Chapter 16: Construction

A. INTRODUCTION

As described in Chapter 1, "Project Description," based on projections issued by the national Centers for Disease Control, Memorial Sloan Kettering Cancer Center (MSKCC) expects that new cancer cases in New York City will increase from the current rate of 40,000 annually to 60,000 annually by 2050. While this increase is a projection among all age groups, this rise is being driven by two populations: older patients, whose cases are more acute and require more complex treatment, and younger patients who are being diagnosed with prostate, colon, and breast cancer at alarming rates. To meet this increase in patient volume and the new interventions that are needed to treat the growing number of acute cases, MSKCC will need to supplement its existing capacity with a purpose-built structure with 28 operating rooms (with four dedicated to interventional radiology procedures) and up to 206 patient including intensive care unit (ICU) and single rooms for immunocompromised patients, as well as medical support areas.

To fulfill this need, MSKCC is requesting a series of zoning actions to establish a building envelope to facilitate the development of a new 31-story (up to 594 feet including mechanical bulkhead), approximately 903,065 gross square foot (gsf) inpatient hospital building (the Proposed Project), also referred to as the "MSK Pavilion." It would be located on York Avenue between East 66th and East 67th Streets. In addition to the operating rooms and single-bedded patient rooms, it would provide recovery and intensive care facilities, clinical support, a double-height lobby, and 5 mechanical floors to house intensive technologies and air exchange systems. A two-story patient bridge across East 67th Street (Patient Bridge) connecting floors 5 and 6 of the Proposed Project with floors 8 and 9 of the Memorial Hospital building would serve as the primary connector for patients in either building to access medical services in the other building.

This chapter summarizes the anticipated construction phasing and schedule for the Proposed Project and assesses the potential for significant adverse impacts during the construction period. 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 construction. The types of construction equipment are also discussed, along with the number of workers and truck deliveries. Finally, the potential impacts from construction activity are assessed.

PRINCIPAL CONCLUSIONS

Construction associated with the Proposed Actions would result in temporary disruptions in the surrounding area. As described below, the Proposed Project's construction activities would not result in significant adverse impacts with respect to transit/pedestrians/parking, air quality, vibration, land use and neighborhood character, socioeconomic conditions, community facilities, historic and cultural resources, hazardous materials, and water and sewer infrastructure but would result in significant adverse, construction traffic and noise impacts. Findings specific to each of the key technical areas are summarized below.

TRANSPORTATION

Potential transportation impacts during peak construction conditions were assessed in the same manner as the operational impacts, as presented in Chapter 10, "Transportation."

Traffic

For purposes of the construction traffic analysis, the combined daily workforce and truck trip projections in the peak quarter (second quarter of 2028) were used as the basis for estimating peak hour construction trips. Based on a detailed assignment of these project-generated vehicle trips, 14 intersections (Third Avenue and East 64th Street, Second Avenue and East 66th Street, Second Avenue and East 65th Street, Second Avenue and East 64th Street, Second Avenue and East 63rd Street, First Avenue and East 66th Street, First Avenue and East 65th Street, First Avenue and East 64th Street, First Avenue and East 63rd Street, First Avenue and East 61st Street, York Avenue and East 65th Street, York Avenue and East 64th Street, York Avenue and East 63rd Street, and FDR Drive Service Road and East 62nd Street) were selected for detailed analysis during the construction AM and PM peak hours (6:00 to 7:00 AM and 3:00 to 4:00 P.M). Significant adverse construction traffic impacts were identified at eight intersections. Potential improvement measures that may be implemented to mitigate these impacts are discussed in Chapter 18, "Mitigation."

Transit

During peak construction, the estimated number of peak-hour transit trips would be 430, with 300 subway trips, 77 railroad trips, and 53 bus trips. Proposed Project generated subway trips would be dispersed among the study area's subway stations/lines such that trip-making for any single subway station/line would not exceed the *CEQR Technical Manual* analysis threshold of 200 or more peak hour subway trips. Proposed Project generated bus trips would be dispersed among the local bus routes serving the study area such that trip-making for any single bus route would not exceed the *CEQR Technical Manual* analysis threshold of 50 or more peak hour bus trips on any bus route in any direction. The railroad trips would be below the 2021 *City Environmental Quality Review (CEQR) Technical Manual* analysis thresholds of 200 or more railroad trips per station. Construction worker-related transit trips would also be made outside of the commuter peak hours, which correspond with lower background transit levels and are typically not subject of concern or assessment of operating conditions. Therefore, consistent with the *CEQR Technical Manual*, a detailed transit analysis for the Proposed Project's construction condition is not warranted and the Proposed Project would not result in any significant adverse construction transit impacts.

Pedestrians

During peak construction, the estimated number of peak-hour pedestrian trips traversing the area's sidewalks, corners, and crosswalks would be approximately 858. Based on a detailed assignment of these project-generated pedestrian trips and considering pedestrian elements with reduced sidewalk widths and corner areas due to Maintenance and Protection of Traffic (MPT) elements during construction, three sidewalks, six corners, and two crosswalks were selected for analysis for the weekday AM and PM construction peak hours; among these elements, all three sidewalks and two of the six corners were also selected for analysis for the weekday AM, midday, and PM operational peak hours. No significant adverse pedestrian impacts were identified at these pedestrian elements during any peak hour. Therefore, consistent with the *CEQR Technical Manual*, the Proposed Project would not result in any significant adverse construction pedestrian impacts.

Parking

The anticipated construction activities are projected to generate temporary on-street parking reductions of up to 18 parking spaces due to MPT elements and a maximum parking demand of 651 parking spaces during peak construction from construction workers and the closure of the below-grade garage as it undergoes improvements. This parking demand is expected to be mostly accommodated by parking facilities within a ¼-mile radius of the Development Site during the AM period but there would be a larger shortfall during the midday period, where approximately 633 and 185 public parking spaces would be available during the AM and midday peak utilization periods, respectively. There would be shortfalls of approximately 18 and 466 spaces during the AM and midday peak periods, respectively, but per the *CEQR Technical Manual*, a parking shortfall in Manhattan would not constitute a significant adverse impact due to the magnitude of available alternative modes of transportation.

AIR QUALITY

Measures would be taken to reduce pollutant emissions during construction under the Proposed Project in accordance with all applicable laws, regulations, and building codes. Contractors would be required under contract specifications to implement an emissions reduction program to minimize the air quality effects from construction, which would be included in the Project Component Related to the Environment (PCREs), consisting of the following components: use of ultra-low sulfur diesel (ULSD) fuel, dust suppression measures, idling restrictions, and diesel equipment reduction. In addition, construction of the Proposed Project would utilize newer equipment (i.e., equipment meeting the U.S. Environmental Protection Agency's [EPA] Tier 3 emission standard) and best available tailpipe reduction technologies to further reduce air pollutant emissions. With the implementation of these emission reduction measures, the dispersion modeling analysis of construction-related air emissions for both non-road and on-road sources determined that particulate matter ($PM_{2.5}$ and PM_{10}), annual average nitrogen dioxide (NO_2), and carbon monoxide (CO) concentrations would be below their corresponding *de minimis* thresholds or National Air Quality Ambient Standards (NAAQS), respectively. Therefore, construction of the Proposed Project would not result in significant adverse air quality impacts due to construction sources.

NOISE

Noise levels from construction of the Proposed Project are expected to be comparable to those from typical New York City construction involving a new building or buildings with concrete slab floors and foundation on piles. Similarly, potential disruptions to adjacent residences and other receptors from elevated noise levels generated by construction would be expected to be comparable to those that would occur immediately adjacent to a typical New York City construction site during the portions of construction when the loudest activities would occur.

The detailed analysis of construction noise concluded that construction of the Proposed Project has the potential to result in construction noise levels that exceed the construction noise impact criteria defined herein at 10 receptors surrounding the proposed construction work area (i.e., northern and northwestern façade of the 1213 York Avenue residential building, northern façade of 434 East 66th Street residential building, northern façades of 436 and 438 East 66th Street residential buildings, and the eastern and southeastern façades of 425 East 66th Street RRL building).

At these receptors, construction could produce noise level increases that would be noticeable and potentially intrusive during the most noise-intensive nearby construction activities and would produce noticeable increases over the course of construction. The analysis evaluated the construction periods with the potential to result in the greatest levels of construction noise; however, the predicted maximum levels would not persist throughout construction, and the noise levels would fluctuate throughout the construction period. Construction noise control measures are discussed in Chapter 18, "Mitigation."

VIBRATION

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are the existing buildings and structures immediately adjacent to or across East 66th Street from the Development Site. However, given their distances from anticipated locations of rock excavation, vibration levels at these buildings and structures would not be expected to exceed 0.50 in/sec Peak Particle Velocity (PPV), including during pile driving, which would be the most vibration intensive activity. Additional receptors farther away from the Development Site would experience less vibration than those listed above, and similarly 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 vibration decibels (VdB) limit is the impact pile driver, which would have the potential to produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within a distance of approximately 50 feet, depending on soil conditions. However, the operation of this equipment would occur for limited periods of time at any given location, and therefore would not result in any significant adverse impacts. Consequently, there is no potential for significant adverse vibration impacts from construction of the Proposed Project.

B. GOVERNMENTAL COORDINATION AND OVERSIGHT

Construction oversight involves several city, state, and federal agencies. **Table 16-1** lists the primary involved agencies and their areas of responsibility. For projects in New York City, primary construction oversight lies with the New York City Department of Buildings (DOB), which ensures that construction projects meet the requirements of the New York City Building Code and that buildings are structurally, electrically, and mechanically safe. In addition, DOB enforces safety regulations to protect workers and the general public during construction: the areas of oversight include installation and operation of equipment such as cranes, sidewalk sheds, and safety netting and scaffolding. The New York City Department of Environmental Protection (DEP) enforces the New York City Noise Code, reviews and approves any needed Remedial Action Work Plans (RAWPs) and Construction Health and Safety Plans (CHASP), and regulates water disposal into the sewer system as well as abatement of hazardous materials. The City of New York Department of Sanitation (DSNY) has regulatory and enforcement oversight of the storage, transport, and disposal of asbestos waste. 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. The New York City Department of Transportation (DOT) Office of Construction Mitigation and Coordination (OCMC) reviews and approves any traffic lane and sidewalk closures. The New York City Transit (NYCT) is responsible for bus stop relocations, if necessary. The New York City Landmarks Preservation Commission (LPC) reviews any archaeological testing or

monitoring that may be required. LPC also reviews and approves construction protection plans (CPPs) and any monitoring measures necessary to prevent damage to historic structures.

Table 16-1
Construction Oversight in New York City

Agency	Areas of Responsibility
New York City	
Department of Buildings	Primary oversight for Building Code and site safety
Department of Environmental Protection	Noise, RAPs/CHASPs, dewatering, hazardous materials abatement
Department of Sanitation	Storage, transport, and disposal of asbestos waste
Fire Department	Compliance with Fire Code, fuel tank installation
Department of Transportation	Lane and sidewalk closures
New York City Transit	Bus stop relocation
Landmarks Preservation Commission	Historic and archaeological resources
New York State	
Department of Labor	Asbestos Workers
Department of Environmental Conservation	Hazardous materials and fuel/chemical storage tanks
United States	
Environmental Protection Agency	Air emissions, noise, hazardous materials, poisons
Occupational Safety and Health Administration	Worker safety

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, EPA has wide-ranging authority over environmental matters, including air emissions, noise, hazardous materials, and the use of poisons, although much of the responsibility is delegated to the state level. The Occupational Safety and Health Administration (OSHA) sets standards for work site safety and construction equipment.

C. CONSTRUCTION PHASING AND SCHEDULE

Table 16-2 presents the anticipated construction schedule for the Proposed Project. Construction of the Proposed Project is anticipated to begin in 2024 and be complete by 2030, over an approximately 6-year period. Construction of the Proposed Project would consist of the following stages, some of which would overlap: demolition (approximately 15 months); excavation and foundations (approximately 17 months); superstructure and exteriors (approximately 16 months); interiors and finishing (approximately 31 months); and sitework (approximately 7 months). These stages are described in greater detail below.

Table 16-2
Anticipated Construction Schedule—Proposed Project

Construction Task	Start Month	Finish Month	Approximate Duration (months)[1]
OVERALL	**Month 1**	**Month 70**	**70**
Demolition	Month 1	Month 15	15
Excavation and Foundations	Month16	Month 32	17
Superstructure and Exteriors	Month 32	Month 47	16
Interiors and Finishing + Closeouts	Month 40	Month 70	31
Sitework	Month 60	Month 66	7

Note: [1] Construction would proceed in several stages, some of which would overlap.
Source: Turner / Lend Lease, November 2023.

D. CONSTRUCTION DESCRIPTION

The following provides a description of the general construction practices and activities for the Proposed Project.

GENERAL CONSTRUCTION PRACTICES

HOURS OF WORK

Construction would generally be carried out in accordance with New York City laws and regulations, which allow construction activities between 7 AM and 6 PM on weekdays. Construction work would typically begin at 7 AM on weekdays, with most workers arriving between 6 AM and 7 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 PM and would not include all construction workers on-site, but only those involved in the specific task requiring additional work time.

While not expected to be frequent, weekend or night work may also be occasionally required for certain construction activities. Appropriate work permits from DOB would be obtained for any necessary work outside of normal construction hours, and no work outside of normal construction hours would be performed until such permits are obtained. The numbers of workers and pieces of equipment in operation for night or weekend work would typically be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend or night work would be less than that of a normal workday.

DELIVERIES AND ACCESS

During construction, access to the construction area would be fully controlled. Work areas would be fenced off, and limited access points for workers and trucks would be provided. Material deliveries to the construction area would be controlled and scheduled. MPT plans would be developed for any required temporary sidewalk and lane narrowing and/or closures on York Avenue, East 66th and East 67th Streets to ensure the safety of the construction workers and the public passing through the area. Approval of these plans and implementation of the closures would be coordinated with OCMC. Measures specified in the MPT plans that are anticipated to be implemented would include parking lane closures, safety signs, safety barriers, and construction fencing.

PUBLIC SAFETY

A variety of measures would typically be employed to ensure public safety during the construction, including sidewalk bridges to provide overhead protection; safety signs to alert the public about active construction work; safety barriers to ensure the safety of the public passing by construction areas; flag persons to control trucks entering and exiting the construction areas and/or to provide guidance for pedestrians and bicyclists safety; and safety nettings as the superstructure work advances upward to prevent debris from falling to the ground. All DOB safety requirements would be followed to ensure the safety of the community and the construction workers themselves.

RODENT CONTROL

Construction contracts would typically include provisions for a rodent (i.e., mouse and rat) 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 appropriate agencies.

DESCRIPTION OF CONSTRUCTION ACTIVITIES

SITE PREPARATION

Prior to the commencement of construction, the work area would typically be prepared for construction, including the installation of public safety measures such as barriers, netting, and signs. The construction areas would be fenced off. Worker and truck access points would be established, and existing street trees would be protected.

Construction would then proceed with the demolition, excavation, foundation, superstructure, exteriors, and interiors stages, which are discussed below.

DEMOLITION

On the Development Site the Proposed Project would replace the two existing Scholars and Sloan buildings, which would be demolished. The connected Rockefeller Research Labs (RRL) building would remain adjacent to the Proposed Project; there would be no redevelopment on this site other than a small amount of ground-floor space that would be removed to provide a new two-way parking garage ramp on East 67th Street.

Prior to demolition, any economically salvageable materials that could be reused would typically be removed. Then the building would be demolished using excavators with hoe ram attachments. Demolition activities would also involve the use of jackhammers, compressors, and generators. Demolition debris would be removed from the Development Site; this debris would typically be sorted prior to being disposed at landfills to maximize recycling opportunities.

EXCAVATION AND FOUNDATIONS

The Proposed Project would require excavation activities at the Development Site for the building cellar and foundation. Excavation work would begin with the installation of walls to contain soil around the excavation area, and excavators with break ram or bucket attachments would then be used for rock and soil excavation. The excavated materials would be loaded onto dump trucks for transport to a licensed disposal facility or stored for reuse on any portion of the Development Site that needs fill. Excavation would be followed by the construction of the foundation and below-grade elements of the proposed building. Piles would be installed with the use of drill rigs. Excavation and foundations activities may also involve the use of a mobile crane, concrete trowels, welder, and rebar benders.

Dewatering

Water from rain and snow collected in the excavation area during construction would be removed using a dewatering pump. If groundwater dewatering is required, it would be performed in accordance with DEP sewer use requirements.

SUPERSTRUCTURE AND EXTERIORS

The superstructure work would include the framework for the proposed building, such as beams, slabs, 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; core stairs; and restroom areas. A tower crane would first be brought onto the Development Site during the superstructure task and would be used to lift structural components and other large materials. This stage would also include the installation of the exterior envelope systems of the proposed building. Superstructure and exteriors activities may also include the use of compressors, rebar benders, concrete vibrators, concrete trowels, and a variety of trucks. In addition, temporary construction elevators (hoists) would be used for the vertical movement of workers and materials during superstructure and exteriors activities. This stage of construction would also include the construction of the patient bridge over East 67th Street, which is anticipated to take approximately 6 months to complete.

INTERIORS AND FINISHING

Activities during the interiors and finishing stage would include the construction of interior partitions, installation of lighting fixtures and interior finishes (e.g., flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators and lobby finishes. Final cleanup and touchup of the building and final building system (e.g., electrical system, fire alarm, plumbing, etc.) testing and inspections would be part of this stage of construction. Equipment used during interiors and finishing would include a hoist and a variety of small handheld tools.

Interiors and finishing would typically 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 and the proposed building enclosed.

SITE WORK

This stage of construction would also include site-work activities such as landscaping and installation of pavement, curbing, and sidewalks. Equipment used for sitework activities typically includes a backhoe, tamper, roller, and asphalt paver.

E. NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Table 16-3 shows the estimated averaged daily numbers of workers and deliveries to the Development Site by calendar quarter for all construction activities. For the Proposed Project, the combined peak construction worker vehicle and truck trip generation would occur during the second quarter of Year 5 construction (2028). The average number of workers throughout the construction period would be 376 per day. The peak number of workers would be 1,073 per day in the second quarter of Year 5 of construction (2028). For truck trips, the average number of trucks would be 17 per day, and the peak would occur in the first quarter of Year 5 (2028) of construction, with 37 trucks per day.

Table 16-3
Average Number of Daily Workers and Trucks by Quarter
Proposed Project

Year	Year 1 (2024)				Year 2 (2025)				Year 3 (2026)			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	-	-	-	87	131	131	131	131	135	105	105	105
Trucks	-	-	-	5	7	7	7	7	14	18	18	18
Year	Year 4 (2027)				Year 5 (2028)				Year 6 (2029)			
Quarter	1st	2nd	1st	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	105	297	508	773	1,041	1,073	925	767	758	748	539	124
Trucks	18	22	24	32	37	33	24	23	22	22	17	9
Year	Year 7 (2030)											
Quarter	1st	2nd	3rd	4th	Peak				Average			
Workers	124	97	79	-	1,073				376			
Trucks	9	6	4	-	37				17			

Source: Turner / Lend Lease, November 2023

F. ENVIRONMENTAL EFFECTS OF THE PROPOSED DEVELOPMENT'S CONSTRUCTION ACTIVITIES

Similar to other construction projects in New York City, construction of the Proposed Project would result in some temporary disruptions to the surrounding area. The following analysis describes the temporary effects on transportation, air quality, noise, and vibration. It also considers potential effects in other technical areas including land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, hazardous materials, and water and sewer infrastructure.

TRANSPORTATION

The construction transportation analysis assesses the potential for construction activities to result in significant adverse impacts to traffic, transit (i.e., subway, railroad, and bus), pedestrian elements (i.e., sidewalks, corners, and crosswalks), and parking conditions. The analysis is based on the peak worker and truck trips during construction of the Proposed Project which, as described below, are developed based on several factors, including worker modal splits (how the workers access the site per mode of transportation: automobile, taxi, transit, or walking), vehicle occupancy and trip distribution, truck passenger car equivalents (PCEs), and arrival/departure patterns. As presented in **Table 16-3**, the combined peak construction worker vehicle and truck trip generation would occur during the second quarter of Year 5 construction (2028) for the Proposed Project.

TRAFFIC

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

Construction Trip Generation Projections

The quarterly average worker and truck trip projections shown in **Table 16-3** 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 traffic-related impacts during construction, the daily workforce and truck trip projections in the peak quarter were used to estimate peak hour construction trips. It is expected that construction of the Proposed Project would generate the highest amount of combined daily traffic in the second quarter of Year 5 construction (2028), with an estimated average of 1,073 workers and 33 truck deliveries per day for the Proposed Project. 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 for workers in the construction and excavation industry (2000 Census), it is anticipated that 47 percent of construction workers would commute to the Development Site using private autos at an average occupancy of approximately 1.30 persons per vehicle. Similarly, it is expected that 50 percent of construction workers would commute via transit and three percent would walk.

Peak Hour Construction Worker Vehicle and Truck Trips

Similar to other construction projects in New York City, most of the construction activities at the Development Site are expected to take place from 7 AM to 3:30 PM. While construction truck trips would occur throughout the day (with more trips during the morning), and most trucks would remain in the area for short durations, most 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 *CEQR Technical Manual*, it was assumed that each truck has a PCE of two.

The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and likely 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 to 7 AM for arrival and 3 to 4 PM for departure on a regular day shift). Construction truck deliveries into the construction site typically peak during the hour (6 to 7 AM) before each shift (25 percent), overlapping with construction worker arrival traffic.

Table 16-4 presents the hourly trip projections for the peak construction period that is anticipated to occur during the second quarter of Year 5 construction (2028) for the Proposed Project. As shown in **Table 16-4** the maximum construction-related traffic increments would be approximately 342 PCEs between 6 AM and 7 AM and 318 PCEs between 3 PM and 4 PM for the Proposed Project.

LEVEL 2 SCREENING

Since the projected construction PCEs would exceed the *CEQR Technical Manual* threshold of 50 vehicle-trips (a "Level 1" screening) during the 6 AM to 7 AM and 3 PM to 4 PM peak hours, a trip assignment ("Level 2") screening assessment was conducted for the Proposed Project. As part of the Level 2 screening assessment, the Proposed Project trips have been assigned to specific intersections near the Development Site. Further quantified analyses to assess the potential impacts of the construction 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.

Table 16-4
Peak Construction Vehicle Trip Projections—Proposed Project

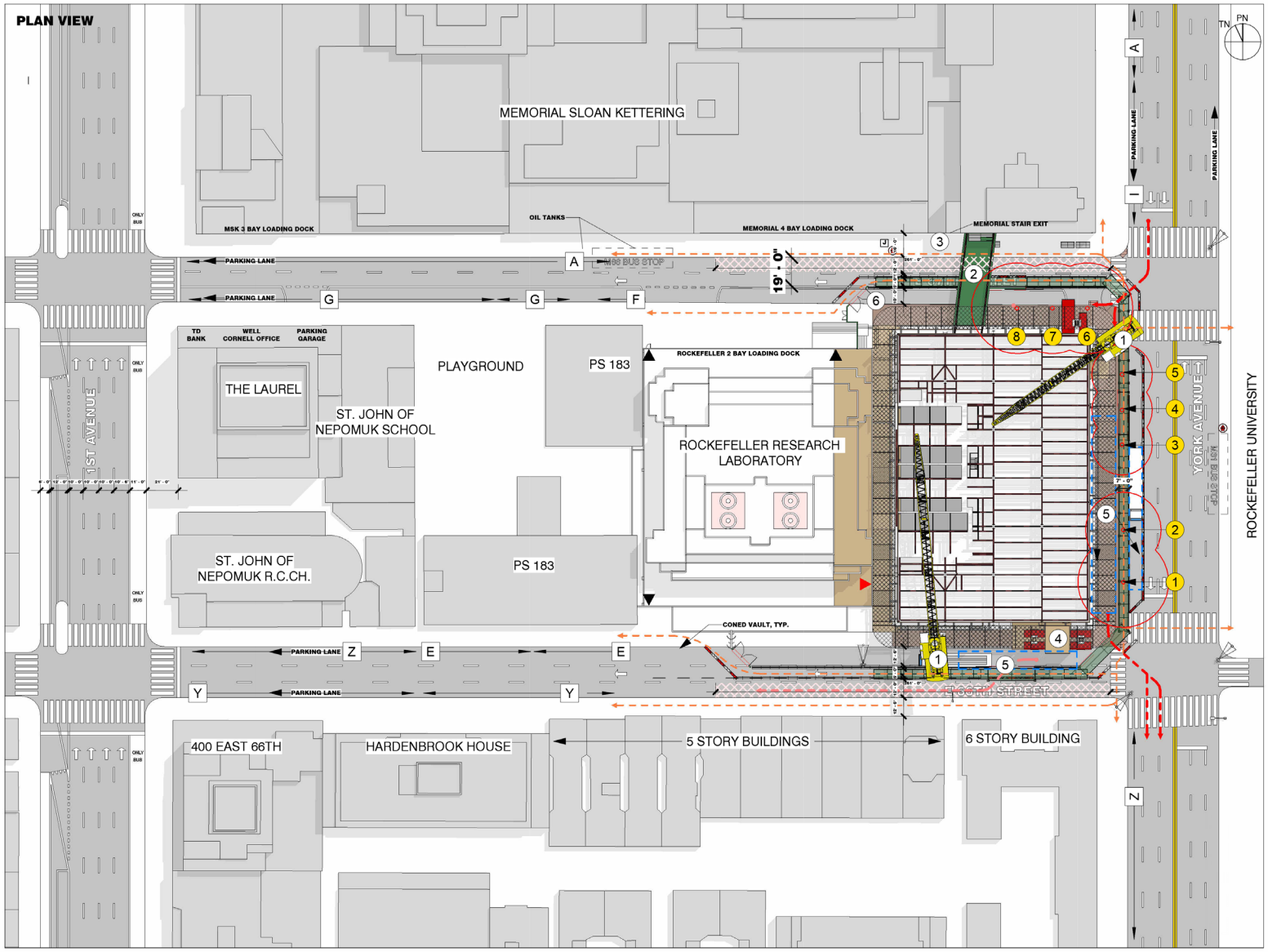
Hour	Auto Trips			Truck Trips			Total					
	Regular Shift			Regular Shift			Vehicle Trips			PCE Trips		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6 AM – 7 AM	310	0	310	8	8	16	318	8	326	326	16	342
7 AM – 8 AM	78	0	78	3	3	6	81	3	84	84	6	90
8 AM – 9 AM	0	0	0	3	3	6	3	3	6	6	6	12
9 AM -10 AM	0	0	0	3	3	6	3	3	6	6	6	12
10 AM -11 AM	0	0	0	3	3	6	3	3	6	6	6	12
11 AM – 12 PM	0	0	0	3	3	6	3	3	6	6	6	12
12 PM – 1 PM	0	0	0	3	3	6	3	3	6	6	6	12
1 PM – 2 PM	0	0	0	3	3	6	3	3	6	6	6	12
2 PM – 3 PM	0	19	19	2	2	4	2	21	23	4	23	27
3 PM – 4 PM	0	310	310	2	2	4	2	312	314	4	314	318
4 PM – 5 PM	0	58	58	0	0	0	0	58	58	0	58	58
Daily Total	388	387	775	33	33	66	421	420	841	454	453	907

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).

