



9

Transportation

This chapter assesses the potential for the Proposed Project to result in significant adverse impacts on traffic operations and mobility, public transportation facilities and services, pedestrian elements and flow, safety of all roadway users (pedestrians, cyclists, transit users, and motorists), and on- and off- street parking.

Introduction

The Proposed Project is located along the east side of Madison Avenue between East 44th Street and East 45th Street in Midtown Manhattan. The Proposed Project would redevelop the Project Site with approximately 832,613 gross square feet (gsf) of office space and 5,357 gsf of ground floor retail space. The Proposed Project would also provide a new entrance to Grand Central Terminal (GCT) and the Long Island Rail Road's (LIRR) East Side Access (ESA) connection on the northwest corner of the site. Absent the Proposed Project (the No-Action condition), the Project Site would be redeveloped with approximately 411,540 gsf of office space and 6,144 gsf of ground floor retail space. Although MTA or NYCT would reserve an easement for a possible future entrance to ESA and GCT, no such new entrance would be included in the No-Action condition. Pedestrians would continue to utilize the existing 45th Street passageway for a connection to GCT.

Table 9-1 summarizes the No-Action condition, With-Action condition, and the net change of component sizes by land use. The Proposed Project consists of an increase of 421,073 gsf of office space and a reduction of 787 gsf of local retail space compared to the No-Action condition.

Table 9-1 Development Increment for Analysis

Use	No-Action Condition	With-Action Condition	Analysis Increment
Office	411,540 gsf	832,613 gsf	+421,073 gsf
Local Retail	6,144 gsf	5,357 gsf	-787 gsf

Principal Conclusions

A detailed transportation analysis was conducted and determined that the Proposed Action would result in significant adverse impacts related to traffic (two intersections), transit (one station element), and pedestrians (four pedestrian elements) as detailed below. The Proposed Action would not adversely impact vehicular and pedestrian safety or parking conditions.

Traffic

Vehicle traffic assignments were performed and indicated that no intersections would receive 50 or more vehicle trips during any of the peak hours analyzed. According to the *2020 CEQR Technical Manual* screening criteria, detailed traffic analysis would not be needed since 50 vehicles per hour is the threshold beneath which traffic conditions are not deemed significantly impacted. However, in consultation with the Department of City Planning (DCP) and the New York City Department of Transportation (~~NYCDOT~~NYC DOT), the four intersections at the corners of the Project Site block—Madison Avenue with East 44th and East 45th Streets, and Vanderbilt Avenue with East 44th and East 45th Streets—were included for analysis. Although traffic volume increases were modest and below the CEQR threshold per intersection, traffic impacts were identified at Madison Avenue and East 44th Street for all three peak hours and at Madison Avenue and East 45th Street for the PM peak hour. The identification and evaluation of traffic capacity improvements needed to mitigate these impacts are presented **Chapter 16, Mitigation**.

Parking

The Proposed Project would result in a parking demand increase for 104 spaces during the midday period as compared to the No-Action conditions. Overall, the Proposed Project parking demand would be sufficiently accommodated by the off-street parking within a quarter mile (five-minute walk) of the Proposed Project.

Transit

As part of the Proposed Project, a new entrance to Grand Central Terminal and LIRR's ESA connection will be provided at the northwest corner of the site. In addition, the Proposed Project would include improvements to enhance passenger circulation conditions at the 42nd Street – Grand Central subway station. These changes include:

- › On the Flushing platform, the existing stair PL9 will be widened to a total width of 15 feet.
- › On the Flushing platform, two new platform stairs will be added along with an extended transfer passageway at the center core.
- › Stairs U2/U4 and U6/U8, which descend below the northbound Lexington platform to the Flushing passageway, will be widened from 6 feet to 7 feet 3 inches.

An analysis was conducted for the 42nd Street – Grand Central subway station elements (stairways, escalators, fare control areas, and passageways) during the AM and PM commuter peak hours. The analysis concluded that significant transit impacts would not be expected during the AM peak hour, and one station element, the ES208 escalator (at the west end of the Flushing platform), would be impacted during the PM peak hour.

An assessment of the incremental subway riders for each subway line by direction was also conducted. According to the *2020 CEQR Technical Manual*, subway line-haul impacts are not expected if the increase in subway ridership is less than five riders per subway car. Since the projected peak ridership increase would be below this threshold, a detailed subway line-haul analysis was not needed, and subway line-haul impacts are not expected.

Pedestrians

Pedestrian analyses were performed for ten pedestrian elements (four sidewalks, two crosswalks, and four corners) during the AM, midday, and PM peak hours. The Proposed Project would include widening of the sidewalk along the Madison Avenue and East 45th Street frontages. Of the ten pedestrian elements analyzed, the Proposed Project would result in significant adverse impacts along Madison Avenue at two crosswalks and two corners during the AM and midday peak hours, and two crosswalks during the PM peak hour. Mitigation measures that could be implemented to mitigate the potential significant adverse pedestrian impacts are discussed in **Chapter 16, Mitigation**.

Vehicular and Pedestrian Safety

Crash data were obtained for four study area intersections from the ~~New York City Department of Transportation (NYCDOT)~~ NYC DOT for the most recent three-year period for which such data are available. None of the intersections analyzed are considered to be high-crash locations per the *CEQR Technical Manual* criteria.

Methodology

According to the *2020 CEQR Technical Manual* procedures for transportation analysis, a two-tiered screening process is undertaken to determine whether a quantified analysis is necessary. The first step, the Level 1 (Trip Generation) screening, determines whether the volume of peak hour person and vehicle trips generated by the Proposed Project would remain below the minimum thresholds for further study. These thresholds are:

- › 50 peak hour vehicle trip ends;
- › 200 peak hour subway/rail or bus transit riders; and
- › 200 peak hour pedestrian trips.

If the Proposed Project results in increments that would exceed any of these thresholds, a Level 2 (Trip Assignment) screening assessment is performed. Under this assessment, project-generated trips that exceed Level 1 thresholds are assigned to and from the site through their respective networks (streets, bus and subway lines, sidewalks, etc.) based on expected origin-destination patterns and travel routes.

Level 1 Screening Assessment

The travel demand factors used to calculate the projected number of trips were obtained primarily from the *2020 CEQR Technical Manual*, US census journey-to-work data, ~~New York City Department of Transportation (NYCDOT)~~ NYC DOT surveys, and information from recently-certified New York City environmental impact studies such as the *Greater East*

Midtown Rezoning FEIS (2017) and M1 Hotel Zoning Text Amendment FEIS (2018). **Table 9-2** provides the travel demand assumptions used for the weekday AM, midday, and PM peak hours.

Table 9-2 Travel Demand Characteristics

Rates	Office	Local Retail
Weekday Person Trip Gen Rate	18.0 ¹	205 ¹
	per 1,000 sf	per 1,000 sf
Linked Trip Credit	0%	25%
Temporal Distribution		
AM Peak Hour	12% ²	3% ¹
Midday Peak Hour	11% ²	19% ¹
PM Peak Hour	11% ²	10% ¹
Modal Split (AM, PM / Midday)		
Auto	7.8% / 2% ^{3,4}	6.0% ⁵
Taxi	2.1% / 3% ^{3,4}	1.0% ⁵
Bus	13.2% / 6% ^{3,4}	1.0% ⁵
Subway	47.6% / 6% ^{3,4}	1.0% ⁵
Rail	19.8% / 0% ^{3,4}	-
Walk/Other	9.4% / 83% ^{3,4}	91.0% ⁵
Vehicle Occupancy		
Auto	1.13 ³	1.65 ⁶
Taxi	1.40 ⁴	1.40 ⁶
Directional Split (In/Out)		
AM Peak Hour	96% / 4% ⁴	50% / 50% ⁶
Midday Peak Hour	48% / 52% ⁴	50% / 50% ⁶
PM Peak Hour	5% / 95% ⁴	50% / 50% ⁶
Weekday Delivery Trip Gen Rate	0.32 ¹	0.35 ¹
	per 1,000 sf	per 1,000 sf
Delivery Temporal Distribution		
AM Peak Hour	10% ¹	8% ¹
Midday Peak Hour	11% ¹	11% ¹
PM Peak Hour	2% ¹	2% ¹

Delivery trip directional distribution: 50% in / 50% out

Source:

¹ 2020 CEQR Technical Manual

² NYCDOT/ NYC DOT surveys of office use

³ 2012-2016 American Community Survey reverse journey-to-work data for Manhattan Census Tracts 80, 82, 92, 94, 100 and 102

⁴ Greater East Midtown Rezoning FEIS (2017)

⁵ NYCDOT/ NYC DOT surveys of local retail in Manhattan transit zone

⁶ M1 Hotel Zoning Text Amendment FEIS (2018) – Manhattan below 59th Street site

Office

The trip generation rate of 18.0 daily person trips per 1,000 sf for weekday for the office use was obtained from the *2020 CEQR Technical Manual*. Temporal distributions of 12 percent, 11 percent, and 11 percent for the AM, midday, and PM peak hours, respectively, were provided by ~~NYC DOT~~ NYC DOT based on recent surveys of office use. The AM and PM peak hour modal splits of 7.8 percent by auto, 2.1 percent by taxi, 13.2 percent by bus, 47.6 percent by subway, 19.8 percent by rail, and 9.4 percent by walk were obtained from 2012-2016 American Community Survey reverse journey-to-work data for Manhattan Census Tracts 80, 82, 92, 94, 100, and 102. The midday peak hour modal splits used were 2 percent by auto, 3 percent by taxi, 6 percent by bus, 6 percent by subway, and 83 percent by walk and were obtained from the *Greater East Midtown Rezoning FEIS (2017)*. Vehicle occupancies of 1.13 persons per auto and 1.40 persons per taxi were obtained from the 2012-2016 American Community Survey reverse journey-to-work data and the *Greater East Midtown Rezoning FEIS (2017)*, respectively. The directional distributions of 96 percent "in", 48 percent "in", and 5 percent "in" were used for the AM, midday, and PM peak hours, respectively, and were based on the *Greater East Midtown Rezoning FEIS (2017)*.

For office delivery trips, a trip generation rate of 0.32 daily truck trips per 1,000 sf for the weekday and temporal distributions of 10 percent, 11 percent, and 2 percent for the AM, midday, and PM peak hours, respectively, were based on the *2020 CEQR Technical Manual*.

Local Retail

For the local retail use, trip generation rates and temporal distributions were obtained from the *2020 CEQR Technical Manual*. The trip generation rate of 205 person trips per 1,000 sf for the weekday and temporal distributions of 3 percent, 19 percent, and 10 percent during the AM, midday, and PM peak hours were assumed. It is anticipated that a portion of these trips would be "linked" trips (e.g., a trip with multiple purposes, such as stopping at a retail store while commuting to or from work, or at lunch time); a credit of 25 percent was assumed as a linked trip credit. This assumption is similar to other certified studies such as the *Greater East Midtown Rezoning FEIS (2017)* and *M1 Hotel Zoning Text Amendment FEIS (2018)*. Modal splits used were based on ~~NYC DOT~~ NYC DOT surveys of local retail in Manhattan transit zones. The modal splits used were 6 percent by auto, 1 percent by taxi, 1 percent by bus, 1 percent by subway, and 91 percent by walk. Vehicle occupancies and directional distributions were obtained from the *M1 Hotel Zoning Text Amendment FEIS (2018)* for the Manhattan below 59th Street site; vehicle occupancies of 1.65 persons per auto and 1.40 persons per taxi were used. The directional split was 50 percent "in" for all peak periods.

For retail delivery trips, daily trip generation rates of 0.35 daily truck trips per 1,000 sf for the weekday and a temporal distribution of 8 percent, 11 percent, and 2 percent for the AM, midday, and PM peak hours, respectively, were obtained from the *2020 CEQR Technical Manual*.

Level 1 Screening Results

Transit and Pedestrians

The incremental of person trips generated by the Proposed Project as compared to the No-Action project are provided in **Table 9-3** and can be expected to exceed the *2020 CEQR Technical Manual* Level 1 screening thresholds for subway trips during the AM and PM commuting peak hours, and pedestrian trips during the AM, midday, and PM peak hours. Incremental bus and rail trips would not exceed the Level 1 screening thresholds and therefore further analysis is not needed.

- › During the AM peak hour, the project increment would expect to generate 120 bus trips, 432 subway trips, 180 rail trips, and 813 pedestrian trips (walk plus bus, subway and rail).
- › During the midday peak hour, the project increment would expect to generate 50 bus trips, 50 subway trips, no rail trips, and 772 pedestrian trips (walk plus bus, subway and rail).
- › During the PM peak hour, the project increment would expect to generate 111 bus trips, 397 subway trips, 165 rail trips, and 739 pedestrian trips (walk plus bus, subway and rail).

Since the number of peak hour subway trips, and the number of combined peak hour pedestrian trips, expected to be generated by the Proposed Project exceed the CEQR thresholds of 200 pedestrian trips per hour, a Level 2 trip assignment is needed to determine whether additional analyses are needed.

Table 9-3 Trip Generation Summary – Person Trips

Mode	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	68	3	71	7	8	15	3	62	65
Taxi	18	1	19	12	13	25	1	17	18
Bus	115	5	120	24	26	50	6	105	111
Subway	416	16	432	24	26	50	20	377	397
Rail	173	7	180	0	0	0	8	157	165
Walk	80	1	81	322	350	672	-2	68	66
Total	870	33	903	389	423	812	36	786	822

Traffic and Parking

Table 9-4 summarizes the total peak hour vehicular trip increment (“ins” plus “outs”) for the Proposed Project. The Proposed Project would result in an hourly trip increment of 103 vehicles per hour (vph) during the weekday AM peak hour, 49 vph in the weekday midday peak hour, and 84 vph in weekday PM peak hour. Since the incremental vehicle trips generated by the Proposed Project would exceed the 50-vehicle trip threshold during the AM and PM peak hours, a Level 2 trip assignment is needed to determine the scope of the detailed traffic analysis.

Table 9-4 Trip Generation Summary – Vehicle Trips

Mode	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	60	3	63	6	7	13	3	55	58
Taxi	13	13	26	11	11	22	12	12	24
Truck	7	7	14	7	7	14	1	1	2
Total	80	23	103	24	25	49	16	68	84

Level 2 Screening Assessment

As demonstrated above, the number of incremental trips generated by the Proposed Project would exceed the 2020 CEQR Technical Manual Level 1 screening thresholds for vehicular and subway trips during the AM and PM peak hours, and pedestrian trips during all peak hours analyzed. Project-generated trips were assigned through the surrounding street network based on expected routes to and from the Project Site. Trips generated by the No-Action project were also assigned following the same travel patterns as the Proposed Project. **Figure 9-1** shows the location of the Project Site.

Site Access

The Project Site is bordered by Madison Avenue to the west, Vanderbilt Avenue to the east, East 44th Avenue to the south, and East 45th Street to the north. Pedestrian access to the project would be provided along Madison Avenue. The retail space along East 45th Street would be accessed from East 45th Street. The entrance to the new ESA connection would be located along Madison Avenue. No parking would be provided on-site; auto trips would need to park at nearby parking facilities.

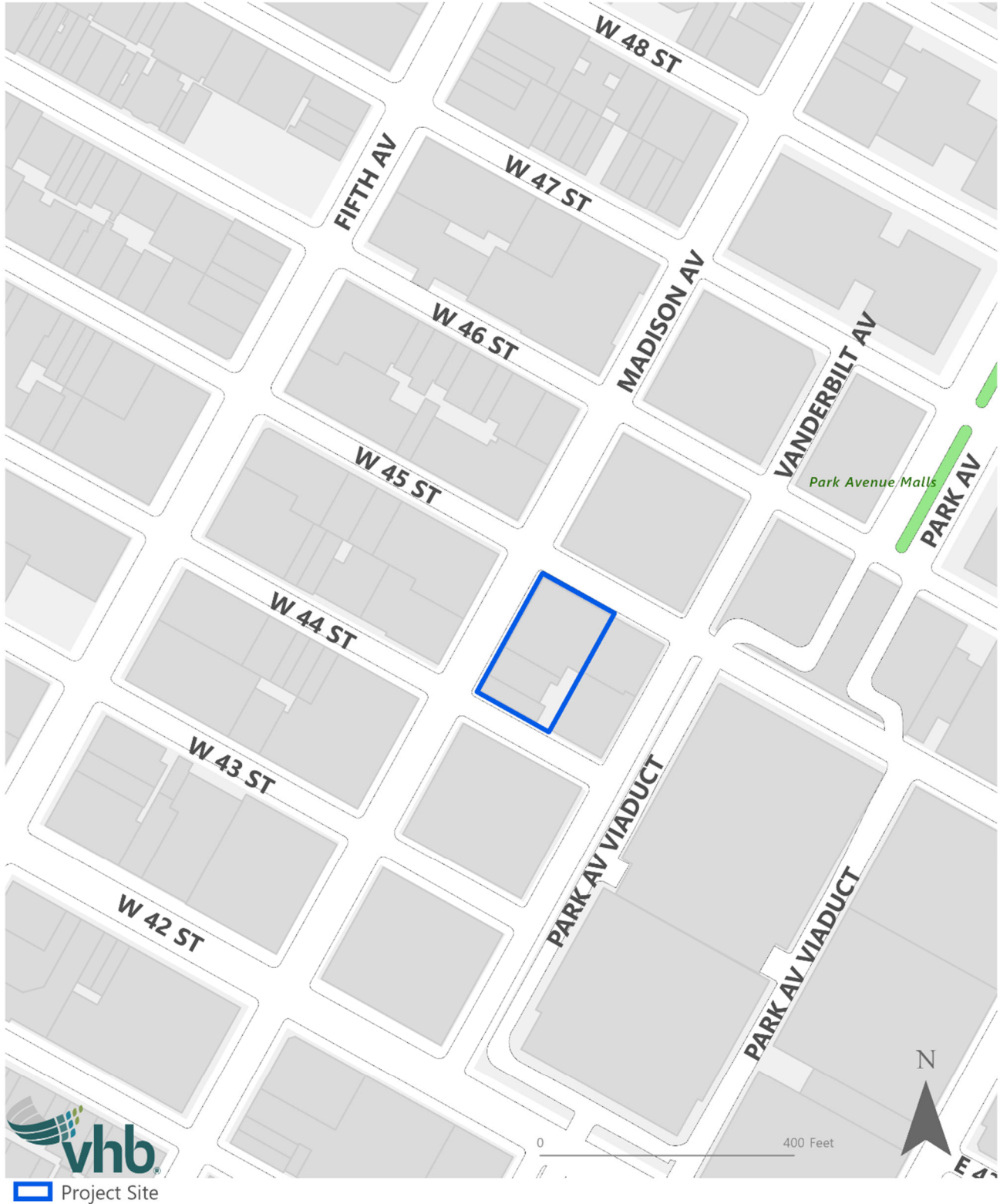
The Proposed Project's loading dock would be located along East 44th Street and consist of three loading berths. Access to the loading dock would be provided by an approximately 45-foot-wide curb cut which would be located more than 50 feet east of Madison Avenue, and would accommodate back-in/head-out turns. The loading dock would be operated by building staff during delivery hours and would manage vehicle and pedestrian traffic during deliveries. Loading dock deliveries would be primarily made by pick-up trucks and van, and there would be sufficient roadway width along East 44th Street to accommodate the delivery vehicle turns without displacing commercial parking spaces opposite of the loading dock. Once complete, it is estimated that the Proposed Project would have 14 deliveries during the midday peak hour. Based on delivery projections from other projects such as the *Vanderbilt Corridor and One Vanderbilt FEIS (2015)*, about 30 percent of these 14 vehicles would need to access the three loading dock berths (approximately four deliveries during the peak hour) and the building's loading dock staff would ensure that these vehicles are directed safely into the loading dock. The average dwell time for a delivery is typically less than an hour. Accordingly, it is anticipated that the four deliveries during the peak hours would result in minimal conflicts with pedestrians along the sidewalk and with other loading docks along East 44th Street.

Transit and Pedestrians

Transit and pedestrian trips were assigned through the pedestrian network based on logical and direct travel routes to and from the Project Site from neighborhood attractions, commuter rail stations, subway stations and/or bus stops, to determine if the additional pedestrian trips generated by the project would exceed 200 peak hour pedestrian trips at key pedestrian elements (e.g. crosswalks, sidewalks, corner reservoir areas) approaching the site – the threshold for detailed pedestrian analysis. ~~The Project Site is bordered by Madison Avenue to the west, Vanderbilt Avenue to the east, East 44th Avenue to the south, and East 45th Street to the north. Pedestrian access to the project would be provided along Madison Avenue.~~

The Project Site is well served by MTA local and express bus service and by commuter bus service such as the North Fork Express, Bee-Line Bus, and Monsey Trails. Bus transit options within the Project Site vicinity include Manhattan buses such as M1, M2, M3, M4, M42, M101, M102, Queens buses such as the Q32, and express bus services such as the BxM6, BxM7, BxM8, BxM9, BxM10, BxM11, QM21, QM31, QM32, QM34, QM35, QM36, SIM1C, SIM3C, SIM4C, SIM33C, X27, X28, X37, X38, X63, X64, and X68. Based on 2012-2016 American Community Survey reverse journey-to-work data for commuters using buses to travel to workplaces in the study area, it is estimated that approximately 50 percent of bus trips originate from New Jersey. Of these trips, 25 percent were assigned to walk from the Port Authority Bus terminal, with the remaining 25 percent assigned to the M42 bus route to travel to and from the Port Authority Bus Terminal. Approximately 21 percent of commuter trips originate from within Manhattan and were assigned to the local Manhattan bus routes, and 10 percent originate from Queens and were assigned to the Q32 and express bus routes. Bus trips originating from Staten Island (8 percent), Brooklyn (7 percent), and the Bronx (4 percent) were assigned to the express bus routes.

Figure 9-1 Study Area Location



The 42nd Street - Grand Central station is the City's major commuter hub, providing access to subways and commuter rail service in the center of Midtown Manhattan. The No. 4, 5 and 6 subway lines serve riders to and from the Bronx and Brooklyn as well as Upper and Lower Manhattan. The No. 7 Flushing line provides service between Flushing, Queens and West Midtown (Times Square and Hudson Yards) after stopping at GCT. Additionally, the Times Square Shuttle operates between GCT and Times Square. The Proposed Project would generate an increase of 432 and 397 new subway trips during the weekday AM and PM peak hours, respectively. The project would provide direct access to GCT and the 42nd Street - Grand Central subway station; based on information from the *Greater East Midtown Rezoning FEIS (2017)*, it is assumed that approximately ten percent of the subway trips will use this connection and not need to use the street network (these trips would use the existing East 45th Street entrance in the No-Action condition). Approximately 49 percent of the subway trips were assigned to the existing East 45th Street entrance and four percent to the One Vanderbilt subway entrance on East 43rd Street. A detailed analysis will be conducted at this subway station. The remaining 37 percent of the subway trips were assigned to nearby stations. Specifically, these were distributed evenly between the Fifth Avenue - Bryant Park station on West 42nd Street between Sixth and Fifth Avenues, and the 47th - 50th Streets Rockefeller Center station at Sixth Avenue and West 47th Street.

Grand Central Terminal is the busiest Metro-North station and is in the process of expanding. As part of the ESA project, a new commuter rail connection will be constructed for the LIRR at GCT—providing LIRR commuters with direct train service to GCT as well as to Penn Station—with an expected opening date in late 2022. It is expected that approximately 35 percent of the rail trips generated by the Proposed Project will use the new ESA connection adjacent to the site. The remaining 65 percent of the rail trips were assigned to the existing East 45th Street entrance.

