vapors	07440-50-8	1.6	---	0.02	490
Iron Oxide Vapors	01309-37-1	1.6	---	0.02	12
Zinc Oxide	01314-13-2	1.6	380	0.02	5
<b>Notes:</b>					
<sup>(1)</sup> DAR-1 AGS/SGC Tables, DEC Division of Air Resources, Bureau of Stationary Sources, April 2016.					

The results of the industrial source analysis demonstrate that there would be no predicted significant adverse air quality impacts on nearby sensitive receptors from the proposed COOP Tech’s industrial source emissions.

*ADDITIONAL SOURCES*

Potential stationary source impacts on the proposed project from the HHC Metropolitan Hospital boilers were determined using the AERMOD model. The maximum estimated concentrations from the dispersion modeling analysis were added to the background concentrations to estimate total air quality concentrations on the proposed project. The results of the AERMOD model analysis are presented in **Table 12-14**. As shown in the table, the predicted pollutant concentrations of NO<sub>2</sub> and PM<sub>10</sub> for all of the pollutant time averaging periods shown are below their respective NAAQS. The air quality modeling analysis also determined the highest predicted increase in PM<sub>2.5</sub> concentrations. The maximum predicted 24-hour and localized annual average incremental PM<sub>2.5</sub> increments presented in **Table 12-14** are below the applicable PM<sub>2.5</sub> *de minimis* criteria.

**Table 12-14**  
**Future Maximum Predicted Concentrations on the**  
**Proposed Project Site from the HHC Metropolitan Hospital Boilers (in µg/m<sup>3</sup>)**

Pollutant	Averaging Period	Concentration Due to Stack Emission	Maximum Background Concentration	Total Concentration	Standard
NO <sub>2</sub>	1-hour	N/A	N/A	164.4 <sup>(1)</sup>	188 <sup>(2)</sup>
	Annual	0.7879 <sup>(1)</sup>	39.2	40.0	100 <sup>(2)</sup>
PM <sub>2.5</sub>	24-hour	3.99	23.7	N/A	5.65 <sup>(3)</sup>
	Annual	0.16	N/A	N/A	0.3 <sup>(4)</sup>
PM <sub>10</sub>	24-hour	3.99	44	48	150

**Notes:**  
 N/A – Not Applicable.  
<sup>(1)</sup> The Annual and 1-hour NO<sub>2</sub> concentration are estimated using the PVMRM methodology.  
<sup>(2)</sup> 1-hour average NAAQS.  
<sup>(3)</sup> PM<sub>2.5</sub> *de minimis* criteria — 24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m<sup>3</sup>.  
<sup>(4)</sup> PM<sub>2.5</sub> *de minimis* criteria—annual (discrete receptor), 0.3 µg/m<sup>3</sup>.

Therefore, no significant adverse air quality impacts are predicted from the HHC Metropolitan Hospital on the proposed project. \*

**A. INTRODUCTION**

This chapter evaluates the greenhouse gas (GHG) emissions that would be generated by the construction and operation of the development projects resulting from the proposed actions and their consistency with the citywide GHG reduction goals.

As discussed in the 2014 City Environmental Quality Review (CEQR) Technical Manual, climate change is projected to have wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. Although this is occurring on a global scale, the environmental effects of climate change are also likely to be experienced at the local level. New York City's sustainable development policy, starting with PlaNYC, and continued and enhanced in OneNYC, established sustainability initiatives and goals for greatly reducing GHG emissions and for adapting to climate change in the City.

Per the *CEQR Technical Manual*, the citywide GHG reduction goal is currently the most appropriate standard by which to analyze a project under CEQR. The *CEQR Technical Manual* recommends that a GHG consistency assessment be conducted for any project conducting an environmental impact statement expected to result in 350,000 square feet or more of development and other energy-intense projects. The proposed actions would result in 1.3 million gross square feet (gsf) of developed floor area. Accordingly, a GHG consistency assessment is provided.

**PRINCIPAL CONCLUSIONS**

The building energy use and vehicle use associated with the proposed actions would result in up to approximately 13.1 thousand metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) emissions per year.

The *CEQR Technical Manual* defines five goals through which a project's consistency with the City's emission reduction goal is evaluated: (1) efficient buildings; (2) clean power; (3) sustainable transportation; (4) construction operation emissions; and (5) building materials carbon intensity.

~~The designated developer~~ Co-applicant AvalonBay Communities, Inc. (AvalonBay), is currently evaluating the specific energy efficiency measures and design elements that may be implemented, and is seeking to achieve certification under the Leadership in Energy and Environmental Design (LEED) rating system for the proposed residential development, and similar energy requirements would be applied for the proposed public high school building which would be developed to meet the New York City School Construction Authority (SCA) guidelines. ~~The designated developer~~ AvalonBay is committed at a minimum to achieve the prerequisite energy efficiency requirements under LEED and would likely exceed them. To qualify for LEED, the project would be required to exceed the ASHRAE 90.1-2010 standard, resulting in energy expenditure lower than a baseline building designed to meet but not exceed

that standard by 5 percent. New York City has recently increased the stringency of its building code to require energy efficiency equivalent to the newer ASHRAE 90.1-2013 code. The SCA guidelines which would be applied to the proposed high school building are designed to reduce energy expenditure to at least 20 percent below the minimum which would be achieved under the New York State energy code. The proposed COOP Tech building has special ventilation requirements associated with the combination of industrial type uses (e.g., automotive trade shops) with classroom level heating and cooling needs. This type of non-standard use is not well addressed by energy baseline analyses applied in LEED-based evaluations and would therefore not apply the SCA requirements. Nonetheless, the proposed COOP Tech facility would be designed to include substantial energy efficiency measures such as heat recovery and LED lighting, and would exceed the minimum energy requirements of the building code.

Overall, the project's commitment to building energy efficiency under LEED would result in energy expenditure that is at least 2 percent lower than the expenditure that would result from meeting the minimum energy requirements of the New York City building code, and would likely be lower than that, ensuring consistency with the efficient buildings goal defined in the *CEQR Technical Manual* as part of the City's GHG reduction goal (see Section F), and would be specified and required under the conditions of the special permit.

The proposed project also would support the other GHG goals by virtue of its nature and location: its proximity to public transportation, reliance on natural gas, and commitment to construction air quality controls. All of these factors demonstrate that the proposed development supports the GHG reduction goal.

Therefore, based on the commitment to energy efficiency and by virtue of location and nature, the proposed actions would be consistent with the City's emissions reduction goals, as defined in the *CEQR Technical Manual*.

## **B. GREENHOUSE GAS EMISSIONS**

### **POLLUTANTS OF CONCERN**

GHGs are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. This phenomenon causes the general warming of the Earth's atmosphere, or the "greenhouse effect." Water vapor, carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), methane, and ozone are the primary GHGs in the Earth's atmosphere.

There are also a number of entirely anthropogenic GHGs in the atmosphere, such as halocarbons and other chlorine- and bromine-containing substances, which also damage the stratospheric ozone layer (and contribute to the "ozone hole"). Since these compounds are being replaced and phased out due to the 1987 Montreal Protocol, there is no need to address them in GHG assessments for most projects. Although ozone itself is also a major GHG, it does not need to be assessed as such at the project level since it is a rapidly reacting chemical and efforts are ongoing to reduce ozone concentrations as a criteria pollutant (see Chapter 12, "Air Quality"). Similarly, water vapor is of great importance to global climate change, but is not directly of concern as an emitted pollutant since the negligible quantities emitted from anthropogenic sources are inconsequential.

CO<sub>2</sub> is the primary pollutant of concern from anthropogenic sources. Although not the GHG with the strongest effect per molecule, CO<sub>2</sub> is by far the most abundant and, therefore, the most influential GHG. CO<sub>2</sub> is emitted from any combustion process (both natural and anthropogenic); from some industrial processes such as the manufacture of cement, mineral production, metal production, and the use of petroleum-based products; from volcanic eruptions; and from the decay of organic matter. CO<sub>2</sub> is removed (“sequestered”) from the lower atmosphere by natural processes such as photosynthesis and uptake by the oceans. CO<sub>2</sub> is included in any analysis of GHG emissions.

Methane and N<sub>2</sub>O also play an important role since the removal processes for these compounds are limited and because they have a relatively high impact on global climate change as compared with an equal quantity of CO<sub>2</sub>. Emissions of these compounds, therefore, are included in GHG emissions analyses when the potential for substantial emission of these gases exists.

The *CEQR Technical Manual* lists six GHGs that could potentially be included in the scope of a GHG analysis: CO<sub>2</sub>, N<sub>2</sub>O, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF<sub>3</sub>), and sulfur hexafluoride (SF<sub>6</sub>). This analysis focuses mostly on CO<sub>2</sub>, N<sub>2</sub>O, and methane. There are no significant direct or indirect sources of HFCs, PFCs, NF<sub>3</sub>, or SF<sub>6</sub> associated with the proposed developments.

To present a complete inventory of all GHGs, component emissions are added together and presented as carbon dioxide equivalent (CO<sub>2</sub>e) emissions—a unit representing the quantity of each GHG weighted by its effectiveness using CO<sub>2</sub> as a reference. This is achieved by multiplying the quantity of each GHG emitted by a factor called global warming potential (GWP). GWPs account for the lifetime and the radiative forcing<sup>1</sup> of each chemical over a period of 100 years (e.g., CO<sub>2</sub> has a much shorter atmospheric lifetime than SF<sub>6</sub>, and therefore has a much lower GWP). The GWPs for the main GHGs discussed here are presented in **Table 13-1**.

**Table 13-1  
Global Warming Potential (GWP) for Major GHGs**

Greenhouse Gas	100-year Horizon GWP
Carbon Dioxide (CO <sub>2</sub> )	1
Methane (CH <sub>4</sub> )	21
Nitrous Oxide (N <sub>2</sub> O)	310
Hydrofluorocarbons (HFCs)	140 to 11,700
Perfluorocarbons (PFCs)	6,500 to 9,200
Sulfur Hexafluoride (SF <sub>6</sub> )	23,900
<b>Source:</b> 2014 <i>CEQR Technical Manual</i>	
<b>Note:</b> The GWPs presented above are based on the Intergovernmental Panel on Climate Change’s (IPCC) Second Assessment Report (SAR) to maintain consistency in GHG reporting. The IPCC has since published updated GWP values that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO <sub>2</sub> . In some instances, if combined emission factors were used from updated modeling tools, some slightly different GWP may have been used for this study. Since the emissions of GHGs other than CO <sub>2</sub> represent a very minor component of the emissions, these differences are negligible.	

<sup>1</sup> *Radiative forcing* is a measure of the influence a gas has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the gas as a GHG.

## **POLICY, REGULATIONS, STANDARDS, AND BENCHMARKS FOR REDUCING GHG EMISSIONS**

As a result of the growing consensus that human activity resulting in GHG emissions has the potential to profoundly impact the Earth's climate, countries around the world have undertaken efforts to reduce emissions by implementing both global and local measures addressing energy consumption and production, land use, and other sectors. Although the U.S. has not ratified international agreements which set emissions targets for GHGs, in December 2015, the U.S. signed the international Paris agreement<sup>2</sup> that pledges deep cuts in emissions, with a stated goal of reducing emissions to between 26 and 28 percent lower than 2005 levels by 2025<sup>3</sup> to be implemented via existing laws and regulations with executive authority of the President.

The U.S. Environmental Protection Agency (USEPA) is required to regulate GHGs under the Clean Air Act, and has begun preparing and implementing regulations. In coordination with the National Highway Traffic Safety Administration (NHTSA), USEPA currently regulates GHG emissions from newly manufactured on-road vehicles. In addition, USEPA regulates transportation fuels via the Renewable Fuel Standard program, which will phase in a requirement for the inclusion of renewable fuels increasing annually up to 36.0 billion gallons in 2022. In 2015, USEPA also finalized rules to address GHG emissions from both new and existing power plants that would, for the first time, set national limits on the amount of carbon pollution that power plants can emit. The Clean Power Plan sets carbon pollution emission guidelines and performance standards for existing, new, and modified and reconstructed electric utility generating units. On February 9, 2016, the Supreme Court stayed implementation of the Clean Power Plan pending judicial review. USEPA expects to expand this program in the future to limit emissions from additional stationary sources

There are also regional and local efforts to reduce GHG emissions. In 2009, Governor Paterson issued Executive Order No. 24, establishing a goal of reducing GHG emissions in New York State by 80 percent, compared with 1990 levels, by 2050, and creating a Climate Action Council tasked with preparing a climate action plan outlining the policies required to attain the GHG reduction goal; an interim draft plan has been published.<sup>4</sup> The State is now seeking to achieve some of the emission reduction goals via local and regional planning and projects through its Cleaner Greener Communities and Climate Smart Communities programs. The State has also adopted California's GHG vehicle standards (which are at least as strict as the federal standards).

The New York State Energy Plan outlines the State's energy goals and provides strategies and recommendations for meeting those goals. The latest version of the plan was published in June 2015. The new plan outlines a vision for transforming the State's energy sector that would result in increased energy efficiency (both demand and supply), increased carbon-free power production and cleaner transportation, in addition to achieving other goals not related to GHG emissions. The 2015 plan also establishes a new target of reducing GHG emissions in New York State by 40 percent, compared with 1990 levels, by 2030. The plan also establishes a new target of providing 50 percent of electricity generation in the State from renewable sources by 2030,

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<sup>2</sup> Conference of the Parties, 21st Session. *Adoption of The Paris Agreement, decision -/CP.21*. Paris, December 12, 2015.

<sup>3</sup> United States of America. *Intended Nationally Determined Contributions (INDCs)* as submitted. March 31, 2015.

<sup>4</sup> New York State Climate Action Council. *New York State Climate Action Plan Interim Report*. November 2010.

and increasing building energy efficiency gains by 600 trillion British thermal units (Btu) by 2030.

New York State has also developed regulations to cap and reduce CO<sub>2</sub> emissions from power plants to meet its commitment to the Regional Greenhouse Gas Initiative (RGGI). Under the RGGI agreement, the governors of nine northeastern and Mid-Atlantic states have committed to regulate the amount of CO<sub>2</sub> that power plants are allowed to emit, gradually reducing annual emissions to half the 2009 levels by 2020. The RGGI states and Pennsylvania have also announced plans to reduce GHG emissions from transportation, through the use of biofuel, alternative fuel, and efficient vehicles.

Many local governments worldwide, including New York City, are participating in the Cities for Climate Protection™ (CCP) campaign and have committed to adopting policies and implementing quantifiable measures to reduce local GHG emissions, improve air quality, and enhance urban livability and sustainability. New York City's long-term comprehensive plan for a sustainable and resilient New York City, which began as PlaNYC 2030 in 2007, and continues to evolve today as OneNYC, includes GHG emissions reduction goals, many specific initiatives that can result in emission reductions, and initiatives aimed at adapting to future climate change impacts. The goal to reduce citywide GHG emissions to 30 percent below 2005 levels by 2030 ("30 by 30") was codified by Local Law 22 of 2008, known as the New York City Climate Protection Act (the "GHG reduction goal")<sup>5</sup> The City has also announced a longer-term goal of reducing emissions to 80 percent below 2005 levels by 2050 ("80 by 50"), which was codified by Local Law 66 of 2014, and has published a study evaluating the potential for achieving that goal. More recently, as part of OneNYC, the City has announced a more aggressive goal for reducing emissions from building energy down to 30 percent below 2005 levels by 2025.

In December 2009, the New York City Council enacted four laws addressing energy efficiency in large new and existing buildings, in accordance with PlaNYC. The laws require owners of existing buildings larger than 50,000 square feet to conduct energy efficiency audits and retro-commissioning every 10 years, to optimize building energy efficiency, and to "benchmark" the building energy and water consumption annually, using an USEPA online tool. By 2025, commercial buildings over 50,000 square feet will also require lighting upgrades, including the installation of sensors and controls, more efficient light fixtures, and the installation of submeters, so that tenants can be provided with information on their electricity consumption. The legislation also creates a local New York City Energy Conservation Code, which along with the Energy Conservation Construction Code of New York State (as updated in 2010), requires equipment installed during a renovation to meet current efficiency standards.

To achieve the 80 by 50 goal, the City is convening Technical Working Groups to analyze the GHG reduction pathways from the building sector, power, transportation, and solid waste sectors to develop action plans for these sectors. The members of the Technical Working Groups will develop and recommend the data analysis, interim metrics and indicators, voluntary actions, and potential mandates to effectively achieve the City's emissions reduction goal. In 2016, the City published the building sector Technical Working Group report, which included commitments by the City to change to building energy code and take other measures aimed at substantially reducing GHG emissions.

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<sup>5</sup> Administrative Code of the City of New York, §24-803.

For certain projects subject to CEQR (e.g., projects with 350,000 gsf or more of development or other energy intense projects), an analysis of the projects' contributions to GHG emissions is required to determine consistency with the City's reduction goal, which is currently the most appropriate standard by which to analyze a project under CEQR, and is therefore applied in this chapter.

A number of benchmarks for energy efficiency and green building design have also been developed. For example, the LEED system is a benchmark for the design, construction, and operation of high-performance green buildings that includes energy efficiency components. USEPA's Energy Star is a voluntary labeling program designed to identify and promote the construction of new energy efficient buildings, facilities, and homes and the purchase of energy efficient appliances, heating and cooling systems, office equipment, lighting, home electronics, and building envelopes. AvalonBay ~~The designated developer~~ is currently evaluating the specific energy efficiency measures and design elements ~~which~~ that would be implemented, and intends to achieve certification under the LEED rating system.

## **METHODOLOGY**

Climate change is driven by the collective contributions of diverse individual sources of emissions to global atmospheric GHG concentrations. Identifying potential GHG emissions from a proposed action can help decision makers identify practicable opportunities to reduce GHG emissions and ensure consistency with policies aimed at reducing overall emissions. While the increments of criteria pollutants and toxic air emissions are assessed in the context of health-based standards and local impacts, there are no established thresholds for assessing the significance of a project's contribution to climate change. Nonetheless, prudent planning dictates that all sectors address GHG emissions by identifying GHG sources and practicable means to reduce them. Therefore, this chapter presents the total GHG emissions potentially associated with the proposed actions and identifies measures that would be implemented and measures that are still under consideration to limit emissions. (Note that this differs from most other technical areas in that it does not account for only the increment between the condition with and without the proposed actions. The reason for that different approach is that to truly account for the incremental emissions only would require speculation regarding where people would live in a No Action condition if residential units are not built at this location, what energy use and efficiency might be like for those alternatives and other related considerations, and similar assumptions regarding commercial and other uses. The focus is therefore on the total emissions associated with the uses, and on the effect of measures to reduce those emissions.)

The analysis of GHG emissions that would be associated with the proposed actions is based on the methodology presented in the *CEQR Technical Manual*. Estimates of emissions of GHGs from the development have been quantified, including off-site emissions associated with use of electricity and steam, on-site emissions from heat and hot water systems, and emissions from vehicle use associated with the proposed development. GHG emissions that would result from construction are discussed as well. As per the guidance, analysis of the residential building electricity emissions are based on the average current carbon intensity of electricity, and school buildings' electricity and heating energy emission are based on average carbon intensity in 2014; electricity emissions will likely be lower in the 2023 build year and lower still in future years as the fraction of electricity generated from renewable sources continues to increase, and school heating is likely to be more efficient since building codes now require increase energy efficiency. Vehicular emission factors will also continue to decrease in future years as vehicle engine efficiency increases and emissions standards continue to decrease, resulting in lower

emissions in future years. Since the methodology does not account for future years and other changes described above, it also does not explicitly address potential changes in future consumption associated with climate change, such as increased electricity for cooling, or decreased on-site fuel for heating. Overall, this analysis results in conservatively high estimates of potential GHG emissions since recent and future improvements introduced with the objective of meeting State and City future GHG reduction goals are not included.

CO<sub>2</sub> is the primary pollutant of concern from anthropogenic emission sources and is accounted for in the analysis of emissions from all development projects. GHG emissions for gases other than CO<sub>2</sub> are included where practicable or in cases where they comprise a substantial portion of overall emissions. The various GHG emissions are added together and presented as metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) emissions per year (see “Pollutants of Concern,” above).

#### *BUILDING OPERATIONAL EMISSIONS*

Estimates of emissions associated with the residential electricity and fuel use were prepared using projections of energy consumption developed specifically for the proposed development by the project engineers and the emission factors referenced in the 2014 GHG emissions inventory for New York City.<sup>6</sup> The proposed residential development is estimated to require approximately 9,887 megawatt-hours per year (MWh/yr) of electricity for general building use and a total of approximately 27,000 million British thermal units per year (MMBtu/yr) of natural gas for heat and hot water. Similarly, the proposed COOP Tech facility is estimated to require 2,025 MWh/yr of electricity and 16,800 MMBtu/yr of natural gas. As described above, electricity emissions represent the latest data and not future target year or further future emissions, which are expected to be lower.

Estimates of emissions due to the proposed public high school building electricity and fuel use were prepared using school building floor area and carbon intensity calculated from the 2014 local law 88 benchmark data,<sup>7</sup> representing citywide school averages and not projections for the future target year (2023). Future emissions are expected to be lower as efficiency and renewable energy use continue to increase.

#### *MOBILE SOURCE EMISSIONS*

The number of annual weekday vehicle trips by mode (cars, taxis, and trucks) that would be generated by the proposed development buildings was calculated using the transportation planning assumptions developed for the analysis and presented in Chapter 11, “Transportation.” The assumptions used in the calculation include average daily weekday person trips and delivery trips by proposed use, the percentage of vehicle trips by mode, and the average vehicle occupancy. To calculate annual totals, the number of trips on weekends was assumed to be the same as on weekdays for residential and retail use, and that no weekend trips would be generated by school usage. Travel distances shown in Table 18-6 and 18-7 and associated text of the *CEQR Technical Manual* were used in the calculations of annual vehicle miles traveled by cars, taxis, and trucks. Table 18-8 of the *CEQR Technical Manual* was used to determine the percentage of vehicle miles traveled by road type and the mobile GHG emissions calculator

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<sup>6</sup> The City of New York Mayor’s Office of Long-Term Planning and Sustainability. *Inventory of New York City Climate Change*. November 2014.

<sup>7</sup> NYCMOS. 2015 LL84 Energy and Water Data Disclosure (Data for Calendar Year 2014). Latest version dated 12/8/15.

provided with the manual was used to obtain estimate GHG emissions from car, taxi, and truck trips attributable to the proposed actions.

Based on the latest fuel lifecycle model from Argonne National Laboratory,<sup>8</sup> emissions from producing and delivering fuel (“well-to-pump”) are estimated to add an additional 25 percent to the GHG emissions from gasoline and 27 percent from diesel. Although upstream emissions (emissions associated with production, processing, and transportation) of all fuels can be substantial and are important to consider when comparing the emissions associated with the consumption of different fuels, fuel alternatives are not being considered for the proposed development, and as per the *CEQR Technical Manual* guidance, the well-to-pump emissions are not considered in the analysis. The assessment of tailpipe emissions only is in accordance with the *CEQR Technical Manual* guidance on assessing GHG emissions and the methodology used in developing the New York City GHG inventory, which is the basis of the GHG reduction goal.

The projected annual vehicle miles traveled, forming the basis for the GHG emissions calculations from mobile sources, are summarized in **Table 13-2**.

**Table 13-2**  
**Vehicle Miles Traveled per Year**

Roadway Type	Passenger	Taxi	Truck
Local	727,681	200,024	373,107
Arterial	1,587,668	436,417	814,052
Interstate/Expressway	992,293	272,761	508,783
<b>Total</b>	<b>3,307,642</b>	<b>909,202</b>	<b>1,695,942</b>

*CONSTRUCTION EMISSIONS*

A description of construction activities is provided in Chapter 16, “Construction Impacts.” Consistent with CEQR practice, emissions associated with construction have not been estimated explicitly for the proposed developments, but analyses of similar projects have shown that construction emissions (both direct and emissions embedded in the production of materials, including on-site construction equipment, delivery trucks, and upstream emissions from the production of steel, rebar, aluminum, and cement used for construction) are equivalent to the total operational emissions over approximately 5 to 10 years.

*EMISSIONS FROM SOLID WASTE MANAGEMENT*

The proposed actions would not fundamentally change the City’s solid waste management system. Therefore, as per the *CEQR Technical Manual*, the GHG emissions from solid waste generation, transportation, treatment, and disposal are not quantified.

**PROJECTED GHG EMISSIONS**

*BUILDING OPERATIONAL EMISSIONS*

The fuel consumption, electricity use, emission factors, and resulting GHG emissions from the residential uses are presented in detail in **Table 13-3**. The building floor area, emission intensity,

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<sup>8</sup> Based on GREET1\_2016 model from Argonne National Laboratory.

and resulting GHG emissions from other uses are presented in detail in **Table 13-4**. Most of the building emissions would be associated with the residential use.

**Table 13-3**  
**Annual Residential Use and COOP Tech Operational Emissions**

Source	Annual Consumption	Emission Factor	GHG Emissions (metric tons CO <sub>2</sub> e)
<i>Residential:</i>			
Natural Gas	27,000 MMBtu	53.196 Kg CO <sub>2</sub> e/MMBtu <sup>(1)</sup>	1,436
Grid Electricity	9,887 MWh	306.3 metric tons/GWh <sup>(2)</sup>	3,028
<i>Subtotal Residential:</i>			<b>4,465</b>
<i>COOP Tech:</i>			
Natural Gas	16,800 MMBtu	53.196 Kg CO <sub>2</sub> e/MMBtu <sup>(1)</sup>	894
Grid Electricity	2,370 MWh	306.3 metric tons/GWh <sup>(2)</sup>	727
<i>Subtotal COOP Tech:</i>			<b>1,620</b>
<b>Total:</b>			<b>6,085</b>
<b>Notes:</b> Totals may not sum due to rounding. Per <i>CEQR Technical Manual</i> guidance, electricity emissions represent the latest data (2012) and not the future target year (2023). Future emissions are expected to be lower.			
<b>Sources:</b> 1. <i>CEQR Technical Manual</i> 2. The City of New York, <i>Inventory of Climate Change in New York City in 2014, Appendix I</i> , 2016. Note that this factor represents a correction of the factor presented in the <u>2014 CEQR Technical Manual-2014 Edition</u> .			

**Table 13-4**  
**Retail, Public High School, and Parking Operational Emissions**

Source Use	Building Area (gsf)	GHG Intensity <sup>1</sup> (kg CO <sub>2</sub> e / gsf / year)	Annual GHG Emissions (metric tons CO <sub>2</sub> e)
Retail	25,000	9.43	236
Public High School	135,000	5.25 <sup>(2)</sup>	708
Parking	30,000	0.98 <sup>(3)</sup>	30
<b>Total</b>			<b>974</b>
<b>Notes:</b> Totals may not sum due to rounding. Per <i>CEQR Technical Manual</i> guidance, electricity emissions are representative of existing conditions in 2012 and not the future target year (2023). Future emissions are expected to be lower. Representative emission intensity for existing buildings are higher than new and future construction, and do not include the expected energy efficiency measures.			
<b>Sources:</b> 1. <i>CEQR Technical Manual</i> 2. AKRF, 2015, based on <i>Local Law 84 Benchmarking Data Disclosure</i> (for 2015 disclosure, 2014 data) 3. Based on 27,400 Btu/sq.ft./yr., 2001 CEQR Technical Manual.			

**MOBILE SOURCE EMISSIONS**

The mobile-source-related GHG emissions from the proposed actions are presented in detail in **Table 13-5**. Most of the transportation related emissions would be associated with the residential use.

**Table 13-5**  
**Annual Mobile Source Emissions**  
**(metric tons CO<sub>2</sub>e, 2023)**

Use	Passenger Vehicle	Taxi	Truck	Total
High School – Student	104	8	571	684
High School / COOP – Staff	148	11	0	159
Residential	1,468	304	2,088	3,860
Retail	65	115	259	438
COOP – Student	128	34	698	859
<b>Total</b>	<b>1,913</b>	<b>472</b>	<b>3,616</b>	<b>6,000</b>

*SUMMARY*

A summary of GHG emissions by use type is presented in **Table 13-6**. Note that if new buildings were to be constructed elsewhere to accommodate the same number of units and space for other uses, the emissions from the use of electricity, energy for heating and hot water, and vehicle use could equal or exceed those estimated for the proposed project, depending on their location, access to transit, building type, and energy efficiency measures. As described in the “Methodology” section above, construction emissions were not modeled explicitly, but are estimated to be equivalent to approximately 5 to 10 years of operational emissions, including both direct energy and emissions embedded in materials (extraction, production, and transport). The proposed actions are not expected to fundamentally change the City’s solid waste management system, and therefore emissions associated with solid waste are not presented.

**Table 13-6**  
**Summary of Annual GHG Emissions**  
**(metric tons CO<sub>2</sub>e)**

Use	Building Operations	Mobile	Total
Residential	4,495	3,860	8,355
Retail	236	438	674
COOP Tech	1,620	859	2,479
High School	708	843	1,551
<b>Total</b>	<b>7,059</b>	<b>6,000</b>	<b>13,059</b>

**Note:** \*Residential use building operations includes electricity use for the potential indoor parking.

The operational emissions from building energy use include on-site emissions from fuel consumption as well as emissions associated with the production and delivery of the electricity to be used on-site. ~~AvalonBay~~The designated developer is currently evaluating the specific energy efficiency measures and design elements that would be implemented for the residential components of the development (see “Elements That Would Reduce GHG Emissions,” below), and intends to achieve certification under the LEED rating system. To qualify for LEED, the project would be required to exceed the ASHRAE 90.1-2010 standard, resulting in energy expenditure lower than a baseline building designed to meet but not exceed that standard by five percent. New York City has recently increased the stringency of its building code to require energy efficiency equivalent to the newer ASHRAE 90.1-2013 code. Achieving the minimum requirements for LEED certification is estimated to result in energy expenditure that would be at

least two percent lower than the expenditure that would result from meeting the minimum energy requirements of the New York City building code, and would likely be lower than that. While the above estimate for the proposed residential building reflects the current building design, the energy evaluation is not final and detailed design measures may continue to evolve as design to attain LEED energy efficiency requirements progresses. The proposed public high school building will be developed according to SCA guidelines,<sup>9</sup> which are designed to reduce energy expenditure to at least 20 percent below the minimum, which would be achieved under the New York State energy code. In both cases, these requirements would result in lower emissions than those presented above.

### **ELEMENTS THAT WOULD REDUCE GHG EMISSIONS**

The proposed buildings would include a number of sustainable design features that would, among other benefits, result in lower GHG emissions—these features would be specified and required under the conditions of the special permit for the proposed residential building, and under SCA contract requirements for the proposed school buildings.

The proposed residential development would use less energy than it would if built only to meet the building code requirements and is expected to achieve energy expenditure in the range of two to five percent lower than the minimum that would be achieved by building to meet but not exceed the current New York City building code requirements as the minimum requirement for LEED, and possibly better. The proposed high school building, designed to meet SCA requirements, would result in energy efficiency exceeding code requirements by at least 20 percent. While the project aims to design the proposed COOP Tech building to the same level of sustainability, it will not completely meet those guidelines given the need for additional energy and mechanical ventilation demands. COOP Tech is a vocational high school with focus on trade instruction including carpentry, culinary, welding, automotive repair, hair dressing, and computer network systems. The COOP Tech teaching environment entails not just formal classroom lectures but hands-on industrial workshop training that emulates actual field conditions. These specialized curriculum have special ventilation requirements associated with the combination of these industrial type uses with classroom level heating and cooling needs, and cooling demand would also be higher due to heat output from machinery and tools. This type of non-standard use is not well addressed by energy baseline analyses applied in LEED-based evaluations and the SCA-style requirements would therefore not be applied for COOP Tech. Nonetheless, the proposed COOP Tech facility would be designed to include substantial energy efficiency measures such as heat recovery and LED lighting, and would exceed the minimum energy requirements of the building code. The design team will continue to refine and consider additional energy efficiency measures to further reduce energy demand.

In general, dense, mixed-use development with access to transit and existing roadways is consistent with sustainable land use planning and smart growth strategies to reduce the carbon footprint of new development. These features and other measures currently under consideration are discussed in this section, addressing the OneNYC goals as outlined in the *CEQR Technical Manual*. The implementation of the various design measures and features described would result in development that is consistent with the City's emissions reduction goal, as defined in the *CEQR Technical Manual*.

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<sup>9</sup> SCA. NYC Green Schools Guide. Effective 04/30/2016 or later if applicable.

***BUILD EFFICIENT BUILDINGS***

The proposed residential development would have energy-efficient insulation, and appropriate window-to-wall ratio and efficient glazing designed to reduce heat loss and facilitate daylight harvesting by admitting more daylight than solar heat. The energy systems would utilize high-efficiency heating, ventilation, and air conditioning (HVAC) systems. The building would have high-albedo roofs to reduce energy consumption and reduce the buildings contribution to the urban heat-island effect. Motion sensors for lighting would be incorporated resulting in efficient energy consumption.

Efficient lighting and elevators and Energy Star appliances would be installed, where applicable, to reduce electricity consumption. Exterior lighting would likely be energy efficient and directed. Tenants would be provided with submeters for electricity allowing tenants to track and optimize their electricity use. Third-party fundamental and enhanced building energy systems commissioning would be undertaken upon completion of construction to ensure energy performance.

Water conserving fixtures, exceeding the stringent New York City building code requirements, would be installed and water-efficient landscaping would be selected to reduce water consumption, indirectly reducing energy consumption associated with potable water production and delivery. Storage and collection of recyclables would be incorporated in building design. Storage and collection of recyclables would be designed for explicitly. AvalonBay ~~The designated developer~~ may also consider reusing storm water.

As discussed above, using these and potentially other measures, the proposed residential development would exceed the energy efficiency required by New York City building code.

While more detailed information is not yet available for the proposed school components of the project, energy-saving measures will also be considered for the school uses so as to meet SCA's energy efficiency requirements.

***USE CLEAN POWER***

The proposed residential building would use natural gas, a lower carbon fuel, for the operation of the heat and hot water systems. Fuel selection for the proposed school buildings is not yet known.

***TRANSIT-ORIENTED DEVELOPMENT AND SUSTAINABLE TRANSPORTATION***

The project site is located in an area supported by many transit options, including the Second Avenue Subway/96th Street (Q) station immediately adjacent to the project site, the Lexington Avenue/96th Street subway (No. 6 train) station two avenues to the west of the site, the M96 and M15 bus stops immediately adjacent to the site, and the Select Bus Service (express) M15 a couple blocks north of the site. In addition, a dedicated bike lane runs along First Avenue, and City Bike's planned expansion through 2017 is expected to include a bike station at the intersection of East 96th Street and Second Avenue, adjacent to the project site. The applicant would likely pursue opportunities to minimize parking supply through shared or banked parking.

***REDUCE CONSTRUCTION OPERATION EMISSIONS***

Construction specifications would include an extensive diesel emissions reduction program, as described in detail in Chapter 16, "Construction Impacts," including diesel particle filters for

large construction engines and other measures. These measures would reduce particulate matter emissions; while particulate matter is not included in the list of standard GHGs (“Kyoto gases”), recent studies have shown that black carbon—a constituent of particulate matter—may play an important role in climate change.

#### *USE BUILDING MATERIALS WITH LOW CARBON INTENSITY*

For the proposed residential building, if a steel structural system is selected, recycled steel would most likely be used for most structural steel since the steel available in the region is mostly recycled, and high-recycled content would be targeted. The interior components will likely use materials that contain recycled content and/or materials produced regionally. Rapidly renewable materials and certified sustainable wood products may also be considered. Construction waste would be diverted from landfills to the extent practicable by separating out materials for reuse and recycling, with a diversion target of minimum 75 percent.

While more detailed information is not yet available for proposed school components of the project, similar low-carbon materials will be considered for the school uses so as to meet SCA’s requirements.

### **C. RESILIENCE TO CLIMATE CHANGE**

Since the project site will be constructed and operated within a current flood hazard zone, the potential effects of global climate change on the proposed project are considered and measures that would be implemented as part of the project to improve its resilience to climate change are identified.

Standards for analysis of the effects of climate change on a proposed project are still being developed and have not yet been defined in CEQR. However, the Waterfront Revitalization Program (WRP)<sup>10</sup> addresses climate change and sea level rise. The WRP requires consideration of climate change and sea level rise in planning and design of development within the defined Coastal Zone Boundary (the proposed project is within that zone). As set forth in more detail in the *CEQR Technical Manual*, the provisions of the WRP are applied by the New York City Department of City Planning (DCP) and other city agencies when conducting environmental review. The proposed project’s consistency with WRP policies is described in Chapter 2, “Land Use, Zoning, and Public Policy.”

#### **DEVELOPMENT OF POLICY TO IMPROVE CLIMATE CHANGE RESILIENCE**

In recognition of the important role that the federal government has to play to address adaptation to climate change, a federal executive order signed October 5, 2009 charged the Interagency Climate Change Adaptation Task Force, composed of representative from more than 20 federal agencies, with recommending policies and practices that can reinforce a national climate change adaptation strategy. The 2011 progress report by the Task Force included recommendations to build resilience to climate change in communities by integrating adaptation considerations into national programs that affect communities, facilitating the incorporation of climate change risks into insurance mechanisms, and addressing additional cross-cutting issues, such as strengthening

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<sup>10</sup>City of New York Department of City Planning. *The New York City Waterfront Revitalization Program*. October 30, 2013. Approved by NY State Department of State, February 3, 2016.

resilience of coastal, ocean, and Great Lakes communities.<sup>11</sup> In February 2013, federal agencies released Climate Change Adaptation Plans for the first time. The President’s Climate Action Plan<sup>12</sup> outlines a plan for resiliency that includes building stronger and safer infrastructure through agency support in investment, developing standards, and other measures, and was followed by an executive order<sup>13</sup> directing agencies to implement the plan. In January 2015, a Presidential executive order was issued<sup>14</sup> requiring that federal actions use natural systems and approaches where possible when developing adaptation alternatives for consideration, and redefining the floodplain elevation as either future projected levels; the level that results from adding 2 feet (or 3 feet for critical actions) to the current base flood elevation; the “500-year” elevation (elevation of the flood with 0.2 percent probability in any given year); or the level obtained via other methods yet to be developed.

The New York State Sea Level Rise Task Force was created to assess potential impacts on the state’s coastlines from rising seas and increased storm surge. The Task Force prepared a report of its findings and recommendations including protective and adaptive measures.<sup>15</sup> The recommendations are to provide more protective standards for coastal development, wetlands protection, shoreline armoring, and post-storm recovery; to implement adaptive measures for habitats; integrate climate change adaptation strategies into state environmental plans; and amend local and state regulations or statutes to respond to climate change. The Task Force also recommended the formal adoption of projections of sea level rise.

The New York State Climate Action Plan Interim Report identified a number of policy options and actions that could increase the climate change resilience of natural systems, the built environment, and key economic sectors—focusing on agriculture, vulnerable coastal zones, ecosystems, water resources, energy infrastructure, public health, telecommunications and information infrastructure, and transportation.<sup>16</sup> New York State’s Community Risk and Resiliency Act (CRRA)<sup>17</sup> requires that applicants for certain State programs demonstrate that they have taken into account future physical climate risks from storm surges, sea-level rise and flooding, and required the New York State Department of Environmental eConservation (DEC) to establish official State sea-level rise projections. DEC published a revised draft rule (Part 490) in November 2016, proposing to formally adopt existing projections for use (see discussion of NPCC below). These projections will provide the basis for State adaptation decisions and are available for use by all decision makers. CRRA applies to specific State permitting, funding and regulatory decisions, including smart growth assessments; funding for wastewater treatment plants; siting of hazardous waste facilities; design and construction of petroleum and chemical bulk storage facilities; oil and gas drilling, and State acquisition of open space. CRRA requires DEC to publish implementation guidance by 2017.

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<sup>11</sup>The White House Council on Environmental Quality. Progress Report of the Interagency Climate Change Adaptation Task Force: Federal Actions for a Climate Resilient Nation. October, 2011.

<sup>12</sup>Executive Office of the President. *The President’s Climate Action Plan*. June 2013.

<sup>13</sup>The White House. Executive Order [EO 13653]—Preparing the United States for the Impacts of Climate Change. November 1, 2013.

<sup>14</sup>The White House. Executive Order [13690]—Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input. January 30, 2015.

<sup>15</sup>New York State Sea Level Rise Task Force. *Report to the Legislature*. December 2010.

<sup>16</sup>NYSERDA. New York State Climate Action Plan Interim Report. November, 2010.

<sup>17</sup>*Community Risk and Resiliency Act*. Chapter 355, NY Laws of 2014. April 9, 2013. Signed September 22, 2014.

In New York City, the Climate Change Adaptation Task Force is tasked with securing the city's critical infrastructure against rising seas, higher temperatures, and fluctuating water supplies projected to result from climate change. The Task Force is composed of over 35 New York City and State agencies, public authorities, and companies that operate, regulate, or maintain critical infrastructure in New York City. The approaches suggested for the City to create a city-wide adaptation program include ways to assess risks, prioritize strategies, and examine how standards and regulations may need to be adjusted in response to a changing climate.

To assist the task force, the New York City Panel on Climate Change (NPCC), has prepared a set of climate change projections for the New York City region,<sup>18</sup> which was subsequently updated,<sup>19</sup> and has suggested approaches to create an effective adaptation program for critical infrastructure. The NPCC includes leading climatologists, sea-level rise specialists, adaptation experts, and engineers, as well as representatives from the insurance and legal sectors. The climate change projections include a summary of previously published baseline and projected climate conditions throughout the 21st century including heat waves and cold events, intense precipitation and droughts, sea level rise, and coastal storm levels and frequency. NPCC projected that sea levels are likely to increase by up to 30 inches by the 2050s and up to 75 inches by the end of the century (more detailed ranges and timescales are available). In general, the probability of increased sea levels is characterized as “extremely likely,” but there is uncertainty regarding the probability the various levels projected and timescale. Intense hurricanes are characterized as “more likely than not” to increase in intensity and/or frequency, and the likelihood of changes in other large storms (“Nor’easters”) are characterized as unknown. Therefore, the projections for future 1-in-100 coastal storm surge levels for New York City include only sea level rise at this time, and do not account for changes in storm frequency.

The New York City Green Code Task force has also recommended strategies for addressing climate change resilience in buildings and for improving storm water management.<sup>20</sup> Some of the recommendations call for further study, while others could serve as the basis for revisions to building code requirements. Notably, one recommendation was to require new developments within the projected future 100-year floodplain to meet the same standards as buildings in the current 100-year flood zone.

While strategies and guidelines for addressing the effects of climate change are being developed on all levels of government, there are currently no specific requirements or accepted recommendations for development projects in New York City. However, the recently approved revisions to the WRP require consideration of climate change and sea level rise in planning and design of waterfront development. As set forth in more detail in the City’s *CEQR Technical Manual*, the provisions of the WRP are applied by city agencies when conducting environmental review, and are described in detail in Chapter 2, “Land Use, Zoning, and Public Policy.”

The WRP Policy 6.2 requires developments to:

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<sup>18</sup>New York City Panel on Climate Change. *Climate Change Adaptation in New York City: Building a Risk Management Response*. Annals of the New York Academy of Sciences, May 2010.

<sup>19</sup>New York City Panel on Climate Change. *Climate Risk Information 2013: Observations, Climate Change Projections, and Maps*. June 2013.

<sup>20</sup>New York City Green Codes Task Force. *Recommendations to New York City Building Code*. February 2010.

- Consider potential risks related to coastal flooding to features specific to the project, including but not limited to critical electrical and mechanical systems, residential living areas, and public access areas;
- Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the condition and site, the use of the property to be protected, and the surrounding area;
- Integrate consideration of the latest New York City projections of climate change and sea level rise (as published by the NPCC, or any successor thereof) into the planning and design of projects in the city's Coastal Zone;
- Incorporate design techniques in projects that address the potential risks identified and/or which enhance the capacity to incorporate adaptive techniques in the future. Climate resilience techniques should aim to protect lives, minimize damage to systems and natural resources, prevent loss of property, and, if practicable, promote economic growth and provide additional benefits such as provision of public space and intertidal habitat;

Some additional issues identified by WRP policy 6.2 are relevant to projects located directly on or in the water or at the water line and are not applicable to the proposed actions.