The Proposed Project's construction vehicle trips shown in **Table 16-4** have been assigned to area intersections based on the most likely travel routes to and from the Development Site, prevailing travel patterns, commuter origin-destination (O-D) summaries from the census data, locations of parking facilities, and nearby land use and population characteristics. The proposed MPT plan for the Proposed Project is provided in **Figure 16-1**. Construction workers were assigned to various off-street parking facilities within ¼-mile of the Development Site. As detailed in Chapter 10, "Transportation," there would be a total off-street capacity of approximately 4,173 spaces (across 30 facilities) within ¼-mile of the Development Site. Trucks would follow DOT truck routes and would make deliveries on East 66th Street at the Development Site. As described in Chapter 10 "Transportation," there would be improvements to the 263-space below-grade garage. During construction, the Applicant would close the below-grade garage. Existing traffic related to the garage would continue to arrive during the construction peak hours on East 66th Street and continue west on East 66th Street along routes to the nearest available parking facilities. Existing traffic currently exiting the garage on East 66th Street during the construction peak hours would exit the nearest available parking facilities. These traffic diversions were added to the construction vehicle trips during the construction peak hours and would not exceed 50 vehicles per hour at any intersection during other peak hours.

Figures 16-2 and 16-3 show the total construction vehicle trips in PCEs for the Proposed Project for the weekday construction AM and PM peak hours. Construction pedestrian trips are presented in **Figures 16-4 and 16-5** and are described further under "Pedestrians."

Table 16-5 and **Figures 16-2 and 16-3** show construction-related vehicle trips that would exceed the analysis threshold of 50 PCEs during the AM and PM peak hours and have been selected for detailed analysis.



NOTES

1. Tower cranes
2. Bridge with suspended protection system
3. Scaffolding for access to bridge connection point at adjacent structure
4. Main loading dock with 4 hoist cars and common platform
5. Potential pick areas
6. Concrete operation area

TREES	TRUNK DIAMETER	CANOPY (RADIUS)
1	18"	30'
2	14"	25'
3	14"	20'
4	14"	20'
5	16"	20'
6	17"	40'
7	14"	40'
8	16"	40'

LEGEND

- PEDESTRIAN PATH
- CONSTRUCTION VEHICLES
- NO PARKING
- BUILDING EGRESS
- CLOSED BUILDING EGRESS
- A — NO STANDING ANYTIME
- E — NO STANDING SCHOOL DAYS 7AM-6PM
- F — NO PARKING TUESDAY/FRIDAY 11AM-12:30PM, NO STANDING SCHOOL DAYS 7AM-4PM
- G — NO PARKING TUESDAY/FRIDAY 11AM-12:30PM, FLEA MARKET LOADING ONLY SATURDAY 6AM-5PM, NO STANDING SCHOOL DAYS 7AM-4PM
- H — NO STANDING 6AM-6PM, EXCEPT SUNDAY, NO PARKING TUESDAY/FRIDAY 11AM-12:30PM
- I — NO STANDING 7AM-9PM ALL DAYS
- M — PARKING ZONE 102606
- V — NO STANDING 7AM-7PM
- Y — NO PARKING TUESDAY/FRIDAY 11AM-12:30PM
- Z — NO PARKING MONDAY/THURSDAY 11AM-12:30PM;
- AA — NO STANDING 7AM-7PM, EXCEPT SUNDAY

Construction Plan--Maintenance and Protection of Traffic

1.30.24

EAST 71 STREET
EAST 70 STREET
EAST 69 STREET
EAST 68 STREET
EAST 67 STREET
EAST 66 STREET
EAST 65 STREET
EAST 64 STREET
EAST 63 STREET
EAST 62 STREET
EAST 61 STREET

5 AVENUE
MADISON AVENUE
PARK AVENUE
LEXINGTON AVENUE
3 AVENUE
2 AVENUE
1 AVENUE
YORK AVENUE

65 ST TRANSVERSE
EAST DRIVE
FDR DRIVE
EAST 60 ST PEDESTRIAN OVERPASS

Project Area

Development Site

Off-Site Garages

0 400 FEET

Proposed Project Construction PCE Trips
Weekday 6-7 AM Peak Hour

MSK PAVILION

Figure 16-2

1.30.24



Project Area

Development Site

Off-Site Garages

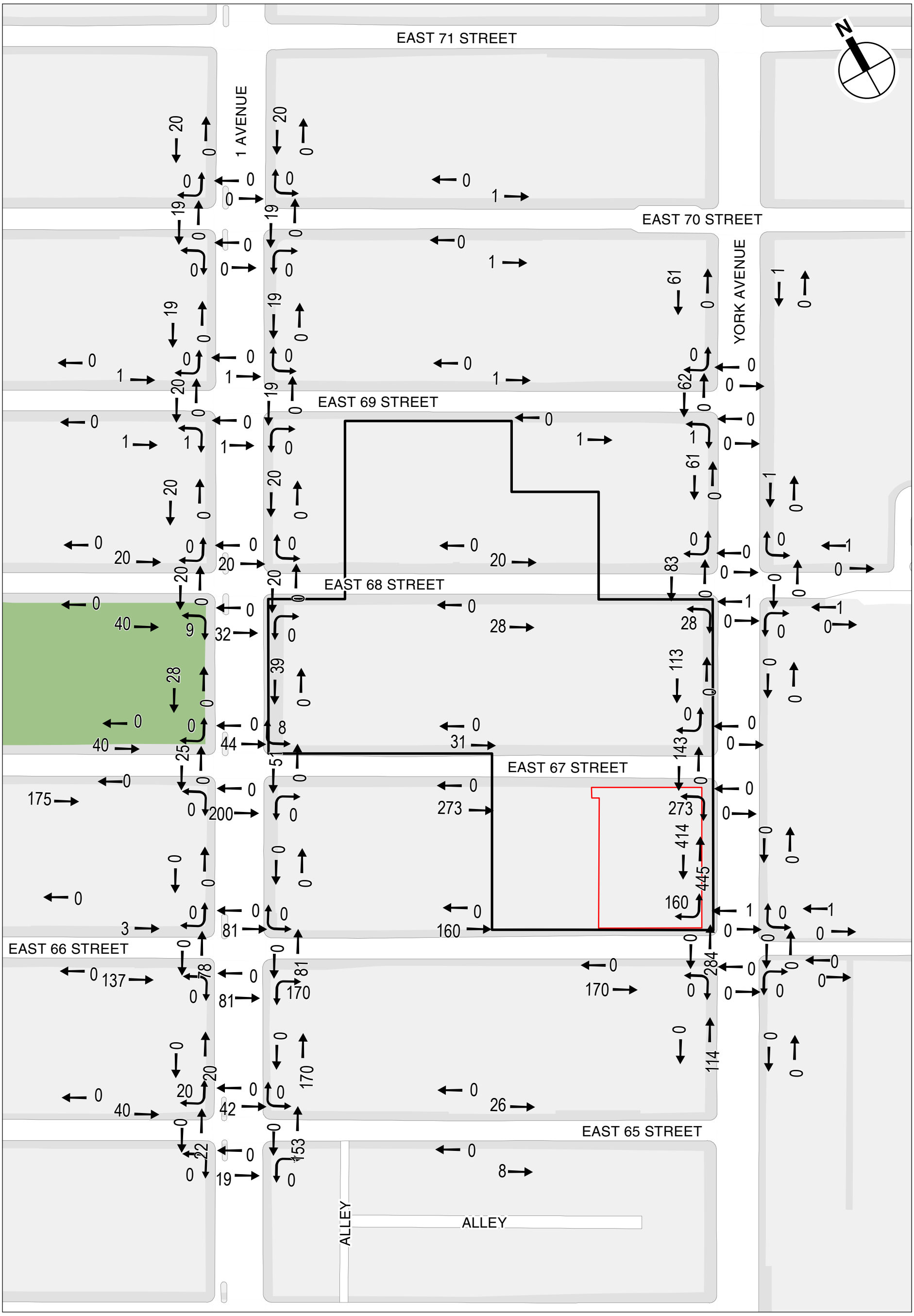
0 400 FEET

Proposed Project Construction PCE Trips
Weekday 3-4 PM Peak Hour

MSK PAVILION

Figure 16-3

4/2/2024

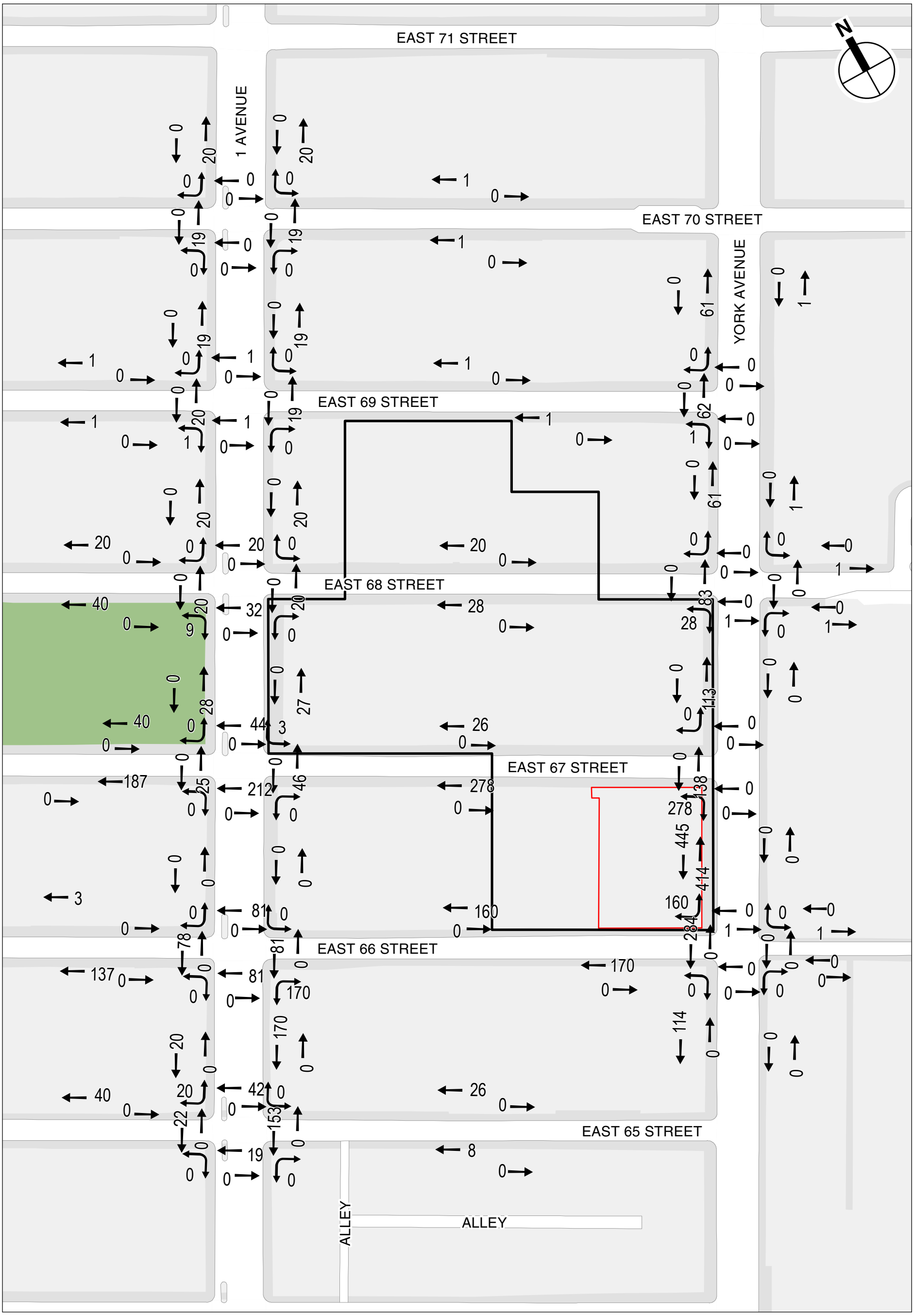


Proposed Project Construction Pedestrian Trips
Weekday 6-7 AM Peak Hour

MSK PAVILION

Figure 16-4

4/2/2024



Project Area

Development Site

0 200 FEET

Proposed Project Construction Pedestrian Trips
Weekday 3-4 PM Peak Hour

MSK PAVILION

Figure 16-5

Table 16-5
Construction Traffic Level 2 Screening Analysis Results—
Selected Analysis Locations

Intersection	Construction PCE Trips (Weekday)		Selected Analysis Locations
	AM	PM	
5th Avenue and E 67th Street	4	47	
5th Avenue and E 65th Street	49	1	
Madison Avenue and E 66th Street	4	47	
Park Avenue and E 66th Street	3	42	
Park Avenue and E 63rd Street	0	49	
Lexington Avenue and E 66th Street	32	48	
Lexington Avenue and E 65th Street	48	25	
Lexington Avenue and E 64th Street	38	21	
Lexington Avenue and E 63rd Street	0	48	
3rd Avenue and E 67th Street	5	38	
3rd Avenue and E 65th Street	46	14	
3rd Avenue and E 64th Street	80	19	✓
3rd Avenue and E 63rd Street	42	46	
2nd Avenue and E 67th Street	39	5	
2nd Avenue and E 66th Street	101	18	✓
2nd Avenue and E 65th Street	92	45	✓
2nd Avenue and E 64th Street	70	73	✓
2nd Avenue and E 63rd Street	15	77	✓
1st Avenue and E 76th Street	0	47	
1st Avenue and E 75th Street	0	47	
1st Avenue and E 74th Street	0	47	
1st Avenue and E 73rd Street	0	47	
1st Avenue and E 72nd Street	0	47	
1st Avenue and E 71st Street	0	47	
1st Avenue and E 68th Street	4	48	
1st Avenue and E 67th Street	39	36	
1st Avenue and E 66th Street	124	39	✓
1st Avenue and E 65th Street	91	52	✓
1st Avenue and E 64th Street	67	118	✓
1st Avenue and E 63rd Street	68	74	✓
1st Avenue and E 62nd Street*	66	1	
1st Avenue and E 61st Street	66	1	✓
York Avenue and E 71st Street	47	0	
York Avenue and E 66th Street	47	35	
York Avenue and E 65th Street	59	44	✓
York Avenue and E 64th Street	47	150	✓
York Avenue and E 63rd Street	109	150	✓
FDR Drive (Service Rd) and E 73rd Street	47	0	
FDR Drive (Service Rd) and E 71st Street	47	0	
FDR Drive (Service Rd) and E 62nd Street	0	109	✓

Notes:
Intersections with 35 or fewer project-generated vehicles trips in both peak hours are not presented in this table.
✓ denotes intersection Recommended for the detailed traffic analysis.
* denotes an intersection with 50 or more incremental peak hour vehicle trips that consist of only through movements where no conflicting pedestrians or conflicting vehicles can affect traffic capacity or delays.

As shown in **Table 16-5**, the following 14 intersections would incur construction-related vehicle trips that exceed the analysis threshold of 50 PCEs during the AM and PM peak hours and have been selected for detailed analysis:

- Third Avenue and East 64th Street
- Second Avenue and East 66th Street
- Second Avenue and East 65th Street

- Second Avenue and East 64th Street
- Second Avenue and East 63rd Street
- First Avenue and East 66th Street
- First Avenue and East 65th Street
- First Avenue and East 64th Street
- First Avenue and East 63rd Street
- First Avenue and East 61st Street
- York Avenue and East 65th Street
- York Avenue and East 64th Street
- York Avenue and East 63rd Street
- FDR Drive Service Road and East 62nd Street

TRAFFIC CONDITIONS

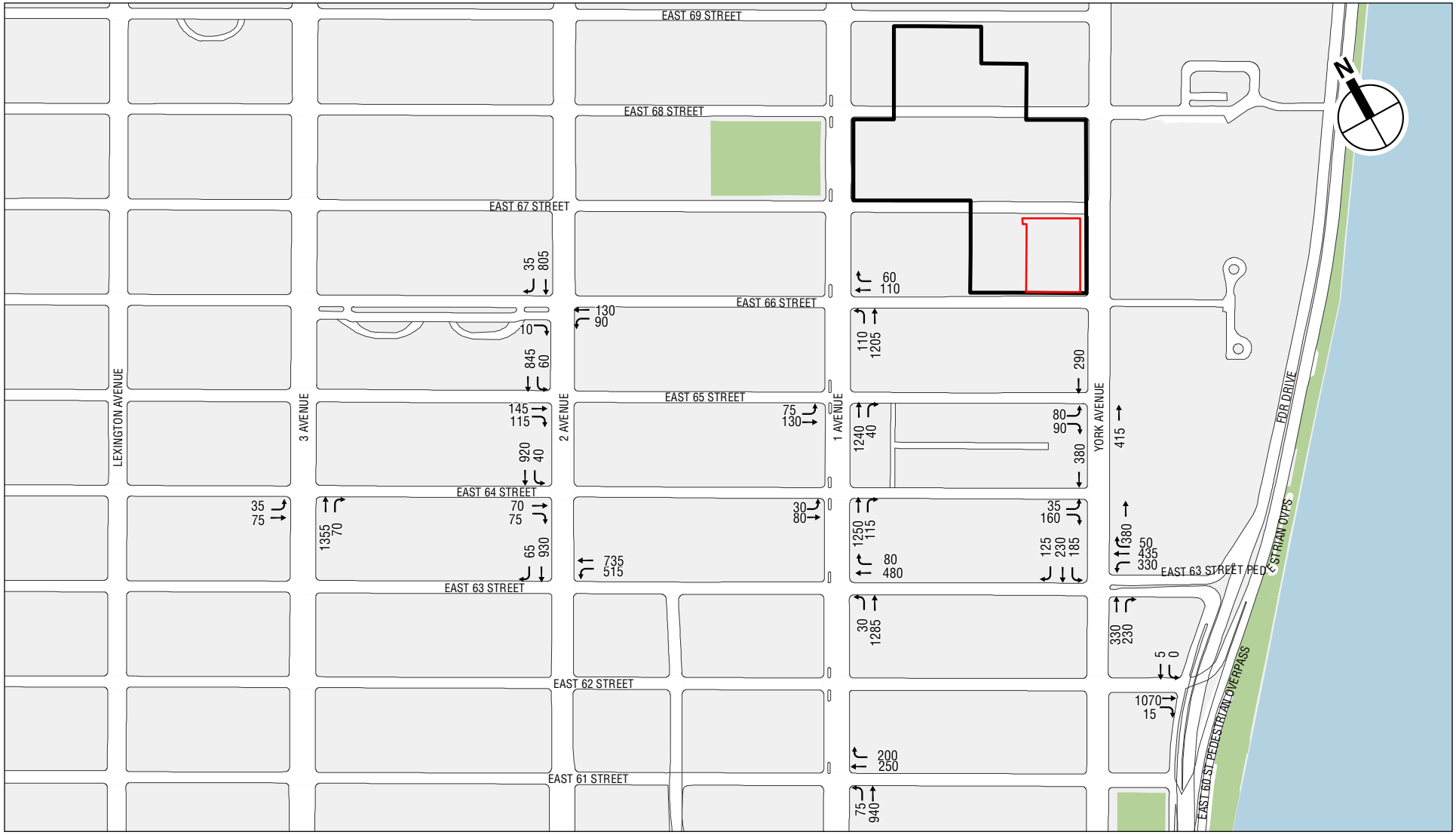
In order to establish an existing condition for the construction peak hour, automatic traffic recorder (ATR) data and video intersection counts were collected for the weekday AM construction analysis peak hour (6:00 to 7:00 AM) and weekday PM construction analysis peak hour (3:00 to 4:00 PM). Existing data were collected in November 2022 and May 2023. It should be noted that a traffic enforcement agent was observed at the York Avenue and East 63rd Street intersection during the PM construction peak hour.

The existing construction AM and PM peak hour traffic volumes are shown in **Figures 16-6 and 16-7**, respectively. The No Action construction AM and PM peak hour traffic volumes are shown in **Figures 16-8 and 16-9**, respectively. The With Action construction AM and PM peak hour traffic volumes are shown in **Figures 16-10 and 16-11**, respectively. The 2028 construction No Action condition was developed by layering the CEQR background growth and trips generated by discrete No Build projects in the area for the operational AM and PM peak hours to be conservative, on top of the existing traffic volumes. The 2028 construction With Action volumes were developed by adding the construction vehicle trips presented in **Figures 16-2 and 16-3**, to the No Action traffic volumes.

The operation of all the signalized intersections in the study area were assessed using methodologies presented in the 2000 Highway Capacity Manual (HCM) using the Synchro Software (Synchro 11). The results of the traffic analysis summarized in **Table 16-6** shows that two intersections would be significantly impacted during the 6:00 AM to 7:00 AM peak hour and seven intersections would be significantly impacted during the weekday 3:00 PM to 4:00 PM peak hour during the 2028 With Action Condition.

Detailed traffic analysis results for the construction conditions in terms of level of service (LOS), v/c ratios, and average delays are presented in **Tables 16-7 and 16-8**. As discussed below, a significant adverse traffic impact was identified for the westbound approach at First Avenue and East 61st Street and at the westbound approach at York Avenue and East 63rd Street during the construction AM peak hour. During the construction PM peak hour significant adverse traffic impacts were identified for the eastbound approach at Second Avenue and East 65th Street, eastbound approach at Second Avenue and East 64th Street, eastbound approach at First Avenue and East 65th Street, eastbound approach at York Avenue and East 65th Street, eastbound approach at York Avenue and East 64th Street, southbound left-turn at York Avenue and East 63rd Street, and southbound left-turn at FDR Drive Service Road and East 62nd Street.