Walk-only pedestrian trips were distributed evenly in all directions due to the centrality of the Project Site and the number of attractions in the Project Site vicinity and then assigned throughout the network.

Pedestrian volume increment maps for the AM, midday, and PM peak hours are shown in **Figure 9-2** through **Figure 9-4**.

Figure 9-2 Pedestrian Volume Increment – AM Peak Hour



Figure 9-3 Pedestrian Volume Increment – Midday Peak Hour

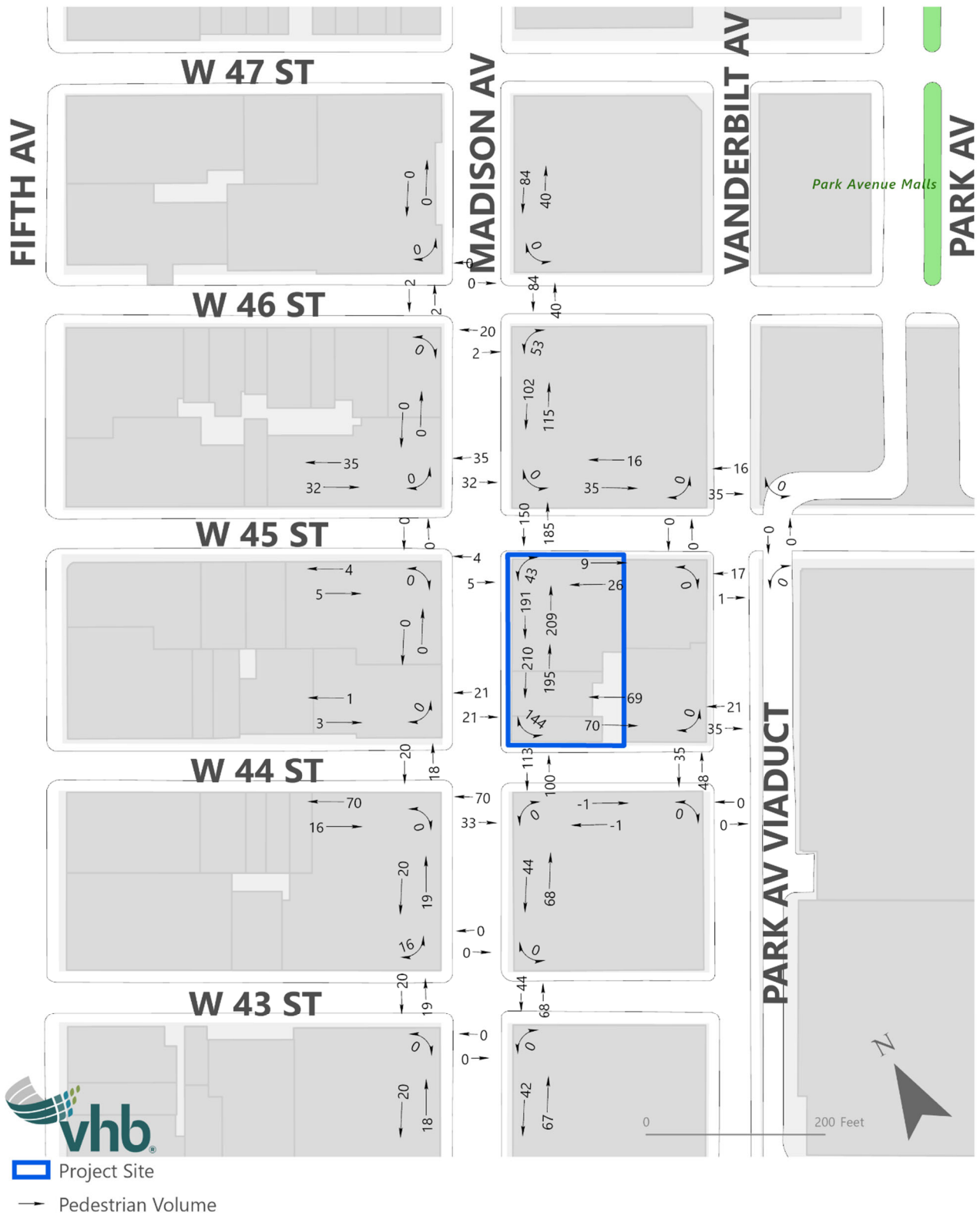
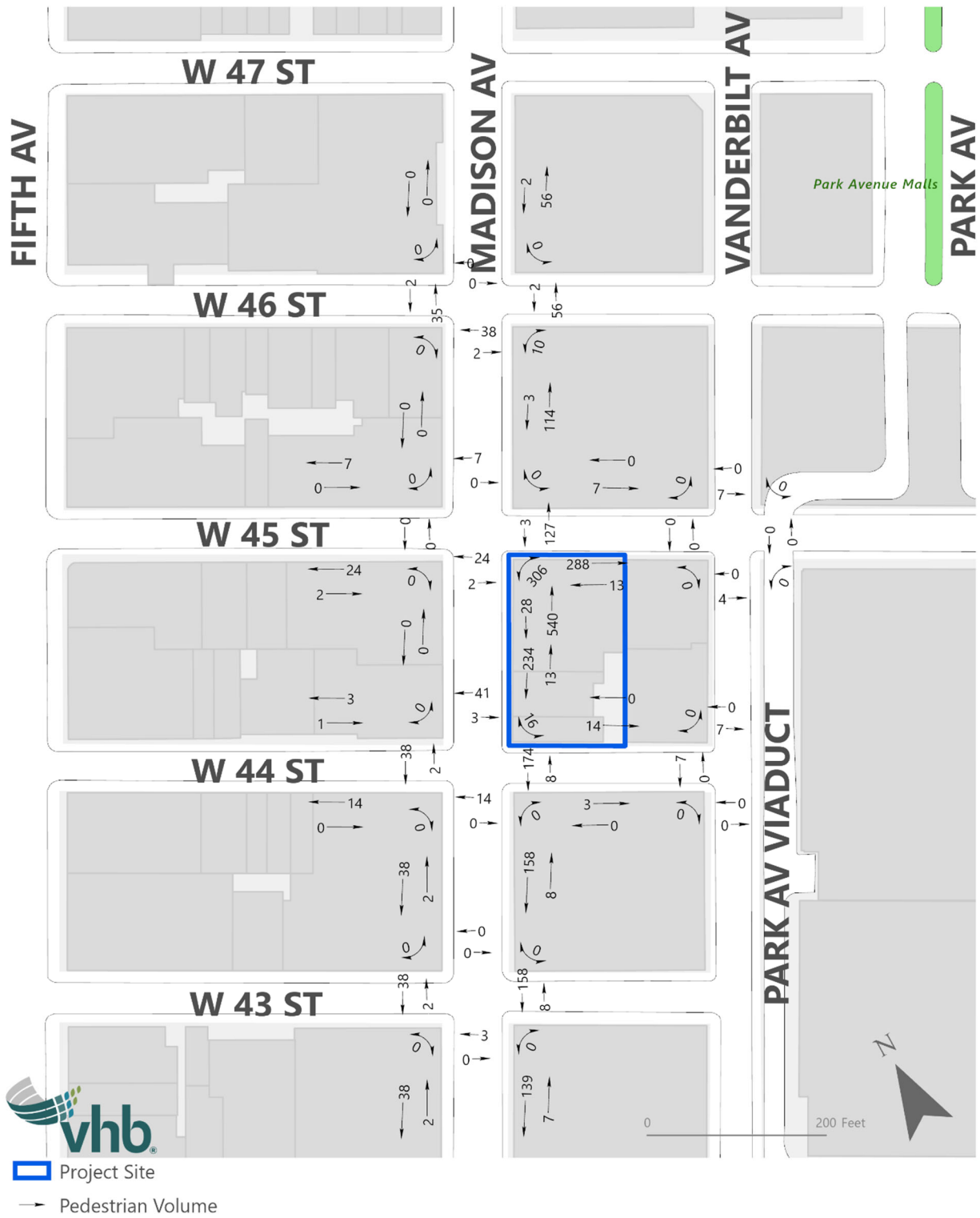


Figure 9-4 Pedestrian Volume Increment – PM Peak Hour



Traffic

Project-generated vehicle trips were assigned through the surrounding street network based on expected routes to and from the Project Site, the configuration of the street network, and parking facilities within the Project Site vicinity. Since the Proposed Project and the No-Action project would not provide parking on-site, auto trips were assigned to park at nearby off-street parking facilities based on parking availability information from the *Greater East Midtown Rezoning FEIS (2017)*. The parking assignments considered the loss of available parking in the area as a result of significant projects expected to be completed by the project's Build year such as the One Vanderbilt development.

Office

Office auto trip distributions were based upon 2012-2016 American Community Survey reverse journey-to-work data for Manhattan census tracts 80, 82, 92, 94, 100, and 102. Within New York City, approximately 8 percent of the auto trips are assumed to originate from Manhattan, 15 percent from Queens, 8 percent from Brooklyn, 4 percent from the Bronx, and 3 percent from Staten Island. New York counties to the north of New York City (Westchester, Yonkers, and Upstate New York) make up approximately 14 percent of office auto trips while trips from Long Island are approximately 14 percent of office trips. Approximately 30 percent of office auto trips are assumed to originate from out of state areas to the west (New Jersey and Pennsylvania) and approximately 4 percent from Connecticut.

Most office auto trips were distributed to use East River and Hudson River crossings. Approximately 28 percent of trips (Queens, Long Island, Brooklyn, and Connecticut trips) were assigned to the Queens-Midtown Tunnel (20 percent) and the Ed Koch Queensboro Bridge (8 percent) crossing the East River to access the study area. Approximately 20 percent of the trips (New Jersey and Staten Island trips) were assigned to the study area using the Lincoln Tunnel. Trips using the highways from the north, such as the Franklin D. Roosevelt (FDR) Drive and Henry Hudson Parkway (Route 9A), account for approximately 32 percent of office trips. FDR Drive office trips from the south account for approximately 8 percent of the trips. The remaining trips would use local north-south streets including Third, Lexington, Park, Madison, and Fifth Avenues.

Taxi pick-ups and drop-offs were assigned along the Madison Avenue frontage. Delivery trips were assigned along New York City Department of Transportation's (NYC DOT/ NYC DOT) designated truck routes such as 42nd Street, Second Avenue, Third Avenue, and Lexington Avenue. Delivery trips were assigned along truck routes as long as possible until reaching the Project Site's loading area, which is accessed from East 44th Street.

Traffic volume increment maps for the AM, midday, and PM peak hours are shown in **Figure 9-5** through **Figure 9-7**.

Figure 9-5 Traffic Volume Increment – AM Peak Hour



Figure 9-6 Traffic Volume Increment – Midday Peak Hour



Figure 9-7 Traffic Volume Increment – PM Peak Hour



Level 2 Screening Results

Traffic

Based on the vehicular traffic assignments described above, no intersection would exceed the 2020 CEQR Technical Manual Level 2 screening threshold of 50 vehicles per hour that would typically require detailed traffic analysis. However, in order to provide informal context for the pedestrian analysis and/or safety assessment, in consultation with Department of City Planning (DCP) and the New York City Department of Transportation (NYC DOT/ NYC DOT), the four intersections at the corners of the Project Site block—Madison Avenue with East 44th and East 45th Streets, and Vanderbilt Avenue with East 44th and East 45th Streets—were included for analysis and are shown in **Figure 9-8**. The traffic analysis will be conducted for the weekday AM, midday, and PM peak hours.

Subway

A detailed transit analysis will be conducted for Grand Central-42nd Street station elements. **Figure 9-9** shows the subway and bus options within the vicinity of the Project Site.

An assessment of the incremental subway riders for each subway line (4, 5, 6, 7, and S lines) by direction was conducted and is shown in **Table 9-5** below. According to the 2020 CEQR Technical Manual, subway line-haul impacts are not expected if the increase in subway ridership is less than five riders per subway car. Since the projected peak ridership increase would be below this threshold (less than one additional rider per car during the commuter peak hours), a detailed subway line-haul analysis is not needed while a detailed analysis of station elements will be needed.

Table 9-5 Subway Line-Haul Screening

Subway Line	AM Peak Hour			PM Peak Hour		
	Projected Riders	Cars per Hour	Riders Per Car Per	Projected Riders	Cars per Hour	Riders Per Car Per
4/5/6 – Northbound	111	441	0.3	69	447	0.2
4/5/6 – Southbound	75	470	0.2	102	438	0.2
7- Eastbound	52	286	0.2	36	272	0.1
7- Westbound	40	301	0.1	47	268	0.2
B/D/F/M - Northbound	40	369	0.1	74	346	0.2
B/D/F/M - Southbound	80	380	0.2	38	351	0.1
Shuttle - Eastbound	33	98	0.3	1	75	0.0
Shuttle – Westbound	1	96	0.0	30	82	0.4

Source: Number of cars during the peak hours obtained from NYCT

Pedestrians

Based on the pedestrian assignments described above, detailed pedestrian level of service analyses will be performed at the pedestrian elements (crosswalk, corners, and sidewalks) listed below and shown in **Figure 9-10**.

Crosswalks and Corners

- › Madison Avenue and East 44th Street – northeast and southeast corners, and east crosswalk
- › Madison Avenue and East 45th Street – northeast and southeast corners, and east crosswalk

Sidewalks

- › East sidewalk of Madison Avenue between East 44th and East 45th Streets (site entrance)
- › East sidewalk of Madison Avenue between East 45th and East 46th Streets
- › North sidewalk of East 44th Street between Madison and Vanderbilt Avenues
- › South sidewalk of East 45th Street between Madison and Vanderbilt Avenues

Figure 9-8 Traffic Study Area

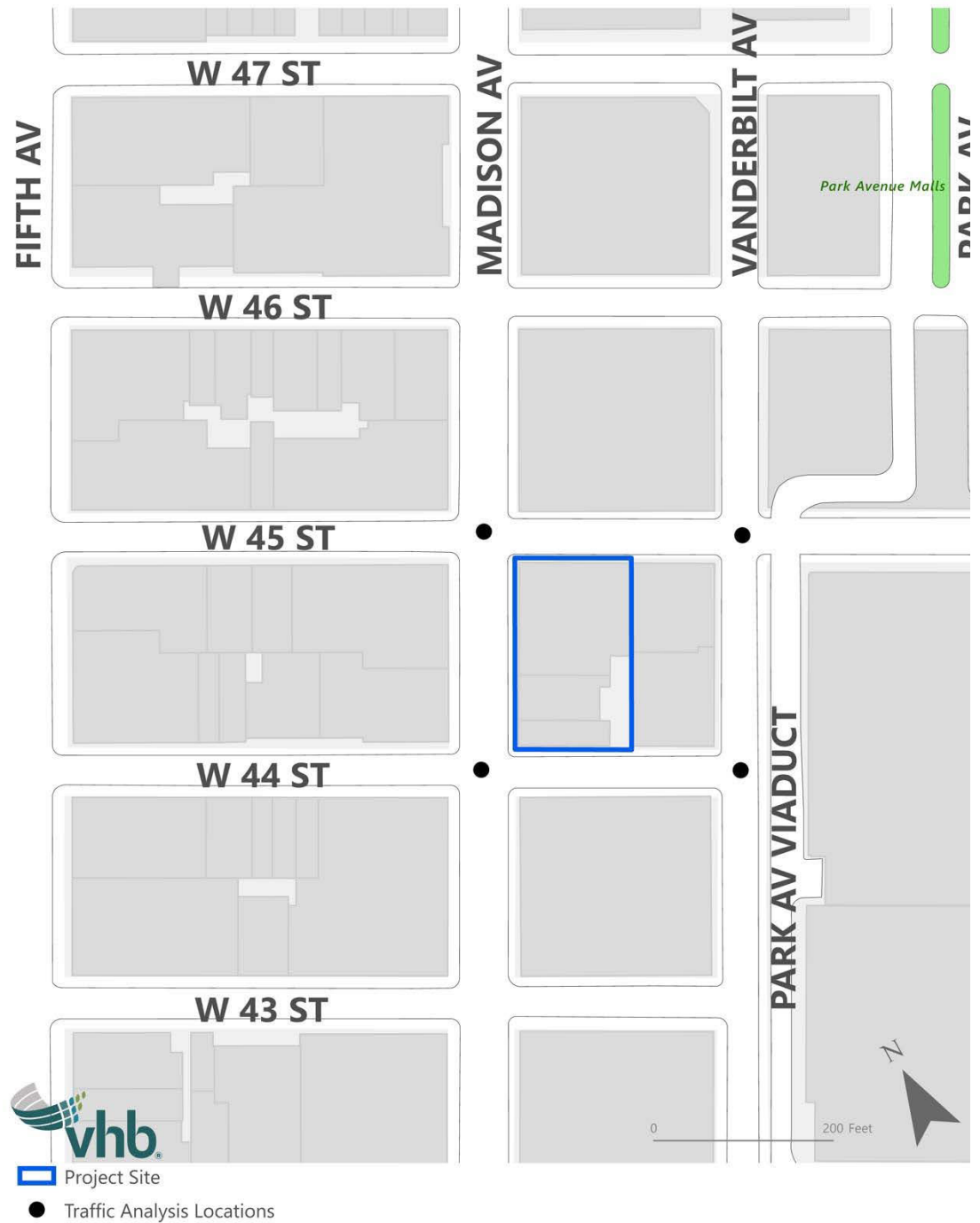
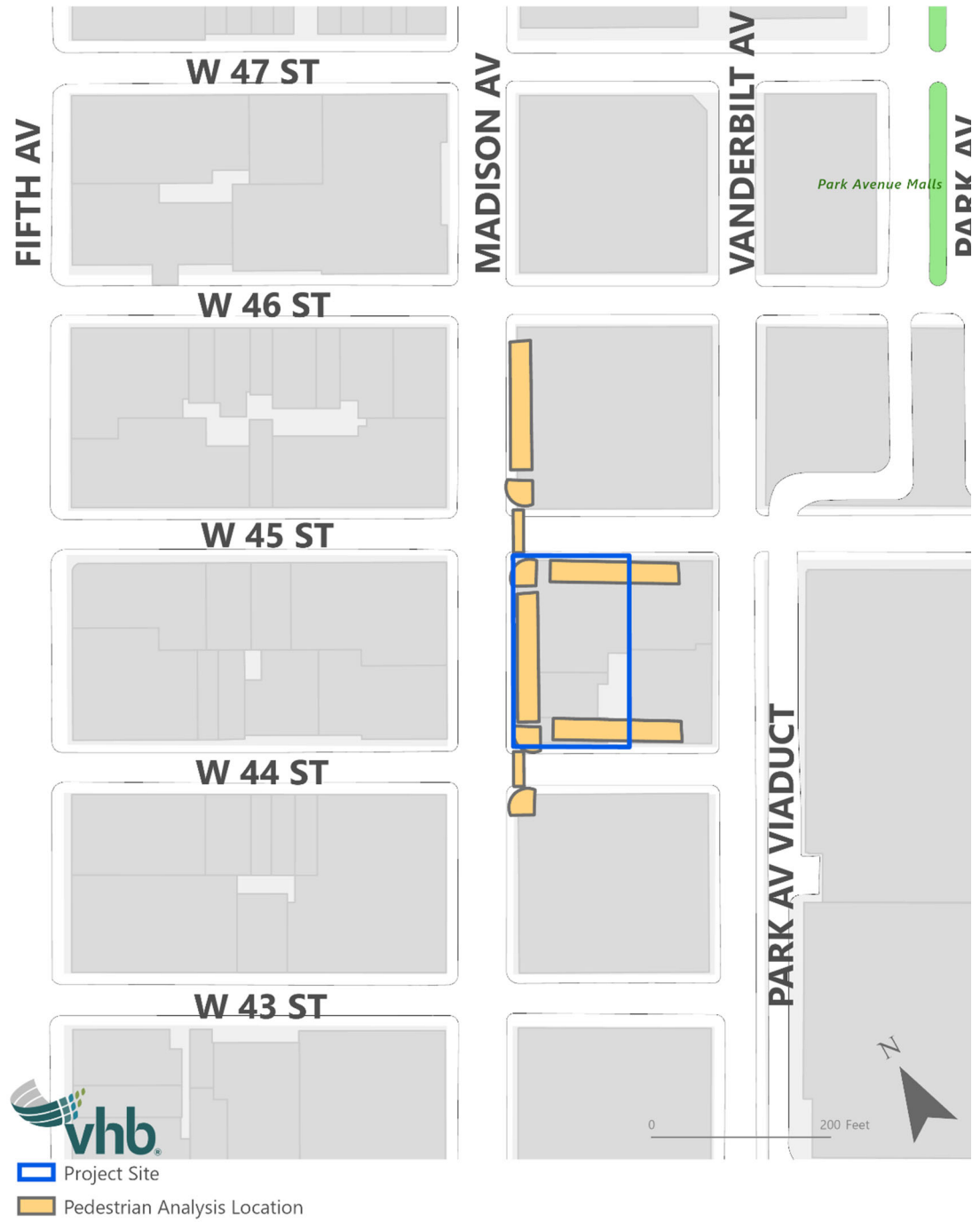


Figure 9-9 Transit Study Area



- Project Site
- Bus Routes
- 7 Subway Line
- 400 Foot Radius
- Express Bus Routes
- S Subway Line
- Subway Station
- 4 / 5 / 6 Subway Line

Figure 9-10 Pedestrian Study Area



Detailed Analysis Methodology

This section describes the methodology used for the detailed traffic, parking, subway and pedestrian analyses.

Traffic

The operation of all signalized and unsignalized intersection analysis locations were assessed using Synchro software which are based on methodologies presented in the *Highway Capacity Manual (HCM)*. The HCM procedures evaluate the levels of service (LOS) for signalized and unsignalized intersections using average stop control delay, in seconds per vehicle, as described below.

- › LOS A describes operations with very low delays, i.e., 10.0 seconds or less per vehicle. This occurs when signal progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
- › LOS B describes operations with delays in excess of 10.0 seconds up to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.
- › LOS C describes operations with delays in excess of 20.0 seconds up to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is noticeable at this level, although many still pass through the intersection without stopping.
- › LOS D describes operations with delays in excess of 35.0 seconds up to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.
- › LOS E describes operations with delays in excess of 55.0 seconds up to 80.0 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios.
- › LOS F describes operations with delays in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios with cycle failures. Poor progression and long cycle lengths may also contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

Based on the *CEQR Technical Manual* guidelines, LOS A, B, and C are considered acceptable, LOS D is generally considered marginally acceptable up to mid-LOS D (45 seconds of delay for signalized intersections) and unacceptable above mid-LOS D, and LOS E and F indicate congestion. These guidelines are applicable to individual traffic movements and overall intersection levels of service.

For unsignalized intersections, delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line: LOS A describes operations with very low delay, i.e., 10.0 seconds or less per vehicle; LOS B describes operations with delays in excess of 10.0 seconds up to 15.0 seconds; LOS C has delays in

excess of 15.0 seconds up to 25.0 seconds; LOS D, excess of 25.0 seconds up to 35.0 seconds per vehicle (mid-LOS D is considered to be the limit of acceptable delay); and LOS E, excess of 35.0 seconds up to 50.0 seconds per vehicle. LOS F describes operation with delays in excess of 50.0 seconds per vehicle, which is considered unacceptable to most drivers. This condition exists when there are insufficient gaps of suitable size in a major vehicular traffic stream to allow side street traffic to cross safely.