Climate change considerations and measures that would be implemented to increase climate resilience are discussed below, addressing the above WRP measures as applicable. Additional climate change considerations may be incorporated into state and/or local laws prior to the development of the proposed project, and any development would be constructed to meet or exceed the codes in effect at the time of construction.

## **RESILIENCE OF THE PROPOSED PROJECT TO CLIMATE CHANGE**

The current base flood elevations (BFE) for the project site, provided by FEMA, (representing the 1-percent probability flood in any given year under current conditions, or the "100-year" flood level) is elevation 12 feet NAVD88. NPCC projected that sea levels are likely to increase by up to 30 inches by the 2050s and up to 75 inches by 2100, which would result in potential flood hazard levels of up to 14.5 feet NAVD88 by the 2050s and up to 18 feet NAVD88. Note that there is uncertainty regarding the rate of sea level rise, and therefore future levels may be lower.

Building design flood elevations (DFE) are one foot higher than the current BFE, per the current building code requirements. Therefore, to ensure that buildings would be protected in future conditions, as sea levels continue to rise, the following measures will be incorporated:

### *ALL BUILDINGS*

- Floodgate (deployable) protection will be incorporated to enable flood protection in future conditions up to an elevation of 19 feet NAVD88 (one foot above the high "100-year" elevation projected for 2100).
- All building aperture (doors, windows, vents, etc.) below 19 feet NAVD88 would be either protected by flood gates or sealed.
- All critical infrastructure, including electrical and communications conduits and connections, and generator fuel storage would be either located above 19 feet NAVD88 or sealed. Electrical conduits will be encased in concrete, and fuel oil will be stored on the

second floor. Communication conduits will be protected as required and the main telecom room will be located on the second floor.

- Elevators will be designed so that all electrical and mechanical systems are either elevated above 19 feet NAVD88 or sealed, and elevators programmed such that in the event of a flood, doors would not open below the second floor.

#### *RESIDENTIAL BUILDING*

- Mechanical equipment rooms with critical equipment would be located above grade on the fourth floor and higher. Some mechanical, electrical, and/or plumbing equipment will be located on the first floor, but will be hung from the slab above or wall mounted above 19 feet NAVD88.
- The domestic water tank supply pump room and automatic fire pump room would be located on the second floor.
- The electrical service switchgear room for the proposed residential building would be located on the second floor.
- The emergency generator would be located on the roof of the proposed COOP Tech building.
- The telecommunications room would be located on the second floor.

#### *COOP TECH*

- Mechanical systems will be located on the roof of the proposed COOP Tech, including boilers, air handling units, exhaust fans, and emergency generator.
- The domestic water booster pump room and automatic fire pump room will be located on the second floor.
- Secondary water supply storage tank will be located on the roof of the proposed COOP Tech.
- Electrical utility service switchgear room will be located on the second floor.
- The diesel-fired emergency generator will be located on the roof of the proposed COOP Tech building.
- The diesel fuel oil storage tanks and associated pumping equipment, serving the emergency generator, will be located on the second floor.

#### *HIGH SCHOOLS*

Detailed design is not yet available for the proposed high school building. However, the schools would be designed per the above guidelines (“All Buildings” above) so as to ensure resilience in future flood conditions. \*

## **A. INTRODUCTION**

This chapter assesses whether the proposed actions would result in significant adverse noise-related impacts.

The number of vehicle trips generated by the proposed project is lower than the threshold that would require any detailed analysis. Consequently, it is not expected that the proposed project would generate sufficient traffic to have the potential to cause a significant noise impact (i.e., it would not result in a doubling of noise passenger car equivalents [Noise PCEs] which would be necessary to cause a 3 dBA increase in noise levels) adjacent to the adjacent Metropolitan Hospital or any other nearby noise receptors. However, the effect of ambient noise (i.e., noise from vehicular traffic) is addressed in the following ~~attachment~~ analysis. An analysis is presented that determines the level of building attenuation necessary to ensure that the proposed buildings' interior noise levels satisfy applicable CEQR interior noise criteria and evaluates noise exposure on the relocated and enhanced playground on the project site.

## **PRINCIPAL CONCLUSIONS**

The analysis finds that the proposed project would not result in any significant adverse mobile source or stationary source noise impacts due to operations of the project.

The CEQR building-attenuation analysis concludes that up to 31 dBA of building attenuation as well as an alternate means of ventilation for the project buildings would be necessary to meet CEQR interior noise level requirements. These requirements would be included in the development agreement between ECF and AvalonBay Communities, Inc. (AvalonBay). Because the proposed buildings would be designed to satisfy these specifications, there would be no significant adverse noise impacts with respect to building attenuation.

Noise levels at the relocated and enhanced playground on the project site would be greater than the 55 dBA  $L_{10(1)}$  CEQR guideline, but would be comparable to other active recreation spaces around New York City. Therefore, there would be no significant adverse noise impacts with respect to the playground.

## **B. ACOUSTICS FUNDAMENTALS**

Sound is a fluctuation in air pressure. Sound pressure levels are measured in units called “decibels” (“dB”). The particular character of the sound that we hear (a whistle compared with a French horn, for example) is determined by the speed, or “frequency,” at which the air pressure fluctuates, or “oscillates.” Frequency defines the oscillation of sound pressure in terms of cycles per second. One cycle per second is known as 1 Hertz (“Hz”). People can hear over a relatively limited range of sound frequencies, generally between 20 Hz and 20,000 Hz, and the human ear does not perceive all frequencies equally well. High frequencies (e.g., a whistle) are more easily

discernable and therefore more intrusive than many of the lower frequencies (e.g., the lower notes on the French horn).

**“A”-WEIGHTED SOUND LEVEL (DBA)**

In order to establish a uniform noise measurement that simulates people’s perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level, or “dBA,” and it is the descriptor of noise levels most often used for community noise. As shown in **Table 14-1**, the threshold of human hearing is defined as 0 dBA; quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

**Table 14-1  
Common Noise Levels**

Sound Source	(dBA)
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	80–90
Busy city street, loud shout	80
Busy traffic intersection	70–80
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas, or residential areas close to industry	50–60
Background noise in an office	50
Suburban areas with medium-density transportation	40–50
Public library	40
Soft whisper at 5 meters	30
Threshold of hearing	0
<p><b>Note:</b> A 10 dBA increase in level appears to double the loudness, and a 10 dBA decrease halves the apparent loudness.</p> <p><b>Sources:</b> Cowan, James P. <i>Handbook of Environmental Acoustics</i>, Van Nostrand Reinhold, New York, 1994. Egan, M. David, <i>Architectural Acoustics</i>. McGraw-Hill Book Company, 1988.</p>	

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. Thus, the background noise in an office, at 50 dBA, is perceived as twice as loud as a library at 40 dBA. For most people to perceive an increase in noise, it must be at least 3 dBA. At 5 dBA, the change will be readily noticeable.

**SOUND LEVEL DESCRIPTORS**

Because the sound pressure level unit of dBA describes a noise level at just one moment and few noises are constant, other ways of describing noise that fluctuates over extended periods have been developed. One way is to describe the fluctuating sound heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the “equivalent sound level,”  $L_{eq}$ , can be computed.  $L_{eq}$  is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by  $L_{eq(1)}$ , or 24 hours, denoted by  $L_{eq(24)}$ ), conveys

the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as  $L_1$ ,  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$ , and  $L_x$ , are used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively.

The relationship between  $L_{eq}$  and levels of exceedance is worth noting. Because  $L_{eq}$  is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates little,  $L_{eq}$  will be approximately  $L_{50}$  or the median level. If the noise fluctuates broadly, the  $L_{eq}$  will be approximately equal to the  $L_{10}$  value. If extreme fluctuations are present, the  $L_{eq}$  will exceed  $L_{90}$  or the background level by 10 or more decibels. Thus the relationship between  $L_{eq}$  and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the  $L_{eq}$  is generally between  $L_{10}$  and  $L_{50}$ .

For purposes of the proposed project, the  $L_{10}$  descriptor has been selected as the noise descriptor to be used in this noise impact evaluation. The 1-hour  $L_{10}$  is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines for City environmental impact review classification.

## C. NOISE STANDARDS AND CRITERIA

### NEW YORK CEQR NOISE CRITERIA

The *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table 14-2**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior  $L_{10(1)}$  noise level (see **Table 14-3**). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential or classroom uses and interior noise levels of 50 dBA or lower for retail, laboratory, administrative, or office uses.

**Table 14-2  
Noise Exposure Guidelines For Use in City Environmental Impact Review<sup>1</sup>**

Receptor Type	Time Period	Acceptable General External Exposure	Airport <sup>3</sup> Exposure	Marginally Acceptable General External Exposure	Airport <sup>3</sup> Exposure	Marginally Unacceptable General External Exposure	Airport <sup>3</sup> Exposure	Clearly Unacceptable General External Exposure	Airport <sup>3</sup> Exposure
Outdoor area requiring serenity and quiet <sup>2</sup>		$L_{10} \leq 55$ dBA	$L_{dn} \leq 60$ dBA	NA	$60 < L_{dn} \leq 65$ dBA	NA	$(i) 70 \leq L_{dn}$ $(ii) 65 < L_{dn} \leq 70$ dBA	NA	$L_{dn} \leq 75$ dBA
Hospital, nursing home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA		$65 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
Residence, residential hotel, or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		$65 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	10 PM to 7 AM	$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, outpatient public health facility		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)	
Commercial or office		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)	
Industrial, public areas only <sup>4</sup>	Note 4	Note 4	Note 4	Note 4	Note 4				
<p><b>Notes:</b></p> <p>(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more; (ii) <i>CEQR Technical Manual</i> noise criteria for train noise are similar to the above aircraft noise standards: the noise category for train noise is found by taking the <math>L_{dn}</math> value for such train noise to be an <math>L_{dn}</math> (<math>L_{dn}</math> contour) value.</p> <p><b>Table Notes:</b></p> <p><sup>1</sup> Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.</p> <p><sup>2</sup> Tracts of land where serenity and quiet are extraordinarily important and serve an important public need, and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheatres, particular parks or portions of parks, or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and nursing homes.</p> <p><sup>3</sup> One may use FAA-approved <math>L_{dn}</math> contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.</p> <p><sup>4</sup> External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).</p> <p><b>Source:</b> New York City Department of Environmental Protection (adopted policy 1983).</p>									

**Table 14-3  
Required Attenuation Values to Achieve Acceptable Interior Noise Levels**

Noise Level with Proposed Action	Marginally Unacceptable				Clearly Unacceptable
	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation <sup>A</sup>	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)^B$ dB(A)
<p><b>Notes:</b></p> <p><sup>A</sup> The above composite window-wall attenuation requirements are for residential dwellings and community facility development. Commercial uses would require 5 dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.</p> <p><sup>B</sup> Required attenuation values increase by 1 dB(A) increments for <math>L_{10}</math> values greater than 80 dBA.</p> <p><b>Source:</b> New York City Department of Environmental Protection.</p>					

## D. EXISTING NOISE LEVELS

Existing noise levels at the project site were measured at four locations. Site 1 was located on East 97th Street between First and Second Avenues, Site 2 was located on First Avenue between East 96th and 97th Streets, Site 3 was located on East 96th Street between First and Second Avenues, and Site 4 was located on Second Avenue between East 96th and 97th Streets (see **Figure 14-1**).

At each receptor site, the existing noise levels were measured for a 20-minute period during each of the three weekday peak periods—AM (7:00 AM to 9:00 AM), midday (MD) (12:00 PM to 2:00 PM), and PM (4:30 PM to 6:30 PM). Measurements were taken on September 28, 2016 and October 18, 2016.

### EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using a Brüel & Kjær Sound Level Meters (SLMs) Type 2260 and Type 2270, Brüel & Kjær ½-inch microphones Type 4189, and Brüel & Kjær Sound Level Calibrators Type 4231. The SLMs had a valid laboratory calibration within 1 year, as is standard practice. The Brüel & Kjær SLMs are a Type 1 instrument according to ANSI Standard S1.4-1983 (R2006). The microphones were mounted at a height of approximately five feet above the ground surface on a tripod and at least approximately 5 feet away from any large reflecting surfaces. The SLMs were calibrated before and after readings with Brüel & Kjær Type 4231 Sound Level Calibrators using the appropriate adaptor. Measurements were made on the A-scale (dBA). The data were digitally recorded by the sound level meters and displayed at the end of the measurement period in units of dBA. Measured quantities included  $L_{eq}$ ,  $L_1$ ,  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$ , and 1/3 octave band levels. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

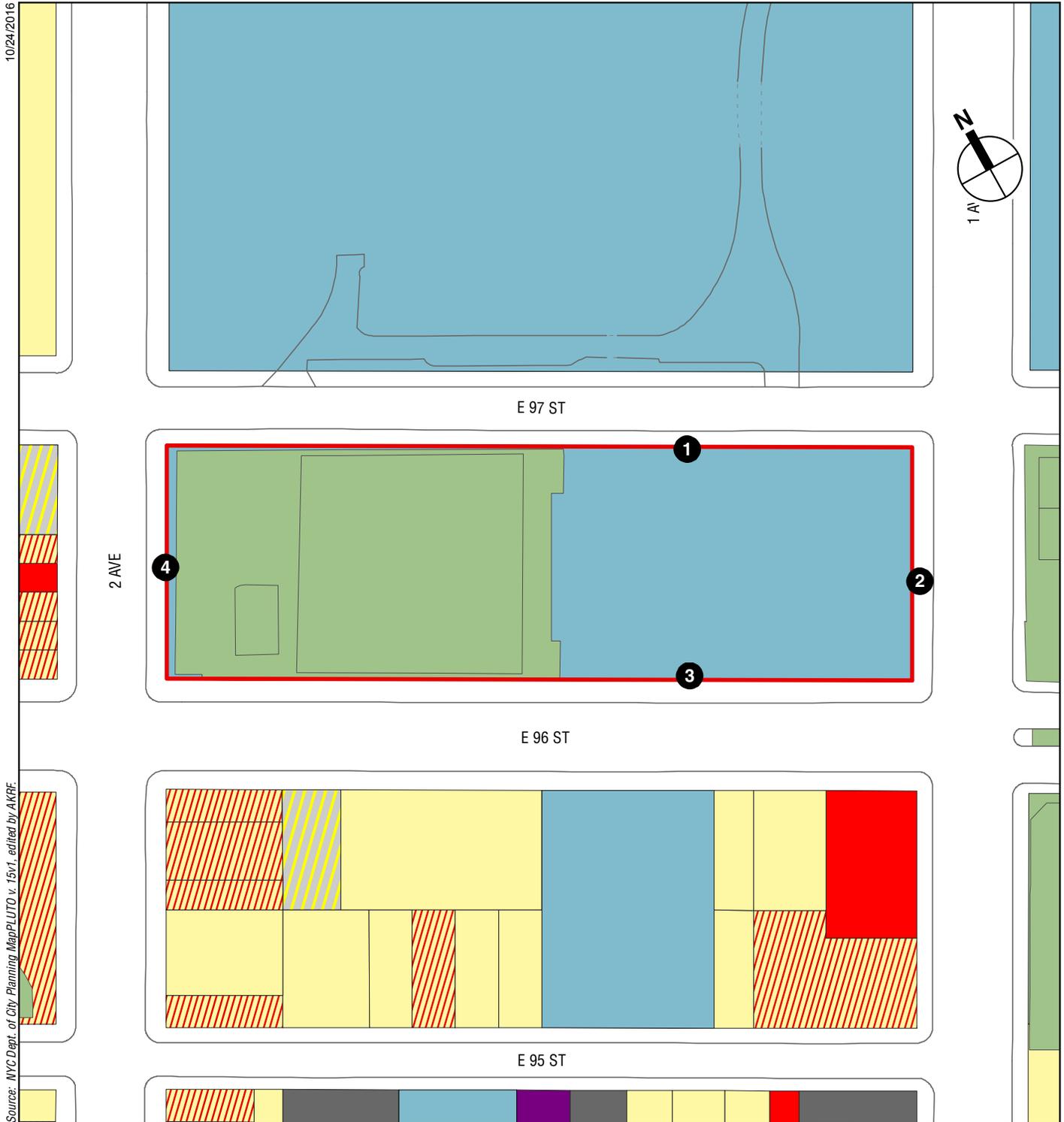
The results of the existing noise level measurements are summarized in **Table 14-4**.

At each receptor site, vehicular traffic was the dominant noise source. Measured levels at Sites 2, 3, and 4 are moderate and measured levels at Site 1 are mild, reflecting the level of vehicular activity on the adjacent roadways. In terms of the CEQR criteria, the existing noise levels at Site 1 are in the “acceptable” category, and the existing noise levels at Sites 2, 3, and 4 are in the “marginally acceptable” category.

**Table 14-4**  
**Existing Noise Levels in dBA**

Site	Location	Time Period	$L_{eq}$	$L_1$	$L_{10}$	$L_{50}$	$L_{90}$
1	East 97th Street between First and Second Avenues	AM	65.8	71.4	68.8	64.5	60.2
		MD	66.7	75.0	69.2	65.0	60.4
		PM	65.6	72.8	68.2	64.4	60.0
2	First Avenue between East 96th and 97th Streets	AM	71.4	80.2	74.4	68.4	63.4
		MD	71.3	81.0	74.6	67.8	63.4
		PM	71.0	79.0	74.3	68.7	63.4
3	East 96th Street between First and Second Avenues	AM	70.3	79.5	72.7	67.7	64.3
		MD	71.1	77.9	73.6	68.8	66.4
		PM	69.1	76.8	72.2	67.2	62.6
4	Second Avenue between East 96th and 97th Streets	AM	71.1	78.8	73.6	69.0	66.5
		MD	72.4	81.8	75.0	69.4	66.0
		PM	68.6	76.9	71.8	66.4	62.6

**Note:** Noise measurements were performed on September 28, 2016, and October 18, 2016.



10/24/2016

Source: NYC Dept. of City Planning MapPLUTO v. 15v1, edited by AKRF

- Project Site
- Noise Receptor Location
- Commercial and Office Buildings
- Industrial and Manufacturing
- Open Space and Outdoor Recreation
- Parking Facilities
- Public Facilities and Institutions
- Residential
- Residential with Commercial Below
- Under Construction

0 100 FEET

**E. NOISE ATTENUATION MEASURES**

As shown in **Table 14-3**, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior  $L_{10(1)}$  noise levels in order to maintain interior noise levels of 45 dBA or lower for residential or classroom uses and interior noise levels of 50 dBA or lower for retail, laboratory, administrative, or office uses. The results of the building attenuation analysis are summarized in **Table 14-5**.

**Table 14-5**  
**CEQR Building Attenuation Requirements**

Building	Façade(s)	Associated Noise Receptor Site	Height Above Street Level (feet)	Maximum Measured or Projected $L_{10}$ (in dBA)	Attenuation Required <sup>1</sup> (in dBA)
Eastern Building (high schools)	North	1	All	69.2	N/A <sup>2</sup>
	East	2	0-100	74.6	31
			101 and above	71.6	28
	South / West	3	0-100	73.6	31
101 and above			70.6	28	
Western Building (residential/retail/tech school)	North	1	All	69.2	N/A <sup>2</sup>
	East / South	3	0-100	73.6	31
			101 and above	70.6	28
	West	4	0-100	75.0	31
101 and above			72.0	28	

**Notes:** <sup>1</sup> The CEQR attenuation requirements shown are for residential use; commercial uses would require 5 dBA less attenuation.  
<sup>2</sup> "N/A" indicates that the highest measured  $L_{10}$  is below 70 dBA. The *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior  $L_{10}$  values below this level.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade consists of wall, glazing, and any vents or louvers associated with the building mechanical systems in various ratios of area. Currently, the design for the proposed buildings includes acoustically rated windows and air conditioning as an alternate means of ventilation. The proposed buildings' façades, including these elements, would be designed to provide a composite Outdoor-Indoor Transmission Class (OITC) rating<sup>1</sup> greater than or equal to those listed in above in **Table 14-5**, along with an alternative means of ventilation. These requirements would be included in the development agreement between ECF and AvalonBay Communities. By adhering to these design specifications, the proposed buildings will thus provide sufficient attenuation to meet the *CEQR Technical Manual* interior noise level requirement of no greater than 45 dBA  $L_{10(1)}$  for residential or classroom uses and no greater than 50 dBA  $L_{10(1)}$  for retail, laboratory, administrative, or office uses.

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<sup>1</sup> The OITC classification is defined by ASTM International (ASTM E1332) and provides a single-number rating that is used for designing a building façade including walls, doors, glazing, and combinations thereof. The OITC rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise.

## F. NOISE AT THE MARX BROTHERS PLAYGROUND

Based on predicted noise levels at receptor Sites 1 and 3,  $L_{10(1)}$  noise levels at the relocated and enhanced Marx Brothers Playground are expected to be in the high 60s to low 70s dBA. These levels would be in the “marginally acceptable” or “marginally unacceptable” category and greater than the 55 dBA  $L_{10(1)}$  recommended noise level for outdoor areas requiring serenity according to the *CEQR Technical Manual* noise exposure guidelines. Because the dominant noise at the project site results from traffic noise on adjacent roadways, there are no practical and feasible mitigation measures that could be implemented to reduce noise levels to below 55 dBA  $L_{10(1)}$  within the relocated playground. Although noise levels at the playground would be above the guideline noise levels, they would be comparable to noise levels in a number of existing open space areas that are located adjacent to heavily trafficked roadways, including Hudson River Park, Riverside Park, Bryant Park, Fort Greene Park, and other urban open space areas. The guidelines are a worthwhile goal for outdoor areas requiring serenity and quiet. However, due to the level of activity present at most New York City open space areas and parks (except for areas far away from traffic and other typical urban activities) such a relatively low noise level is often not achieved. Furthermore, the active recreation uses anticipated to occur in the relocated playground are not likely to have the same requirements for serenity and quiet as other open space areas in New York City whose primary use would be passive recreation. Therefore, the noise levels at the relocated and enhanced Marx Brothers Playground would not constitute a significant adverse noise impact.

## G. MECHANICAL EQUIPMENT

It is assumed that the building’s mechanical systems (i.e., HVAC systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code) and to avoid producing levels that would result in any significant increase in ambient noise levels at the adjacent Metropolitan Hospital or any other nearby noise receptors. Therefore, the proposed project would not result in any significant adverse noise impacts related to building mechanical equipment. \*

**A. INTRODUCTION**

This chapter considers the effects of the proposed actions on neighborhood character. Neighborhood character is an amalgam of various elements that give a neighborhood its distinct “personality.” These elements may include a neighborhood’s land use, urban design, visual resources, historic resources, socioeconomics, traffic, and/or noise. Not all of these elements affect neighborhood character in all cases; a neighborhood usually draws its distinctive character from a few defining elements. According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, neighborhood character impacts are rare and it would be under unusual circumstances that, in the absence of an impact in any of the relevant technical areas, a combination of moderate effects to the neighborhood would result in an impact to neighborhood character. Moreover, a significant impact identified in one of the technical areas that contribute to a neighborhood’s character is not automatically equivalent to a significant impact on neighborhood character.

As described in greater detail in Chapter 1, “Project Description,” the proposed actions would result in the development of a mixed-use, ~~6368~~-story tower on Second Avenue containing a replacement facility for the existing School of Cooperative Technical Education (COOP Tech), up to 1,200 residential units, and approximately 25,000 gsf of retail space, and an 8-story building on First Avenue that would contain two public high schools that would relocate from nearby locations within Community Board 11. As described in the relevant chapters of this Environmental Impact Statement (EIS), the proposed actions would result in significant adverse traffic, pedestrian, and transit impacts.

The *CEQR Technical Manual* provides that where a potential significant adverse impact is identified in another technical area, it is appropriate to conduct a preliminary neighborhood character assessment to identify the defining features of the neighborhood character within the study area in order to determine whether the project has the potential to significantly impact such defining features. This analysis, provided below, considers the impacts of the proposed project on the neighborhood character of the study area, and relies in part on the analyses of other technical areas that may affect components of neighborhood character as analyzed elsewhere in this Environmental Impact Statement (EIS).

**PRINCIPAL CONCLUSIONS**

The preliminary neighborhood character analysis presented below concluded that the proposed project would not result in any significant adverse impacts on neighborhood character, and that a detailed analysis was not necessary. The proposed project would be compatible with the existing residential, institutional, and commercial uses that define the surrounding area. It is anticipated that the proposed project would create a new, active residential, institutional, and commercial destination at the project site, enhance the relocated Marx Brothers Playground and COOP Tech, and contribute to the essential character of the area.

Although the proposed actions would result in significant adverse traffic, pedestrian, and transit impacts, as described in Chapter 18, “Mitigation,” most of these impacts could be mitigated through standard measures (e.g., signal timing changes, crosswalk widening, increasing the number of buses for affected routes). Discussions with New York City Transit (NYCT) are underway to identify mitigation options for the anticipated stairway impact at the 96th Street-Lexington Avenue subway station and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and the discussions with NYCT do not identify any ~~If no~~ feasible mitigation measures ~~are found~~, the identified significant adverse stairway impact would be unmitigated. While there would be increased transportation activity in the surrounding neighborhood in the future with the proposed actions, the resulting conditions—even if partially unmitigated—would be similar to those seen in the high activity urban neighborhoods defining the study area and would not result in conditions that would be out of character with the study area or surrounding neighborhoods.

## **B. METHODOLOGY**

An analysis of neighborhood character begins with a preliminary assessment to determine whether changes expected in other technical areas may affect a contributing element of neighborhood character. The assessment should identify the defining features of the neighborhood, and assess whether the project has the potential to affect these defining features, either through the potential for significant adverse impacts or a combination of moderate effects. Therefore, this analysis also evaluates the potential for the proposed project to affect neighborhood character through a combination of effects.

Since the DEIS identifies that the proposed actions would result in significant adverse traffic, pedestrian, and transit impacts, and includes analyses of several environmental impact categories that may include identification of moderate effects which, taken together, may have potential to affect defining features of the neighborhood character of the study area (i.e. land use, socioeconomic conditions, open space, urban design and visual resources, historic, shadows, transportation, and noise), a preliminary assessment of neighborhood character has been prepared. The preliminary assessment describes the defining features of the neighborhood and then assesses the potential for the proposed project to affect these defining features. As recommended in the *CEQR Technical Manual*, the study area for the neighborhood character analysis is consistent with the study areas in the relevant technical areas assessed under CEQR that contribute to the defining elements of the neighborhood.

## **C. PRELIMINARY ASSESSMENT**

### **DEFINING FEATURES**

The neighborhood character of the study area is defined by a mix of land uses and building types, the existing street grid, existing urban traffic patterns, and proximity to the FDR and East River. The neighborhood surrounding the project site has historically been, and is currently, predominantly a residential community, including large-scale New York City Housing Authority (NYCHA) developments along with other large residential developments. The area also includes large institutional uses, specifically the New York Health & Hospital Corporation (HHC) Metropolitan Hospital ~~Center~~ directly north of the project site. The study area is also in large part defined by its proximity to the East River and the Franklin D. Roosevelt (FDR) Drive. As

described in Chapter 2, “Land Use, Zoning, and Public Policy,” the study area contains primarily residential uses with commercial uses along the avenues. The northern portion of the study area between East 96th Street and East 102nd Street is characterized by large-scale NYCHA housing developments and the HHC Metropolitan Hospital-Center. The southern portion of the study area between East 96th Street and East 91st Street is characterized by tall residential towers with large footprints that occupy very large, though-block sites, with ground floor commercial uses or below-grade parking facilities.

The street pattern in the area generally follows the typical Manhattan grid, with wide avenues running north-south and narrow cross streets running east-west, creating long, wide blocks. Just north of the project site, the street pattern is interrupted by several superblocks containing the Metropolitan Hospital ~~Center~~ and NYCHA’s George Washington Houses. The other streets in the study area are mainly one-way and are less busy. Several are discontinuous, due to the presence of the superblocks described above. The FDR Drive, which is elevated north of East 94th Street, is visible throughout much of the study area, including in views east from the project site on East 96th and 97th Streets.

#### **POTENTIAL TO AFFECT THE DEFINING FEATURES OF THE NEIGHBORHOOD**

As described in Chapter 1, “Project Description,” the proposed project would result in the relocation and enhancement of the existing jointly operated playground on the project site as well as a new state-of-the-art facility for COOP Tech and new, larger facilities for the Heritage School and Park East High School. The proposed actions also would facilitate the productive use of the project site by creating up to 1,200 new residential units, 30 percent of which would be designated as affordable pursuant to the Mandatory Inclusionary Housing (MIH) program.

As noted above, the defining features of the study area includes its existing mix of land uses and building types, the existing street grid, existing urban traffic patterns, and proximity to the FDR Drive and East River. As a general matter, the proposed actions would not adversely affect surrounding land uses, nor would the proposed actions generate land uses that would be incompatible with land uses or zoning in the neighborhood. Furthermore, as described in Chapter 2, “Land Use, Zoning, and Public Policy,” the proposed actions would not result in land uses that conflict with public policies applicable to the study area. The proposed project would have a positive effect on neighborhood character by replacing the existing technical school with an improved school facility, enhancing the existing Marx Brothers Playground, and introducing new residential and retail uses and relocated public high school uses to the project site.

The relocated public high school uses to the project site, and the replacement and improvements of the existing playground and technical school uses on the project site, will enhance the character of neighborhood by alleviating over-crowded conditions for the high schools located on the project site, by providing modern educational facilities for students, and by providing a new playground for enhanced physical education opportunities. Furthermore, the introduction of new residential and ground-floor retail uses would be anticipated to activate the street frontages surrounding the project site along Second Avenue and East 96th Street, which would enhance the pedestrian experience in the area. This would be anticipated to attract more pedestrians to the project block who would reside in the new residential building or who may shop at the ground-floor retail locations. Because the defining features of the study area include larger residential developments with ground floor retail uses, the project enhances the existing defining features of the neighborhood character in the project area.

While the proposed actions will generally enhance the existing defining features of the neighborhood character within the study area, potential transportation impacts resulting from the project, and other relevant impact areas, were evaluated in connection with any potential impacts they could have on such defining features. As discussed below, the proposed project's significant adverse transportation impacts would not adversely affect neighborhood character. In addition, the *CEQR Technical Manual* advises that additional analysis of neighborhood character may be warranted based on the potential for a project to result in a combination of moderate effects in more than one technical area on the defining features of the neighborhood character. A "moderate" effect is generally defined as an effect considered reasonably close to the significant adverse impact threshold for a particular technical analysis area. As discussed below and throughout this EIS, the proposed project would not result in moderate effects that would be reasonably close to the impact thresholds in the other technical areas. Therefore, the proposed project would not have the potential to affect neighborhood character through a combination of moderate effects.

#### *TRANSPORTATION*

In terms of existing traffic conditions, levels of service (LOS) at most of the intersections analyzed in Chapter 11, "Transportation," operate at mid-LOS D or better (delays of 45 seconds or less per vehicle for signalized intersections) for all peak hours. Like many neighborhoods in New York City, the character of the study area is defined by a wide range of travel modes, with moderate foot traffic on most of the area's sidewalks and crosswalks, a mix of auto/taxi/service traffic on the streets, and transit services nearby. The foot traffic patterns and timing for pedestrian activity associated with residents, workers, and visitors are consistent with the mix of office, retail, and residential uses in the area. The proposed project would add incremental vehicle and person trips to the study area, resulting in significant adverse vehicular and pedestrian traffic impacts at several locations. As described in Chapter 18, "Mitigation," most of the traffic impacts, with the exception of impacts at three intersections, could be fully mitigated with the implementation of standard traffic mitigation measures (e.g., signal timing changes).

The project area is served by the ~~New York City Transit (NYCT)~~ Lexington Avenue line with the nearest station at East 96th Street, the M15 and M15 SBS bus route along First and Second Avenues, the crosstown M96 bus route along East 96th Street, and other local bus routes in the study area. With the completion of the first phase of the Second Avenue Subway line at the end of 2016, many subway riders in the area are expected to shift from the Lexington Avenue line to the Second Avenue line. The proposed project also would result in bus line-haul impacts for the westbound M96, and northbound and southbound M15 routes during the weekday PM peak hour, a significant adverse pedestrian impact at one crosswalk during the weekday AM and PM peak hours, and a significant adverse subway stairway impact at the S4 stairway at the 96th Street-Lexington Avenue station during the weekday AM peak hour. The pedestrian impact mitigation measures consist of widening existing crosswalks, and bus line-haul mitigation measures would consist of reducing headways by increasing the number of buses for the impacted routes. For the subway stairway impact, discussions with NYCT are underway to identify mitigation options and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and the discussions with NYCT do not identify any ~~If no~~ feasible mitigation measures ~~are found~~, the identified impact would be unmitigated.

It should be noted that there are often traffic enforcement agents present to direct traffic flow at these study area intersections, and thus the actual traffic conditions are likely more favorable than shown by the analysis results. In addition, the transportation analysis conservatively assumed that peak travel by the proposed project's residential and school uses would take place during the same commuter peak hours, while in reality, they typically stagger over an approximately two-hour window in the morning and minimally overlap in the afternoon. While there would be increased traffic activity in the future with the proposed actions, the resulting conditions—even if unmitigated—would be similar to those seen in the high activity urban neighborhoods defining the study area and would not result in conditions that would be out of character with the study area or surrounding neighborhoods. Therefore, while certain traffic impacts would not be fully mitigated, this would not result in a significant adverse neighborhood character impacts.

#### *HISTORIC AND CULTURAL RESOURCES*

As described in Chapter 7, "Historic and Cultural Resources," there are several historic resources in the study area which contribute to the character of the neighborhood. These include brick tenement buildings dating from the late 1880s on Second Avenue and East 96th Street; the former P.S. 150 (now the Life Sciences Secondary School, M655), located at 320 East 96th Street, on the south side of East 96th Street opposite the project site; and the FDR Drive. While the proposed project would result in changes to the relationship of the project site to the historic resources in the surrounding area, these changes would not be reasonably close to the significant adverse impact threshold and would not have an effect on the defining features of the neighborhood character in the study area. Therefore, the proposed project would not result in any significant adverse neighborhood character impacts related to historic or cultural resources.

#### *SOCIOECONOMIC CONDITIONS*

In terms of socioeconomic conditions, the study area's character is defined by median incomes less than Manhattan's average and higher than New York City's average, as a whole. An estimated 53,586 residents live within ½-mile of the project area, and the area is considered a well-established and strong residential market, with an existing trend toward more costly housing and a higher income population. While the proposed actions would likely add new population with a higher average household income as compared to existing households, the increase in population would not be large enough relative to the size of the No Action study area population to potentially affect real estate market conditions in the study area.

In addition, the additional retail introduced by the proposed project would not introduce a new trend in the study area and the proposed project that might have the potential to displace existing businesses. Most of the commercial and food-related retail, boutiques, bars, and restaurants that define the character of the neighborhood are located along Lexington Avenue and Second Avenue. While the proposed project would provide new retail opportunities on Second Avenue they would complement the existing surrounding commercial uses. Therefore, the proposed project would not result in any significant adverse neighborhood character impacts related to socioeconomic conditions.

#### *OPEN SPACE AND SHADOWS*

As described in Chapter 5, "Open Space," there are approximately 17 acres of publicly accessible open space within the ½-mile residential study area; of which approximately 14 acres

are considered primarily active recreation and 3 acres are considered primarily for passive recreation. These open spaces include parks, playgrounds, community gardens, and a pier and esplanade along the East River. As further described in Chapter 5, “Open Space,” the proposed project would not have any indirect effects that would result in significant adverse open space impacts as a result of reduced open space ratios. Furthermore the analysis concludes that no direct, significant adverse impacts on existing open space in terms of air quality, noise, odors, or shadows. Specifically, Chapter 6, “Shadows,” found that shadows from the proposed project would fall on several sunlight-sensitive open space resources at certain times of day in certain seasons, but in no case would the new shadows significantly impact the use or usability of the resource or any vegetation within the resource. While some shadows may be cast by the proposed project, such shadows are not reasonably close to the significant adverse impact threshold, and the project will serve to enhance upon the existing open space in the study area. Therefore, the proposed project would not result in any significant adverse neighborhood character impacts related to socioeconomic conditions.

#### *URBAN DESIGN AND VISUAL RESOURCES*

The proposed project would require a rezoning as well as height and setback waivers. The urban design character of the neighborhood would change in the future with the proposed actions, in particular with the addition of the proposed Second Avenue building, which would be the tallest building north of 59th Street, and the tallest building in the study area by at least 263 feet. As such, it would be a prominent addition to surrounding view corridors. At a built FAR of approximately 9.69, less than the maximum allowable FAR of 12.0, the overall density of the new development; ~~however, the proposed building on Second Avenue would not be out of context-scale with the other tall residential and mixed-use buildings to the south; however, in comparison to other developments, the majority of the density on the project site would be oriented along Second Avenue rather than distributed more evenly across the project block.~~ ~~and~~ ~~¶~~ The proposed building on First Avenue would not be out of context with other larger institutional buildings in the area. The proposed actions also would enhance the appearance and utility of the Marx Brothers Playground on the project site. The proposed buildings would create cohesive street frontages and stronger streetwalls along Second Avenue and First Avenue, and these stronger streetwalls would be expected to enhance the pedestrian experience along adjacent sidewalks. While the design character of the neighborhood would be altered by the proposed actions, ~~because the project would be in context with~~ expected to strengthen the pedestrian experience of the surrounding built environment, the project will serve to enhance upon the existing urban design of the study area. Therefore, the proposed actions would not result in significant adverse neighborhood character impacts related to urban design and visual resources.

#### *NOISE*

As stated in Chapter 14, “Noise,” the proposed project would not result in any significant adverse mobile source or stationary source noise impacts due to operations of the project. Due to the proximity of the project site to FDR Drive and the level of traffic on the roadway, vehicular traffic is the dominant noise source in the study area and noise levels are classified as “marginally acceptable” or “marginally unacceptable” according to the *CEQR Technical Manual*.

While noise levels in the relocated playground would exceed *CEQR Technical Manual* noise level guidelines for outdoor areas, these levels would be comparable to other active open spaces

in New York City and would not adversely affect neighborhood character. Furthermore, by adhering to the design specifications outlined in Chapter 14, “Noise,” the proposed buildings will provide sufficient attenuation to meet the *CEQR Technical Manual* interior noise level requirements for the proposed uses, and thus would not adversely affect neighborhood character.

**CONCLUSION**

As discussed above, the proposed project’s significant adverse transportation impacts would not adversely affect neighborhood character. Furthermore, as discussed above and throughout this EIS, the proposed project would not result in moderate effects that would be reasonably close to the impact thresholds in the other technical areas. Therefore, the proposed project would not have the potential to affect neighborhood character through a combination of moderate effects. \*

**A. INTRODUCTION**

As described in Chapter 1, “Project Description,” the project site is the full block bounded by East 96th and 97th Streets and First and Second Avenues. The proposed project would develop a ~~6368~~-story (approximately 760-foot-tall) building on the western side of the project block, facing Second Avenue, and an 8-story (approximately 185-foot-tall) building on the eastern side of the project block, facing First Avenue. The western building would include residential, commercial retail, and public school use, as well as possibly up to 120 accessory parking spaces. The eastern building would house two public high schools that would relocate from nearby locations within Community Board 11. In addition, the proposed project would relocate the Marx Brothers Playground to the midblock—a move which is desired by the New York City Department of Parks & Recreation (NYC Parks) in order to buffer the playground use from the active First Avenue and Second Avenue corridors—and would include improvements to the playground.

This chapter summarizes the construction program for the proposed project and assesses the potential for significant adverse impacts during construction. The city, state, and federal regulations and policies that govern construction are described, followed by the anticipated construction schedule and the types of activities likely to occur during the construction. The types of equipment to be used during construction are discussed, along with the anticipated number of workers and truck deliveries. Based on this information, an assessment is provided of the potential impacts from construction activities.

**PRINCIPAL CONCLUSIONS**

Construction of the proposed project—as is the case with any construction project—would result in some temporary disruptions in the surrounding area. The project’s construction phasing plan must incorporate the need to maintain the operations of the School of Cooperative Technical Education (COOP Tech) at its current location until the replacement school is completed. As such, the overall construction of the proposed project is anticipated to take approximately five years to complete. Construction of the western building would take place over approximately 45 months, with the anticipated construction start date of June 2018 through February 2022. Construction of the COOP Tech replacement school is anticipated to be complete in the spring of 2021 with classes ready for commencement at this new location in September 2021. Construction of the eastern building would take place over approximately 26 months, with the anticipated construction start date of August 2021 through September 2023; there would be an overlap of approximately 7 months with the construction of the western building. As described in detail below, construction activities associated with the proposed project would result in temporary significant adverse impacts in the areas of traffic, noise, and open space. Additional information for key technical areas is summarized below.

### TRANSPORTATION

For purposes of the construction traffic analysis, the peak quarter of construction traffic was assessed. Compared with the No Action condition, construction activities associated with the proposed project would generate 384 more daily passenger car equivalents (PCEs) during peak construction. During the 6:00 to 7:00 AM and 3:00 to 4:00 PM construction traffic peak hours, the incremental construction PCEs would exceed the 2014 *City Environmental Quality Review (CEQR) Technical Manual* threshold of 50 vehicle-trips and would generate 126 and 90 PCEs, respectively. However, the peak construction traffic increments (during the second quarter of 2020) during these peak hours would be much lower than the full operational traffic increments associated with the proposed project in 2023 during the 8:00 to 9:00 AM and 5:00 to 6:00 PM commuter peak hours. Therefore, if traffic impacts occur during the peak construction they are expected to be within the envelope of significant adverse traffic impacts identified for the With Action condition in Chapter 11, “Transportation.” In addition to the above comparison between operational and construction traffic increments, an assessment of cumulative operational and construction effects (when construction of the western building is completed and operational and the eastern building is still under construction) showed that the cumulative trip-making during any point of project development in the morning and afternoon hours would be lower than the critical 8:00 to 9:00 AM and 5:00 to 6:00 PM commuter peak hours, for which project-related impacts were identified. Therefore, all potential traffic impacts and required mitigation measures have been identified as part of the assessment of the full build-out of the proposed project.

As detailed in Chapter 18, “Mitigation,” measures to mitigate the 2023 operational traffic impacts were recommended for implementation at up to five intersections during one or more of the weekday analysis peak hours. These measures would encompass primarily signal timing changes, which could be implemented early at the discretion of the New York City Department of Transportation (DOT) to address actual conditions experienced at that time. As with the operational condition, there could also be significant adverse traffic impacts at the intersections of East 96th Street and York Avenue/FDR Northbound Ramp, East 96th Street and FDR Southbound Ramp, East 96th Street and First Avenue, and East 96th Street and Second Avenue (although unlikely given the magnitude of trips during the 6:00 to 7:00 AM and 3:00 to 4:00 PM peak hours) that could not be fully mitigated during one or more analysis peak hours.

The proposed project is not expected to result in any significant adverse parking, pedestrian, or transit impacts during construction.

### AIR QUALITY

Construction activities associated with the proposed project would not result in any significant adverse stationary or mobile source air quality impacts. To minimize the effects of the proposed project’s construction activities on the surrounding community, the proposed project would implement an emissions reduction program that would include, to the extent practicable: diesel equipment reduction, the use of ultra-low sulfur diesel (ULSD) fuel; best available tailpipe reduction technologies; and the utilization of newer equipment. The proposed project would also adhere to *New York City Air Pollution Control Code* regulations regarding construction-related dust emissions, and to *New York City Administrative Code* limitations on construction-vehicle idling time.

*NOISE*

The detailed modeling analysis concluded that construction of the proposed project has the potential to result in construction noise levels that exceed *CEQR Technical Manual* noise impact criteria for an extended period of time at the portion of New York Health & Hospitals Corporation (HHC) Metropolitan Hospital immediately across East 97th Street north of the project site, the western façade and western portions of the north and south façades of the existing COOP Tech school building, and the north façade of the residential building at 306 East 96th Street immediately south of the project site.