1.30.24

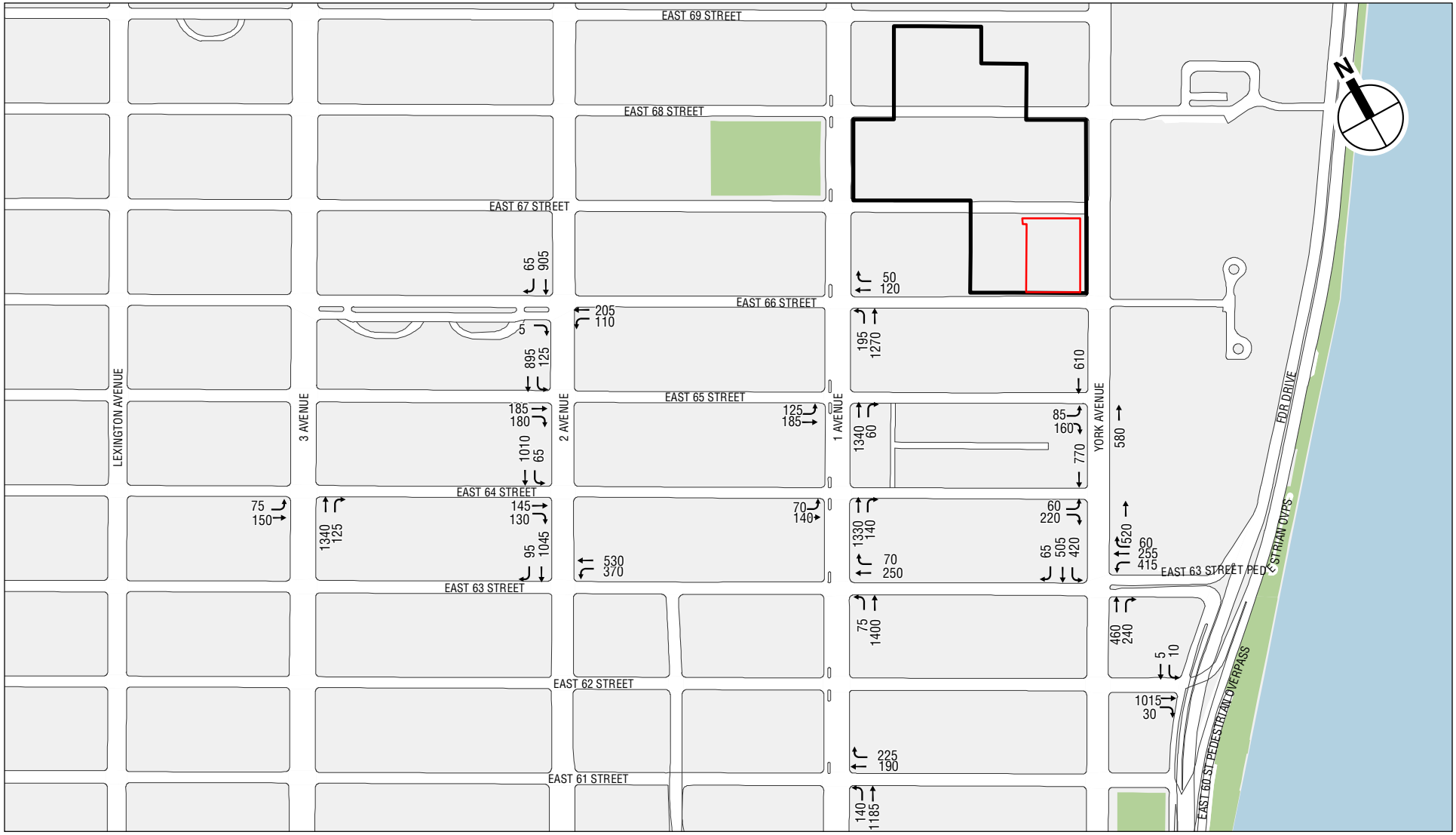


Construction Existing Traffic Volumes
Weekday 6-7 AM Peak Hour

MSK PAVILION

Figure 16-6

1.30.24

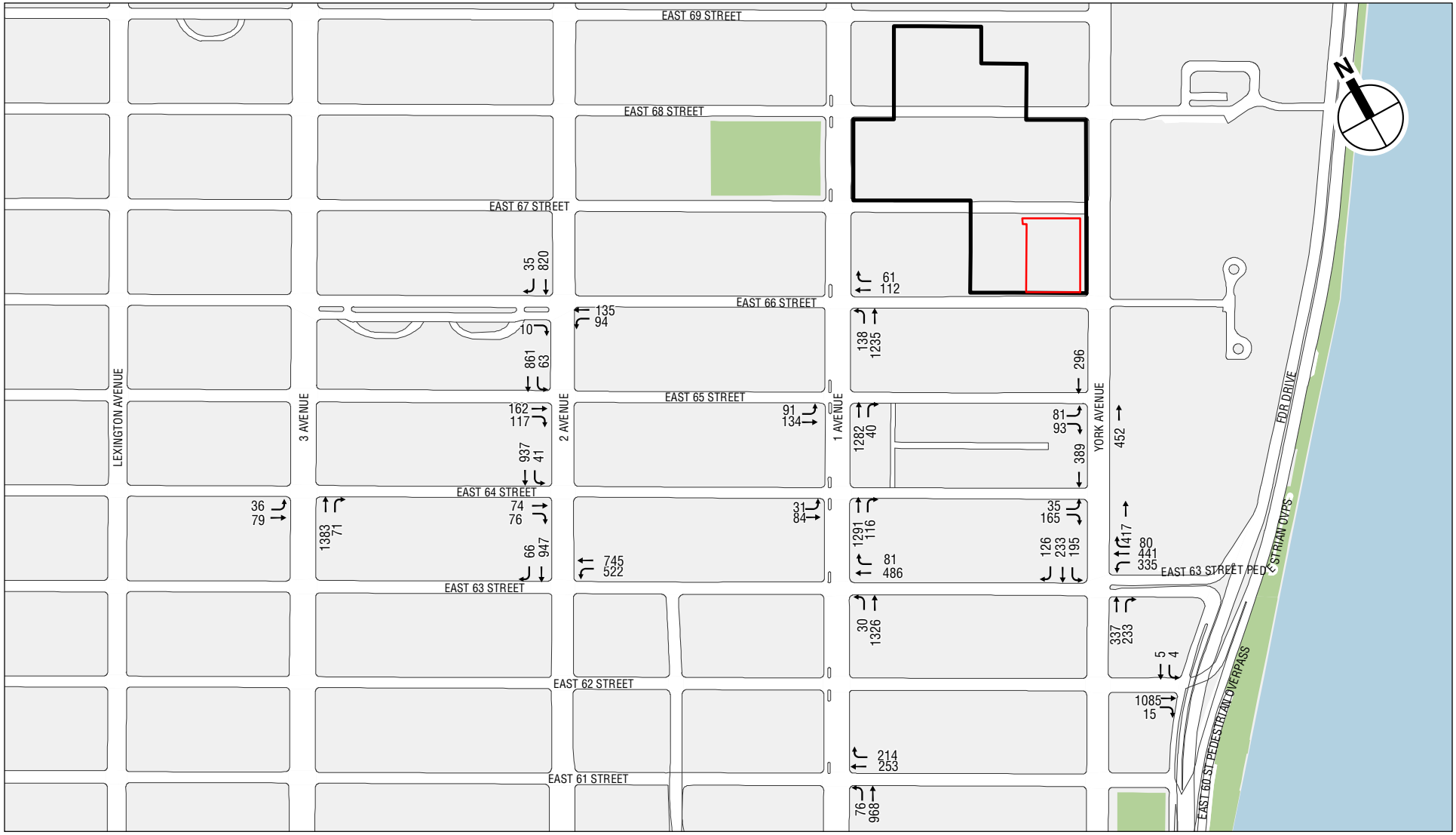


Construction Existing Traffic Volumes
Weekday 3-4 PM Peak Hour

MSK PAVILION

Figure 16-7

1.30.24

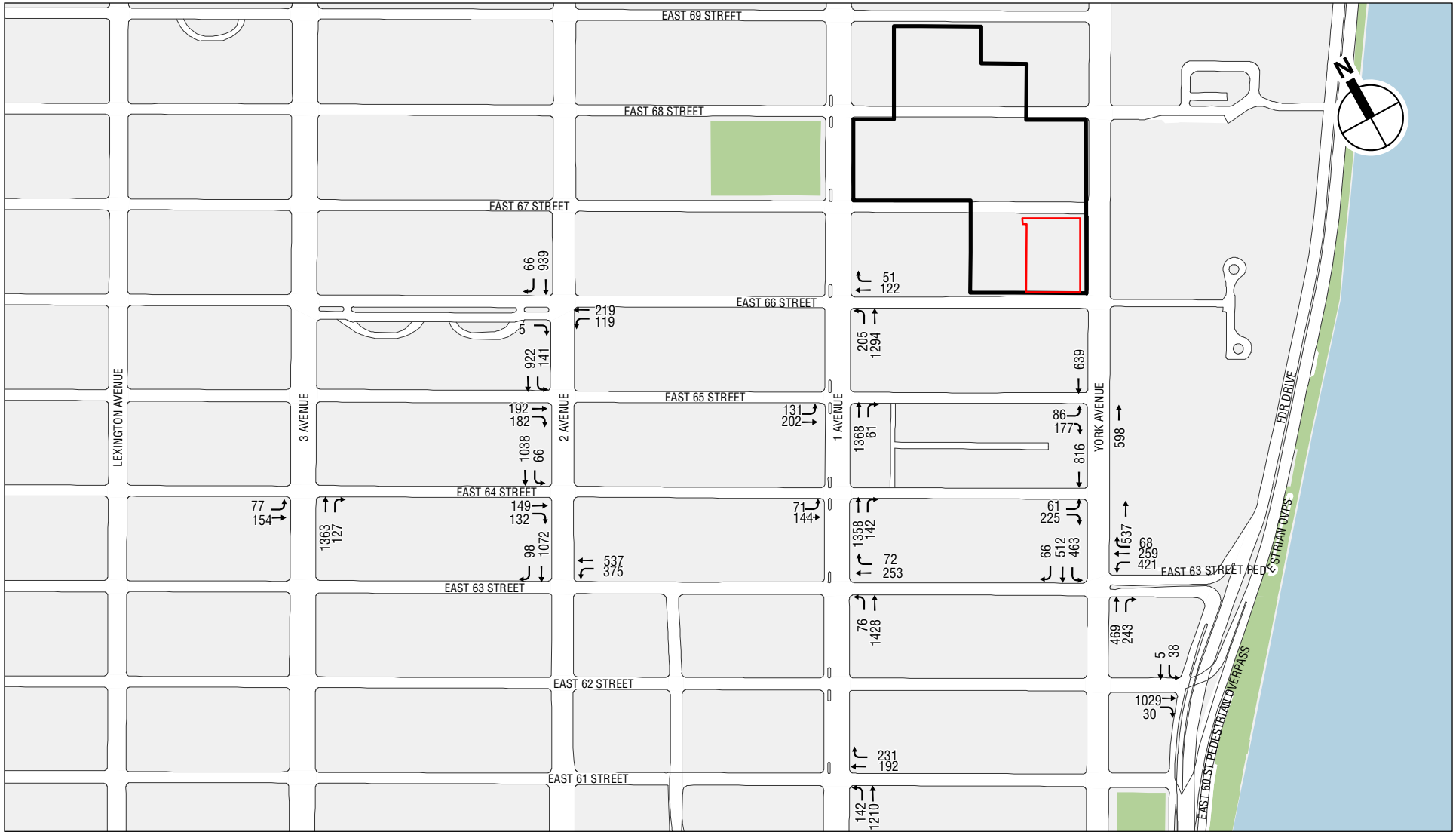


2028 Construction No Action Traffic Volumes
Weekday 6-7 AM Peak Hour

MSK PAVILION

Figure 16-8

1.30.24

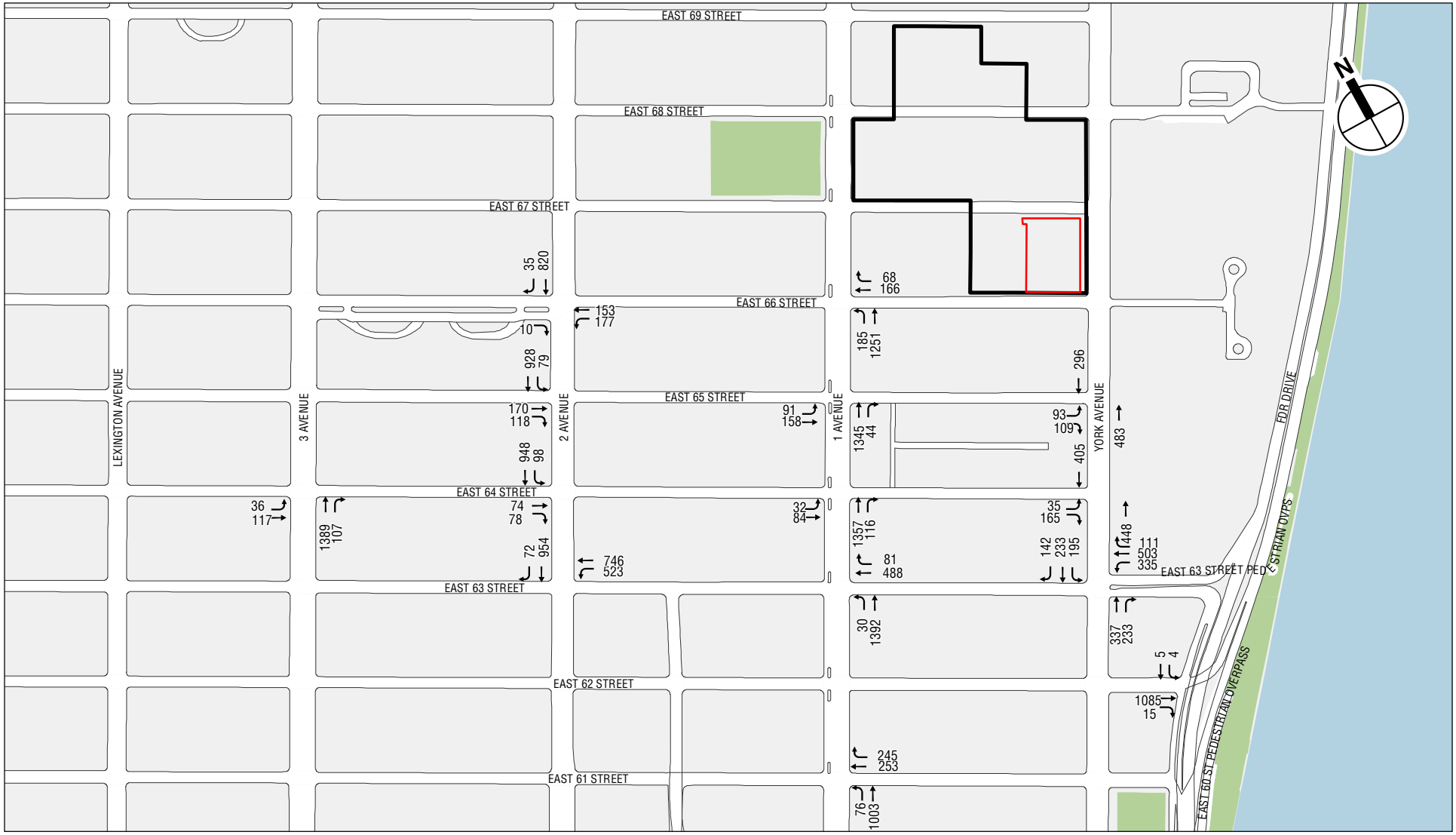


2028 Construction No Action Traffic Volumes
Weekday 3-4 PM Peak Hour

MSK PAVILION

Figure 16-9

1.30.24

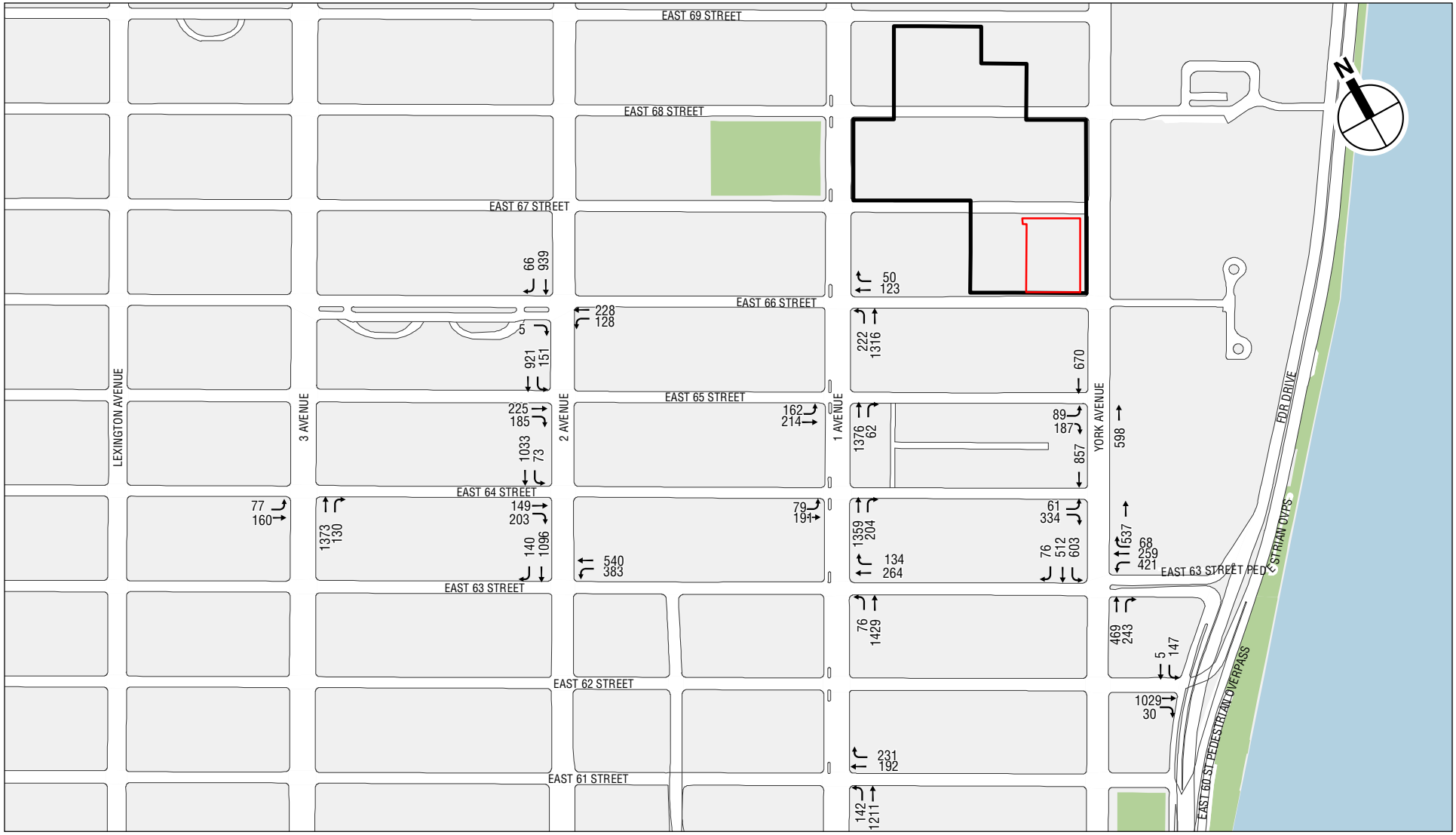


2028 Construction With Action Traffic Volumes
Weekday 6-7 AM Peak Hour

MSK PAVILION

Figure 16-10

1.30.24



2028 Construction With Action Traffic Volumes
Weekday 3-4 PM Peak Hour

MSK PAVILION

Figure 16-11

Table 16-6
2028 Construction With Action Condition
Summary of Significant Adverse Traffic Impacts

Intersection		Weekday AM Construction Peak Hour	Weekday PM Construction Peak Hour
EB/WB Street	**NB/SB Street**		
East 65th Street	Second Avenue	No Significant Impact	EB-TR
East 64th Street	Second Avenue	No Significant Impact	EB-TR
East 65th Street	First Avenue	No Significant Impact	EB-LT
East 61st Street	First Avenue	WB-TR	No Significant Impact
East 65th Street	York Avenue	No Significant Impact	EB-LR
East 64th Street	York Avenue	No Significant Impact	EB-LTR
East 63rd Street	York Avenue	WB-LTR	No Significant Impact
		No Significant Impact	SB-L
East 62nd Street	FDR Drive Service Road	No Significant Impact	SB-L
Total Impacted Intersections/Lane Groups		2/2	7/7

Notes:
EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left Turn; T = Through; R = Right Turn

Table 16-7
Construction Existing, No Action, and With Action Conditions LOS Analysis
Weekday 6–7 AM Peak Hour

	Weekday 6–7 AM											
	Existing				2028 No Action				2028 With Action			
Intersection	**Lane Group**	**v/c Ratio**	**Delay (sec)**	**LOS**	**Lane Group**	**v/c Ratio**	**Delay (sec)**	**LOS**	**Lane Group**	**v/c Ratio**	**Delay (sec)**	**LOS**
Signalized Intersections												
Third Avenue and East 64th Street												
Eastbound	LT	0.29	23.6	C	LT	0.30	23.8	C	LT	0.39	25.4	C
Northbound	TR	0.60	18.2	B	TR	0.61	18.4	B	TR	0.64	18.8	B
	Intersection		18.6	B	Intersection		18.8	B	Intersection		19.5	B
Second Avenue and East 66th Street												
Eastbound	R	0.02	18.9	B	R	0.02	18.9	B	R	0.02	18.9	B
Westbound	LT	0.58	24.6	C	LT	0.61	23.9	C	LT	0.89	40.8	D
Southbound	TR	0.64	20.8	C	TR	0.65	21.0	C	TR	0.65	21.0	C
	Intersection		21.6	C	Intersection		21.6	C	Intersection		26.7	C
Second Avenue and East 65th Street												
Eastbound	TR	0.72	35.9	D	TR	0.77	38.8	D	TR	0.79	40.6	D
Southbound	L	0.16	6.1	A	L	0.16	6.2	A	L	0.21	7.7	A
	T	0.70	10.1	B	T	0.71	10.3	B	T	0.77	13.9	B
	Intersection		16.1	B	Intersection		17.2	B	Intersection		19.8	B
Second Avenue and East 64th Street												
Eastbound	TR	0.43	27.0	C	TR	0.44	27.1	C	TR	0.45	26.8	C
Southbound	L	0.09	4.1	A	L	0.10	4.1	A	L	0.23	4.4	A
	T	0.64	8.1	A	T	0.65	8.1	A	T	0.66	7.1	A
	Intersection		10.7	B	Intersection		10.7	B	Intersection		9.6	A
Second Avenue and East 63rd Street												
Westbound	L	0.71	26.4	C	L	0.72	26.8	C	L	0.72	26.8	C
	LT	0.69	22.4	C	LT	0.70	22.6	C	LT	0.70	22.7	C
Southbound	TR	0.76	7.7	A	TR	0.77	7.9	A	TR	0.78	8.2	A
	Intersection		16.6	B	Intersection		16.8	B	Intersection		17.0	B
First Avenue and East 66th Street												
Westbound	TR	0.56	32.3	C	TR	0.56	32.6	C	TR	0.77	42.9	D
Northbound	L	0.22	2.2	A	L	0.26	2.5	A	L	0.39	3.0	A
	T	0.53	2.5	A	T	0.65	3.5	A	T	0.66	3.2	A
	Intersection		6.2	A	Intersection		7.0	A	Intersection		9.3	A

Table 16-7 (cont'd)
Construction Existing, No Action, and With Action Conditions LOS Analysis
Weekday 6–7 AM Peak Hour

Intersection	Weekday 6–7 AM											
	Existing				2028 No Action				2028 With Action			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections (cont'd)												
First Avenue and East 65th Street												
Eastbound	LT	0.56	20.7	C	LT	0.61	21.4	C	LT	0.68	25.8	C
Northbound	TR	0.61	1.6	A	---	---	---	---	---	---	---	---
	---	---	---	---	T	0.72	2.6	A	T	0.76	2.9	A
	---	---	---	---	R	0.11	0.9	A	R	0.15	1.2	A
	Intersection		4.4	A	Intersection		5.6	A	Intersection		6.7	A
First Avenue and East 64th Street												
Eastbound	LT	0.28	17.9	B	LT	0.30	18.5	B	LT	0.30	22.5	C
Northbound	TR	0.66	5.7	A	---	---	---	---	---	---	---	---
	---	---	---	---	T	0.73	5.9	A	T	0.77	6.2	A
	---	---	---	---	R	0.31	3.7	A	R	0.31	3.5	A
	Intersection		6.7	A	Intersection		6.8	A	Intersection		7.3	A
First Avenue and East 63rd Street												
Westbound	TR	1.05	78.3	E	TR	1.06	82.2	F	TR	1.06	83.3	F
Northbound	L	0.06	11.7	B	L	0.05	11.7	B	L	0.05	11.7	B
	T	0.57	16.7	B	T	0.69	19.0	B	T	0.72	19.8	B
	Intersection		34.2	C	Intersection		37.0	D	Intersection		37.3	D
First Avenue and East 61st Street												
Westbound	TR	1.05	86.3	F	TR	1.09	99.4	F	TR	1.18	130.5	F+
Northbound	L	0.29	31.5	C	L	0.33	32.7	C	L	0.33	32.7	C
	T	0.41	12.5	B	T	0.54	14.2	B	T	0.56	14.5	B
	Intersection		34.5	C	Intersection		39.5	D	Intersection		49.3	D
York Avenue and East 65th Street												
Eastbound	LR	0.62	46.1	D	LR	0.63	46.7	D	LR	0.73	52.6	D
Northbound	T	0.31	2.2	A	T	0.34	2.1	A	T	0.36	2.1	A
Southbound	T	0.22	12.3	B	T	0.22	12.3	B	T	0.22	12.3	B
	Intersection		14.2	B	Intersection		13.9	B	Intersection		15.8	B
York Avenue and East 64th Street												
Eastbound	LTR	0.55	36.4	D	LTR	0.57	36.9	D	LTR	0.57	36.9	D
Northbound	TR	0.30	4.0	A	TR	0.33	5.8	A	TR	0.36	7.2	A
Southbound	LT	0.32	13.2	B	LT	0.33	13.3	B	LT	0.35	14.1	B
	Intersection		14.4	B	Intersection		15.0	B	Intersection		15.6	B
York Avenue and East 63rd Street												
Westbound	L	0.76	51.9	D	L	0.81	56.0	E	L	0.85	60.0	E
	LTR	0.76	45.3	D	LTR	0.80	47.8	D	LTR	0.92	59.1	E+
Northbound	T	0.83	53.4	D	T	0.84	55.0	E	T	0.84	55.0	E
	R	0.37	13.7	B	R	0.38	13.8	B	R	0.38	13.8	B
Southbound	LT	0.50	19.4	B	LT	0.52	19.9	B	LT	0.52	19.5	B
	R	0.25	12.8	B	R	0.25	12.7	B	R	0.29	13.0	B
	Intersection		35.9	D	Intersection		37.7	D	Intersection		41.9	D
Unsignalized Intersections												
FDR Drive Service Road and East 62nd Street												
Southbound	L	---	0.0	A	L	0.02	21.8	C	L	0.02	21.8	C

Notes:
L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, + Denotes a significant adverse traffic impact

Table 16-8
Construction Existing, No Action, and With Action Conditions LOS Analysis
Weekday 3–4 PM Peak Hour

Intersection	Weekday 3–4 PM											
	Existing				2028 No Action				2028 With Action			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Third Avenue and East 64th Street												
Eastbound	LT	0.49	29.3	C	LT	0.51	29.6	C	LT	0.52	29.9	C
Northbound	TR	0.57	16.0	B	TR	0.58	16.2	B	TR	0.58	16.2	B
	Intersection		17.8	B	Intersection		18.0	B	Intersection		18.1	B
Second Avenue and East 66th Street												
Eastbound	R	0.01	18.8	B	R	0.01	18.8	B	R	0.01	18.8	B
Westbound	LT	0.71	34.0	C	LT	0.76	35.6	D	LT	0.80	37.6	D
Southbound	T	0.52	18.5	B	T	0.54	18.8	B	T	0.54	18.8	B
	R	0.27	17.4	B	R	0.28	17.6	B	R	0.28	17.6	B
	Intersection		22.5	C	Intersection		23.3	C	Intersection		24.0	C
Second Avenue and East 65th Street												
Eastbound	TR	0.99	72.2	E	TR	1.01	77.6	E	TR	1.11	105.8	F+
Southbound	L	0.42	10.8	B	L	0.48	11.6	B	L	0.51	12.2	B
	T	0.59	9.6	A	T	0.60	9.7	A	T	0.60	9.8	A
	Intersection		27.0	C	Intersection		28.4	C	Intersection		37.9	D
Second Avenue and East 64th Street												
Eastbound	TR	0.79	36.6	D	TR	0.80	37.6	D	TR	1.02	75.8	E+
Southbound	L	0.21	5.9	A	L	0.21	5.8	A	L	0.23	6.0	A
	T	0.60	6.6	A	T	0.62	6.6	A	T	0.61	6.6	A
	Intersection		12.9	B	Intersection		13.1	B	Intersection		23.6	C
Second Avenue and East 63rd Street												
Westbound	L	0.50	20.1	C	L	0.51	20.3	C	L	0.52	20.5	C
	LT	0.49	18.4	B	LT	0.49	18.5	B	LT	0.50	18.5	B
Southbound	T	0.64	7.4	A	T	0.65	7.7	A	T	0.67	8.4	A
	R	0.34	7.9	A	R	0.35	8.2	A	R	0.50	10.4	B
	Intersection		12.6	B	Intersection		12.8	B	Intersection		13.2	B
First Avenue and East 66th Street												
Westbound	TR	0.55	32.1	C	TR	0.56	32.6	C	TR	0.57	32.8	C
Northbound	L	0.55	7.7	A	L	0.58	5.9	A	L	0.64	8.1	A
	T	0.53	3.0	A	T	0.69	3.7	A	T	0.70	4.4	A
	Intersection		6.9	A	Intersection		7.3	A	Intersection		8.0	A
First Avenue and East 65th Street												
Eastbound	LT	0.81	42.7	D	LT	0.87	46.8	D	LT	1.00	66.9	E+
Northbound	T	0.62	5.4	A	T	0.81	8.0	A	T	0.81	8.3	A
	R	0.26	4.3	A	R	0.30	4.6	A	R	0.32	5.0	A
	Intersection		12.3	B	Intersection		15.4	B	Intersection		20.7	C
First Avenue and East 64th Street												
Eastbound	LT	0.52	42.1	D	LT	0.54	42.4	D	LT	0.67	42.8	D
Northbound	T	0.56	4.3	A	T	0.73	5.3	A	T	0.73	6.8	A
	R	0.58	11.7	B	R	0.69	13.6	B	R	0.99	51.0	D
	Intersection		10.2	B	Intersection		11.3	B	Intersection		18.4	B
First Avenue and East 63rd Street												
Westbound	TR	0.64	27.5	C	TR	0.65	28.0	C	TR	0.82	37.3	D
Northbound	L	0.18	13.2	B	L	0.19	13.3	B	L	0.19	13.3	B
	T	0.58	16.8	B	T	0.76	21.2	C	T	0.76	21.2	C
	Intersection		18.8	B	Intersection		22.2	C	Intersection		24.7	C
First Avenue and East 61st Street												
Westbound	TR	0.87	42.5	D	TR	0.89	44.7	D	TR	0.89	44.7	D
Northbound	L	0.52	36.8	D	L	0.60	40.7	D	L	0.60	40.7	D
	T	0.59	17.2	B	T	0.59	17.2	B	T	0.59	17.2	B
	Intersection		25.5	C	Intersection		26.4	C	Intersection		26.4	C

Table 16-8 (cont'd)
Construction Existing, No Action, and With Action Conditions LOS Analysis
Weekday 3–4 PM Peak Hour

Intersection	Weekday 3–4 PM											
	Existing				2028 No Action				2028 With Action			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections (cont'd)												
York Avenue and East 65th Street												
Eastbound	LR	0.87	66.8	E	LR	0.94	78.5	E	LR	0.99	89.4	F+
Northbound	T	0.39	2.7	A	T	0.41	2.7	A	T	0.41	2.4	A
Southbound	T	0.41	14.5	B	T	0.43	14.8	B	T	0.45	15.1	B
	Intersection		19.7	B	Intersection		22.4	C	Intersection		24.9	C
York Avenue and East 64th Street												
Eastbound	LTR	0.78	47.8	D	LTR	0.80	49.1	D	LTR	1.09	108.5	F+
Northbound	TR	0.42	5.6	A	TR	0.44	5.9	A	TR	0.44	5.9	A
Southbound	LT	0.58	16.3	B	LT	0.62	17.2	B	LT	0.65	17.8	B
	Intersection		18.7	B	Intersection		19.4	B	Intersection		35.7	D
York Avenue and East 63rd Street*												
Westbound	L	0.71	48.4	D	L	0.73	49.8	D	L	0.73	49.8	D
	LTR	0.72	43.8	D	LTR	0.74	44.5	D	LTR	0.74	44.5	D
Northbound	T	1.02	88.9	F	T	1.04	95.0	F	T	1.04	95.0	F
	R	0.39	14.2	B	R	0.39	14.2	B	R	0.39	14.2	B
	---	---	---	---	---	---	---	---	---	---	---	---
Southbound	L**	1.15	123.3	F	L**	1.29	179.6	F	L**	1.69	351.1	F+
	T	0.75	20.9	C	T	0.76	20.4	C	T	0.76	21.4	C
	R	0.17	8.4	A	R	0.17	8.1	A	R	0.20	9.8	A
	Intersection		56.2	E	Intersection		68.1	E	Intersection		110.1	F
Unsignalized Intersections												
FDR Drive Service Road and East 62nd Street												
Southbound	L	0.06	23.7	C	L	0.24	28.5	D	L	0.92	92.9	F+

Notes:
L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service
* denotes an intersection where a traffic enforcement agent was observed, ** denotes a defacto left-turn that was recoded as an exclusive left-turn lane in Synchro, + Denotes a significant adverse traffic impact

Second Avenue and East 65th Street
The eastbound approach at this intersection would deteriorate from LOS E (v/c ratio of 1.01 and 77.6 seconds per vehicle (spv) of delay) to LOS F (v/c ratio of 1.11 and 105.8 spv of delay) in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

Second Avenue and East 64th Street
The eastbound approach at this intersection would deteriorate from LOS D (v/c ratio of 0.80 and 37.6 spv of delay) to LOS E (v/c ratio of 1.02 and 75.8 spv of delay) in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

First Avenue and East 65th Street
The eastbound approach at this intersection would deteriorate from LOS D (v/c ratio of 0.87 and 46.8 spv of delay) to LOS E (v/c ratio of 1.00 and 66.9 spv of delay) in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

First Avenue and East 61st Street
The westbound approach at this intersection would deteriorate within LOS F with a v/c ratio of 1.09 and 99.4 spv of delay to a v/c ratio of 1.18 and 130.5 spv of delay in the weekday AM construction peak hour, an increase in delay of more than four seconds. This increase in delay constitutes a significant adverse impact.