Significant Impact Criteria

The assessment of potential significant traffic impacts of a proposed project is based on significant impact criteria defined in the *CEQR Technical Manual*. No-Action LOS A, B, or C conditions that deteriorate to unacceptable LOS D, E, or F in the future With-Action condition are considered a significant traffic impact.

For future No-Action LOS A, B, or C conditions that deteriorate to unacceptable LOS D, mitigation to mid-LOS D (45.0 seconds of delay for signalized intersections and 30.0 seconds of delay for unsignalized intersections) needs to be considered to fully mitigate the impact.

For a No-Action LOS D, an increase of delay by five or more seconds in the With-Action condition is considered a significant impact if the With-Action delay meets or exceeds 45.0 seconds. For a No-Action LOS E, the threshold is a four second increase in With-Action delay; for a No-Action LOS F, a three second increase in delay in the With-Action condition is significant. For unsignalized intersections, for the minor street to generate a significant impact, 90 passenger car equivalents (PCEs) must be identified in the With-Action condition in any peak hour.

Parking

The parking analysis identifies the extent to which off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from additional demand generated by the proposed project. This analysis typically encompasses a study area within a quarter mile of the Project Site. If the analysis concludes that there would be a shortfall in parking within the quarter-mile study area, the study area may be extended to a half-mile to identify additional parking supply.

For proposed projects located in Manhattan or other CBD areas¹, the inability of the proposed project or the surrounding area (on-street and off-street) to accommodate the project's future parking demand is considered a parking shortfall but is generally not considered a significant adverse environmental impact due to the magnitude of available alternative modes of transportation. Additional factors, such as the availability and extent of transit in the area and the patterns of automobile usage by area residents and workers, could be considered to determine the significance of the identified parking shortfall.

¹ Parking shortfalls in Zone 1 and Zone 2, as identified in the CEQR Technical Manual, are generally not considered to be significant. The Project Site is located within Zone 1.

Transit

The *CEQR Technical Manual* provides methodologies to assess several components of transit operations including the line-haul capacities of bus and subways lines, and the capacity of subway station circulation elements including stairways, escalators, passageway, and fare controls (turnstiles, high entry/exit turnstiles [HEETs], and high exit turnstiles [HXTs]).

Subway Station Elements

Subway station elements are assessed based on the ratio of passenger volume and the capacity of the element (the v/c ratio). The v/c ratio criteria are used to determine the levels of service which are shown in **Table 9-6**. LOS A and LOS B depict free flow and fluid flow conditions, respectively, at a subway station element. Station elements operating at LOS C still exhibit fluid flow but pedestrian activities begin to become somewhat restricted. When conditions become crowded and there is restriction to walking speeds, the station element is considered to be operating at LOS D. At LOS E the station element is considered to be congested. There is shuffling and frequent interactions between pedestrians which result in some queuing. Severe congestion with constant queuing signifies that a station element is operating at LOS F.

Table 9-6 Level of Service Criteria for Subway Station Elements

LOS	v/c Ratio
A	0.00 to 0.45
B	0.45 to 0.70
C	0.70 to 1.00
D	1.00 to 1.33
E	1.33 to 1.67
F	Above 1.67

Source: 2020 *CEQR Technical Manual*

Stairways and passageways are analyzed based on the width of the station element and the 15-minute pedestrian flow passing through. These analyses also take into account pedestrian surging resulting from an arriving train or platooning volumes from a major attraction such as a stadium or school (the effect of surging can reduce capacity by up to 25 percent) and friction from pedestrian interactions (the effect of friction can reduce capacity by up to 10 percent). Other station elements including escalators and turnstiles are measured against the operational capacities designated by New York City Transit (NYCT).

Significant Impact Criteria

Significant impacts to stairs and passageways are determined by the width increment threshold (WIT) between the No-Action and With-Action conditions for elements operating at v/c ratios greater than 1.0 in the With-Action condition. The WIT for significant impacts is detailed in **Table 9-7** below. If a stairway or passageway is significantly impacted, mitigation measures identified would need to restore the levels of service back to the No-Action levels of service or to a v/c ratio of 1.0. For escalators and turnstile elements, a With-Action v/c ratio of 1.0 or greater when the No-Action v/c ratio was less than 1.0 is considered a

significant impact. For these elements where the No-Action v/c ratio is already in excess of 1.0, an incremental change in the v/c ratio of 0.01 would be considered a significant impact.

Table 9-7 Significant Impact Guidance for Stairs and Passageways

No-Action v/c Ratio	Width Increment Threshold (WIT) for Significant Impacts (Inches)	
	Stairway	Passageway
1.00 to 1.09	8.0	13.0
1.10 to 1.19	7.0	11.5
1.20 to 1.29	6.0	10.0
1.30 to 1.39	5.0	8.5
1.40 to 1.49	4.0	6.0
1.50 to 1.59	3.0	4.5
1.60 and up	2.0	3.0

Source: 2020 CEQR Technical Manual

Pedestrians

Pedestrian level of service standards are determined on the basis of walking speed, pedestrian spacing, and probabilities of pedestrian and vehicular conflict, and are assessed based on the methodologies presented in the *2010 Highway Capacity Manual* and the *CEQR Technical Manual*. These standards are primarily based on the space needs of people involved in various activities and are widely used for planning and design of facilities for pedestrians. Analysis of crosswalks, street corners, and sidewalks along key walking paths to and from the Project Site will be performed to assess the adequacy of these pedestrian elements.

To evaluate sidewalks, the pedestrian flow per unit width (p/ft/min) is calculated based on the pedestrian flow and the effective walkway width². The analysis of sidewalk conditions should also consider if pedestrian flow is a "non-platoon" flow (pedestrian flow within the peak 15-minute period is relatively uniform) or "platoon" flow. Platooning occurs when pedestrians move in groups or " platoons" as a result of pedestrian metering from a traffic signal, or from attractions such as subway stations or bus stops. The ratio of the walking speed³ over the pedestrian flow per unit width determines the average pedestrian space (sf/p).

Crosswalk conditions are expressed as a measurement of the area available (the area consists of the crosswalk width multiplied by the crossing distance) and available pedestrian crossing time. The pedestrian flow is compared to the "time-space" available to determine the crosswalk level of service which is expressed as square feet per pedestrian (sf/p). This analysis also takes account of pedestrian conflicts in the crosswalk with turning vehicles.

Similar to crosswalks, street corners must provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the other street or passing around the corner). The analysis applies a measure of time and space availability

² The effective walkway width is the space along the walkway that pedestrians could use that is free of obstruction. This width also takes account of the "shy distance" (the space between pedestrians and the obstacle such as a wall or building façade).

³ The typical average pedestrian walking speed specified in the *CEQR Technical Manual* is 3.5 feet per second (ft/s). For intersections with school crosswalks or that are located within the Senior Pedestrian Focus Areas, an average pedestrian walking speed of 3.0 ft/s is used.

based on the area of the corner reservoir, pedestrian crossing time available, and the estimated time used by circulating pedestrians.

The level of service standards for pedestrian elements are based on the time and space available per pedestrian during the analysis period. Level of service grades from A to F are assigned, with LOS A representative of free flow conditions without pedestrian conflicts and LOS F depicting significant capacity limitations and inconvenience. **Table 9-8** defines the level of service criteria for crosswalks, corner area, and sidewalk conditions, as per the *2010 HCM*. The *CEQR Technical Manual* identifies acceptable levels of service in Central Business District (CBD) areas (such as the area in this study) as LOS C or better, and mid-LOS D or better for CBD areas.

The Proposed Project is located in a CBD area, and the pedestrian analysis were analyzed assuming platoon pedestrian flow.

Table 9-8 Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	> 60 sf/p	> 530 sf/p	> 60 sf/p
B	> 40 and ≤ 60 sf/p	> 90 and ≤ 530 sf/p	> 40 and ≤ 60 sf/p
C	> 24 and ≤ 40 sf/p	> 40 and ≤ 90 sf/p	> 24 and ≤ 40 sf/p
D	> 15 and ≤ 24 sf/p	> 23 and ≤ 40 sf/p	> 15 and ≤ 24 sf/p
E	> 8 and ≤ 15 sf/p	> 11 and ≤ 23 sf/p	> 8 and ≤ 15 sf/p
F	≤ 8 sf/p	≤ 11 sf/p	≤ 8 sf/p

Source: 2020 CEQR Technical Manual

Significant Impact Criteria

The identification of significant pedestrian impacts is dependent on the area type (CBD or non-CBD) and is determined by the decrease of time and space available for pedestrians between the No-Action and With-Action conditions. The Project Area and surrounding analysis locations are located in a CBD area. The *CEQR Technical Manual* identifies significant impacts for the pedestrian sidewalk, crosswalk, and corner elements on a sliding scale detailed below. With-Action pedestrian level of service that is considered acceptable (LOS C or better in non-CBD areas, and mid-LOS D or better in CBD areas) would not have a potential for significant impacts.

For sidewalks, the assessment of potential significant impacts is based on a sliding-scale formula provided in the *CEQR Technical Manual*. Consideration as to whether pedestrian flow along the sidewalk is platooning or non-platooning, and whether the sidewalk being analyzed is in a CBD or non-CBD condition is necessary.

For sidewalks with non-platoon pedestrian flow, the formula used to determine the decrease in pedestrian space from the No-Action to With-Action condition that would trigger a significant impact is $Y \geq (X / 9.0) - 0.31$, where Y is the decrease in pedestrian space (sf/p) to be considered a potential significant impact and X is the No-Action pedestrian space (sf/p). If the decrease in pedestrian space is greater than Y and the With-Action level of service is considered to be unacceptable, the sidewalk is considered to be significantly impacted. For

sidewalks with platoon pedestrian flow, the formula to determine if the decrease in pedestrian space would trigger a significant impact is $Y \geq X / (9.5 - 0.321)$. **Table 9-9** provides a summary of the sliding-scale guidelines provided in the *CEQR Technical Manual*.

For corners and crosswalks, the assessment of potential significant impacts is also based on a sliding-scale formula provided in the *CEQR Technical Manual*. The formula used to determine the decrease in pedestrian space from the No-Action to With-Action condition that would trigger a significant impact is $Y \geq (X / 9.0) - 0.31$, where Y is the decrease in pedestrian space (sf/p) to be considered a potential significant impact and X is the No-Action pedestrian space (sf/p). If the decrease in pedestrian space is greater than Y and the With-Action level of service is considered to be unacceptable, the corner or crosswalk is considered to be significantly impacted. **Table 9-10** provides a summary of the sliding-scale guidelines provided in the *CEQR Technical Manual*.

Table 9-9 Significant Impact Criteria for Sidewalks

Platoon Flow (CBD Areas)			
No-Action Ped Space (sf/p)	With-Action Ped Space Reduction (sf/p)	No-Action Ped Space (sf/p)	With-Action Ped Space Reduction (sf/p)
>39.2	With-Action Condition <31.5		
38.7 to 39.2	≥ 3.8	21.6 to 22.5	≥ 2.0
37.8 to 38.6	≥ 3.7	20.7 to 21.5	≥ 1.9
36.8 to 37.7	≥ 3.6	19.7 to 20.6	≥ 1.8
35.9 to 36.7	≥ 3.5	18.8 to 19.6	≥ 1.7
34.9 to 35.8	≥ 3.4	17.8 to 18.7	≥ 1.6
34.0 to 34.8	≥ 3.3	16.9 to 17.7	≥ 1.5
33.0 to 33.9	≥ 3.2	15.9 to 16.8	≥ 1.4
32.1 to 32.9	≥ 3.1	15.0 to 15.8	≥ 1.3
31.1 to 32.0	≥ 3.0	14.0 to 14.9	≥ 1.2
30.2 to 31.0	≥ 2.9	13.1 to 13.9	≥ 1.1
29.2 to 30.1	≥ 2.8	12.1 to 13.0	≥ 1.0
28.3 to 29.1	≥ 2.7	11.2 to 12.0	≥ 0.9
27.3 to 28.2	≥ 2.6	10.1 to 11.1	≥ 0.8
26.4 to 27.2	≥ 2.5	9.3 to 10.1	≥ 0.7
25.4 to 26.3	≥ 2.4	8.3 to 9.2	≥ 0.6
24.5 to 25.3	≥ 2.3	7.4 to 8.2	≥ 0.5
23.5 to 24.4	≥ 2.2	6.4 to 7.3	≥ 0.4
22.6 to 23.4	≥ 2.1	< 6.4	≥ 0.3

Source: 2020 CEQR Technical Manual

Table 9-10 Significant Impact Criteria for Corners and Crosswalks

CBD Areas	
No-Action Ped Space (sf/p)	With-Action Ped Space Reduction (sf/p)
>21.5	With-Action Condition <19.5
21.3 to 21.5	≥ 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
< 5.1	≥ 0.2

Source: 2020 CEQR Technical Manual

Vehicle and Pedestrian Safety

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

Existing Conditions

Traffic

Roadway Network

The roadway network within the study area consists of avenues and streets serving primarily commercial (retail and office) space. East 44th Street and East 45th Street are one-way roadways bordering the Project Site. East 44th Street runs eastbound and has one travel lane with curbside parking/loading on each side. Between Madison and Vanderbilt Avenues, the curbside spaces on the north side are designated for MTA Police parking and metered parking, which is limited to commercial vehicle parking on weekdays between 7 AM and 6 PM, on the south side. Loading operations for the Yale Club building and the building at 335 Madison Avenue occur along East 44th Street; the 335 Madison Avenue building has two loading berths and a parking garage along this block. As a result of construction related to the ESA project, the western half of East 44th Street is currently limited to one travel lane with no curbside parking/loading. Due to these construction activities and the loss of curbside space for commercial vehicles, double parking of delivery vehicles and other East 44th Street loading activities result in periodical queuing from the midblock to Madison Avenue. Once the ESA project is complete, which is expected to be in late 2022, the roadway would be reopened and the curbside commercial vehicle spaces and roadway capacity on the western half of the block would be restored.

East 45th Street runs westbound and has two travel lanes with curbside parking/loading on each side east of Madison Avenue. The curbside space on the north side of East 45th Street between Madison and Vanderbilt Avenues is designated for hotel loading zone and taxi stand space. The south curbside is designated for metered parking which is limited to commercial vehicle parking on weekdays between 7 AM and 6 PM. West of Madison Avenue, East 45th Street has one travel lane with curbside parking/loading on both sides; the south parking/loading lane operates as a travel lane during specific times.

Madison Avenue is a one-way northbound avenue located along the west side of the Project Site, and generally consists of four travel lanes with parking along the west curb. North of East 42nd Street, the two rightmost travel lanes are dedicated bus lanes; which are also used for right turns. A left turn pocket lane is provided at selected locations along Madison Avenue.

Vanderbilt Avenue is a two-way avenue running north-south along the east side of the Project Site. Vanderbilt Avenue between East 42nd Street and East 43rd Street is currently closed to general traffic due to construction of the One Vanderbilt project, and will be closed in the future as part of the pedestrian plaza associated with that project. Between East 43rd Street and East 47th Street, Vanderbilt Avenue consists of one travel lane in each direction. The west curb of Vanderbilt Avenue features parking/loading regulations except for south of East 44th Street where there are "No Standing Anytime" regulations except for authorized vehicles. The east curb of Vanderbilt Avenue features "No Standing Anytime" regulations except for authorized vehicles along the Grand Central Terminal frontage.

Traffic Volumes

To establish the existing conditions traffic network, traffic data for the weekday AM, midday, and PM peak periods were assembled using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts from several recent sources. The traffic analysis utilizes recent traffic data conducted by NYCDOT/ NYC DOT in June 2017 and January 2019 at the analysis locations and nearby intersections. In addition, due to the Coronavirus pandemic, no new traffic counts could be conducted as of March 2020 and count data from the *Greater East Midtown Rezoning FEIS (2017)* were also used to supplement the volume data cited above. The year 2019 was established as the foundation for the existing traffic volume network. This process was developed in conjunction with DCP and NYCDOT/ NYC DOT. These volumes were used along with physical inventory data which were verified for 2019 conditions, and signal timing plans obtained from NYCDOT/ NYC DOT, to determine levels of service for the weekday peak hours of 8AM to 9AM, 12PM to 1PM, and 5PM to 6PM. The peak hours were selected in accordance with the *CEQR Technical Manual* guidance for traffic analyses in Manhattan south of 110th Street.

Traffic volumes along East 44th Street between Madison and Vanderbilt Avenues are approximately 260 vph during the AM peak hour, 330 vph during the midday peak hour, and 140 vph during the PM peak hour.

Traffic volumes along East 45th Street between Madison and Vanderbilt Avenues range from approximately 385 vph to 480 vph during the peak hours analyzed.

Traffic volumes along Madison Avenue range from approximately 885 vph to 975 vph during the AM and midday peak hours, and approximately 925 vph to 1,080 vph during the PM peak hour.

North of East 44th Street, traffic volumes along Vanderbilt Avenue range from approximately 60 vph to 185 vph in each direction during the peak hours analyzed. South of East 44th Street, northbound traffic volumes are low, no more than 10 vph, during the AM and PM peak hours, and higher during the midday peak hour -- approximately 75 vph. Southbound Vanderbilt Avenue traffic volumes south of East 44th Street are approximately 250 vph during the AM and PM peak hours and approximately 400 vph during the midday peak hour.

Existing traffic volumes are shown in **Figure 9-11** through **Figure 9-13**.

Figure 9-11 Existing Traffic Volumes – AM Peak Hour



Figure 9-12 Existing Traffic Volumes – Midday Peak Hour



Figure 9-13 Existing Traffic Volumes – PM Peak Hour



Levels of Service

Table 9-11 and **Table 9-12** provide an overview of the levels of service that characterize existing “overall” intersection conditions and individual traffic movements, respectively, during the AM, midday, and PM peak hours. Detailed existing traffic levels of service are provided in **Table 9-13**.

Table 9-11 Existing Traffic Level of Service Summary – Overall Intersections

	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Intersections at Overall LOS A/B/C	3	2	1
Intersections at Overall LOS D	1	2	2
Intersections at Overall LOS E	0	0	1
Intersections at Overall LOS F	0	0	0

Note: Includes three signalized intersections and one unsignalized intersection

Table 9-12 Existing Traffic Level of Service Summary – Traffic Movements

	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Traffic Movements at LOS A/B/C and Acceptable LOS D	11	11	8
Traffic Movements at Unacceptable LOS D	1	1	2
Traffic Movements at LOS E	0	0	2
Traffic Movements at LOS F	0	0	0
Number of Individual Traffic Movements	12	12	12

Note: Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements.

Table 9-13 Existing Traffic Level of Service

Intersection & Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				
	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	
UNSIGNALIZED INTERSECTIONS													
Vanderbilt Avenue and East 44th Street													
East 44th Street EB	LR	-	9.1	A	LR	-	9.9	A	LR	-	8.2	A	
Vanderbilt Avenue NB	T	-	7.9	A	T	-	8.7	A	T	-	7.6	A	
	SB	T	-	8.2	A	T	-	9.0	A	T	-	8.7	A
Overall Intersection²	-	-	8.9	A	-	-	9.5	A	-	-	8.5	A	
SIGNALIZED INTERSECTIONS													
Vanderbilt Avenue and East 45th Street													
East 45th Street WB	LTR	0.42	18.7	B	LTR	0.89	48.6	D	LTR	0.93	54.5	D	
Vanderbilt Avenue NB	LT	0.26	17.4	B	LT	0.22	16.7	B	LT	0.11	15.3	B	
	SB	TR	0.48	22.5	C	TR	0.48	22.4	C	TR	0.41	20.1	C
Overall Intersection²	-	-	19.5	B	-	-	35.5	D	-	-	40.2	D	
Madison Avenue and East 44th Street													
East 44th Street EB	LT	0.83	45.2	D	LT	0.69	34.1	C	LT	0.84	47.7	D	
Madison Avenue NB	T	0.86	44.7	D	T	0.84	36.2	C	T	0.85	72.7	E	
	R	0.51	29.6	C	R	0.64	37.3	D	R	0.46	31.6	C	
Overall Intersection²	-	-	43.7	D	-	-	35.8	D	-	-	64.9	E	

Table 9-13 Existing Traffic Level of Service

Intersection & Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				
	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	
Madison Avenue and East 45th Street													
East 45th Street WB	TR	0.70	28.5	C	TR	0.59	35.3	D	TR	0.48	36.9	D	
Madison Avenue NB	L	0.33	6.0	A	L	0.41	10.9	B	L	0.33	10.4	B	
	T	0.98	41.3	D	T	0.95	27.4	C	T	1.03	55.3	E	
Overall Intersection²	-	-	34.2	C	-	-	28.9	C	-	-	47.7	D	

¹ Control delay is measured in seconds per vehicle.

² Overall intersection v/c ratio is the critical lane groups' v/c ratio.

The summary overview of existing conditions indicates that:

- › In the AM peak hour, all intersections operate at overall LOS D or better; no intersection operates at overall LOS E or F. "Overall" LOS E or F means that serious congestion exists – either one specific traffic movement has severe delays or two or more of the specific traffic movements at the intersection are at LOS E or F with significant delays (the overall intersection level of service is a weighted average of all individual traffic movements). One individual traffic movement out of 12 movements analyzed operates at unacceptable LOS D (e.g. left turns from one street to another, through traffic on one street passing through the intersection, etc.).
- › In the midday peak hour, all intersections operate at overall LOS D or better, and one individual traffic movement operates at unacceptable LOS D.
- › In the PM peak hour, one intersection operates at overall LOS E, and four individual traffic movements operate at unacceptable LOS D or LOS E.

Traffic movements operating at unacceptable levels of service are listed below.

- › Vanderbilt Avenue and East 45th Street
 - Westbound East 45th Street approach (midday and PM)
- › Madison Avenue and East 44th Street
 - Eastbound East 44th Street approach (AM and PM)
 - Northbound Madison Avenue through movement (PM)
- › Madison Avenue and East 45th Street
 - Northbound Madison Avenue through movement (PM)

Parking

A detailed inventory of off-street parking facilities within a quarter-mile radius of the Project Site was obtained from the *Greater East Midtown Rezoning FEIS*. The parking inventory was conducted in 2016 and was adjusted to 2019 conditions by increasing the occupancy rates according to the *CEQR Technical Manual* background growth rates and adding in parking demand of significant developments projects completed between 2016 and 2019. This quarter-mile distance is considered an acceptable walking distance to and from parking, per *the CEQR Technical Manual*. There are 17 public parking garages within or close to this quarter-mile area, as shown in **Figure 9-14**. **Table 9-14** presents the capacity and occupancy of the off-street parking facilities during the midday peak period (i.e., the typical peak parking occupancy period) on a typical weekday. The total capacity of the 17 parking garages is 2,777 parking spaces, and they are approximately 71 percent occupied during the midday peak period.

The *Greater East Midtown Rezoning EIS* also conducted a survey of on-street parking in the area. There is generally very limited curbside spaces available for general public parking. During the midday period, most of the available on-street parking spaces are metered spaces designated for commercial vehicles to use for loading and unloading. The survey determined that there is a limited amount of on-street public parking within the area and these spaces are generally fully utilized during the weekday daytime hours.