The affected façades of HHC Metropolitan Hospital and 306 East 96th Street would experience exterior noise levels in the high 70s dBA, which represent increases in noise level up to approximately 13 dBA compared with existing levels, for up to approximately three years during the construction period. The affected portions of the existing COOP Tech building would experience exterior noise levels in the mid 80s dBA, which represent increases in noise level up to approximately 18 dBA compared with existing levels, for up to approximately three years during the construction period.

Construction noise levels of this magnitude for such an extended duration would constitute a significant adverse impact. Field observations determined that these buildings have insulated glass windows and alternate means of ventilation (i.e., air conditioning), and would consequently be expected to experience interior  $L_{10(1)}$  values less than 45 dBA during much of the construction period, which would be considered acceptable according to CEQR criteria. At the outdoor balconies on the north façade of the 306 East 96th Street building, there are no feasible or practicable measures to attenuate the construction noise that reaches the building. Therefore, additional receptor controls (i.e., façade attenuation improvements) to further reduce interior noise levels at these locations are not proposed.

At other receptors near the project site, including open space, residential, and hospital receptors, noise resulting from construction of the proposed project may at times be noticeable, but would be temporary and would generally not exceed typical noise levels in the general area and therefore would not rise to the level of a significant adverse noise impact.

*OPEN SPACE*

The existing Marx Brothers Playground would be temporarily displaced during construction. To allow for a more efficient and expedited construction, construction staging would take place within the project site. On-site construction staging would minimize disruptions to the surrounding roadways during construction and would allow for vehicle access to be maintained at nearby facilities including HHC Metropolitan Hospital to the north of the project site across East 97th Street. On-site construction staging would also allow for a safer environment for the public passing through the area as the activities would be contained within the project site. According to the *CEQR Technical Manual*, in areas that are well served by open space, a reduction of open space ratios greater than 5 percent may be considered significant, as it may result in overburdening existing facilities or further exacerbating a deficiency in open space. During the construction period, the active open space ratios for the study area would be reduced by more than the CEQR threshold of 5 percent; therefore, the temporary displacement of the Marx Brothers Playground during construction would be considered a significant adverse construction-period impact. There are other active open space resources in the area, such as Stanley Isaacs Playground and Ruppert Park that could partially accommodate the active recreation activities temporarily displaced from the Marx Brothers Playground. Upon

completion of the proposed project, the Marx Brothers Playground would be reconstructed and enhanced following a process that would reflect continued input from NYC Parks, the New York City Department of Education (DOE), Community Board 11, and the local community.

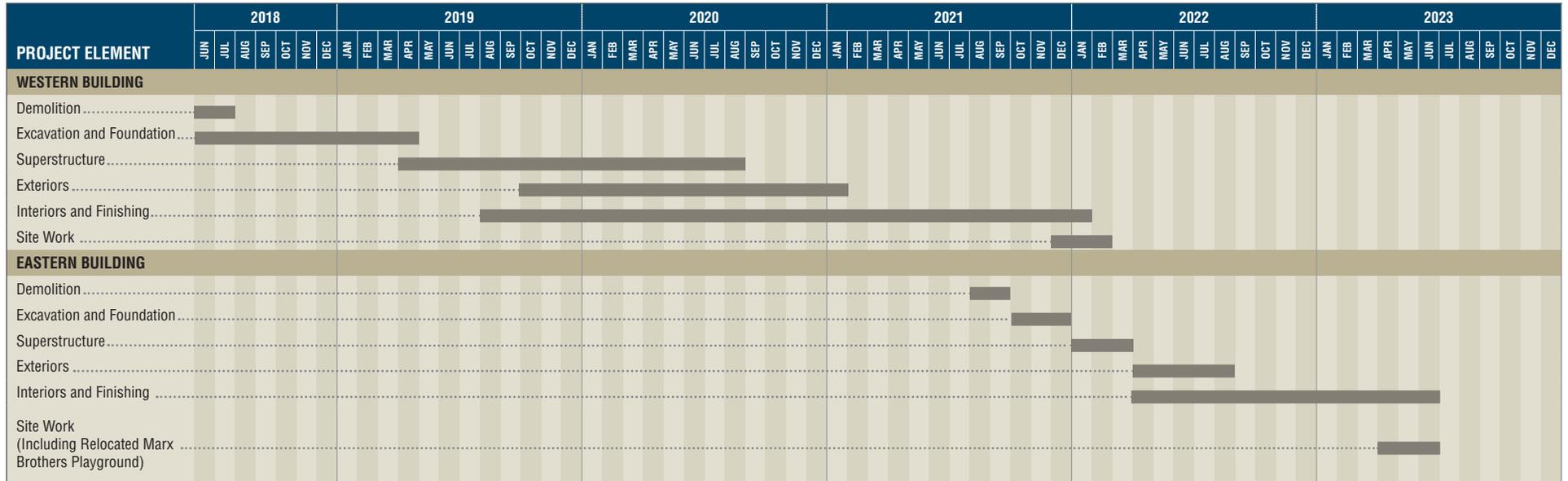
**B. CONSTRUCTION PHASING AND SCHEDULE**

The anticipated construction schedule for the proposed project is presented in **Table 16-1** and **Figure 16-1**, and reflects the sequencing of construction events as currently planned. The project’s construction phasing plan must incorporate the need to maintain the operations of COOP Tech at its current location until the replacement school is completed. As such, the overall construction of the proposed project is anticipated to take approximately five years to complete. Construction of the western building would take approximately 45 months, with the anticipated construction start date of June 2018 through February 2022. Construction of the COOP Tech replacement school is anticipated to be complete in the spring of 2021 with classes ready for commencement at this new location in September 2021. Construction of the eastern building would take place over approximately 26 months, with the anticipated construction start date of August 2021 through September 2023; there would be an overlap of approximately 7 months with construction of the western building. Construction of each of the two proposed buildings would consist of the following primary construction stages, which may overlap at certain times: demolition; excavation and foundation; superstructure; exteriors; interiors and finishing; and site work. These construction stages are described in greater detail below under “General Construction Tasks.”

In addition, Marx Brothers Playground would be relocated to the middle of the block, between the two new buildings, a move which is desired by NYC Parks in order to buffer the playground use from the active First Avenue and Second Avenue corridors. When completed, the playground would be improved and the original size of the playground would be maintained.

**Table 16-1  
Anticipated Construction Schedule**

Construction Task	Approximate Start Month	Approximate Finish Month	Approximate Duration (months)
<b>Western Building</b>			
Demolition	June 2018	July 2018	2
Excavation and Foundation	June 2018	April 2019	11
Superstructure	April 2019	August 2020	17
Exteriors	October 2019	January 2021	16
Interiors and Finishing	August 2019	January 2022	30
Site Work	December 2021	February 2022	3
<b>Eastern Building</b>			
Demolition	August 2021	September 2021	2
Excavation and Foundation	October 2021	December 2021	3
Superstructure	January 2022	March 2022	3
Exteriors	April 2022	August 2022	5
Interiors and Finishing	April 2022	June 2023	14
Site Work (Including Relocated Marx Brothers Playground)	April 2023	June 2023	3
<b>Source:</b> Lend Lease, September 2016.			



## C. GOVERNMENTAL COORDINATION AND OVERSIGHT

Construction oversight involves several city, state, and federal agencies. **Table 16-2** lists the primary involved agencies and their areas of responsibility.

**Table 16-2**  
**Summary of Primary Agency Construction Oversight**

Agency	Areas of Responsibility
<b>New York City</b>	
Department of Buildings	Building Code and site safety
Department of Parks and Recreation and Department of Education	Marx Brothers Playground
Department of Environmental Protection	Noise Code, RAPs/CHASPs, hazardous materials abatement
Fire Department	Compliance with Fire Code, fuel tank installation
Department of Transportation	Lane and sidewalk closures
Landmarks Preservation Commission	Archaeological and architectural protection
<b>New York State</b>	
Department of Labor	Asbestos Workers
Department of Environmental Conservation	Hazardous materials and fuel/chemical storage tanks
<b>United States</b>	
Environmental Protection Agency	Air emissions, noise, hazardous materials, poisons
Occupational Safety and Health Administration	Worker safety

For projects in New York City, primary construction oversight lies with the New York City Department of Buildings (DOB), which oversees compliance with the New York City Building Code. The areas of oversight include installation and operation of equipment such as cranes, sidewalk bridges, safety netting, and scaffolding. In addition, DOB enforces safety regulations to protect workers and the general public during construction, but the relocation of the Marx Brothers Playground falls under the jurisdiction of NYC Parks and ~~the New York City Department of Education~~ (DOE), which jointly operate the playground. The New York City Department of Environmental Protection (DEP) enforces the New York City *Noise Code*, reviews and approves any needed Remedial Action Plans (RAP) and associated Construction Health and Safety Plans (CHASP), as well as abatement of hazardous materials. The New York City Fire Department (FDNY) has primary oversight of compliance with the New York City *Fire Code* and the installation of tanks containing flammable materials. DOT's OCMC reviews and approves any traffic lane and sidewalk closures. The Landmarks Preservation Commission (LPC) approves the historic and cultural resources analysis, the CPP, and monitoring measures established to prevent damage to historic structures, as needed.

At the state level, the New York State Department of Labor (DOL) licenses asbestos workers. The New York State Department of Environmental Conservation (NYSDEC) regulates disposal of hazardous materials, and construction and operation of bulk petroleum and chemical storage tanks. At the federal level, although the U.S. Environmental Protection Agency (EPA) has wide-ranging authority over environmental matters, including air emissions, noise, hazardous materials, and the use of poisons, much of its responsibility is delegated to the state level. The Occupational Safety and Health Administration (OSHA) sets standards for work site safety and construction equipment.

## **D. CONSTRUCTION DESCRIPTION**

### **GENERAL CONSTRUCTION PRACTICES**

#### *HOURS OF WORK*

Construction of the proposed project would be carried out in accordance with New York City laws and regulations, which allow construction activities between 7:00 AM and 6:00 PM on weekdays. Construction work would occur on weekdays and typically begin at 7:00 AM, with most workers arriving between 6:00 AM and 7:00 AM. Normally work would end at 3:30 PM, but it can be expected that, in order to complete certain critical tasks (e.g., finishing a concrete pour for a floor deck), the workday may occasionally be extended beyond normal work hours. Any extended workdays would generally last until approximately 6:00 PM and would not include all construction workers on-site, but only those involved in the specific task requiring additional work time.

Night or weekend work may also be required for certain construction activities such as the erection of the tower crane and to make up for weather delays. Appropriate work permits from DOB would be obtained for any necessary work outside of normal construction and no work outside of normal construction hours could be performed until such permits are obtained. The numbers of workers and pieces of equipment in operation for weekend work would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. If it were to become necessary, the weekend workday would typically be a Saturday.

#### *ACCESS, DELIVERIES, AND STAGING AREAS*

Access to the project site during construction would be fully controlled. The work areas would be fenced off, and limited access points for workers and construction-related trucks would be provided. After work hours, the gates would be closed and locked. Based on the preliminary construction logistics plan, construction truck staging and laydown of construction materials would take place within the project site at the existing Marx Brothers Playground to allow for a more efficient construction and to minimize disruptions to the surrounding roadways. Construction trucks such as dump trucks or concrete trucks are anticipated to enter or exit the project site via either East 96th or East 97th Streets. Temporary curb-lane closure is anticipated to be needed on the south side of West 97th Street immediately north of the project site but vehicle and ambulance access to HHC Metropolitan Hospital to the north of the project site would be maintained at all times during the construction period. Maintenance and Protection of Traffic (MPT) plans would be developed for any temporary curb-lane closures as required by DOT. Approval of these plans and implementation of the closures would be coordinated with DOT's OCMC.

#### *PUBLIC SAFETY*

A variety of measures would be employed to ensure public safety during the construction of the proposed project. These include a sidewalk bridge to be erected during above-grade construction activities to provide overhead protection for pedestrians. Construction safety signs would be posted to alert the public of ongoing construction activities. Flaggers would be posted as necessary to control trucks entering and exiting the construction area, to provide guidance to pedestrians, and/or to alert or slow down the traffic. The installation and operation of tower

cranes would follow stringent DOB requirements to ensure safe operation of the equipment. Safety netting would be installed during demolition and on the sides of the proposed buildings as the superstructures advances upward to prevent debris from falling to the ground. All DOB safety requirements would be followed and construction of the proposed buildings would be undertaken as to minimize the disruption to the community.

#### *COMMUNITY OUTREACH*

The communities would be informed of upcoming construction activities through notifications and/or newsletters. A Community Construction Liaison (CLO) officer would be available during construction of the proposed project to serve as the contacts for the community and local leaders, and would be available to address concerns or problems that may arise during the construction period. The CLO would maintain direct communication with the construction project managers and would be able to quickly troubleshoot and respond to construction-related inquiries. In addition, New York City maintains a 24-hour telephone hotline (311) so that concerns can be registered with the city.

#### *RODENT CONTROL*

Construction contracts may include provisions for a rodent control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During construction, the contractor would carry out a maintenance program, as necessary. Signage would be posted, and coordination would be conducted with the appropriate public agencies.

#### **GENERAL CONSTRUCTION STAGES**

Prior to the commencement of construction, the work area would first be prepared for construction and would involve the installation of public safety measures such as fencing, netting, and signs. The construction areas would be fenced off, typically with solid fencing to minimize interference between passersby and the construction work. Portable toilets, dumpsters for trash, and trailers would be delivered to the site and installed. These site set-up activities would be expected to be completed within a few weeks. As discussed above, construction of the proposed project would begin with the western building followed by the eastern building and the jointly operated playground. Construction of each of the proposed buildings would proceed with the construction stages detailed below.

#### *DEMOLITION*

The western portion of the site is currently in use by the Metropolitan Transportation Authority (MTA) as a staging area for Second Avenue Subway construction. This section of the Second Avenue subway opened at the end of 2016. Following its use of the site, MTA will remove the construction trailers on-site and restore a portion of the site back to open space use. Any pavement and open spaces areas within the western portion of the project site would be removed prior to excavation and foundation activities.

The eastern portion of the project site is currently occupied by a four-story building that is used by COOP Tech. After completion of the new building replacement facility for COOP Tech, this building would be abated of asbestos and any other hazardous materials before the start of demolition. A New York City-certified asbestos investigator would inspect the building for asbestos-containing materials (ACM), and if present, those materials would be removed by a

DOL-licensed asbestos abatement contractor prior to interior demolition. Asbestos abatement is strictly regulated by DEP, DOL, EPA, and OSHA to protect the health and safety of construction workers and nearby residents, workers, and visitors. Depending on the extent and type of ACMs (if any), these agencies would be notified of the asbestos removal project and may inspect the abatement site to ensure that work is being performed in accordance with applicable regulations. Any activities with the potential to disturb lead-based paint (LBP) would be performed in accordance with the applicable OSHA regulation (including federal OSHA regulation 29 CFR 1926.62—*Lead Exposure in Construction*). In addition, any suspected polychlorinated biphenyls (PCB)-containing equipment (such as fluorescent light ballasts) that would be disturbed would be evaluated prior to disturbance. Unless labeling or test data indicate the contrary, such equipment would be assumed to contain PCBs, and would be removed and disposed of at properly licensed facilities in accordance with all applicable regulatory requirements. General demolition of the COOP Tech building is the next step, beginning with removal of any economically salvageable materials. The interior of the building is then deconstructed to the floor plates and structural columns. Netting around the exterior of the building would be used to prevent materials from falling into public areas. Demolition debris would be sorted prior to being disposed at landfills to maximize recycling opportunities. Hand tools and excavators with hoe ram attachments would be used during this stage of construction.

#### *EXCAVATION AND FOUNDATION*

The proposed mixed-use tower on the western portion of the project site would include one below-grade level. First, sheet piles would first be installed to hold back soil around the excavation area, followed by the use of excavators to excavate soil. The soil would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse on any portion of the project site that needs fill. Limited excavation activities would be needed for the proposed school building on the eastern portion of the project site since ~~below~~-below-grade levels are not planned for this structure. Once excavation activities are complete, concrete trucks would be used to pour the foundation of the buildings. Excavation and foundation activities would also involve the use of caisson drill rigs, generators, compressors, and rebar benders.

#### *Below-Grade Hazardous Materials*

As described in greater details below under “Hazardous Materials,” to reduce the potential for public exposure to contaminants during excavation activities, construction activities would be performed in accordance with a DEP-approved RAP and CHASP and all other applicable regulatory requirements. The RAP and CHASP would specify procedures for managing any encountered underground storage tanks (USTs) and any encountered contamination. It would also identify any measures (e.g., vapor controls) required for the proposed buildings. The CHASP ~~also~~ would also address appropriate health and safety procedures, such as the need for dust or organic vapor monitoring. Plans for remediation, including any vapor controls for the proposed school buildings, also would be provided to the New York City School Construction Authority (SCA) for review.

#### *Dewatering*

During construction, rain and snow may collect in the excavation area, and that water would need to be removed using a dewatering pump. If dewatering is necessary, it would be performed in accordance with DEP sewer use requirements. Those requirements require testing to ensure

any potentially contaminated groundwater is treated before it can be discharged to the sewer system.

### *SUPERSTRUCTURE*

The superstructure for the proposed buildings would include the building's framework such as beams and columns. Construction of the interior structure, or core, of the building would include: elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; and core stairs. A tower crane would first be brought onto the construction area during the superstructure task and would be used to lift structural components. The tower crane would be on-site for both the superstructure and exterior stages of construction. Superstructure activities would also require the use of a crawler crane, rebar benders, impact wrenches, and a variety of trucks. In addition, temporary construction elevators (i.e., hoists) would be used for the vertical movement of workers and materials during superstructure activities.

### *EXTERIORS*

The exterior façades of the proposed buildings would be installed during this stage of construction. Any prefabricated façade elements would arrive on trucks and be lifted into place for attachment by the tower crane.

### *INTERIORS AND FINISHING*

Interiors and finishing activities would include the construction of interior partitions, installation of lighting fixtures, and interior finishes (e.g., flooring, and painting, ~~etc.~~), and mechanical and electrical work, such as the installation of elevators, and lobby finishes. Final cleanup and touchup of the proposed buildings and final building systems (i.e., electrical system, fire alarm, and plumbing ~~etc.~~) testing and inspections would be part of this stage of construction. Equipment used during interiors and finishing would include hoists, compressors, delivery trucks, and a variety of small hand-held tools.

Interiors and finishing would be the quietest period of construction in terms of its effect on the public, because most of the construction activities would occur inside the building with the façades substantially complete.

### *SITE WORK*

As discussed in detail in Chapter 1, "Project Description," the proposed project would relocate the Marx Brothers Playground to the midblock. It is anticipated that it will include a new comfort station and maintenance building, along with play equipment and courts and fields for active recreation. The specific elements to be included and the overall design of the playground will reflect continued input from NYC Parks, Community Board 11, and the local community. The original size of the playground would be maintained.

During site work, soil would be brought to the site for the grassy areas and landscaping. Trees and shrubs would be planted, and play equipment, turf surface, benches, and a new comfort station installed. Site work would include equipment such as pavement cutters, rollers, and pavers.

**NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES**

Table 16-3 shows the estimated average daily numbers of workers and deliveries for the proposed project by calendar quarter for the duration of the construction period. The average number of workers throughout the entire construction period would be approximately 169 per day. The peak number of workers by calendar quarter would be approximately 341 per day, and would occur during the second quarter of 2020 during the superstructure, exteriors, and interiors and finishing stages of construction of the western building.

**Table 16-3**

**Average Number of Daily Workers and Trucks by Year and Quarter**

Year	2018				2019				2020				2021			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	-	179	140	121	121	130	183	317	320	<b>341</b>	315	264	234	224	242	276
Trucks	-	18	17	16	16	27	30	43	43	<b>45</b>	39	27	23	21	33	41
Year	2022				2023								Average		Peak	
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th								
Workers	176	32	39	21	19	29	7	-					169		341	
Trucks	34	16	18	13	8	11	5	-					25		45	

Source: Lend Lease, August 2016

For truck trips, the average number of trucks throughout the entire construction period would be approximately 25 per day, and the peak number of deliveries by calendar quarter would occur during the second quarter of 2020, with approximately 45 trucks per day during the superstructure, exteriors, and interiors and finishing stages of construction of the western building.

**E. THE FUTURE WITHOUT THE PROPOSED ACTIONS**

In the No Action condition, it is assumed that the project site will continue as in the existing condition, except that the MTA will vacate the western portion of the Marx Brothers Playground and reconstruct and restore that portion for open space uses. There are no other approved or planned development projects (“No Build” projects) on the project site that are likely to be completed by the analysis year of 2023.

**F. THE FUTURE WITH THE PROPOSED ACTIONS**

Construction of the proposed project—as is the case with any construction project—would result in some temporary disruptions in the surrounding area. The following analysis describes the overall temporary effects on transportation, air quality, noise and vibration, land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, and hazardous materials.

**TRANSPORTATION**

The construction transportation analysis assesses the potential for construction activities to result in significant adverse impacts to traffic, parking conditions, and transit and pedestrian facilities. The analysis is based on the peak worker and truck trips during construction of the proposed project, which are developed based on several factors including worker modal splits, vehicle occupancy and trip distribution, truck PCEs, and arrival/departure patterns. For the proposed project, the greatest construction-related traffic, parking, transit, and pedestrian demand would

occur during superstructure, exteriors, and interiors and finishing construction activities for the western building.

The following sections evaluate the potential for the proposed project's peak construction worker and truck trips to result in significant adverse impacts to traffic, parking, transit facilities, and pedestrian elements.

### *TRAFFIC*

An evaluation of construction sequencing and worker/truck projections was undertaken to assess potential traffic impacts.

#### *Construction Trip-Generation Projections*

The average worker and truck trip projections discussed above in "Number of Construction and Materials Deliveries," were further refined to account for worker modal splits and vehicle occupancy, arrival and departure distribution, and truck PCEs.

#### *Daily Workforce and Truck Deliveries*

For a reasonable worst-case analysis of potential transportation-related impacts during construction, the daily workforce and truck trip projections in the peak quarter were used as the basis for estimating peak-hour construction trips. It is expected that construction activities would generate a peak of approximately 341 workers and 45 truck deliveries per day during the second quarter of 2020. These estimates of construction activities are discussed further below.

#### *Construction Worker Modal Splits and Vehicle Occupancy*

Based on the latest available U.S. Census data (2000 Census data) for workers in the construction and excavation industry, it is anticipated that 39 percent of construction workers would commute to the project site using private autos at an average occupancy of approximately 1.30 persons per vehicle.

#### *Peak-Hour, Construction-Worker Vehicle, and Truck Trips*

Similar to other construction projects in New York City, most of the construction activities at the project site are expected to take place from 7:00 AM to 3:30 PM. While construction truck trips would occur throughout the day (with more trips during the early morning), and most trucks would remain in the area for short durations, construction workers would commute during the hours before and after the work shift. For analysis purposes, each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out"), whereas each worker vehicle was assumed to arrive near the work shift start hour and depart near the work-shift end hour. Further, in accordance with the 2014-CEQR Technical Manual, the traffic analysis assumed that each truck has a PCE of 2.

The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns for construction workers and trucks. For construction workers, the majority (approximately 80 percent) of the arrival and departure trips would take place during the hour before and after each work shift (6:00 to 7:00 AM for arrival and 3:00 to 4:00 PM for departure on a regular day shift). Construction truck deliveries typically peak during the hour before each shift (25 percent), overlapping with construction worker arrival traffic. As shown in **Table 16-4**, based on these projections, the maximum construction-related traffic increments would be approximately 126 PCEs between

6:00 AM and 7:00 AM and 90 PCEs between 3:00 PM and 4:00 PM. These incremental construction PCEs would exceed the *CEQR Technical Manual* threshold of 50 vehicle-trips.

**Table 16-4**  
**Peak Construction Vehicle Trip Projections**

Hour	Auto Trips			Truck Trips			Total					
	Regular Shift			Regular Shift			Vehicle Trips			PCE Trips		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6 AM - 7 AM	82	0	82	11	11	22	93	11	104	104	22	126
7 AM - 8 AM	20	0	20	5	5	10	25	5	30	30	10	40
8 AM - 9 AM	0	0	0	5	5	10	5	5	10	10	10	20
9 AM -10 AM	0	0	0	5	5	10	5	5	10	10	10	20
10 AM -11 AM	0	0	0	5	5	10	5	5	10	10	10	20
11 AM - 12 PM	0	0	0	4	4	8	4	4	8	8	8	16
12 PM - 1 PM	0	0	0	4	4	8	4	4	8	8	8	16
1 PM - 2 PM	0	0	0	2	2	4	2	2	4	4	4	8
2 PM - 3 PM	0	6	6	2	2	4	2	8	10	4	10	14
3 PM - 4 PM	0	82	82	2	2	4	2	84	86	4	86	90
4 PM - 5 PM	0	14	14	0	0	0	0	14	14	0	14	14
Daily Total	102	102	204	45	45	90	147	147	294	192	192	384

**Note:** Hourly construction worker and truck trips were derived from an estimated quarterly average number of construction workers and truck deliveries per day, with each truck delivery resulting in two daily trips (arrival and departure).

Projected traffic levels generated during peak construction and those upon full build-out of the proposed project are compared in **Table 16-5**. As presented in **Table 16-5**, the construction traffic increments would be much lower than the operational traffic increments for the full build-out under the proposed project in 2023. Therefore, the potential traffic impacts during peak hour construction are expected to be within the envelope of significant adverse traffic impacts identified for the With Action condition in Chapter 11, “Transportation.” Therefore, all potential traffic impacts and required mitigation measures have been identified as part of the assessment of the full build-out of the proposed project, and a detailed construction traffic analysis is not warranted.

**Table 16-5**  
**Comparison of Incremental Construction and Operational Peak Period Vehicle Trips in PCEs**

Time	Peak Incremental Construction Vehicle Trips in PCEs			Peak Incremental Operational Vehicle Trips in PCEs		
	In	Out	Total	In	Out	Total
<b>AM Peak Period (6:00 AM to 9:00AM)</b>						
AM Peak Hour <sup>1</sup>	104	22	126	123	149	272
<b>PM Peak Period (3:00 PM to 6:00PM)</b>						
PM Peak Hour <sup>2</sup>	4	86	90	145	143	288

**Notes:**  
<sup>1</sup> The AM peak hour is 6:00 to 7:00 AM for construction and 8:00 to 9:00 AM for operational.  
<sup>2</sup> The PM peak hour is 3:00 to 4:00 PM for construction and 5:00 to 6:00 PM for operational.

*Cumulative Operational and Construction Traffic Effects of the Proposed Project*

Since the above assessment concluded the potential for significant adverse traffic impacts during construction, a more in-depth breakdown of cumulative operational and construction traffic effects was prepared to assess conditions when construction of the western building is completed and operational (February 2022) and the eastern building is still under construction (until September 2023). **Table 16-6** compares trip-making from the full build-out of the proposed

project with the cumulative operational and construction trip-making to determine if the cumulative operational and construction effects on traffic conditions surrounding the project site could be beyond those concluded for the full operation of the proposed project.

**Table 16-6  
Western Building Operational and Eastern Building Construction  
Cumulative Peak Period Vehicle Trips in PCEs**

Time	Eastern Building Construction Vehicle Trips in PCEs			Western Building Operational Vehicle Trips in PCEs			Total Construction and Operational Vehicle Trips in PCEs			Full Build-Out Operational Vehicle Trips in PCEs		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
<b>AM Peak Period (6:00 AM to 9:00AM)</b>												
6-7 AM	33	12	45	5	5	10	38	17	55	5	5	10
7-8 AM	11	6	17	7	45	52	18	51	69	11	46	57
8-9 AM	6	6	12	54	101	155	60	107	167	123	149	272
<b>PM Peak Period (3:00 PM to 6:00PM)</b>												
3-4 PM	2	23	25	41	39	80	43	62	105	41	39	80
4-5 PM	0	3	3	60	42	102	60	45	105	60	42	102
5-6 PM	0	0	0	95	72	167	95	72	167	145	143	288
<b>Note:</b>	Based on the study area ATRs, general traffic levels for the 6 to 7 AM hour are approximately 79 percent of the 8 to 9 AM hour. Correspondingly, general traffic levels for the 3 to 4 PM hour are approximately the same as the 5 to 6 PM hour.											

The cumulative trip-making during any point of project development in the morning and afternoon hours would be lower than the critical 8:00 to 9:00 AM and 5:00 to 6:00 PM commuter peak hours, for which project-related impacts were identified. Therefore, all potential traffic impacts and required mitigation measures have been identified as part of the assessment of the full build-out of the proposed project and a detailed construction traffic analysis is not warranted.

**PARKING**

As shown in **Table 16-3**, the peak number of workers during construction of the proposed project would be approximately 341 per day, and would occur in the second quarter of 2020. Based on 2000 U.S. Census data on workers in the construction and excavation industry, it is anticipated that 39 percent of construction workers would commute to the project site by private autos at an average occupancy of approximately 1.30 persons per vehicle. The anticipated construction activities are therefore projected to generate a maximum parking demand of 102 spaces. Based on the parking analysis presented in Chapter 11, “Transportation,” this construction parking demand is expected to be adequately accommodated by the off-street spaces and parking facilities available within a ¼-mile radius of the project site. Therefore, construction for the proposed project would not result in any parking shortfalls or the potential for any significant adverse parking impacts.

**TRANSIT**

Based on 2000 U.S. Census data on workers in the construction and excavation industry, it is anticipated that approximately 49 percent of construction workers would commute to the project site via transit (45 percent by subway and 4 percent by bus). The study area is well served by mass transit, including two subway lines (the No. 6 and Q trains) and six bus routes (M15, M15 Select Bus Service, M96, M98, M101, and M102). During the peak construction worker shift (a maximum of 341 average daily construction workers in the 7:00 AM to 3:30 PM shift) during the peak construction period for the proposed project, this would correspond to approximately 167 workers traveling by transit. With 80 percent of these workers arriving or departing during

the construction peak hours, the estimated number of peak-hour transit trips would be 134, which is below the *CEQR Technical Manual* 200-transit-trip analysis threshold. Furthermore, because these trips would be made during hours when background transit ridership would be lower than commuter peak hours, no further quantified analysis is warranted and construction of the proposed project would not result in any significant adverse transit impacts.

**PEDESTRIANS**

As summarized above, up to 341 average daily construction workers are projected in the 7:00 AM to 3:30 PM shift during peak construction for the proposed project. With 80 percent of these workers arriving or departing during the construction peak hours (6:00 AM to 7:00 AM and 3:00 PM to 4:00 PM), the corresponding numbers of peak-hour pedestrian trips traversing the area’s sidewalks, corners, and crosswalks would be approximately 273. Projected pedestrian levels generated during peak construction and those upon full build-out of the proposed project are compared in **Table 16-67**. As presented in **Table 16-67**, the construction pedestrian increments would be much lower than the operational pedestrian increments for the full build-out under the proposed project in 2023, and are expected to be dispersed to pedestrian elements surrounding the project site, such that no single pedestrian element is likely to incur construction-related pedestrian trips that would exceed the *CEQR Technical Manual* analysis threshold of 200 pedestrian trips. Furthermore, because these peak construction pedestrian increments would take place during hours when background pedestrian levels are substantially lower than the 8:00 to 9:00 AM and 5:00 to 6:00 PM commuter peak hours, there would not be a potential for significant adverse pedestrian impacts attributable to the projected construction worker pedestrian trips.

**Table 16-67  
Comparison of Incremental Construction and Operational  
Peak Period Pedestrian Trips**

Time	Peak Incremental Construction Pedestrian Trips			Peak Incremental Operational Pedestrian Trips		
	In	Out	Total	In	Out	Total
<b>AM Peak Period (6:00 AM to 9:00AM)</b>						
AM Peak Hour <sup>1</sup>	273	0	273	1,294	882	2,176
<b>PM Peak Period (3:00 PM to 6:00PM)</b>						
PM Peak Hour <sup>2</sup>	0	273	273	968	1,647	2,615
<b>Notes:</b>						
<sup>1</sup> The AM peak hour is 6:00 to 7:00 AM for construction and 8:00 to 9:00 AM for operational.						
<sup>2</sup> The PM peak hour is 3:00 to 4:00 PM for construction and 5:00 to 6:00 PM for operational.						

In addition, sidewalk protection or temporary sidewalks would be provided in accordance with DOT requirements to maintain pedestrian access if needed.

**AIR QUALITY**

Emissions from on-site construction equipment and on-road construction-related vehicles, as well as dust generating construction activities, have the potential to affect air quality. In general, much of the heavy equipment used in construction is powered by diesel engines that have the potential to produce relatively high levels of nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM) emissions. Fugitive dust generated by construction activities is also a source of PM. Gasoline engines produce relatively high levels of carbon monoxide (CO). Since EPA mandates the use of ultra-low sulfur diesel (ULSD) fuel for all highway and non-road diesel engines, sulfur oxides

(SO<sub>x</sub>) emitted from the proposed project's construction activities would be negligible. Therefore, the four primary air pollutants of concern for construction activities are nitrogen dioxide (NO<sub>2</sub>), particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM<sub>10</sub>), particles with an aerodynamic diameter of less than or equal to 2.5 micrometers (PM<sub>2.5</sub>), and CO.

The *CEQR Technical Manual* lists several factors for consideration in determining whether a quantified on-site and/or off-site construction impact assessment for air quality is appropriate. These factors include the duration and intensity of construction activities, the location of nearby sensitive receptors, the use of emission control measures, and project generated construction-related vehicle trips.

#### *DURATION AND INTENSITY OF CONSTRUCTION ACTIVITIES*

Construction of the proposed project, as is the case with any large construction project, would be disruptive to the surrounding area. While the overall construction for the proposed project is anticipated to take approximately five years, the duration for the most intense construction activities in terms of air pollutant emissions (demolition, excavation, and foundation activities where the largest number of large non-road diesel engines such as excavators and caisson drills would be employed) would occur for 13 months for the proposed western building and 5 months for the proposed eastern building.

The other stages of construction, including superstructure, exteriors, interiors and finishing, and site work would result in much lower air emissions since they would require few pieces of heavy duty diesel equipment. Most of the equipment required for the latter stages of construction would have small engines and be dispersed vertically throughout the building, resulting in low pollutant concentration increments in adjacent areas. With the exception of site work, the latter stages of construction would not involve soil disturbance activities and therefore would result in lower dust emissions. Most of the interior and finishing activities would occur within the enclosed buildings where the work would be shielded from nearby sensitive receptors.

Based on the nature of the construction work for the proposed buildings, construction activities would not be considered out of the ordinary in terms of intensity; the construction activity levels associated with the proposed project are typical of building construction in New York City that would require demolition, excavation, and foundation construction. Overall, emissions associated with the construction of the proposed project would likely be lower than a typical project due to the emission control measures implemented during construction (see "Emission Control Measures," below).

#### *LOCATION OF NEARBY SENSITIVE RECEPTORS*

The area surrounding the project site contains a mix of uses—including residential buildings, community facilities, and various commercial uses. There are no receptor locations immediately adjacent to the proposed construction activities but the eastern portion of the project site is occupied by COOP Tech, which would be operational during a portion of the construction of the western building. In addition, the proposed mixed-used building on the western portion of the project block would be complete and operational during a construction of the eastern building and playground. Sensitive receptors near the project site include HHC Metropolitan Hospital located approximately 100 feet north of the project site, the Life Sciences Secondary School located approximately 100 feet south of the project site, and the Stanley Isaacs Playground approximately 100 feet east of the project site. Such distances between the construction sources and the receptors would result in increased dispersion of pollutants. The construction areas

would be fenced off, typically with solid fencing, which would serve as a buffer between the emission sources and this sensitive residential receptor location. Therefore, potential concentration increments from on-site construction sources at such locations would be reduced.

#### *EMISSION CONTROL MEASURES*

Construction activity in general has the potential to adversely affect air quality as a result of diesel emissions. Measures would be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes. In addition, an emissions reduction program would be implemented to minimize the air quality effects from construction of the proposed project, consisting of the following components:

- *Dust Control.* To minimize fugitive dust emissions from construction activities, a fugitive dust control plan including a robust watering program would be required as part of contract specifications. For example, all trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the project site; and water sprays would be used for all demolition, excavation, and transfer of soils to ensure that materials would be dampened as necessary to avoid the suspension of dust into the air. Loose materials would be watered, stabilized with a chemical suppressing agent, or covered. All measures required by the portion of the *New York City Air Pollution Control Code* regulating construction-related dust emissions would be implemented.
- *Clean Fuel.* ULSD<sup>1</sup> fuel will be used exclusively for all diesel engines throughout the project site.
- *Idling Restriction.* In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time will be restricted to three minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or are otherwise required for the proper operation of the engine.
- *Best Available Tailpipe Reduction Technologies.* Non-road diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the project) including but not limited to concrete mixing and pumping trucks would utilize the best available tailpipe (BAT) technology for reducing diesel particulate matter (DPM) emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts would specify that all diesel nonroad engines rated at 50 hp or greater would utilize DPFs, either installed by the original equipment manufacturer (OEM) or retrofitted. Retrofitted DPFs must be verified by EPA or the California Air Resources Board (CARB). Active DPFs or other technologies proven to achieve an equivalent reduction may also be used.
- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for nonroad diesel engines regulate the emission of criteria pollutants from new engines, including PM, CO,

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<sup>1</sup> EPA required a major reduction in the sulfur content of diesel fuel intended for use in locomotive, marine, and non-road engines and equipment, including construction equipment. As of 2015, the diesel fuel produced by all large refiners, small refiners, and importers must be ULSD fuel sulfur levels in non-road diesel fuel are limited to a maximum of 15 parts per million.

NO<sub>x</sub>, and hydrocarbons. All diesel-powered nonroad construction equipment with a power rating of 50 hp or greater would meet at least the Tier 3<sup>2</sup> emissions standard. All diesel-powered engines in the project rated less than 50 hp would meet at least the Tier 2 emissions standard.

- *Diesel Equipment Reduction.* Electrically powered equipment would be preferred over diesel-powered and gasoline-powered versions of that equipment to the extent practicable. Equipment that would use the grid power in lieu of diesel engines includes, but may not be limited to, hoists, the tower crane that would be employed during construction, and small equipment such as welders.

Overall, this emissions control program is expected to significantly reduce air pollutant emissions during construction of the proposed project

#### *OFF-SITE SOURCES*

Construction worker commuting trips and construction truck deliveries would generally occur during off-peak hours. In addition, when distributed over the transportation network, the construction trip increments would not concentrate at any single location. Construction generated traffic increments would also not exceed the *CEQR Technical Manual* CO screening threshold of 170 peak hour trips at intersections in the area, or the fine particulate matter (PM<sub>2.5</sub>) emissions screening thresholds discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. Therefore, further mobile source analysis is not required.

#### *CONCLUSIONS*

Based on the analyses provided above and the implementation of an emissions reduction program, construction of the proposed project would not result in any significant adverse construction air quality impacts, and no further analysis is required.

#### **NOISE**

##### *INTRODUCTION*

Potential impacts on community noise levels during construction of the proposed project could result from noise due to construction equipment operation and from noise due to construction vehicles and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating at full power), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by construction activities would vary widely, depending on the stage of construction and the location of the

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<sup>2</sup> The first federal regulations for new nonroad diesel engines were adopted in 1994, and signed by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment 50 hp and greater and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. In 2004, the EPA introduced Tier 4 emissions standards with a phased-in period of 2008 to 2015. The Tier 1 through 4 standards regulate the EPA criteria pollutants, including PM, hydrocarbons (HC), NO<sub>x</sub> and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

construction relative to receptor locations. The most significant construction noise sources are expected to be impact equipment such as jackhammers, excavators with hydraulic break rams, tower cranes, and paving breakers, as well as the movements of trucks.

Construction noise is regulated by the requirements of the *New York City Noise Control Code* (also known as Chapter 24 of the *Administrative Code of the City of New York*, or Local Law 113) and the DEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation (also known as Chapter 28). These requirements mandate that specific construction equipment and motor vehicles meet specified noise emission standards; that construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction materials be handled and transported in such a manner as not to create unnecessary noise. As described above, for weekend and after hour work, permits would be required to be obtained, as specified in the *New York City Noise Control Code*. As required under the *New York City Noise Control Code*, a site-specific noise mitigation plan for the proposed project would be developed and implemented that may include source controls, path controls, and receiver controls.

#### *CONSTRUCTION NOISE IMPACT CRITERIA*

Chapter 22, Section 100 of the *CEQR Technical Manual* breaks construction duration into “short-term” and “long-term” and states that construction noise is not likely to require analysis unless it “affects a sensitive receptor over a long period of time.” Consequently, the construction noise analysis considers both the potential for construction of a project to create high noise levels (the “intensity”), and whether construction noise would occur for an extended period of time (the “duration”) in evaluating potential construction noise effects.

Chapter 19, Section 421 of the *CEQR Technical Manual* states that the impact criteria for vehicular sources, using conditions without the proposed project, or the “No Action” noise level as the baseline, should be used for assessing construction effects. As recommended in Chapter 19, Section 410 of the *CEQR Technical Manual*, this study uses the following criteria to define a significant adverse noise impact from mobile and on-site construction activities:

- If the No Action noise level is less than 60 dBA  $L_{eq(1)}$ , a 5 dBA  $L_{eq(1)}$  or greater increase would be considered significant.
- If the No Action noise level is between 60 dBA  $L_{eq(1)}$  and 62 dBA  $L_{eq(1)}$ , a resultant  $L_{eq(1)}$  of 65 dBA or greater would be considered a significant increase.
- If the No Action noise level is equal to or greater than 62 dBA  $L_{eq(1)}$ , or if the analysis period is a nighttime period (defined in the CEQR criteria as being between 10PM and 7AM), the incremental significant impact threshold would be 3 dBA  $L_{eq(1)}$ .

#### *NOISE ANALYSIS FUNDAMENTALS*

As stated above, construction activities for the proposed project would be expected to result in increased noise levels as a result of: (1) the operation of construction equipment on-site; and (2) the movement of construction-related vehicles (i.e., worker trips, and material and equipment trips) on the roadways to and from the project site. The effect of each of these noise sources was evaluated. The results presented below show the effects of construction activities (i.e., noise due to both on-site construction equipment and construction-related vehicle operation) on noise levels at nearby noise receptor locations.

Noise from the operation of construction equipment at a specific receptor location near a construction site is generally calculated by computing the sum of the noise produced by all

pieces of equipment operating at the construction site. For each piece of equipment, the noise level at a receptor site is a function of the following:

- The noise emission level of the equipment;
- A usage factor, which accounts for the percentage of time the equipment is operating at full power;
- The distance between the piece of equipment and the receptor;
- Topography and ground effects; and
- Shielding.

Similarly, noise levels due to construction-related traffic are a function of the following:

- The noise emission levels of the type of vehicle (e.g., auto, light-duty truck, heavy-duty truck, bus, etc.);
- Volume of vehicular traffic on each roadway segment;
- Vehicular speed;
- The distance between the roadway and the receptor;
- Topography and ground effects; and
- Shielding.

#### *CONSTRUCTION NOISE MODELING*

Noise effects from construction activities were evaluated using the CadnaA model, a computerized model developed by DataKustik for noise prediction and assessment. The model can be used for the analysis of a wide variety of noise sources, including stationary sources (e.g., construction equipment, industrial equipment, power generation equipment) and transportation sources (e.g., roads, highways, railroad lines, busways, waterways, airports). The model takes into account the reference sound pressure levels of the noise sources at 50 feet, attenuation with distance, ground contours, reflections from barriers and structures, attenuation due to shielding, etc. The CadnaA model is based on the acoustic propagation standards promulgated in International Standard ISO 9613-2. The CadnaA model is a state-of-the-art tool for noise analysis and is approved for construction noise level prediction by the *CEQR Technical Manual*.

Geographic input data to be used with the CadnaA model includes CAD drawings defining planned site work areas, adjacent building footprints and heights, locations of streets, and locations of sensitive receptors. For each analysis period, the geographic location and operational characteristics of each piece of construction equipment were input to the model. Reflections and shielding by barriers and project elements erected on the construction site and shielding from adjacent buildings were also accounted for in the model. The model produces A-weighted  $L_{eq(1)}$  noise levels at each receptor location for each analysis period, as well as the contribution from each noise source.