York Avenue and East 65th Street
The eastbound approach at this intersection would deteriorate from LOS E (v/c ratio of 0.94 and 78.5 spv of delay) to LOS F (v/c ratio of 0.99 and 89.4 spv of delay) in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

York Avenue and East 64th Street
The eastbound approach at this intersection would deteriorate from LOS D (v/c ratio of 0.80 and 49.1 spv of delay) to LOS F (v/c ratio of 1.09 and 108.5 spv of delay) in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

York Avenue and East 63rd Street
The westbound approach (the left-turn/through lane and through/right-turn lane) at this intersection would deteriorate from LOS D (v/c ratio of 0.80 and 47.8 spv of delay) to LOS E (v/c ratio of 0.92 and 59.1 spv of delay) in the weekday AM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

The southbound left-turn/through lane at this intersection, which was analyzed as an exclusive left-turn lane because that is how it was observed to operate, would deteriorate within LOS F with a v/c ratio of 1.29 and 179.6 spv of delay to a v/c ratio of 1.69 and 351.1 spv of delay in the weekday PM construction peak hour, an increase in delay of more than four seconds. This increase in delay constitutes a significant adverse impact.

FDR Service Road and East 62nd Street
The southbound left-turn at this intersection would deteriorate from LOS D (v/c ratio of 0.24 and 28.5 spv of delay) to LOS F (v/c ratio of 0.92 and 92.9 spv of delay) in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

Potential improvement measures that may be implemented to mitigate the significant adverse impacts are discussed in Chapter 18, "Mitigation." Additional mitigation measures will be explored between the Draft and Final EIS in consultation with DOT.

TRANSIT

Based on 2000 U.S. Census data for workers in the construction and excavation industry, it is estimated that approximately 50 percent of construction workers would commute to the Development Site via transit (6 percent by bus, 9 percent by railroad, and 35 percent by subway). The Proposed Project is located in the vicinity of multiple transit options, including the Q and No. 6 trains and the M15, M15 Select Bus Service (SBS), M31, M66, M72, and M98 bus routes. During the peak construction worker period (with a maximum of 858 average daily construction workers in the 7 AM to 3:30 PM shift), an estimated 537 workers would travel 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 430, including 300 subway trips, 77 railroad trips, and 53 bus trips. As described above, Proposed Project generated subway trips would be dispersed among the

study area's subway stations/lines such that trip-making for any single subway station/line would not exceed the *CEQR Technical Manual* analysis threshold of 200 or more peak hour subway trips. Therefore, a detailed analysis of subway facilities is not warranted, and the Proposed Project is not expected to result in any significant adverse subway impacts. Similarly, incremental bus trips would be dispersed among the local bus routes serving the study area such that trip-making for any single bus route would not exceed the *CEQR Technical Manual* analysis threshold of 50 or more peak hour bus trips on any bus route in any direction. Therefore, a detailed analysis of buses is not warranted, and the Proposed Project is not expected to result in any significant adverse bus impacts.

PEDESTRIANS

During the peak construction worker period, a maximum of 858 average daily construction workers would travel to the Development Site in the 7 AM to 3:30 PM shift. All trips generated by the Proposed Project would traverse the pedestrian elements (i.e., sidewalks, corners, and crosswalks) surrounding the Development Site. A Level 2 screening assessment (presented in the section below) has been conducted to determine if there is a need for additional quantified pedestrian analyses.

Level 2 Screening

As part of the Level 2 screening assessment, project generated trips have been assigned to specific pedestrian elements near the Development Site. 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 pedestrian elements incurring 200 or more peak hour pedestrian trips.

Level 2 pedestrian trip assignments have been individually developed for the Proposed Project generated pedestrian trips. These trip assignments are shown in **Figures 16-4 and 16-5** and discussed below.

- Auto Trips: All motorists to the Proposed Project have been assigned to available neighborhood off-street parking spaces.
- Taxi Trips: Taxi patrons would get dropped off and picked up along the Proposed Project block faces.
- City Bus Trips: City bus riders would use buses stopping on First Avenue, Second Avenue, or Third Avenue and would get off at bus stops nearest to the Development Site; Bus riders traveling from the Port Authority Bus Terminal would transfer to the subway and would get off at subway stations nearest to the Development Site.
- Subway Trips: Subway riders have been assigned to the 72nd Street (Q train), and 68th Street – Hunter College (No. 6 train), and Lexington Avenue – 63rd Street (F/Q trains) Subway Stations.
- Railroad Trips: Railroad riders have been assigned to transfer to the subway and were assigned to the 72nd Street (Q train), and 68th Street – Hunter College (No. 6 train), and Lexington Avenue – 63rd Street (F/Q trains) Subway Stations.
- Walk-Only Trips: Pedestrian walk-only trips have been developed by distributing project generated person trips to surrounding pedestrian facilities (i.e., sidewalks, corner reservoirs, and crosswalks) based on population density data, U.S. Census RJTW O-D data, as well as the land use characteristics of the surrounding neighborhood.

During construction, MPT elements would be temporarily constructed along the west sidewalk of York Avenue between East 66th Street and East 67th Street, narrowing the clear path to 7 feet. MPT elements would also be temporarily constructed adjacent to the project site along the north sidewalk of East 66th Street between First Avenue and York Avenue and the south sidewalk of East 67th Street between First Avenue and York Avenue, narrowing the clear paths of both to 5 feet. MPT elements during construction would also result in reduced corner reservoir areas on the southwest corner of York Avenue and East 67th Street and the northwest corner of York Avenue and East 66th Street, such that a corner area (free of obstructions) of no less than 69 square feet and 39 square feet would be available on each corner, respectively. Based on the detailed assignment of incremental pedestrian trips illustrated in **Figures 16-4 and 16-5** and considering the above detailed pedestrian elements with reduced sidewalk widths and corner areas due to MPT elements during construction, a total of three sidewalks, six corners, and two crosswalks have been selected for detailed pedestrian analysis for the construction peak hours, as summarized in **Table 16-9**; among these elements, all three sidewalks and two of the six corners were also selected for analysis for the weekday AM, midday, and PM operational peak hours.

Table 16-9

Construction Pedestrian Level 2 Screening Results—Selected Analysis Locations

Pedestrian Elements	Incremental Pedestrian Trips		Selected Analysis Locations
	AM	PM	
East 67th Street and First Avenue			
North crosswalk	44	44	
East crosswalk	51	46	
South crosswalk	200	212	✓
West crosswalk	25	25	
Northeast corner	103	93	
Southeast corner	251	258	✓
Southwest corner	225	237	✓
Northwest corner	69	69	
North sidewalk along East 67th Street between First Avenue and York Avenue	31	26	
South sidewalk along East 67th Street between First Avenue and York Avenue*	273	278	✓
North sidewalk along East 67th Street between First Avenue and Second Avenue	40	40	
South sidewalk along East 67th Street between First Avenue and Second Avenue	175	187	
East 66th Street and First Avenue			
North crosswalk	81	81	
East crosswalk	81	81	
South crosswalk	81	81	
West crosswalk	78	78	
Northeast corner	162	162	
Southeast corner	332	332	✓
Southwest corner	159	159	
Northwest corner	159	159	
North sidewalk along East 66th Street between First Avenue and York Avenue*	160	160	✓
South sidewalk along East 66th Street between First Avenue and York Avenue	170	170	
West sidewalk along First Avenue between East 66th Street and East 65th Street	20	20	
East sidewalk along First Avenue between East 66th Street and East 65th Street	170	170	
North sidewalk along East 66th Street between First Avenue and Second Avenue	3	3	
South sidewalk along East 66th Street between First Avenue and Second Avenue	137	137	
East 65th Street and First Avenue			
North crosswalk	42	42	
East crosswalk	153	153	
South crosswalk	19	19	
West crosswalk	22	22	
Northeast corner	195	195	
Southeast corner	172	172	

Table 16-9 (cont'd)
Construction Pedestrian Level 2 Screening Results—Selected Analysis Locations

Pedestrian Elements	Incremental Pedestrian Trips		Selected Analysis Locations
	AM	PM	
Southwest corner	41	41	
Northwest corner	84	84	
North sidewalk along East 65th Street between First Avenue and York Avenue	26	26	
South sidewalk along East 65th Street between First Avenue and York Avenue	8	8	
North sidewalk along East 65th Street between First Avenue and Second Avenue	40	40	
East 69th Street and York Avenue			
West crosswalk	62	62	
Southwest corner	63	63	
Northwest corner	62	62	
West sidewalk along York Avenue between East 69th Street and East 68th Street	61	61	
East sidewalk along York Avenue between East 69th Street and East 68th Street	1	1	
East 68th Street and York Avenue			
South crosswalk	1	1	
West crosswalk	128	75	
Southwest corner	112	112	
Northwest corner	83	83	
North sidewalk along East 68th Street between York Avenue and FDR Drive	1	1	
South sidewalk along East 68th Street between York Avenue and FDR Drive	1	1	
West sidewalk along York Avenue between East 68th Street and East 67th Street	113	113	
East 67th Street and York Avenue			
West crosswalk	143	138	
Southwest corner*	416	416	✓
Northwest corner	143	138	
West sidewalk along York Avenue between East 67th Street and East 66th Street*	859	859	✓
East 66th Street and York Avenue			
North crosswalk	1	1	
West crosswalk	284	284	✓
Northeast corner	1	1	
Southwest corner	284	284	✓
Northwest corner*	445	445	✓
North sidewalk along East 66th Street between York Avenue and FDR Drive	1	1	
West sidewalk along York Avenue between East 66th Street and East 65th Street	114	114	
✓ denotes pedestrian elements selected for detailed analysis.			

Notes:
* Element analyzed due to MPT elements in place during construction that reduce sidewalk width or corner area; elements will be analyzed for the operational peak hours in addition to the construction peak hours.

TRANSPORTATION ANALYSIS METHODOLOGIES

Pedestrian Operations

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

The primary performance measure for sidewalks and walkways is pedestrian space, expressed as square feet (sf) 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.

Street corners and crosswalks 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 2010* 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-seconds, 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 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, corner reservoirs, and crosswalks are summarized in **Table 16-10**. The *CEQR Technical Manual*-specified acceptable LOS in Central Business District (CBD) areas is mid-LOS D or better (minimum of 31.5 SFP for sidewalks; minimum of 19.5 SFP for corners and crosswalks) in CBD settings, while acceptable LOS in non-CBD areas is within LOS C. Consistent with the 2013 FSEIS, the CBD criteria were used in the pedestrian analyses.

Table 16-10
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks	Corner Reservoirs and Crosswalks
A	≥ 530.1 SFP	≥ 60.1 SFP
B	90.1 – 530.0 SFP	40.1 – 60.0 SFP
C	40.1 – 90.0 SFP	24.1 – 40.0 SFP
D	23.1 – 40.0 SFP	15.1 – 24.0 SFP
E	11.1 – 23.0 SFP	8.1 – 15.0 SFP
F	≤ 11.0 SFP	≤ 8.0 SFP

Note: SFP = square feet per pedestrian
Source: New York City Mayor's Office of Environmental Coordination, 2021 *CEQR Technical Manual*

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 Technical Manual* procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Sidewalks

The CBD sliding-scale formula for determining sidewalk impacts 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 mid-LOS D. **Table 16-11** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Corner Reservoirs and Crosswalks

The determination of significant corner and crosswalk impacts in the CBD is also based on a sliding scale using the following formula: Y ≥ 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 mid-LOS D. **Table 16-12** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 16-11
Significant Impact Guidance for Sidewalks

CBD Platoon Flow Sliding Scale Formula: *Y ≥ X/(9.5—0.321)*	
No Action Pedestrian Space (X, SFP)	**With Action Pedestrian Space Reduction (Y, SFP)**
No Action Pedestrian Space ≥ 34.7	With Action Pedestrian Space ≤ 31.4
34.0 to 34.6	≥ 3.3
33.0 to 33.9	≥ 3.2
32.1 to 32.9	≥ 3.1
31.1 to 32.0	≥ 3.0
30.2 to 31.0	≥ 2.9
29.2 to 30.1	≥ 2.8
28.3 to 29.1	≥ 2.7
27.3 to 28.2	≥ 2.6
26.4 to 27.2	≥ 2.5
25.4 to 26.3	≥ 2.4
24.5 to 25.3	≥ 2.3
23.5 to 24.4	≥ 2.2
22.6 to 23.4	≥ 2.1
21.6 to 22.5	≥ 2.0
20.7 to 21.5	≥ 1.9
19.7 to 20.6	≥ 1.8
18.8 to 19.6	≥ 1.7
17.8 to 18.7	≥ 1.6
16.9 to 17.7	≥ 1.5
15.9 to 16.8	≥ 1.4
15.0 to 15.8	≥ 1.3
14.0 to 14.9	≥ 1.2
13.1 to 13.9	≥ 1.1
12.1 to 13.0	≥ 1.0
11.2 to 12.0	≥ 0.9
10.2 to 11.1	≥ 0.8
9.3 to 10.1	≥ 0.7
8.3 to 9.2	≥ 0.6
7.4 to 8.2	≥ 0.5
6.4 to 7.3	≥ 0.4
≤ 6.3	≥ 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, 2021 *CEQR Technical Manual*

Pedestrian Conditions

As described above, Level 1 and Level 2 screening analyses have been prepared to identify the pedestrian elements that warrant a detailed analysis. Based on the assignment of pedestrian trips and in consideration of sidewalk conditions during construction of the Proposed Project, three sidewalks, six corners, and two crosswalks have been selected for analysis for the weekday AM

and PM construction peak hours; among these elements, all three sidewalks and two of the six corners were also selected for analysis for the weekday AM, midday, and PM operational peak hours.

Table 16-12
Significant Impact Guidance for Corners and Crosswalks

CBD Sliding Scale Formula: $Y \geq X/9.0–0.31$	
No Action Pedestrian Space (X, SFP)	**With Action Pedestrian Space Reduction (Y, SFP)**
No Action Pedestrian Space ≥ 21.5	With Action Pedestrian Space ≤ 19.4
21.3 to 21.4	≥ 2.1
20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3
≤ 5.0	≥ 0.2

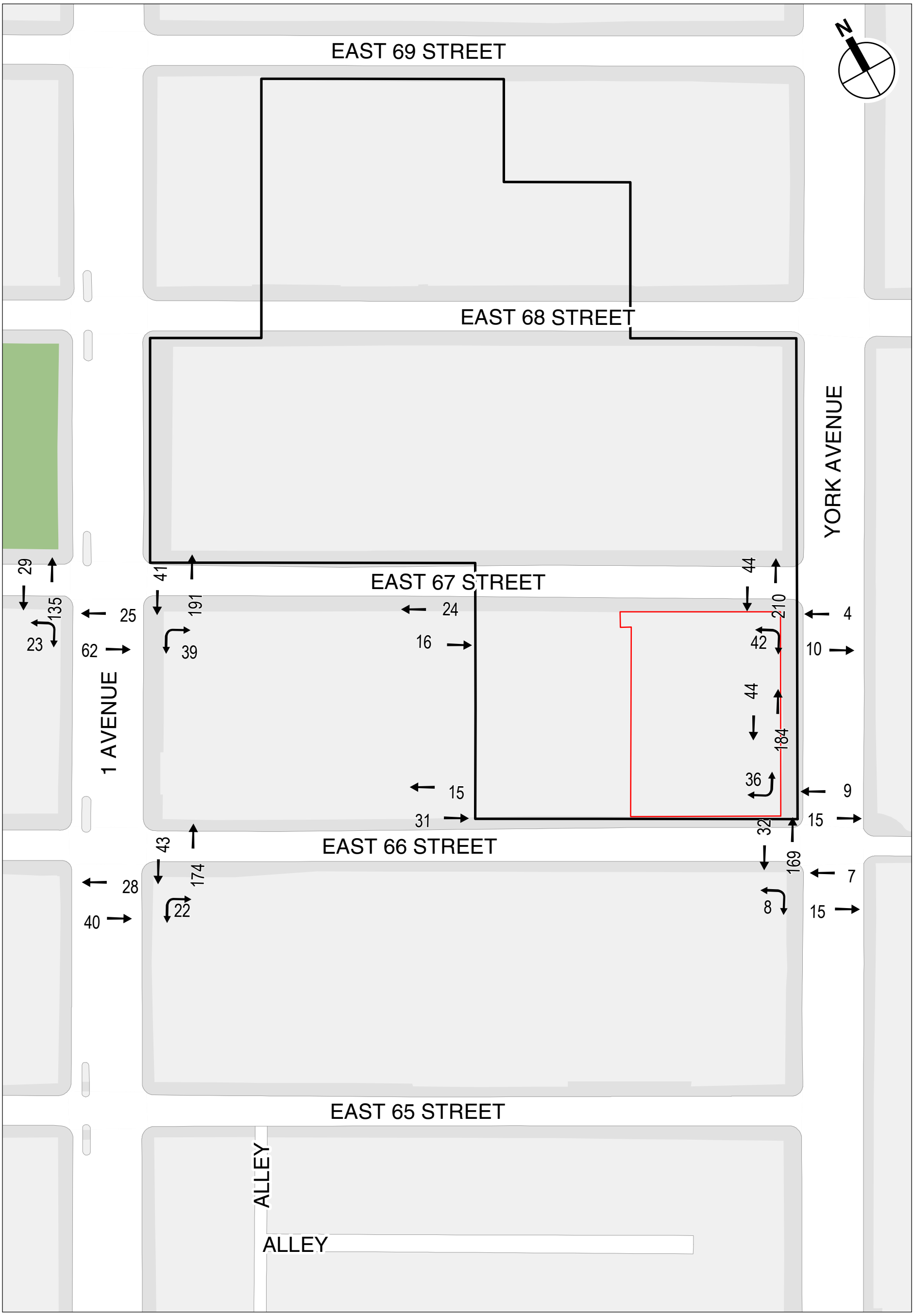
Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, 2021 *CEQR Technical Manual*

In order to establish an existing condition for the construction and operational peak hours, pedestrian counts were collected for the weekday AM construction analysis peak hour (6:00 to 7:00 AM), the weekday PM construction analysis peak hour (3:00 to 4:00 PM), and for the weekday operational AM, midday, and PM analysis peaks. Existing data were collected in November 2022 and May 2023.

The existing construction AM and PM peak hour and the operational AM, midday, and PM peak hour pedestrian volumes are shown in **Figures 16-12 through 16-16**. The No Action construction AM and PM peak hour and the operational AM, midday, and PM peak hour pedestrian volumes are shown in **Figures 16-17 through 16-21**. The With Action construction AM and PM peak hour and the operational AM, midday, and PM peak hour pedestrian volumes are shown in **Figures 16-22 through 16-26**. The 2028 construction No Action condition was developed by layering the CEQR background growth and trips generated by discrete No Build projects in the area for the operational peak hours to be conservative, on top of the existing pedestrian volumes. The 2028 construction With Action volumes were developed by adding the construction pedestrian trips presented in **Figures 16-4 and 16-5**.

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*.