Figure 9-14 Off-Street Parking Inventory

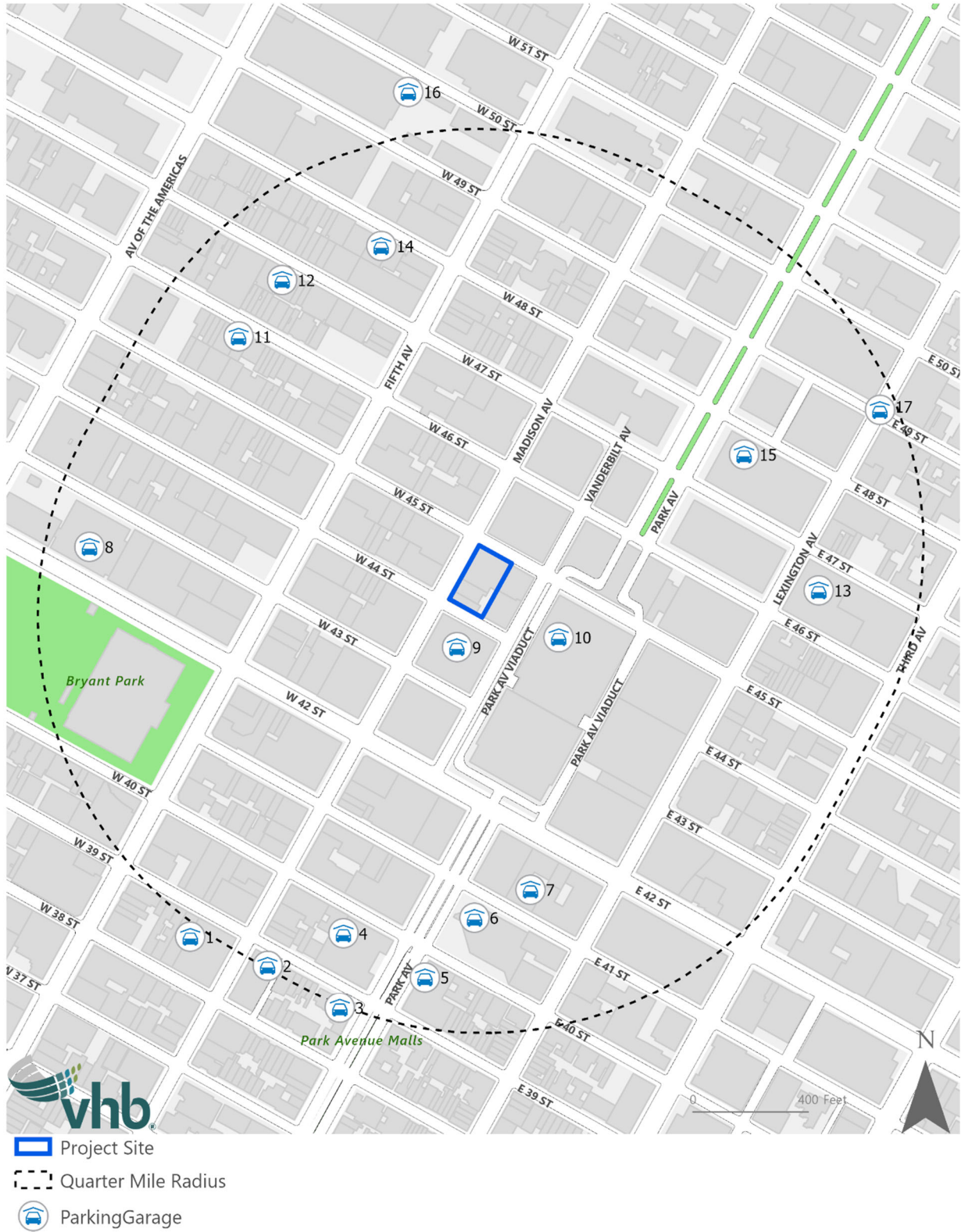


Table 9-14 Off-Street Parking Inventory

Map No.	Location	Licensed Capacity	Midday Period Occupancy
1	Regal Parking LLC (Icon) 250-264 Madison Avenue	155	77 50%
2	Affiliated Parking LLC 247-261 Madison Ave.	80	80 100%
3	Imperial Parking US LLC 80 Park Avenue	91	45 50%
4	Park Avenue 39 Parking LLC 90 Park Avenue	150	150 100%
5	99 Park Avenue Corporation 99 Park Avenue	75	60 80%
6	Quick Park – Alexa QP Garage 107 East 41st Street 101 Park Avenue	124	62 50%
7	Quik Park – Alexa QP Garage 101 East 41st Street	77	19 25%
8	1114 Sixth Parking LLC 1114 Sixth Avenue	188	94 50%
9	SP+ Parking 335 Madison Avenue 60 East 44th Street	90	72 80%
10	SP+ Parking 200 Park Avenue	350	262 75%
11	SP Plus Corporation 38 West 46th Street	225	202 90%
12	Quik Park Gem Garage LLC 44 West 47th Street	64	64 100%
13	Quik Park 485 Garage LLC 149 East 46th Street 485 Lexington Avenue	100	75 75%
14	Central Parking System of NY, Inc. 10-14 W. 48th St.	200	150 75%
15	Manhattan Parking System- Park Ave Corp. 227 Park Avenue	40	20 50%
16	SP Plus Corporation 10 Rockefeller Plaza	652	489 75%
17	Sweets Parking I, Inc. 67 East 49th Street	116	58 50%
Total		2,777	1,979 71%

Subways

Subway Station Elements

As discussed in the Level 2 Screening Results, project-generated trips at the 42nd Street – Grand Central station are expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold in the AM and PM commuter peak hours.

The 42nd Street – Grand Central subway station is served by the No. 4 and No. 5 express trains and No. 6 local train operating along the Lexington Avenue line. It is also served by the No. 7 express and local trains operating along the Flushing Line as well as the S trains on the Grand Central Shuttle Line.

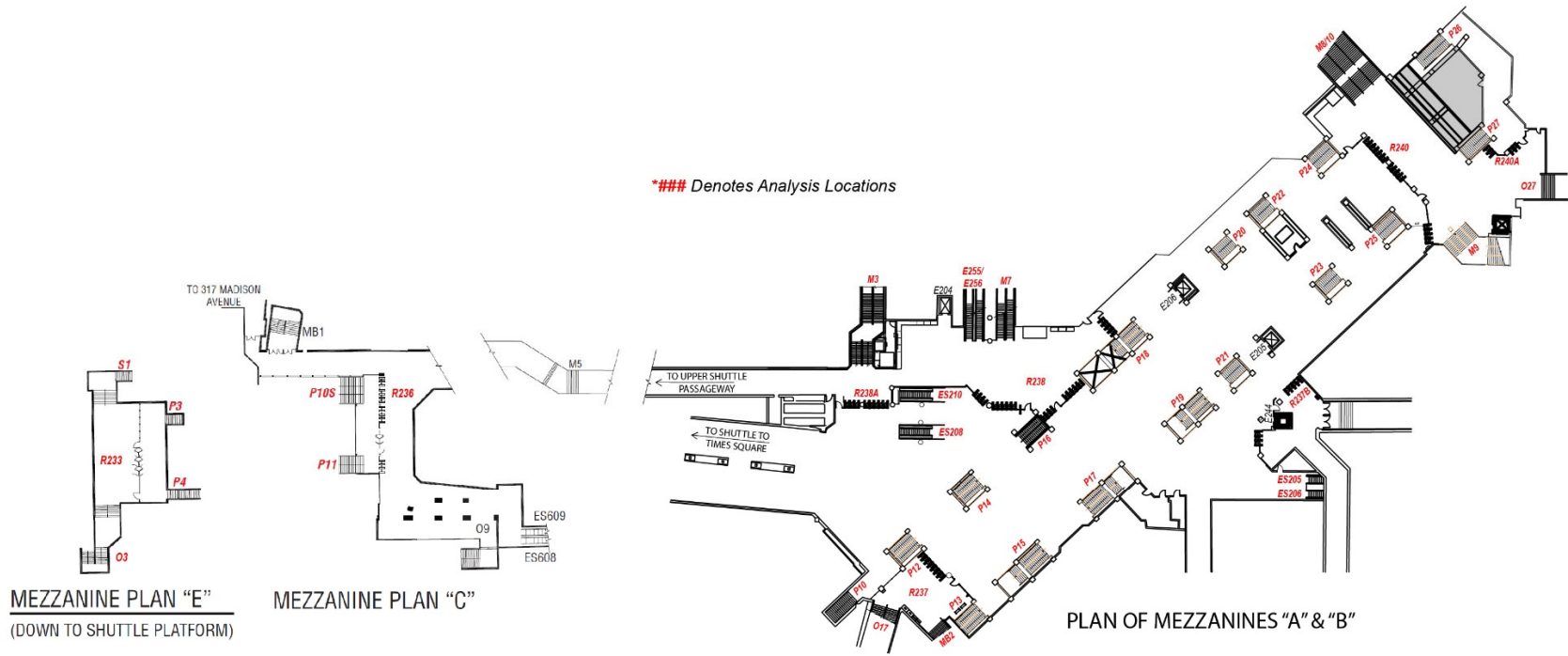
Lexington Line (4,5,6)

As shown in **Figure 9-15**, the Lexington Line platform is located below the mezzanine level and access is provided primarily via the stairs located on Mezzanine A/B which is served by several fare control areas (R238, R238A, R237, R237A, R237B, R240, and R240A). Fare control areas have associated stairs to the street level and are configured as follows:

- › Fare Control Area (FCA) R238 has 16 turnstiles and connects to Grand Central Terminal via the M7 stair, M3, escalators ES255 and ES256, and ADA elevator EL 204. FCA R238A is to the immediate west of FCA R238 (aligned with the M3 stairway), has eight turnstiles and also provides a connection to Grand Central Terminal. Riders exit from FCA R238 and R238A onto the north side of East 42nd Street between Park and Lexington Avenues.
- › At the south end of Mezzanine A/B is FCA R237, which has seven turnstiles, and is served by stair O17 which exits to the east side of Park Avenue south of East 42nd Street at the street level. FCA R237 is also served by stair MB2 that leads to the south side of East 42nd Street between Park and Lexington Avenues through the Bowery Savings Bank
- › FCA R237A is northeast of FCA R237 and has one high exit turnstile that leads to the Bowery Savings Bank on the south side of East 42nd Street. East of FCA R237A is FCA R237B, which consists of four turnstiles, and leads to the street through the Chanin Building, which is on the south side of East 42nd Street, and to the southeast corner of Lexington Avenue and East 42nd Street.
- › At the north end of Mezzanine A/B is FCA R240 and FCA R240A, which provide eleven and four turnstiles, respectively. These two fare controls connect to Grand Central Terminal via stair M8/10, to the Chrysler Build via stair O27, and to Lexington Avenue north of 42nd Street via stair M9.

The Lexington Line consists of two island platforms which serve the uptown and downtown express and local tracks. Nine stairways (P10, P12, P14, P16, P18, P20, P22, P24, and P26) connect to the mezzanine to the southbound platform, and eight stairways (P13, P15, P17, P19, P21, P23, P25, and P27) connect to the mezzanine to the northbound platform.

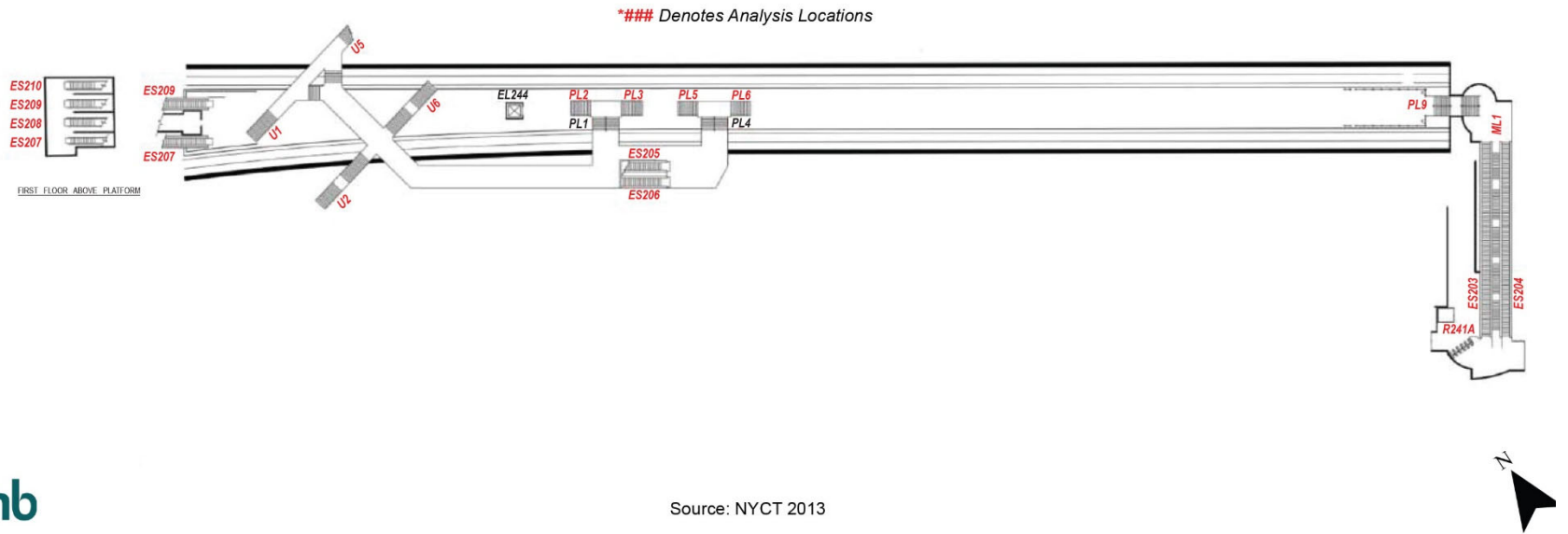
Figure 9-15 Station Plan – Mezzanine Level



Source: NYCT 2019



Figure 9-16 Station Plan – Flushing Line Platform



Flushing Line (7)

The Flushing Line platform is located below East 42nd Street, centered beneath Lexington Avenue and under the diagonal Lexington Line island platforms. As shown on **Figure 9-16**, the platform is served by three main vertical circulation cores: one at the western end, one in the center, and one at the eastern end of the platform.

The western and center vertical circulation cores connect to Lexington Line Mezzanine A/B, and the third core, at the eastern end of the platform, which connects to the street level. These circulation cores are configured as follows:

- › At the western end of the platform are two switchback escalators (ES207/208, and ES209/210) that connect to the platform and Lexington Line Mezzanine A/B.
- › At the eastern end of the platform, Stair PL9 leads to two escalators (ES203 and ES204) and stair (ML1) up to Fare Control Area (FCA) R241A.
- › At the center of the platform, there are two sets of splayed stairs (PL2 and PL3 feeding PL1, and PL5 and PL6 feeding PL4) that lead to a lower mezzanine that has two escalators (ES205 and ES206) extending to Lexington Line Mezzanine A/B. The lower mezzanine also connects to a passageway that extends west below the Lexington Line island platforms. From this passageway, stairs U1/U3 and U5/U7 connect to the southbound Lexington Line platform, and Stairs U2/U4 and U6/U8 connect up to the northbound Lexington Line platform.

Shuttle Line (S)

The Shuttle Line platform area is underneath East 42nd Street primarily between Vanderbilt and Madison Avenues. It is under reconstruction, which will convert a three track/two island platform configuration to a two track/one island platform layout. This wide platform area connects to a paid zone passageway leading to Lexington Line Mezzanine A/B. There are also connections to the street as follows:

- › The eastern end of the platform area also connects to Stairs P10S and P11 that lead up to FCA R236, which has twelve turnstiles. The north end of R236 connects to Grand Central Terminal and the shuttle unpaid passageway (leading to R238A and the Lexington Line Mezzanine A/B). There is also a fare control area (R236A) at platform level, which has nine turnstiles and connects into the proposed One Vanderbilt development with access to East 42nd and East 43rd Streets, LIRR and MetroNorth.
- › At the western end of the two Shuttle platforms, stair P3-P4 connects up to fare control area R233, which has two high entry/exit turnstiles and one high exit turnstile. There are two street stairs, S1 and O3, that connect FCA R233 to East 42nd Street, west of Madison Avenue. Stair S1 is a sidewalk stair on the north side of East 42nd Street, and Stair O3 is an easement stair in the Carbide Building and is located on the south side of East 42nd Street.

Table 9-15 through **Table 9-19** show the result of the level of service analyses at the analyzed stairways, escalators, passageway, and fare control areas, respectively. The following analyzed elements at the 42nd Street – Grand Central station operate at LOS D or worse in at least one peak hour in existing conditions.

In the AM peak hour, these include:

- › Lexington Line southbound platform stairs P10, P12, P14, P16
- › Flushing Line platform stairs PL2, PL3, PL6 and PL9
- › Shuttle Line platform stair P10S
- › Free zone stair M9 connecting to the R240 fare control area
- › Free zone stair M7 connecting to the R238 fare control area
- › Escalators ES203 and ES204 by the Flushing East core
- › Escalators ES208 and ES210 by the Flushing West core

In the PM peak hour, these include:

- › Lexington Line northbound platform stairs P13, P15, and P17
- › Flushing Line platform stairs U2/U4, U6/U8, PL3, PL6, and PL9
- › Free zone stair M9 connecting to the R240 fare control area
- › Free zone stair M7 connecting to the R238 fare control area
- › Free zone stair M3 connecting to the R238 fare control area
- › Escalator ES203 by the Flushing East core
- › Escalator ES205 by the Flushing Center core
- › Escalator ES208 by the Flushing West core
- › Escalator ES255 connecting to the R238 fare control area

Table 9-15 2019 Existing Subway Station Level of Service - Stairway

Peak Hour	Stairway	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
AM	P10	6.42	377	369	0.90	0.75/1.00	1.01	D
	P12	7.50	347	631	0.90	0.75/1.00	1.08	D
	P14	7.50	355	847	0.90	0.75/1.00	1.30	D
	P16	7.50	310	657	0.90	0.75/1.00	1.06	D
	P18	7.50	394	145	0.90	0.75/1.00	0.66	B
	P20	6.50	415	89	0.90	0.75/1.00	0.73	C
	P22	6.50	376	264	0.90	0.75/1.00	0.87	C
	P24	6.50	323	414	0.90	0.75/1.00	0.96	C
	P26	6.00	103	22	0.90	0.75/1.00	0.20	A
	P13	7.50	508	235	0.90	0.75/1.00	0.90	C
	P15	7.50	544	247	0.90	0.75/1.00	0.96	C
	P17	7.50	567	235	0.90	0.75/1.00	0.98	C
	P19	7.50	440	153	0.90	0.75/1.00	0.73	C
	P21	6.50	468	57	0.90	0.75/1.00	0.78	C
	P23	6.50	334	57	0.90	0.75/1.00	0.57	B
	P25	6.50	416	85	0.90	0.75/1.00	0.73	C
	P27	5.00	123	20	0.90	0.75/1.00	0.27	A
	U1/U3	5.00	322	168	0.90	0.90/0.75	0.86	C
	U5/U7	5.00	258	140	0.90	0.90/0.75	0.70	C
	U2/U4	5.00	241	215	0.90	0.90/0.75	0.82	C
	U6/U8	5.00	197	190	0.90	0.90/0.75	0.70	C
	PL2	6.50	621	251	0.90	0.75/0.95	1.24	D
	PL3	6.50	406	388	0.90	0.75/0.95	1.08	D
	PL5	6.00	455	17	0.90	0.75/0.95	0.77	C
	PL6	6.00	783	57	0.90	0.75/0.95	1.36	E
	PL9	8.75	1,476	155	0.90	0.75/0.95	1.80	F
	ML1	5.00	0	155	0.90	0.75/1.00	0.23	A
	P10S	14.00	912	757	0.90	0.75/1.00	1.04	D
	P11	8.00	349	189	0.90	0.75/1.00	0.61	B
	P3-P4	13.50	256	28	0.90	0.75/1.00	0.20	A

Table 9-15 2019 Existing Subway Station Level of Service - Stairway

Peak Hour	Stairway	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
PM	P10	6.42	111	240	0.90	0.75/1.00	0.45	A
	P12	7.50	108	439	0.90	0.75/1.00	0.58	B
	P14	7.50	107	576	0.90	0.75/1.00	0.71	C
	P16	7.50	82	456	0.90	0.75/1.00	0.56	B
	P18	7.50	77	195	0.90	0.75/1.00	0.29	A
	P20	6.50	66	117	0.90	0.75/1.00	0.23	A
	P22	6.50	56	347	0.90	0.75/1.00	0.48	B
	P24	6.50	41	544	0.90	0.75/1.00	0.68	B
	P26	6.00	18	156	0.90	0.75/1.00	0.22	A
	P13	7.50	613	540	0.90	0.75/1.00	1.34	E
	P15	7.50	499	574	0.90	0.75/1.00	1.22	D
	P17	7.50	487	420	0.90	0.75/1.00	1.06	D
	P19	7.50	362	279	0.90	0.75/1.00	0.75	C
	P21	6.50	217	146	0.90	0.75/1.00	0.50	B
	P23	6.50	141	304	0.90	0.75/1.00	0.56	B
	P25	6.50	160	470	0.90	0.75/1.00	0.78	C
	P27	5.00	94	140	0.90	0.75/1.00	0.39	A
	U1/U3	5.00	55	237	0.90	0.90/0.75	0.56	B
	U5/U7	5.00	45	195	0.90	0.90/0.75	0.46	B
	U2/U4	5.00	55	567	0.90	0.90/0.75	1.21	D
	U6/U8	5.00	45	478	0.90	0.90/0.75	1.02	D
	PL2	6.50	111	547	0.90	0.75/0.95	0.82	C
	PL3	6.50	76	815	0.90	0.75/0.95	1.09	D
	PL5	6.00	77	374	0.90	0.75/0.95	0.61	B
	PL6	6.00	130	824	0.90	0.75/0.95	1.29	D
	PL9	8.75	110	1,069	0.90	0.75/0.95	1.08	D
	ML1	5.00	0	53	0.90	0.75/1.00	0.08	A
	P10S	14.00	649	738	0.90	0.75/1.00	0.85	C
	P11	8.00	276	184	0.90	0.75/1.00	0.51	B
	P3-P4	13.50	15	335	0.90	0.75/1.00	0.19	A

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-16 2019 Existing Subway Station Level of Service – Free Zone Stairs

Peak Hour	Stairway	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
AM	M8/10	17.70	865	697	0.90	0.90/1.00	0.69	B
	M9	12.50	1,648	248	0.90	0.90/1.00	1.23	D
	O27	10.75	385	28	0.90	0.90/1.00	0.31	A
	M7	8.75	540	1,111	0.90	0.90/1.00	1.45	E
	M3	10.25	544	964	1.00	0.95/1.00	1.00	C
	S10	4.00	409	37	0.90	1.00/1.00	0.83	C
	S11	4.00	349	74	0.90	1.00/1.00	0.78	C
	S1	3.75	64	7	0.90	0.80/1.00	0.17	A
	O3	7.75	192	21	0.90	0.80/1.00	0.25	A
PM	M8/10	17.7	458	456	0.90	0.90/1.00	0.40	A
	M9	12.50	250	1,829	0.90	0.90/1.00	1.25	D
	O27	10.75	47	493	0.90	0.90/1.00	0.38	A
	M7	8.75	685	925	0.90	0.90/1.00	1.43	E
	M3	10.25	396	1,174	0.90	0.95/1.00	1.03	D
	S10	4.00	37	240	0.90	1.00/1.00	0.51	B
	S11	4.00	36	459	0.90	1.00/1.00	0.92	C
	S1	3.75	4	84	0.90	0.80/1.00	0.17	A
	O3	7.75	11	251	0.90	0.80/1.00	0.25	A