#### *NOISE ANALYSIS METHODOLOGY*

The construction noise methodology involved the following process:

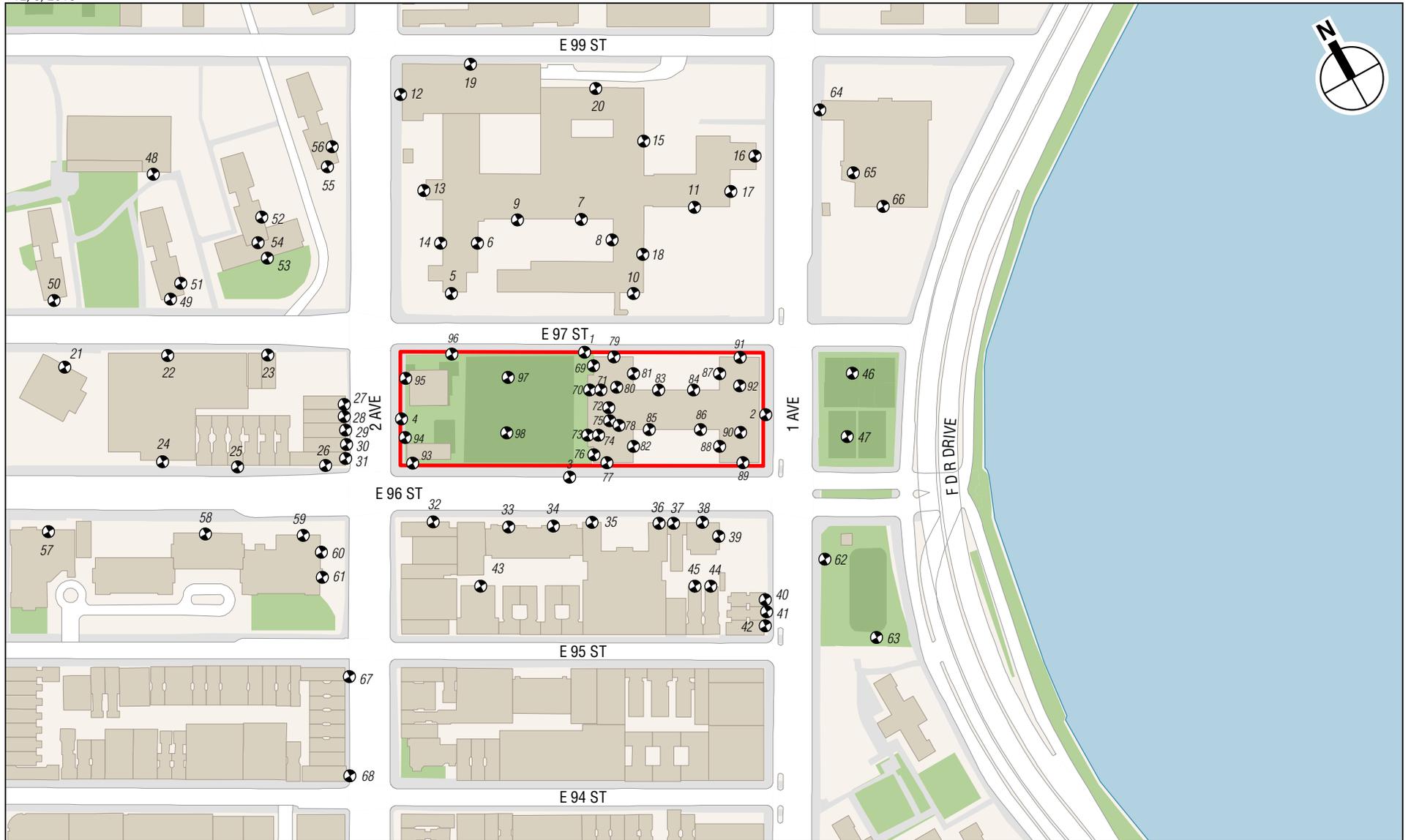
1. Select analysis hours for cumulative on-site equipment and construction truck noise analysis. The 7 AM hour was selected as the analysis hour because this would be the hour

when the highest number of truck trips to and from the construction site would overlap with on-site equipment operation.

2. Select receptor locations for cumulative on-site equipment and construction truck noise analysis. Selected receptors were representative of open space, residential, or other noise-sensitive uses potentially affected by the construction of the proposed project during operation of on-site construction equipment and/or along routes taken to and from the project site by construction trucks.
3. Establish existing noise levels at selected receptors. Noise levels were measured at several at-grade locations, and calculated for the other noise receptor locations included in the analysis. **Figure 16-2** shows the construction noise measurement locations. Existing noise levels at noise receptors other than the selected noise measurement locations were established using the CadnaA model along with existing-condition traffic information.
4. Establish worst-case noise analysis periods under the projected construction phasing schedule. The worst-case noise analysis periods are the periods during the construction schedule that are expected to have the greatest potential to result in construction noise effect. These periods were determined based on number and type of equipment operating on-site, and the amount of construction-related vehicular traffic expected to occur according to the construction schedule and logistics. At least one analysis period was selected per year of construction. Seven analysis periods throughout the construction schedule were selected.
5. Calculate construction noise levels for each analysis period at each receptor location. Given the on-site equipment and construction truck trips that are expected during each of the analysis periods, and the location of the equipment, which was based on construction logistics diagrams and construction truck and worker vehicle trip assignments, a CadnaA model file for each analysis period was created. All model files included each of the construction noise sources during the analysis period and hour, calculation points representing multiple locations on various façades and floors of the associated receptors previously identified, as well as the noise control measures that would be used on the site, as described below.
6. Determine total noise levels and noise level increments during construction. For each analysis period and each noise receptor, the calculated level of construction noise was logarithmically added to the existing noise level to determine the cumulative total noise level. The existing noise level at each receptor was then arithmetically subtracted from the cumulative noise level in each analysis period to determine the noise level increments.
7. Establish construction noise duration. For each receptor, the noise level increments in each analysis period were examined to determine the duration during construction that the receptor would experience substantially elevated noise levels.
8. Compare noise level increments with impact criteria as set forth in Chapter 19, Section 421 of the *CEQR Technical Manual*. At each receptor, based on the magnitude and duration of predicted noise level increases due to construction, a determination of whether the proposed project would have the potential to result in significant adverse construction noise effects was made.

### *NOISE REDUCTION MEASURES*

Construction of the proposed project would be required to follow the requirements of the *NYC Noise Control Code* (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113) for construction noise control measures. Specific noise control



-  Project Site
-  Noise Receptor

0 400 FEET

measures would be incorporated in noise mitigation plan(s) required under the *NYC Noise Code*. These measures could include a variety of source and path controls.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the *NYC Noise Code*:

- Equipment that meets the sound level standards specified in Subchapter 5 of the *NYC Noise Control Code* would be utilized from the start of construction. The proposed project would be committed to using some pieces of equipment that produce lower noise levels than typical construction equipment as required by the New York City Noise Control Code. **Table 16-78** shows the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction of the proposed project.
- Where feasible and practicable, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than three minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the *NYC Administrative Code*.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented to the extent feasible and practicable:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations.
- Noise barriers constructed from plywood or other materials would be utilized to provide shielding (e.g., the construction sites would have a minimum 12-foot cantilevered barrier with acoustical treatment providing a Noise Reduction Coefficient (NRC) of at least 0.85 on the side of the barrier facing construction);
- Where logistics allow, truck deliveries would take place behind the noise barriers once building foundations are completed; and
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) for certain dominant noise equipment to the extent feasible and practical based on the results of the construction noise calculations. The details to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's "Rules for Citywide Construction Noise Mitigation."<sup>3</sup>

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<sup>3</sup> As found at: [http://www.nyc.gov/html/dep/pdf/noise\\_constr\\_rule.pdf](http://www.nyc.gov/html/dep/pdf/noise_constr_rule.pdf)

**Table 16-78**  
**Typical Construction Equipment Noise Emission Levels (dBA)**

<b>Equipment List</b>	<b>NYCDEP L<sub>max</sub> Noise Level Limit at 50 feet<sup>1</sup></b>	<b>Project-Specific L<sub>max</sub> Noise Level Limit at 50 feet</b>
Auger Drill Rig	85	
Backhoe	80	
Bar Bender	80	
Compactor (ground)	80	
Compressor (air, less than or equal to 350 cfm)	53	53
Compressor (air, greater than 350 cfm)	80	70
Concrete Mixer Truck	85	
Concrete Pump Truck	82	
Concrete Saw	90	
Crane	85	75
Dozer	85	
Drill Rig Truck	84	
Dump Truck	84	
Dumpster/Rubbish Removal	78	
Excavator	85	
Flat Bed Truck	84	
Front End Loader	80	
Generator	82	72
Generator (< 25 KVA, VMS signs)	70	70
Gradall	85	
Hoist	n/a	65
Impact Pile Driver	95	
Jackhammer	85	
Man Lift	85	75
Paver	85	
Pickup Truck	55	
Pneumatic Tools	85	
Pumps	77	
Rock Drill	85	
Roller	85	
Slurry Plant	78	
Soil Mix Drill Rig	80	
Tractor	84	
Welder / Torch	73	
Rock Drill	85	

**Source:** <sup>1</sup> "Rules for Citywide Construction Noise Mitigation," Chapter 28, DEP, 2007.

- As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practicable.

*NOISE RECEPTOR SITES*

Within the study area, 97 receptor locations (i.e., sites 5 to 101, beyond the measurement sites 1 to 4 as established in Chapter 14, “Noise”) were selected to represent buildings or noise-sensitive open space locations close to the project site for the construction noise analysis. These receptors were either located adjacent to planned areas of activity or streets where construction trucks would pass. At some buildings, multiple façades were analyzed as receptors. At high-rise buildings, noise receptors were selected at multiple elevations. At open space locations, receptors were selected at street level. The receptor sites selected for detailed analysis are representative locations where maximum project effects due to construction noise would be expected. At-grade noise measurements were conducted at sites 1 through 4 to determine existing noise levels in the study area.

**Figure 16-2** shows the locations of the 101 noise receptor sites, and **Table 16-89** lists the four noise measurement sites as well as the 97 noise receptor sites and the associated land use at these sites.

**Table 16-89**  
**Noise Receptor Locations by Location and Associated Land Use**

Receptor	Location	Associated Land Use
1	East 97th Street between First and Second Avenues	n/a (measurement location)
2	First Avenue between East 96th and 97th Streets	n/a (measurement location)
3	East 96th Street between First and Second Avenues	n/a (measurement location)
4	Second Avenue between East 96th and 97th Streets	n/a (measurement location)
5-20	1901 First Avenue	Hospital
21	1711 Third Avenue	Place of Worship
22, 24	215 East 96th Street	Residential
23	232 East 97th Street	Residential
25	227 East 96th Street	Residential
26, 31	1865 Second Avenue	Residential with Retail
27	1873 Second Avenue	Residential with Retail
28	1871 Second Avenue	Commercial
29	1869 Second Avenue	Residential with Retail
30	1867 Second Avenue	Residential with Retail
32	1854 Second Avenue	Residential with Retail
33, 34	306 East 96th Street	Residential
35, 36	320 East 96th Street	Institutional
37	334 East 96th Street	Residential
38, 39, 44	337 East 95th Street	Residential
40	1843 First Avenue	Residential
41, 42	1841 First Avenue	Residential with Retail
43	305 East 95th Street	Residential
45	335 East 95th Street	Residential
46, 47	1860 First Avenue	Open Space
48	1761 Third Avenue	Residential
49, 51	219 East 97th Street	Residential
50	201 East 97th Street	Residential
52-54	1893 Second Avenue	Residential
55, 56	1895 Second Avenue	Residential
57	1709 Third Avenue	Residential with Retail
58	225 East 95th Street	Residential
59-61	235 East 95th Street	Residential
62, 63	Stanley Isaacs Playground	Open Space
64-66	1918 First Avenue	Institutional
67	238 East 95th Street	Residential
68	1817 Second Avenue	Residential with Retail
69-92	Existing Co-Op COOP Tech School	School
93, 94, 98	New Residential Tower	Residential
95-97	New Technical School COOP Tech Replacement Facility	School with Retail

*NOISE MEASUREMENT RESULTS*

*Equipment Used During Noise Survey*

Measurements were performed using a Brüel & Kjær Sound Level Meters (SLMs) Type 2260 and Type 2270, Brüel & Kjær ½-inch microphones Type 4189, and Brüel & Kjær Sound Level Calibrators Type 4231. The SLMs had a valid laboratory calibration within 1 year, as is standard practice. The Brüel & Kjær SLMs are a Type 1 instrument according to ANSI Standard S1.4-1983 (R2006). The microphones were mounted at a height of approximately five feet above the ground surface on a tripod and at least approximately 5 feet away from any large reflecting surfaces. The SLMs were calibrated before and after readings with Brüel & Kjær Type 4231 Sound Level Calibrators using the appropriate adaptor. Measurements were made on the A-scale (dBA). The data were digitally recorded by the sound level meters and displayed at the end of the measurement period in units of dBA. Measured quantities included  $L_{eq}$ ,  $L_1$ ,  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$ , and 1/3 octave band levels. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

*Noise Survey Results*

The baseline noise levels at each of the noise survey locations are shown in **Table 16-910**. At all noise measurement locations, the dominant existing noise source was vehicular traffic on the adjacent roadways.

**Table 16-910**  
**Noise Survey Results in dBA**

Measurement Location		$L_{EQ}$
1	East 97th Street between First and Second Avenues	65.8
2	First Avenue between East 96th and 97th Streets	70.3
3	East 96th Street between First and Second Avenues	70.3
4	Second Avenue between East 96th and 97th Streets	71.1

In terms of CEQR noise exposure guidelines (shown in Table 14-2 in Chapter 14, “Noise”), during the morning analysis hour, existing noise levels at site 1 are in the “marginally acceptable” category and existing noise levels at sites 2, 3, and 4 are in the “marginally unacceptable” category.

*CONSTRUCTION NOISE ANALYSIS RESULTS*

Using the methodology described above, and considering the noise abatement measures from path controls specified above, cumulative noise analyses were performed to determine maximum 1-hour equivalent ( $L_{eq(1)}$ ) noise levels that would be expected during each of the seven months of the construction period selected for analysis at each of the 97 noise receptor locations. This resulted in a predicted range of peak hourly construction noise levels throughout the construction period.

The results of the detailed construction noise analysis are summarized in **Table 16-101**.

**Table 16-101**  
**Construction Noise Analysis Results in dBA**

Receptor	Location	Existing L <sub>EQ</sub>		Total L <sub>EQ</sub>		Change in L <sub>EQ</sub>	
		Min	Max	Min	Max	Min	Max
5-20	1901 First Avenue	63.6	70.4	63.6	75.8	0.0	12.2
21	1711 Third Avenue	63.6	63.6	63.6	63.7	0.0	0.1
22, 24	215 East 96th Street	63.6	68.2	63.6	68.4	0.0	3.9
23	232 East 97th Street	63.6	63.6	63.6	66.0	0.0	2.4
25	227 East 96th Street	67.5	68.9	67.5	70.4	0.0	2.5
26, 31	1865 Second Avenue	67.1	70.7	67.2	76.7	0.0	8.3
27	1873 Second Avenue	69.6	70.4	69.6	76.6	0.0	7.0
28	1871 Second Avenue	70.0	70.3	70.0	74.8	0.0	4.5
29	1869 Second Avenue	68.8	70.3	68.8	76.7	0.0	7.7
30	1867 Second Avenue	69.3	70.4	69.3	76.8	0.0	7.3
32	1854 Second Avenue	68.7	69.6	69.5	76.2	0.5	7.5
33, 34	306 East 96th Street	65.1	67.9	68.4	77.1	1.1	11.1
35, 36	320 East 96th Street	66.6	68.7	68.5	76.9	0.9	9.9
37	334 East 96th Street	67.5	68.8	68.7	77.5	0.8	9.5
38, 39, 44	337 East 95th Street	63.6	69.0	63.7	77.5	0.1	9.6
40	1843 First Avenue	69.0	70.2	69.0	70.6	0.0	1.1
41, 42	1841 First Avenue	68.5	70.1	68.5	70.5	0.0	1.1
43	305 East 95th Street	63.6	63.6	63.6	68.6	0.0	5.0
45	335 East 95th Street	63.6	63.6	63.7	65.5	0.1	1.9
46, 47	1860 First Avenue	66.0	67.5	66.1	70.9	0.1	3.9
48	1761 Third Avenue	63.6	63.6	63.6	64.7	0.0	1.1
49, 51	219 East 97th Street	63.6	63.6	63.7	67.4	0.1	3.8
50	201 East 97th Street	63.6	63.6	63.7	64.6	0.1	1.0
52-54	1893 Second Avenue	63.6	63.6	63.6	70.0	0.0	6.4
55, 56	1895 Second Avenue	63.8	68.8	63.8	70.1	0.0	5.7
57	1709 Third Avenue	63.6	66.7	64.0	67.1	0.0	3.3
58	225 East 95th Street	63.6	66.9	64.4	69.4	0.2	5.7
59-61	235 East 95th Street	63.6	67.1	64.3	72.1	0.0	8.4
62, 63	Stanley Isaacs Playground	66.3	69.1	66.3	70.7	0.0	1.6
64-66	1918 First Avenue	63.6	69.3	63.8	70.3	0.0	5.8
67	238 East 95th Street	66.7	70.5	66.7	70.8	0.0	0.7
68	1817 Second Avenue	68.6	70.7	68.6	70.9	0.0	0.3
69-92	Existing CO-OP Tech School	63.6	69.6	63.6	81.2	0.2	17.6
93, 94, 98	New Residential Tower	N/A	N/A	63.6	70.3	N/A	N/A
95-97	New Technical School COOP Tech Replacement Facility	N/A	N/A	63.6	69.3	N/A	N/A

### HHC Metropolitan Hospital

At HHC Metropolitan Hospital, located along East 97th Street between First and Second Avenues north of the project site—Receptors 5 through 20—the existing noise levels range from the low 60s to low 70s dBA depending on proximity to and shielding from East 97th Street, proximity to First or Second Avenue, and height above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at most of these receptors in the low 60s to mid 70s dBA with noise level increases up to approximately 10 dBA during the most noise-intensive stages of construction, (i.e., pile driving and concrete truck operations). However, at areas of the hospital immediately north of the project work area along East 97th

Street, construction of the proposed project would produce noise levels in the high 70s dBA with noise level increases of up to approximately 12dBA. These include Receptors 5 and 10.

At Receptors 5 and 10, which represent the southwest and southeast extents of the hospital's south façade immediately along the north side of East 97th Street, sheet pile driving and truck activity within the construction area directly across East 97th Street from these façade areas would produce noise levels in the high 70s dBA, which would result in noise level increases up to approximately 12dBA. While these noise level increases would be noticeable, noise levels in the high 70s are not atypical for Manhattan at locations along heavily trafficked avenues such as Second Avenue.

The south façade of HHC Metropolitan Hospital was confirmed by field observations to have insulated glass windows and an alternative means of ventilation (i.e., central air conditioning), which would be expected to provide approximately 30 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the mid to high 40s dBA, up to approximately 4 dBA higher than the 45 dBA threshold recommended for inpatient medical use or less than the 50 dBA threshold recommended for outpatient medical or office use according to CEQR noise exposure guidelines.

During the approximately five years of construction, the construction activities that would produce the highest noise levels would be sheet pile installation using vibratory pile drivers and concrete mixer trucks entering the site and the operation of their mixers. Sheet pile installation would occur on the residential building site for approximately two months, and concrete truck operation would occur on the residential building site for approximately 15 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period and would occur immediately adjacent to each receptor area only for a limited period of time. Construction noise levels occurring during activities other than pile driving or concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during pile driving or concrete operations.

Based on the prediction of construction noise levels up to the high 70s dBA with construction noise level increments up to approximately 12 dBA and a duration of maximum construction noise up to approximately 15 months with CEQR impact criteria exceedances occurring for up to a total of approximately three years, construction noise associated with the proposed project at Receptors 5 and 10 would have the potential to result in a significant adverse effect. However, because the building already has insulated glass windows and an alternative means of ventilation (i.e., air conditioning) resulting in interior noise levels within approximately 4 to 9 dBA of the acceptable range, additional receptor controls (i.e., façade attenuation improvements) to further reduce interior noise levels would not be effective and are not warranted.

At the remaining areas of HHC Metropolitan Hospital located at further setbacks from East 97th Street, shielded from East 97th Street, or along First or Second Avenues—Receptors 6 through 9 and 11 through 20—construction of the proposed project is predicted to produce noise levels in the low 60s to mid 70s resulting in noise level increases of up to approximately 10 dBA. The predicted noise level increases would be noticeable, but would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as Second Avenue. Furthermore, the observed building façade construction with insulated glass windows would be expected to provide approximately 30 dBA window/wall attenuation, so for those buildings with standard façade construction and an alternate means of ventilation allowing for the maintenance

of a closed-window condition, interior noise levels during most of the construction would be less than 45 dBA (i.e., during times when total noise levels as shown in **Appendix C** are less than 75 dBA), which is considered acceptable for inpatient medical use according to CEQR noise exposure guidance.

However, at these receptors, noise level increases exceeding the CEQR impact criteria are predicted to occur at various times throughout the approximately five years of construction. At these receptors, the construction activity that would produce the highest noise levels would be sheet pile installation using vibratory pile drivers and concrete mixer trucks entering the site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period. Construction noise levels that would occur during activities other than concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during concrete operations. Based on the magnitude of noise level increases and the predicted interior noise levels, which would be within the acceptable range according to CEQR noise exposure guidance for much of the construction period as described above, as well as the limited duration of construction noise at these receptors, construction noise at these receptors would not result in a significant adverse impact.

#### *Existing-COOP Tech*

~~The existing~~ COOP Tech would remain open and operational throughout the first three years of construction of the proposed project, and would consequently be a noise receptor location during this time. At the school, located on the eastern portion of the project block—Receptors 69 through 92—the existing noise levels range from the low 60s to low 70s dBA depending on proximity to and shielding from First Avenue and ~~above~~ above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at most of these receptors in the low 60s to mid 70s dBA with noise level increases up to approximately 6 dBA during the most noise-intensive stages of construction, (i.e., pile driving and truck staging operations). However, at the westernmost portion of the school immediately east of the project work on the residential building site, construction of the proposed project would produce noise levels in the mid-~~80s~~ dBA with noise level increases of up to approximately 18 dBA. These include Receptors 69 through 74.

At Receptors 69 through 72, which represent the school's west façade immediately along the east side of the project work area, pile driving and truck activity within the construction area directly across adjacent to these façade areas would produce noise levels in the mid-80s dBA, which would result in noise level increases up to approximately 18 dBA. Based on field observations, the west façade of the existing COOP Tech building was confirmed to have insulated glass windows and an alternative means of ventilation (i.e., central air conditioning), which would be expected to provide approximately 30 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the low to mid 50s dBA, up to approximately 9 dBA higher than the 45 dBA threshold recommended for classroom use according to CEQR noise exposure guidelines.

At Receptors 73 and 74, which represent the western portions of the school's north and south façades, pile driving and truck activity within the construction west of these façade areas would produce noise levels in the high 70s dBA, which would result in noise level increases up to

approximately 10 dBA. Based on the approximately 30 dBA window/wall attenuation provided by the school building's façade, interior noise levels during construction in these areas would be in the low to high 40s dBA, up to approximately 4 dBA higher than the 45 dBA threshold recommended for classroom use according to CEQR noise exposure guidelines.

During the approximately five years of construction, the construction activities that would produce the highest noise levels would be sheet pile installation using vibratory pile drivers. Pile driving would occur on the residential building site for approximately two months. The maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period and would occur immediately adjacent to each receptor area only for a limited period of time. Construction noise levels occurring during activities other than pile driving would still result in exceedances of CEQR impact criteria at some times, but would be lower than the maximum levels during pile driving.

Based on the prediction of construction noise levels up to the mid-80s dBA with construction noise level increments up to approximately 18 dBA and a duration of maximum construction noise and CEQR impact criteria exceedances up to approximately two years, construction noise associated with the proposed project at Receptors 69 through 74 would have the potential to result in a significant adverse impact. However, because the building already has insulated glass windows and an alternative means of ventilation (i.e., air conditioning) resulting in interior noise levels within approximately 4 to 9 dBA of the acceptable range, additional receptor controls (i.e., façade attenuation improvements) to further reduce interior noise levels would not be effective and are not warranted.

At the remaining areas of the existing COOP Tech building—Receptors 75 through 84—construction of the proposed project is predicted to produce noise levels in the low 60s to mid 70s resulting in noise level increases of up to approximately 3 dBA. The predicted noise level increases would be just noticeable and would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as Second Avenue. Furthermore, the observed building façade construction would be expected to provide approximately 30 dBA window/wall attenuation, so interior noise levels throughout the construction period, which is considered acceptable for classroom use according to CEQR noise exposure guidance.

#### *Receptors on Side Streets West of Second Avenue*

At receptors located along the side streets (i.e., East 95th Street, East 96th Street, East 97th Street, etc.) west of Second Avenue—Receptors 21 through 26, and 57 through 59—the existing noise levels range from the low to high 60s dBA depending on proximity to and shielding from Second Avenue and height ~~above~~ above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at these receptors in the low 60s to mid-70s dBA, resulting in noise level increases of up to approximately 8 dBA during the most noise-intensive stages of construction. While the predicted noise level increases at these residential locations would be noticeable, the total noise levels would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as Second Avenue. Furthermore, standard building façade construction would be expected to provide approximately 30 dBA window/wall attenuation; ~~therefore,~~ therefore, so for those buildings with standard façade construction and an alternate means of ventilation allowing for the maintenance of a closed-window condition, interior noise levels throughout the construction period would be less than 45 dBA (i.e., during those times when noise levels are less than 75 dBA as shown in the full

construction noise analysis results in **Appendix C**), which is considered acceptable for these types of noise-sensitive uses according to CEQR noise exposure guidance.

During the approximately five years of construction, the construction activities that would produce the highest noise levels would be sheet pile installation using vibratory pile drivers and concrete mixer trucks entering the site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period. Construction noise levels occurring during activities other than pile driving or concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during pile driving or concrete operations.

As described above, construction noise levels at these receptors were predicted to be in the low 60s to low 70s dBA with increases of up to approximately 8 dBA. Interior noise levels at these receptors are predicted to be within the acceptable range according to CEQR noise exposure criteria throughout the construction duration. Based on these factors, construction noise associated with the proposed project at these receptors would not be expected to result in a significant adverse impact.

*Receptors along West Side of Second Avenue*

At receptors located along the west side of Second Avenue—Receptors 27 through 31, 60, 61, 67, and 68—the existing noise levels range from the low 60s to low 70s dBA depending on height ~~above~~ above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at these receptors in the high 60s to high 70s dBA, resulting in noise level increases of up to approximately 9 dBA during the most noise-intensive stages of construction. While the predicted noise level increases at these residential locations would be noticeable, the total noise levels would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as Second Avenue. Furthermore, standard building façade construction would be expected to provide approximately 30 dBA window/wall attenuation; therefore, so for those buildings with standard façade construction and an alternate means of ventilation allowing for the maintenance of a closed-window condition, interior noise levels throughout the construction period would be less than 45 dBA (i.e., during those times when noise levels are less than 75 dBA as shown in the full construction noise analysis results in **Appendix C**), which is considered acceptable for these types of noise-sensitive uses according to CEQR noise exposure guidance.

During the approximately five years of construction, the highest noise levels at these receptors would be produced by sheet pile installation using vibratory pile drivers or concrete mixer trucks entering the residential building site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period and would occur immediately adjacent to each receptor area only for a limited period of time. Construction noise levels occurring during activities other than pile driving or concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during pile driving or concrete operations.

As described above, construction noise levels at these receptors were predicted to be in the high 60s to high 70s dBA with increases of up to approximately 9 dBA. Interior noise levels at these receptors are predicted to be within the acceptable range according to CEQR noise exposure criteria throughout most of the construction duration. Based on these factors, construction noise associated with the proposed project at these receptors would not be expected to result in a significant adverse impact.

*Receptors along North Side of East 96th Street between First and Second Avenues*

At receptors along the north side of East 96th Street between First and Second Avenues—Receptors 32 through 39—the existing noise levels range from the mid to high 60s dBA depending on proximity to First or Second Avenue, and height ~~above~~ above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at most of these receptors in the low 60s to high 70s dBA with noise level increases up to approximately 10 dBA during the most noise-intensive stages of construction, i.e., pile driving and concrete truck operations. However, at 306 East 96th Street, which is represented by receptors 36 and 37, construction of the proposed project would produce noise levels in the high 70s dBA with noise level increases of up to approximately 11 dBA.

At Receptors 33 and 34, which represent the north façade of the residential building at 306 East 96th Street immediately south of the project site across East 96th Street, pile driving and concrete truck activity within the construction area would produce noise levels in the high 70s dBA, which would result in noise level increases up to approximately 11 dBA. While these noise level increases would be noticeable, noise levels in the high 70s are not atypical for Manhattan at locations along heavily trafficked avenues such as Second Avenue.

Based on field observations, 306 East 96th Street appears to have insulated glass windows and an alternative means of ventilation (i.e., through-wall air conditioning units), which would be expected to provide approximately 30 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the mid- to high 40s dBA, up to approximately 5 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.

Additionally, the building at 306 East 96th Street has outdoor balconies on its north façade, which would not experience the same attenuation provided by the windows and alternate means of ventilation that exists at the interior of the buildings. During the loudest periods of construction, noise level increases resulting from construction at these balconies are predicted to be up to approximately 11 dBA, with absolute noise levels in the high 70s dBA. Consequently, balconies on various floors may experience significant noise impacts due to construction for limited portions of the construction period. However, even during the portions of the construction period that would generate the most noise at these balconies, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, (e.g., during late afternoon, nighttime, and on weekends). At these outdoor balconies, there would be no feasible or practicable way to mitigate the construction noise impacts. Therefore, these balconies would be considered to experience unmitigated significant noise impacts as a result of construction.

During the approximately five years of construction, the construction activities that would produce the highest noise levels would be sheet pile installation using vibratory pile drivers and concrete mixer trucks entering the site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile

driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period and would occur immediately adjacent to each receptor area only for a limited period of time. Construction noise levels occurring during activities other than pile driving or concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during pile driving or concrete operations.

Based on the prediction of construction noise levels up to the high 70s dBA with construction noise level increments up to approximately 11 dBA and a duration of maximum construction noise up to approximately 15 months with CEQR impact criteria exceedances occurring for up to a total of approximately three years, construction noise associated with the proposed project at Receptors 33 and 34 would have the potential to result in a significant adverse effect. However, because the building already has insulated glass windows and an alternative means of ventilation (i.e., air conditioning) resulting in interior noise levels up to approximately 5 dBA higher than the acceptable range and because there are no feasible or practicable mitigation measures to reduce the level of construction noise at the building's outdoor balconies, additional receptor controls (i.e., façade attenuation improvements) to further reduce interior noise levels would not be effective and are not warranted.

At the remaining receptors along the north side of East 96th Street between First and Second Avenues including the Life Sciences Secondary School—Receptors 32 and 35 through 39—construction of the proposed project is predicted to produce noise levels in the low 60s to high 70s resulting in noise level increases of up to approximately 10 dBA. The predicted noise level increases would be noticeable, but would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as Second Avenue. Furthermore, standard building façade construction would be expected to provide approximately 30 dBA window/wall attenuation, so for those buildings with standard façade construction and an alternate means of ventilation allowing for the maintenance of a closed-window condition, interior noise levels throughout the construction period would be less than 45 dBA (i.e., during those times when noise levels are less than 75 dBA as shown in the full construction noise analysis results in **Appendix C**), which is considered acceptable for residential uses according to CEQR noise exposure guidance.

However, at these receptors, noise level increases exceeding the CEQR impact criteria are predicted to occur at various times throughout the approximately five years of construction. At these receptors, the construction activity that would produce the highest noise levels would be sheet pile installation using vibratory pile drivers and concrete mixer trucks entering the site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period. Construction noise levels that would occur during activities other than concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during concrete operations. Based on the magnitude of noise level increases and the predicted interior noise levels, which would be within the acceptable range according to CEQR noise exposure guidance for much of the construction period as described above, as well as the limited duration of construction noise at these receptors, construction noise at these receptors would not result in a significant adverse impact.

*Receptors aAlong First Avenue and aAlong the North Side of East 95th Street*

At receptors located along First Avenue and the north side of East 95th Street—Receptors 40 through 45—the existing noise levels range from the low 60s to low 70s dBA depending on proximity to First Avenue and height ~~above~~-above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at these receptors in the high 60s to mid 70s dBA, resulting in noise level increases of up to approximately 5 dBA during the most noise-intensive stages of construction. While the predicted noise level increases at these residential locations would be noticeable, the total noise levels would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as Second Avenue. Furthermore, standard building façade construction would be expected to provide approximately 30 dBA window/wall attenuation; therefore, ~~so~~—for those buildings with standard façade construction and an alternate means of ventilation allowing for the maintenance of a closed-window condition, interior noise levels throughout most of the construction period would be less than 45 dBA (i.e., during those times when noise levels are less than 75 dBA as shown in the full construction noise analysis results in **Appendix C**), which is considered acceptable for these types of noise-sensitive uses according to CEQR noise exposure guidance.

During the approximately five years of construction, the highest noise levels at these receptors would be produced by sheet pile installation using vibratory pile drivers or concrete mixer trucks entering the residential building site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period and would occur immediately adjacent to each receptor area only for a limited period of time. Construction noise levels occurring during activities other than pile driving or concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during pile driving or concrete operations.

As described above, construction noise levels at these receptors were predicted to be in the high 60s to mid 70s dBA with increases of up to approximately 5 dBA. Interior noise levels at these receptors are predicted to be within the acceptable range according to CEQR noise exposure criteria throughout most of the construction duration. Based on these factors, construction noise associated with the proposed project at these receptors would not be expected to result in a significant adverse impact.

*Stanley Isaacs Courts and Playground*

At open space receptors in Stanley Isaacs Courts and Playground—Receptors 46, 47, 62, and 63—the existing noise levels are in the mid to high 60s.

Construction of the proposed project is predicted to produce noise levels at these receptors in the low 60s to mid 70s dBA, resulting in noise level increases less than 4 dBA. Noise level increases in this range would be considered barely perceptible and would exceed CEQR noise impact criteria only during the loudest construction time periods, (i.e., concrete trucks entering and exiting the school site and the operation of their mixers). These activities would occur on the school site for approximately three months. Based on the predicted magnitude and duration of potential exceedances of CEQR noise impact criteria, construction noise associated with the proposed project at these receptors would not be expected to result in a significant adverse impact at these receptors.

*New York City Housing Authority (NYCHA) Washington Houses*

At the NYCHA Washington Houses—Receptors 48 through 56—the existing noise levels range from the low to high 60s dBA depending on proximity to and shielding from Second Avenue and height ~~above~~ above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at these receptors in the low 60s to low 70s dBA, resulting in noise level increases of up to approximately 6 dBA during the most noise-intensive stages of construction. While the predicted noise level increases at these residential locations would be noticeable, the total noise levels would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as Second Avenue. Furthermore, standard building façade construction would be expected to provide approximately 30 dBA window/wall attenuation, so for those buildings with standard façade construction and an alternate means of ventilation allowing for the maintenance of a closed-window condition, interior noise levels throughout most of the construction period would be less than 45 dBA (i.e., during those times when noise levels are less than 75 dBA as shown in the full construction noise analysis results in **Appendix C**), which is considered acceptable for these types of noise-sensitive uses according to CEQR noise exposure guidance.

During the approximately five years of construction, the highest noise levels at these receptors would be produced by sheet pile installation using vibratory pile drivers or concrete mixer trucks entering the residential building site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period and would occur immediately adjacent to each receptor area only for a limited period of time. Construction noise levels occurring during activities other than pile driving or concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during pile driving or concrete operations.

As described above, construction noise levels at these receptors were predicted to be in the low 60s to low 70s dBA with increases of up to approximately 6 dBA. Interior noise levels at these receptors are predicted to be within the acceptable range according to CEQR noise exposure criteria throughout most of the construction duration. Based on these factors, construction noise associated with the proposed project at these receptors would not be expected to result in a significant adverse impact.

*Residences East of First Avenue*

At residences east of First Avenue—Receptors 64 through 66—the existing noise levels range from the low to high 60s dBA depending on proximity to and shielding from First Avenue and height ~~above~~ above-grade (i.e., floor of the building).

Construction of the proposed project is predicted to produce noise levels at these receptors in the low 60s to mid 70s dBA, resulting in noise level increases of up to approximately 6 dBA during the most noise-intensive stages of construction. While the predicted noise level increases at these residential locations would be noticeable, the total noise levels would be in the range considered typical for Manhattan at locations along heavily trafficked avenues such as the FDR Drive. Furthermore, standard building façade construction would be expected to provide approximately 30 dBA window/wall attenuation; ~~therefore, so~~ for those buildings with standard façade construction and an alternate means of ventilation allowing for the maintenance of a closed-

window condition, interior noise levels throughout most of the construction period would be less than 45 dBA (i.e., during those times when noise levels are less than 75 dBA as shown in the full construction noise analysis results in **Appendix C**), which is considered acceptable for these types of noise-sensitive uses according to CEQR noise exposure guidance.

During the approximately five years of construction, the highest noise levels at these receptors would be produced by sheet pile installation using vibratory pile drivers or concrete mixer trucks entering the residential building site and the operation of their mixers. These activities would occur on the residential building site for approximately 17 months. On the school site, no pile driving would occur and concrete mixer truck operation would occur for approximately 14 months. Consequently, the maximum noise levels predicted by the construction noise analysis would not persist throughout the construction period and would occur immediately adjacent to each receptor area only for a limited period of time. Construction noise levels occurring during activities other than pile driving or concrete operations would still result in exceedances of CEQR impact criteria at some times, but would be substantially lower than the maximum levels during pile driving or concrete operations.

As described above, construction noise levels at these receptors were predicted to be in the low 60s to mid 70s dBA with increases of up to approximately 6 dBA. Interior noise levels at these receptors are predicted to be within the acceptable range according to CEQR noise exposure criteria throughout most of the construction duration. Based on these factors, construction noise associated with the proposed project at these receptors would not be expected to result in a significant adverse impact.

*Residential and COOP Tech ~~Building~~ Replacement Facility at Western Portion of the Project Site*

The proposed residential and COOP Tech ~~building~~ replacement facility at the western portion of the project site would be completed and occupied during approximately two years of construction on the eastern portion of the project site. During that time, the construction on the school site would be primarily interior construction and construction noise would result primarily from truck staging and site work. At the newly constructed residential and COOP Tech ~~building~~ replacement facility, located on the western portion of the project block—Receptors 85 through 90—construction of the proposed project would result in noise levels that range from the low 60s to ~~mid-mid~~ 70s dBA with a maximum noise exposure of less than 74 dBA. Based on the 28 to 31 dBA window/wall attenuation specified for the residential and tech school building (see Table 14-5 in Chapter 14, “Noise”), interior noise levels at this building are predicted be less than 45 dBA throughout construction on the eastern portion of the project site, which is within the acceptable range for classroom or residential use according to CEQR noise exposure criteria.

*CONCLUSIONS*

The detailed modeling analysis concluded that construction of the proposed project has the potential to result in construction noise levels that exceed *CEQR Technical Manual* noise impact criteria for an extended period of time at the portion of HHC Metropolitan Hospital immediately across East 97th Street north of the project site, the western façade and western portions of the north and south façades of the existing COOP Tech building, and the north façade of the residential building at 306 East 96th Street immediately south of the project site.

The affected façades of HHC Metropolitan Hospital and 306 East 96th Street would experience exterior noise levels in the high 70s dBA, which represent increases in noise level up to

approximately 13 dBA compared with existing levels, for up to approximately three years during the construction period. The affected portions of ~~the existing~~ COOP Tech building would experience exterior noise levels in the mid-80s dBA, which represent increases in noise level up to approximately 18 dBA compared with existing levels, for up to approximately three years during the construction period.

Construction noise levels of this magnitude for such an extended duration would constitute a significant adverse impact. Field observations determined that these buildings have insulated glass windows and alternate means of ventilation (i.e., air conditioning), and would consequently be expected to experience interior  $L_{10(1)}$  values less than 45 dBA during much of the construction period, which would be considered acceptable according to CEQR criteria. At the outdoor balconies on the north façade of the 306 East 96th Street building, there are no feasible or practicable measures to attenuate the construction noise that reaches the building. Therefore, additional receptor controls (i.e., façade attenuation improvements) to further reduce interior noise levels at these locations are not proposed.

At other receptors near the project site, including open space, residential, and hospital receptors, noise resulting from construction of the proposed project may at times be noticeable, but would be temporary and would generally not exceed typical noise levels in the general area and so would not rise to the level of a significant adverse noise impact.

## **VIBRATION**

### *INTRODUCTION*

Construction activities have the potential to result in vibration levels that may result in structural or architectural damage, and/or annoyance or interference with vibration-sensitive activities. Vibratory levels at a receiver are a function of the source strength (which is dependent upon the construction equipment and methods utilized), the distance between the equipment and the receiver, the characteristics of the transmitting medium, and the receiver building construction. Construction equipment operation causes ground vibrations, which spread through the ground and decrease in strength with distance. Vehicular traffic, even in locations close to major roadways, typically does not result in perceptible vibration levels unless there are discontinuities in the roadway surface. With the exception of the case of fragile and possibly historically significant structures or buildings, construction activities generally do not reach the levels that can cause architectural or structural damage, but can achieve levels that may be perceptible and annoying in buildings very close to a construction site. An assessment has been prepared to quantify potential vibration impacts of construction activities on structures and residences near the project site.

### *CONSTRUCTION VIBRATION CRITERIA*

For purposes of assessing potential structural or architectural damage, the determination of a significant impact was based on the vibration impact criterion used by LPC of a peak particle velocity (PPV) of 0.50 inches/second as specified in the NYCDOB TPPN #10/88. For non-fragile buildings, vibration levels below 0.60 inches/second would not be expected to result in any structural or architectural damage.

For purposes of evaluating potential annoyance or interference with vibration-sensitive activities, vibration levels greater than 65 vibration decibels (VdB) would have the potential to result in significant adverse impacts if they were to occur for a prolonged period of time.

ANALYSIS METHODOLOGY

Table 16-112 shows vibration source levels for typical construction equipment.

**Table 16-112**  
**Vibration Source Levels for Construction Equipment**

Equipment	PPV <sub>ref</sub> (in/sec)	Approximate L <sub>v</sub> (ref) (VdB)
Pile Driver (impact)	upper range	112
	Typical	104
Hydromill (slurry wall)	In soil	66
	In rock	75
Clam shovel drop (slurry wall)	0.202	94
Vibratory Roller	0.210	94
Hydraulic Break Ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

**Source:** *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

The source vibration levels shown in Table 16-112 were projected to nearby receptors to estimate the levels of construction vibration that would occur in the study area.

*Construction Vibration Analysis Results*

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are the existing hospital and residential buildings surrounding the project site, immediately across East 97th Street or East 96th Street. However, as a result of these structures' distances from the construction site, vibration levels at these buildings and structures would not be expected to exceed 0.50 in/sec PPV, including during sheeting driving, which would be the most vibration intensive activity associated with construction of the proposed project. Additional receptors farther away from the project site would experience even less vibration than those listed above, which would not be expected to cause structural or architectural damage.

In terms of potential vibration levels that would be perceptible and annoying, the equipment that would have the most potential for producing levels that exceed the 65 VdB limit is also the pile driver. It would have the potential to produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within a distance of approximately 550 feet depending on soil conditions. However, the operation would only occur for limited periods of time at a particular location and therefore would not result in any significant adverse impacts.

Consequently, there is no potential for significant adverse vibration impacts from the proposed project.