4/2/2024

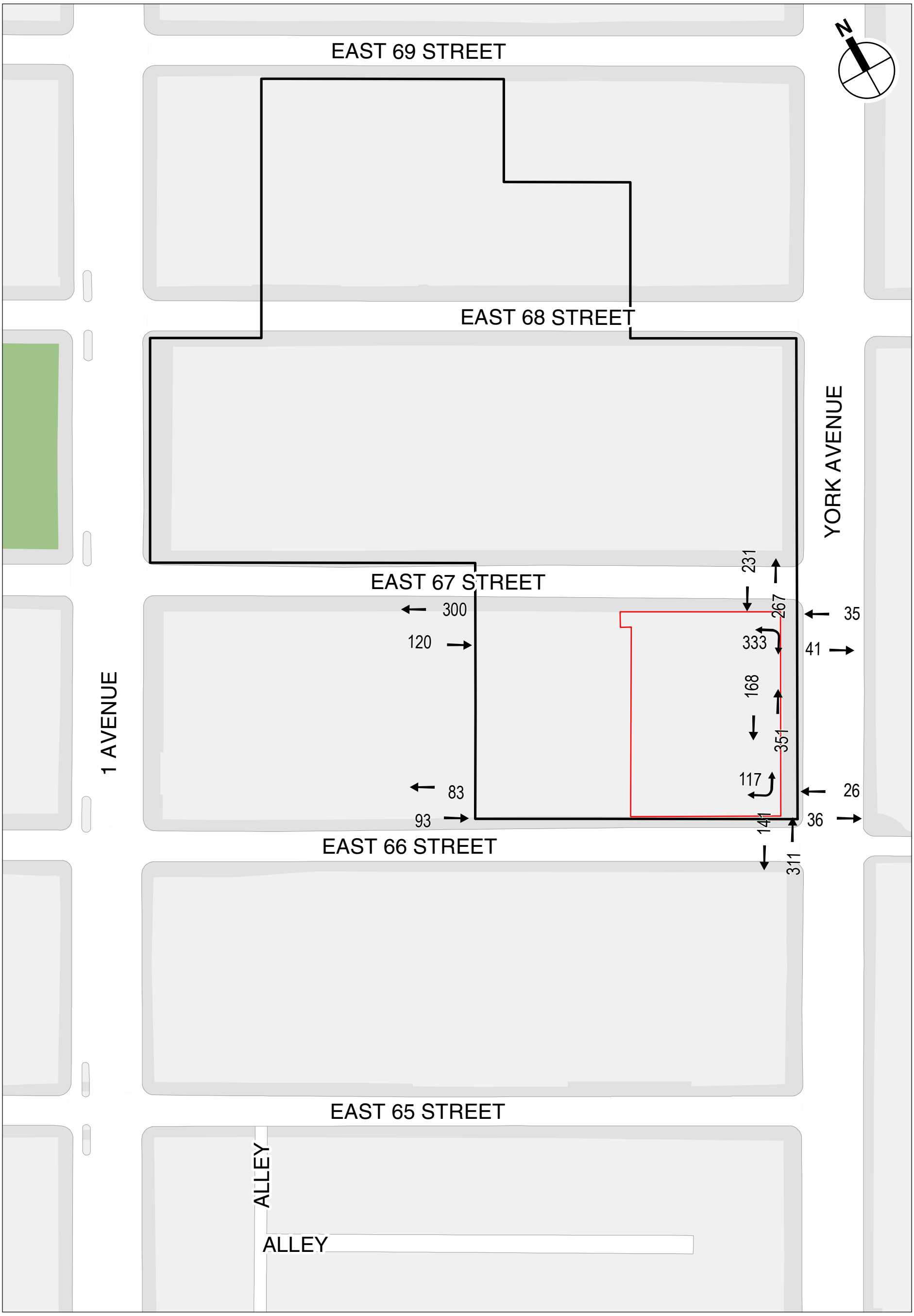


Construction Existing Pedestrian Volumes
Weekday 6-7 AM Peak Hour

MSK PAVILION

Figure 16-12

4/2/2024

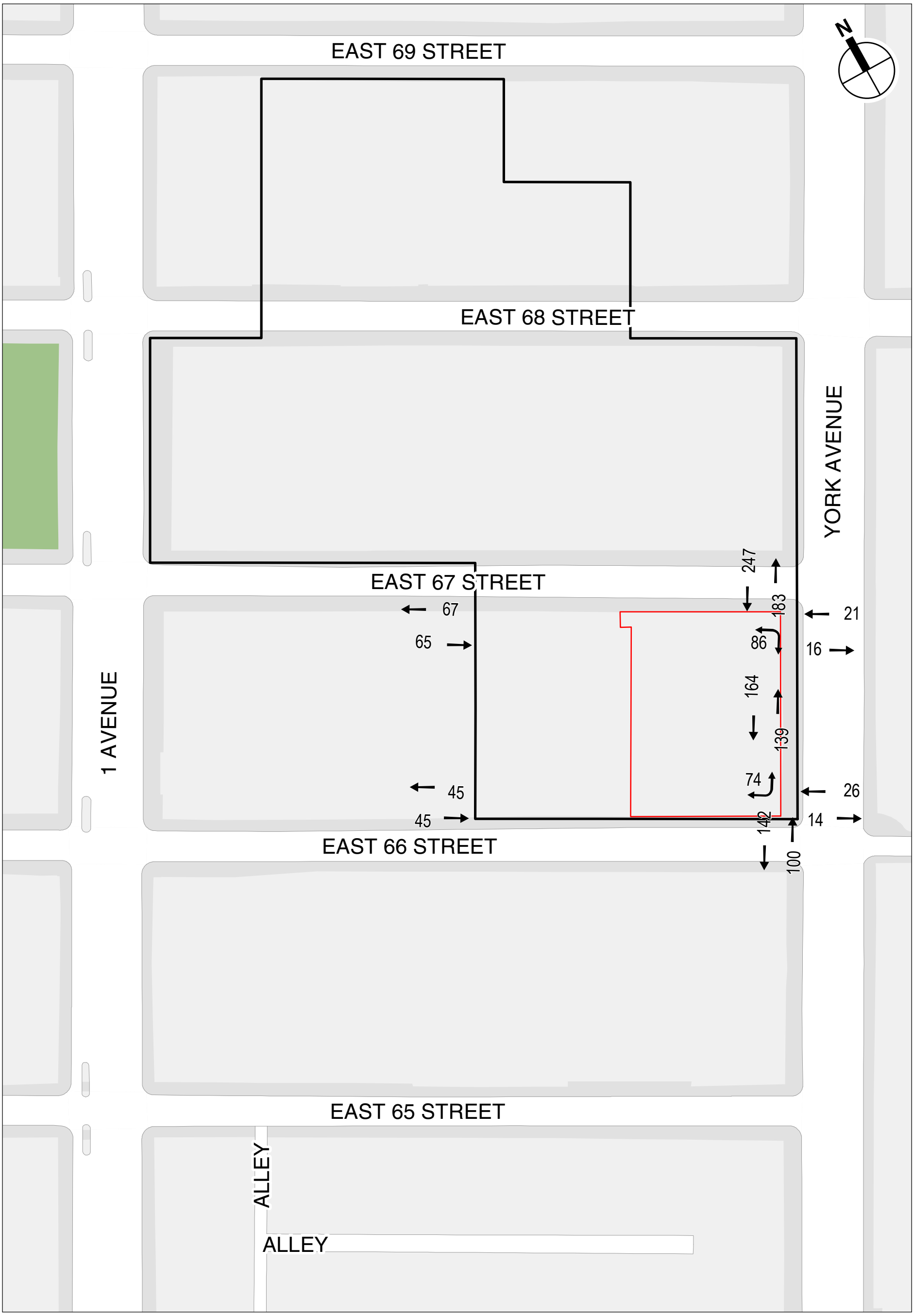


Construction Existing Pedestrian Volumes
Weekday 8:15-9:15 AM Peak Hour

MSK PAVILION

Figure 16-13

4/2/2024

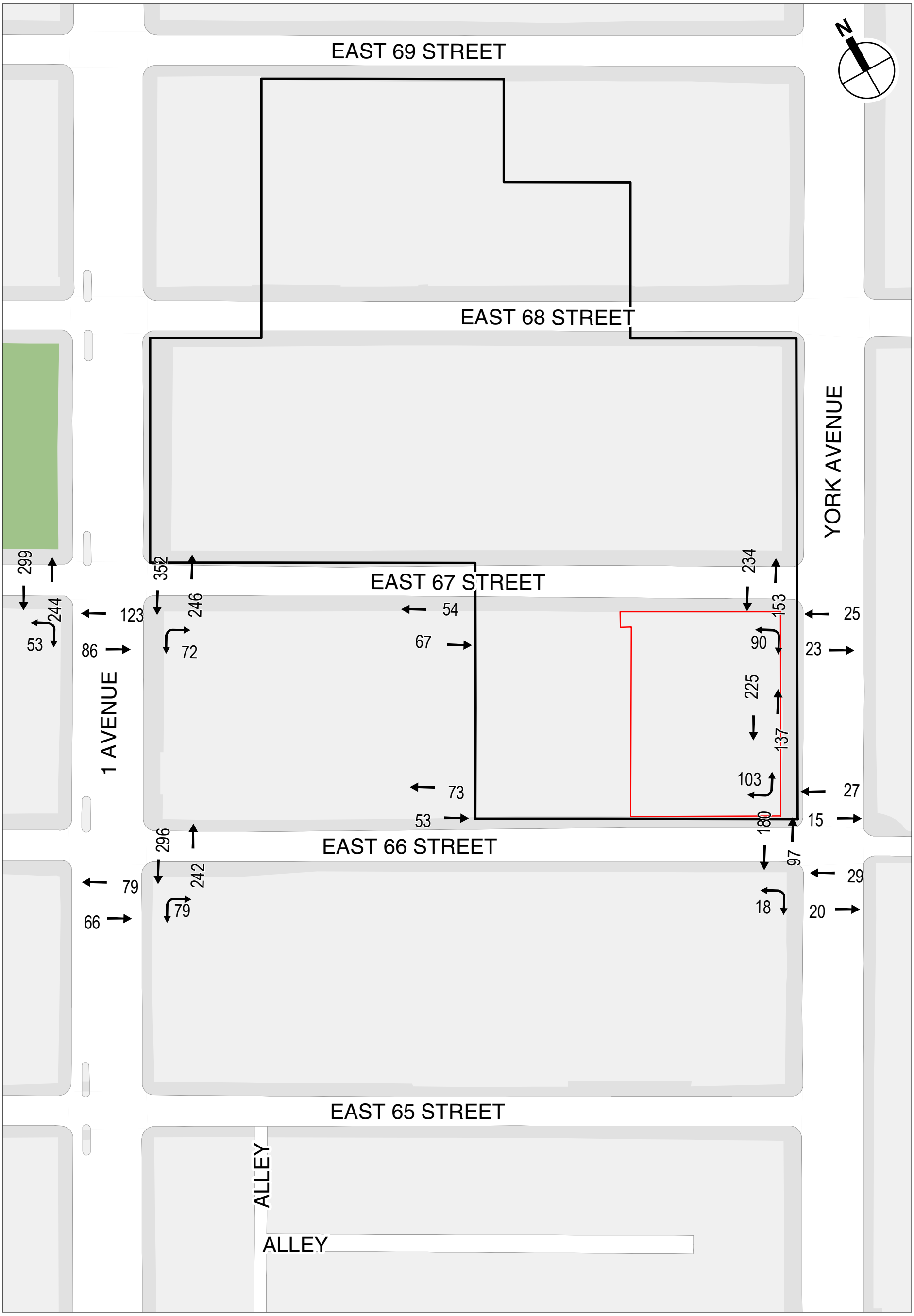


Construction Existing Pedestrian Volumes
Weekday 12:45-1:45 PM Peak Hour

MSK PAVILION

Figure 16-14

4/2/2024

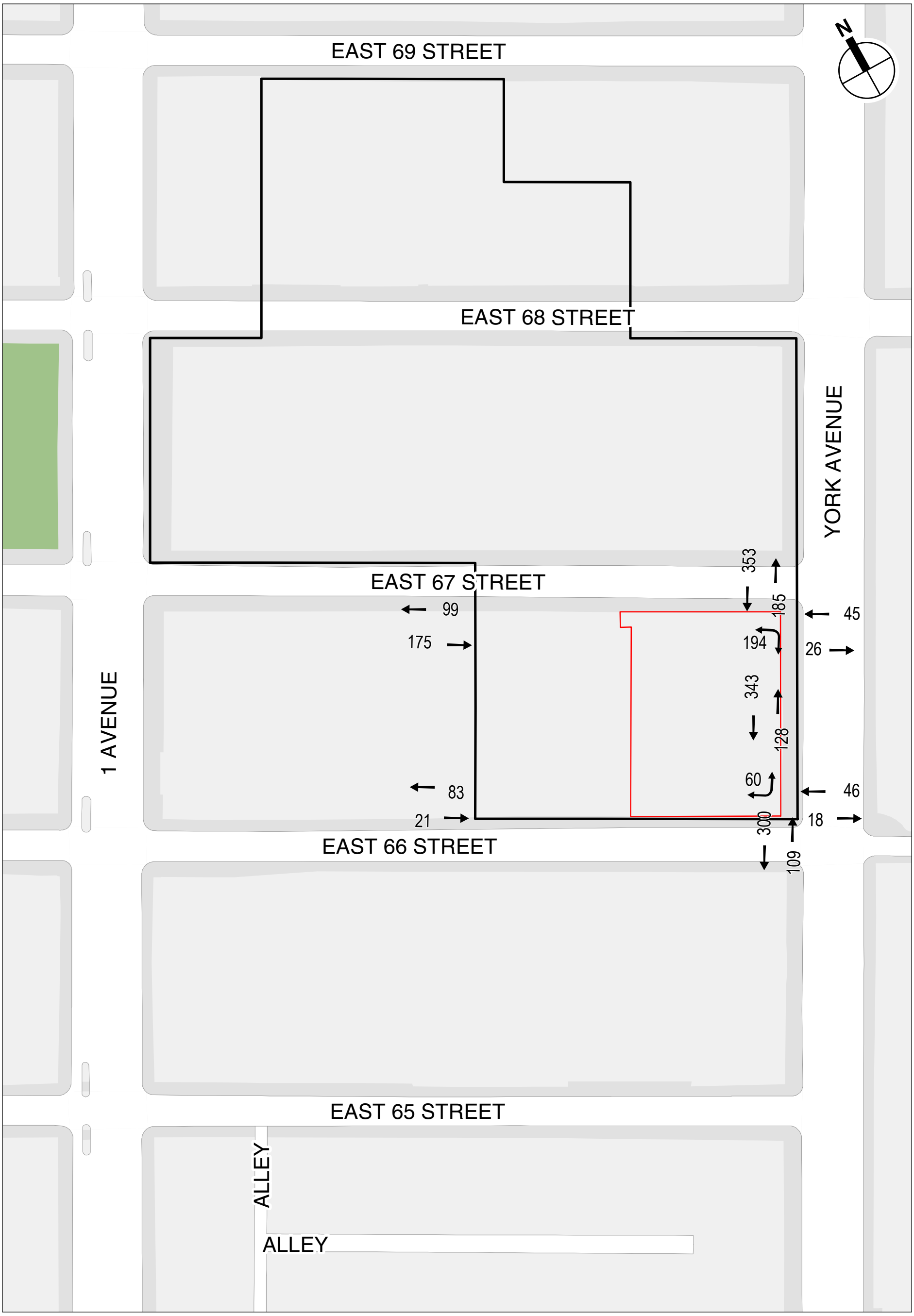


Construction Existing Pedestrian Volumes
Weekday 3-4 PM Peak Hour

MSK PAVILION

Figure 16-15

4/2/2024



Construction Existing Pedestrian Volumes
Weekday 4:45-5:45 PM Peak Hour

4/2/2024

EAST 69 STREET

EAST 68 STREET

YORK AVENUE

1 AVENUE

EAST 67 STREET

EAST 66 STREET

EAST 65 STREET

ALLEY

ALLEY

N

29 137 23

42 194 40

25 63

24 16

45 213 43

4 10

45 187 36

15 31

9 15 32

44 176 22

28 41

171 8

7 15

Project Area

Development Site

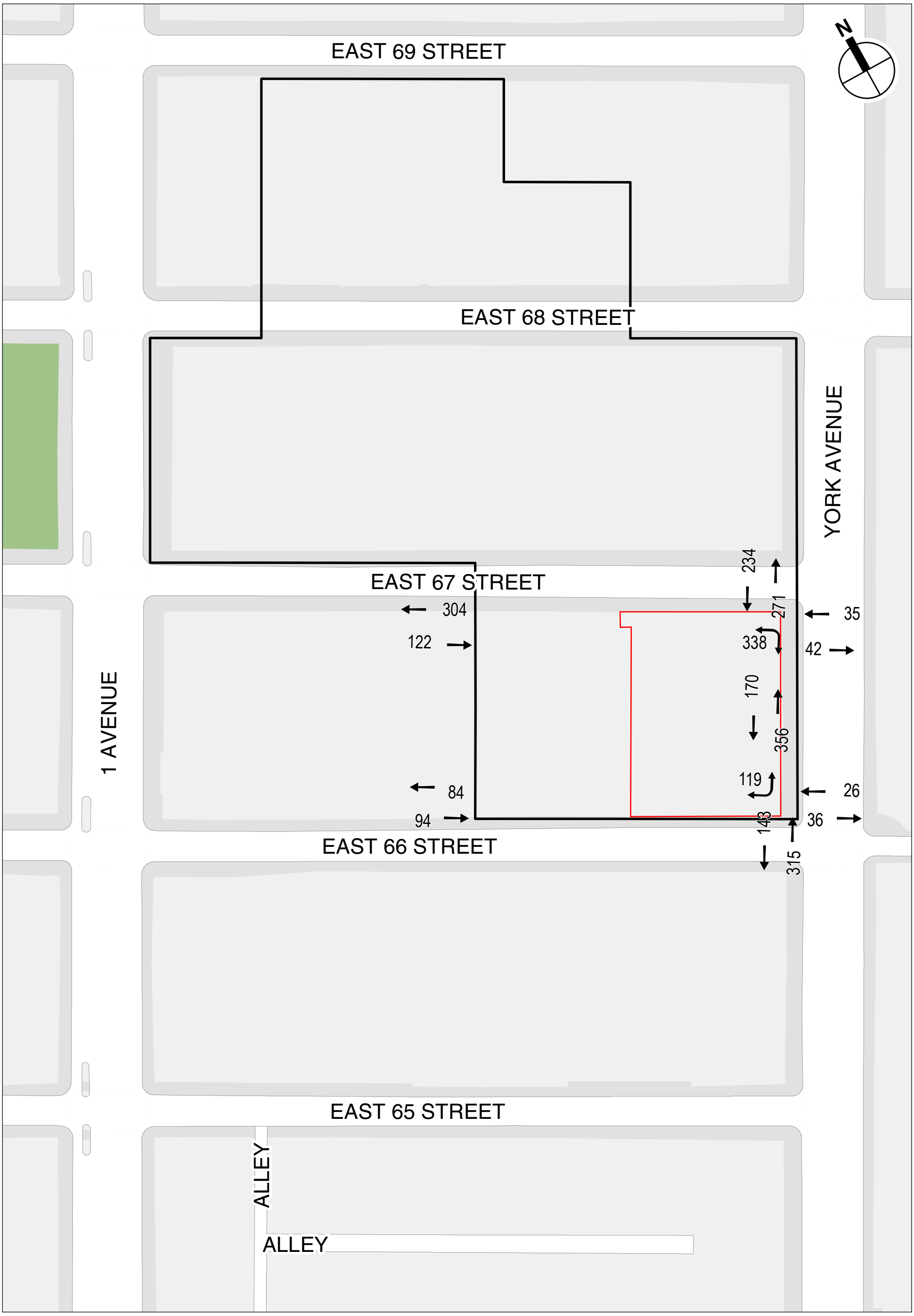
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2028 Construction No Action Pedestrian Volumes
Weekday 6-7 AM Peak Hour