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-17 2019 Existing Subway Station Level of Service – Escalators

Peak Hour	Escalator	Tread Width (in)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Surging Factor	Capacity	v/c Ratio	LOS
AM	ES203	32	738	0	0.80	750	1.23	D
	ES204	32	738	0	0.80	750	1.23	D
	ES205	40	624	0	0.80	945	0.83	C
	ES206	40	624	0	0.80	945	0.83	C
	ES208	40	737	0	0.75	945	1.04	D
	ES210	40	737	0	0.75	945	1.04	D
	ES255	40	887	0	0.95	945	0.99	C
	ES256	40	890	0	0.95	945	0.99	C
PM	ES203	32	0	1,015	1.00	750	1.35	E
	ES204	32	110	0	0.80	750	0.18	A
	ES205	40	0	1,084	1.00	945	1.15	D
	ES206	40	193	0	0.80	945	0.26	A
	ES208	40	0	1,117	1.00	945	1.18	D
	ES210	40	285	0	0.75	945	0.40	A
	ES255	40	0	1,012	1.00	945	1.07	D
	ES256	40	893	0	0.95	945	0.99	C

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-18 2019 Existing Subway Station Level of Service – Passageway

Passageway	Peak Hour	Effective Width (ft)	Pedestrian Volume West (15-min)	Pedestrian Volume East (15-min)	Friction Factor	Surging Factor (West/East)	v/c Ratio	LOS
Passageway between Mezzanine A and Shuttle	AM	15	603	442	0.90	0.95/0.95	0.36	A
	PM	15	399	398	0.90	0.95/0.95	0.28	A

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-19 2019 Existing Subway Station Level of Service – Fare Control Area

Peak Hour	Fare Control Area	Control Element	Pedestrian Volume In (15-min)	Pedestrian Volume Out (15-min)	Friction Factor (In/Out)	Surging Factor	v/c Ratio	LOS
AM	R241A	5 turnstiles	155	1,476	0.90/0.90	0.90	0.65	B
	R240	11 turnstiles	931	2,671	0.90/0.90	0.90	0.69	B
	R240A	4 turnstiles	43	226	0.90/0.90	0.90	0.14	A
	R238	16 turnstiles	973	2,016	0.90/0.90	0.90	0.40	A
	R238A	8 turnstiles	972	565	0.90/0.90	0.90	0.46	B
	R238B	4 turnstiles	155	341	0.90/0.90	0.90	0.27	A
	R237	7 turnstiles	81	944	0.90/0.90	0.90	0.29	A
	R237A	1 HXT	0	150	0.00/0.90	0.90	0.33	A
	R237B	4 turnstiles	111	757	0.90/0.90	0.90	0.44	A
	R236	12 turnstiles	946	1,261	0.90/0.90	0.80	0.43	A
	R236A	9 turnstiles	0	0	0.90/0.90	0.90	0.00	A
	R233	2 HEETs, 1 HXT	28	256	0.90/0.90	0.80	0.28	A
PM	R241A	5 turnstiles	1,069	110	0.90/0.90	0.90	0.61	B
	R240	11 turnstiles	2,482	643	0.90/0.90	0.90	0.71	C
	R240A	4 turnstiles	295	112	0.90/0.90	0.90	0.25	A
	R238	16 turnstiles	1,738	1,610	0.90/0.90	0.90	0.48	B
	R238A	8 turnstiles	1,208	276	0.90/0.90	0.90	0.47	B
	R238B	4 turnstiles	286	134	0.90/0.90	0.90	0.25	A
	R237	7 turnstiles	669	88	0.90/0.90	0.90	0.28	A
	R237A	1 HXT	0	14	0.00/0.90	0.90	0.03	A
	R237B	4 turnstiles	699	73	0.90/0.90	0.90	0.50	B
	R236	12 turnstiles	922	925	0.90/0.90	0.80	0.37	A
	R236A	9 turnstiles	0	0	0.90/0.90	0.90	0.00	A
	R233	2 HEETs, 1 HXT	335	15	0.90/0.90	0.80	0.74	C

Note:

Methodology based on 2020 CEQR Technical Manual guidelines

HEET = High entry/exit turnstile, HXT = high exit turnstile

Surging factors only apply to exiting volumes. The surge factor for entry volumes is 1.0.

Pedestrians

The pedestrian analysis utilizes the most recently available count data as new counts could not be conducted due to the Coronavirus pandemic. Pedestrian counts were conducted in March 2016 and supplemented with pedestrian data from the *Vanderbilt Corridor and One Vanderbilt FEIS (2015)* to develop the pedestrian analysis volume network. These volumes were adjusted based on the *CEQR Technical Manual's* recommended annual background growth rate to establish the 2019 pedestrian analysis volume network. Pedestrian peak hours of 8:30 AM to 9:30 AM, 12:30 PM, to 1:30 PM, and 5:15 PM to 6:15 PM were selected based on the count data.

The study area is characterized by heavy pedestrian flow to the numerous transit services in the area, as well as to the commercial uses (office and retail). Some of the pedestrian elements (crosswalks, corners, and sidewalks) analyzed currently operate at LOS E or F which reflects a busy commercial area but is also characterized by constrained and slower pedestrian flow. As shown in **Table 9-20**, no pedestrian elements operate at LOS E or F during the AM peak hour, three pedestrian elements operate at LOS E during the midday peak hour, and four pedestrian elements operate at LOS E during the PM peak hour.

- › Of the four sidewalks analyzed, none operate at mid-LOS D or worse during the AM peak hour, and one sidewalk operates at unacceptable level of service during the midday and PM peak hours (mid-LOS D is the threshold for unacceptable pedestrian level of service for CBD areas).
- › Of the two crosswalks analyzed, none operate at unacceptable level of service during the AM peak hour, one crosswalk operates at unacceptable level of service during the midday peak hour, and two crosswalks operate at unacceptable level of service during the PM peak hour.
- › Of the four corner elements analyzed, two corner elements operate at unacceptable level of service during the AM peak hour, and three corners operate at unacceptable level of service during the midday and PM peak hours.

Table 9-20 2019 Existing Pedestrian Levels of Service Summary

Sidewalk Elements	Midday Peak		
	AM Peak Hour	Hour	PM Peak Hour
Sidewalks at LOS A/B/C and Acceptable LOS D	4	3	3
Sidewalks at Unacceptable LOS D	0	0	0
Sidewalks at LOS E	0	1	1
Sidewalks at LOS F	0	0	0
Crosswalk Elements			
Crosswalks at LOS A/B/C and Acceptable LOS D	2	1	0
Crosswalks at Unacceptable LOS D	0	1	2
Crosswalks at LOS E	0	0	0
Crosswalks at LOS F	0	0	0
Corner Elements			
Corners at LOS A/B/C and Acceptable LOS D	2	1	1
Corners at Unacceptable LOS D	2	1	0
Corners at LOS E	0	2	3
Corners at LOS F	0	0	0

Note: Includes four sidewalk, two crosswalk, and four corner analysis locations

The existing peak hour volumes are shown in **Figure 9-17** through **Figure 9-19** and levels of service for each pedestrian element analyzed are presented in **Table 9-21** through **Table 9-23**.

Figure 9-17 Existing Pedestrian Volumes – AM Peak Hour



Figure 9-18 Existing Pedestrian Volumes – Midday Peak Hour



Figure 9-19 Existing Pedestrian Volumes – PM Peak Hour

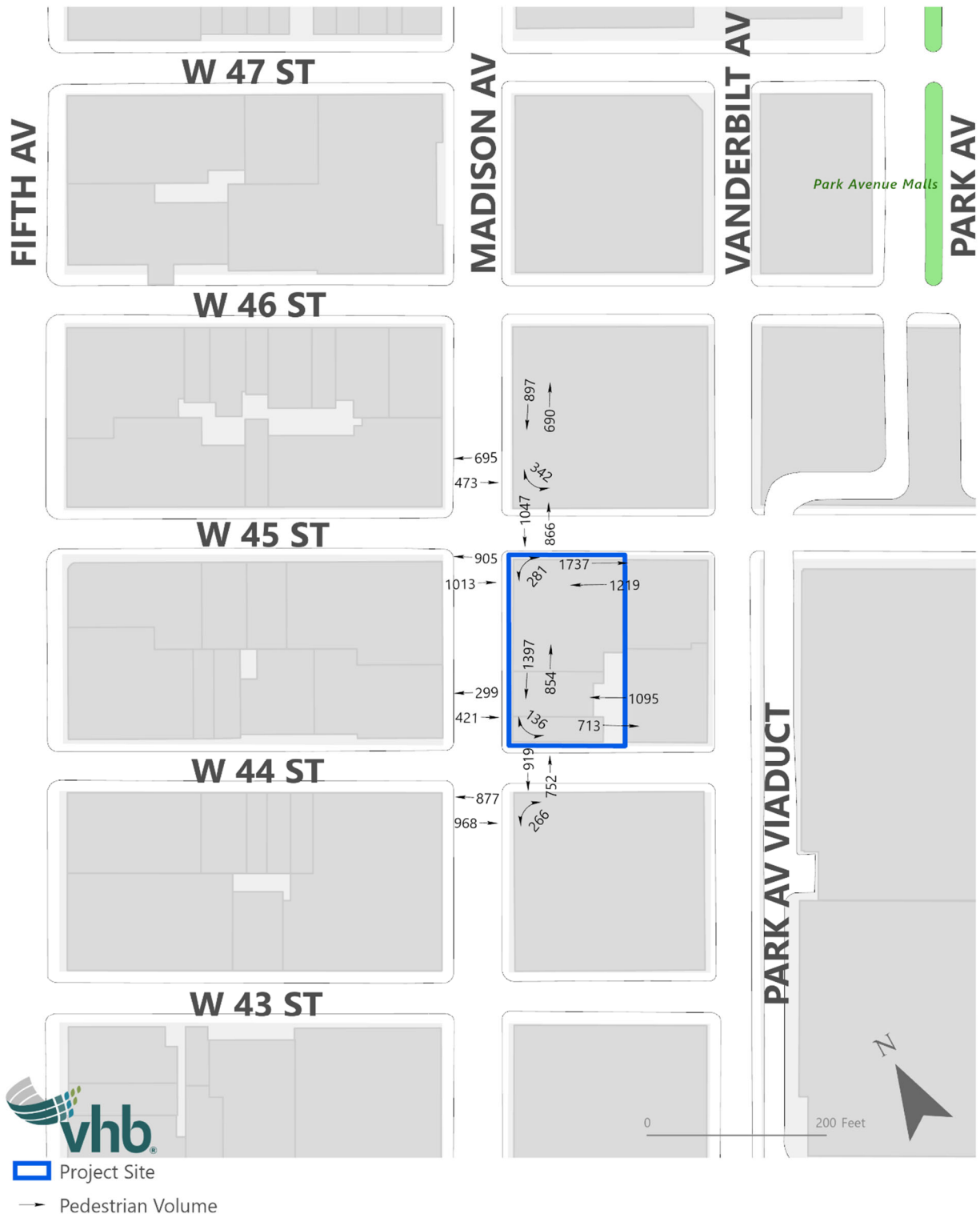


Table 9-21 2019 Existing Pedestrian Levels of Service – Sidewalks

Sidewalk	Effective Width, ft	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
		Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS	Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS	Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS
Madison Avenue between East 44th Street and East 45th Street (east side)	7.3	1,224	64.9	C	1,775	48.0	C	2,251	37.5	D
Madison Avenue between East 45th Street and East 46th Street (east side)	9.0	951	107.0	B	1,259	84.3	C	1,587	62.3	C
East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)	7.6	1,078	80.2	C	1,064	87.6	B	1,808	49.5	C
East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)	5.8	2,113	31.6	D	2,365	22.6	E	2,956	21.9	E

Table 9-22 2019 Existing Pedestrian Levels of Service – Crosswalks

Intersection	Crosswalk	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
		Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Madison Avenue at East 44th Street	East	1,146	27.2	C	1,276	26.3	C	1,671	18.1	D
Madison Avenue at East 45th Street	East	966	29.8	C	1,378	18.0	D	1,913	15.7	D

Table 9-23 2019 Existing Pedestrian Levels of Service – Corners

Intersection	Corner	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
		Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Madison Avenue at East 44th Street	Northeast	59	63.5	A	84	61.1	A	136	40.6	B
	Southeast	142	17.5	D	146	16.9	D	266	10.8	E
Madison Avenue at East 45th Street	Northeast	339	16.5	D	292	12.3	E	342	8.5	E
	Southeast	174	20.1	D	301	11.3	E	281	11.6	E

Vehicular and Pedestrian Safety

Crash data were obtained for the study area intersections from ~~NYC DOT~~NYC DOT for the most recent three-year period for which such data are available (2015 through 2017). This information is based on data provided by the New York State Department of Transportation (NYSDOT), New York State Department of Motor Vehicles (NYSDMV), and New York City Police Department (NYPD).

The crash data detail reported crashes (crashes resulting in death, injury, or property damage in excess of \$1,000), fatalities, injuries, and pedestrian and bicycle injuries annually. According to the *CEQR Technical Manual*, an intersection is considered a high-crash location when there are 48 or more total reportable and non-reportable crashes, or five or more pedestrian/bicyclist injury crashes in any consecutive 12 months during the most recent three-year period for which data are available.

Table 9-24 presents a summary of total crashes at the study area intersections during the three-year period of 2015 through 2017, and also shows total fatalities, injuries, and pedestrian and bicycle crashes. None of the intersections are considered to be high-crash locations by the ~~NYC DOT~~NYC DOT criteria. Vehicular and pedestrian crash thresholds are not exceeded at any of the intersections within the study area.

Table 9-24 Vehicle and Pedestrian Crash Summary

Intersection		Total Crashes by Year					Pedestrian and Bicycle Crashes by Year		
North-South Roadway	East-West Roadway	2015	2016	2017	Total Fatalities	Total Injuries	2015	2016	2017
Madison Avenue	East 43rd Street	1	4	1	0	5	0	1	0
Madison Avenue	East 44th Street	1	1	2	0	3	1	1	1
Madison Avenue	East 45th Street	4	5	1	0	7	1	4	1
Madison Avenue	East 46th Street	3	3	2	0	5	0	2	1
Vanderbilt Avenue	East 44th Street	3	0	0	0	2	2	0	0
Vanderbilt Avenue	East 45th Street	2	1	1	0	2	2	0	0

Denotes a high crash location

Source: NYSDOT/NYS DMV (2015-2017)

No-Action Conditions

Traffic

Traffic Volumes

This section establishes the baseline (No-Action) condition against which potential impacts of the project can be identified. Future year conditions were analyzed for the year 2026. No-Action traffic and pedestrian volumes were established by applying a background growth rate of 0.25 percent per year for the first five years (years 2020 to 2024) and a growth rate of 0.125 percent per year for the subsequent two years (years 2024 to 2026) in accordance with *CEQR Technical Manual* guidelines for Manhattan projects. This background growth was applied to existing traffic volumes and accounts for smaller projects and general increases in travel demand.

As detailed in **Chapter 2, Land Use, Zoning, and Public Policy**, several developments are being planned and are expected to be developed by the year 2026 within the study area. Five development projects were identified in consultation with NYCDCP to be incorporated in the 2026 No-Action condition analyses, totaling approximately 4.8 million sf office/trading floor space, 234 hotel rooms, and 140,000 sf of retail space; these projects are detailed in **Table 9-25**. No-Action condition traffic volumes for the AM, midday, and PM peak hours are shown in **Figure 9-20** through **Figure 9-22**.

Table 9-25 Background Development Projects

No.	Project Name/Address	Description	Projected Completion Date
1	250 Park Avenue	682,902 sf office space 24,969 sf retail space	2023
2	415 Madison Avenue	342,750 sf office space 350 sf retail space	To be complete by 2026
3	516-520 Fifth Avenue	234 hotel rooms 35,000 sf retail space	Under construction
4	One Vanderbilt	1,079,000 sf office space 246,000 sf trading floor 80,000 sf retail space	2021
5	270 Park Avenue	2,420,609 sf office space	2024

As part of the *Greater East Midtown Rezoning FEIS (2017)*, an East Midtown Public Realm Improvement Fund was established to provide improvements to pedestrian circulation (pedestrian plaza, shared streets, transit infrastructure, etc.) in the East Midtown area. A Concept Plan was prepared by the fund's governing group and ~~NYCDOT~~NYC DOT which identified priority improvements in the area. However, as the timeframe of these improvements are yet to be determined and the improvements are not yet funded, the No-Action condition analysis conservatively assumed that these improvements would not be in place by the Proposed Project's build year.

Absent the Proposed Project, the Project Site would be redeveloped with approximately 411,540 sf of office space and 6,144 sf of ground floor retail space. Access to the office space would be provided along Madison Avenue, with proposed retail to be located at the southwest corner and along the north side of the site. The Project Site would be recessed 20 feet from the curb line on Madison Avenue and thus would provide a wider sidewalk than in the existing conditions. At the northwest corner of the Project Site, an easement is reserved for MTA or NYCT to develop a future entrance to ESA and GCT; access to GCT will continue to be provided along the south side of 45th Street between Madison and Vanderbilt Avenues.

Figure 9-20 No-Action Traffic Volumes – AM Peak Hour



Figure 9-21 No-Action Traffic Volumes – Midday Peak Hour



Figure 9-22 No-Action Traffic Volumes – PM Peak Hour



Levels of Service

Based on the traffic volume increases and traffic operation changes discussed above, the 2026 No-Action traffic levels of service were determined for the four analysis locations.

Table 9-26 and **Table 9-27** provide an overview of the levels of service that are projected to characterize the No-Action “overall” intersection conditions and individual traffic movements, respectively, during the AM, midday, and PM peak hours. Detailed traffic levels of service are provided in **Table 9-28**.

Table 9-26 No-Action Traffic Level of Service Summary – Overall Intersections

	Existing			No-Action		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Intersections at Overall LOS A/B/C	3	2	1	2	1	1
Intersections at Overall LOS D	1	2	2	1	2	2
Intersections at Overall LOS E	0	0	1	0	1	0
Intersections at Overall LOS F	0	0	0	1	0	1

Note: Includes three signalized intersections and one unsignalized intersection

Table 9-27 No-Action Traffic Level of Service Summary – Traffic Movements

	Existing			No-Action		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Traffic Movements at LOS A/B/C and Acceptable LOS D	11	11	8	8	9	7
Traffic Movements at Unacceptable LOS D	1	1	2	0	1	0
Traffic Movements at LOS E	0	1	2	1	1	2
Traffic Movements at LOS F	0	0	0	3	1	3
Number of Individual Traffic Movements	12	12	12	12	12	12

Note: Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements.

Table 9-28 No-Action Traffic Level of Service

Intersection & Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				
	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	
UNSIGNALIZED INTERSECTIONS													
Vanderbilt Avenue and East 44th Street													
East 44th Street EB	LR	-	10.4	B	LR	-	11.1	B	LR	-	9.1	A	
Vanderbilt Avenue NB	T	-	8.3	A	T	-	9.0	A	T	-	7.9	A	
	SB	T	-	9.2	A	T	-	9.8	A	T	-	9.8	A
Overall Intersection ²	-	-	10.0	A	-	-	10.5	B	-	-	9.5	A	
SIGNALIZED INTERSECTIONS													
Vanderbilt Avenue and East 45th Street													
East 45th Street WB	LTR	0.44	19.0	B	LTR	0.92	53.5	D	LTR	0.94	57.0	E	
Vanderbilt Avenue NB	LT	0.28	17.7	B	LT	0.24	16.9	B	LT	0.15	15.8	B	
	SB	TR	0.61	26.5	C	TR	0.56	24.5	C	TR	0.52	22.5	C
Overall Intersection ²	-	-	21.2	C	-	-	38.0	D	-	-	40.0	D	
Madison Avenue and East 44th Street													
East 44th Street EB	LT	1.03	83.0	F	LT	0.80	41.4	D	LT	1.05	90.8	F	
Madison Avenue NB	T	0.94	86.1	F	T	0.89	55.5	E	T	0.92	84.4	F	
	R	0.88	84.3	F	R	1.32	225.6	F	R	0.98	142.0	F	
Overall Intersection ²	-	-	85.1	F	-	-	67.5	E	-	-	88.5	F	

Table 9-28 No-Action Traffic Level of Service

Intersection & Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				
	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	
Madison Avenue and East 45th Street													
East 45th Street WB	TR	0.72	30.1	C	TR	0.61	35.2	D	TR	0.49	36.8	D	
Madison Avenue NB	L	0.43	6.2	A	L	0.47	12.3	B	L	0.47	11.7	B	
	T	1.05	66.4	E	T	1.01	44.3	D	T	1.10	66.5	E	
Overall Intersection²	-	-	48.6	D	-	-	39.6	D	-	-	54.6	D	

¹ Control delay is measured in seconds per vehicle.

² Overall intersection v/c ratio is the critical lane groups' v/c ratio.

The summary overview of 2026 No-Action conditions indicates that:

- › In the AM peak hour, one intersection would operate at overall LOS E or F compared to none in the existing conditions. Four movements would operate at unacceptable LOS D, E, or F compared to one in the existing conditions.
- › In the midday peak hour, one intersection would operate at overall LOS E or F compared to none in the existing conditions. Three movements would operate at unacceptable LOS D, E, or F compared to two in the existing conditions.
- › In the PM peak hour, one intersection would operate at overall LOS E or F, similar to the existing conditions. Five movements would operate at unacceptable LOS D, E, or F compared to four in the existing conditions.

The intersection of Madison Avenue and East 44th Street would operate at overall LOS F during the AM and PM peak hours, and at overall LOS E during the midday peak hour.

Based on the analysis results, the majority of traffic movements would continue to operate at acceptable levels of service in the No-Action condition. The majority of the intersections with at least one traffic movement operating at unacceptable levels of service during the peak hours analyzed under existing conditions would continue to do so during the No-Action condition. The following intersections would have at least one movement operating at unacceptable levels of service during at least one peak hour.

- › Vanderbilt Avenue and East 45th Street
 - Westbound 45th Street approach (midday and PM)
- › Madison Avenue and East 44th Street
 - Eastbound East 44th Street approach (AM and PM)
 - Northbound Madison Avenue through movement (AM, midday, and PM)
 - Northbound Madison Avenue right turn movement (AM, midday, and PM)
- › Madison Avenue and East 45th Street
 - Northbound Madison Avenue through movement (AM and PM)

Parking

Between 2019 and 2026, demand for off-street parking is expected to increase due to background growth and the No-Action condition development projects. Absent the Proposed Action, the Project Site could be redeveloped as-of-right and the incremental parking demand during the midday would be 100 parking spaces. The Project Site parking demand plus the increased parking demand as a result of background development projects in the study area would result in a midday parking demand of 2,334 spaces (84 percent parking utilization).

Subways

Subway Station Elements

In order to establish future No-Action conditions at the 42nd Street – Grand Central subway station, it was determined that use of growth rates from the *2020 CEQR Technical Manual* would not accurately predict future No-Action conditions due to the expected implementation of substantial large scale transit improvement projects which would affect passenger demand in the study area. Estimates of peak hour trips were instead developed using outputs from the MTA's Regional Transit Forecasting Model (RTFM). The RTFM is a model of regional travel in the New York metropolitan area that includes NYCT subway and bus riders, MTA Bus Company riders, commuters using MNR, LIRR, and transit travel to/from New Jersey, automobile travelers to Manhattan or regional transit stops, and people using other travel modes, including taxi, bicycle, and walk. The model uses TransCAD, a transportation planning software package that combines a geographic information system (GIS) with travel demand models and analysis tools. It is based on socioeconomic forecasts developed by the New York Metropolitan Transportation Council (NYMTC); DCP participated in the development of these forecasts by allocating borough-level growth to specific model analysis zones. Forecasts were made to represent the 2026 No-Action condition.