**OTHER TECHNICAL AREAS**

*LAND USE AND NEIGHBORHOOD CHARACTER*

Construction activities would affect land use on the project site, but would not affect surrounding land uses. As is typical with construction projects, during periods of peak activity there would be some disruption to the nearby area. There would be construction trucks and

construction workers coming to the area as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary in nature and would have limited effects on land uses within the study area, particularly as construction activities would take place within the project site. In addition, throughout the construction period, measures would be implemented to control noise, vibration, and dust on the construction area, including the erection of construction fencing. The fencing would reduce potentially undesirable views of the construction site and buffer noise emitted from construction activities. Overall, while construction activities at the project site would be evident to the local community, the limited duration of construction would not result in any significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

#### *SOCIOECONOMIC CONDITIONS*

As discussed above, based on the preliminary construction logistics plan, construction truck staging and laydown of construction materials would take place within the project site. Construction activities would not block or restrict access to any facilities in the area, affect the operations of any nearby businesses, or obstruct major thoroughfares used by customers or businesses. Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the construction activity. Construction also would result in increased tax revenues for the city and state, including those from personal income taxes. Construction activities associated with the proposed project would not result in any significant adverse impacts on socioeconomic conditions.

#### *COMMUNITY FACILITIES*

The proposed project involves the construction of a mixed-use tower on Second Avenue that would contain a public technical school—a replacement facility for ~~the existing~~ COOP Tech on the project site that would be operational during a portion of the construction of the eastern building. While construction of the proposed project would result in temporary increases in traffic during the construction period, access to and from this community facility and other community facilities in the area, including HHC Metropolitan Hospital to the north of the project site across West 97th Street and the Life Sciences Secondary School to the south of project site across West 96th Street, would not be affected during the construction period. In addition, COOP Tech would be relocated with no interruption to the academic years for students. Therefore, nearby community facilities would not be adversely affected by construction activities associated with the proposed project. The construction site would be surrounded by construction fencing that would limit the effects of construction on nearby facilities. Construction workers would not place any burden on nearby community facilities and services. New York City Police Department (NYPD), and FDNY emergency services and response times would not be materially affected by construction significantly due to the geographic distribution of ~~the police~~ NYPD and ~~fire~~ FDNY facilities and their respective coverage areas.

#### *OPEN SPACE*

This section assesses the availability and adequacy of open space resources during project construction, including consideration of the potential direct and indirect effects. The assessment of direct effects includes estimates of the extent and timing of open space displacement during construction and consideration of construction-related noise and air pollutant emissions on the quality of the open spaces resources. The indirect assessment applies the methodologies of

Chapter 5, “Open Space,” to determine the open space ratios for the residential (½-mile) study area over the course of the five-year construction period.

*Analysis Assumptions*

The analysis considers conditions during the construction period when there would be notable changes in the available open spaces within the project site (i.e., displacement of existing open spaces during construction), or when a new population of open space users would be introduced as a result of the completion and operation of a No Build projects.

As discussed above, the overall construction of the proposed project is anticipated to take approximately five year to complete. There are two components with overlapping schedule: construction of the western building would take approximately 45 months, and construction of the eastern building would take approximately 26 months. The analysis condition, based on the construction schedule analyzed, would represent a total of approximately five years.

The residential population within ½-mile of the proposed project is estimated to be 81,782 in the existing condition. There are 5,050 residents projected to be introduced to the ½-mile study area by 2023 (for further detail see Chapter 5, “Open Space”). Thus the analysis conservatively assumes a total of 86,832 potential open space users in 2023.

*Direct Effects Analysis*

The following section identifies public and private open space resources that would be displaced by construction of the proposed project, and characterizes other potential direct effects—such as potential air quality, noise, and other safety concerns—on existing open spaces.

To allow for a more efficient and expedited construction, construction staging would take place within the project site. On-site construction staging would minimize disruptions to the surrounding roadways during construction and would allow for vehicle access to be maintained at nearby facilities, including HHC Metropolitan Hospital to the north of the project site across West 97th Street. On-site construction staging would also allow for a safer environment for the public passing through the area as the activities would be contained within the project site. The ~~existing~~ Marx Brothers Playground (1.468 acres) on the project site would be temporarily displaced for the duration of construction, and would therefore be unavailable for public use for this length of time.

As described above under “Air Quality,” the proposed project would implement an emissions reduction program to minimize the effects of the proposed project’s construction activities on the surrounding community, including the nearby Stanley Isaacs Playground to the east of the project site. The proposed project would also adhere to *New York City Air Pollution Control Code* regulations regarding construction-related dust emissions, and to *New York City Administrative Code* limitations on construction-vehicle idling time. Therefore, construction activities associated with the proposed project would not result in any significant adverse air quality impacts on nearby open spaces.

Construction of the proposed project would follow the requirements of the *NYC Noise Control Code* as well as implementing additional measures (i.e., cantilevered 12-foot site fence, the use of quieter equipment) to minimize the effects of the proposed project’s construction activities on the surrounding community. While the noise from construction would be noticeable at nearby open space resources at times, the duration of construction noise at any given area would be limited. As discussed above under “Noise,” construction noise associated with the proposed

project would not be expected to result in a significant adverse impact at any nearby open space resources.

*Indirect Effects Analysis*

The total, active, and passive open space ratios for the period of construction, during which the Marx Brothers Playground would be temporarily displaced, would be 0.184 acres of total open space per person, including 0.148 acres of active open space per person and 0.036 acres of passive open space per person. As shown in **Table 16-123**, these open space ratios during construction represent reductions of 8.46 percent, 10.3 percent, and 0 percent for total open space ratio, active open space ratio, and passive space ratio, respectively.

**Table 16-123**  
**Open Space Ratios During Periods of Construction**

Ratio	DCP Guideline	Existing Ratio <sup>1</sup>	No Action Ratio <sup>2</sup>	Construction Condition	Percent Change (Construction Condition to No Action)
<b>June 2018 to June 2023, Five Year Analysis Condition</b>					
Total Open Space	2.5	0.207	0.201	0.184	-8.46%
Active Open Space	0.5	0.169	0.165	0.148	-10.30%
Passive Open Space	2.0	0.038	0.036	0.036	0.00%
<b>Notes:</b>					
<sup>1</sup> For Existing Condition analysis assumptions and methodology refer to Chapter 5, "Open Space."					
<sup>2</sup> For No Action Condition analysis assumptions and methodology refer to Chapter 5, "Open Space."					

According to the *CEQR Technical Manual*, in areas that are well served by open space, a reduction of open space ratios greater than 5 percent may be considered significant, as it may result in overburdening existing facilities or further exacerbating a deficiency in open space. During the construction period, the total and active open space ratios for the study area would be reduced by more than the CEQR threshold of 5 percent; therefore, the temporary displacement of the Marx Brothers Playground during construction would be considered a significant adverse construction-period impact. While a temporary displacement, there are other active open space resources in the area, such as Stanley Isaacs Playground and Ruppert Park that could accommodate the active recreation activities displaced from Marx Brothers Playground. Upon completion of the proposed project, Marx Brothers Playground would be reconstructed and enhanced following a process that would reflect continued input from NYC Parks, DOE, Community Board 11, and the local community.

**HISTORIC AND CULTURAL RESOURCES**

A detailed assessment of potential impacts on historic and cultural resources is described in ~~Attachment 5~~ Chapter 7, "Historic and Cultural Resources." The proposed project would not adversely impact archaeological resources, as LPC has determined that the project site does not possess archaeological sensitivity. The proposed construction on the project site would not entail the demolition of any known or potential architectural resources. The Life Sciences Secondary School—which has been determined eligible for listing on the State and National Registers of Historic Places—is located on the south side of East 96th Street, slightly more than 90 feet from the project site. To avoid inadvertent demolition and/or construction-related damage to this resource from ground-borne construction-period vibrations, falling debris, collapse, etc.—and consistent with LPC’s letter dated June 24, 2016—the school would be included in a CPP for historic structures that would be prepared in coordination with LPC and implemented in

consultation with a licensed professional engineer. The CPP would be prepared as set forth in Section 523 of the *CEQR Technical Manual* and in compliance with the procedures included in the DOB's TPPN #10/88 and LPC's *Guidelines for Construction Adjacent to a Historic Landmark and Protection Programs for Landmark Buildings*. Provisions of the 2014 *New York City Building Code* also provide protection measures for all properties against accidental damage from adjacent construction by requiring that all buildings, lots, and service facilities adjacent to foundation and earthwork areas be protected and supported. Further, Building Code Chapter 3309.4.4 requires that "historic structures that are contiguous to or within a lateral distance of 90 feet...from the edge of the lot where an excavation is occurring" be monitored during the course of excavation work. The CPP would be prepared and implemented prior to demolition and construction activities on the project site and project-related demolition and construction activities would be monitored as specified in the CPP. The proposed project would not be anticipated to have any significant adverse impacts on historic and cultural resources with the preparation and implementation of a CPP for the Life Sciences Secondary School.

#### HAZARDOUS MATERIALS

Construction of the proposed project would entail demolition of an existing structure and excavation activities. A detailed assessment of the potential risks related to the construction of the proposed project with respect to any hazardous materials is described in Chapter 9, "Hazardous Materials." Although both the demolition and excavation activities could increase pathways for human exposure, impacts would be avoided by performing the project in accordance with the following:

- Following completion of the Environmental Impact Statement (EIS) and prior to ground disturbance required for the proposed project, a subsurface (Phase II) investigation would be conducted that would include the collection of soil, groundwater, and soil vapor samples with laboratory analysis. Prior to such testing, a Work Plan for the investigation would be submitted to DEP for review and approval. Following receipt of the sampling results, a DEP-approved site-specific RAP/CHASP to be implemented during construction would be prepared based on the results of the Phase II Investigation.
- Removal of all known and any unforeseen petroleum tanks encountered during construction would be performed in accordance with applicable regulatory requirements including NYSDEC's requirements relating to spill reporting tank registration, and tank removal procedures, as warranted.
- Prior to demolition, the existing building would be surveyed for asbestos by a New York City-certified asbestos investigator and all ACM would be removed and disposed of prior to demolition in accordance with local, state, and federal requirements.
- Demolition activities with the potential to disturb ~~lead-based paint~~ LBP would be performed in accordance with applicable requirements (including OSHA regulation 29 CFR 1926.62 - Lead Exposure in Construction, where applicable).
- Unless there is labeling or test data indicating that any suspect PCB-containing electrical equipment and fluorescent lighting fixtures do not contain PCBs, and that any fluorescent lighting bulbs do not contain mercury, disposal would be conducted in accordance with applicable ~~federal, local, state, and federal local~~ requirements.
- If dewatering were to be necessary for the proposed construction, water would be discharged to sewers in accordance with DEP requirements.

The New York City Educational Construction Fund (ECF) would require, through the terms incorporated into the Development Agreement provisions, that AvalonBay Communities, Inc. (AvalonBay), the designated developer, comply with and implement all measures outlined above into the proposed project with review and oversight by the appropriate regulatory agencies and authorities. With the measures outlined above, no significant adverse impacts related to hazardous materials would be expected to occur as a result of the proposed project. \*

## A. INTRODUCTION

In accordance with the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, this chapter presents and analyzes alternatives to the proposed project. Alternatives selected for consideration in an Environmental Impact Statement (EIS) are generally those which are feasible and have the potential to reduce, eliminate, or avoid adverse impacts of a proposed action while meeting some or all of the goals and objectives of the action.

In addition to a comparative impact analysis, the alternatives in this chapter are assessed to determine to what extent they would meet the goals and objectives of the proposed project, which are to facilitate the productive use of the project site by creating approximately 1,100 to 1,200 new residential units, 30 percent of which would be designated as affordable; relocate the Marx Brothers Playground to the midblock—a move which is desired by NYC Parks in order to buffer the playground use from the active First Avenue and Second Avenue corridors—and make improvements to the playground; and replace the existing COOP Tech with a new state-of-the-art facility, and relocate the Heritage School and Park East High School to new, larger facilities, to help achieve a better learning environment by alleviating over-crowded conditions and providing modern educational facilities adjacent to a new playground for enhanced physical education opportunities.

This chapter considers ~~two~~ three alternatives to the proposed project:

- A No Action Alternative, which is mandated by CEQR and SEQRA, and is intended to provide the lead and involved agencies with an assessment of the expected environmental impacts of no action on their part. The No Action Alternative assumes that in the future without the proposed actions, the project site will continue as in the existing condition, except that the MTA will vacate the western portion of the jointly operated Marx Brothers Playground and will reconstruct and restore that portion for open space uses.
- A No Unmitigated Significant Adverse Impacts Alternative, which considers a project program which would eliminate the proposed project’s unmitigated significant adverse impacts in the area of transportation.
- A Community Alternative, which considers several massing scenarios suggested by Community Board 11 that would result in a reduction of the height of the proposed residential tower on Second Avenue.

## B. NO ACTION ALTERNATIVE

### THE FUTURE WITHOUT THE PROPOSED ACTIONS

For the purposes of this EIS, it is assumed that in the future without the proposed project (the “No Action” condition), the project area will continue as in the existing condition, except that

the MTA will vacate the western portion of the jointly operated Marx Brothers Playground and will reconstruct and restore that 23,000 sf portion of the site back into open space use. For each technical analysis in the EIS, the No Action condition will also incorporate approved or planned development projects within the appropriate study area that are likely to be completed by the analysis year.

*LAND USE*

This section considers land use, zoning, and public policy conditions for the No Action condition in 2023. These conditions are projected by considering changes that are likely or expected to occur on the development site, the granting site, and within the study area.

*Project Site*

In the No Action condition, it is assumed that in the future without the proposed actions, the project site will continue as in the existing condition, except that the MTA will vacate the western portion of the jointly operated Marx Brothers Playground and will reconstruct and restore that portion for open space uses. In addition, the new Judith Kaye High School is projected to be housed within the COOP Tech building starting in the fall of 2017, utilizing space currently occupied by a P2K (GED) program, which is being phased out. While expansion of the school facility or improvements to the playground could be undertaken pending availability of funding, no redevelopment could occur on this publicly owned site without other discretionary approvals.

*Study Area*

Within the study area, which incorporates a ¼-mile radius from the project site, the No Action condition assumes that a number of No Build projects would be introduced to the study area by 2023 (see Table 2-2 and Figure 2-4 in Chapter 2: Land Use). These No Build projects would introduce a total of 1,147 residential units, which would introduce approximately 2,856 residents to the study area by 2023. These projects would range in size from 6-story to 36-story residential apartment buildings or large mixed use buildings.

With the exception of the above- mentioned No Build projects, in the future without the proposed actions no changes to land use are anticipated within the study area.

*Zoning*

In the No Action condition, no changes to zoning are currently anticipated affecting the project site or study area; however, two city-wide zoning text amendments—Mandatory Inclusionary Housing and Zoning for Quality and Affordability—were recently approved. In addition, the Department of City Planning (DCP) is continuing work on a rezoning for East Harlem in connection with *Housing New York*, the mayor’s affordable housing plan.

*Public Policy*

There are no changes to public policy expected in the study area in the No Action condition. Existing public policies are expected to remain in effect.

### *COMMUNITY FACILITIES*

Planned or proposed development projects in the child care study area will introduce approximately 2,050 new affordable housing units.<sup>1</sup> Based on the CEQR generation rates for the projection of children eligible for publicly funded child care multipliers, this amount of development would introduce approximately 236 new children under the age of six who would be eligible for publicly funded child care programs.

Based on these assumptions, the number of available slots will decrease. As described above in the existing conditions, there are 195 available slots, and utilization is 91.5 percent. When the estimated 236 children under age six introduced by planned development projects are added to this total, child care facilities in the study area will operate over capacity (101.8 percent utilization) with a deficit of 41 slots.

### *OPEN SPACE*

As described in Chapter 1, “Project Description,” absent the proposed project (the No Action condition), the project area is anticipated to continue as in the existing condition, except that the MTA would vacate the western portion of the jointly operated Marx Brothers Playground and that portion of the playground will be reconstructed (for a total of 1.47 acres of active open space). It is anticipated that the reconstructed playground will include a multi-purpose field as in existing conditions.

For the No Action condition, the capacity of open space resources to serve future populations in the study area is examined using quantitative and qualitative factors.

#### *Study Area Population*

The assessment of the No Action condition examines conditions that are expected to occur in the study area by the 2023 build year, absent the proposed project.

In the No Action condition, there would be no direct or indirect effects on open space. However, the study area would continue to experience residential, commercial, and institutional development. As described in detail in Chapter 2, “Land Use, Zoning, and Public Policy,” by 2023, 19 No Action development projects (No Build projects) will be built in the study area.

These known development projects would result in an estimated 5,050 new residents to the study area. Based on these No Build projects and the existing population, the residential study area would have an estimated 86,832 residents by 2023.

#### *Study Area Open Spaces*

Under the No Action scenario, no other open space improvements are anticipated with the residential study area. The project site is anticipated to continue as in the existing condition, except that the MTA would vacate the western portion of the jointly operated Marx Brothers Playground and the entire playground will be reconstructed. As a result, the remaining 23,000 sf

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<sup>1</sup> This was estimated by using a combination of known affordable housing developments and assumptions for developments where the number of affordable units is not known. In instances where the amount of affordable units in a development is not known, the estimate assumes that 20 percent of units in developments of 20 or more units would be occupied by low- or low/moderate-income households meeting the financial and social criteria for publicly funded child care.

(0.528 acres) of active open space on Marx Brothers Playground would be returned to the study area inventory.

*Adequacy of Open Spaces*

*Quantitative Assessment*

Absent the proposed project, the increase in residents to the study area would result in a decrease the total open space ratio, to 0.201 acres per 1,000 residents. The active open space ratio would be 0.165 acres per 1,000 residents. The passive open space ratio would decrease slightly to 0.036 acres per 1,000 residents. Overall, the passive open space ratios for the residential study area would remain below the City guidelines (see Table 5-5 in Chapter 5: Open Space).

*Qualitative Assessment*

In the No Action condition, MTA would vacate the western portion of the Marx Brothers Playground, returning this active open space acreage for use by residents within the study area. However, with the addition of the 5,050 projected residents within the study area, open space ratios would decrease overall.

The age distribution of the study area not anticipated to change from that under the existing condition.

***HISTORIC AND CULTURAL RESOURCES***

Absent the proposed actions, it is assumed that the project site will continue as in the existing condition, except that the MTA will vacate the western portion of the jointly operated Marx Brothers Playground and will reconstruct that portion for open space uses. In addition, the new Judith Kaye High School is projected to be housed within the COOP Tech building starting in the fall of 2017, utilizing space currently occupied by a P2K (GED) program, which is being phased out.

There are three planned development projects are expected to be completed within the 400-foot study area by the 2023 analysis year. On East 96th Street directly south of the project site, Block 1558, Lot 47 (302 East 96th Street) will be redeveloped with a 21-story, 48-unit residential building. To the northeast of the project site, the existing building at 1918 First Avenue is being converted from dormitory use to affordable housing for seniors, and the parking lot adjacent to this building also will be developed for new housing. None of the projects appear to be located within 90 feet of architectural resources, and thus would not be expected to have the potential to directly (physically) affect historic resources during construction activities.

In the future without the proposed actions, the condition of other architectural resources within the study areas could change. Architectural resources that are listed on the National Register or that have been found eligible for listing are given a measure of protection from the effects of federally sponsored or assisted projects under Section 106 of the National Historic Preservation Act. Although preservation is not mandated, federal agencies must attempt to avoid adverse impacts on such resources through a notice, review, and consultation process. Properties listed on the State Register are similarly protected against impacts resulting from state-sponsored or state-assisted projects under the State Historic Preservation Act. Private property owners using private funds can, however, alter or demolish their properties without such a review process. Privately owned sites that are NYCLs or within New York City Historic Districts are protected under the New York City Landmarks Law, which requires LPC review and approval before any alteration or demolition can occur.

### *URBAN DESIGN AND VISUAL RESOURCES*

Absent the proposed actions, the project site will continue in active use as in the existing condition. In the future without the proposed actions, a number of No Build projects would be introduced to the study area. These projects would range in size from 6-story to 36-story residential apartment buildings or large mixed use buildings, further increasing the density of the study area and bringing additional activity to the pedestrian environment.

### *HAZARDOUS MATERIALS*

In the future without the proposed actions, the existing COOP Tech building on the eastern portion of the project block would remain in operation, the western portion of the jointly operated Marx Brothers Playground would be vacated by the MTA, and would be reconstructed and restored for open space uses, which might entail limited shallow ground disturbance. Unlike in the With Action condition (discussed below), there would be no requirement for subsurface investigation prior to excavation or a Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP) during disturbance.

### *WATER AND SEWER INFRASTRUCTURE*

As described in Chapter 1, “Project Description,” in the future without the proposed actions (the No Action condition), the project area will continue as in the existing condition, except that the MTA will vacate the western portion of the Marx Brothers Playground and this area will be reconstructed for open space use.

#### *Conveyance System*

In the No Action condition, there would be no changes to the wastewater conveyance system serving the project site. However, the 8-inch pipe that was installed in 2013 to serve the MTA staging area on the western portion of the project site would be removed from the project site. Wastewater would continue to be conveyed to Regulator WI-16 and the Wards Island WWTP, and CSO would continue to be discharged to the East River through the outfall at East 96th Street.

#### *Sanitary Flows*

In the No Action condition, the project site would continue to generate an estimated 9,610 gpd of sanitary sewage with a total water demand of 27,205 gpd, as in existing conditions.

#### *Stormwater Flows*

The No Action condition is expected to include the completion of MTA’s use of the 23,000 sf Second Avenue staging area, and the reconstruction of this area for use as open space. This change is anticipated to result in the introduction of paved playground area and a small portion of landscaped in the area that is currently paved for MTA staging. The analysis assumes the reconstruction, in kind, of the playground and comfort station that existed on site prior to MTA Staging; the playground reconstruction would be slightly updated to include resiliency design standards. As a result, the weighted runoff coefficient of the project site, currently 0.86 (in the existing condition), is expected to decrease in the No Action condition to 0.83.

*TRANSPORTATION*

*Traffic*

Traffic conditions were evaluated at 10 intersections for the weekday AM, midday, and PM peak hours. In 2023, the No Action Alternative would avoid the potential for the proposed project to create significant adverse traffic impacts at seven intersections during the weekday AM peak hour, five intersections during the weekday midday peak hour, and six intersections during the weekday PM peak hour.

*Transit*

The No Action Alternative would avoid the potential for the proposed project to create a significant adverse subway impact at the S4 stairway at the 96th Street-Lexington Avenue station during the weekday AM peak hour. The No Action Alternative would also avoid the potential for the proposed project to create bus line-haul impacts for the westbound M96, and northbound and southbound M15 SBS routes during the weekday PM peak hour.

*Pedestrians*

The No Action Alternative would avoid the potential for the proposed project to create significant adverse pedestrian impacts at one crosswalk during the weekday AM and PM peak hours.

*Parking*

The No Action Alternative would not generate incremental parking demand in the study area as compared to the proposed project. Without the incremental parking demand generated by the proposed project, the No Action Alternative would not increase the public parking utilization to more than 98 percent during the weekday midday peak period within the ¼-mile off-street parking study area. Therefore, the No Action Alternative would not result in the potential for parking shortfalls or significant adverse parking impacts.

*CONSTRUCTION*

In the No Action condition, it is assumed that the project site will continue as in the existing condition, except that the MTA will vacate the western portion of the Marx Brothers Playground and reconstruct and restore that portion for open space uses. In addition, the new Judith Kaye High School is projected to be housed within the COOP Tech building starting in the fall of 2017, utilizing space currently occupied by a P2K (GED) program, which is being phased out.

In summary, the No Action Alternative would not result in any of the significant adverse impacts to traffic, transit, and pedestrians—as well as noise and open space during the construction period—that have been identified for the proposed project. However, the No Action Alternative would not meet the project’s stated purpose and need.

**C. NO UNMITIGATED SIGNIFICANT ADVERSE IMPACTS  
ALTERNATIVE**

**TRANSPORTATION**

For the proposed project, unmitigated significant traffic impacts were identified at the intersections of East 96th Street at York Avenue/FDR Northbound Ramp during the weekday

AM and PM peak hours, East 96th Street at FDR Southbound Ramp during the weekday AM, midday, and PM peak hours, East 96th Street at First Avenue during the weekday AM peak hour, and East 96th Street at Second Avenue during the weekday PM peak hour. The proposed project would also result in a significant adverse subway stairway impact at the S4 stairway at the 96th Street-Lexington Avenue station during the weekday AM peak hour.

-Discussions with New York City Transit (NYCT) are underway to identify subway mitigation needs and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and the discussions with NYCT do not identify any feasible mitigation measures, ~~If no feasible mitigation measures are found,~~ the identified significant adverse stairway impact would be unmitigated. In order to eliminate this potential impact, the proposed residential use would have to be reduced by approximately 60 percent, or roughly 720 units, or the proposed high schools would have to be eliminated from the program. Therefore, no reasonable alternative could be developed to avoid such impacts without substantially compromising the proposed project's stated goals.

Of the unmitigatable significant adverse transportation impacts identified for the proposed project, the traffic impacts at the East 96th Street and FDR Northbound and Southbound Ramps and at the East 96th Street and Second Avenue intersections were determined to be the most difficult to mitigate, due to multiple lane groups/movements at these intersections projected to operate at congested levels. Hence, even small increases in incremental project-generated traffic volumes at these intersections would result in significant adverse traffic impacts that could not be fully mitigated during one or more analysis peak hours. Correspondingly, any residential development or the addition of the two new high schools could result in unmitigated traffic impacts. Therefore, no reasonable alternative could be developed to avoid such impacts without substantially compromising the proposed project's stated goals.

## CONSTRUCTION

### *TRAFFIC*

The peak construction traffic increments (during the second quarter of 2020) during the construction peak hours (6:00 to 7:00 AM and 3:00 to 4:00 PM) would be much lower than the full operational traffic increments associated with the proposed project in 2023 during the 8:00 to 9:00 AM and 5:00 to 6:00 PM commuter peak hours. Therefore, if traffic impacts occur during the peak construction, they are expected to be within the envelope of significant adverse traffic impacts identified for the With Action condition. As with the operational condition, there could be significant adverse traffic impacts at the intersections of East 96th Street and York Avenue/FDR Northbound Ramp, East 96th Street and FDR Southbound Ramp, East 96th Street and First Avenue, and East 96th Street and Second Avenue (although unlikely given the magnitude of trips during the 6:00 to 7:00 AM and 3:00 to 4:00 PM peak hours) that could not be fully mitigated during one or more analysis peak hours but such affects would be temporary and limited to the peak construction period. As discussed above, no reasonable alternative could be developed to avoid such temporary impacts without substantially compromising the proposed project's stated goals.

*NOISE*

The detailed analysis of construction noise determined that construction of the proposed project has the potential to result in construction noise levels that would constitute temporary significant adverse impacts at the portion of Metropolitan Hospital immediately across East 97th Street north of the project site, the western façade and western portions of the north and south façades of the existing COOP Tech school building, and the north façade of the residential building at 306 East 96th Street immediately south of the project site.

Based on field observations, the affected areas of Metropolitan Hospital and COOP Tech school have insulated glass windows and an alternative means of ventilation (i.e., central air conditioning) and 306 East 96th Street appears to have insulated glass windows and an alternative means of ventilation (i.e., through-wall air conditioning units). With the window/wall attenuation provided by these measures, interior noise levels at these locations during the loudest portions of construction are predicted to be up to 9 dBA higher than the acceptable levels according to CEQR noise exposure guidelines. With these façade noise attenuation measures already in place, there are no feasible and practicable mitigation measures that would be able to reduce or eliminate the potential significant adverse noise impacts. Source or path controls beyond those already identified for the construction of the proposed project would not be effective in reducing the level of construction noise at the receptors that have the potential to experience significant adverse construction noise impacts. Additional noise receptor controls at these locations would require change to the buildings' design that would have disproportionately high cost considering that the potential noise impacts would be temporary, the interior noise levels during construction are expected to be no more than approximately 9 dBA over the acceptable threshold levels, and that the potential impacts would be limited to construction hours, which would not include regular night-time or weekend periods.

At the outdoor balconies on the north façade of the building at 306 East 96th Street, there would be no feasible or practicable way to mitigate the construction noise impacts.

Overall, as discussed above, no reasonable alternative could be developed to avoid temporary construction noise impacts without substantially compromising the proposed project's stated goals.

*OPEN SPACE*

To allow for a more efficient and expedited construction, construction staging would take place within the project site and the existing Marx Brothers Playground would be temporarily displaced. On-site construction staging would minimize disruptions to the surrounding roadways during construction and would allow for vehicle access to be maintained at nearby facilities including the Metropolitan Hospital to the north of the project site across West 97th Street. On-site construction staging would also allow for a safer environment for the public passing through the area as the activities would be contained within the project site. During the construction period, the active open space ratios for the study area would be reduced by more than the CEQR threshold of 5 percent; therefore, the temporary displacement of the Marx Brothers Playground during construction would be considered a temporary significant adverse construction-period impact. There are other active open space resources in the area, such as Stanley Isaacs Playground and Ruppert Park, that could partially accommodate the active recreation activities temporarily displaced from the Marx Brothers Playground. Even if construction staging occurred off-site—which would result in greater disruptions to the surrounding roadways and would not allow for the maintenance of vehicle access to nearby facilities, including the Metropolitan

Hospital—the Marx Brothers Playground would still be temporarily displaced during its relocation and reconstruction, as well as by protective fencing/scaffolding during construction of the adjacent project buildings. No reasonable alternative could be developed to avoid such temporary impacts without substantially compromising the proposed project’s stated goals, which includes the relocation of the Marx Brothers Playground to the midblock—a move which is desired by NYC Parks in order to buffer the playground use from the active First Avenue and Second Avenue corridors—and make improvements to the playground. Upon completion of the proposed project, the Marx Brothers Playground would be reconstructed and enhanced following a process that would reflect continued input from NYC Parks, DOE, Community Board 11, and the local community.

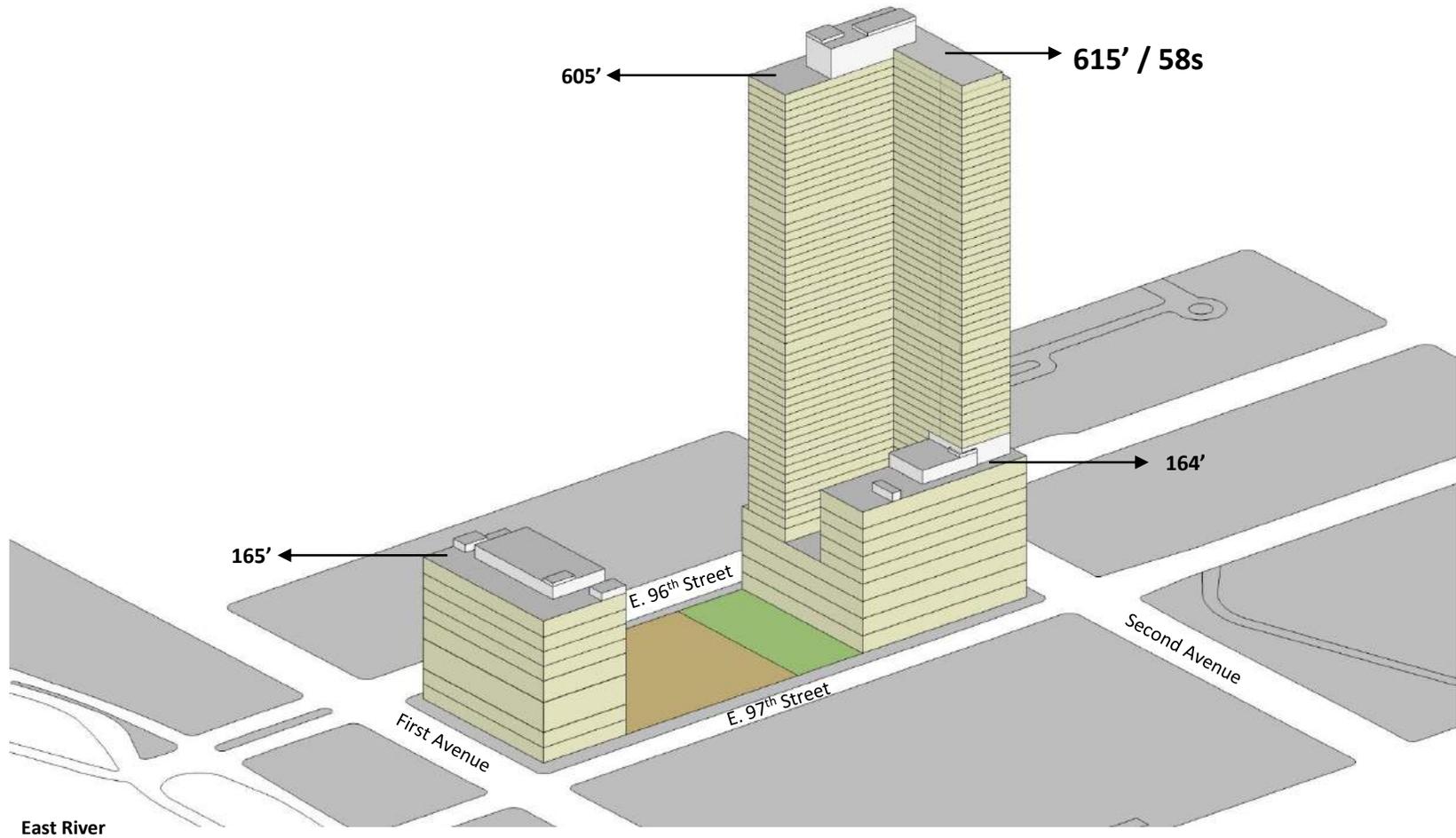
#### **D. COMMUNITY ALTERNATIVE**

This alternative, suggested by Community Board 11, with massing diagrams prepared by George M. Janes and Associates, considers three alternative massing scenarios aimed at reducing the height of the proposed residential tower on Second Avenue. The first alternative massing scenario (Massing Scenario 1) would expand the residential tower on Second Avenue over the proposed COOP Tech building, reducing the overall height of the residential tower to 615 feet tall (a reduction of approximately 95 feet), with more bulk oriented along the building’s Second Avenue frontage (see **Figure 17-1**). The proposed massing of the First Avenue building would not change in that scenario. The second alternative massing scenario (Massing Scenario 2) would put residential use above the proposed high school building on First Avenue, increasing the height of that building from 165 feet to 454 feet (an increase of 289 feet), and reducing the overall height of the residential tower on Second Avenue to 429 feet (a reduction of approximately 281 feet) (see **Figure 17-2**). The third alternative massing scenario (Massing Scenario 3) would relocate the residential tower entirely to First Avenue, at a height of 698 feet (12 feet lower than the proposed Second Avenue residential tower), and would relocate the proposed high school building adjacent to the proposed COOP Tech building along Second Avenue. In this scenario, the height of the proposed high school building on Second Avenue would be approximately 168 feet (compared to approximately 165 feet in the proposed project) (see **Figure 17-3**).

#### **VARIATIONS ON MASSING SCENARIO 2**

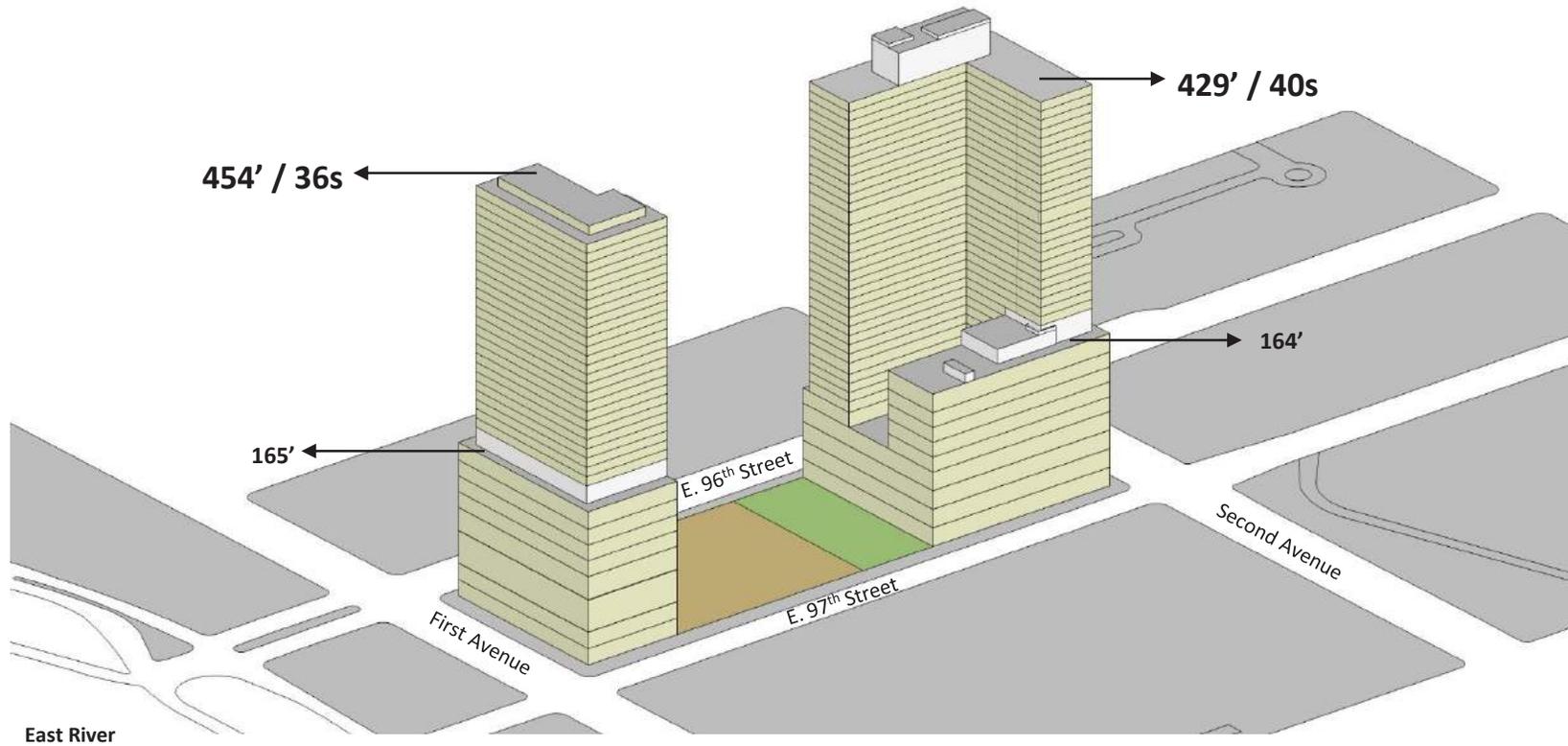
Additionally, during review of the proposed project City Planning Commissioners had similar questions regarding the feasibility of alternative massing scenarios, specifically those which would put residential use above the proposed high school building on First Avenue. In response to the Commission, detailed studies were prepared analyzing: a scenario in which residential use would be located above the proposed high school building on First Avenue as currently designed (referred to as Scheme A, similar to Massing Scenario 2); a scenario in which residential use would be located above the proposed high school building on First Avenue with a different configuration (referred to as Scheme B); and a scenario in which the footprint of the proposed First Avenue building is expanded (referred to as Scheme C), reducing the size of the relocated Marx Brothers Playground by 4,500 square feet, to allow the school building to stay within SCA-approved heights and maintain key programmatic elements. The response to CPC, which includes detailed studies by the project architects and a comparison of potential shadows impacts to the proposed project, is provided in this FEIS as **Appendix E**. As shown in those studies, the alternative massings are not feasible and would not meet the goals and needs of the project.

Source: George M. Janes & Associates



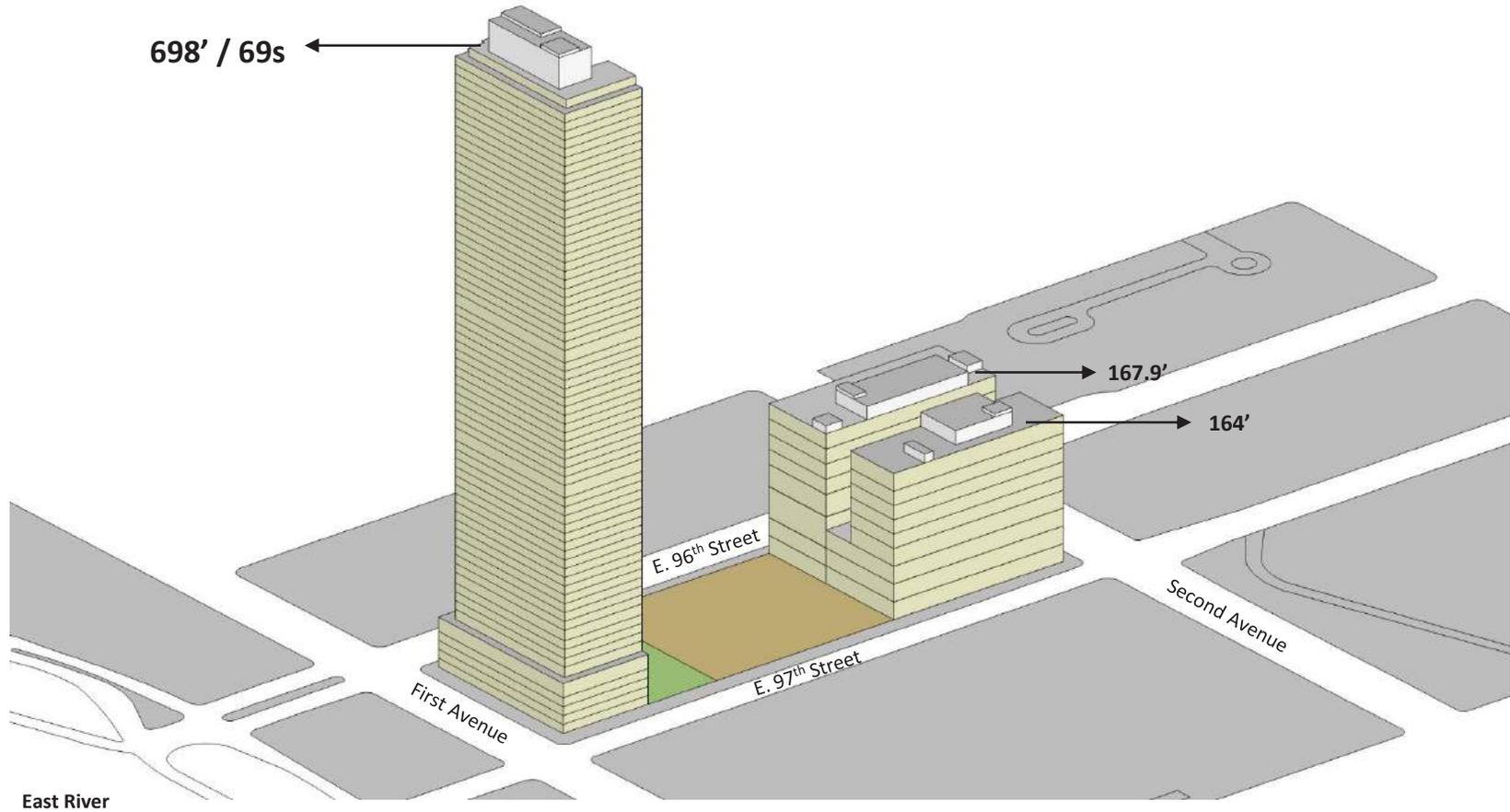
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Source: George M. Janes & Associates



This figure is new to the FEIS.

Source: George M. Janes & Associates



This figure is new to the FEIS.

### **SITE DEVELOPMENT REQUIREMENTS AND CONSTRAINTS**

As described in Chapter 1, “Project Description,” the existing jointly operated Marx Brothers Playground occupies 64,150 square feet of the project site, or approximately 50 percent of the total lot area. The law creating the ECF specifically requires that where a school is being constructed over an existing playground, ECF must provide a reconstructed playground at least equal in size to that which existed at the start of construction. Therefore, no scenario which utilizes a larger portion of the project site for building development would be feasible.

The new COOP Tech facility needs to incorporate new shop space (including large open bay technical shops), a large lobby, loading, and vehicular access to bring cars into the automotive repair shop space. These requirements dictate expanding the program space allocated to COOP Tech from the existing 103,498 square feet to approximately 135,000 square feet. In addition, the COOP Tech educational program requires a greater mechanical infrastructure than a standard educational program, because shops such as automotive repair, welding, carpentry, mechanical electrical and plumbing programs, food service, etc. require an increase in ventilation and heating and cooling requirements which needs outdoor roof area for the larger and more numerous mechanical units. The COOP Tech program also includes an outdoor solar roof educational program that necessitates safe and accessible roof area for students.