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Figure 16-17

4/2/2024

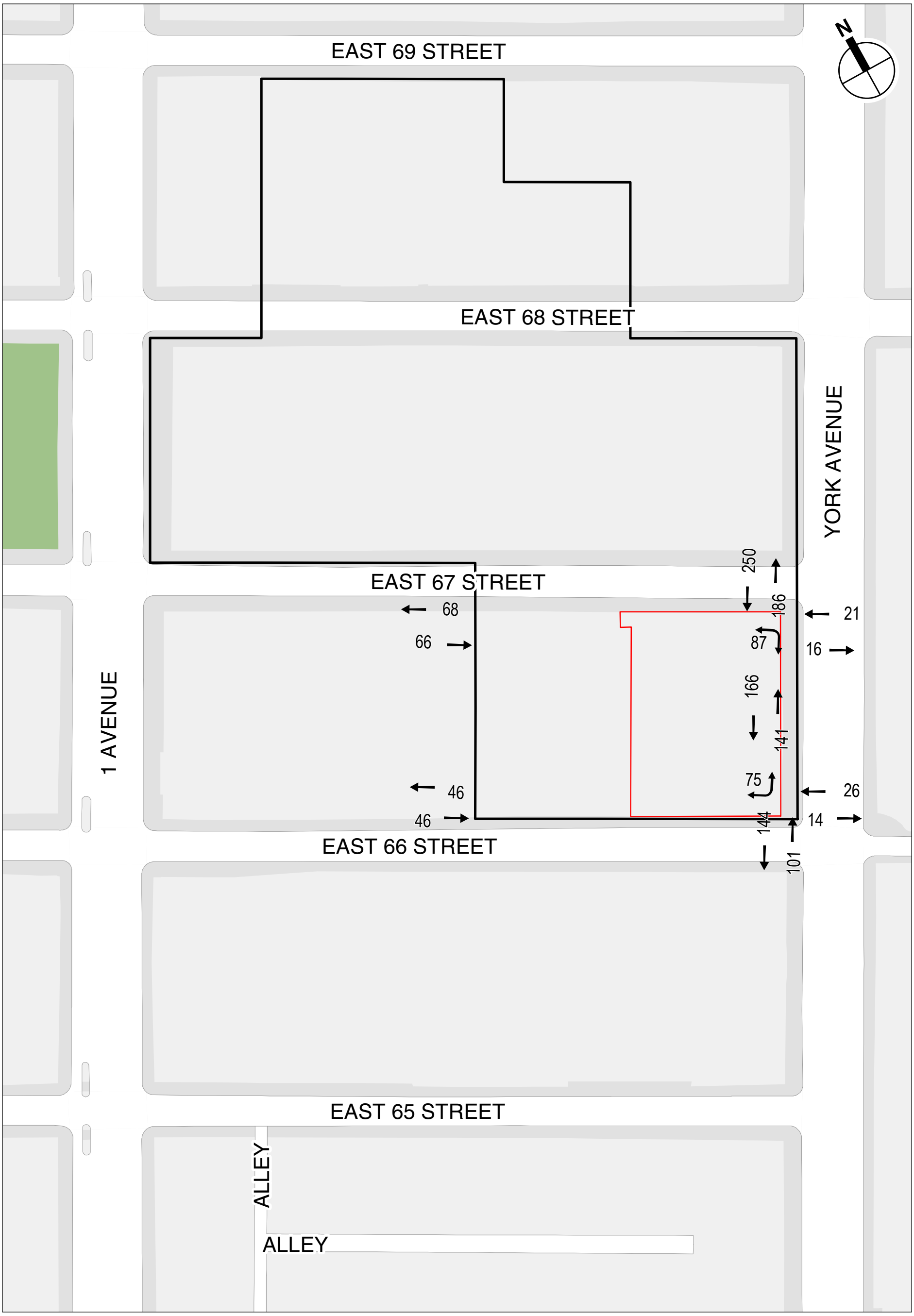


2028 Construction No Action Pedestrian Volumes
Weekday 8:15-9:15 AM Peak Hour

MSK PAVILION

Figure 16-18

4/2/2024

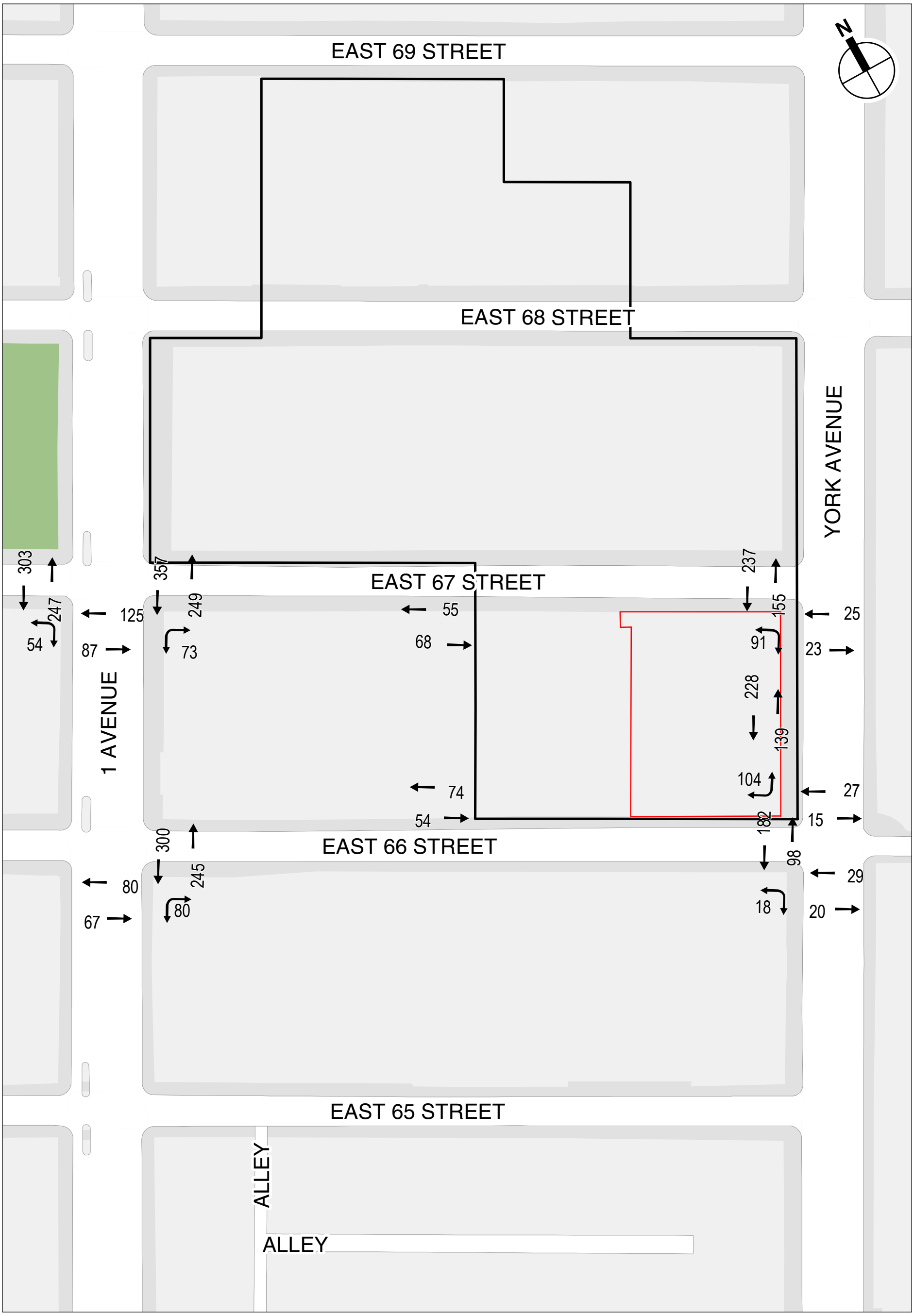


2028 Construction No Action Pedestrian Volumes
Weekday 12:45-1:45 PM Peak Hour

MSK PAVILION

Figure 16-19

4/2/2024

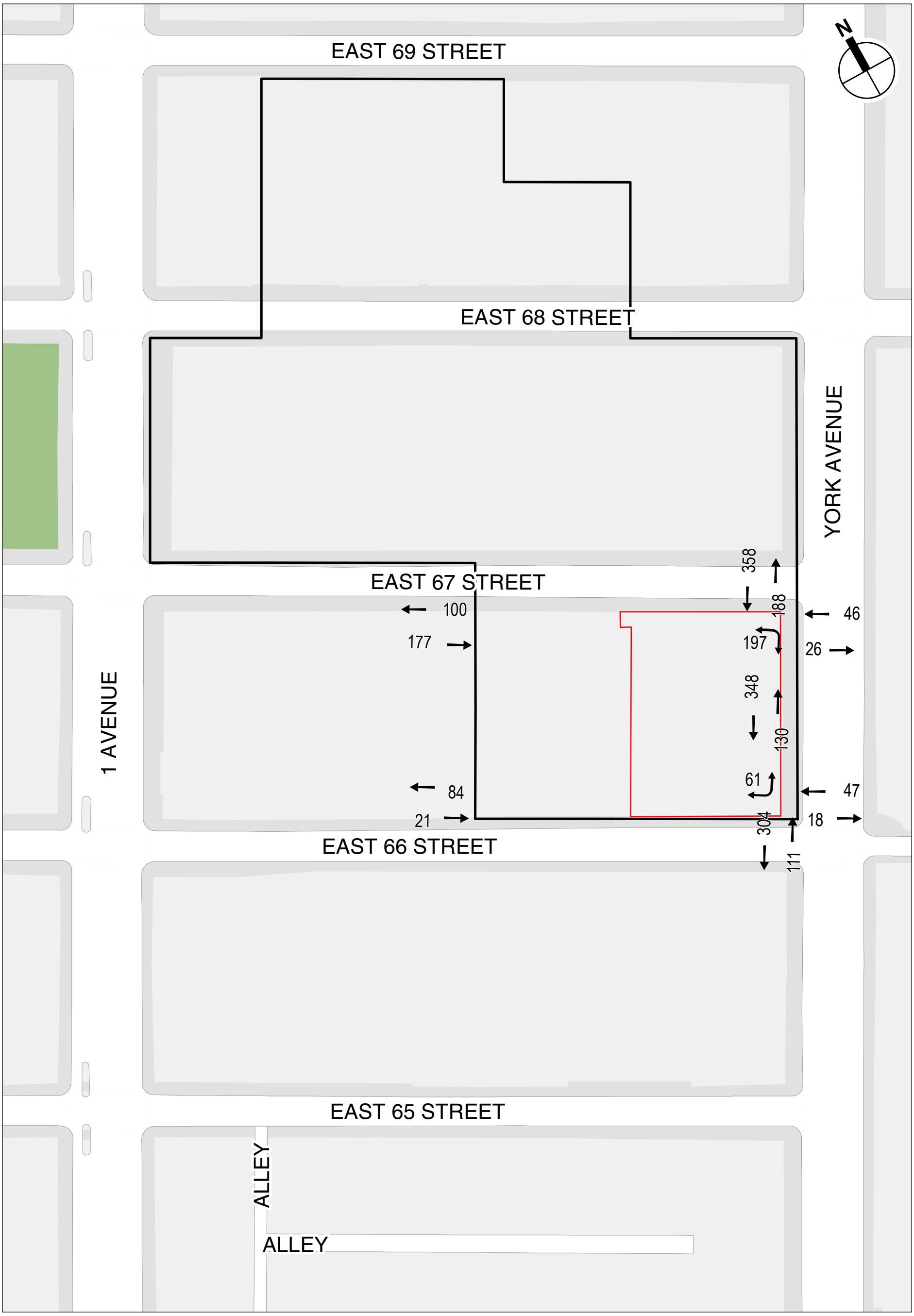


2028 Construction No Action Pedestrian Volumes
Weekday 3-4 PM Peak Hour

MSK PAVILION

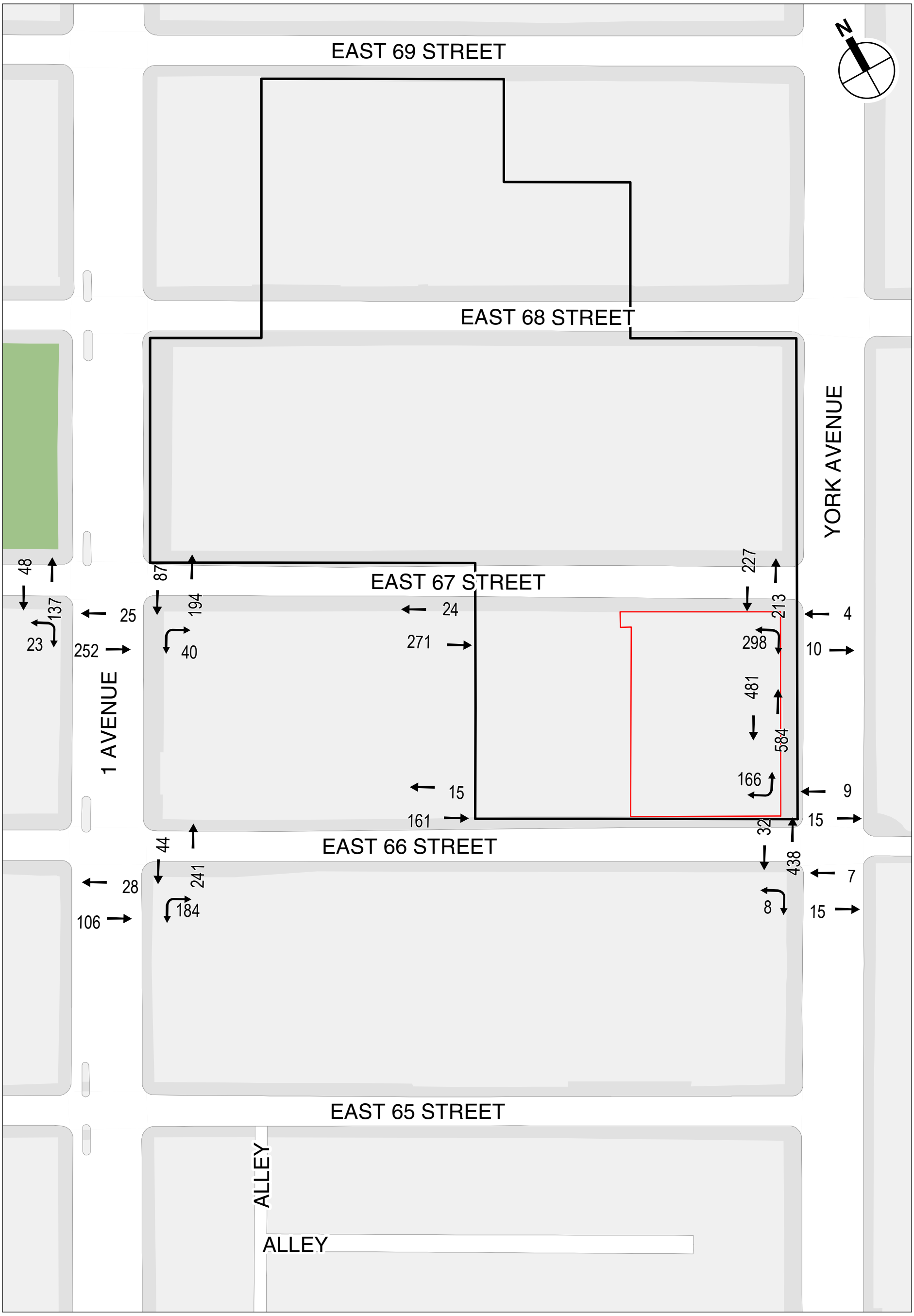
Figure 16-20

4/2/2024



2028 Construction No Action Pedestrian Volumes
Weekday 4:45-5:45 PM Peak Hour

4/3/2024

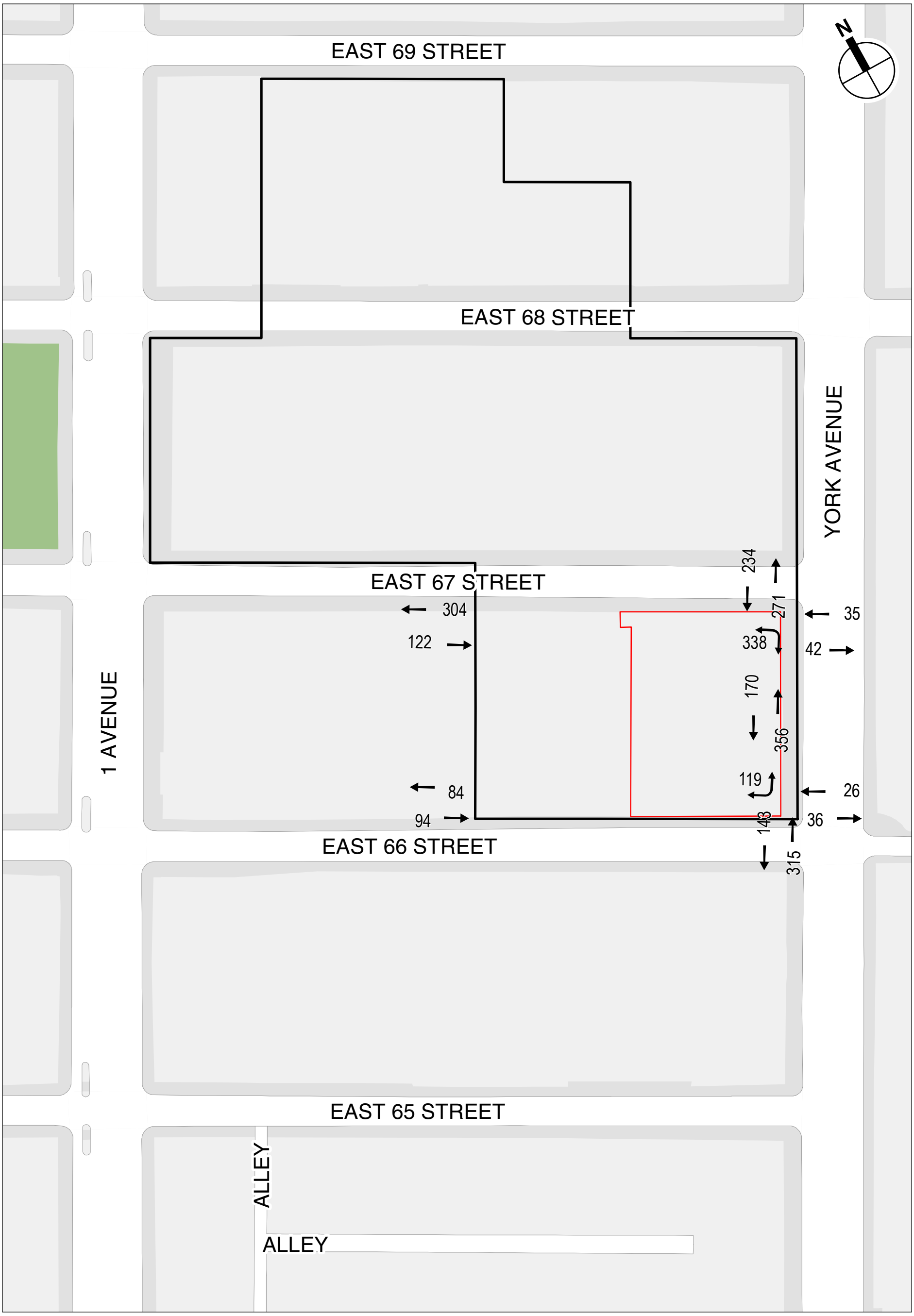


2028 Construction With Action Pedestrian Volumes
Weekday 6-7 AM Peak Hour

MSK PAVILION

Figure 16-22

4/3/2024

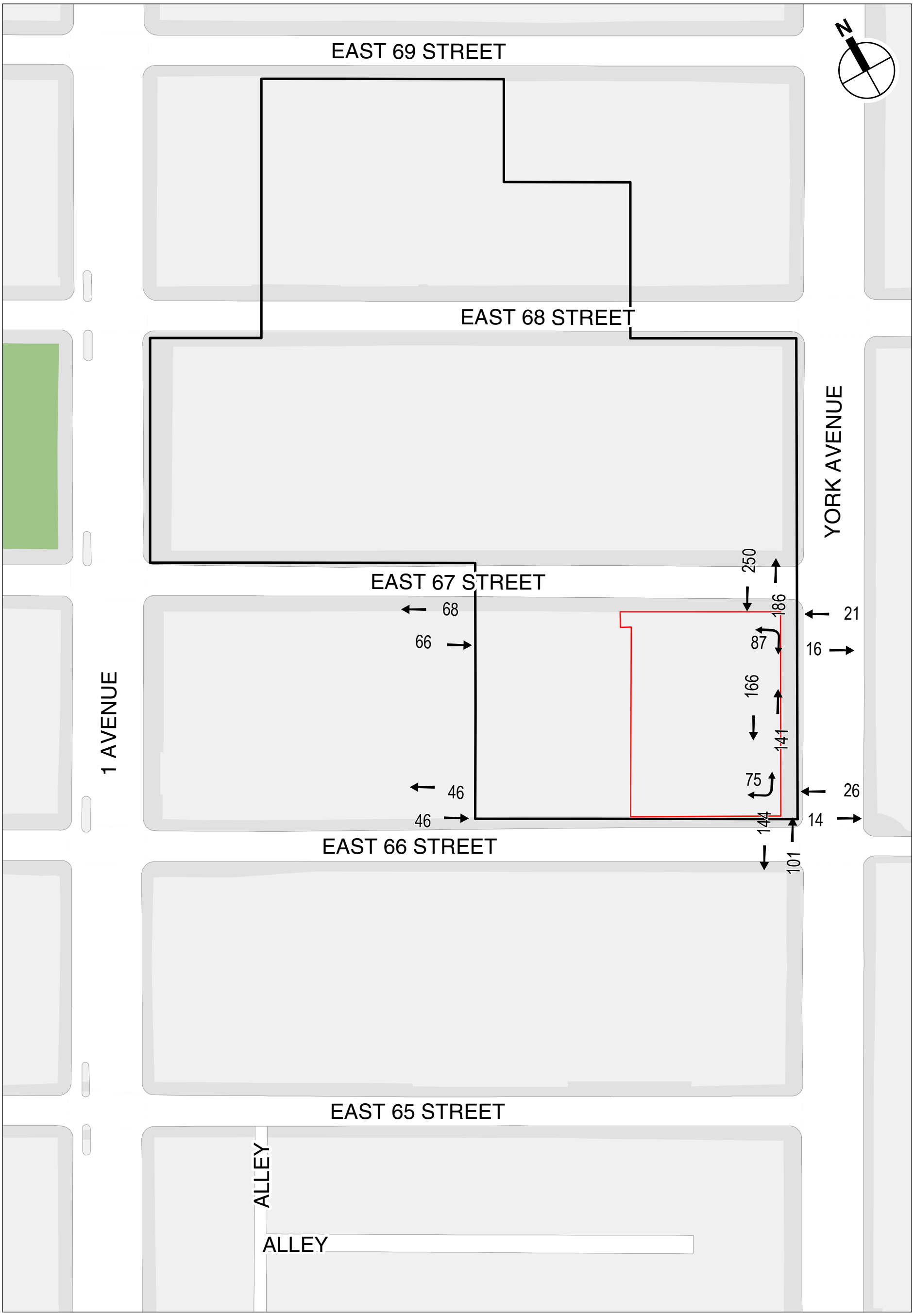


2028 Construction With Action Pedestrian Volumes
Weekday 8:15-9:15 AM Peak Hour

MSK PAVILION

Figure 16-23

4/3/2024

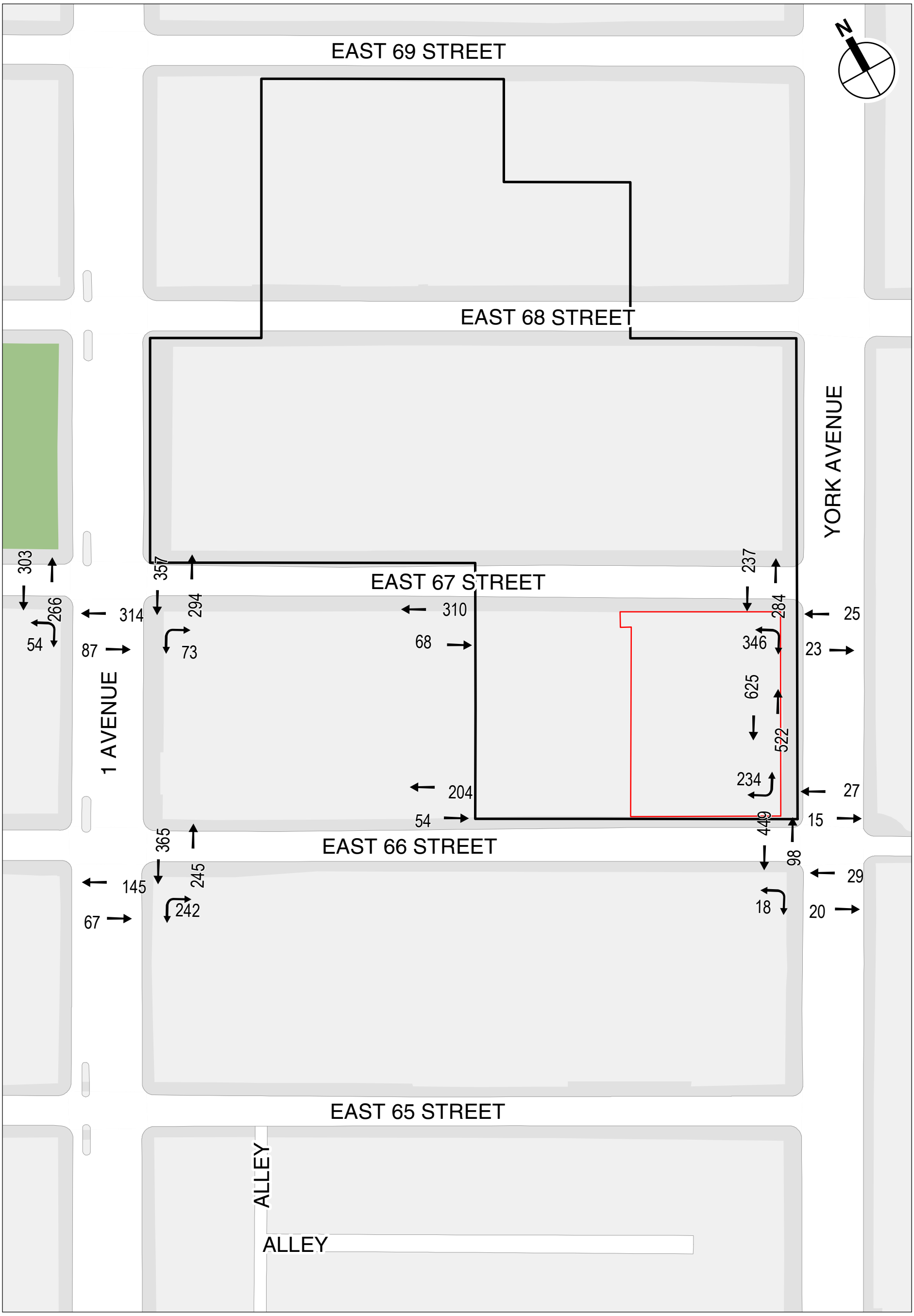


2028 Construction With Action Pedestrian Volumes
Weekday 12:45-1:45 PM Peak Hour

MSK PAVILION

Figure 16-24

4/3/2024

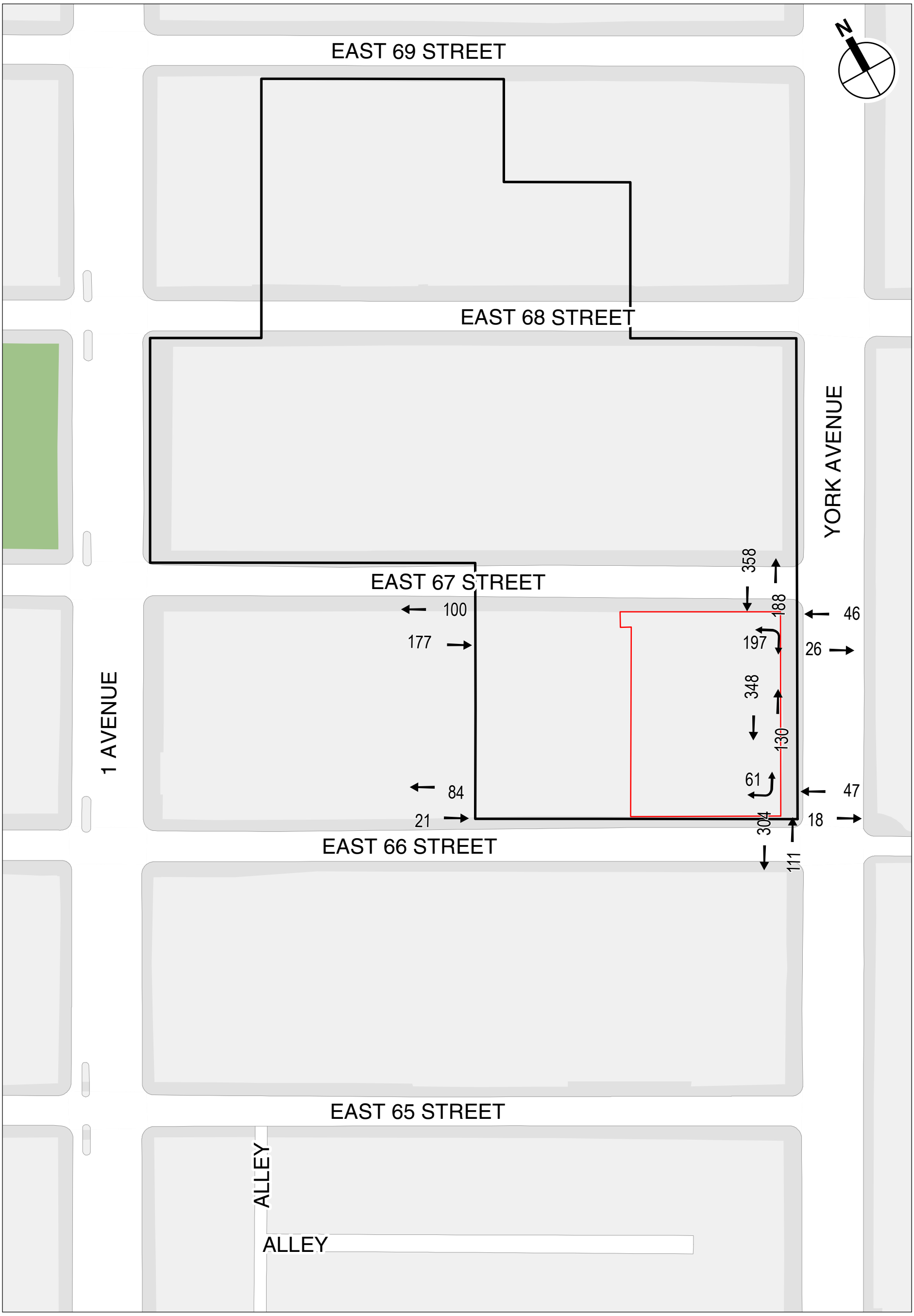


2028 Construction With Action Pedestrian Volumes
Weekday 3-4 PM Peak Hour

MSK PAVILION

Figure 16-25

4/3/2024



2028 Construction With Action Pedestrian Volumes
Weekday 4:45-5:45 PM Peak Hour

MSK PAVILION

Figure 16-26

As shown in **Table 16-13**, all pedestrian elements would operate at favorable LOS A, B, or C, or acceptable LOS D during all peak hours in the 2028 With Action condition. Therefore, the Proposed Project would not result in any significant adverse pedestrian impacts.

Table 16-13
Existing and 2028 No Action and With Action Conditions
Construction and Operational Peak Hour Pedestrian Level of Service Analysis

Location	Existing		2028 No Action		2028 With Action	
	SFP	LOS	SFP	LOS	SFP	LOS
Weekday Construction AM Peak Hour						
South Sidewalk along East 67th Street between First Avenue and York Avenue	990.0	A	990.0	A	62.8	C
North Sidewalk along East 66th Street between First Avenue and York Avenue	1000.7	A	1000.7	A	79.4	C
West Sidewalk along York Avenue between East 67th Street and East 66th Street	442.4	B	434.8	B	33.8	D
First Avenue and East 67th Street: Southeast Corner	114.3	A	112.3	A	63.2	A
First Avenue and East 67th Street: Southwest Corner	296.2	A	292.5	A	133.1	A
First Avenue and East 66th Street: Southeast Corner	315.1	A	311.1	A	127.5	A
York Avenue and East 67th Street: Southwest Corner	355.9	A	349.9	A	46.2	B
York Avenue and East 66th Street: Southwest Corner	674.1	A	668.4	A	295.2	A
York Avenue and East 66th Street: Northwest Corner	412.2	A	409.2	A	29.5	C
First Avenue and East 67th Street: South Crosswalk	178.2	A	175.9	A	47.2	B
York Avenue and East 66th Street: West Crosswalk	221.5	A	218.7	A	83.3	A
Weekday Operational AM Peak Hour						
South Sidewalk along East 67th Street between First Avenue and York Avenue	76.7	C	75.7	C	37.2	D
North Sidewalk along East 66th Street between First Avenue and York Avenue	332.8	B	327.2	B	117.3	B
West Sidewalk along York Avenue between East 67th Street and East 66th Street	146.8	B	144.8	B	53.8	C
York Avenue and East 67th Street: Southwest Corner	89.2	A	87.8	A	25.3	C
York Avenue and East 66th Street: Northwest Corner	136.1	A	134.1	A	24.8	C
Weekday Operational Midday Peak Hour						
South Sidewalk along East 67th Street between First Avenue and York Avenue	317.8	B	313.1	B	156.4	B
North Sidewalk along East 66th Street between First Avenue and York Avenue	577.4	A	564.9	A	201.6	B
West Sidewalk along York Avenue between East 67th Street and East 66th Street	380.1	B	375.2	B	140.5	B
York Avenue and East 67th Street: Southwest Corner	269.9	A	266.3	A	83.1	A
York Avenue and East 66th Street: Northwest Corner	353.6	A	349.7	A	68.0	A
Weekday Construction PM Peak Hour						
South Sidewalk along East 67th Street between First Avenue and York Avenue	432.7	B	425.7	B	64.8	C
North Sidewalk along East 66th Street between First Avenue and York Avenue	416.4	B	409.8	B	64.6	C
West Sidewalk along York Avenue between East 67th Street and East 66th Street	321.0	B	316.7	B	34.7	D
First Avenue and East 67th Street: Southeast Corner	65.0	A	63.9	A	41.1	B
First Avenue and East 66th Street: Southwest Corner	139.7	A	137.7	A	105.2	A
First Avenue and East 66th Street: Southeast Corner	161.1	A	158.9	A	108.3	A
York Avenue and East 67th Street: Southwest Corner	266.9	A	263.9	A	40.6	B
York Avenue and East 66th Street: Southwest Corner	591.6	A	586.8	A	335.2	A
York Avenue and East 66th Street: Northwest Corner	320.7	A	317.6	A	23.4	D
First Avenue and East 67th Street: South Crosswalk	105.2	A	103.7	A	50.1	B
York Avenue and East 66th Street: West Crosswalk	210.6	A	207.8	A	99.6	A
Weekday Operational PM Peak Hour						
South Sidewalk along East 67th Street between First Avenue and York Avenue	145.7	B	144.1	B	71.7	C
North Sidewalk along East 66th Street between First Avenue and York Avenue	699.6	A	686.4	A	247.4	B
West Sidewalk along York Avenue between East 67th Street and East 66th Street	225.1	B	221.8	B	82.9	C
York Avenue and East 67th Street: Southwest Corner	152.7	A	150.3	A	46.0	B
York Avenue and East 66th Street: Northwest Corner	236.9	A	232.6	A	39.8	C

PARKING

As described above, the estimated number of workers would be 1,073 per day during peak construction. It is estimated that approximately 47 percent of construction workers would commute to the Development Site by private autos at an average occupancy of approximately 1.30 persons per vehicle, which would generate a maximum parking demand of 388 parking spaces

during peak construction. In addition, there would be a maximum of 263 spaces of parking demand from patients and visitors during construction. The anticipated construction activities are therefore projected to generate a maximum parking demand of 651 parking spaces during the peak AM and midday hours of construction in 2028. For simplicity, the 2030 future No Action parking conditions detailed in Chapter 10, "Transportation," have been used as the baseline for comparison to 2028 construction peak parking demand since there would not be any new No Build projects coming online between 2028 and 2030, and the two years of additional background growth are negligible and present slightly more conservative conditions for 2028, the peak year of construction. The peak construction parking demand is expected to be mostly accommodated by parking facilities within a ¼-mile radius of the Development Site during the AM period, where approximately 633 public parking spaces would be available. There would be a larger shortfall during the midday period where approximately 185 spaces would be available. MPT elements would be deployed within parking lanes during peak stages of construction, reducing on-street parking. On East 66th Street, on the south curb, up to 8 spaces would be temporarily removed; the north curb is a No Standing area. On the west side of York Avenue between East 66th and East 67th Streets, there is a No Standing area, a designated access-a-ride area, and a NYCT bus stop but no parking spaces would be temporarily removed. On the south curb and north curb of East 67th Street, up to 6 spaces and 4 spaces, respectively, would be temporarily removed along with a NYCT bus stop. The Applicant will work with NYCT to relocate the two bus stops and access-a-ride area during construction. It is anticipated that on-street parking within a ¼-mile radius of the Development Site could accommodate the temporary construction period on-street parking loss of up to 18 spaces. Although there would be off-street parking shortfalls of approximately 18 parking spaces during the AM period and 466 parking spaces during the midday period, the project is located within CEQR Parking Zone 1. According to the *CEQR Technical Manual*, "the inability of the proposed project or the surrounding area to accommodate a project's future parking demands [in Parking Zones 1 and 2] is considered a parking shortfall but is generally not considered significant due to the magnitude of available alternative modes of transportation." Therefore, the Proposed Project would not result in any significant adverse parking impacts during construction.

AIR QUALITY

The construction of the Proposed Project would require the use of both non-road construction equipment and on-road vehicles. Non-road construction equipment includes equipment operating on-site, such as cranes, loaders, and excavators. On-road vehicles include worker vehicles and construction trucks arriving to and departing from the Project Area as well as vehicles operating on-site.

Emissions from non-road construction equipment and on-road vehicles have the potential to affect air quality. Emissions from dust-generating construction activities (i.e., truck loading and unloading operations) also have the potential to affect air quality. A quantitative analysis of the overall combined impact of both non-road and on-road sources of construction-related air emissions, including dust emissions, was performed to determine the potential for significant adverse impacts from these sources of air emissions generated during construction of the Proposed Project. Chapter 11, "Air Quality," contains a review of these air pollutants; applicable regulations, standards, and benchmarks; and general methodology for the air quality analyses. Additional details relevant only to the construction air quality analysis methodology are presented in this section.

EMISSIONS REDUCTION MEASURES

Construction activity in general, and large-scale construction in particular, has the potential to adversely affect air quality as a result of diesel emissions. Measures would be taken to reduce pollutant emissions during construction of the Proposed Project in accordance with all applicable laws, regulations, and building codes. Contractors would be required under contract specifications to implement an emissions reduction program to minimize the air quality effects from construction, which would be included in the PCREs. These include the use of clean fuel, dust suppression measures, idling restrictions, and diesel equipment reduction:

- *Clean Fuel*. ULSD fuel would be used exclusively for all diesel engines throughout the Development Site.
- *Dust Control.* To minimize dust emissions from construction activities, a dust control plan including a robust watering program would be required. For example, all trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the Development Site; and water sprays would be used for all demolition, excavation, and transfer of soils so that materials would be dampened as necessary to avoid the suspension of dust into the air. Stockpiled soils or debris would be watered, stabilized with a chemical suppressing agent, or covered. All measures required by DEP's *Construction Dust Rules* regulating construction-related dust emissions would be implemented.
- *Idling Restriction.* In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time would 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.
- *Diesel Equipment Reduction*. In accordance with the New York City Noise Control Code as discussed below, under "Noise," electrically powered equipment would be preferred over diesel-powered and gasoline-powered versions of that equipment to the extent practicable. Equipment that would use grid power in lieu of diesel engines includes but may not be limited to hoists and small equipment (such as welders).

In addition, the following measures would be implemented as PCREs to further reduce air pollutant emissions during construction of the Proposed Development:

- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for non-road diesel engines regulate the emission of criteria pollutants from new engines, including PM, CO, NO_x, and hydrocarbons. To the extent practicable, all diesel-powered non-road construction equipment 50 horsepower (hp) or greater would meet at least the Tier 3[1] emissions standard.
- *Best Available Tailpipe Reduction Technologies*. Non-road diesel engines with a power rating of 50 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)

[1] The first federal regulations for new non-road diesel engines were adopted in 1994, and adopted 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, 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_x and CO. Prior to 1998, emissions from non-road diesel engines were unregulated. These engines are typically referred to as Tier 0.