The RTFM data also considered planned improvements such as the LIRR ESA project which is currently under construction. The project is expected to be complete, with LIRR trains serving Grand Central Terminal, in late 2022. The LIRR ESA project will include new tunnels connecting the LIRR Mainline tracks in Queens to Grand Central Terminal via the existing 63rd Street Tunnel under the East River. Additional features include a new passenger concourse with eight tracks and four wide platforms, along with mezzanines and concourses, beneath Park Avenue below Grand Central Terminal's existing lower level. New street level entrances would be provided on the south side of East 47th Street east of Madison Avenue, on the north side of East 48th Street midblock between Park and Madison Avenues, and on the south side of East 47th Street midblock between Park and Lexington Avenues. In addition, connections to Grand Central Terminal will include escalators to the Biltmore Room and Dining Concourse.

For this EIS, the RTFM was used to forecast subway, bus, MetroNorth, and LIRR peak period trips at Grand Central Terminal in 2026. These outputs were then used by NYCT Operations Planning to update a detailed model of the 42nd Street – Grand Central subway station. This model outputs trips onto individual circulation elements within the subway station, which then allows for the calculation of Level of Service ratings.

In addition, the changes in subway demand due to regional growth and MTA capital improvements, and projected future development independent of the Proposed Project that would have a potential effect on 2026 subway demand at the analyzed station elements, were included in the No-Action subway analysis.

Development on the projected Project Site pursuant to existing zoning was considered, as were the other No-Action development projects summarized in **0**.

The results of the analysis of subway station elements for the No-Action condition during the weekday AM and PM peak periods are discussed below. In the No-Action condition, recent improvements to the 42nd Street – Grand Central subway station include new or improved access points to the street, new circulation paths through the One Vanderbilt building, and increases in the operating speed of select escalators.

Table 9-29 through **Table 9-33** summarizes the 2026 No-Action AM and PM peak hour levels of service at the analysis locations. Of the analyzed station elements, the following locations are expected to operate at LOS D or worse in at least one peak hour.

In the AM peak hour, these include:

- › Lexington line southbound platform stairs P10, P12, P14, and P16
- › Lexington line northbound platform stairs P13, P15, and P17
- › Flushing line platform stairs U1/U3, U2/U4, U6/U8, PL2, PL3, PL6, and PL9
- › Free zone stair M9 connecting to the R240 fare control area
- › Free zone stairs M7 and M3 connecting to the R238 fare control area
- › Escalators ES203 and ES204 by the Flushing East core

In the PM peak hour, these include:

- › Lexington line northbound platform stairs P13, P15, and P17
- › Flushing line platform stairs U2/U4, U6/U8, PL2, and PL6
- › Free zone stair M9 connecting to the R240 control fare area
- › Free zone stairs M7 and M3 connecting to the R238 control fare area
- › Free zone stair S11 connecting to the R237B control area
- › Escalator ES203 by the Flushing East core
- › Escalator ES208 by the Flushing West core
- › Escalator ES256 connecting to the R238 fare control area

Table 9-29 2026 No-Action Subway Station Level of Service - Stairway

Peak Hour	Stairway	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
AM	P10	6.42	512	587	0.90	0.75/1.00	1.47	E
	P12	7.50	427	769	0.90	0.75/1.00	1.32	D
	P14	7.50	319	974	0.90	0.75/1.00	1.38	E
	P16	7.50	319	860	0.90	0.75/1.00	1.27	D
	P18	7.50	408	181	0.90	0.75/1.00	0.72	C
	P20	6.50	339	109	0.90	0.75/1.00	0.64	B
	P22	6.50	253	238	0.90	0.75/1.00	0.66	B
	P24	6.50	312	373	0.90	0.75/1.00	0.90	C
	P26	6.00	302	33	0.90	0.75/1.00	0.54	B
	P13	7.50	727	382	0.90	0.75/1.00	1.33	E
	P15	7.50	745	407	0.90	0.75/1.00	1.38	E
	P17	7.50	768	381	0.90	0.75/1.00	1.39	E
	P19	7.50	574	211	0.90	0.75/1.00	0.96	C
	P21	6.50	585	71	0.90	0.75/1.00	0.97	C
	P23	6.50	433	57	0.90	0.75/1.00	0.72	C
	P25	6.50	544	81	0.90	0.75/1.00	0.92	C
	P27	5.00	205	31	0.90	0.75/1.00	0.45	B
	U1/U3	5.00	332	258	0.90	0.90/0.75	1.06	D
	U5/U7	5.00	267	218	0.90	0.90/0.75	0.87	C
	U2/U4	5.00	254	374	0.90	0.90/0.75	1.16	D
	U6/U8	5.00	208	335	0.90	0.90/0.75	1.00	D
	PL2	6.50	584	424	0.90	0.75/0.95	1.40	E
	PL3	6.50	347	643	0.90	0.75/0.95	1.30	D
	PL5	6.00	574	27	0.90	0.75/0.95	0.98	C
	PL6	6.00	803	92	0.90	0.75/0.95	1.44	E
	PL9	8.75	1,242	77	0.90	0.75/0.95	1.47	E
	ML1	5.00	0	77	0.90	0.75/1.00	0.11	A
	P10S	14.00	596	824	0.90	0.75/1.00	0.86	C
	P11	8.00	213	206	0.90	0.75/1.00	0.45	B
	P3-P4	13.50	148	74	0.90	0.75/1.00	0.15	A

Table 9-29 2026 No-Action Subway Station Level of Service - Stairway

Peak Hour	Stairway	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
PM	P10	6.42	210	274	0.90	0.75/1.00	0.64	B
	P12	7.50	174	535	0.90	0.75/1.00	0.76	C
	P14	7.50	128	774	0.90	0.75/1.00	0.93	C
	P16	7.50	113	716	0.90	0.75/1.00	0.86	C
	P18	7.50	112	376	0.90	0.75/1.00	0.52	B
	P20	6.50	80	201	0.90	0.75/1.00	0.35	A
	P22	6.50	70	467	0.90	0.75/1.00	0.64	B
	P24	6.50	73	733	0.90	0.75/1.00	0.95	C
	P26	6.00	28	209	0.90	0.75/1.00	0.30	A
	P13	7.50	683	631	0.90	0.75/1.00	1.52	E
	P15	7.50	591	644	0.90	0.75/1.00	1.41	E
	P17	7.50	577	494	0.90	0.75/1.00	1.25	D
	P19	7.50	406	305	0.90	0.75/1.00	0.84	C
	P21	6.50	292	155	0.90	0.75/1.00	0.62	B
	P23	6.50	221	296	0.90	0.75/1.00	0.67	B
	P25	6.50	257	459	0.90	0.75/1.00	0.91	C
	P27	5.00	108	136	0.90	0.75/1.00	0.42	A
	U1/U3	5.00	90	297	0.90	0.90/0.75	0.74	C
	U5/U7	5.00	74	244	0.90	0.90/0.75	0.60	B
	U2/U4	5.00	82	597	0.90	0.90/0.75	1.31	D
	U6/U8	5.00	68	500	0.90	0.90/0.75	1.10	D
	PL2	6.50	132	702	0.90	0.75/0.95	1.04	D
	PL3	6.50	53	588	0.90	0.75/0.95	0.79	C
	PL5	6.00	138	507	0.90	0.75/0.95	0.89	C
	PL6	6.00	295	788	0.90	0.75/0.95	1.51	E
	PL9	8.75	59	899	0.90	0.75/0.95	0.87	C
	ML1	5.00	0	0	0.90	0.75/1.00	0.00	A
	P10S	14.00	740	451	0.90	0.75/1.00	0.77	C
	P11	8.00	313	113	0.90	0.75/1.00	0.49	B
	P3-P4	13.50	43	180	0.90	0.75/1.00	0.13	A

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-30 2026 No-Action Subway Station Level of Service – Free Zone Stairs

Peak Hour	Stairway	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
AM	M8/10	17.70	920	684	0.90	0.90/1.00	0.71	C
	M9	12.50	1,919	230	0.90	0.90/1.00	1.40	E
	O27	10.75	431	26	0.90	0.90/1.00	0.35	A
	M7	8.75	588	1,252	0.90	0.90/1.00	1.61	E
	M3	10.25	621	1,221	1.00	0.95/1.00	1.22	D
	S10	4.00	400	31	0.90	1.00/1.00	0.80	C
	S11	4.00	374	66	0.90	1.00/1.00	0.81	C
	S1	3.75	37	19	0.90	0.80/1.00	0.13	A
	O3	7.75	111	56	0.90	0.80/1.00	0.19	A
PM	M8/10	17.70	895	511	0.90	0.90/1.00	0.63	B
	M9	12.50	220	1,986	0.90	0.90/1.00	1.32	D
	O27	10.75	41	543	0.90	0.90/1.00	0.41	A
	M7	8.75	557	873	0.90	0.90/1.00	1.26	D
	M3	10.25	555	1,493	0.90	0.95/1.00	1.35	E
	S10	4.00	35	265	0.90	1.00/1.00	0.56	B
	S11	4.00	34	532	0.90	1.00/1.00	1.05	D
	S1	3.75	11	45	0.90	0.80/1.00	0.11	A
	O3	7.75	32	135	0.90	0.80/1.00	0.17	A

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-31 2026 No-Action Subway Station Level of Service – Escalators

Peak Hour	Escalator	Tread Width (in)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Surging Factor	Capacity	v/c Ratio	LOS
AM	ES203	32	621	0	0.80	750	1.04	D
	ES204	32	621	0	0.80	750	1.04	D
	ES205	40	623	0	0.80	1050	0.74	C
	ES206	40	623	0	0.80	1050	0.74	C
	ES208	40	665	0	0.75	945	0.94	C
	ES210	40	665	0	0.75	945	0.94	C
	ES255	40	937	0	0.95	1050	0.94	C
ES256	40	941	0	0.95	1050	0.94	C	
PM	ES203	32	0	899	1.00	750	1.20	D
	ES204	32	59	0	0.80	750	0.10	A
	ES205	40	0	947	1.00	1050	0.90	C
	ES206	40	303	0	0.80	1050	0.36	A
	ES208	40	0	957	1.00	945	1.01	D
	ES210	40	473	0	0.75	945	0.67	B
	ES255	40	0	904	1.00	1050	0.86	C
ES256	40	1,104	0	0.95	1050	1.11	D	

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-32 2026 No-Action Subway Station Level of Service – Passageway

Passageway	Peak Hour	Effective Width (ft)	Pedestrian Volume West (15-min)	Pedestrian Volume East (15-min)	Friction Factor	Surging Factor (West/East)	v/c Ratio	LOS
Passageway between Mezzanine A and Shuttle	AM	15	1,039	1,163	0.90	0.95/0.95	0.76	C
	PM	15	757	746	0.90	0.95/0.95	0.52	B

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-33 2026 No-Action Subway Station Level of Service – Fare Control Area

Peak Hour	Fare Control Area	Control Element	Pedestrian Volume In (15-min)	Pedestrian Volume Out (15-min)	Friction Factor (In/Out)	Surging Factor	v/c Ratio	LOS
AM	R241A	5 turnstiles	77	1,242	0.90/0.90	0.90	0.52	B
	R240	11 turnstiles	875	2,763	0.90/0.90	0.90	0.69	B
	R240A	4 turnstiles	64	507	0.90/0.90	0.90	0.29	A
	R238	16 turnstiles	1,088	2,119	0.90/0.90	0.90	0.43	A
	R238A	8 turnstiles	1,243	649	0.90/0.90	0.90	0.57	B
	R238B	4 turnstiles	166	383	0.90/0.90	0.90	0.29	A
	R237	7 turnstiles	88	997	0.90/0.90	0.90	0.31	A
	R237A	1 HXT	0	158	0.00/0.90	0.90	0.35	A
	R237B	4 turnstiles	97	774	0.90/0.90	0.90	0.43	A
	R236	12 turnstiles	1,029	810	0.90/0.90	0.80	0.37	A
	R236A	9 turnstiles	561	81	0.90/0.90	0.90	0.18	A
	R233	2 HEETs, 1 HXT	74	148	0.90/0.90	0.80	0.29	A
PM	R241A	5 turnstiles	899	59	0.90/0.90	0.90	0.50	B
	R240	11 turnstiles	2,695	1,019	0.90/0.90	0.90	0.83	C
	R240A	4 turnstiles	345	136	0.90/0.90	0.90	0.29	A
	R238	16 turnstiles	1,751	1,582	0.90/0.90	0.90	0.48	B
	R238A	8 turnstiles	1,328	532	0.90/0.90	0.90	0.57	B
	R238B	4 turnstiles	342	107	0.90/0.90	0.90	0.28	A
	R237	7 turnstiles	694	79	0.90/0.90	0.90	0.28	A
	R237A	1 HXT	0	8	0.00/0.90	0.90	0.02	A
	R237B	4 turnstiles	796	69	0.90/0.90	0.90	0.56	B
	R236	12 turnstiles	564	1,053	0.90/0.90	0.80	0.31	A
	R236A	9 turnstiles	79	194	0.90/0.90	0.90	0.06	A
	R233	2 HEETs, 1 HXT	180	43	0.90/0.90	0.80	0.43	A

Note:

Methodology based on 2020 CEQR Technical Manual guidelines

HEET = High entry/exit turnstile, HXT = high exit turnstile

Surging factors only apply to exiting volumes. The surge factor for entry volumes is 1.0.

Pedestrians

The 2026 No-Action pedestrian volumes were developed by increasing existing volumes to reflect expected growth in overall travel through and within the study area and incorporating pedestrian volumes from projects expected to be completed and operating by then. Pedestrian trips resulting from the ESA project were also incorporated into the analysis. No-Action pedestrian volumes are shown in **Figure 9-23** through **Figure 9-25**.

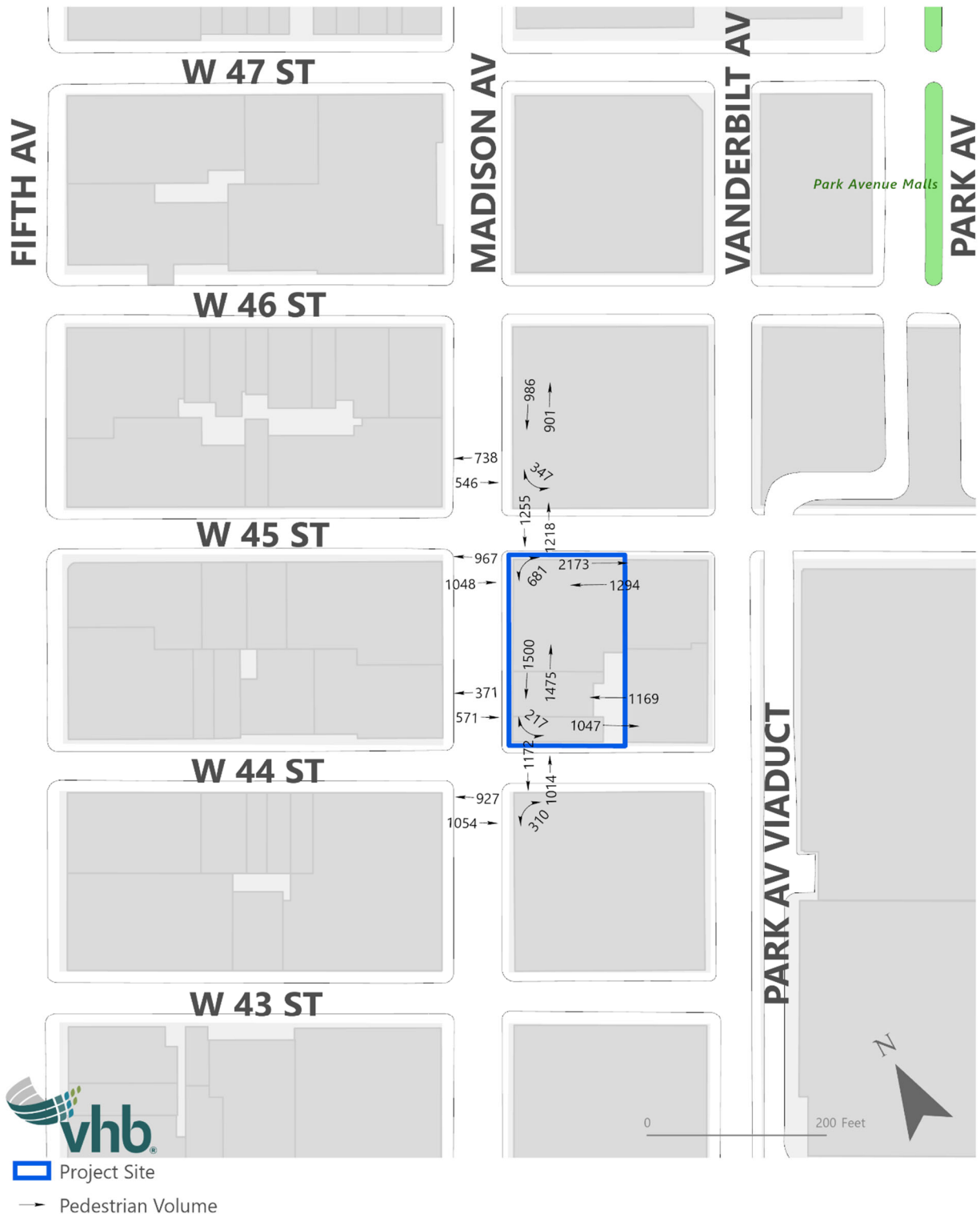
Figure 9-23 No-Action Pedestrian Volumes – AM Peak Hour



Figure 9-24 No-Action Pedestrian Volumes – Midday Peak Hour



Figure 9-25 No-Action Pedestrian Volumes – PM Peak Hour



The No-Action pedestrian levels of service were determined for the locations analyzed in the existing conditions. **Table 9-34** provides an overview of the pedestrian levels of service for the peak hour analyzed. Pedestrian volumes and levels of service are provided in **Table 9-35** through **Table 9-37**. The summary of the No-Action condition indicates that:

- › During the AM peak hour, one of the four sidewalks analyzed can be expected to operate at mid-LOS D or worse, compared to none in existing conditions. During the midday and PM peak hours, one sidewalk can be expected to operate at mid-LOS D or worse, the same as existing conditions.
- › During the AM peak hour, both crosswalks analyzed can be expected to operate at mid-LOS D or worse as compared to none in existing conditions. During the midday peak hour, both crosswalks can be expected to operate at mid-LOS D to worse as compared to one in existing conditions. During the weekday PM peak hour, both crosswalks can be expected to operate at mid-LOS D or worse similar to existing conditions.
- › During the AM peak hour, two of the four corners analyzed can be expected to operate at mid-LOS D or worse, while three corners can be expected to operate at mid-LOS D or worse during the midday and PM peak hours. The number of corners operating at unacceptable levels of service in the No-Action condition would be the same as existing conditions during the peak hours analyzed.

Table 9-34 2026 No-Action Pedestrian Levels of Service Summary

	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Sidewalk Elements			
Sidewalks at LOS A/B/C and Acceptable LOS D	3	3	3
Sidewalks at Unacceptable LOS D	1	0	0
Sidewalks at LOS E	0	1	1
Sidewalks at LOS F	0	0	0
Crosswalk Elements			
Crosswalks at LOS A/B/C and Acceptable LOS D	0	0	0
Crosswalks at Unacceptable LOS D	2	1	0
Crosswalks at LOS E	0	1	2
Crosswalks at LOS F	0	0	0
Corner Elements			
Corners at LOS A/B/C and Acceptable LOS D	2	1	1
Corners at Unacceptable LOS D	0	1	1
Corners at LOS E	2	1	0
Corners at LOS F	0	1	2

Note: Includes four sidewalk, two crosswalk, and four corner analysis locations

Table 9-35 2026 No-Action Pedestrian Levels of Service – Sidewalks

Sidewalk	Effective Width, ft	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
		Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS	Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS	Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS
Madison Avenue between East 44th Street and East 45th Street (east side)	15.0	1,929	84.8	C	2,533	69.7	C	2,975	59.1	C
Madison Avenue between East 45th Street and East 46th Street (east side)	10.5	1,399	84.7	C	1,955	63.1	C	1,887	61.1	C
East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)	9.3	1,130	93.5	B	1,261	90.2	B	2,215	49.3	C
East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)	5.8	2,607	24.8	D	2,521	20.9	E	3,468	18.1	E

Table 9-36 2026 No-Action Pedestrian Levels of Service – Crosswalks

Intersection	Crosswalk	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
		Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Madison Avenue at East 44th Street	East	1,712	16.9	D	1,961	15.8	D	2,186	13.1	E
Madison Avenue at East 45th Street	East	1,417	19.3	D	2,219	10.0	E	2,473	11.5	E

Table 9-37 2026 No-Action Pedestrian Levels of Service – Corners

Intersection	Corner	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
		Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Madison Avenue at East 44th Street	Northeast	78	74.7	A	226	68.2	A	217	52.6	B
	Southeast	144	11.4	E	148	10.8	E	310	7.7	F
Madison Avenue at East 45th Street	Northeast	344	11.6	E	296	6.3	F	347	5.9	F
	Southeast	612	27.8	C	357	17.2	D	681	18.2	D

With-Action Conditions

The Proposed Project would redevelop the Project Site with approximately 832,613 sf of office space and 5,357 sf of retail space located on the ground floor of the proposed building. Access to the office space would be provided along Madison Avenue, with retail space to be located at the southwest corner of the site and along the north side of the site. The Project Site would be recessed 20 feet from the curb line on Madison Avenue, similar to the No-Action condition, and the north sidewalk along East 45th Street would be extended by approximately five feet to provide for a 15-foot-wide sidewalk along the site frontage. The sidewalk widening would remove the parking lane in front of the Project Site, a loss of approximately five parking spaces. Although not a proposed action, the Applicant could in the future seek to locate curbside bollards for security purposes—in which event they would undergo appropriate review at that time.

Traffic

Traffic Volumes

Overall, the Proposed Project would generate a total of 103 vph (80 “ins” and 23 “outs”) in the AM peak hour, 49 vph (24 “ins” and 25 “outs”) during the midday peak hour, and 84 vph (16 “ins” and 68 “outs”) during the PM peak hour. These vehicle trips were distributed as described in the Level 2 screening assessment and would result in modest traffic volume increases to individual intersections within the traffic study area. The total With-Action traffic volumes for the AM, midday, and PM peak hours are shown in **Figure 9-26** through **Figure 9-28**.

Figure 9-26 With-Action Traffic Volumes – AM Peak Hour



Figure 9-27 With-Action Traffic Volumes – Midday Peak Hour



Figure 9-28 With-Action Traffic Volumes – PM Peak Hour



Levels of Service

Based on the traffic volume increments illustrated above, the 2026 With-Action traffic levels of service were determined for the four analysis locations. **Table 9-38** and **Table 9-39** provide an overview of the levels of service that are expected to characterize 2026 With-Action "overall" intersection conditions and individual traffic movements during the AM, midday, and PM peak hours, respectively. Detailed traffic levels of service comparing the No-Action and With-Action conditions during each peak hour are provided in **Table 9-40** through **Table 9-42**.