With classrooms, common areas, and the large assembly areas (including a regulation-size competition gymnasium, a 5,000 sf cafeteria, and a 450-seat auditorium) required to improve the high schools over their existing conditions at current locations, the space needed for these schools is approximately 135,000 square feet.

COOP Tech must remain in operation in its existing facility until the proposed replacement facility is complete because it is a trade school and has unique operational design requirements. Thus, temporary relocation to another facility is not possible. In addition, proceeds from the residential tower would be used for the bond payments issued in connection with development of the 270,000 square feet of public school space to be constructed on the project site. Accordingly, the proposed residential tower must also be constructed during the first phase of development. This requires the residential tower to be located along Second Avenue, which is the only remaining land available.

### **MASSING SCENARIO 1**

As described above, the COOP Tech educational program requires a greater mechanical infrastructure than a standard educational program, because shops such as automotive repair, welding, carpentry, mechanical electrical and plumbing programs, food service, etc. require an increase in ventilation and heating and cooling requirements which needs outdoor roof area for the larger and more numerous mechanical units. The COOP Tech program also includes an outdoor solar roof educational program that necessitates safe and accessible roof area for students. Thus, locating a residential tower over any portion of the COOP Tech facility would limit the available roof area that is needed for the school to accommodate these educational requirements.

The placement of residential use on top of a portion of the COOP Tech facility also would result in significant penetrations through the school for structural columns and lateral shear walls.

The New York City Building Code treats schools and residential buildings very differently when it comes to structural design requirements. If the proposed Second Avenue residential tower were to be located over any portion of the COOP Tech facility, the structure design of the

building would be required to meet the more stringent school structural design requirements for both the school and non-school portions of the building. Specifically, the wind loads would be factored up by 15 percent. The project's structural engineer analyzed the scenario in which the residential tower overlapped the COOP Tech facility, and found that the more stringent structural requirements for the school would require more robust foundation elements and thicker structural columns, thereby increasing the costs for these components by approximately 8 to 10 percent. Based on preliminary analysis, the cost impact would be between 13 and 18 million dollars.

Given the issues identified above, Massing Scenario 1 is not considered to be feasible.

### **MASSING SCENARIO 2**

In Massing Scenario 2, the high school programs would be in direct conflict with the residential use above. The placement of residential use on top of the proposed schools would result in significant penetrations through the schools for mechanical, electrical, and plumbing infrastructure, trash and recycling chutes, structural columns and lateral shear walls. More importantly, where residences are located above school uses, separate elevator and stairways must be provided independently for each use. The result is a school building that does not meet SCA requirements in numerous areas, including: the auditorium, cafeteria, library, six classrooms, four science labs, technology lab, two art rooms, and the music classroom. In addition, the egress is not code compliant. Finally, due to the need to relocate much of the mechanical spaces serving the school, a separate mechanical floor would be required, thereby increasing the height of the building.

Figures 17-4 through 17-6 show the failures to the schools' program and design that would result from placing a residential tower above the proposed high schools. The schools would not satisfy SCA efficiency requirements and would have significant programmatic deficiencies. Specifically, this massing scenario could only accommodate a gymnasium with reduced safe areas (i.e., the distance from the end line of the court to the wall; the SCA requirement is 10 feet but in this scenario would be reduced to 7 feet) behind each of the backstops and the auditorium would be reduced from 450 seats to 300 seats. The support programs for these facilities also would be reduced in size and would no longer be located adjacent to the space they serve. (For example the girl's locker room would have to be moved two floors above the gymnasium.) The need to share the ground floor with the residential use would require some school uses to be relocated to other floors; for example, general receiving would be relocated to the third floor. The inefficiency of this scenario, caused by the residential cores and sheer walls penetrating the school floors, requires that the program for each school be spread above five floors. The top school floor would be five floors above the cafeteria and nine floors above the gym. The addition of a ninth floor would mean that students in the upper-floor school would have to travel more than five stories to get to the music classroom and auditorium on the third floor, which exceeds SCA design guidelines and policy.

In addition, if a residential tower were to be located over the proposed high school building, the structure design of the building would be required to meet the more stringent school structural design requirements for both the school and non-school portions of the building. Specifically, the wind loads would be factored up by 15 percent. Based on preliminary analysis, the cost impact would be an increase of between 8 and 10 percent for foundation elements and structural requirements.

Given the issues identified above, Massing Scenario 2 is not considered to be feasible.

## SCHEME B - CURRENT FOOTPRINT WITH RESIDENTIAL ABOVE

HIGH SCHOOLS  
9 STORIES

### FAILURES

- **SCHOOL BUILDING HEIGHT IS INCREASED TO 9 STORIES** (FROM 8 STORIES)
- **BUILDING EFFICIENCY DECREASES**
  - **SCHEME B - 48% INEFFICIENCY**
  - **CURRENT DESIGN - 40% INEFFICIENCY**
- **COMPROMISES TO SCA PROGRAM REQUIREMENTS INCLUDE:**
  - **AUDITORIUM REDUCED TO 300 SEATS** (FROM 450)
  - **COMPETITION GYMNASIUM REDUCES PERIMETER SAFETY AREA BEHIND BASKETBALL HOOPS TO 7'-6"** (FROM 10')
  - **SECURITY PROBLEM: NUMEROUS UNSUPERVISED BLIND CORRIDORS**
- **ENTRANCES DO NOT MEET REQUIREMENTS** (NO SECOND STUDENT ENTRANCE)

ECF - 96TH STREET DEVELOPMENT



### LEGEND

- PARK EAST HIGH SCHOOL
- HERITAGE HIGH SCHOOL
- SHARED HIGH SCHOOL PROGRAM
- RESIDENTIAL
- **NON-COMPLIANT**

CASE STUDIES: EAST RESIDENTIAL TOWER ABOVE TWO HIGH SCHOOLS

Perkins Eastman

This figure is new to the FEIS.



## SCHEME B - CURRENT FOOTPRINT WITH RESIDENTIAL

ECF - 96TH STREET DEVELOPMENT

HIGH SCHOOLS  
9 STORIES

### FAILURES - IN SUMMARY

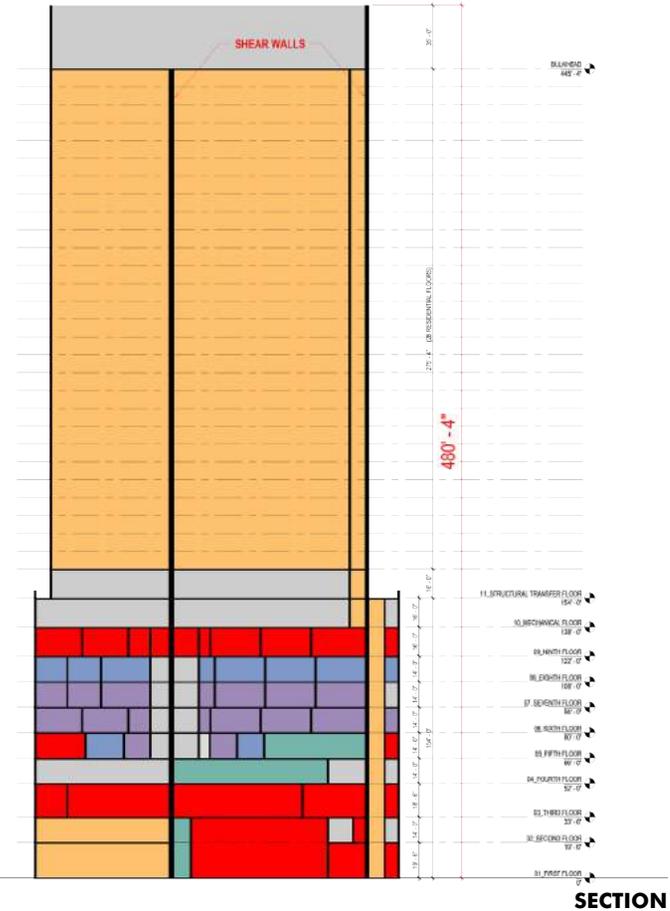
- **SCHOOL BUILDING HEIGHT IS INCREASED TO 9 STORIES** (FROM 8 STORIES)
- **BUILDING EFFICIENCY DECREASES**
  - **SCHEME B - 48% INEFFICIENCY**
  - **CURRENT DESIGN - 40% INEFFICIENCY**
- **COMPROMISES TO SCA PROGRAM REQUIREMENTS INCLUDE:**
  - **AUDITORIUM REDUCED TO 300 SEATS** (FROM 450)
  - **COMPETITION GYMNASIUM REDUCES PERIMETER SAFETY AREA BEHIND BASKETBALL HOOPS TO 7'-6"** (FROM 10')
  - **SECURITY PROBLEM: NUMEROUS UNSUPERVISED BLIND CORRIDORS**
  - **UNDERSIZED SPACES:** 3 LOCKER ROOMS, EXERCISE ROOM AND HEALTH INSTRUCTOR (ALL PHYSICAL EDUCATION PROGRAM), UTILITIES
- **INEFFECTIVE PROGRAM ADJACENCIES AND LOCATIONS:**
  - GENERAL SUPPLY/RECEIVING IS ON THE 3RD FLOOR, REQUIRED TO BE ON THE FIRST FLOOR
  - PHYSICAL EDUCATION PROGRAM OVER 3 FLOORS
  - FEMALE LOCKER ROOM 2 FLOORS ABOVE GYM
  - GUIDANCE SUITES ARE ORPHANED FROM THEIR HIGH SCHOOLS
- **ENTRANCES DO NOT MEET REQUIREMENTS** (NO SECOND STUDENT ENTRANCE)

**NOTE: RED INDICATES SPACES THAT DO NOT MEET SCA PROGRAM AREA REQUIREMENTS**

**LEGEND**

- PARK EAST HIGH SCHOOL
- HERITAGE HIGH SCHOOL
- SHARED HIGH SCHOOL PROGRAM
- NON-COMPLIANT
- MECHANICAL
- RESIDENTIAL

CASE STUDIES: EAST RESIDENTIAL TOWER ABOVE TWO HIGH SCHOOLS



Perkins Eastman

This figure is new to the FEIS.

**MASSING SCENARIO 3**

As noted above, proceeds from the residential tower would be used for the bond payments issued in connection with development of the 270,000 square feet of public school space to be constructed on the project site. Accordingly, the residential tower must be constructed during the first phase of development. This requires the residential tower to be located along Second Avenue, which is the only remaining land available while COOP Tech remains operating in its existing facility. Because COOP Tech, a trade school, has unique operational requirements, temporary relocation to another facility is not possible. Therefore, Massing Scenario 3 is not feasible.

It should be noted that the separation of the schools between First and Second Avenues in the proposed project serves to dissipate the student population utilizing the three schools on the project site. School entrances would be focused at or near separate corners of the site to limit unnecessary mixing of students and confusion of visitors. This also would allow for better separation of entrances and service areas within each school and easier access to required building services, while minimizing impacts to the surrounding community and the adjacent Metropolitan Hospital.

Given the issues identified above, Massing Scenario 3 is not considered to be feasible.

For all of the reasons listed above, it is concluded that the Community Alternative is not feasible, and no further analysis is warranted. \*

**A. INTRODUCTION**

This chapter considers mitigation measures to address significant adverse impacts generated by the proposed project. As described in Chapter 1, “Project Description,” the co-applicants, the New York City Educational Construction Fund (ECF) and AvalonBay Communities, Inc. (AvalonBay), are seeking a rezoning and other actions to allow the construction of a mixed-use building, a replacement facility for an existing school, a new facility for the relocation of two existing neighborhood public high schools, and relocation of an existing jointly operated playground on the project site. The project site is located in the East Harlem neighborhood of Manhattan on the full block bounded by East 96th Street to the south, East 97th Street to the north, Second Avenue to the west, and First Avenue to the east.

The proposed project has the potential to result in significant adverse impacts to traffic, transit, and pedestrians as well as noise and open space during the construction period. Potential mitigation measures for each of these technical areas are identified below.

**PRINCIPAL CONCLUSIONS***TRANSPORTATION*

The proposed project would result in potential significant adverse impacts to traffic, transit (subway and bus), and pedestrians, as detailed below. No significant adverse impacts were identified for parking and vehicular and pedestrian safety.

*Traffic*

As discussed in Chapter 11, “Transportation,” traffic conditions were evaluated at 10 intersections for the weekday AM, midday, and PM peak hours. In the 2023 With Action condition (the proposed project), there would be the potential for significant adverse traffic impacts at seven intersections during the weekday AM peak hour, five intersections during the weekday midday peak hour, and six intersections during the weekday PM peak hour, as summarized in **Table 18-1**.

The majority of the locations where significant adverse traffic impacts are predicted to occur could be fully mitigated with the implementation of standard traffic mitigation measures (e.g., signal timing changes), as described below. However, the significant adverse impacts at the intersections of East 96th Street at York Avenue/FDR Northbound Ramp during the AM and PM peak hours, East 96th Street at FDR Southbound Ramp during the AM, midday, and PM peak hours, East 96th Street at First Avenue during the AM peak hour, and East 96th Street at Second Avenue during the PM peak hour could not be fully mitigated. As stated in Chapter 11, “Transportation,” there are often traffic enforcement agents present to direct traffic flow at the study area intersections along East 96th Street. Hence, although unmitigatable impacts were identified for ~~three~~four of these intersections, the actual traffic conditions are likely more favorable than shown by the analysis results.

Table 18-1

Summary of Significant Adverse Traffic Impacts

Intersection		Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour
EB/WB Street	NB/SB Street			
East 96th Street	First Avenue	WB-R NB-L NB-R	NB-L	NB-L
East 97th Street	First Avenue	EB-L		
East 97th Street	Second Avenue	WB-LT	WB-LT	WB-LT
East 96th Street	Second Avenue	WB-L	WB-L	WB-L SB-L
East 96th Street	Third Avenue	EB-LT WB-TR	EB-LT	EB-DefL WB-TR
East 96th Street	York Avenue/FDR Northbound Ramp	NB-L (FDR Ramp) NB-LT (FDR Ramp)		NB-L (FDR Ramp) NB-LT (FDR Ramp)
East 96th Street	FDR Southbound Ramp	EB-R WB-LT SB-LT	EB-R	EB-R
<b>Total Impacted Intersections/Lane Groups</b>		<b>7/13</b>	<b>5/5</b>	<b>6/8<del>9</del></b>

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.

*Transit*

As discussed in Chapter 11, “Transportation,” subway station circulation elements and control areas were analyzed for the 96th Street-Lexington Avenue station and the 96th Street-Second Avenue station for the weekday AM and PM peak hours. Subway line-haul (No.6 line) and bus line-hauls were also evaluated for the same peak periods. In the 2023 With Action condition, the proposed project would potentially result in a significant adverse subway stairway impact at the S4 stairway at the 96th Street-Lexington Avenue station during the weekday AM peak hour. Discussions with New York City Transit (NYCT) are underway to identify mitigation needs and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and the discussions with NYCT do not identify any no-feasible mitigation measures are found, the identified significant adverse stairway impact would be unmitigated.

Bus line-haul impacts were identified for the westbound M96, and northbound and southbound M15 SBS routes during the weekday PM peak hour. Increases in service frequency of one, one, and four buses an hour for the westbound M96, northbound M15 SBS, and southbound SBS routes, respectively, would fully mitigate the projected line-haul impacts.

*Pedestrians*

As discussed in Chapter 11, “Transportation,” pedestrian conditions were evaluated at five sidewalks, 11 corners, and six crosswalks for the weekday AM, midday, and PM peak hours. In the 2023 With Action condition, the proposed project would result in significant adverse pedestrian impacts at one crosswalk during the weekday AM and PM peak hours.

*Summary*

Measures to mitigate these potential significant adverse impacts are described below. The proposed traffic and pedestrian mitigation measures would be subject to approval by the New York City Department of Transportation (DOT) prior to implementation. The proposed traffic mitigation measures entail signal timing changes—standard measures routinely implemented throughout the City and generally considered to be feasible. The pedestrian mitigation measures consist of signal timing changes that are also routinely implemented and are generally

considered feasible. For the significant adverse subway stairway impact identified for the S4 stairway at the 96th Street-Lexington Avenue station during the weekday AM peak hour, discussions with NYCT are underway to identify mitigation needs and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and the discussions with NYCT do not identify any feasible mitigation measures~~no feasible mitigation measures are found~~, the identified significant adverse stairway impact would be unmitigated. Regarding the significant adverse bus line-haul impacts, reducing headways by increasing the number of buses for the impacted routes would mitigate the bus line-haul impacts. These changes would take place, subject to NYCT's fiscal and operational constraints.

### *CONSTRUCTION*

As described in detail below, construction activities associated with the proposed project would result in temporary significant adverse impacts in the areas of traffic, noise, and open space.

#### *Traffic*

The peak construction traffic increments during the construction peak hours (6:00 to 7:00 AM and 3:00 to 4:00 PM) would be much lower than the full operational traffic increments associated with the proposed project during the 8:00 to 9:00 AM and 5:00 to 6:00 PM commuter peak hours. Therefore, if traffic impacts occur during the peak construction they are expected to be within the envelope of significant adverse traffic impacts identified for the With Action condition. Measures to mitigate the 2023 operational traffic impacts were recommended for implementation at up to five intersections during one or more of the weekday analysis peak hours. These measures would encompass primarily signal timing changes, which could be implemented early at the discretion of DOT to address actual conditions experienced at that time. As with the operational condition, there could also be significant adverse traffic impacts at the intersections of East 96th Street and York Avenue/FDR Northbound Ramp, East 96th Street and FDR Southbound Ramp, East 96th Street and First Avenue, and East 96th Street and Second Avenue (although unlikely given the magnitude of trips during the 6:00 to 7:00 AM and 3:00 to 4:00 PM peak hours) that could not be fully mitigated during one or more analysis peak hours.

#### *Noise*

The detailed analysis of construction noise determined that construction of the proposed project has the potential to result in construction noise levels that would constitute temporary significant adverse impacts at the portion of Metropolitan Hospital immediately across East 97th Street north of the project site, the western façade and western portions of the north and south façades of the existing COOP Tech building, and the north façade of the residential building at 306 East 96th Street immediately south of the project site. Based on field observations, the affected areas of Metropolitan Hospital and COOP Tech school have insulated glass windows and an alternative means of ventilation (i.e., central air conditioning), which would be expected to provide approximately 30 dBA window/wall attenuation. With these façade noise attenuation measures already in place, there are no feasible and practicable mitigation measures that would be able to reduce or eliminate the potential significant adverse noise impacts. Based on field observations, 306 East 96th Street appears to have insulated glass windows and an alternative means of ventilation (i.e., through-wall air conditioning units), which would be expected to provide approximately 30 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the mid to high 40s dBA, up to approximately 5

dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines. With these façade noise attenuation measures already in place, there are no feasible and practicable mitigation measures that would be able to reduce or eliminate the potential significant adverse noise impacts. At the outdoor balconies on the north façade of the building at 306 East 96th Street, there would be no feasible or practicable way to mitigate the construction noise impacts. Therefore, these balconies would be considered to experience unmitigated significant noise impacts as a result of construction. However, even during the portions of the construction period that would generate the most noise at these balconies, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

*Open Space*

To allow for a more efficient and expedited construction, construction staging would take place within the project site and the existing Marx Brothers Playground would be temporarily displaced. On-site construction staging would minimize disruptions to the surrounding roadways during construction and would allow for vehicle access to be maintained at nearby facilities including the Metropolitan Hospital to the north of the project site across West 97th Street. On-site construction staging would also allow for a safer environment for the public passing through the area as the activities would be contained within the project site. During the construction period, the active open space ratios for the study area would be reduced by more than the CEQR threshold of 5 percent; therefore, the temporary displacement of the Marx Brothers Playground during construction would be considered a temporary significant adverse construction-period impact. There are other active open space resources in the area, such as Stanley Isaacs Playground and Ruppert Park, that could partially accommodate the active recreation activities temporarily displaced from the Marx Brothers Playground. Upon completion of the proposed project, the Marx Brothers Playground would be reconstructed and enhanced following a process that would reflect continued input from NYC Parks, DOE, Community Board 11, and the local community.

**B. TRANSPORTATION**

**TRAFFIC**

As discussed in Chapter 11, “Transportation,” traffic conditions were evaluated at 10 intersections for the weekday AM, midday, and PM peak hours. The 2023 With Action condition analysis identified the potential for significant adverse traffic impacts at seven intersections during the weekday AM peak hour, five intersections during the weekday midday peak hour, and six intersections during the weekday PM peak hour. The potential significant adverse traffic impacts and their recommended mitigation measures are discussed below.

As described in Chapter 11, “Transportation,” traffic levels of service (LOS) at signalized intersections are evaluated using average stop control delay, in seconds per vehicle, for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. According to the criteria presented in the 2014 *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the With Action condition of five or more seconds of delay in a lane group over No Action levels beyond mid-LOS D. For No Action LOS E, a four-second increase in delay is considered significant. For No Action LOS F, a three-second increase in delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the No Action condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint

of LOS D), or unacceptable LOS E or F in the With Action condition. A traffic impact is considered fully mitigated when the resulting degradation in the average control delay per vehicle under the Action-with-Mitigation condition compared to the No Action condition is no longer deemed significant following the impact criteria described above. **Tables 18-2 to 18-4** itemize the recommended mitigation measures that address the identified impacts. With the implementation of these standard traffic mitigation measures (including primarily signal timing changes), which are subject to review and approval by DOT, the significant adverse traffic impacts identified above could be fully mitigated except for the intersections of East 96th Street at York Avenue/FDR Northbound Ramp during the AM and PM peak hours, East 96th Street at FDR Southbound Ramp during the AM, midday, and PM peak hours, East 96th Street at First Avenue during the AM peak hour, and East 96th Street at Second Avenue during the PM peak hour.

**Table 18-2  
Recommended Mitigation Measures  
Weekday AM Peak Hour**

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
East 96th Street and First Avenue	EB/WB: Green = 40 s NB-TR: Green = 22 s NB-LTR: Green = 13 s	Unmitigated	No change from No Action
East 97th Street and First Avenue	EB/WB: Green = 35 s NB: Green = 45 s	Shift 3 seconds of green time from the NB phase to the EB/WB phase.	EB/WB: Green = 38 s NB: Green = 42 s
East 97th Street and Second Avenue	EB/WB: Green = 31 s SB: Green = 49 s	Shift 2 seconds of green time from the SB phase to the EB/WB phase.	EB/WB: Green = 33 s SB: Green = 47 s
East 96th Street and Second Avenue	EB/WB: Green = 32 s SB: Green = 41 s LPI: Green = 7 s	Shift 5 seconds of green time from the SB phase to the EB/WB phase.	EB/WB: Green = 37 s SB: Green = 36 s LPI: Green = 7 s
East 96th Street and Third Avenue	EB/WB: Green = 28 s EB/WB LPI: Green = 7 s NB: Green = 38 s NB LPI: Green = 7s	Shift 3 seconds of green time from the NB phase to the EB/WB phase.	EB/WB: Green = 31 s EB/WB LPI: Green = 7 s NB: Green = 35 s NB LPI: Green = 7s
East 96th Street and York Avenue/FDR Northbound Ramp	EB: Green = 29 s NB (York Avenue): Green = 20 s NB (FDR Ramp): Green = 26 s	Unmitigated	No change from No Action
East 96th Street and FDR Southbound Ramp	WB: Green = 26 s EB/SB-R: Green = 29 s SB: Green = 20 s	Unmitigated	No change from No Action
<b>Notes:</b> EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval.			

**Table 18-3  
Recommended Mitigation Measures  
Weekday Midday Peak Hour**

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
East 96th Street and First Avenue	EB/WB: Green = 40 s NB-TR: Green = 22 s NB-LTR: Green = 13 s	Shift 2 seconds of green time from the EB/WB phase to the NB LTR phase.	EB/WB: Green = 38 s NB-TR: Green = 22 s NB-LTR: Green = 15 s
East 97th Street and Second Avenue	EB/WB: Green = 31 s SB: Green = 49 s	Shift 1 second of green time from the SB phase to the EB/WB phase.	EB/WB: Green = 32 s SB: Green = 48 s
East 96th Street and Second Avenue	EB/WB: Green = 32 s SB: Green = 41 s LPI: Green = 7 s	Shift 5 seconds of green time from the SB phase to the EB/WB phase.	EB/WB: Green = 37 s SB: Green = 36 s LPI: Green = 7 s
East 96th Street and Third Avenue	EB/WB: Green = 28 s EB/WB LPI: Green = 7 s NB: Green = 38 s NB LPI: Green = 7s	Shift 1 second of green time from the NB phase to the EB/WB phase.	EB/WB: Green = 29 s EB/WB LPI: Green = 7 s NB: Green = 37 s NB LPI: Green = 7s
East 96th Street and FDR Southbound Ramp	WB: Green = 24 s EB/SB-R: Green = 31 s SB: Green = 20 s	Unmitigated	No change from No Action
<b>Notes:</b> EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval.			

**Table 18-4  
Recommended Mitigation Measures  
Weekday PM Peak Hour**

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
East 96th Street and First Avenue	EB/WB: Green = 40 s NB-TR: Green = 22 s NB-LTR: Green = 13 s	Shift 2 seconds of green time from the EB/WB phase to the NB LTR phase.	EB/WB: Green = 38 s NB-TR: Green = 22 s NB-LTR: Green = 15 s
East 97th Street and Second Avenue	EB/WB: Green = 31 s SB: Green = 49 s	Shift <del>3</del> <sup>5</sup> seconds of green time from the SB phase to the EB/WB phase.	EB/WB: Green = <del>34</del> <sup>36</sup> s SB: Green = <del>46</del> <sup>44</sup> s
East 96th Street and Second Avenue	EB/WB: Green = 32 s SB: Green = 41 s LPI: Green = 7 s	Unmitigated	No change from No Action
East 96th Street and Third Avenue	EB/WB: Green = 28 s EB/WB LPI: Green = 7 s NB: Green = 38 s NB LPI: Green = 7s	Shift 4 seconds of green time from the NB phase to the EB/WB phase.	EB/WB: Green = 32 s EB/WB LPI: Green = 7 s NB: Green = 34 s NB LPI: Green = 7s
East 96th Street and York Avenue/FDR Northbound Ramp	EB: Green = 31 s NB (York Avenue): Green = 20 s NB (FDR Ramp): Green = 24 s	Unmitigated	No change from No Action
East 96th Street and FDR Southbound Ramp	WB: Green = 24 s EB/SB-R: Green = 31 s SB: Green = 20 s	Unmitigated	No change from No Action
<b>Notes:</b> EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval.			

As stated in Chapter 11, “Transportation,” there are often traffic enforcement agents present to direct traffic flow at the study area intersections along East 96th Street. Hence, although unmitigatable impacts were identified for four of these intersections, the actual traffic conditions are likely more favorable than shown by the analysis results. A discussion of the recommended mitigation measures is provided below. **Tables 18-5 to 18-7** compare the levels of service (LOS) and lane group delays for the impacted intersections under the 2023 No Action, With Action, and Mitigation conditions for the three analysis peak hours.

**Table 18-5  
2023 No Action, With Action, and Mitigation Conditions Level of Service Analysis  
Weekday AM Peak Hour**

Intersection	Weekday AM											
	2023 No Action				2023 With Action				2023 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
<b>East 96th Street and First Avenue</b>												
EB	L	0.32	19.5	B	L	0.35	20.5	C	Unmitigated			
	T	0.47	18.4	B	T	0.49	18.7	B				
WB	T	0.43	18.2	B	T	0.44	18.4	B				
	R	0.97	55.5	E	R	1.02	67.0	E+				
NB	L	0.58	48.4	D	L	0.76	61.2	E+				
	T	0.45	18.3	B	T	0.45	18.3	B				
	R	1.07	87.6	F	R	1.08	91.1	F+				
	Intersection		35.5	D	Intersection		38.4	D				
<b>East 97th Street and First Avenue</b>												
EB	L	0.56	32.4	C	L	0.82	56.0	E+	L	0.73	42.0	D
WB	TR	0.39	21.1	C	TR	0.41	21.4	C	TR	0.38	19.0	B
NB	L	0.08	12.0	B	L	0.10	12.3	B	L	0.12	14.2	B
	T	0.74	20.6	C	T	0.74	20.8	C	T	0.80	24.4	C
	Intersection		21.2	C	Intersection		23.6	C	Intersection		24.6	C
<b>East 97th Street and Second Avenue</b>												
EB	TR	$\frac{0.180-0}{8}$	$\frac{21.720-1}{3}$	C	TR	$\frac{0.290-1}{3}$	$\frac{23.620-6}{3}$	C	TR	0.4227	19.221.8	<u>B</u> C
WB	LT	$\frac{0.770-7}{8}$	$\frac{41.542-4}{8}$	D	LT	0.87	53.49	D+	LT	0.8480	43.742.6	D
SB	L	$\frac{0.140-1}{3}$	$\frac{10.740-6}{3}$	B	L	$\frac{0.170-1}{6}$	$\frac{11.241-0}{6}$	B	L	0.18	12.23	B
	T	0.59	15.1	B	T	0.60	15.3	B	T	0.63	16.9	B
	R	$\frac{0.240-2}{5}$	$\frac{11.842-0}{5}$	B	R	$\frac{0.260-2}{7}$	$\frac{12.142-4}{7}$	B	R	0.2827	13.64	B
	Intersection		19.21	B	Intersection		21.25	C	Intersection		20.8	C
<b>East 96th Street and Second Avenue</b>												
EB	TR	$\frac{0.640-6}{4}$	$\frac{26.725-8}{4}$	C	TR	$\frac{0.650-6}{4}$	$\frac{26.926-0}{4}$	C	TR	0.5356	21.28	C
WB	L	0.56	39.8	D	L	$\frac{0.860-8}{5}$	$\frac{75.674-1}{5}$	E+	L	0.69	43.7	D
	T	$\frac{0.520-5}{4}$	$\frac{24.924-5}{4}$	C	T	$\frac{0.540-5}{2}$	$\frac{25.224-8}{2}$	C	T	0.4547	20.47	C
SB	L	$\frac{0.340-3}{2}$	$\frac{17.647-3}{2}$	B	L	$\frac{0.490-4}{7}$	$\frac{21.720-8}{7}$	C	L	0.5557	26.27.9	C
	T	$\frac{0.650-6}{3}$	$\frac{21.020-5}{3}$	C	T	$\frac{0.660-6}{4}$	$\frac{21.220-6}{4}$	C	T	0.7375	25.926.8	C
	R	0.22	16.21	B	R	0.29	17.65	B	R	0.3534	22.421.8	C
	Intersection		23.46	C	Intersection		25.624.9	C	Intersection		24.47	C
<b>East 96th Street and Third Avenue</b>												
EB	LT	1.10	102.8	F	LT	1.23	153.9	F+	LT	1.09	94.0	F
WB	TR	0.94	51.5	D	TR	1.02	71.8	E+	TR	0.92	46.2	D
NB	LTR	0.77	25.0	C	LTR	0.78	25.3	C	LTR	0.85	29.9	C
	Intersection		46.1	D	Intersection		61.3	E	Intersection		46.2	D
<b>East 96th Street and York Avenue/FDR Northbound Ramp</b>												
EB	L	0.86	38.6	D	L	0.88	40.2	D	Unmitigated			
NB (York Avenue)	LT	1.01	74.2	E	LT	1.01	74.2	E				
NB (FDR NB Ramp)	L	1.09	100.6	F	L	1.11	108.5	F+				
	LT	1.10	103.5	F	LT	1.12	110.6	F+				
	Intersection		73.7	E	Intersection		77.2	E				
<b>East 96th Street and FDR Southbound Ramp</b>												
EB	T	0.84	37.2	D	T	0.86	38.5	D	Unmitigated			
	R	1.13	116.8	F	R	1.19	139.1	F+				
WB	LT	1.02	65.5	E	LT	1.04	71.3	E+				
SB	LT	1.07	97.0	F	LT	1.09	102.8	F+				
	R	0.25	9.3	A	R	0.26	9.3	A				
	Intersection		66.8	E	Intersection		73.7	E				

**Notes:** L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, Int. = Intersection.  
+ Denotes a significant adverse traffic impact.

**Table 18-6**  
**2023 No Action, With Action, and Mitigation Conditions Level of Service Analysis**  
**Weekday Midday Peak Hour**

Intersection	Weekday Midday														
	2023 No Action				2023 With Action				2023 Mitigation						
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS			
<b>East 96th Street and First Avenue</b>															
EB	L	0.37	20.4	C	L	0.38	21.0	C	L	0.41	23.3	C			
	T	0.48	18.5	B	T	0.48	18.6	B	T	0.51	20.2	C			
WB	T	0.39	17.7	B	T	0.40	17.8	B	T	0.42	19.3	B			
	R	0.76	29.8	C	R	0.79	32.4	C	R	0.84	37.9	D			
NB	L	0.62	50.6	D	L	0.79	65.3	E+	L	0.69	51.8	D			
	T	0.49	18.8	B	T	0.48	18.7	B	T	0.46	17.2	B			
	R	0.94	54.1	D	R	0.94	54.6	D	R	0.89	44.4	D			
	Intersection			25.5	C	Intersection			26.9	C	Intersection			26.1	C
<b>East 97th Street and Second Avenue</b>															
EB	TR	$\frac{0.260}{2}$	23,120.5	C	TR	$\frac{0.310}{4}$	24,320.7	C	TR	0.4330	20,023.3	C			
WB	LT	0.82	45,544.4	D	LT	$\frac{0.860}{8}$	50,652.5	D+	LT	0.84	47,046.1	D			
SB	L	$\frac{0.140}{3}$	10,740.6	B	L	0.14	10.78	B	L	0.4415	11.3	B			
	T	0.52	13.9	B	T	0.53	14.0	B	T	0.54	14.7	B			
	R	0.2726	12.31	B	R	$\frac{0.280}{9}$	12,412.6	B	R	0.3029	13.31	B			
	Intersection			19.65	B	Intersection			21,020.8	C	Intersection			20.5	C
<b>East 96th Street and Second Avenue</b>															
EB	TR	$\frac{0.700}{6}$	28,027.0	C	TR	$\frac{0.710}{7}$	28,227.2	C	TR	0.5861	22.47	C			
WB	L	$\frac{1.021}{1}$	118,111.5	F	L	1.30	216.0	F+	L	1.04	112.0	F			
	T	$\frac{0.570}{5}$	25,725.2	C	T	$\frac{0.570}{5}$	25,825.3	C	T	0.4850	20,821.1	C			
SB	L	$\frac{0.440}{3}$	19,449.0	B	L	$\frac{0.580}{5}$	24,023.0	C	L	0.6467	30,331.8	C			
	T	0.54	18.9	B	T	0.54	18.9	B	T	0.62	23.4	C			
	TR	$\frac{0.700}{3}$	22,248.0	C	TR	$\frac{0.730}{2}$	23,149.9	C	TR	0.4983	25,530.4	C			
	Intersection			28,226.4	C	Intersection			34,532.6	C	Intersection			27,430.3	C
<b>East 96th Street and Third Avenue</b>															
EB	LT	1.08	90.4	F	LT	1.12	104.8	F+	LT	1.08	88.2	F			
WB	TR	0.83	38.9	D	TR	0.89	44.8	D	TR	0.86	40.6	D			
NB	LTR	0.66	22.4	C	LTR	0.67	22.5	C	LTR	0.69	23.5	C			
	Intersection			42.6	D	Intersection			47.6	D	Intersection			43.1	D
<b>East 96th Street and FDR Southbound Ramp</b>															
EB	T	0.72	29.9	C	T	0.73	30.0	C	Unmitigated						
	R	0.98	66.4	E	R	1.00	70.5	E+							
WB	LT	0.87	42.1	D	LT	0.88	42.6	D							
SB	LT	1.06	92.2	F	LT	1.05	87.7	F							
	R	0.28	8.6	A	R	0.28	8.6	A							
	Intersection			49.0	D	Intersection			49.0	D					
<b>Notes:</b> L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, Int. = Intersection. + Denotes a significant adverse traffic impact.															

**Table 18-7**  
**2023 No Action, With Action, and Mitigation Conditions Level of Service Analysis**  
**Weekday PM Peak Hour**

Intersection	Weekday PM														
	2023 No Action				2023 With Action				2023 Mitigation						
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS			
<b>East 96th Street and First Avenue</b>															
EB	L	0.30	18.5	B	L	0.33	19.4	B	L	0.35	21.4	C			
	T	0.50	18.9	B	T	0.53	19.2	B	T	0.55	20.9	C			
WB	T	0.35	17.1	B	T	0.37	17.4	B	T	0.39	18.9	B			
	R	0.75	29.4	C	R	0.82	35.1	D	R	0.87	42.1	D			
NB	L	0.76	60.4	E	L	0.94	87.7	F+	L	0.81	62.2	E			
	T	0.78	24.7	C	T	0.78	24.8	C	T	0.74	22.4	C			
	R	0.04	14.3	B	R	0.04	14.3	B	R	0.04	13.2	B			
	Intersection			24.1	C	Intersection			26.6	C	Intersection			25.9	C
<b>East 97th Street and Second Avenue</b>															
EB	TR	$\frac{0.230 \cdot 1}{9}$	$\frac{22.420 \cdot 3}{9}$	C	TR	$\frac{0.440 \cdot 2}{9}$	$\frac{26.621 \cdot 3}{9}$	C	TR	0.4736	$\frac{19.421 \cdot 4}{4}$	$\frac{BC}{C}$			
WB	LT	$\frac{0.940 \cdot 9}{3}$	$\frac{64.562 \cdot 7}{3}$	E	LT	$\frac{1.154 \cdot 0}{4}$	$\frac{131.490 \cdot 9}{4}$	F+	LT	0.93	59.34	E			
SB	L	0.0910	10.2	B	L	$\frac{0.130 \cdot 1}{2}$	$\frac{10.640 \cdot 4}{2}$	B	L	0.4315	$\frac{12.213 \cdot 5}{5}$	B			
	T	0.62	15.3	B	T	0.63	15.6	B	T	0.6770	$\frac{18.120 \cdot 0}{0}$	B			
	R	$\frac{0.250 \cdot 2}{6}$	$\frac{11.842 \cdot 1}{6}$	B	R	$\frac{0.270 \cdot 2}{8}$	$\frac{12.242 \cdot 4}{8}$	B	R	0.3031	$\frac{14.415 \cdot 6}{6}$	B			
	Intersection			$\frac{23.122 \cdot 7}{7}$	C	Intersection			$\frac{33.727 \cdot 1}{1}$	C	Intersection			$\frac{24.925 \cdot 6}{6}$	C
<b>East 96th Street and Second Avenue</b>															
EB	TR	$\frac{0.590 \cdot 5}{5}$	$\frac{25.524 \cdot 8}{5}$	C	TR	$\frac{0.600 \cdot 5}{6}$	$\frac{25.826 \cdot 0}{6}$	C	Unmitigated						
WB	L	1.04	116.2	F	L	$\frac{1.391 \cdot 3}{8}$	$\frac{243.023 \cdot 8}{8}$	F+							
	T	$\frac{0.460 \cdot 4}{6}$	$\frac{23.823 \cdot 5}{6}$	C	T	$\frac{0.470 \cdot 4}{6}$	$\frac{24.023 \cdot 7}{6}$	C							
SB	L	$\frac{0.660 \cdot 6}{3}$	$\frac{25.223 \cdot 9}{3}$	C	L	$\frac{0.940 \cdot 8}{9}$	$\frac{54.844 \cdot 9}{9}$	D±							
	T	$\frac{0.670 \cdot 6}{5}$	$\frac{21.220 \cdot 7}{5}$	C	T	$\frac{0.680 \cdot 6}{5}$	$\frac{21.320 \cdot 8}{5}$	C							
	R	$\frac{0.230 \cdot 2}{4}$	$\frac{16.246 \cdot 3}{4}$	B	R	0.32	17.87	B							
	Intersection			27.06	C	Intersection			$\frac{39.837 \cdot 9}{9}$	D					
<b>East 96th Street and Third Avenue</b>															
EB	-	-	-	-	DefL	1.46	273.6	F+	-	-	-	-			
	LT	1.10	96.4	F	T	0.94	55.7	E	LT	1.01	66.2	E			
WB	TR	0.81	38.2	D	TR	0.91	47.4	D+	TR	0.79	33.6	C			
NB	LTR	0.79	25.3	C	LTR	0.80	25.6	C	LTR	0.90	32.9	C			
	Intersection			42.2	D	Intersection			48.4	D	Intersection			39.8	D
<b>East 96th Street and York Avenue/FDR Northbound Ramp</b>															
EB	L	0.79	39.4	D	L	0.81	40.5	D	Unmitigated						
NB (York Avenue)	LT	0.85	54.8	D	LT	0.85	54.8	D							
NB (FDR NB Ramp)	L	0.90	66.7	E	L	0.94	73.8	E+							
	LT	0.92	68.9	E	LT	0.96	77.2	E+							
	Intersection			53.3	D	Intersection			43.4	D					
<b>East 96th Street and FDR Southbound Ramp</b>															
EB	T	0.75	37.0	D	T	0.76	37.8	D	Unmitigated						
	R	0.93	56.9	E	R	1.00	71.8	E+							
WB	LT	0.61	31.8	C	LT	0.64	32.4	C							
SB	LT	1.08	95.4	F	LT	1.08	96.7	F							
	R	0.42	10.2	B	R	0.43	10.3	B							
	Intersection			47.5	D	Intersection			50.5	D					

**Notes:** L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, Int. = Intersection.  
 + Denotes a significant adverse traffic impact.

## **ECF East 96th Street**

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### *East 96th Street and First Avenue*

The significant adverse impacts at the northbound left-turn of this intersection during the weekday midday and PM peak hours could be fully mitigated by shifting 2 seconds of green time from the eastbound/westbound phase to the northbound left-turn/through/right-turn phase. The significant adverse impacts at the westbound right-turn, the northbound left-turn, and the northbound right-turn of this intersection during the weekday AM peak hour could not be mitigated.

### *East 97th Street and First Avenue*

The significant adverse impact at the eastbound approach of this intersection during the weekday AM peak hour could be fully mitigated by shifting 3 seconds of green time from the northbound phase to the eastbound/westbound phase.

### *East 97th Street and Second Avenue*

The significant adverse impacts at the westbound approach of this intersection during the weekday AM, midday, and PM peak hours could be fully mitigated by shifting 2, 1, and 3–5 seconds of green time from the southbound phase to the eastbound/westbound phase, respectively.

### *East 96th Street and Second Avenue*

The significant adverse impacts at the westbound left-turn of this intersection during the weekday AM and midday peak hours could be fully mitigated by shifting 5 seconds of green time from the southbound phase to the eastbound/westbound phase. The significant adverse impacts at the westbound left-turn and southbound left-turn of this intersection during the weekday PM peak hour could not be mitigated.

### *East 96th Street and Third Avenue*

The significant adverse impacts at the eastbound and westbound approaches of this intersection during the weekday AM, midday, and PM peak hours could be fully mitigated by shifting 3, 1, and 4 seconds of green time from the northbound phase to the eastbound/westbound phase, respectively.

### *East 96th Street and York Avenue/FDR Northbound Ramp*

The significant adverse impacts at the northbound (FDR NB Ramp) left-turn lane and left-turn/through lane of this intersection during the weekday AM and PM peak hours could not be mitigated.

### *East 96th Street and FDR Southbound Ramp*

The significant adverse impacts at the eastbound right-turn lane of this intersection during the weekday AM, midday, and PM peak hours could not be mitigated. The significant adverse impact at the westbound approach of this intersection during the weekday AM peak hour could not be mitigated. The significant adverse impact at the southbound left-turn/through lane of this intersection during the weekday AM peak hour could not be mitigated.

## **EFFECTS OF TRAFFIC MITIGATION ON PEDESTRIAN OPERATIONS**

As described above, intersection operations would improve overall with the implementation of the recommended traffic mitigation measures, which include changes to existing signal timings.