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 non-road engines rated at 50 hp or greater would utilize DPFs, either installed by the original equipment manufacturer or retrofitted. Retrofitted DPFs must be verified by EPA or the California Air Resources Board. Active DPFs or other technologies proven to achieve an equivalent reduction may also be used. The use of DPFs for diesel engines meeting the Tier 3 emissions standard achieves similar emission reductions as the newer Tier 4 particulate matter emission standard.

Overall, this emissions reduction program is expected to substantially reduce diesel emissions. In particular, ULSD and construction equipment rated Tier 3 or higher is now readily available and DPFs are commonly found on construction equipment used in New York City.

ON-SITE CONSTRUCTION ACTIVITY ASSESSMENT`

Analysis Periods

To determine which construction periods constitute the worst-case periods for the pollutants of concern (PM, CO, NO_2), construction-related emissions were calculated for each calendar year throughout the duration of construction on a rolling annual and peak day basis for $PM_{2.5}$. $PM_{2.5}$ was selected for determining the worst-case periods for all pollutants analyzed, because the ratio of predicted $PM_{2.5}$ incremental concentrations to impact criteria is anticipated to be higher than for other pollutants. Therefore, initial estimates of $PM_{2.5}$ emissions throughout the construction years were used for determining the worst-case periods for analysis of all pollutants. Generally, emission patterns of PM_{10} and NO_2 would follow $PM_{2.5}$ emissions since they are related to diesel engines by horsepower. CO emissions may have a somewhat different pattern but would also be anticipated to be highest during periods when the most activity would occur.

Based on the resulting multi-year profiles of annual average and peak day average emissions of $PM_{2.5}$ and the proximity of the construction activities to sensitive uses (i.e., residences, churches, and publicly accessible open spaces) in the area, July 2027 and the 12-month period from August 2026 to July 2027 were identified as the Proposed Project's worst-case short-term and annual construction periods, respectively, since the highest project-wide $PM_{2.5}$ emissions were predicted in these periods. During these times, foundation and structural activities associated with the Proposed Project are anticipated to occur.

Dispersion of the relevant air pollutants from the construction sites during these periods was analyzed. Broader conclusions regarding potential concentrations during non-peak periods are discussed qualitatively, based on the reasonable worst-case analysis period results.

Engine Emissions

The sizes, types, and number of units of construction equipment were estimated based on the construction activity schedule developed for the Proposed Development and projected developments in the Additional Affected Area. Emission rates for NO_x, CO, PM_{10}, and $PM_{2.5}$ from truck engines was developed using the EPA Motor Vehicle Emission Simulator (MOVES3) emission model. Emission factors for NO_x, CO, PM_{10}, and $PM_{2.5}$ from on-site construction engines were developed using the NONROAD emission module included in the MOVES3 emission model. For the Proposed Development, the emission factor calculations took into account any emissions reduction measures that would be required, as described above, under "Emissions Reduction Measures."

On-Site Dust Emissions

In addition to engine emissions, dust emissions from operations (e.g., excavation and transferring of excavated materials into dump trucks) were calculated based on EPA procedures delineated in AP-42 Table 13.2.3-1. Since construction is required to follow DEP's *Construction Dust Rules* regarding construction-related dust emissions, a 50 percent reduction in particulate emissions from fugitive dust was conservatively assumed in the calculation (dust control methods, such as wet suppression, would often provide at least a 50 percent reduction in particulate emissions).

Dispersion Modeling

Potential impacts from the construction sources associated with the Proposed Project were evaluated using a refined dispersion model, the EPA/AMS 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.

Source Simulation

For short-term model scenarios (predicting concentration averages for periods of 24 hours or less), all stationary sources—such as compressors and generators, which are expected to operate in a single location—were simulated as point sources. Other engines, such as excavators and loaders, which would move around the site on any given day, were simulated as area sources. All sources would move around the site throughout the year and were therefore simulated as area sources in the annual analyses.

Meteorological Data

The meteorological data set consists of five consecutive years of meteorological data: surface data collected at the LaGuardia Airport National Weather Service Station (2015 to 2019), 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 can be readily processed by the AERMOD model. The land uses around the site where meteorological surface data were available was classified using categories defined in digital United States Geological Survey (USGS) maps.

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. The background levels were based on concentrations monitored at the nearest NYSDEC ambient air monitoring stations. **Table 16-14** shows the existing background levels based on concentrations monitored at the nearest NYSDEC ambient air monitoring stations, along with the National Ambient Air Quality Standards (NAAQS). Data from 2017 to 2019 is proposed for use due to uncertainties in the representativeness of background concentrations in 2020 and 2021 due to the effects of COVID-19.

Table 16-14
Representative Monitored Ambient Air Quality Data

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	CCNY	ppm	1-hour	2.52	35
			8-hour	1.2	9
PM_{10}	Division Street	$\mu g/m^3$	24-hour	39.3	150
$PM_{2.5}$	JHS 45	$\mu g/m^3$	Annual (1)	7.6	9
			24-hour (2)	18.3	35
NO_2	IS 52	$\mu g/m^3$	Annual (3)	32.8	100

Notes:
(1) The annual value is based on a three-year average (2017–2019) of annual concentrations.
(2) The 24-hour value is based on the three-year average of the 98th percentile of 24-hour average concentrations.
(3) The annual value is based on the highest annual concentration over the most recent three years (2017–2019).
Source: NYSDEC, New York State Ambient Air Quality Data.

Receptor Locations

Receptors were placed at residential and other sensitive uses at both ground level and elevated locations, as well as adjacent sidewalk locations and publicly accessible open spaces.

ON-ROAD SOURCES

Since emissions from on-site construction equipment and on-road construction-related vehicles may contribute to concentration increments concurrently, on-road emissions adjacent to the construction sites was included with on-site emissions in the dispersion analysis (in addition to on-site truck and non-road engine activity) to address all local project-related emissions cumulatively.

On-Road Vehicle Emissions

Vehicular engine emission factors were computed using the EPA mobile source emissions model, MOVES3. 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, inspection and maintenance programs and various other factors that influence emissions. The inputs and use of MOVES incorporate the most current resource available from NYSDEC.[2]

On-Road Dust Emissions

$PM_{2.5}$ emission rates were determined with road dust to account for their impacts. Road dust emission factors were calculated according to the latest procedure delineated by EPA.[3] An average weight of 20 tons and 2.6 tons was assumed for construction trucks and worker vehicles in the analyses, respectively.

[2] NYSDEC, Redesignation Request and Maintenance Plan for the 1997 Annual and 2006 24-Hour $PM_{2.5}$ NAAQS Appendix D – New York State On-Road Motor Vehicle Emission Budget MOVES Technical Support Documentation, June 2013.

[3] EPA, Compilations of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Ch. 13.2.1, NC, http://www.epa.gov/ttn/chief/ap42, January 2011.

CONSTRUCTION AIR QUALITY ANALYSIS RESULTS

Maximum predicted concentrations during the representative worst-case construction periods for the Proposed Project are presented in **Table 16-15**. To estimate the maximum total pollutant concentrations, the modeled concentrations from the Proposed Project were added to a background value that accounts for existing pollutant concentrations from other nearby sources. As shown in **Table 16-15**, the maximum predicted total concentrations of all pollutants are below the applicable NAAQS. Emissions from the other less intensive construction periods would be less than the emissions during the modeled worst-case periods; therefore, the resulting concentrations from these non-peak periods are expected to be less than the concentrations presented in **Table 16-15**. Therefore, construction of the Proposed Project would not result in significant adverse air quality impacts due to construction sources.

Table 16-15
Maximum Pollutant Concentrations – Proposed Project

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration[1]	Total Concentration	*De minimis*	NAAQS
NO_2	Annual	µg/m^3	6.6	32.8	39.5	-	100
CO	1-hour	ppm	5.2	2.52	7.7	-	35
	8-hour	ppm	1.0	1.2	2.2	-	9
PM_{10}	24-hour	µg/m^3	7.7	39.3	47.0	-	150
$PM_{2.5}$	24-hour	µg/m^3	6.6	18.3	24.9	8.4[2]	35
	Annual—Local	µg/m^3	0.21	7.6	7.8	0.3	9
	Annual—Neighborhood	µg/m^3	0.003	7.6	7.6	0.1	

Notes: N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see **Table 16-11**).
[2] $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3.

NOISE

Construction of the Proposed Project has the potential to result in noise impacts generated by the operation of construction equipment on the construction site and construction-related vehicles traveling to and from the construction work area on adjacent roadways. The potential for noise impacts due to the construction of the Proposed Project is discussed below.

SOUND LEVEL DESCRIPTORS

Chapter 13, "Noise," defines the sound level descriptors. The $L_{eq(1)}$ is the noise descriptor recommended for use in the *CEQR Technical Manual* for vehicular traffic and construction noise impact evaluation, and is used to provide an indication of highest expected sound levels. The 1-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines. The maximum 1-hour equivalent sound level ($L_{eq(1)}$) and maximum 1-hour L_{10} were selected as the noise descriptors used in the construction noise impact evaluation.

CONSTRUCTION ANALYSIS FUNDAMENTALS

Construction activities increase 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 construction site. The combined effect of each of these noise sources was evaluated.

Noise from the on-site 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 location 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 ANALYSIS METHODOLOGY

A detailed modeling analysis was conducted to quantify potential construction noise effects at existing noise receptors (e.g., residences, schools, etc.) near the Development Site.

The construction noise methodology was as follows:

1. *Select analysis hours for construction mobile source noise analysis*. The 6:00 AM to 7:00 AM hour was selected as the analysis hour because this would be the hour when the highest number of construction worker auto and construction truck trips to and from the construction site would simultaneously occur.
2. *Conduct construction mobile source analysis*. At each of the roadway segments analyzed for construction traffic, the construction worker vehicle and construction truck trips during the analysis hour were converted to Noise Passenger Car Equivalents (PCEs) and compared to the existing level of Noise PCEs to determine whether the maximum potential noise level increase would exceed the construction noise impact thresholds.
3. *Selected analysis hours for cumulative on-site equipment and construction truck noise analysis.* The 7:00 AM to 8:00 AM hour was selected as the analysis hour because this is the hour when the highest number of truck trips to and from the construction site overlap with on-site equipment operation.
4. *Selected receptor locations for cumulative on-site equipment and construction truck noise analysis.* Selected receptors represent open space, residential, or other noise-sensitive uses potentially affected by the construction associated with the Proposed Project during operation

of on-site construction equipment and/or along routes taken to and from the Development Site by construction trucks.

5. *Established existing noise levels at selected receptors*. Measured noise levels from the operational noise analysis were relied upon for the construction noise analysis as well. A CadnaA model representing the existing conditions (including existing building geometry and existing condition traffic levels) was calibrated based on the measured existing noise levels and associated traffic counts and used to calculate baseline noise levels at the other noise receptor locations included in the analysis.
6. *Established worst-case noise analysis periods under the anticipated construction schedule.* The worst-case noise analysis periods are the periods during the construction schedule that have the greatest potential to result in construction noise effect. The selected time periods are described below in the "Analysis Periods" section.
7. *Calculated construction noise levels for each analysis period at each receptor location.* Given the on-site equipment and construction truck trips expected during each of the analysis periods, and the location of the equipment, which is based on construction logistics diagrams and construction truck and worker vehicle trip assignments, a CadnaA model file for each analysis period was created. All models 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 construction sites.
8. *Determined 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.
9. *Compared construction noise increments to impact criteria.* For each analysis period and each noise receptor, the predicted noise increments due to construction were compared to CEQR noise impact thresholds and additional incremental noise impact criteria as described below.
10. *Established construction noise duration.* For each receptor, the noise level increments in each analysis period were evaluated to determine the duration during construction that the receptor would experience exceedances of impact criteria.
11. *Identified potential construction noise impacts.* At each existing receptor where exceedances of construction noise impact criteria were predicted, a determination was made as to whether the Proposed Project would have the potential to result in significant adverse construction noise impacts.

NOISE RECEPTOR SITES

A noise-sensitive receptor is defined in Chapter 19, "Noise," Section 114 of the *CEQR Technical Manual* and includes indoor receptors such as residences, hotels, health care facilities, nursing homes, schools, commercial offices, houses of worship, court houses, public meeting facilities, museums, libraries, and theaters. Outdoor sensitive receptors include parks, outdoor theaters, golf courses, zoos, campgrounds, and beaches.

Within the study area, multiple receptor locations close to the construction areas were selected for the construction noise analysis to represent buildings or noise-sensitive open space locations that

have the potential to experience elevated noise as a result of construction. These receptors were 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 at multiple elevations were analyzed. Receptors at street level were used to represent open space locations. The receptor sites selected for detailed analysis represent locations where maximum project effects due to construction noise would be expected.

Within the study area, 164 receptor locations were selected for the construction noise analysis. **Table 16-16** lists the noise measurement sites (i.e., sites M1 to M3) as well as the noise receptor sites (i.e., sites 1 to 164) and the associated land use at these sites. Noise receptor locations are shown in **Figure 16-27**.

Table 16-16
Noise Receptors by Location and Land Use

Receptor	Location	Block / Lot	Associated Land Use
M1	East 67th Street between York Avenue and First Avenue	N/A	N/A
M2	York Avenue between East 66th and East 67th Streets	N/A	N/A
M3	East 66th Street between York Avenue and First Avenue	N/A	N/A
1	248 EAST 65 STREET	Block 1419 / Lot 7501	Residential with Commercial Below
2	200 EAST 66 STREET	Block 1420 / Lot 7501	Residential with Commercial Below
3	1261 2 AVENUE	Block 1421 / Lot 21	Residential with Commercial Below
4	1283 2 AVENUE	Block 1422 / Lot 21	Residential with Commercial Below
5	1238 2 AVENUE	Block 1439 / Lot 49	Residential
6	304 EAST 65 STREET	Block 1439 / Lot 7501	Residential with Commercial Below
7	326 EAST 65 STREET	Block 1439 / Lot 40	Residential with Commercial Below
8	1256 2 AVENUE	Block 1440 / Lot 49	Public Facilities and Institutions
9	315 EAST 65 STREET	Block 1440 / Lot 5	Residential
10, 11	301 EAST 66 STREET	Block 1441 / Lot 7501	Residential with Commercial Below
12	326 EAST 67 STREET	Block 1441 / Lot 40	Public Facilities and Institutions
13-15	300 EAST 68 STREET	Block 1442 / Lot 1	Public Facilities and Institutions
16	1296 2 AVENUE	Block 1443 / Lot 1	Residential with Commercial Below
17	301 EAST 69 STREET	Block 1444 / Lot 7501	Residential with Commercial Below
18, 19	340 EAST 64 STREET	Block 1438 / Lot 7501	Residential
20	1185 1 AVENUE	Block 1439 / Lot 23	Residential with Commercial Below
21, 22	1199 1 AVENUE	Block 1439 / Lot 30	Residential with Commercial Below
23, 24	1205 1 AVENUE	Block 1440 / Lot 23	Residential with Commercial Below
25	347 EAST 65 STREET	Block 1440 / Lot 22	Residential with Commercial Below
26-28	1219 1 AVENUE	Block 1440 / Lot 30	Residential with Commercial Below
29, 30	348 EAST 66 STREET	Block 1440 / Lot 31	Residential with Commercial Below
31-33	333 EAST 66 STREET	Block 1441 / Lot 17	Residential
34, 35	1225 1 AVENUE	Block 1441 / Lot 23	Residential with Commercial Below
36	1229 1 AVENUE	Block 1441 / Lot 25	Residential with Commercial Below
37	1233 1 AVENUE	Block 1441 / Lot 27	Residential with Commercial Below
38, 39	1237 1 AVENUE	Block 1441 / Lot 30	Residential with Commercial Below
40, 41	342 EAST 67 STREET	Block 1441 / Lot 31	Residential
42	ST. CATHERINE'S PARK	Block 1442 / Lot 15	Open Space and Outdoor Recreation
43	353 EAST 68 STREET	Block 1443 / Lot 20	Public Facilities and Institutions
44, 45	359 EAST 68 STREET	Block 1443 / Lot 7501	Residential with Commercial Below
46, 47	1279 1 AVENUE	Block 1443 / Lot 30	Residential with Commercial Below
48	1285 1 AVENUE	Block 1444 / Lot 23	Residential with Commercial Below
49	425 EAST 63 STREET	Block 1458 / Lot 7503	Residential with Commercial Below



Construction Noise Receptor Locations

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Figure 16-27

Table 16-16 (cont'd)
Noise Receptors by Location and Land Use

Receptor	Location	Block / Lot	Associated Land Use
50	1175 YORK AVENUE	Block 1458 / Lot 7502	Residential with Commercial Below
51	415 EAST 64 STREET	Block 1459 / Lot 10	Residential
52-54	429 EAST 64 STREET	Block 1459 / Lot 22	Residential
55-58	410 EAST 65 STREET	Block 1459 / Lot 30	Residential
59	1168 1 AVENUE	Block 1459 / Lot 1	Residential with Commercial Below
60-62	1206 1 AVENUE	Block 1460 / Lot 1	Residential with Commercial Below
63-65	400 EAST 66 STREET	Block 1460 / Lot 47	Residential with Commercial Below
66	413 EAST 65 STREET	Block 1460 / Lot 7501	Residential
67	417 EAST 65 STREET	Block 1460 / Lot 11	Residential
68	421 EAST 65 STREET	Block 1460 / Lot 13	Residential with Commercial Below
69	425 EAST 65 STREET	Block 1460 / Lot 14	Residential
70	429 EAST 65 STREET	Block 1460 / Lot 16	Residential
71-74	435 EAST 65 STREET	Block 1460 / Lot 17	Residential
75-84	1213 YORK AVENUE	Block 1460 / Lot 22	Residential
85, 86	404 EAST 66 STREET	Block 1460 / Lot 7501	Residential
87, 88	420 EAST 66 STREET	Block 1460 / Lot 39	Residential
89	424 EAST 66 STREET	Block 1460 / Lot 38	Residential
90, 91	426 EAST 66 STREET	Block 1460 / Lot 37	Residential
92, 93	428 EAST 66 STREET	Block 1460 / Lot 36	Residential
94	430 EAST 66 STREET	Block 1460 / Lot 35	Residential
95, 96	432 EAST 66 STREET	Block 1460 / Lot 34	Residential
97	434 EAST 66 STREET	Block 1460 / Lot 33	Residential
98	436 EAST 66 STREET	Block 1460 / Lot 32	Residential
99, 100	438 EAST 66 STREET	Block 1460 / Lot 31	Residential
101-108	425 EAST 66 STREET	Block 1461 / Lot 13	Public Facilities and Institutions
109-111	419 EAST 66 STREET	Block 1461 / Lot 7	Public Facilities and Institutions
112-114	1224 1 AVENUE	Block 1461 / Lot 1	Public Facilities and Institutions
115-117	400 EAST 67 STREET	Block 1461 / Lot 7501	Residential with Commercial Below
118-120	406 EAST 67 STREET	Block 1461 / Lot 1	Public Facilities and Institutions
121, 122	418 EAST 67 STREET	Block 1461 / Lot 37	Public Facilities and Institutions
123-130	1275 YORK AVENUE	Block 1462 / Lot 5	Public Facilities and Institutions
131-134	1250 1 AVENUE	Block 1462 / Lot 1	Public Facilities and Institutions
135-138	437 EAST 68 STREET	Block 1463 / Lot 21	Public Facilities and Institutions
139-142	411 EAST 68 STREET	Block 1463 / Lot 7501	Public Facilities and Institutions
143, 144	1266 1 AVENUE	Block 1463 / Lot 1	Residential with Commercial Below
145	1278 1 AVENUE	Block 1463 / Lot 47	Residential with Commercial Below
146	413 EAST 69 STREET	Block 1464 / Lot 7502	Public Facilities and Institutions
147, 148	1293 YORK AVENUE	Block 1464 / Lot 21	Public Facilities and Institutions
149-153	1176 YORK AVENUE	Block 1480 / Lot 1	Public Facilities and Institutions
154	Philosopher's Garden	Block 1480 / Lot 10	Open Space and Outdoor Recreation
155-164	590 EAST 68 STREET	Block 1480 / Lot 10	Public Facilities and Institutions

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), transportation sources (e.g., roads, highways, railroad lines, busways, airports), and other specialized sources (e.g., sporting facilities). 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. This standard is currently under review for adoption by the American National Standards Institute (ANSI) as an American Standard. 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 used with the CadnaA model included site work areas, adjacent building footprints and heights, locations of streets, and locations of sensitive receptors. For each analysis period, the approximate geographic location and operational characteristics—including equipment usage rates (percentage of time operating at full power) for each piece of construction equipment operating at the proposed development site, as well as noise control measures—were input to the model.

Construction equipment source strength was determined by the L_{max} levels presented in Table 22-1 of the *CEQR Technical Manual*. For construction equipment not included in this table, other reference sources, manufacturer specifications, or field measured noise levels were used.

Shielding by barriers erected on the construction site and shielding from adjacent buildings were accounted for in the model. In addition, construction-related vehicles were assigned to the adjacent roadways. The model produced A-weighted $L_{eq(1)}$ noise levels at each receptor location for each analysis period, as well as the contribution from each noise source. The $L_{10(1)}$ noise levels were conservatively estimated by adding 3 dBA to the $L_{eq(1)}$ noise levels, as is standard practice.[4]

Determination of Non-Construction Noise Levels

Noise generated by construction activities (calculated using the CadnaA model as described above) were added to baseline (i.e., non-construction) noise levels, including noise generated by non-construction traffic on adjacent roadways, to determine the total noise levels at each receptor location. Baseline noise levels were calculated using the CadnaA model using existing condition traffic data. The existing conditions CadnaA model included noise measurement locations Site 1, Site 2, and Site 3 from Chapter 13, "Noise," as Sites M1, M2, and M3 for the purpose of validating the calculated existing condition noise level modeling.

EXISTING NOISE LEVELS

Using the noise measurement methodology described in Chapter 13, "Noise," a noise survey was conducted at three locations near the proposed construction work area. At the receptor sites, 20-minute duration noise measurements were conducted during the typical weekday AM (7:00 AM – 9:00 AM) peak period and were used to represent baseline noise levels for comparison with predicted construction noise levels. Measurements at sites M1 through M3 were conducted on March 21, 2023.

Noise Survey Results

The results of the measurements of existing noise levels are summarized in **Table 16-17**. Roadway traffic was the dominant noise source at each location.

[4] Federal Highway Administration Roadway Construction Noise Model User's Guide, Page 15. http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

Table 16-17
Measured Existing Noise Levels (in dBA)

Site	Location	Start Time	L_{eq}	L_{10}
M1	East 67th Street between York Avenue and First Avenue	8:17 AM	68.5	69.3
M2	York Avenue between East 66th and East 67th Streets	8:37 AM	69.4	72.0
M3	East 66th Street between York Avenue and First Avenue	9:00 AM	62.3	63.8
Note: Field measurements were performed by AKRF, Inc. on March 21, 2023.				

ANALYSIS TIME PERIOD SELECTION

The construction noise analysis estimated construction noise levels based on projected activity and equipment usage as well as the level of construction traffic for various stages of construction of the Proposed Project.

Based on the anticipated construction schedule and preliminary construction estimates developed for the Proposed Project, specific time periods during construction were selected for detailed analysis. The periods were selected to capture each major construction stage (e.g., excavation/foundation work, superstructure work, interior fit-out work) at the building to be constructed under the Proposed Actions, including major overlaps of construction stages. These would be the time periods with the potential to result in the maximum incremental construction noise at nearby receptors. Each analysis time period conservatively represented 1 to 11 months of time based on the duration of activities that would be underway during the time period.

The 12 time periods selected for the detailed construction noise analysis, are shown in **Table 16-18**.

CONSTRUCTION NOISE IMPACT CRITERIA

Chapter 22 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 the potential for construction of a project to create high noise levels (the "intensity"), whether construction noise would occur for an extended period of time (the "duration"), and the locations where construction has the potential to produce noise ("receptors") in evaluating potential construction noise effects.

The noise impact criteria described in Chapter 19, Section 410, of the *CEQR Technical Manual* serve as a screening-level threshold for potential construction noise impacts. If construction of the proposed project would not result in any exceedances of these criteria at a given receptor, then that receptor would not have the potential to experience a construction noise impact.

Table 16-18
Construction Noise Analysis Time Periods

Months	Construction Activities during Analysis Period
Month 1 to Month 5	Early Demolition
Month 6 to Month 10	Mid Demolition
Month 11 to Month 15	Late Demolition
Month 16 to Month 18	Foundations
Month 19 to Month 27	Foundations with Break Rams
Month 28 to Month 31	Foundations with Crane
Month 32	Foundations and Superstructure
Month 33 to Month 37	Early Superstructure
Month 38 to Month 43	Late Superstructure
Month 44 to Month 48	Interiors with Cranes
Month 49 to Month 59	Interiors
Month 60 to Month 66	Sitework

If noise levels during construction would exceed the screening thresholds at a given receptor, the specific intensity and duration of construction noise level increases would be considered further to determine the potential for significant adverse impacts. Noise level increases that would be considered "objectionable" (i.e., equal to or greater than 15 dBA) lasting 12 consecutive months or more and noise level increases considered "very objectionable" (i.e., equal to or greater than 20 dBA)[5] lasting three consecutive months or more could be considered significant impacts.

For receptors representing interior spaces (i.e., not open space) where construction of the Proposed Project is predicted to result in objectionable noise level increments lasting 12 consecutive months or more or very objectionable noise level increments lasting three consecutive months or more, and where the façade attenuation can be determined based on readily available information, interior noise levels may also be considered in the determination of impact significance. Portions of the construction period during which predicted interior noise levels would be in the acceptable range (i.e., not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office uses), would not be counted toward the consecutive duration of construction noise impact as described above.

EVALUATION OF CONSTRUCTION NOISE LEVELS

The predicted exterior noise level increments during construction of the Proposed Project at the analyzed receptor sites were compared to the construction noise impact thresholds described above. At the noise-sensitive receptors that experience exceedances of these thresholds during the analysis periods as determined above, the duration of exceedance of each impact threshold was determined. The significance of exceedances was determined based on the predicted magnitude and duration of the construction noise at these locations according to the criteria described above. Based on the incremental noise level increase, overall exterior noise levels for each analysis period were also determined.

[5] Definition of "objectionable" and "very objectionable" noise level increases based on Table B from the "New York State Department of Environmental Conservation Assessing and Mitigating Noise Impacts" policy manual, revised February 2001.