Table 9-38 With-Action Traffic Level of Service Summary – Overall Intersections

	No-Action			With-Action		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Intersections at Overall LOS A/B/C	2	1	1	2	1	1
Intersections at Overall LOS D	1	2	2	1	2	1
Intersections at Overall LOS E	0	1	0	0	0	1
Intersections at Overall LOS F	1	0	1	1	1	1
Number of significantly impacted intersections	-	-	-	1	1	2

Note: Includes three signalized intersections and one unsignalized intersection

Table 9-39 With-Action Traffic Level of Service Summary – Traffic Movements

	No-Action			With-Action		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Traffic Movements at LOS A/B/C and Acceptable LOS D	8	9	7	8	8	7
Traffic Movements at Unacceptable LOS D	0	1	0	0	1	0
Traffic Movements at LOS E	1	1	2	1	2	2
Traffic Movements at LOS F	3	1	3	3	1	3
Number of significantly impacted movements	-	-	-	2	2	3
Number of Individual Traffic Movements	12	12	12	12	12	12

Note: Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements.

Table 9-40 No-Action vs. With-Action Traffic Level of Service – AM Peak Hour

Intersection & Approach	2026 No-Action				2026 With-Action				
	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	
UNSIGNALIZED INTERSECTIONS									
Vanderbilt Avenue and East 44th Street									
East 44th Street EB	LR	-	10.4	B	LR	-	10.7	B	
Vanderbilt Avenue NB	T	-	8.3	A	T	-	8.3	A	
	SB	T	-	9.2	A	T	-	9.3	A
Overall Intersection²	-	-	10.0	A	-	-	10.2	B	
SIGNALIZED INTERSECTIONS									
Vanderbilt Avenue and East 45th Street									
East 45th Street WB	LTR	0.44	19.0	B	LTR	0.45	19.2	B	
Vanderbilt Avenue NB	LT	0.28	17.7	B	LT	0.29	17.9	B	
	SB	TR	0.61	26.5	C	TR	0.63	27.5	C
Overall Intersection²	-	-	21.2	C	-	-	21.6	C	
Madison Avenue and East 44th Street									
East 44th Street EB	LT	1.03	83.0	F	LT	1.06	92.2	F	
Madison Avenue NB	T	0.94	86.1	F	T	0.95	87.0	F	
	R	0.88	84.3	F	R	1.20	184.9	F	
Overall Intersection²	-	-	85.1	F	-	-	95.5	F	
Madison Avenue and East 45th Street									
East 45th Street WB	TR	0.72	30.1	C	TR	0.73	30.5	C	
Madison Avenue NB	L	0.43	6.2	A	L	0.43	6.2	A	
	T	1.05	66.4	E	T	1.07	66.1	E	
Overall Intersection²	-	-	48.6	D	-	-	48.6	D	

¹ Control delay is measured in seconds per vehicle.

² Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Denotes a significantly impacted movement

Table 9-41 No-Action vs. With-Action Traffic Level of Service – Midday Peak Hour

Intersection & Approach	2026 No-Action				2026 With-Action				
	Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS	
UNSIGNALIZED INTERSECTIONS									
Vanderbilt Avenue and East 44th Street									
East 44th Street EB	LR	-	11.1	B	LR	-	11.4	B	
Vanderbilt Avenue NB	T	-	9.0	A	T	-	9.1	A	
	SB	T	-	9.8	A	T	-	9.9	A
Overall Intersection ²	-	-	10.5	B	-	-	10.7	B	
SIGNALIZED INTERSECTIONS									
Vanderbilt Avenue and East 45th Street									
East 45th Street WB	LTR	0.92	53.5	D	LTR	0.93	56.3	E	
Vanderbilt Avenue NB	LT	0.24	16.9	B	LT	0.25	17.1	B	
	SB	TR	0.56	24.5	C	TR	0.57	25.1	C
Overall Intersection ²	-	-	38.0	D	-	-	39.3	D	
Madison Avenue and East 44th Street									
East 44th Street EB	LT	0.80	41.4	D	LT	0.81	43.0	D	
Madison Avenue NB	T	0.89	55.5	E	T	0.90	61.5	E	
	R	1.32	225.6	F	R	1.97	500.0+	F	
Overall Intersection ²	-	-	67.5	E	-	-	97.8	F	
Madison Avenue and East 45th Street									
East 45th Street WB	TR	0.61	35.2	D	TR	0.61	35.0	C	
Madison Avenue NB	L	0.47	12.3	B	L	0.48	12.5	B	
	T	1.01	44.3	D	T	1.02	48.1	D	
Overall Intersection ²	-	-	39.6	D	-	-	42.0	D	

¹ Control delay is measured in seconds per vehicle.

² Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Denotes a significantly impacted movement

Table 9-42 No-Action vs. With-Action Traffic Level of Service – PM Peak Hour

Intersection & Approach		2026 No-Action				2026 With-Action			
		Mvt	V/C	Ctrl Delay ¹	LOS	Mvt	V/C	Ctrl Delay ¹	LOS
UNSIGNALIZED INTERSECTIONS									
Vanderbilt Avenue and East 44th Street									
East 44th Street	EB	LR	-	9.1	A	LR	-	9.2	A
Vanderbilt Avenue	NB	T	-	7.9	A	T	-	7.9	A
	SB	T	-	9.8	A	T	-	9.9	A
Overall Intersection²		-	-	9.5	A	-	-	9.6	A
SIGNALIZED INTERSECTIONS									
Vanderbilt Avenue and East 45th Street									
East 45th Street	WB	LTR	0.94	57.0	E	LTR	0.94	57.0	E
Vanderbilt Avenue	NB	LT	0.15	15.8	B	LT	0.16	15.8	B
	SB	TR	0.52	22.5	C	TR	0.53	22.7	C
Overall Intersection²		-	-	40.0	D	-	-	39.9	D
Madison Avenue and East 44th Street									
East 44th Street	EB	LT	1.05	90.8	F	LT	1.08	98.2	F
Madison Avenue	NB	T	0.92	84.4	F	T	0.93	85.1	F
		R	0.98	142.0	F	R	1.08	175.7	F
Overall Intersection²		-	-	88.5	F	-	-	92.4	F
Madison Avenue and East 45th Street									
East 45th Street	WB	TR	0.49	36.8	D	TR	0.49	36.8	D
Madison Avenue	NB	L	0.47	11.7	B	L	0.48	11.8	B
		T	1.10	66.5	E	T	1.11	71.1	E
Overall Intersection²		-	-	54.6	D	-	-	57.7	E

¹ Control delay is measured in seconds per vehicle.

² Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Denotes a significantly impacted movement

The summary overview of 2026 With-Action conditions indicates that:

- › In the AM peak hour, one intersection would operate at overall LOS E or F, similar to the No-Action condition. Four movements would operate at unacceptable LOS D, E, or F similar to the No-Action condition.
- › In the midday peak hour, one intersection would operate at overall LOS E or F, similar to the No-Action condition. Four movements would operate at unacceptable LOS D, E, or F, compared to three in the No-Action condition.
- › In the PM peak hour, two intersections would operate at overall LOS E or F, compared to one in the No-Action condition. Five movements would operate at unacceptable LOS D, E, or F similar to the No-Action condition.

Traffic movements that operate at unacceptable levels of service under the No-Action condition would continue to do so under the With-Action condition; one additional movement would be expected to operate at unacceptable levels of service as a result of the Proposed Project—the northbound Madison Avenue through movement at East 45th Street during the midday peak hour.

Of the four intersections analyzed, the Proposed Project would result in significant adverse traffic impacts at one intersection (at two movements) during the AM and midday peak hours, and two intersections (at three movements) during the PM peak hour. Traffic volume increases at impacted right or left turn movements would be no more than six vehicles per hour, a modest increase in volumes, but impacts would be expected as a result of the prevailing congestion in the traffic network and increased vehicular and pedestrian activities from background developments. The significantly impacted traffic movements are identified below:

- › Madison Avenue and East 44th Street
 - Eastbound East 44th Street approach (AM and PM)
 - Northbound Madison Avenue through movement (midday)
 - Northbound Madison Avenue right turn movement (AM, midday, and PM)
- › Madison Avenue and East 45th Street
 - Northbound Madison Avenue through movement (PM)

The identification and evaluation of traffic capacity improvements needed to mitigate potential significant adverse traffic impacts created by the Proposed Projects are presented in **Chapter 16, Mitigation**.

Parking

The peak weekday project-generated parking demand was determined to be 108 spaces during the 3 PM to 4 AM hour as shown in **Table 9-43**. During the midday period, which is the peak parking demand for the project area, the project-generated parking demand was determined to be 104 spaces and the overall project area parking demand would increase from 2,334 spaces in the No-Action (84 percent parking utilization) to 2,438 spaces under the With-Action condition (88 percent parking utilization). Overall, the Proposed Project parking demand would be sufficiently accommodated by the off-street parking in the project vicinity.

Table 9-43 Projected Weekday Parking Demand

Hour	Local Retail	Office	Total
12 AM - 1 AM	0	0	0
1 AM - 2 AM	0	0	0
2 AM - 3 AM	0	0	0
3 AM - 4 AM	0	0	0
4 AM - 5 AM	0	0	0
5 AM - 6 AM	0	0	0
6 AM - 7 AM	0	0	0
7 AM - 8 AM	0	6	6
8 AM - 9 AM	0	63	63
9 AM - 10 AM	0	107	107
10 AM - 11 AM	0	103	103
11 AM - 12 PM	0	101	101
12 PM - 1 PM	0	100	100
1 PM - 2 PM	0	101	101
2 PM - 3 PM	0	104	104
3 PM - 4 PM	0	108	108
4 PM - 5 PM	0	78	78
5 PM - 6 PM	0	26	26
6 PM - 7 PM	0	1	1
7 PM - 8 PM	0	0	0
8 PM - 9 PM	0	0	0
9 PM - 10 PM	0	0	0
10 PM - 11 PM	0	0	0
11 PM - 12 AM	0	0	0

Subways

The Proposed Project is expected to generate a total of 432 and 397 new subway trips in the AM and PM peak hours, respectively. Conditions at analyzed stairs, escalators, passageways, and fare control areas in the With-Action condition are discussed below.

Subway Station Elements

As part of the Proposed Project, a new entrance to Grand Central Terminal and LIRR's ESA connection will be provided at the northwest corner of the site. Three escalators, one stairway, and an elevator would be provided to connect the street level with the passageway to Grand Central Terminal.

In addition, the Proposed Project would include improvements to enhance passenger circulation conditions at the 42nd Street – Grand Central subway station. These changes include:

- › On the Flushing platform, the existing stair PL9 will be widened to a total width of 15 feet.
- › On the Flushing platform, two new platform stairs will be added along with an extended transfer passageway at the center core.
- › Stairs U2/U4 and U6/U8, which descend below the northbound Lexington platform to the Flushing passageway, will be widened from 6 feet to 7 feet 3 inches.

The above improvements would reduce passenger crowding and congestion at the Flushing platform stairway elements, particularly in the center and at the east end of the platform. The PL6 and PL9 platform stairways would operate at LOS E during at least one peak hour in the No-Action condition signifying congested conditions. The widening of the U2/U4 and U6/U8 stairways, which connects the Flushing line platform to the Lexington line platform, would improve crowded conditions during the peak hours; these stairways would operate at LOS D in the No-Action condition.

The 42nd Street – Grand Central subway station elements were analyzed with these station improvements and the results are shown in **Table 9-44** through **Table 9-48**. As shown in **Table 9-44** and **Table 9-45**, 14 of the 41 analyzed stairs are expected to operate at LOS D or worse (v/c ratio at least 1.00) and experience an increase in v/c ratio in the AM peak hour in the With-Action condition compared to the No-Action condition. However, the width increment threshold required to return these stairs to the No-Action v/c ratio or v/c ratio of 1.00 would remain below the *CEQR Technical Manual* impact threshold and therefore these stairs would not be significantly adversely impacted as a result of the new demand from the Proposed Project. In the PM peak hour, ten of the 41 analyzed stairs are expected to operate at LOS D or worse and experience an increase in v/c ratio. Similar to the AM peak hour, the width increment threshold at these stairs would remain below the *CEQR Technical Manual* impact threshold.

As shown in **Table 9-46**, two escalators are expected to operate at LOS D during the AM peak hour; however, these escalators would not be significantly adversely impacted as a result of the new demand from the Proposed Project. Three escalators are expected to operate at LOS D during the PM peak hour and a significant impact was identified at escalator ES208 (down direction escalator located at the west end of Flushing line platform) during the PM peak hour. ES208 would worsen within LOS D from a v/c ratio of 1.01 in the No-Action to a v/c ratio of 1.04 in the With-Action condition.

As shown in **Table 9-47** and **Table 9-48**, the passageway between Mezzanine A and the Shuttle and all analyzed fare control area within the 42nd Street – Grand Central subway station would continue to operate at acceptable levels of service in both peak hours in the With-Action condition.

Table 9-44 2026 No-Action vs With-Action Subway Station Level of Service - Stairway

Peak Hour	Stairway	No-Action							With-Action						
		Effective Width (ft)	Pedestrian Volume Up (15-	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS	Effective Width (ft)	Pedestrian Volume Up (15-	Pedestrian Volume Down	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
AM	P10	6.42	512	587	0.90	0.75/1.00	1.47	E	6.42	518	588	0.90	0.75/1.00	1.48	E
	P12	7.50	427	769	0.90	0.75/1.00	1.32	D	7.50	432	770	0.90	0.75/1.00	1.33	D
	P14	7.50	319	974	0.90	0.75/1.00	1.38	E	7.50	324	974	0.90	0.75/1.00	1.39	E
	P16	7.50	319	860	0.90	0.75/1.00	1.27	D	7.50	324	861	0.90	0.75/1.00	1.28	D
	P18	7.50	408	181	0.90	0.75/1.00	0.72	C	7.50	413	181	0.90	0.75/1.00	0.72	C
	P20	6.50	339	109	0.90	0.75/1.00	0.64	B	6.50	341	109	0.90	0.75/1.00	0.64	B
	P22	6.50	253	238	0.90	0.75/1.00	0.66	B	6.50	256	238	0.90	0.75/1.00	0.66	B
	P24	6.50	312	373	0.90	0.75/1.00	0.90	C	6.50	315	373	0.90	0.75/1.00	0.90	C
	P26	6.00	302	33	0.90	0.75/1.00	0.54	B	6.00	302	33	0.90	0.75/1.00	0.54	B
	P13	7.50	727	382	0.90	0.75/1.00	1.33	E	7.50	739	383	0.90	0.75/1.00	1.35	E
	P15	7.50	745	407	0.90	0.75/1.00	1.38	E	7.50	757	408	0.90	0.75/1.00	1.40	E
	P17	7.50	768	381	0.90	0.75/1.00	1.39	E	7.50	779	381	0.90	0.75/1.00	1.40	E
	P19	7.50	574	211	0.90	0.75/1.00	0.96	C	7.50	581	212	0.90	0.75/1.00	0.97	C
	P21	6.50	585	71	0.90	0.75/1.00	0.97	C	6.50	590	71	0.90	0.75/1.00	0.98	C
	P23	6.50	433	57	0.90	0.75/1.00	0.72	C	6.50	436	57	0.90	0.75/1.00	0.73	C
	P25	6.50	544	81	0.90	0.75/1.00	0.92	C	6.50	548	81	0.90	0.75/1.00	0.93	C
	P27	5.00	205	31	0.90	0.75/1.00	0.45	B	5.00	205	31	0.90	0.75/1.00	0.45	B
	U1/U3	5.00	332	258	0.90	0.90/0.75	1.06	D	5.00	333	258	0.90	0.90/0.75	1.06	D
	U5/U7	5.00	267	218	0.90	0.90/0.75	0.87	C	5.00	268	218	0.90	0.90/0.75	0.87	C
	U2/U4	5.00	254	374	0.90	0.90/0.75	1.16	D	6.25	255	374	0.90	0.90/0.75	0.93	C
	U6/U8	5.00	208	335	0.90	0.90/0.75	1.00	D	6.25	209	335	0.90	0.90/0.75	0.80	C
	PL2	6.50	584	424	0.90	0.75/0.95	1.40	E	6.50	588	424	0.90	0.75/0.95	1.40	E
	PL3	6.50	347	643	0.90	0.75/0.95	1.30	D	6.50	294	643	0.90	0.75/0.95	1.22	D
	PL5	6.00	574	27	0.90	0.75/0.95	0.98	C	6.00	326	27	0.90	0.75/0.95	0.57	B
	PL6	6.00	803	92	0.90	0.75/0.95	1.44	E	6.00	443	92	0.90	0.75/0.95	0.85	C
	PL7	-	-	-	-	-	-	-	4.00	241	0	0.90	0.75/0.95	0.60	B
	PL8	-	-	-	-	-	-	-	4.00	430	0	0.90	0.75/0.95	1.06	D
PL9	8.75	1,242	77	0.90	0.75/0.95	1.47	E	13.50	1242	77	0.90	0.75/0.95	0.95	C	
ML1	5.00	0	77	0.90	0.75/1.00	0.11	A	5.00	0	77	0.90	0.75/1.00	0.11	A	
P10S	14.00	596	824	0.90	0.75/1.00	0.86	C	14.00	597	824	0.90	0.75/1.00	0.86	C	
P11	8.00	213	206	0.90	0.75/1.00	0.45	B	8.00	214	206	0.90	0.75/1.00	0.45	B	
P3-P4	13.50	148	74	0.90	0.75/1.00	0.15	A	13.50	148	74	0.90	0.75/1.00	0.15	A	

Table 9-44 2026 No-Action vs With-Action Subway Station Level of Service - Stairway

Peak Hour	Stairway	No-Action							With-Action						
		Effective Width (ft)	Pedestrian Volume Up (15-	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS	Effective Width (ft)	Pedestrian Volume Up (15-	Pedestrian Volume Down	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
PM	P10	6.42	210	274	0.90	0.75/1.00	0.64	B	6.42	211	284	0.90	0.75/1.00	0.65	B
	P12	7.50	174	535	0.90	0.75/1.00	0.76	C	7.50	174	546	0.90	0.75/1.00	0.77	C
	P14	7.50	128	774	0.90	0.75/1.00	0.93	C	7.50	128	785	0.90	0.75/1.00	0.94	C
	P16	7.50	113	716	0.90	0.75/1.00	0.86	C	7.50	114	726	0.90	0.75/1.00	0.87	C
	P18	7.50	112	376	0.90	0.75/1.00	0.52	B	7.50	112	378	0.90	0.75/1.00	0.52	B
	P20	6.50	80	201	0.90	0.75/1.00	0.35	A	6.50	80	202	0.90	0.75/1.00	0.35	A
	P22	6.50	70	467	0.90	0.75/1.00	0.64	B	6.50	70	467	0.90	0.75/1.00	0.64	B
	P24	6.50	73	733	0.90	0.75/1.00	0.95	C	6.50	73	734	0.90	0.75/1.00	0.95	C
	P26	6.00	28	209	0.90	0.75/1.00	0.30	A	6.00	28	209	0.90	0.75/1.00	0.30	A
	P13	7.50	683	631	0.90	0.75/1.00	1.52	E	7.50	684	642	0.90	0.75/1.00	1.54	E
	P15	7.50	591	644	0.90	0.75/1.00	1.41	E	7.50	591	655	0.90	0.75/1.00	1.43	E
	P17	7.50	577	494	0.90	0.75/1.00	1.25	D	7.50	577	499	0.90	0.75/1.00	1.25	D
	P19	7.50	406	305	0.90	0.75/1.00	0.84	C	7.50	406	307	0.90	0.75/1.00	0.84	C
	P21	6.50	292	155	0.90	0.75/1.00	0.62	B	6.50	293	156	0.90	0.75/1.00	0.62	B
	P23	6.50	221	296	0.90	0.75/1.00	0.67	B	6.50	221	296	0.90	0.75/1.00	0.67	B
	P25	6.50	257	459	0.90	0.75/1.00	0.91	C	6.50	257	459	0.90	0.75/1.00	0.91	C
	P27	5.00	108	136	0.90	0.75/1.00	0.42	A	5.00	109	136	0.90	0.75/1.00	0.42	A
	U1/U3	5.00	90	297	0.90	0.90/0.75	0.74	C	5.00	90	297	0.90	0.90/0.75	0.74	C
	U5/U7	5.00	74	244	0.90	0.90/0.75	0.60	B	5.00	75	244	0.90	0.90/0.75	0.60	B
	U2/U4	5.00	82	597	0.90	0.90/0.75	1.31	D	6.25	82	597	0.90	0.90/0.75	1.05	D
	U6/U8	5.00	68	500	0.90	0.90/0.75	1.10	D	6.25	68	500	0.90	0.90/0.75	0.88	C
	PL2	6.50	132	702	0.90	0.75/0.95	1.04	D	6.50	131	702	0.90	0.75/0.95	1.04	D
	PL3	6.50	53	588	0.90	0.75/0.95	0.79	C	6.50	53	588	0.90	0.75/0.95	0.78	C
	PL5	6.00	138	507	0.90	0.75/0.95	0.89	C	6.00	80	368	0.90	0.75/0.95	0.61	B
	PL6	6.00	295	788	0.90	0.75/0.95	1.51	E	6.00	146	601	0.90	0.75/0.95	1.02	D
	PL7	-	-	-	-	-	-	-	4.00	88	148	0.90	0.75/0.95	0.51	B
	PL8	-	-	-	-	-	-	-	4.00	122	183	0.90	0.75/0.95	0.66	B
	PL9	8.75	59	899	0.90	0.75/0.95	0.87	C	13.50	59	899	0.90	0.75/0.95	0.56	B
ML1	5.00	0	0	0.90	0.75/1.00	0.00	A	5.00	0	0	0.90	0.75/1.00	0.00	A	
P10S	14.00	740	451	0.90	0.75/1.00	0.77	C	14.00	740	451	0.90	0.75/1.00	0.76	C	
P11	8.00	313	113	0.90	0.75/1.00	0.49	B	8.00	313	113	0.90	0.75/1.00	0.49	B	
P3-P4	13.50	43	180	0.90	0.75/1.00	0.13	A	13.50	43	180	0.90	0.75/1.00	0.13	A	

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-45 2026 No-Action vs With-Action Subway Station Level of Service – Free Zone Stairs

Peak Hour	Stairway	No-Action							With-Action						
		Effective Width	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
AM	M8/10	17.70	920	684	0.90	0.90/1.00	0.71	C	17.7	926	684	0.90	0.90/1.00	0.72	C
	M9	12.50	1919	230	0.90	0.90/1.00	1.40	E	12.5	1930	230	0.90	0.90/1.00	1.41	E
	O27	10.75	431	26	0.90	0.90/1.00	0.35	A	10.75	434	26	0.90	0.90/1.00	0.35	A
	M7	8.75	588	1252	0.90	0.90/1.00	1.61	E	8.75	597	1253	0.90	0.90/1.00	1.62	E
	M3	10.25	621	1221	1.00	0.95/1.00	1.22	D	10.25	630	1221	1.00	0.95/1.00	1.23	D
	S10	4.00	400	31	0.90	1.00/1.00	0.80	C	4	400	31	0.90	1.00/1.00	0.80	C
	S11	4:00	374	66	0.90	1.00/1.00	0.81	C	4	374	66	0.90	1.00/1.00	0.81	C
	S1	3.75	37	19	0.90	0.80/1.00	0.13	A	3.75	37	19	0.90	0.80/1.00	0.13	A
O3	7.75	111	56	0.90	0.80/1.00	0.19	A	7.75	111	56	0.90	0.80/1.00	0.19	A	
PM	M8/10	17.70	895	511	0.90	0.90/1.00	0.63	B	17.7	895	512	0.90	0.90/1.00	0.63	B
	M9	12.50	220	1986	0.90	0.90/1.00	1.32	D	12.5	220	1988	0.90	0.90/1.00	1.32	D
	O27	10.75	41	543	0.90	0.90/1.00	0.41	A	10.75	41	544	0.90	0.90/1.00	0.41	A
	M7	8.75	557	873	0.90	0.90/1.00	1.26	D	8.75	557	891	0.90	0.90/1.00	1.28	D
	M3	10.25	555	1493	0.90	0.95/1.00	1.35	E	10.25	556	1529	0.90	0.95/1.00	1.38	E
	S10	4.00	35	265	0.90	1.00/1.00	0.56	B	4	35	265	0.90	1.00/1.00	0.56	B
	S11	4.00	34	532	0.90	1.00/1.00	1.05	D	4	34	532	0.90	1.00/1.00	1.05	D
	S1	3.75	11	45	0.90	0.80/1.00	0.11	A	3.75	11	45	0.90	0.80/1.00	0.12	A
O3	7.75	32	135	0.90	0.80/1.00	0.17	A	7.75	32	135	0.90	0.80/1.00	0.17	A	