A review of the effects of these changes on pedestrian circulation and service levels at intersection corners and crosswalks showed that they would not alter the conclusions made for the pedestrian impact analyses, nor would they result in the potential for any additional significant adverse pedestrian impacts.

#### *MITIGATION IMPLEMENTATION*

Subject to the approvals of DOT, the above recommended mitigation measures would be implemented to mitigate the projected significant adverse traffic impacts at the completion of the proposed project in 2023.

#### **TRANSIT**

##### *SUBWAY*

As detailed in Chapter 11, “Transportation,” utilizing NYCT assumptions surrounding project-generated subway trips, the S4 stairway of the 96th Street-Lexington Avenue Station, located on the northeast corner of Lexington Avenue and East 96th Street, was projected to decline in operations from LOS D (V/C = 1.00) under the 2023 No Action condition to LOS D (V/C = 1.31) under the 2023 With Action condition during the AM peak period. This decline would constitute a significant adverse subway station impact, requiring an evaluation of potential mitigation measures. Discussions were undertaken with NYCT are underway to identify mitigation needs. A preliminary analysis of the potential transit mitigation measures indicated that the impacted S4 stairway would need to be widened by a minimum of 16 inches from its current effective width of 4.33 feet to mitigate this stairway impact. While this would be considered a modest widening, any stairway modification at this station would require associated improvements to handicapped access in compliance with the Americans with Disabilities Act (ADA). Therefore, in addition to the stairway widening, an ADA-compliant elevator would also need to be added to this station. Absent the stairway widening, the identified significant adverse stairway impact would be unmitigated.

It should be noted that with the opening of the Second Avenue Subway line, the actual ridership at the 96th Street-Lexington Avenue Station has yet to be normalized and may be lower than what was estimated in this analysis. NYCT has indicated that ridership typically takes up a year to normalize after the opening of a new line. It should be noted that interim ridership numbers have shown that the Second Avenue Subway has continued to ease ridership congestion on the Lexington Avenue line, from the initial 11 percent after the first month of operation and up to 26 percent after five months of operation. Also, the analysis presented in Chapter 11, “Transportation,” conservatively assumed, in accordance with CEQR guidelines, that school trips made by subway would occur in the same hours as commuter trips, while in reality, they typically stagger over an approximately two-hour window in the morning and minimally overlap in the afternoon. Furthermore, one of the future high schools to be relocated to the project site would have community preference student enrollment where they are expected to draw students primarily from the local neighborhood (i.e., East Harlem). Students from the local neighborhood are more likely to walk to/from school than take public transit to school such that the actual student subway ridership may be less than what has been assumed for a conservative transit analysis. Therefore, given the above reasons, the projected significant adverse impact at the S4 stairway may not materialize. Accordingly, discussions with NYCT to identify mitigation needs are underway and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the

**ECF East 96th Street**

projected stairway impact would occur and the discussions with NYCT do not identify any ~~if no~~ feasible mitigation measures, ~~are found,~~ the identified significant adverse stairway impact would be unmitigated.

**BUS LINE-HAUL**

The proposed project would result in significant adverse bus line haul impacts on the M96 (westbound) and M15 SBS (northbound and southbound) routes, with projected passenger volumes under the With Action condition exceeding NYCT guideline capacities during the PM peak period, as follows:

**Table 18-8** provides a comparison of existing service and the number of buses required to fully mitigate the identified significant adverse line haul impacts along the M96 and M15 SBS bus routes. While NYCT routinely monitors changes in bus ridership and would make the necessary service adjustments where warranted, these service adjustments are subject to the agencies’ fiscal and operational constraints and, if implemented, are expected to take place over time.

**Table 18-8**  
**2023 Mitigated With Action Condition Bus Line-haul Analysis**

Route Direction	Bus Capacity	Existing Service (Buses/hr)	No Action (Passengers/Bus)	With Action (Passengers/Bus)	Number of Buses Needed for Mitigation	Mitigated (Passenger/Bus)
<b>PM Peak Hour</b>						
M96 WB	54	15	52	57	16	53
M15 SBS NB	85	10	85	87	11	79
M15 SBS SB	85	6	120	128	10	77
<b>Notes:</b> The M96 bus route operates standard buses with a guideline capacity of 54 passengers per bus. The M15 SBS bus route operates articulated buses with a guideline capacity of 85 passengers per bus.						

**PEDESTRIANS**

As discussed in Chapter 11, “Transportation,” pedestrian conditions were evaluated at five sidewalks, 11 corners, and six crosswalks for the weekday AM, midday, and PM peak hours. In the 2023 With Action condition, the proposed project would result in significant adverse pedestrian impacts at the north one-crosswalk of Third Avenue and East 96th Street during the weekday AM and PM peak hours.

The measures to mitigate the traffic impacts at the intersection of Third Avenue and East 96th Street as described above and detailed in **Tables 18-2 to 18-4** (shifting 3 and 4 seconds of green time from the northbound phase to the eastbound/westbound phase during the AM and PM peak hours, respectively) would also mitigate the pedestrian impacts at this intersection. The mitigated conditions are summarized in **Table 18-9**. Implementation of these measures would be subject to approval by DOT prior to implementation. Measures that consist of signal timing changes within certain guidelines are generally considered feasible.

**Table 18-9**  
**2023 No Action, With Action, and Mitigation Conditions**  
**Pedestrian Level of Service Analysis**

Location	Mitigation Measures	2023 No Action		2023 With Action		2023 Mitigation	
		SFP	LOS	SFP	LOS	SFP	LOS
<b>Weekday AM Peak Hour</b>							
North Crosswalk of Third Avenue and East 96th Street	Shift 3 seconds of green time from the NB phase to the EB/WB phase	24.46	C	16.13	D	19.61	D
<b>Weekday PM Peak Hour</b>							
North Crosswalk of Third Avenue and East 96th Street	Shift 4 seconds of green time from the NB phase to the EB/WB phase	32.66	C	18.02	D	23.49	D
<b>Note:</b> SFP = square feet per pedestrian; LOS = Level of Service							

*THIRD AVENUE AND EAST 96TH STREET*

*Crosswalks*

Significant adverse impacts were identified for the north crosswalk of this intersection during the weekday AM and PM peak hours. Widening it by 3 feet and providing 3 additional seconds of crossing time by shifting 2 seconds from the eastbound Flashing Don't Walk phase and 1 second from the northbound/southbound phase to the eastbound/westbound phase would mitigate the projected impacts during the AM peak hour. During the PM peak hour, widening the crosswalk by 3 feet and providing 2 additional seconds of crossing time by shifting 2 seconds from the eastbound Flashing Don't Walk phase would mitigate the projected impacts. As summarized in **Tables 18-2 and 18-4**, at East 96th Street and Third Avenue, mitigation measures were recommended to address both traffic and pedestrian impacts. Recommended traffic mitigation measures that would have an effect on pedestrian conditions and vice versa have been accounted for in developing the overall mitigation measures for the intersections. Intersection operations would improve overall with the implementation of the recommended traffic and pedestrian mitigation measures, which include changes to existing signal timings and lane utilizations.

**C. CONSTRUCTION**

Construction of the proposed project—as is the case with any construction project—would result in some temporary disruptions in the surrounding area. As discussed in Chapter 16, “Construction,” construction activities associated with the proposed project would result in temporary significant adverse impacts in the areas of traffic, noise, and open space. Potential measures to mitigate these temporary significant adverse impacts are described below.

**TRAFFIC**

The peak construction traffic increments (during the second quarter of 2020) during the construction peak hours (6:00 to 7:00 AM and 3:00 to 4:00 PM) would be much lower than the full operational traffic increments associated with the proposed project in 2023 during the 8:00 to 9:00 AM and 5:00 to 6:00 PM commuter peak hours. Therefore, if traffic impacts occur during the peak construction they are expected to be within the envelope of significant adverse traffic impacts identified for the With Action condition in Chapter 11, “Transportation.”

Therefore, all potential traffic impacts and required mitigation measures have been identified as part of the assessment of the full build-out of the proposed project.

As detailed above, measures to mitigate the 2023 operational traffic impacts were recommended for implementation at up to five intersections during one or more of the weekday analysis peak hours. These measures would encompass primarily signal timing changes, which could be implemented early at the discretion of DOT to address actual conditions experienced at that time. As with the operational condition, there could also be significant adverse traffic impacts at the intersections of East 96th Street and York Avenue/FDR Northbound Ramp, East 96th Street and FDR Southbound Ramp, East 96th Street and First Avenue, and East 96th Street and Second Avenue (although unlikely given the magnitude of trips during the 6:00 to 7:00 AM and 3:00 to 4:00 PM peak hours) that could not be fully mitigated during one or more analysis peak hours.

## **NOISE**

The detailed analysis of construction noise determined that construction of the proposed project has the potential to result in construction noise levels that would constitute temporary significant adverse impacts at the portion of Metropolitan Hospital immediately across East 97th Street north of the project site, the western façade and western portions of the north and south façades of the existing COOP Tech building, and the north façade of the residential building at 306 East 96th Street immediately south of the project site.

Based on field observations, the affected areas of Metropolitan Hospital and COOP Tech school have insulated glass windows and an alternative means of ventilation (i.e., central air conditioning), which would be expected to provide approximately 30 dBA window/wall attenuation. Consequently, interior noise levels during construction in the affected portion of the hospital would be in the low to mid 50s dBA, up to approximately 9 dBA higher than the 45 dBA threshold recommended for inpatient medical or classroom use or approximately 4 dBA higher than the 50 dBA threshold recommended for outpatient medical or office/administrative use according to CEQR noise exposure guidelines. With these façade noise attenuation measures already in place, there are no feasible and practicable mitigation measures that would be able to reduce or eliminate the potential significant adverse noise impacts. Source or path controls beyond those already identified for the construction of the proposed project would not be effective in reducing the level of construction noise at the receptors that have the potential to experience significant adverse construction noise impacts. Additional noise receptor controls at these locations would require change to the buildings' design that would have disproportionately high cost considering that the potential noise impacts would be temporary, the interior noise levels during construction are expected to be no more than approximately 9 dBA over the acceptable threshold levels, and that the potential impacts would be limited to construction hours, which would not include regular night-time or weekend periods.

Based on field observations, 306 East 96th Street appears to have insulated glass windows and an alternative means of ventilation (i.e., through-wall air conditioning units), which would be expected to provide approximately 30 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the mid to high 40s dBA, up to approximately 5 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines. With these façade noise attenuation measures already in place, there are no feasible and practicable mitigation measures that would be able to reduce or eliminate the potential significant adverse noise impacts. Source or path controls beyond those already identified for the construction of the proposed project would not be

effective in reducing the level of construction noise at the receptors that have the potential to experience significant adverse construction noise impacts. Additional noise receptor controls at these locations would require change to the building design that would have disproportionately high cost considering that the potential noise impacts would be temporary, the interior noise levels during construction are expected to be no more than approximately 5 dBA over the acceptable threshold levels, and that the potential impacts would be limited to construction hours, which would not include regular night-time or weekend periods.

At the outdoor balconies on the north façade of the building at 306 East 96th Street, there would be no feasible or practicable way to mitigate the construction noise impacts. Therefore, these balconies would be considered to experience unmitigated significant noise impacts as a result of construction. However, even during the portions of the construction period that would generate the most noise at these balconies, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

### **OPEN SPACE**

To allow for a more efficient and expedited construction, construction staging would take place within the project site and the existing Marx Brothers Playground would be temporarily displaced. On-site construction staging would minimize disruptions to the surrounding roadways during construction and would allow for vehicle access to be maintained at nearby facilities including the Metropolitan Hospital to the north of the project site across West 97th Street. On-site construction staging would also allow for a safer environment for the public passing through the area as the activities would be contained within the project site. During the construction period, the active open space ratios for the study area would be reduced by more than the CEQR threshold of 5 percent; therefore, the temporary displacement of the Marx Brothers Playground during construction would be considered a temporary significant adverse construction-period impact. There are other active open space resources in the area, such as Stanley Isaacs Playground and Ruppert Park, that could partially accommodate the active recreation activities temporarily displaced from the Marx Brothers Playground. Upon completion of the proposed project, the Marx Brothers Playground would be reconstructed and enhanced following a process that would reflect continued input from NYC Parks, DOE, Community Board 11, and the local community. \*

**A. INTRODUCTION**

Unavoidable significant adverse impacts are defined as those that meet the following two criteria:

- There are no reasonably practicable mitigation measures to eliminate the impact; and
- There are no reasonable alternatives to the proposed actions that would meet the purpose and need for the actions, eliminate the impact, and not cause other or similar significant adverse impacts.

As described in Chapter 18, “Mitigation,” a number of the potential impacts identified for the proposed project could be mitigated. However, as described below, in some cases, impacts from the proposed project would not be fully mitigated.

**B. TRANSPORTATION**

As discussed in Chapter 11, “Transportation,” and Chapter 18, “Mitigation,” the significant adverse vehicular traffic impacts at the intersections of East 96th Street and York Avenue/FDR Northbound Ramp, East 96th Street and FDR Southbound Ramp, East 96th Street and First Avenue, and East 96th Street and Second Avenue could not be fully mitigated during one or more analysis peak hours.

The proposed project would also result in a significant adverse subway stairway impact at the S4 stairway at the 96th Street-Lexington Avenue station during the weekday AM peak hour. Discussions with New York City Transit (NYCT) are underway to identify subway mitigation needs and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and the discussions with NYCT do not identify any feasible mitigation measures~~no feasible mitigation measures are found~~, the identified significant adverse stairway impact would be unmitigated.

**C. CONSTRUCTION****TRAFFIC**

As discussed in Chapter 13~~16~~, “Construction,” and Chapter 18, “Mitigation,” there is the potential for temporary significant adverse traffic impacts during the peak construction period at the intersections of East 96th Street and York Avenue/FDR Northbound Ramp, East 96th Street and FDR Southbound Ramp, East 96th Street and First Avenue, and East 96th Street and Second Avenue that could not be fully mitigated during the construction peak hours.

**NOISE**

The detailed analysis of construction noise determined that construction of the proposed project has the potential to result in construction noise levels that would constitute temporary significant adverse impacts at the portion of New York Health & Hospital Corporation (HHC) Metropolitan Hospital immediately across East 97th Street north of the project site, the western façade and western portions of the north and south façades of the existing COOP Tech school building, and the north façade of the residential building at 306 East 96th Street immediately south of the project site.

Based on field observations, the affected areas of HHC Metropolitan Hospital and COOP Tech school have insulated glass windows and an alternative means of ventilation (i.e., central air conditioning) and 306 East 96th Street appears to have insulated glass windows and an alternative means of ventilation (i.e., through-wall air conditioning units). With the window/wall attenuation provided by these measures, interior noise levels at these locations during the loudest portions of construction are predicted to be up to 9 dBA higher than the acceptable levels according to CEQR noise exposure guidelines. With these façade noise attenuation measures already in place, there are no feasible and practicable mitigation measures that would be able to reduce or eliminate the potential significant adverse noise impacts. Source or path controls beyond those already identified for the construction of the proposed project would not be effective in reducing the level of construction noise at the receptors that have the potential to experience significant adverse construction noise impacts. Additional noise receptor controls at these locations would require change to the buildings' design that would have disproportionately high cost considering that the potential noise impacts would be temporary, the interior noise levels during construction are expected to be no more than approximately 9 dBA over the acceptable threshold levels, and that the potential impacts would be limited to construction hours, which would not include regular night-time or weekend periods.

At the outdoor balconies on the north façade of the building at 306 East 96th Street, there would be no feasible or practicable way to mitigate the construction noise impacts.

**OPEN SPACE**

As discussed in Chapter 16~~3~~, "Construction," and Chapter 18, "Mitigation," during the construction period, the active open space ratios for the study area would be reduced by more than the CEQR threshold of 5 percent; therefore, the temporary displacement of the Marx Brothers Playground during construction would be considered a temporary significant adverse construction-period impact. There are other active open space resources in the area, such as Stanley Isaacs Playground and Ruppert Park, that could partially accommodate the active recreation activities temporarily displaced from the Marx Brothers Playground. Upon completion of the proposed project, the Marx Brothers Playground would be reconstructed and enhanced following a process that would reflect continued input from NYC Parks, DOE, Community Board 11, and the local community. \*

**A. INTRODUCTION**

The term “growth-inducing aspects” generally refers to the potential for a proposed project to trigger additional development in areas outside the project site that would otherwise not have such development without the proposed project. The 2014 *City Environmental Quality Review (CEQR) Technical Manual* indicates that an analysis of the growth-inducing aspects of a proposed project is appropriate when the project:

- Adds substantial new land use, new residents, or new employment that could induce additional development of a similar kind or of support uses, such as retail establishments to serve new residential uses; and/or
- Introduces or greatly expands infrastructure capacity.

The proposed project would be limited to the project site, which consists of Block 1668, Lot 1, in the East Harlem neighborhood of Manhattan. The project would increase the density of the project site by introducing approximately 1,200 more residential units, 25,000 gsf of retail, and approximately 166,502 gsf more public school use than in the existing condition. These uses would be consistent with the existing uses in the surrounding area. As discussed in Chapter 3, “Socioeconomic Conditions,” while the proposed actions would likely add new population with a higher average household income as compared to existing households, the increase in population would not be large enough relative to the size of the No Action study area population to potentially affect real estate market conditions in the study area. Therefore, the proposed project is not expected to introduce or accelerate a trend of changing socioeconomic conditions.

In addition, the proposed project would not include the introduction or expansion of infrastructure capacity (e.g., sewers, central water supply) that would result in indirect development; any proposed infrastructure improvements would be made to support development of the project site itself.

Therefore, the proposed project is not expected to induce significant new growth in the surrounding area. \*

## **Chapter 21: Irreversible and Irretrievable Commitments of Resources**

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### **A. INTRODUCTION**

Resources, both natural and built, would be expended in the construction and operation of the proposed project. These resources include the materials used in construction; energy in the form of fuel and electricity consumed during construction and operation of the project; and the human effort (i.e., time and labor) required to develop, construct, and operate various components of the project.

The resources are considered irretrievably committed because their reuse for some purpose other than the proposed project would be highly unlikely. The proposed project constitutes an irreversible and irretrievable commitment of the project site as a land resource, thereby rendering land use for other purposes infeasible, at least in the near term.

These commitments of land resources and materials are weighed against the benefits of the proposed project. As described in Chapter 1, "Project Description," the proposed actions are intended to achieve a better learning environment for COOP Tech, the Heritage School, and Park East High School by alleviating over-crowded conditions and providing modern facilities for these schools. The proposed actions also would create up to 360 affordable housing units on the project site, pursuant to the Mandatory Inclusionary Housing (MIH) program, and thus would make a substantial contribution to the housing production goals of the Mayor's *Housing New York: A Five-Borough, Ten-Year Plan*. And last, the proposed actions would result in substantial improvements to the existing Marx Brothers Playground, and its relocation to the midblock in order to buffer the playground use from the active First Avenue and Second Avenue corridors. \*

**A. INTRODUCTION**

This chapter of the Final Environmental Impact Statement (FEIS) summarizes and responds to substantive comments received during the public comment period for the Draft Environmental Impact Statement (DEIS) for the ECF East 96th Street project. The public hearing on the DEIS was held concurrently with the hearing on the project's Uniform Land Use Review Procedure (ULURP) draft applications on Wednesday, May 10, 2017 in Spector Hall, 22 Reade Street, New York, New York. The comment period for the DEIS remained open until Monday, May 22, 2017.

Section B lists the organizations and individuals that provided comments relevant to the DEIS. Section C contains a summary of these relevant comments and a response to each. These summaries convey the substance of the comments made, but do not necessarily quote the comments verbatim. Comments are organized by subject matter and generally parallel the chapter structure of the DEIS. Where more than one commenter expressed similar views, those comments have been grouped and addressed together. Written comments are included in this FEIS in Appendix F, "Written Comments on the Draft Environmental Impact Statement."

**B. LIST OF ORGANIZATIONS AND INDIVIDUALS WHO COMMENTED ON THE DEIS****COMMUNITY BOARDS**

1. Diane Collier, Chair, Manhattan Community Board 11, letter dated March 27, 2017 (CB11\_Collier\_014)
2. George Janes, consultant to Manhattan Community Board 11, study dated March 8, 2017 (CB11\_Janes\_022)

**ELECTED OFFICIALS<sup>2</sup>**

3. Gale A. Brewer, Manhattan Borough President, public hearing comments delivered May 10, 2017 (Brewer\_003)

**ORGANIZATIONS AND BUSINESSES**

4. Geoffrey Croft, President, NYC Park Advocates, public hearing comments delivered May 10, 2017 (NYCPA\_Croft\_009)
5. Caroline Harris, Esq., Carnegie Hill Neighbors, public hearing comments delivered May 10, 2017 (CHN\_Harris\_010)

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<sup>1</sup> This chapter is new to the FEIS.

<sup>2</sup> Citations in parentheses refer to internal comment tracking annotations.

6. Rachel Levy, Executive Director, FRIENDS of the Upper East Side Historic Districts, letter dated May 22, 2017 (FRIENDS\_Levy\_012)

**GENERAL PUBLIC**

7. Lo Van Der Valk, President, Carnegie Hill Neighbors, public hearing comments delivered May 10, 2017 (CHN\_Van Der Valk\_008) and written comments submitted May 22, 2017 (CHN\_Van Der Valk\_011)
8. Edward Harrison, public hearing comments delivered May 10, 2017 (Harrison\_006)
9. George Janes, web form submitted May 10, 2017 (Janes\_002)
10. Jennifer Lee, web form submitted May 9, 2017 (Lee\_013)
11. Silve Parviainen, public hearing comments delivered May 10, 2017 (Parviainen\_005)
12. Andrea Shapiro Davis, public hearing comments delivered May 10, 2017 (Shapiro-Davis\_004)
13. Divya Singh, public hearing comments delivered May 10, 2017 (Singh\_007)
14. Marie Winfield, Email dated March 23, 2017 (Winfield\_001)

**PETITIONS**

15. Petition 1 Signatories: Rebecca E. Connor, Joelyn Ceceve, Lesley Domiano, Jeffrey and Barbara Kalman, Katia Sakamoto, Divya Singh, Nishant Upadhyay (Petition01\_Connor\_015, Petition01\_Ceceve\_016, Petition01\_Singh\_017, Petition01\_Upadhyay\_018, Petition01\_Sakamoto\_019, Petition01\_Domiano\_020, Petition01\_Kalman\_021)

**C. COMMENTS AND RESPONSES**

**PUBLIC ENGAGEMENT**

**Comment 1:** Making sure that community input and the process overall is looked at differently next time around. You'll notice in some of the comments made by the Board and other residents that they would have liked to have seen more community engagement at the beginning, and we are hoping as the Educational Construction Fund (ECF) moves forward that happens. (Brewer\_003)

**Response:** Comment noted.

**Comment 2:** No matter what the minimum notice requirements are for the State Environmental Quality Review Act (SEQRA)/City Environmental Quality Review (CEQR) baseline, both the community board leadership and the ECF development team have not lived up to their responsibilities of ensuring that effective notice took place. Public comment at CB11 public hearings related to the draft EIS have gone ignored as community members are unaware that only written feedback or comment at a public scoping session on the EIS will require a response by the lead agency. Neither ECF nor Community Board 11 (CB11) has done anything to correct this misunderstanding or facilitate a response from the community board or any community member to the DEIS. Both the

community board and ECF have ignored recommendations in the East Harlem Neighborhood Plan on the environmental review process for the COOP Tech project. The end result has been that the entire environmental review process has been without significant feedback from the community. On March 21, 2017, CB11 voted to support the project with a list of “conditions” that examine none of the serious environmental impacts that may go unmitigated, according to the DEIS. (Winfield\_001)

**Response:** ECF and AvalonBay undertook community outreach that went beyond the minimum notice requirements as specified in the *CEQR Technical Manual* guidance. As detailed by the commenter’s written submission, ECF and the developer team made a number of presentations and project progress updates to the CB11’s full board, its various sub-committees and *ad hoc* committees. ECF and the developer team also briefed the district manager at Community Board 8 (CB8). ECF and the development team participated in the New York City Department of Parks and Recreation’s (NYC Parks’) scoping session for the Marx Brothers’ Playground design, and noticed the DEIS scoping meeting to CB11 and in both the New York Post (in English) and El Diario (in Spanish). The notices included the availability of translation upon request; ECF did not receive any requests for translation services. The Draft Scope of Work and the DEIS were sent to CB11 and its leadership were notified of the documents issuance.

**Comment 3:** As outlined in the East Harlem Neighborhood Plan (EHNP), standards for public engagement should go beyond the minimum requirements laid out in the *CEQR Technical Manual* and should use the process as an opportunity to ensure a more comprehensive proposal.

- The scoping notice and the draft scope of work should be available in multiple languages, and an extended review time frame beyond the minimum 30 days for public review and comment should be provided.
- In order to fully engage the community, a minimum of two scoping sessions should be held, one during the day, one at night, with childcare provided, and scoping sessions should have translation services available. The noticing of these sessions should be sent to local neighborhood papers and a good-faith effort made to flyer NYCHA developments and major transit hubs.
- Updates during the environmental review process should be provided on a regular basis by meeting with the community board and providing updated handouts available in multiple languages.

ECF has failed on all three community engagement recommendations for the EIS in the EHNP. (Winfield\_001)

**Response:** See Response to Comment 2

**PROJECT DESCRIPTION**

**Comment 4:** ECF’s project should be reduced in size; it is too ambitious. Alternative approaches should be seriously considered that do not involve the generation of development rights from the Playground and the development of a 1.1 million square foot residential tower with retail space. (CHN\_Van Der Valk\_011)

**Response:** As described in Chapter 1, “Project Description,” the proposed project includes a number of community benefits including three new modern high schools, substantial affordable housing, and a renovated playground without the use of City capital dollars.

**LAND USE, ZONING, AND PUBLIC POLICY**

**Comment 5:** The affordable housing is a major benefit to the neighborhood. According to an analysis done by the East Harlem Neighborhood Plan, 282 affordable units on average will be lost per year. But even with the offset that these units will create, the unit Area Median Income (AMI) does not go low enough for 37 percent of residents who make 23,000 or less. We believe that the AMI and the affordability can go lower, and we encourage the Commission, the Council Member and the developer to work with our office to go below 40 percent. (Brewer\_003)

**Response:** Comment noted.

**Comment 6:** Concerning the amount of density on the project, it does adhere to planning guidelines that supports density near mass transit. In response to strong community concerns about the project height, the developer has committed to our office that they will shorten the height of the building by five floors, or approximately 50 feet. While this is not a large reduction, it avoids impacting the design of the schools and other facilities, and it leaves all the affordable units in place. Our hope is that this will lead to further conversations to lower the height even more as the ULURP process moves forward. (Brewer\_003)

**Response:** Comment noted. The FEIS has been updated to reflect the shorter height of the proposed residential tower.

**Comment 7:** It is inappropriate to reference a twenty-one (21) year old 197-a plan, which was never adopted by the City, as a policy document to be considered for any current land use action in Community District 11.

Respectfully, the section on the 197-a plan should be removed and replaced by analysis of the community board’s Statement of District Needs and Budget Priorities, which have been submitted to DCP and other city agencies, as well as the formal response by the community board to the FY 2018 preliminary budget. (Winfield\_001)

**Response:** Following *CEQR Technical Manual* guidance, Chapter 2, “Land Use, Zoning, and Public Policy,” of the DEIS discusses the proposed project’s consistency with a number of public policy initiatives, including the CB11’s 197-a Plan, as well as other more recent policy initiatives such as *Housing New York, Zoning for Quality and Affordability, the East Harlem Neighborhood Plan*, and the *New York City Waterfront Revitalization Program*. The *Statement of District Needs and Budget Priorities* identifies budget priorities to address community issues that come out of the local planning efforts such as from the initiatives noted above. In its latest submission, CB11 identified three main issues: creating affordable housing, reducing crime and improving area schools. The proposed project would directly result in the creation of up to 360 units of affordable housing and constructing 3 state-of-the-art high school facilities to improve the educational quality and learning environment. Additionally, the project would renovate the existing Marx Brothers Playground and generate local employment opportunities.

**Comment 8:** With regards to the EHNP, the final Plan document is not just a series of objectives. The EHNP developed a series of recommendations under specific topic areas that specifically referenced sites in East Harlem. This site was never discussed as part of the EHNP because of the decision by external facilitators and consultants to designate the COOP Tech site as a “pipeline” site, even though this project was only a proposal and had not yet been approved through ULURP. As a member of, and often the only community resident participating in, the Land Use and Zoning subgroup for the EHNP, I can personally testify that this was not a decision that came out of the community discussion or deliberation. Marx Brothers Playground is certainly not a site identified under the EHNP as a priority for rehabilitation. As often stated throughout community meetings, Marx Brothers is not often permitted by East Harlem athletic groups. As a pipeline site, the COOP Tech project was referenced as if it was already a given. This section’s referencing of the ECF proposal as responsive to the EHNP after the fact is misleading. (Winfield\_001)

**Response:** The COOP Tech site was not included in the EHNP because it was part of an independent planning initiative to replace the existing high school facility with a new school and mixed-use development as part of a public-private partnership. While the proposed project is not part of the EHNP, many of the current project’s planning goals align with those identified in the EHNP.

**Comment 9:** It is very disturbing to find an analysis of the Waterfront Revitalization Program Policies that seems to be focused on the views that the residents of the 68-story tower would have over the waterfront, instead of examining the effect of planting a 68-story tower in the rest of the community. It is completely unbelievable that an analysis of this area could possibly find this proposal consistent with protecting and improving the visual quality associated with NYC’s urban content and the historic and working waterfront. While it is

indubitably wonderful that this project “will afford the occupants of the new buildings an appreciation of the City’s waterfront setting,” it seems your paid consultants may be missing the point here in an intentionally obtuse way. This project puts a 68-story tower on Second Avenue that obstructs the rest of the community’s “appreciation of the City’s waterfront setting.” (See p. 2-18) (Winfield\_001)

**Response:** As described in the EIS response to WRP Policy 9.1, existing views to the East River from surrounding streets will not be obstructed by the proposed buildings.

**Comment 10:** There is no stated public policy that supports concentrating three high schools on one block. There is no existing land use in the study area that concentrates three high schools on one city block. This concentration of high schools on the Southern end of the district is not a desirable effect of this proposal. Valid concerns about an eventual change in school district zoning by just one block could possibly move three high schools out of the local CSD. This is simply not a desirable policy to start a precedent, here in our local school district, on the distribution of high schools within a given district. (Winfield\_001)

Why is it imperative to build three schools at this site? So what is the need to have three schools in this zone? And if it is important to have three schools in this zone, then can we find the funding from somewhere? And if we cannot find the funding from somewhere, why can we not have a two story building? (Singh\_007)

**Response:** The relocation of the Park East High School and the Heritage School to the project site as part of the proposed project was incorporated at the request of Council Speaker Melissa Mark-Viverito. These two schools are in critical condition and there are no dedicated funds in the City’s capital plan to assist them. Moreover, the Heritage School shares its facility with the Julia De Burgos Cultural Center, and neither the school nor the Cultural Center can expand their programs due to this physical space constraint. Additionally, there has been significant community concern and pressure for the DOE to vacate the building so that the Cultural Center can expand its community programming.

It should be noted that DOE high schools are not locally zoned and their student catchment areas would not be affected by any changes to the school district boundaries. However, DOE will be working with the high school principals, community board, and school community to ensure appropriate student body representation from the local East Harlem community at each of the schools.

**Comment 11:** There is a typo in the third paragraph: “The proposed rezoning area closes to the project site, Second Avenue between 104th and 112th Street...” “[C]loses” should be changed to “closest.”(p. 2-6) (Winfield\_001)

**Response:** This typo has been corrected in the FEIS.

**Comment 12:** Analysis should acknowledge that a change in administration may alter the public policy goal of affordable housing, and speak to mitigation measures to ensure long-term implementation of the target affordability levels established elsewhere in this plan. (Winfield\_001)

**Response:** AvalonBay would be obligated to develop the program consistent with the ULURP approvals irrespective of a change in administration; these approvals include affordable housing requirements.

**Comment 13:** Section 11-13 of the Zoning Resolution (ZR) tells us that zoning doesn't apply to parks and that they don't generate floor area. ZR 23-65(c) tells us the tower regulations do not apply in residential districts next to parks and hence that we can't have a tower adjacent to a park of an acre or more. Yet, here we have a park generating floor area, a residential tower next to a park, both in addition to rezoning a full block to R10, and a host of other zoning waivers required for the ECF special permit. This project is the latest and certainly the largest to date of what has become known as Zoning for Dollars. Zoning for Dollars has become the expression we use when political forces decide to use the City's ZR to pay for essential city services. Please, say no to Zoning for Dollars, and this most egregious example of it. Thank you. (Janes\_002)

**Response:** The Marx Brothers Playground is not considered a "public park" under the Zoning Resolution. Therefore, the playground is included in the zoning lot for the proposed project, and the proposed project utilizes some of the floor area generated by its lot area.

**Comment 14:** For more than 60 years, children of all ages have enjoyed the unfettered access to light as a result of the corner location of this playground and adjacent open field. This proposed plan would destroy that. The way the deal is structured, ECF circumvents this fundamental zoning issue and compromises the definition of a zoning lot. To make this all happen, they're going to get permission from the state to alienate the property. This is a terrible precedent. How is it that a public playground is being counted as having zoned floor area and part of a zoning lot. The answer is they are doing a runaround based on the basic premise that parkland is always there for the taking. There were no protections. This is a misuse of the public trust doctrine and this is not proper city planning. We strongly urge the Planning Commission to reject this application. (NYCPA\_Croft\_009)

It is illegal to build the project on State parkland. (Lee\_013)

The project appears to achieve its huge size using a deal structure of temporarily transferring the playground to the rest of the block to ECF, circumventing basic zoning principles, the definition of a zoning lot—and the fact that public playgrounds do not have development rights. (CHN\_Harris\_010)

**Response:** The Marx Brothers Playground is not a State or City park. It is not considered a “public park” under the Zoning Resolution. Therefore, the playground is included in the zoning lot for the proposed project, and the proposed project utilizes some of the floor area generated by its lot area. The proposed alienation legislation recognizes that the playground is not a public park as defined in the Zoning Resolution and required that the alienated land be developed with recreational facilities equivalent in fair market value and usefulness to the existing Marx Brothers Playground. The ECF statute requires that any playground displaced by the construction of an ECF project must be replaced by a playground of equal size. During construction, title for the playground will be held by ECF and upon completion, will be conveyed back to the City under the joint control of DOE and NYC Parks and will continue to be operated as a jointly-operated playground.

**SOCIOECONOMIC CONDITIONS**

**Comment 15:** As proposed, the ECF East 96th Street project will create affordable housing, construct modern school facilities for East Harlem high-school students, rehabilitate the Marx Brothers Playground and include retail space. Each of these factors are welcome additions to our community, however we have some concerns that we ask the development team to address. Particularly, given the dire need for affordable housing in our community, we ask that the number of affordable units be increased from that currently proposed and that these units be kept affordable long-term.

- Include more affordable housing units, with 50 percent of units to be permanently affordable
- Consult with CB11, the New York City Department of Housing Preservation & Development, and the office of Council Speaker Melissa Mark-Viverito to request subsidies from HPD to ensure that 50 percent of units will be permanently affordable
- Include senior housing units
- Specify the exact number of residential units being built by category and size. (CB11\_Collier\_014)

**Response:** Comment noted.

**Comment 16:** Commit to establishing a “First Source” hiring program and allocate funds to target and identify job opportunities for residents of East Harlem throughout the development of the project. (CB11\_Collier\_014)

**Response:** Comment noted.

**Comment 17:** Commit to workforce development, allocate funds for OSHA training & construction training, and assist with pipeline capacity. (CB11\_Collier\_014)

**Response:** Comment noted.

**Comment 18:** Commit to 35 percent local hiring in all construction positions for union and non-union East Harlem residents at minimum prevailing wage (\$40 P/H) or more depending on skill set and experience.

Work to ensure that local East Harlem MWBE/LBE organizations receive 35 percent of all construction contracts. (CB11\_Collier\_014)

**Response:** Comment noted.

**Comment 19:** Commit to 50 percent local hiring for all new hire post construction positions.

Provide internship opportunities, property/project management training as well as skillset enhancement for East Harlem hires. (CB11\_Collier\_014)

**Response:** Comment noted.

**Comment 20:** Present a systematic hiring program which provides a quarterly review of the progress of the organization achieving the goals stated by CB11. (CB11\_Collier\_014)

**Response:** Comment noted.

**Comment 21:** Retail space must be provided at reduced cost for local East Harlem retail establishments that have been/may be displaced. (CB11\_Collier\_014)

**Response:** The project site comprises the COOP Technical School and Marx Brothers Playground. Development of the site will not result in any displacement of any on-site retail establishments.

**Comment 22:** Repurpose retail space to provide community facility space at reduced cost for locally-based health and human service providers (CB11\_Collier\_014)

Assist small business in sustaining their operations with below market rents and counseling services if needed. (CB11\_Collier\_014)

**Response:** Comment noted.

**Comment 23:** When using CEQR criteria relating to a radius study area, it seems helpful to adjust the study area when large portions of the area does not fall under the study conditions. In this case, a large portion of the socioeconomic conditions study area is the East River. Decentering the study area to examine the effects at a greater distance inland seems to make more sense here, regardless of whether it is known beforehand that the population will not meet the Step 2 criteria. (See Child Care Facilities study area map.) (Winfield\_001)

**Response:** The socioeconomic study area was defined based on guidelines in the *CEQR Technical Manual*, which recommends a ¼-mile study area if a proposed project would result in a population increase of less than 5 percent of the ¼-mile area.

As discussed in the Socioeconomic Conditions chapter, the total study area population in the future with the proposed actions would be approximately 69,046, or an approximately 4.5 percent increase over the No Action condition. While *CEQR Technical Manual* guidance does allow for adjustments to study area boundaries, the intent of those adjustments is to conform to census tract boundaries that most closely approximate the circular radius (in this case, a ¼-mile radius). The *CEQR Technical Manual* does not suggest decentering or extending study area boundaries if a portion of the ¼-mile radius falls within a river. The study area delineation intends to capture an area that has the greatest potential to experience socioeconomic change as a result of a project; the fact that there is a river in a portion of the ¼-mile radius does not alter/extend the geography within which one could expect socioeconomic change.

In the case of the Child Care Facilities analysis, the portion of the 1 ½-mile radius that falls within the East River was also excluded from the study area. However, the Child Care Facilities analysis did not decenter the study area to examine the effects at a greater distance inland; rather, the 1 ½-mile radius was chosen in accordance with *CEQR Technical Manual* guidelines.

**Comment 24:** Examine how the recommendations may impact local businesses, neighborhood income distribution, human capital, employment, and real estate prices. (Winfield\_001)

**Response:** The socioeconomic conditions assessment is consistent with *CEQR Technical Manual guidelines* and the Final Scope of Work. As stated in Chapter 3, “Socioeconomic Conditions,” the proposed actions would not result in the displacement of any businesses on the project site. Therefore, the proposed actions would not result in significant adverse socioeconomic impacts due to direct business displacement. With respect to potential indirect business displacement, the proposed actions would not introduce substantial new development that is markedly different from existing uses, development, and activities within the neighborhood. The proposed actions would not introduce commercial development in excess of 200,000 sf; therefore, an assessment of potential indirect business displacement is not warranted. The chapter includes a preliminary assessment of indirect residential displacement, which considers the project’s potential impacts on neighborhood income distribution and real estate prices. The preliminary assessment determined that in the project-generated population would not be large enough to affect real estate market conditions in the study area, and no socioeconomic impacts are expected.

**Comment 25:** Provide an analysis of how new development will affect housing affordability for low-income residents. (Winfield\_001)

Seventy percent of the apartments in this project will have market rate rents, which East Harlem residents can’t afford. Moreover, the remaining 30 percent of the apartments which are being billed as affordable and being targeted to

individuals who make 60 percent of the area AMI for the New York City metropolitan area; those apartments may be affordable to residents of the Upper East Side, but those rents are still too high for residents of East Harlem, where the median income is about 43 percent of the AMI. Only ten percent of the apartments are being targeted for individuals making less than the East Harlem AMI, which means that 90 percent of the new apartments will be completely unaffordable to the residents of East Harlem. (Shapiro-Davis\_004)

**Response:** Chapter 3, “Socioeconomic Conditions,” followed *CEQR Technical Manual* guidelines and the Final Scope of Work in providing an assessment that determined the potential for indirect residential displacement due to increased rents. A preliminary assessment found that while the project-generated population could have incomes greater than the average household income within the study area, the project-generated population would not be large enough to affect real estate market conditions. In other words, the proposed project would not be expected to introduce a trend or accelerate a trend of changing socioeconomic conditions that may potentially displace a vulnerable population to the extent that the socioeconomic character of the neighborhood would change.

**Comment 26:** Establish baselines regarding displacement, warehousing of existing residential units, neighborhood specific business challenges, and housing rents in the informal market.

Assess the impacts of development on construction workforce job quality, living wages, local hiring, absence of prevailing wage requirement and the availability of apprenticeship programs.

Study job generation as a result of the rezoning and how job and economic sector growth is benefitting local residents as compared to people outside of the immediate area. (Winfield\_001)

**Response:** Chapter 3, “Socioeconomic Conditions,” includes screening and a preliminary assessment of indirect residential displacement that assesses the project’s potential to directly or indirectly result in the displacement of residents or businesses. As discussed in the chapter, the project is not expected to create a concentration of higher-income housing that would force out lower-income residents due to rising rents. Also, the project is not expected to result in any displacement of businesses or workers. A comparison of the project’s anticipated job creation and economic benefits between local residents and those outside the immediate area not within the purview of the CEQR analysis.

**Comment 27:** Please restore the block to a desperately needed public park/playground, NOT another super high-rise (where the rent would be unaffordable to most residents in the area even for the designated “affordable” units). (Lee\_013)

**Response:** The proposed project, if approved, will construct three new state-of-the-art school facilities, mixed-income housing, as well as renovate and replace the Marx Brothers Playground to the same size (64,150 sf).

**COMMUNITY FACILITIES**

**Comment 28:** Board members expressed concern about the high school seats in the modern schools will not be available for East Harlem children due to NYC Department of Education (DOE)'s city wide open enrollment. While the principals have stated to improve their marketing to East Harlem District schools, we ask that ECF and DOE commit to providing priority enrollment for students residing in East Harlem applying to Heritage High School, Park East High School, and most importantly COOP Tech.

Work to secure a written commitment by the NYC Department of Education to provide priority enrollment for students residing in East Harlem applying to Heritage High School, Park East High School, and COOP Tech. (CB11\_Collier\_014)

**Response:** ECF has consulted with DOE. The DOE will be working with the high school principals, community board, and school community to ensure appropriate student body representation from the local East Harlem community at each of the schools.

**Comment 29:** Without an indication of the repurposing of the Park East High School facility, there cannot be a useful analysis of the direct impact of concentrating 3 high school facilities on the same block, thereby removing two high schools from the East Harlem core. If Park East High School were to be sold by the city for private development, there would be a greater direct impact on school facility distribution in the district. To completely analyze this section, please require the DOE/SCA to respond with their eventual proposed use of the Park East High School building and attach their formal reply to your response to comments on the DEIS when releasing the FEIS. (Winfield\_001)

**Response:** It is premature to determine how the Park East High School facility will be used after the school has relocated to the project site. The future use of the Park East building will be determined at a later time but it is expected to remain under the jurisdiction of the DOE as an educational and/or community facility use.