NOISE REDUCTION MEASURES

Construction of the Proposed Project would be required to follow 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) for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the *New York City Noise Control 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, included under New York City regulations, would be implemented:

- Equipment that meets the sound level standards specified in Subchapter 5 of the *New York City Noise Control Code* would be utilized from the start of construction. **Table 16-19** shows the noise levels for typical construction equipment that would be used for construction of the Proposed Project.
- 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. Where electrical equipment cannot be used, diesel or gas-powered generators and pumps would be located within buildings to the extent feasible and practicable.
- Where feasible and practicable, the construction site would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than 3 minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the New York City Administrative Code.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In addition, source controls listed below would be implemented as PCREs beyond New York City regulations for the construction of the Proposed Project:

- Impact pile driving would not be used for construction of the Proposed Project.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures, under New York City regulations, would be implemented:

- 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 construction from plywood or other materials would be utilized to provide shielding (e.g., the construction sites would have a minimum 8-foot-tall barrier around the perimeter).
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents) for certain equipment as necessary to remain consistent with **Table 16-19**. The details to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's *Rules for Citywide Construction Noise Mitigation.*[6]

[6] As found at http://www.nyc.gov/html/dep/pdf/noise_constr_rule.pdf

Table 16-19
Construction Equipment Noise Emissions in dBA

Equipment List	Typical L_{max} Noise Level at 50 feet[1]
Auger Drill Rig	85
Backhoe	80
Bar Bender	80
Compactor (ground)	80
Compressor (large)	80
Concrete Mixer Truck	85
Concrete Pump Truck	82
Concrete Saw	90
Concrete Trowel	70[2]
Concrete Vibrator	76[3]
Crane	85
Excavator	85
Front End Loader	80
Generator	82
Hoist	75
Impact Wrench	85[3]
Jackhammer	85
Mounted Impact Hammer	90
Paver	85
Pumps	77
Roller	85
Saw	76
Vibratory Concrete Mixer	80
Welder / Torch	73

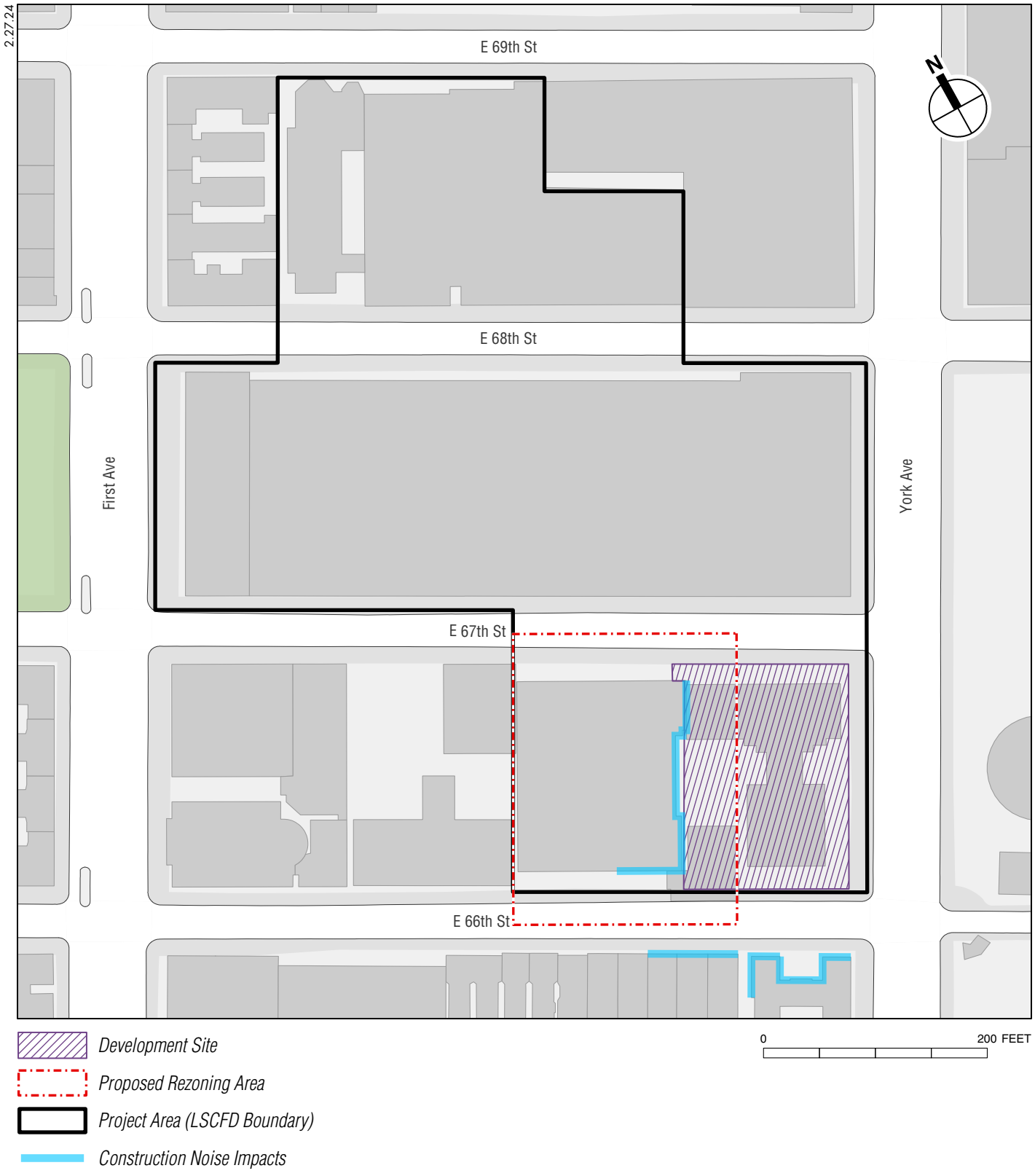
Notes:
[1] Rules for Citywide Construction Noise Mitigation, Chapter 28, DEP, 2007, except where noted.
[2] Previous project equipment noise certification.
[3] Federal Transit Administration (FTA), Report No. 0123 September 2018, Table 7-1 Construction Equipment Noise Emission Levels.

CONSTRUCTION NOISE ANALYSIS RESULTS

Cumulative On-Site and Mobile Construction Noise Sources

Using the methodology described and considering the noise abatement measures specified above, cumulative noise analysis were performed to determine maximum 1-hour equivalent ($L_{eq(1)}$) noise levels that would be expected at each of the 164 noise receptor locations during of the 12 selected construction periods.

The full results of the detailed construction noise analysis are shown in **Appendix D**. The results of the detailed construction noise analysis at locations where "objectionable" and "very objectionable" noise level increases are predicted are summarized in **Table 16-20** and are shown in **Figure 16-28**.



Construction Noise Impacts

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Figure 16-28

Table 16-20
Construction Noise Analysis Results in dBA

Receptor	Address	Existing L_{10}	Max Total L_{10}	Max Change in L_{10}	Maximum Continuous Duration (months)	
					"Objectionable" Increase	"Very Objectionable" Increase
81	1213 YORK AVENUE	68.5	85.0	17.4	11	0
83	1213 YORK AVENUE	65.9	86.9	21.0	28	7
84	1213 YORK AVENUE	64.1	83.1	18.9	28	0
94	430 EAST 66 STREET	65.0	79.2	15.1	7	0
95	432 EAST 66 STREET	65.0	80.7	16.5	11	0
97	434 EAST 66 STREET	65.1	82.6	18.1	12	0
98	436 EAST 66 STREET	65.2	84.4	20.0	28	7
99	438 EAST 66 STREET	65.4	85.9	20.7	28	11
104	425 EAST 66 STREET	64.1	84.4	20.7	37	5
105	425 EAST 66 STREET	64.1	83.2	19.0	27	0
106	425 EAST 66 STREET	64.1	83.6	19.5	27	0
107	425 EAST 66 STREET	64.1	79.4	15.3	12	0
126	1275 YORK AVENUE	68.9	83.0	17.2	10	0

The noise levels shown in **Table 16-20** are maximum 1-hour L_{10} noise levels; however, noise levels resulting from construction typically fluctuate throughout the day and from day to day during each construction phase and would not be sustained at these maximum values. Additionally, noise levels expected to result from the construction of the Proposed Project would be comparable to those from typical construction sites in New York City involving a new building with concrete slab floors and foundation. Similarly, potential disruptions to adjacent residences and other receptors from elevated noise levels generated by construction would be expected to be comparable to those that would occur immediately adjacent to a typical New York City construction site during the portions of the construction period when the loudest activities would occur.

At some receptors, construction of the Proposed Project would result in increments that would be considered "objectionable" (i.e., 15 dBA or greater) or "very objectionable" (i.e., 20 dBA or greater). The potential for significant adverse impacts at these receptors was determined by evaluating the duration of these increments, as described below.

Residential Receptors at 1213 York Avenue

Receptors 75 through 84 represent the residential building immediately south of the Development Site at 1213 York Avenue. Existing noise levels at these receptors are in the mid-60s to low-70s dBA, which would be considered "acceptable" to "marginally unacceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptors 75 through 80 and 82, which represent portions of the north, east, west, and south façades of the building, construction is predicted to result in noise levels up to the mid-70s dBA, resulting in noise level increases up to approximately 6.2 dBA during the most noise-intensive stages of construction (i.e., demolition and superstructure concrete operations). According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these façades would be in the "marginally unacceptable" category. No "objectionable" or "very objectionable" increases are predicted to occur at these receptors; consequently, noise from construction would not rise to the level of a significant impact.

At receptors 81, 83, and 84, which represent façades at the northwest corner of the building directly across East 66th Street from the proposed construction work area, construction is predicted to result in noise levels up to the high-80s dBA, resulting in noise level increases up to approximately 21.0 dBA during the most noise-intensive stages of construction (i.e., sitework and superstructure concrete operations). The maximum construction noise level would occur during sitework, which would take place over the course of approximately 7 months. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these façades would be in the "clearly unacceptable" category.

Some units have through-window air conditioning unit and single-paned windows; the building façade at these units would be expected to provide approximately 28 dBA of window/wall attenuation. Some units do not seem to use alternate means of ventilation; the building façade at these units would be expected to provide approximately 25 dBA of window/wall attenuation. Consequently, interior L_{10} noise levels would be up to approximately 59 dBA at residential units with through-window air conditioning and approximately 62 dBA at units without alternate means of ventilation. Compared to the CEQR interior noise threshold of 45 dBA for residences, interior noise levels would be up to approximately 14 dBA higher at residences with through-window air conditioning and up to approximately 17 dBA higher at residences without alternate means of ventilation. Based on the prediction of "very objectionable" noise level increases lasting up to approximately 7 months and "objectionable" noise level increases lasting 12 months or more and interior noise levels exceeding the acceptable limit, construction noise would result in a temporary significant adverse impact at the façades on the northwest corner of 1213 York Avenue represented by receptors 81, 83, and 84. These receptors are discussed further in Chapter 18, "Mitigation."

Residential Receptors at 434 East 66th Street

Receptor 97 represents the residential building immediately south of the Development Site at 434 East 66th Street. Existing noise levels at this receptor are in the mid-60s dBA, which would be considered "acceptable" to "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At Receptor 97, which represents the northern façade of the building directly across East 66th Street from the proposed construction work area, construction is predicted to result in noise levels up to the low-80s dBA, resulting in noise level increases up to approximately 18.1 dBA during the most noise-intensive stages of construction (i.e., sitework and superstructure concrete operations). The maximum construction noise level would occur during sitework, which would take place over the course of approximately 7 months. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these façades would be in the "clearly unacceptable" category.

Some units have through-window air conditioning unit and insulated glass; the building façade at these units would be expected to provide approximately 30 dBA of window/wall attenuation. Some units do not seem to use alternate means of ventilation; the building façade at these units would be expected to provide approximately 28 dBA of window/wall attenuation. Consequently, interior L_{10} noise levels would be up to approximately 53 dBA at residential units with through-window air conditioning and approximately 55 dBA at units without alternate means of ventilation. Compared to the CEQR interior noise threshold of 45 dBA for residences, interior noise levels would be up to approximately 8 dBA higher at residences with through-window air conditioning and up to approximately 10 dBA higher at residences without alternate means of ventilation.

Based on the prediction of "objectionable" noise level increases lasting up to approximately 16 consecutive months, construction noise would result in a temporary significant adverse impact on the northern façade of 434 East 66th Street represented by receptor 97. This receptor is discussed further in Chapter 18, "Mitigation."

Residential Receptors at 436 and 438 East 66th Street

Receptors 98 and 99 represent the residential buildings immediately south of the Development Site at 436 and 438 East 66th Street. Existing noise levels at these receptors are in the mid-60s dBA, which would be considered "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptors 98 and 99, which represent the northern façades of the buildings directly across East 66th Street from the proposed construction work area, construction is predicted to result in noise levels up to the mid-80s dBA, resulting in noise level increases up to approximately 20.7 dBA during the most noise-intensive stages of construction (i.e., sitework and superstructure concrete operations). The maximum construction noise level would occur during sitework, which would take place over the course of approximately 7 months. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these façades would be in the "clearly unacceptable" category.

Some units have through-window air conditioning unit and insulated glass; the building façade at these units would be expected to provide approximately 30 dBA of window/wall attenuation. Some units do not seem to use alternate means of ventilation; the building façade at these units would be expected to provide approximately 28 dBA of window/wall attenuation. Consequently, interior L_{10} noise levels would be up to approximately 56 dBA at residential units with through-window air conditioning and approximately 58 dBA at units without alternate means of ventilation. Compared to the CEQR interior noise threshold of 45 dBA for residences, interior noise levels would be up to approximately 11 dBA higher at residences with through-window air conditioning and up to approximately 13 dBA higher at residences without alternate means of ventilation. Based on the prediction of "very objectionable" noise level increases lasting up to approximately 11 months and interior noise levels exceeding the acceptable limit, construction noise would result in a temporary significant adverse impact on the northern façades of 436 and 438 East 66th Street represented by receptor 98 and 99. These receptors are discussed further in Chapter 18, "Mitigation."

Residential Receptors at 425 East 66th Street (RRL)

Receptors 101 through 108 represent the existing MSK RRL building at 425 East 66th Street immediately west of the Development Site. Existing noise levels at these receptors are in the mid-60s, which would be considered "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptors 101 through 103 and receptor 108, which represent portions of the north, west, and south façades of the building not directly facing the proposed construction work area, construction is predicted to result in noise levels up to the low-80s dBA, resulting in noise level increases up to approximately 14.9 dBA during the most noise-intensive stages of construction (i.e., demolition, rock excavation, and superstructure concrete operations). According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these façades would be in the "clearly unacceptable" category. No "objectionable" or "very objectionable" increases are predicted to occur at these receptors; consequently, noise from construction would not rise to the level of a significant impact.

At receptors 104 and 106, which represent portions of the eastern façade of the building directly adjacent to the proposed construction work area, construction is predicted to result in noise levels up to the mid-80s dBA, resulting in noise level increases up to approximately 20.5 dBA during the most noise-intensive stages of construction (i.e., demolition, rock excavation, and superstructure concrete operations). The maximum construction noise level would occur during late demolition, which would take place over the course of approximately 5 months. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these façades would be in the "clearly unacceptable" category.

At receptors 105 and 107, which represent portions of the eastern and southeastern façades of the building directly adjacent to the proposed construction work area, construction is predicted to result in noise levels up to the low-80s dBA, resulting in noise level increases up to approximately 19.0 dBA during the most noise-intensive stages of construction (i.e., demolition, rock excavation, and superstructure concrete operations). The maximum construction noise level would occur during the overlap of foundations and superstructure concrete operations, which would take place over the course of approximately 1 month. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these façades would be in the "clearly unacceptable" category.

This building seems to have central air conditioning and insulated glass and would be expected to provide approximately 32 dBA of window/wall attenuation. Consequently, interior L10 noise levels would be up to approximately 63 dBA at this building. Compared to the CEQR interior noise threshold of 45 dBA, interior noise levels would be up to approximately 18 dBA higher at this building.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately 5 months and/or "objectionable" noise level increases lasting up to approximately 37 months and interior noise levels exceeding the acceptable limit, construction noise would result in a temporary significant adverse impact on the eastern and southeastern façades of 425 East 66th Street (RRL) represented by receptors 104 through 107. These receptors are discussed further in Chapter 18, "Mitigation."

Receptors Experiencing "Objectionable" Increases

At receptors 94, 95, and 126, construction of the Proposed Development would result in noise level increases that would be perceptible to noticeable and at times, i.e., "objectionable," However, at these receptors, "objectionable" noise level increases would occur during superstructure concrete operations for periods of less than 12 months. Consequently, while construction noise at these receptors would be perceptible, it would not rise to the level of a significant impact according to the impact criteria described above.

Other Nearby Receptors

At the remaining receptors, construction of the Proposed Project would, for some portion of the construction period, result in noise level increases that would be perceptible to noticeable. However, at these receptors, maximum noise level increases would not result in "objectionable" or "very objectionable" noise level increases. Consequently, while construction noise at these receptors may be perceptible at times, it would not rise to the level of a significant impact according to the impact criteria described above.

Construction Mobile Sources (6:00 AM to 7:00 AM)

Construction worker vehicles and trucks traveling on roadways prior to the start of the construction workday would have the potential to generate noise at receptors along the routes used to access

the construction sites. Using the methodology described above, construction worker vehicles and trucks traveling to and from the construction sites between 6:00 AM and 7:00 AM were estimated. Noise resulting from vehicular activity associated with construction of the Proposed Project would not result in a doubling of Noise PCEs, which would be necessary to produce a 3 dBA noise level increase on any roadways other than East 66th Street between First and York Avenues and would therefore not rise to the level of a significant adverse impact. At East 66th Street between First and York Avenues, construction traffic was estimated to result in approximately a 6 dBA noise level increase. These noise level projections associated with construction worker and truck deliveries are conservative in that they reflect the maximum vehicle volumes that would occur throughout the entire construction period, whereas periods of construction activity that result in fewer workers and truck deliveries would result in smaller noise level increments from vehicular traffic. While vehicular activity associated with construction of the Proposed Project would have the potential to result in noise level increases that exceed the CEQR construction noise screening thresholds and that would be noticeable at receptors along this roadway segment, the maximum noise level increases would not be considered "objectionable" or "very objectionable," i.e., would not reach or exceed 15 dBA or 20 dBA, respectively. Consequently, while noise due to construction traffic at these receptors may be perceptible at times, it would not rise to the level of a significant impact according to the impact criteria described above.

Construction vehicles traveling to and from construction sites during the construction workday are included in the detailed construction noise analysis described above.

CONCLUSIONS

Construction of the Proposed Project would have the potential to result in significant adverse impacts related to noise. At some receptors, construction of the Proposed Project would result in increments that would be considered objectionable (i.e., 15 dBA or greater) or very objectionable (i.e., 20 dBA or greater). The potential for significant adverse impacts at these receptors was determined by evaluating the duration of these increments and whether CEQR interior noise level thresholds would be exceeded or not. While construction of the Proposed Project is anticipated to result in significant adverse impacts at 10 receptors (i.e., northern and northwestern façade of the 1213 York Avenue residential building, northern façade of 434 East 66th Street residential building, northern façades of 436 and 438 East 66th Street residential buildings, and the eastern and southeastern façades of 425 East 66th Street RRL building), construction would typically occur during weekday daytime hours and would therefore not produce noise during nighttime hours when residents would be most sensitive to noise. Further, construction would comply with *New York City Noise Control Code* regulations as well as abiding by a PCRE to not utilize impact pile driving. Per *New York City Noise Control Code* regulations, the Proposed Project would be required to prepare a Construction Noise Mitigation Plan, which may identify more control measures that would further reduce construction noise levels. This is discussed further in Chapter 18, "Mitigation."

VIBRATION

Construction activities have the potential to result in vibration levels that may cause 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 Development Site.

CONSTRUCTION VIBRATION CRITERIA

For purposes of assessing potential structural or architectural damage at historic buildings, 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 DOB TPPN #10/88. For non-fragile buildings, vibration levels between 0.5 inches/second and 2.0 inches/second would typically 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 VdB would have the potential to result in significant adverse impacts if they were to occur for a prolonged period of time.

ANALYSIS METHODOLOGY

For purposes of assessing potential structural or architectural damage, the following formula was used:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where: PPV_{equip} is the peak particle velocity in in/sec of the equipment at the receiver location;

PPV_{ref} is the reference vibration level in in/sec at 25 feet; and

D is the distance from the equipment to the received location in feet.

For purposes of assessing potential annoyance or interference with vibration sensitive activities, the following formula was used:

$$L_v(D) = L_v(ref) - 30\log(D/25)$$

where: $L_v(D)$ is the vibration level in VdB of the equipment at the receiver location;

Lv(ref) is the reference vibration level in VdB at 25 feet; and

D is the distance from the equipment to the receiver location in feet.

Table 16-21 shows vibration source levels for typical construction equipment.

Table 16-21
Vibration Source Levels for Construction Equipment (dBA)

Equipment	PPV_{ref} (in/sec)	Approximate L_{vf} (ref) (VdB)
Bobcat with Ram	0.089	87
Line Drill	0.089	87
Jackhammer	0.035	79
Source: FTA Transit Noise and Vibration Impact Assessment (2018).		

The source vibration levels shown in **Table 16-19** were projected to nearby receptors to estimate the levels of construction vibration that would occur near the Development Site.

CONSTRUCTION VIBRATION ANALYSIS RESULTS

Construction of the Proposed Project would result in PPV levels less than 0.50 in/sec at structures at least 8 feet from the work area, including when the bobcat with ram is being used and during line drilling, which would be the most vibration-intensive activities associated with the Proposed Project. These levels would generally be considered acceptable for a non-historic building or structure. Additional receptors farther away from the Development Site would experience 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 bobcat with ram and line drill. It would have the potential to produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within approximately 140 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, significant adverse vibration impacts would not result from construction of the Proposed Project.

OTHER TECHNICAL AREAS

LAND USE AND NEIGHBORHOOD CHARACTER

As is typical with construction projects, during periods of peak activity there would be some disruption to the nearby area. Construction trucks and construction workers would come to the area, and trucks and other vehicles would back up, load, and unload. These disruptions would be most pronounced in areas immediately adjacent to the Development Site but would have more limited effects on land uses in the larger study area, as most construction activities would take place within the Development Site or within portions of sidewalks and parking lanes along York Avenue, East 66th Street, or East 67th Street immediately adjacent to the Development Site. Overall, construction activities at the Development Site would be evident to the local community. However, throughout the construction period, measures would be implemented to control air quality, noise, and vibration within the Development Site, including the erection of construction barriers. The barriers would reduce potentially undesirable views of construction areas, buffer noise emitted from construction activities, and protect the safety of pedestrians and bicyclists. Therefore, the construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the broader neighborhood.

SOCIOECONOMIC CONDITIONS

Construction of the Proposed Project 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 would also contribute to increased tax revenues for the city and state, including those from

personal income taxes. Therefore, construction activities associated with the Proposed Project would not result in any significant adverse impacts on socioeconomic conditions.

COMMUNITY FACILITIES

The Proposed Project would replace the existing Scholars and Sloan buildings on the Development Site. Neither of these buildings contains any patient care activities. As part of the Proposed Project, a two-story patient bridge would be built connecting over East 67th Street to the Memorial Hospital building. The installation of the bridge would take place over the course of approximately six months during the end of the superstructure phase (1st half of 2028) of the MSK Pavilion construction. In order to link the bridge to and make a pathway inside the existing floors in Memorial Hospital, 12 to 16 existing inpatient beds would be removed from the south end of the 8th and 9th floors (6 to 8 beds from each floor). The interior construction within the Memorial Hospital building that would be required to accommodate the bridge connection would take place over the entire six-month bridge installation period and no areas or activities (other than 12 to 16 patient beds to be removed) would be temporarily affected during this time.

No other community facilities (i.e., public or publicly funded schools, libraries, childcare centers, health care facilities, or fire and police stations) would be directly affected by construction activities. The construction area would be surrounded by construction barriers that would limit the effects of construction on nearby facilities. Measures outlined in the MPT plan to be implemented for the Proposed Project would ensure that lane closures and sidewalk closures are kept to a minimum and that adequate pedestrian access is maintained. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, childcare facilities, and health care facilities. New York City Police Department (NYPD) and FDNY emergency services and response times would not be materially affected by construction.

HISTORIC AND CULTURAL RESOURCES

Historic and cultural resources include both archaeological and architectural resources. An assessment of potential impacts on archaeological and architectural resources is provided in Chapter 6, "Historic and Cultural Resources." In comments dated December 23, 2022, LPC determined that that it has no archaeological concerns for the Development Site (see **Appendix B**) and, therefore, no further archaeological analysis is warranted. As described in Chapter 6, "Historic and Cultural Resources," there are no known or potential architectural resources on the Development Site or in the Rezoning Area. Further, there are no known or potential architectural resources located within 90 feet of the Development Site. Therefore, the Proposed Project would not result in any adverse impacts to architectural resources. The Proposed Project would not result in any significant adverse construction-period direct impacts to any architectural resources.

HAZARDOUS MATERIALS

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 8, "Hazardous Materials." The Proposed Project would involve demolition of existing buildings on the Development Site and soil disturbance for new building construction. The potential for significant adverse impacts associated with hazardous materials would be avoided by implementing the following:

- Based on Phase I Environmental Site Assessment findings, prior to redevelopment, a subsurface investigation of the Development Site would be performed in accordance with a DEP-approved sampling protocol. As previously noted, bedrock beneath the Development

Site is anticipated to be shallow and may be present directly below basement and/or sub-basement floors, which may limit the scope of the investigation.

- Based on the findings of the investigation, a site-specific Remedial Action Plan (RAP) and CHASP would be prepared for implementation during construction and submitted to DEP for review and approval. The RAP would address requirements for items such as: soil stockpiling, soil disposal and transportation; dust control; quality assurance; and contingency measures should petroleum storage tanks or contamination be unexpectedly encountered. The CHASP would include measures for worker and community protection, including personal protective equipment, dust control, and air monitoring. DEP approval of the RAP and CHASP would be required prior to soil disturbance. Following the completion of soil disturbance, a Remedial Closure Report (RCR) would be submitted to DEP for review and approval. The RCR would document proper performance of all procedures required by the RAP and CHASP.
- No petroleum storage tanks are known to be present on the Development Site. However, if any petroleum storage tanks are unexpectedly encountered during redevelopment, such tanks would be removed, along with any contaminated soil, in accordance with applicable regulatory requirements including NYSDEC requirements relating to spill reporting and tank registration.
- If dewatering is necessary as part of the proposed construction activities, water would be discharged to sewers in accordance with DEP requirements (if discharging to a combined/sanitary sewer) or NYSDEC requirements (if discharging to sewers connected directly to waterways).
- An asbestos survey of the areas to be demolished would be conducted, and any ACM that would be disturbed would be removed and disposed of prior to demolition in accordance with local, state, and federal requirements.
- Any activities with the potential to disturb lead-based paint would be performed in accordance with applicable requirements (including federal OSHA regulation 29 CFR 1926.62—*Lead Exposure in Construction*).
- Unless there is labeling or test data indicating that suspect PCB-containing electrical equipment, hydraulic equipment, and fluorescent lighting fixtures do not contain PCBs, and that fluorescent lighting bulbs do not contain mercury, if disposal is required, it would be conducted in accordance with applicable federal, state, and local requirements.
- Any stored chemicals would be properly disposed of prior to demolition in accordance with applicable requirements.

With the implementation of these procedures, no significant adverse impacts related to hazardous materials would result from construction of the Proposed Project.

WATER AND SEWER INFRASTRUCTURE

Infrastructure activities at the Development Site would include utility connections to existing water, sewer, electric, gas, and telecommunications. These activities would be coordinated with DEP, Con Edison, or the appropriate private utility company to ensure that service to customers in nearby areas is not disrupted. All utility lines would be located either in the streetbed or within the below-grade space. Residents and workers in nearby buildings are not expected to experience substantial disruptions to water supply or wastewater removal. Any disruption to service that may occur when new equipment (e.g., a transformer, or a sewer or water line) is put into operation is expected to be very short-term (i.e., hours). Therefore, the construction of the Proposed Project's infrastructure improvements would not cause any significant adverse impacts to nearby users of these services. ✶