**Comment 30:** While the construction of three new school facilities is an undeniable boon for the neighborhood, the project does not actually increase the number of high school seats available in East Harlem, since three existing schools will occupy the new facilities. These school seats will not necessarily be available to East Harlem residents due to the DOE's policy of citywide open enrollment. (FRIENDS\_Levy\_012)

**Response:** The proposed project would provide new high schools that could accommodate greater programming and a potential increase in school seat capacity. The current school facilities all have cramped learning environments and lack available space for growth and/or appropriate facilities for high school achievement. At COOP Tech, additional shops for popular trades (e.g., welding, carpentry, automotive, culinary) cannot be accommodated in the current space; electrical and ventilation systems are inadequate to serve the needs of the technical training environment; and there is a lack of centralized, efficient storage facilities for trade equipment and supplies. The Heritage School lacks appropriate cafeteria, gym, and private counseling space, as well as storage facilities, and there is limited space for the growth of the Julia de Burgos Cultural Center, which occupies the same building. At the Park East High School, the gym serves as both gym and auditorium; the cafeteria doubles as an art room; and overall, the facility is not fully Americans with Disabilities Act (ADA)-accessible. There is no access to open space or playgrounds in the current high school locations. The proposed actions would result in the replacement of the existing COOP Tech with a new state-of-the-art facility, as well as the relocation of the Heritage School and Park East High School to the site in new, larger facilities. These improvements will help achieve a better learning environment by alleviating overcrowded conditions and providing modern educational facilities adjacent to a new playground for enhanced physical education opportunities. As noted above, ECF has consulted with DOE. The DOE will be working with the high school principals, community board, and school community to ensure appropriate student body representation from the local East Harlem community at each of the schools.

**Comment 31:** An unmitigated impact appears to be also that while the project provides for new schools at this site, the number of apartments apparently will produce a different shortage of school seats for elementary, intermediate schools and day care. (CHN\_Harris\_010)

**Response:** The proposed project would provide new facilities for two relocated high schools and one specialized high school. The students generated by the proposed residential units would not reach the *CEQR Technical Manual* threshold for an analysis of indirect impacts to high schools. The number of students introduced by the proposed residential units would exceed the *CEQR Technical Manual* threshold warranting a detailed analysis of elementary and intermediate schools, and therefore a detailed indirect effects analysis was included in Chapter 4, "Community Facilities and Services." The number of children introduced by the proposed residential units that could be eligible for publicly-funded child care services also would exceed the *CEQR Technical Manual* threshold warranting a detailed analysis of child care services, and therefore an analysis was included in the EIS. Those detailed analyses

concluded that the proposed project would not result in significant adverse impacts on public elementary or intermediate schools or child care facilities.

**Comment 32:** In Table 4-4, there is incorrect information listed for JHS 13. JHS 13 has been closed since June 2015. Please remove JHS 13 from the list of schools in Table 4-4 and adjust the calculations in this section.

The CEQR formula for school seat generation does not accurately calculate needed school seats in Manhattan; it underestimates the number of school seats generated in upper Manhattan and overestimates the number of schools seats needed in the “Manhattan core.” Many efforts citywide are engaged on providing better demographics data and updating the CEQR methodology for more accurate projects. An ECF project should surely be held to a higher standard and go beyond the CEQR formula when projecting the number of school seats needed in the district. Please choose a more refined methodology to complete the school seat generation analysis required in this section when completing the FEIS.

Please review all DOE data provided by DCP for errors before submitting for a FEIS. (Winfield\_001)

**Response:** Table 4-4 has been corrected in the FEIS. Although JHS 13 was incorrectly listed, the data was actually associated with P.S. 964. Therefore, the school name and location have been updated to reflect P.S. 964. The quantitative schools analysis did not require any changes.

**Comment 33:** The CEQR methodology is insufficient to capture the burden that this project will put on our local libraries. The 5 percent threshold is too high. A site visit to Aguilar library on any given day will show that any analysis concluding that “the proposed project would not result in a noticeable change in the delivery of library services” cannot be true. (See p. 4-15) (Winfield\_001)

**Response:** Comment noted.

#### **OPEN SPACE**

**Comment 34:** The project will bring the full restoration of Marx Brothers Playground, but in discussion with the developer we see that there is even greater impact, and to that end the developer has agreed to work with NYC Parks and our office to fund meaningful improvements to Stanley Isaacs Playground. (Brewer\_003)

**Response:** Comment noted.

**Comment 35:** The Marx Brothers Playground is a valued community resource that we are please will be rehabilitated for use by these schools and our community members. However, we are concerned about community access to the playground during no-school hours. Given the high demand and use of permits for the Marx Brothers, the playing field is too often off limits to the community

residents who wish to use the field for non-organized activity. We ask that the development team work with NYC Parks to set side time each day of the week during which permits will not be issued so as to allow open access to community residents wishing to use of the playing field.

Work with NYC Parks to establish “open play” hours during which permits will not be issued that would restrict access for community use of the playing field. (CB11\_Collier\_014)

**Response:** The design of the Marx Brothers Playground is still underway. ECF, NYC Parks, and AvalonBay will continue to seek input from the community on the design and amenities for this renovated playground. NYC Parks is responsible for determining the use of the playground during non-school hours.

**Comment 36:** Incorporate adult fitness opportunities in the Marx Brothers Playground. (CB11\_Collier\_014)

**Response:** The design of the Marx Brothers Playground is still underway. ECF, NYC Parks, and AvalonBay will continue to seek input from the community on the design and amenities for this renovated playground.

**Comment 37:** On page 5-1, the DEIS states that: “the students are anticipated to only use the playground on the project site during the school day, and would depart from the neighborhood after school hours.” Please provide the data used to support this assumption. (Winfield\_001)

**Response:** COOP Tech is a specialized technical training school and operates with two main sessions during the day and a much smaller session at night. These students commute to and from their main high schools to COOP Tech for the vocational training and come from all parts of the city. The other two high schools represent a more traditional high school curriculum, drawing students from a larger catchment zone than elementary or middle schools. High school students may be engaged in afterschool activities or part-time employment. There would be limited demand by these high schools students for playground use after the school day with the exception of organized school sporting events.

**Comment 38:** Table 5-3 indicates incorrect data or simply that the field visits noted here were never done. East Harlem has been designated a Community Parks Initiative zone, specifically due to the disinvestment in open space by New York City over the past 20 years. Some of the sites indicated in Table 5-3 have been picked as CPI sites due to poor conditions, which is documented by NYC Parks. Pier 107 is in no way shape or form in “good” condition. Up until recently, there was a huge sinkhole on the Esplanade directly in front of access to the Pier. Currently, Pier 107 remains closed to the public because the roof requires demolition. The eastern half of the Pier is completely unsafe and will be closed to the public after demolition of the roof structure and the pier is reopened. The

entire pier is in danger of destabilizing less than 10 years from now and requires a complete rehabilitation. Please update the “Condition/Utilization” column within this table with either correct information from NYC Parks or with actual field visits to these locations. (Winfield\_001)

**Response:** Table 5-3 is accurate and a field visit and check on the NYC Parks website were done. NYC Parks is currently reviewing the rehabilitation design plans for this pier. Only the central platform of Pier 107 is fenced and closed off from public access. A substantial part of the pier remains open and publicly accessible. There are long benches along the sides for seating and there is recreational fishing off the side of the pier.

**Comment 39:** The DEIS states that “[t]he private open spaces that would be created at the 7th and 61st floors of the building facing Second Avenue would help to serve the open space needs of the residents to be generated by the proposed project.” Please indicate the actual offset of the percentage decrease in open space in the study area expected by the private open spaces on the 7th and 61st floors of the residential tower. (Winfield\_001)

**Response:** As the open spaces to be created within the Second Avenue building would be private open spaces, they are not accounted for in the quantitative analysis of potential open space impacts, consistent with the methodology of the *CEQR Technical Manual*.

**Comment 40:** There’s no open space/park in the area except for Marx Brothers Playground at this project site, reduced to a soccer field (for the Second Ave Subway construction staging). Years of construction will deprive many youth of even this small space which is used every day. (Lee\_013)

**Response:** As stated in Chapter 16, “Construction,” the existing Marx Brothers Playground would be unavailable for public use for the duration of the construction. To allow for a more efficient and expedited construction, staging would take place within the site. The on-site construction staging would minimize disruptions to the surrounding roadways and allow for vehicle access to be maintained at nearby facilities, including at Metropolitan Hospital. During the construction period, it is expected that open space users could utilize nearby Stanley Isaacs Playground, Cherry Tree Park, and Samuel Seabury Playground. Upon completion of the project, Marx Brothers Playground would have been relocated to the midblock and completely renovated.

## SHADOWS

**Comment 41:** Using certain criteria, such as the lack of seating or planters, in a Community Parks Initiative zone (of which the definition is that the area has not had significant investments in these types of amenities), to justify the conclusion that new shadows will not have an effect on the usability of the space is not an equitable metric. (Winfield\_001)

**Response:** The shadows analysis presented in Chapter 6, “Shadows,” of the DEIS, quantified the extent and duration of the project-generated incremental shadows on sunlight-sensitive resources in the longest shadow study area, and assessed the effects of those incremental shadows in accordance with the guidelines set forth in the *CEQR Technical Manual* and in consultation with NYC Parks. The determination of significance of shadow impacts is primarily based on the extent and duration of incremental shadow that would fall on the resource, and an evaluation of the resource's sensitivity to sunlight. Additional factors include the availability of adjacent or nearby sunlit areas during the periods when incremental shadow would occur, the amount of sunlight that would continue to reach the resource during the affected period and at other times of day, and the typical utilization rates of the resource during the affected time and season. The analysis concluded that while project-generated shadow would fall on some open space resources at certain times, the new shadow would not substantially change the usability of the open space or substantially affect the health of vegetation within those spaces.

**Comment 42:** The proposed residential tower is too tall. New project-generated incremental shadows due to this out-of-context height are not acceptable. (Winfield\_001)

**Response:** Comment noted.

**Comment 43:** The DEIS shows that the proposed tower will cast shadows on numerous public parks and natural resources, including Central Park, five avenues away, small parks between Central Park and the proposed building (such as, Seabury, Hunter High School and Elementary School, Normandy Court), Stanley Isaacs Park, the East River Esplanade and the East River, itself. On the project site, itself, the proposed tower will block much of the sun from the Marx Brothers Playground for much of the afternoon throughout the year, degrading the public park.

Despite these impacts, the DEIS concludes that, “The proposed project would not have any direct, significant adverse impacts on existing open space in terms of ... shadows. ... New shadows from the proposed buildings would fall on several sunlight-sensitive open space resources at certain times of day in certain seasons, but in no case would the new shadows significantly impact the use or usability of the resource or any vegetation within the resource.” The DEIS’ conclusion makes sense only if sunlight is not considered an important element of the public’s enjoyment of public parks. (CHN\_Van Der Valk\_011)

The park is in shade almost all the time. It is like having kids play soccer at the bottom of an elevator shaft. (Parviainen\_005, Shapiro-Davis\_004)

**Response:** The detailed shadows analysis presented in Chapter 6, “Shadows,” of the DEIS, determined that the proposed building would not cast any incremental shadow on Central Park. The analysis found that incremental shadow would fall on between three and five sunlight-sensitive resources in each season as it passed

from west to east and clockwise across the study area over the course of the day. The analysis found that the reconstructed playground on the project site would be partially in sun and partially in shadow throughout the day in winter, and mostly in sun from late morning through mid-afternoon in the spring, summer and fall. The analysis evaluated the significance of the shadow impacts on each sunlight sensitive resource based on the guidelines set forth in the *CEQR Technical Manual* and in consultation with NYC Parks. The analysis based its conclusions on careful consideration of the combination of extent and duration of incremental shadow that would fall on each resource, the sensitivity of the features within the resources that would be affected by the incremental shadow, the utilizations rates of the resources, and the availability of remaining sunlit areas during the affected periods of incremental shadow.

#### **HISTORIC AND CULTURAL RESOURCES**

**Comment 44:** Please indicate in the FEIS how the community board, local Council member, and relevant school community will be notified of the Construction Protection Plan (CPP). (Winfield\_001)

**Response:** As part of the agreement with ECF, AvalonBay will provide periodic updates to the community board on the construction activities at the project site, including notification of the CPP.

**Comment 45:** Please indicate what entity will provide monitoring of the requirements set out in the CPP. (Winfield\_001)

**Response:** As described in the DEIS, the CPP for the former P.S. 150 on East 96th Street will be prepared in coordination with the New York City Landmarks Preservation Commission (LPC) and implemented in consultation with a licensed professional engineer. The CPP would be prepared as set forth in Section 523 of the *CEQR Technical Manual* and in compliance with the procedures included in the DOB's TPPN #10/88 and LPC's *Guidelines for Construction Adjacent to a Historic Landmark and Protection Programs for Landmark Buildings*.

**Comment 46:** An assessment of eligible historic and cultural resources should be developed in direct consultation with the community, and such list should be used as the enhanced baseline for analysis for impacts. (Winfield\_001)

**Response:** The analysis of historic and cultural resources provided in the DEIS was undertaken in consultation with the New York City Landmarks Preservation Commission (LPC), the expert City agency for this technical area. No public comments on the Environmental Assessment Statement (EAS), Draft Scope of Work for the EIS, or DEIS have been received to date identifying potential historic resources that should be considered in this analysis.

**Comment 47:** One of the schools set to be relocated to new facilities in the proposed project, Heritage High School, currently occupies an individually landmarked building at 1608 Lexington Avenue, between East 105th and East 106th Streets, designated in 1996. The building, designed by the Superintendent of Public School Buildings David Stagg and built between 1879 and 1882, represents a rare extant example of school design in the Italianate style. The building has been in use for educational purposes for almost its entire life, and as one of the few designated landmarks in East Harlem, FRIENDS is hopeful that the City will find an appropriate education or community use for this significant building. (FRIENDS\_Levy\_012)

**Response:** Comment noted.

#### URBAN DESIGN AND VISUAL RESOURCES

**Comment 48:** The proposed project includes a residential tower of 68 stories, which would be as tall as the tallest buildings in East Harlem and the neighboring block to the south. While we understand the benefits of the fuller project and the costs that will be borne by the developer without public subsidy, our community has expressed its serious concerns about the height of the tower and potential implication for future development in East Harlem. As such, we ask that the development team explore every option to significantly reduce the height of residential tower. (CB11\_Collier\_014)

Such a 68-story building violates the current zoning. It will be by far the tallest building in the area, totally out of context with the neighborhood and throwing long shadows for an estimated 513 acres. (Lee\_013)

**Response:** The height of the proposed Second Avenue residential building has been reduced from 68 to 63 stories in response to community outreach. The current zoning of the surrounding neighborhood, which has maximum allowable FARs ranging from 4.66 to 12.0 for residential use with the Mandatory Inclusionary Housing (MIH) program. The proposed project would have a built FAR of approximately 9.69, less than the maximum allowable FAR of 12.0. At this built FAR, the overall density of the new development on the project site would not be out of scale with other tower developments in the surrounding area; however, in comparison to other developments, the majority of the density on the project site would be oriented along Second Avenue rather than distributed more evenly across the project block.

**Comment 49:** Please indicate exactly what criteria were used to determine that a 760-foot building is compatible with buildings in the surrounding area. Surely there is a non *de minimis* difference between 43 stories and 68 stories. Please indicate why a difference of 25 stories is seen as compatible with the surrounding area. (Winfield\_001)

**Response:** The EIS Urban Design and Visual Resources analysis was prepared using the *CEQR Technical Manual* methodology as guidance. While the proposed Second Avenue residential building would be the tallest building in the study area by at least 263 feet, there are already tower developments up to 447 feet in height within this area. Therefore, the study area already consists of a mix of tower and lower-scale development.

**Comment 50:** Please indicate how the “sloping topography of the area” will “somewhat lessen the perceived height” of a 760-foot building in east-west views. (p. 8-9) (Winfield\_001)

**Response:** As detailed in the EIS, there is a change in grade of approximately 50 feet from Lexington Avenue to Second Avenue on East 96th Street. With this change in grade, the height of the proposed Second Avenue residential tower would be somewhat lessened in views east on East 96th Street near Lexington Avenue.

**Comment 51:** The proposed building is 760 feet tall (including the bulkhead) and is described as 68 stories in the DEIS. Even with the shorter building it agreed with the Borough President to build, is 65 stories tall. The proposed 700 foot tower will be the tallest building north of 60th Street on the east side. It will dwarf all of the buildings in East Harlem, along 96th Street from the river to Central Park, and south to 60th Street. This height is inappropriate for East Harlem, where the pending rezoning is proposing a maximum height of 400 feet. The DEIS states that “the proposed project would alter the visual character of the surrounding area, but this character is already changing through the buildings currently under construction.” It describes buildings in the Surrounding Area, with the tallest building 45 stories tall and only two others 40 or 41 stories. It identifies [3] buildings that are in the realm of 30 stories. The proposed building is therefore 150 percent to 210 percent taller than the next tallest buildings in the Surrounding Area. This cannot credibly be stated that “the proposed project would not significantly adversely affect urban design or visual resources.” It is not “more consistent” with the heights of buildings south of 96th Street, unless the DEIS is looking at 57th Street as a comparison. The proposed project is egregiously out of scale. (See attached a zoning and building analysis of the East 96th Street Corridor illustrating how out of context this proposed building would be.) (CHN\_Van Der Valk\_011)

This building is taller than any building in Queens, Brooklyn, the Bronx, and Staten Island, and is taller than any building north of 72nd Street east or west. This may be appropriate for the Times Square area or the Midtown area, but not in a residential neighborhood with a park. (Shapiro-Davis\_004)

**Response:** The FEIS has been updated to provide additional detail on the height of the building relative to others in the surrounding area and Manhattan. As described in the EIS, the height of the proposed Second Avenue residential tower has been reduced to 63 stories (710 feet) in response to community outreach. While it

would be a prominent addition to surrounding view corridors, it would not obstruct or eliminate views to visual landmarks in the surrounding area. The proposed project would have a built FAR of approximately 9.69, less than the maximum allowable FAR of 12.0 of existing zoning districts in the surrounding area. At this built FAR, the overall density of the new development on the project site would not be out of scale with other tower developments in the surrounding area; however, in comparison to other developments, the majority of the density on the project site would be oriented along Second Avenue rather than distributed more evenly across the project block. The proposed Second Avenue building also would visually tie the site more to the southern side of the study area than the lower-scale northern study area. The placement of the residential tower along the Second Avenue corridor is also consistent with reflects the generally taller development along this street, in comparison to the First Avenue corridor.

#### **HAZARDOUS MATERIALS**

**Comment 52:** Please indicate how many closed status spills are listed in the DEC database. (Winfield\_001)

**Response:** The November 2015 Phase I Environmental Site Assessment (ESA) identified 386 closed status spills within a ½-mile radius of the project site that were mapped and profiled in the NYSDEC SPILLS database.

**Comment 53:** Please indicate whether there will be a presentation planned for CB8 and CB11 on the Work Plan for Phase II investigations and required remediation. (Winfield\_001)

**Response:** As part of the agreement with ECF, AvalonBay will provide periodic updates to the community board on the construction activities at the project site, including the Phase II investigations and any required mitigation.

#### **WATER AND SEWER INFRASTRUCTURE**

**Comment 54:** This section notes that “[s]pecific BMP methods will be determined for each building with further refinement of the building design and in consultation with DEP, but may include on-site stormwater detention systems such as planted rooftop spaces (“green roofs”) and/or vaults.” (See p. 10-7) Please indicate whether there will be additional stormwater management infrastructure incorporated into the Marx Brothers Playground site and if so, what type of green infrastructure is foreseen at that location. (Winfield\_001)

**Response:** The design of the Marx Brothers Playground will incorporate a number of green infrastructure features. The artificial turf athletic field will be constructed upon a subbase of compacted crushed stone, which has a 40 percent void ratio suitable for on-site detention and infiltration. While the full engineering design of the subbase has not been completed, the field is expected to detain a minimum of a

5-year design storm and may offer additional storage capacity for site runoff. The design process will investigate the potential of directing a portion of the detained water for irrigation of the planting areas north and south of the athletic field. In the planted play areas east and west of the athletic field, surface runoff from paved areas will be directed towards planted areas to irrigate the plants and reduce flow volume to the site's piped drainage system.

**Comment 55:** Assessment of water and sewer infrastructure should be enhanced with community surveys on existing water pressure conditions, frequency of sewage problems, sidewalk or street flooding et al to identify existing gaps in infrastructure investment and maintenance in addition to the need for additional capacity analysis. (Winfield\_001)

**Response:** The suggested additions to the infrastructure analysis are outside of the scope of *CEQR Technical Manual* methodology for this subject area.

#### **TRANSPORTATION**

**Comment 56:** The densely populated area is already highly congested with pedestrian & vehicular traffic (4 schools, FDR entrance/exit, 2 subway stations, bus stops, hospital & many residential towers all within a one-block radius). 1,100 rental units, retail space & 3 schools will make this problem far worse & unsafe. (Lee\_013)

**Response:** In accordance with the *CEQR Technical Manual*, existing conditions were considered together with projected growth in the area independent of the proposed project and incremental trip-making associated with the proposed project to identify potential impacts. Where these impacts were identified, feasible mitigation measures were recommended for implementation to the extent practicable.

**Comment 57:** Please provide information on why the identified improvements needed for First Avenue and East 96th Street and Third Avenue and East 96th Street will occur post-construction. Looking at the crash data, it seems as if these improvements should be implemented even in the No Action Scenario. (Winfield\_001)

**Response:** The recommended safety measures would be implemented by the New York City Department of Transportation (DOT) at their discretion to further improve pedestrian safety at these two intersections. As part of the City's Vision Zero initiatives, DOT is continually exploring additional safety measures for potential implementation at high accident locations throughout the City. For example, subsequent to the publication of the DEIS, a follow-up visit was conducted to determine what additional safety measures could be proposed to further improve pedestrian safety at the intersection of Third Avenue and East 96th Street. It was observed during the field visit that DOT has independently restriped all four crosswalks at this intersection into high visibility crosswalks. In addition, DOT has also introduced two new safety measures to temper speeds and maneuvers at

this intersection. These additional safety measures have been incorporated into the vehicular and pedestrian safety discussions of Chapter 11, "Transportation," of the FEIS.

**Comment 58:** The following unmitigated traffic impacts of this enormous project are not acceptable. Moreover, there will be a secondary impact at other locations. These traffic impacts could be mitigated with a smaller project, which was not explored.

- Traffic impacts at 96th Street and the FDR Drive, 96th Street and 1st and 2nd Avenues. This traffic congestion will, in turn, exacerbate traffic congestion at several other places in your district, including 92nd Street from the 2nd Avenue to the FDR Drive, where - as you know, the intersection at York and 92nd Street is already going to be compromised by sanitation trucks going to the Marine Transfer Station and the Middle School's buses.
- Crash locations on 96th Street will be worsened.
- Mass transit be slowed on the 96th Street crosstown bus and the 1st and 2nd Avenue buses (M15 SBS), and the subway station at 96th Street. (CHN\_Van Der Valk\_011)

There's currently a crashing problem on two locations on 96th Street. And the only recommendation for an improvement to the situation of numerous car crashes, both crashes with pedestrians and bicycles, is to change the striping. I can hardly imagine, the increase in population here, being mitigated -- the risks of people being mitigated by some striping. (CHN\_Harris\_010)

**Response:** The analysis in Chapter 11, "Transportation," was prepared in accordance with requirements prescribed in the *CEQR Technical Manual* and addressed potential impacts created by the proposed project and recommended measures to mitigate projected impacts to the extent practicable. DOT has reviewed the transportation analysis and has determined the recommended mitigation measures to be preliminarily feasible. Also, as stated in the Transportation chapter, there are often traffic enforcement agents present to direct traffic flow at the study area intersections along East 96th Street. Hence, although unmitigatable impacts were identified, the actual traffic conditions are likely more favorable than shown by the traffic analysis results.

The comment is incorrect that the DEIS did not explore whether the traffic impacts could be mitigated with a smaller project. As discussed in Chapter 17, "Alternatives," of the DEIS, the No Unmitigated Significant Adverse Impacts Alternative considered a project program which would eliminate the proposed project's unmitigated significant adverse impacts in the areas of transportation. This alternative concluded that any residential development or the addition of the two new high schools could result in unmitigated traffic impacts. Therefore, no reasonable alternative could be developed to avoid such impacts without

substantially compromising the proposed project's stated goals and was not further considered.

**Comment 59:** This development will allow for a large number of residents in an area which already has a number of transportation problems. East 96th Street is already plagued by traffic going onto and off of the FDR Drive, and the newly opened Second Avenue subway only has one entrance along 96th Street. No additional parking will be created by this project, and the high concentration of schools in this area will add to the congestion.(FRIENDS\_Levy\_012)

**Response:** The DEIS assessed the incremental transportation impacts from the proposed project in accordance with *CEQR Technical Manual* guidelines and provided recommendation on measures that could mitigate those impacts to the extent practicable.

**Comment 60:** At several meetings, without correction from ECF or Avalon, community board members have stated that there is no parking on this site. The EIS clearly states that there is an "an option to provide up to 120 accessory parking spaces." Please clarify whether ECF/Avalon plans to use the option to provide 120 accessory parking spaces and how many parking spaces would actually be a part of this project in the FEIS. (Winfield\_001)

**Response:** As described in Chapter 1, "Project Description," the proposed actions include a special permit waiver to eliminate the requirement for providing parking on the site. However, to maintain program flexibility, the DEIS analyzed in Chapter 11, "Transportation," the potential impacts of the project providing no on-site parking as well as providing 120 on-site spaces. Neither scenario would result in any significant adverse parking impacts.

**Comment 61:** When queried about the absence of a parking garage at this site, Avalon stated they had done a study and they determined that the residents of this building would neither need nor want cars. I think it's more likely that the 1,100 apartment residents and numerous shoppers at the 22,000 square feet of retail space will be driving around the very crowded intersection of 96th Street and the FDR Drive looking for a place to park. So these items in my mind cast doubt on some of the calculations and predictions of AvalonBay. (Harrison\_006, Singh\_007)

**Response:** The DEIS analysis concluded that the proposed project would not result in the potential for a significant adverse parking impact in accordance with *CEQR Technical Manual* criteria, regardless of whether or not the proposed project would provide on-site parking. It should also be noted that the commenter's assertion of "numerous shoppers at the 22,000 square feet of retail space will be driving around..." is incorrect. As described and analyzed in the DEIS, this retail space is intended to be neighborhood-oriented retail to support the new

residents, workers, and students of the proposed project, as well as, existing residents and workers in the surrounding community.

**Comment 62:** The DEIS and project should not be approved with all of the unmitigated impacts that are listed, especially the traffic impacts on 96th Street at FDR Drive, First, and Second Avenues. They spill over and impact the northern portions of CB8, especially at 92nd Street with Second Avenue, First Avenue and York Avenue by the entrance to the FDR Drive, Asphalt Green and the new sanitation transfer station which is being constructed. Causing additional traffic congestion, pushing the congestion down the street further south and bringing many more cars onto a very narrow street, which is 92nd Street. And congesting York Avenue at 92nd Street where the entrance, another entrance to the FDR Drive is. These traffic impacts must be mitigated before there is an approval of this project. (CHN\_Harris\_010)

**Response:** In accordance with *CEQR Technical Manual* guidance and as concurred by DOT, all potential traffic impacts were disclosed and mitigated to the extent practicable. The 92nd Street locations described in the comment were not identified as locations that would experience notable effects from the proposed project and therefore were not included in the DEIS's traffic study area, which was presented in the Draft Scope of Work. In addition, DOT concurred with the selection of locations to be analyzed.

**Comment 63:** The subway was noted as being overloaded at 96th Street and Lexington Avenue, the cross town buses and the select buses. We just got the Second Avenue subway, which I love, to try to eliminate a congestion problem at Lexington Avenue. And it seems like this project is going to wipe out a lot of the progress that's been made. (CHN\_Harris\_010)

**Response:** Because ridership levels at the Second Avenue Subway has not yet stabilized, the DEIS analyses were prepared in consultation with DOT and NYC Transit in a conservative manner to identify potential impacts for which feasible mitigation measures were recommended for implementation to the extent practicable. It is likely that some of the impacts identified are overstated to ensure that the environmental review adequately disclosed the proposed project's potential impacts.

**Comment 64:** The DEIS notes that “[t]he proposed project would also result in a significant adverse subway stairway impact at the S4 stairway at the 96th Street-Lexington Avenue station during the weekday AM peak hour. Discussions with New York City Transit (NYCT) are underway to identify subway mitigation needs. If no feasible mitigation measures are found, the identified significant adverse stairway impact would be unmitigated.” Please indicate why the results of possible subway mitigation measures were not available at the time of the DEIS

publication. Please include these mitigation measures in the FEIS. (Winfield\_001)

**Response:** As stated in the DEIS, discussions with NYCT were underway to identify preliminary mitigation measures for the S4 stairway impact. During the preliminary mitigation discussions with NYCT, it was determined that the impacted S4 stairway would need to be widened and that the stairway widening would also need to be accompanied by improvements to handicapped access in compliance with the Americans with Disabilities Act (ADA) by the installation of an ADA-compliant elevator. Engineering analysis to determine the feasibility of the stairway widening and the ADA-compliant elevator were ongoing and the preliminary results were not available at the time of the DEIS certification. Therefore, the specific mitigation measures were not included in the DEIS.

It should be noted that with the opening of the Second Avenue Subway, the actual ridership at the 96th Street-Lexington Avenue Subway Station has yet to be normalized and may be lower than what was estimated in the DEIS subway analysis. Also, as stated in the DEIS in Chapter 11, "Transportation," the subway analysis conservatively assumed, in accordance with CEQR guidelines, that school trips made by subway would occur in the same hours as commuter trips, while in reality, they typically stagger over an approximately two-hour window in the morning and minimally overlap in the afternoon. Furthermore, one of the future high schools to be relocated to the project site is expected to draw students primarily from the local neighborhood. Students from the local neighborhood are more likely to walk to/from school than take public transit to school such that the actual student subway ridership may be less than what has been assumed for a conservative subway analysis in the DEIS. Therefore, given the above reasons, the projected significant adverse impact at the S4 stairway may not materialize. Accordingly, discussions with NYCT to identify mitigation needs are underway and will continue. In addition, ECF intends to conduct future monitoring based on the completion and occupancy of the proposed project. If such monitoring confirms that the projected stairway impact would occur and discussions with NYCT do not identify any feasible mitigation measures, the identified significant adverse stairway impact would be unmitigated.

## CLIMATE CHANGE

**Comment 65:** Please indicate any additional resiliency control that will be undertaken, outside of the building design flood elevations. (Winfield\_001)

**Response:** Chapter 13, "Climate Change," and Chapter 2, "Land Use, Zoning, and Public Policy," of the DEIS address the measures that would be implemented as part of the proposed project to improve its resilience to climate change. As described in detail in Chapter 13, the proposed project would not just design buildings to be above the current Base Flood Elevation (BFE), it would include other measures

such as electrical and mechanical systems, critical infrastructure and emergency generators and fuel storage would be sealed or elevated at the second floor or above. Deployable flood gate protection would also be incorporated into the design to enable flood protection.

**PUBLIC HEALTH**

**Comment 66:** Examine how recommendations may impact community health using a social determinants of health perspective; including how access to goods, services, employment, safe and affordable housing, as well as open space contributes to the general well-being and health for the residents of East Harlem. (Winfield\_001)

**Response:** Under the *CEQR Technical Manual* a public health analysis evaluates whether and how exposure to environmental contaminants may occur and the extent of that exposure; characterizing the relationship between exposures and health risks; and applying that relationship to the population exposed. No significant adverse impacts to air quality, water quality, hazardous materials, or noise were identified for the project under operational conditions. Therefore, no further analysis is warranted.

**Comment 67:** Examine the impact of the recommendations on social factors such as gang and youth violence, child development, mental health and social capital.

Examine whether recommendations will have differential impacts on vulnerable subpopulations such as people who are homeless, physically disabled, and racial/ethnic minorities.

Analysis should consider local smoking rates, activity level, availability of health care, and perceptions regarding availability of health care, active design, general well-being, acceptance and treatment of those with mental health concerns, or those in other vulnerable populations such as the elderly, those with terminal diseases such as AIDS, members of the LGBTQ community, and those who are homeless. (Winfield\_001)

**Response:** The social issues detailed above are outside the scope of analysis under the *CEQR Technical Manual*.

**NEIGHBORHOOD CHARACTER**

**Comment 68:** The DEIS states that “[t]he preliminary neighborhood character analysis presented below concluded that the proposed project would not result in any significant adverse impacts on neighborhood character, and that a detailed analysis was not necessary.” Please indicate in further detail how it was concluded that an unprecedented 68-story, 760-foot building with almost 800 market-rate units on one block fits into the neighborhood character.

Definition and baseline should be informed by community input and expanded to include cultural and demographic identities, and mitigation measures to indirect or adverse impacts should be created with consultation by the community. Information collected during the community visioning sessions that noted exact locations or areas that contribute to the neighborhood character should be incorporated. (Winfield\_001)

**Response:** The analysis of neighborhood character follows the *CEQR Technical Manual* guidance.

**Comment 69:** We understand that Manhattan Borough President Gale Brewer has successfully negotiated for the height of the building to be lowered by five floors or approximately 50 feet. While the reduction of height is an improvement, a reduction of only 50 feet has a limited impact on a project of this scale, and does little to quell our concerns about the greater impact on the neighborhood at large. FRIENDS believes the excessive height of this project and its potential to impact the skyline for years to come should be taken into serious consideration by the City before issuing a recommendation. (FRIENDS\_Levy\_012)

**Response:** In response to requests by the Manhattan Borough President Gale Brewer, the development team considered the lowest height that the residential tower could be reduced to while retaining the same square footage and number of affordable units. As noted by the commenter, this resulted in a proposed to lower the height by 5 floors (approximately 50 feet). The FEIS has been revised to reflect this lower height design. Additionally, in response to the New York City Planning Commission's design-related questions, the development team prepared detailed assessments of the feasibility of alternative reduced height scenarios (included as Appendix E in this FEIS). The DEIS and Attachment 10 of this appendix present the rationale for the proposed height of the proposed tower on Second Avenue:

- The tower portion's location at the intersection of two wide streets—96th Street and Second Avenue—is consistent with the generally taller buildings found on such streets;
- The sloping topography of the surrounding area lessens to some degree the impact of the building's height in east to west views. There is a grade change of approximately 50 feet from Lexington Avenue to Second Avenue on East 96th Street;
- The building will not obstruct or eliminate views to the East River Esplanade, the East River bridges and the Queens waterfront, or other visual landmarks in the area; and
- The building will not block any view corridors.

**Comment 70:** The East Harlem neighborhood program project development plan says nothing higher than 30 stories in the neighborhood. This is clearly way out of context. (Shapiro-Davis\_004)

**Response:** While the proposed project is not part of the EHNP, many of the current project's planning goals align with those identified in the EHNP. See Response to Comment 69 regarding the issue of proposed tower height and its context to the neighborhood.

### CONSTRUCTION

**Comment 71:** Given the ongoing litigation re: Jewish Home Life Care & Friends of PS 163, please indicate whether the analysis in the construction, noise and air quality sections would meet the standards required by the judge in that case. (Winfield\_001)

**Response:** The DEIS analyzed the potential for construction, noise, and air quality impacts associated with the proposed project using the *CEQR Technical Manual* guidance. Where the proposed project would exceed screening thresholds, a detailed analysis was performed. Chapter 16, "Construction," details the impacts of the project construction on community facilities (e.g., COOP Tech High School, Metropolitan Hospital), historic structures, open space, transportation, hazardous materials, air quality, and noise/vibrations.

**Comment 72:** Consider as part of the baseline existing 311 calls regarding enforcement, work without a permit, emergency demolition permits, and other quality of life concerns. In cases where the soft analysis reveals sites adjacent or proximate to schools, senior care, or daycare centers and analysis is not triggered by the minimum thresholds set out in the *CEQR Technical Manual*, but the time frame for construction, noise and air impacts will correspond with operational hours and days, then a full analysis and mitigation measures consideration should be conducted. (Winfield\_001)

**Response:** The issues detailed above are not subject to analysis under the *CEQR Technical Manual*.

### ALTERNATIVES

**Comment 73:** Explore an alternative design scenario that reduces the height of the residential tower. (CB11\_Collier\_014, CB11\_Janes\_022)

Two smaller potential alternatives are posed here; there are other alternatives, as well. A smaller project of 787,000 square feet—the amount of development rights that would be available with a rezoning of the current site of COOP Tech Vocational School (or its equivalent area divided between a parcel on First Avenue and a parcel on Second Avenue), without the Playground's development rights – should be sufficient to construct two, if not three schools (270,000 square feet), and develop 517,000 square feet of residential and commercial space in one or two buildings. If only one residential building were constructed on Second Avenue, it still would be likely to be disproportionately tall for the neighborhood, but not as egregiously so.

If two residential buildings were constructed, their height would be in the range of 15-30 stories, depending on their design, a height range consistent with the Surrounding Area. These buildings would be significantly shorter than the proposed tower and would reduce the shadow, traffic and transportation impacts of the project. The third school could be constructed on the site of the vacated Park East High School. The project's goals would be achieved.

A third alternative—which is not desirable—is similar to the current ECF proposal except the floor area would be distributed evenly between the two parcels instead of stacking 1.1 million square feet on the 2nd Avenue end of the block. Each development parcel would have a residential building with one or two schools, including the floor area generated by the public park that is transferred to AvalonBay. This would result in two buildings about 450 feet in height each. The two buildings still would be out of context, taller than any building in East Harlem and on 96th Street, but not as egregiously so compared to the ECF/AvalonBay 700-foot tall proposal. However, such a project would generate all of the same unmitigated environmental impacts of the current proposal. (CHN\_Van Der Valk\_011)

The DEIS should not be accepted because it fails to consider alternatives that might mitigate the visual impacts of the height and shadow that, in reality, are adverse and unmitigated, (but not recognized as such in the DEIS), as well as the traffic and transportation impacts that are recognized as being adverse, but not susceptible of mitigation. (CB11\_Janes\_022, CHN\_Van Der Valk\_011)

**Response:** The alternative massing scenarios suggested by CB11 are evaluated in Chapter 17, “Alternatives,” of the FEIS. Additionally, other massing scenarios that would move residential use to the proposed First Avenue building were studied in response to questions from the City Planning Commission; the response to the Commission, which includes detailed architectural and shadows studies, is provided as new Appendix E of this FEIS. As shown in those studies, these design alternatives are not feasible and do not meet the goals of the project.

**Comment 74:** Alternatives for bulk and massing exist which could produce a building with the same FAR and still offer the numerous benefits to the community this project has promised. These alternatives deserve careful and detailed consideration by all of the stakeholders and decision-makers before this project moves ahead. As just one example, one alternative involves building two separate towers—one at each end of the block—that would stand around 430 and 455 feet tall. While these towers would still be large, they would be much closer in height to the surrounding residential towers. The two tower alternative would produce buildings that are much more contextual, rather than one that is an anomaly in this part of the city. (FRIENDS\_Levy\_012)

**Response:** The alternative massing scenarios suggested by CB11 are evaluated in Chapter 17, “Alternatives,” of the FEIS.

**MITIGATION**

**Comment 75:** The DEIS specifically identified 306 East 96th Street as a location that will be subject to noise pollution due to construction, above the recommended threshold. Since ECF and Avalon have no plans to mitigate this nuisance, please indicate whether ECF/Avalon have already reached out to the residents of this building and will be compensating them for the nuisance and the loss of usable balcony space during the construction period. (Winfield\_001)

**Response:** As described in Chapter 16, “Construction,” of the DEIS, construction of the proposed project is expected to result in a significant adverse noise impact at 306 East 96th Street. Noise levels during construction of the proposed project were predicted in the high 70s dBA, which would result in noise level increases up to approximately 11 dBA. The maximum predicted construction noise levels were predicted to occur over the course of up to approximately 15 months with CEQR impact criteria exceedances occurring over the course of up to a total of approximately three years. Because the building already has insulated glass windows and an alternative means of ventilation (i.e., air conditioning) resulting in interior noise levels up to approximately 5 dBA higher than the acceptable range; however, this would not affect the noise levels on the outdoor balconies included in the building. As described in the DEIS, there would be no feasible and practicable means of mitigating the construction noise impact predicted to occur at these balconies intermittently during weekday daytime hours over the course of approximately three years. However, even during the portions of the construction period that would generate the most noise at these balconies, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur (e.g., during late afternoon, nighttime, and on weekends).

**Comment 76:** In order to mitigate the decrease in open space ratio for Community District 11, please respond to the possibility of upgrading the turf at the Eugene McCabe field to provide for usable alternatives to the Marx Brothers Playground that are within the community district. (Winfield\_001)

**Response:** The open space analysis provided in the DEIS concluded that the proposed project would not result in a significant adverse open space impact as a result of reduced open space ratios. While the open space ratios for the study area are, and would continue to be, below the City’s open space goals and the median community district ratios, the proposed project would not result in a decrease of more than five percent in the total, active, and passive open space ratios. In addition, the proposed project would enhance open spaces options within the study area by reconstructing the Marx Brothers Playground. The private rooftop open spaces that would be created on the proposed residential tower would be for use by building residents and would help to serve the open space needs of the residents to be generated by the proposed project. There would also rooftop

access on COOP Tech, specifically for students enrolled in the school's solar panel program. The proposed project would limit public access to the Marx Brothers Playground throughout the duration of construction; the temporary displacement of the playground is discussed in more detail in Chapter 16, "Construction." Upon completion of the project, the playground would be reconstructed in its new location and its overall condition would be enhanced in comparison to the No Action condition. Therefore, mitigation measures are not required.

## PETITION

**Comment 77:** First, this building violates the current zoning, is exponentially taller than any other building in the area and is completely out of context with the neighborhood. In addition it throws long shadows for an estimated 513 acres, including large parts of East River Esplanade, Cherry Tree Park, Blake Hobbs Playground, Stanley Isaacs Playground, and some parts of Central Park, Normandie Court Plaza, Harlem RBI and Samuel Seabury Playground that are vital outdoor spaces for area residents.

Second, the project is to be built on State parkland, which is illegal. Further, during the many years of construction, the project will deny many hundreds of local children and families of the use of that park space.

Third, the 1,100 apartments, retail space and three public schools will bring thousands of residents and students to the area on a daily basis, causing unacceptable pedestrian and vehicle traffic and congestion. Since E 96th is one of the most important paths to enter FDR, the traffic is already bad. It is not unusual to observe dangerous situations, particularly when students enter or exit the two elementary schools at the corner of E 96th St and 3rd Avenue.

Again, it is my sincere hope that new schools will be built. If and when the schools do get approved, the developer should be required to pay for at least two traffic crossing guards on 96th and 97th Streets and 1st Avenue, as is presently done on 96th and 3rd avenue. (Petition01\_Connor\_015, Petition01\_Ceceve\_016, Petition01\_Singh\_017, Petition01\_Upadhyay\_018, Petition01\_Sakamoto\_019, Petition01\_Domiano\_020, Petition01\_Kalman\_021)

**Response:** See Responses to Comments 4, 13, 14, 43, 51, 56, and 58.

## GENERAL COMMENTS

**Comment 78:** I get the politics involved here. It's on the north side of 96th Street. If this were on the south side, the Upper East Side community would be up in arms and I don't know that we'd be having this discussion here. It's on the southernmost border of East Harlem, so a lot of people further up don't want to necessarily talk about this, even though the folks in Washington Houses are definitely impacted by it. (Shapiro-Davis\_004)

**Response:** Comment noted.

**Comment 79:** I strongly urge both AvalonBay and ECF to review their consultants' work before submitting an FEIS. The level of research and analysis in some of the sections of this DEIS is highly concerning. (Winfield\_001)

**Response:** Comment noted.

**Comment 80:** The Steering Committee wishes to see a more expansive environmental impact analysis framework for any EIS related to a zoning text or mapping amendment in the East Harlem community. The broader framework should take into account qualitative information, use the CEQR process as an educational and engagement opportunity with the community, and institute a feedback model for compliance and implementation of mitigation measures.

The purpose and need of the environmental review should explicitly cite and include the objectives of the EHNP, specifically the overarching goal of a vibrant, thriving, livable and affordable East Harlem. The findings should be analyzed from the perspective of the positions laid out in EHNP.

In addition to requesting an enhanced EIS be conducted, a supplementary integrated impact study should be completed as part of any proposal for East Harlem, utilizing quantitative and qualitative tools. The purpose of this study is to evaluate the potential for non-traditional unanticipated impacts and serve as a guide to bolster the respective subgroup objectives and gauge the impact on vulnerable sub-populations. (Winfield\_001)

**Response:** Comment noted.

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