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-46 2026 No-Action vs With-Action Subway Station Level of Service – Escalators

Peak Hour	Escalator	No-Action							With-Action						
		Tread Width (in)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Surging Factor	Capacity	v/c Ratio	LOS	Tread Width (in)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Surging Factor	Capacity	v/c Ratio	LOS
AM	ES203	32	621	0	0.80	750	1.04	D	32	621	0	0.80	750	1.04	D
	ES204	32	621	0	0.80	750	1.04	D	32	621	0	0.80	750	1.04	D
	ES205	40	623	0	0.80	1050	0.74	C	40	627	0	0.80	1050	0.75	C
	ES206	40	623	0	0.80	1050	0.74	C	40	627	0	0.80	1050	0.75	C
	ES208	40	665	0	0.75	945	0.94	C	40	677	0	0.75	945	0.96	C
	ES210	40	665	0	0.75	945	0.94	C	40	677	0	0.75	945	0.96	C
	ES255	40	937	0	0.95	1050	0.94	C	40	957	0	0.95	1050	0.96	C
	ES256	40	941	0	0.95	1050	0.94	C	40	961	0	0.95	1050	0.96	C
PM	ES203	32	0	899	1.00	750	1.20	D	32	0	899	1.00	750	1.20	D
	ES204	32	59	0	0.80	750	0.10	A	32	59	0	0.80	750	0.10	A
	ES205	40	0	947	1.00	1050	0.90	C	40	0	951	1.00	1050	0.91	C
	ES206	40	303	0	0.80	1050	0.36	A	40	305	0	0.80	1050	0.36	A
	ES208	40	0	957	1.00	945	1.01	D	40	0	986	1.00	945	1.04	D
	ES210	40	473	0	0.75	945	0.67	B	40	472	0	0.75	945	0.67	B
	ES255	40	0	904	1.00	1050	0.86	C	40	0	928	1.00	1050	0.88	C
	ES256	40	1104	0	0.95	1050	1.11	D	40	1105	0	0.95	1050	1.11	D

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-47 2026 No-Action vs With-Action Subway Station Level of Service – Passageway

Passageway	Peak Hour	No-Action							With-Action						
		Effective Width (ft)	Pedestrian Volume West (15-min)	Pedestrian Volume East (15-min)	Friction Factor	Surging Factor (West/East)	v/c Ratio	LOS	Effective Width (ft)	Pedestrian Volume West (15-min)	Pedestrian Volume East (15-min)	Friction Factor	Surging Factor (West/East)	v/c Ratio	LOS
Passageway between Mezzanine A and Shuttle	AM	15	1,039	1,163	0.90	0.95/0.95	0.76	C	15	1,078	1,165	0.90	0.95/0.95	0.78	C
	PM	15	757	746	0.90	0.95/0.95	0.52	B	15	757	767	0.90	0.95/0.95	0.53	B

Note: Methodology based on 2020 CEQR Technical Manual guidelines

Table 9-48 2026 No-Action Subway Station Level of Service – Fare Control Area

Peak Hour	Fare Control	Control Element	No-Action						With-Action					
			Pedestrian Volume In (15-min)	Pedestrian Volume Out (15-min)	Friction Factor (In/Out)	Surging Factor	v/c Ratio	LOS	Pedestrian Volume In (15-min)	Pedestrian Volume Out (15-min)	Friction Factor (In/Out)	Surging Factor	v/c Ratio	LOS
AM	R241A	5 turnstiles	77	1242	0.90/0.90	0.90	0.52	B	77	1242	0.90/0.90	0.90	0.52	B
	R240	11 turnstiles	875	2763	0.90/0.90	0.90	0.69	B	876	2784	0.90/0.90	0.90	0.70	B
	R240A	4 turnstiles	64	507	0.90/0.90	0.90	0.29	A	64	507	0.90/0.90	0.90	0.29	A
	R238	16 turnstiles	1088	2119	0.90/0.90	0.90	0.43	A	1089	2165	0.90/0.90	0.90	0.44	A
	R238A	8 turnstiles	1243	649	0.90/0.90	0.90	0.57	B	1243	659	0.90/0.90	0.90	0.57	B
	R238B	4 turnstiles	166	383	0.90/0.90	0.90	0.29	A	166	387	0.90/0.90	0.90	0.30	A
	R237	7 turnstiles	88	997	0.90/0.90	0.90	0.31	A	88	997	0.90/0.90	0.90	0.31	A
	R237A	1 HXT	0	158	0.00/0.90	0.90	0.35	A	0	158	0.00/0.90	0.90	0.35	A
	R237B	4 turnstiles	97	774	0.90/0.90	0.90	0.43	A	97	774	0.90/0.90	0.90	0.43	A
	R236	12 turnstiles	1029	810	0.90/0.90	0.80	0.37	A	1030	811	0.90/0.90	0.80	0.37	A
	R236A	9 turnstiles	561	81	0.90/0.90	0.90	0.18	A	564	129	0.90/0.90	0.90	0.19	A
R233	2 HEETs, 1 HXT	74	148	0.90/0.90	0.80	0.29	A	74	148	0.90/0.90	0.80	0.29	A	
PM	R241A	5 turnstiles	899	59	0.90/0.90	0.90	0.50	B	899	59	0.90/0.90	0.90	0.50	B
	R240	11 turnstiles	2695	1019	0.90/0.90	0.90	0.83	C	2699	1020	0.90/0.90	0.90	0.83	C
	R240A	4 turnstiles	345	136	0.90/0.90	0.90	0.29	A	345	137	0.90/0.90	0.90	0.29	A
	R238	16 turnstiles	1751	1582	0.90/0.90	0.90	0.48	B	1799	1584	0.90/0.90	0.90	0.49	B
	R238A	8 turnstiles	1328	532	0.90/0.90	0.90	0.57	B	1360	533	0.90/0.90	0.90	0.58	B
	R238B	4 turnstiles	342	107	0.90/0.90	0.90	0.28	A	345	107	0.90/0.90	0.90	0.28	A
	R237	7 turnstiles	694	79	0.90/0.90	0.90	0.28	A	694	79	0.90/0.90	0.90	0.28	A
	R237A	1 HXT	0	8	0.00/0.90	0.90	0.02	A	0	8	0.00/0.90	0.90	0.02	A
	R237B	4 turnstiles	796	69	0.90/0.90	0.90	0.56	B	796	69	0.90/0.90	0.90	0.56	B
	R236	12 turnstiles	564	1053	0.90/0.90	0.80	0.31	A	564	1053	0.90/0.90	0.80	0.31	A
	R236A	9 turnstiles	79	194	0.90/0.90	0.90	0.06	A	109	197	0.90/0.90	0.90	0.07	A
R233	2 HEETs, 1 HXT	180	43	0.90/0.90	0.80	0.43	A	180	43	0.90/0.90	0.80	0.43	A	

Note:

Methodology based on 2020 CEQR Technical Manual guidelines

HEET = High entry/exit turnstile, HXT = high exit turnstile

Surging factors only apply to exiting volumes. The surge factor for entry volumes is 1.0.

Pedestrians

The project-generated pedestrian volumes were distributed through the pedestrian network and added to the 2026 No-Action volumes to develop the 2026 With-Action pedestrian volumes. With-Action pedestrian volumes are shown in **Figure 9-29** through **Figure 9-31**.

Pedestrian analyses were performed based on these volumes and the With-Action pedestrian levels of service were determined for the analysis locations. Sidewalk widenings along retail entrances of the Proposed Project along East 44th and East 45th Streets were also incorporated into the analysis. **Table 9-49** provides an overview of the pedestrian levels of service for the peak hours analyzed. Pedestrian volumes and levels of service are provided in **Table 9-50** through Error! Reference source not found.**Table 9-52**. The summary of the With-Action condition indicates that:

- › During all three peak hours, none of the four sidewalks analyzed can be expected to operate at mid-LOS D or worse, compared to one in the No-Action condition.
- › During all three peak hours, both crosswalks analyzed can be expected to operate at mid-LOS D or worse, the same as the No-Action condition.
- › During the AM peak hour, two of the four corners analyzed can be expected to operate at mid-LOS D or worse, the same as the No-Action condition. During the midday and PM peak hours, two corners can be expected to operate at mid-LOS D or worse, compared to three in the No-Action condition.

Of the ten pedestrian elements analyzed, the Proposed Project would result in significant adverse impacts at the following four elements:

- › East crosswalk of Madison Avenue at East 44th Street (AM, midday, and PM)
- › East crosswalk of Madison Avenue at East 45th Street (AM, midday, and PM)
- › Southeast corner of Madison Avenue at East 44th Street (AM and midday)
- › Northeast corner of Madison Avenue at East 45th Street (AM and midday)

Mitigation measures that could be implemented to mitigate these significant adverse pedestrian impacts are discussed in **Chapter 16, Mitigation**.

Figure 9-29 With-Action Pedestrian Volumes – AM Peak Hour



Figure 9-30 With-Action Pedestrian Volumes – Midday Peak Hour



Figure 9-31 With-Action Pedestrian Volumes – PM Peak Hour

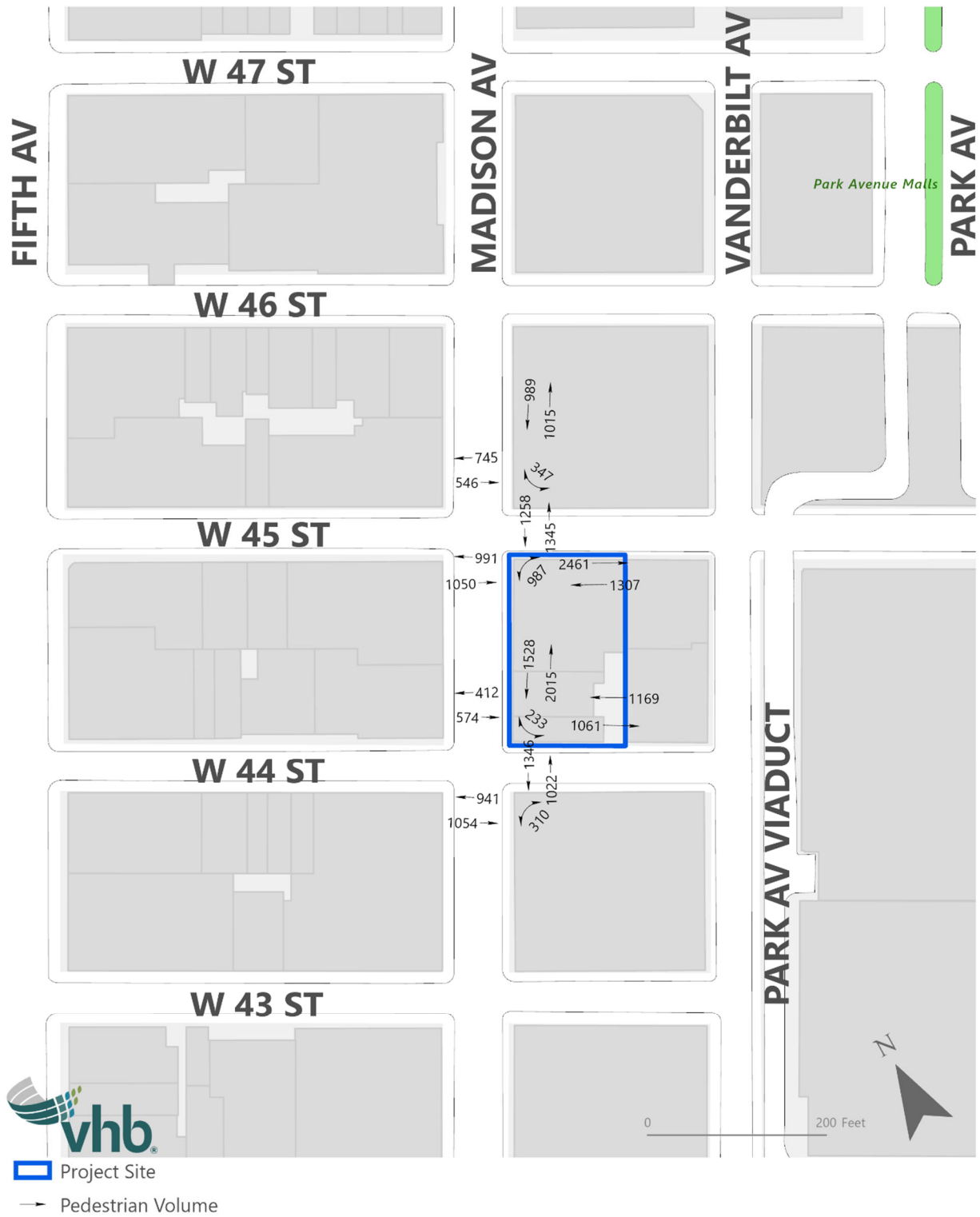


Table 9-49 2026 With-Action Pedestrian Levels of Service Summary

	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Sidewalk Elements			
Sidewalks at LOS A/B/C and Acceptable LOS D	4	4	4
Sidewalks at Unacceptable LOS D	0	0	0
Sidewalks at LOS E	0	0	0
Sidewalks at LOS F	0	0	0
Number of significantly impacted sidewalk elements	0	0	0
Crosswalk Elements			
Crosswalks at LOS A/B/C and Acceptable LOS D	0	0	0
Crosswalks at Unacceptable LOS D	1	0	0
Crosswalks at LOS E	1	1	2
Crosswalks at LOS F	0	1	0
Number of significantly impacted crosswalk elements	2	2	2
Corner Elements			
Corners at LOS A/B/C and Acceptable LOS D	2	2	2
Corners at Unacceptable LOS D	0	0	0
Corners at LOS E	2	1	0
Corners at LOS F	0	1	2
Number of significantly impacted corner elements	2	2	0

Note: Includes four sidewalk, two crosswalk, and four corner analysis locations

Table 9-50 2026 With-Action Pedestrian Levels of Service – Sidewalks

Sidewalk	Effective Width, ft	AM Peak Hour No-Action			Midday Peak Hour With-Action		
		Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS	Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS
<u>AM Peak Hour</u>							
Madison Avenue between East 44th Street and East 45th Street (east side)	15.0	<u>1,929</u> <u>2,533</u>	<u>84.8</u> <u>64.4</u>	<u>C</u> <u>C</u>	<u>2,533</u> <u>2,938</u>	<u>64.4</u> <u>59.9</u>	<u>C</u> <u>C</u>
Madison Avenue between East 45th Street and East 46th Street (east side)	10.5	<u>1,399</u> <u>1,511</u>	<u>84.7</u> <u>78.3</u>	<u>C</u> <u>C</u>	<u>1,511</u> <u>2,172</u>	<u>78.3</u> <u>56.7</u>	<u>C</u> <u>C</u>
East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)	9.3	<u>1,130</u> <u>1,147</u>	<u>93.5</u> <u>92.1</u>	<u>B</u> <u>B</u>	<u>1,147</u> <u>1,400</u>	<u>92.1</u> <u>81.2</u>	<u>B</u> <u>C</u>
East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)	10.5	<u>2,607</u> <u>2,943</u>	<u>24.8</u> <u>41.4</u>	<u>D</u> <u>C</u>	<u>2,943</u> <u>2,556</u>	<u>41.4</u> <u>39.5</u>	<u>C</u> <u>D</u>
<u>Midday Peak Hour</u>							
<u>Madison Avenue between East 44th Street and East 45th Street (east side)</u>	<u>15.0</u>	<u>2,533</u>	<u>69.7</u>	<u>C</u>	<u>2,938</u>	<u>59.9</u>	<u>C</u>
<u>Madison Avenue between East 45th Street and East 46th Street (east side)</u>	<u>10.5</u>	<u>1,955</u>	<u>63.1</u>	<u>C</u>	<u>2,172</u>	<u>56.7</u>	<u>C</u>
<u>East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)</u>	<u>9.3</u>	<u>1,261</u>	<u>90.2</u>	<u>B</u>	<u>1,400</u>	<u>81.2</u>	<u>C</u>
<u>East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)</u>	<u>10.5</u>	<u>2,521</u>	<u>20.9</u>	<u>E</u>	<u>2,556</u>	<u>39.5</u>	<u>D</u>
<u>PM Peak Hour</u>							
<u>Madison Avenue between East 44th Street and East 45th Street (east side)</u>	<u>15.0</u>	<u>2,975</u>	<u>59.1</u>	<u>C</u>	<u>3,543</u>	<u>49.5</u>	<u>C</u>
<u>Madison Avenue between East 45th Street and East 46th Street (east side)</u>	<u>10.5</u>	<u>1,887</u>	<u>61.1</u>	<u>C</u>	<u>2,004</u>	<u>57.5</u>	<u>C</u>

Table 9-50 2026 With-Action Pedestrian Levels of Service – Sidewalks

Sidewalk	Effective Width, ft	AM Peak Hour No-Action			Midday Peak Hour With-Action		
		Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS	Volume, ped/hr	Avg Ped Space, SF/P	Platoon LOS
<u>East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)</u>	<u>9.3</u>	<u>2,215</u>	<u>49.3</u>	<u>C</u>	<u>2,229</u>	<u>49.0</u>	<u>C</u>
<u>East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)</u>	<u>10.5</u>	<u>3,468</u>	<u>18.1</u>	<u>F</u>	<u>3,769</u>	<u>32.3</u>	<u>D</u>


Table 9-51 2026 With-Action Pedestrian Levels of Service – Crosswalks

Intersection	Crosswalk	AM Peak Hour No-Action			Midday Peak Hour With-Action		
		Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
AM Peak Hour							
<u>Madison Avenue at East 44th Street</u>	<u>East</u>	<u>1,712</u> <u>1,917</u>	<u>16.9</u> <u>14.5</u>	<u>DE</u>	<u>1,917</u> <u>2,174</u>	<u>14.5</u> <u>13.9</u>	<u>EE</u>
<u>Madison Avenue at East 45th Street</u>	<u>East</u>	<u>1,417</u> <u>1,542</u>	<u>19.3</u> <u>16.9</u>	<u>DD</u>	<u>1,542</u> <u>2,554</u>	<u>16.9</u> <u>7.9</u>	<u>DF</u>
Midday Peak Hour							
<u>Madison Avenue at East 44th Street</u>	<u>East</u>	<u>1,961</u>	<u>15.8</u>	<u>D</u>	<u>2,174</u>	<u>13.9</u>	<u>E</u>
<u>Madison Avenue at East 45th Street</u>	<u>East</u>	<u>2,219</u>	<u>10.0</u>	<u>E</u>	<u>2,554</u>	<u>7.9</u>	<u>F</u>
PM Peak Hour							
<u>Madison Avenue at East 44th Street</u>	<u>East</u>	<u>2,186</u>	<u>13.1</u>	<u>E</u>	<u>2,368</u>	<u>11.7</u>	<u>E</u>
<u>Madison Avenue at East 45th Street</u>	<u>East</u>	<u>2,473</u>	<u>11.5</u>	<u>E</u>	<u>2,603</u>	<u>10.1</u>	<u>E</u>

Denotes significantly impacted pedestrian element

Table 9-52 2026 With-Action Pedestrian Levels of Service – Corners

Intersection	Corner	AM Peak Hour No-Action			Midday Peak Hour With-Action		
		Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
AM Peak Hour							
Madison Avenue at East 44th Street	Northeast	<u>7896</u>	<u>74.767.1</u>	<u>AA</u>	<u>96370</u>	<u>67.158.3</u>	<u>AB</u>
	Southeast	<u>144144</u>	<u>11.49.3</u>	<u>EE</u>	<u>144148</u>	<u>9.39.0</u>	<u>EE</u>
Madison Avenue at East 45th Street	Northeast	<u>344344</u>	<u>11.610.3</u>	<u>EE</u>	<u>344296</u>	<u>10.34.7</u>	<u>EE</u>
	Southeast	<u>612950</u>	<u>27.842.1</u>	<u>CB</u>	<u>950400</u>	<u>42.128.5</u>	<u>BC</u>
Midday Peak Hour							
<u>Madison Avenue at East 44th Street</u>	<u>Northeast</u>	<u>226</u>	<u>68.2</u>	<u>A</u>	<u>370</u>	<u>58.3</u>	<u>B</u>
	<u>Southeast</u>	<u>148</u>	<u>10.8</u>	<u>E</u>	<u>148</u>	<u>9.0</u>	<u>E</u>
<u>Madison Avenue at East 45th Street</u>	<u>Northeast</u>	<u>296</u>	<u>6.3</u>	<u>F</u>	<u>296</u>	<u>4.7</u>	<u>F</u>
	<u>Southeast</u>	<u>357</u>	<u>17.2</u>	<u>D</u>	<u>400</u>	<u>28.5</u>	<u>C</u>
PM Peak Hour							
<u>Madison Avenue at East 44th Street</u>	<u>Northeast</u>	<u>217</u>	<u>52.6</u>	<u>B</u>	<u>233</u>	<u>47.6</u>	<u>B</u>
	<u>Southeast</u>	<u>310</u>	<u>7.7</u>	<u>F</u>	<u>310</u>	<u>7.3</u>	<u>F</u>
<u>Madison Avenue at East 45th Street</u>	<u>Northeast</u>	<u>347</u>	<u>5.9</u>	<u>F</u>	<u>347</u>	<u>5.6</u>	<u>F</u>
	<u>Southeast</u>	<u>681</u>	<u>18.2</u>	<u>D</u>	<u>987</u>	<u>29.3</u>	<u>C</u>

 Denotes significantly impacted pedestrian element

With Bollards Scenario

Although not part of the Proposed Action, it is possible that curbside bollards could be implemented along the Project Site's three street frontages for security purposes. The design of the bollards has yet to be determined but it is expected that they would be approximately one foot in diameter and would be spaced approximately five feet apart. A pedestrian analysis was conducted and determined that, while some of the sidewalks and corners where the bollards would potentially be implemented would result in a slight reduction in pedestrian space, pedestrian impacts would not be anticipated adjacent to the project site. Installation of the bollards would require revocable consent by NYC DOT. Pedestrian levels of service at the affected pedestrian elements are shown in **Table 9-53** and **Table 9-54**.

Table 9-53 2026 With-Action with Bollards Pedestrian Levels of Service – Sidewalks

<u>Sidewalk</u>	<u>No-Action</u>				<u>With-Action</u>		
	<u>Effective Width, ft</u>	<u>Volume, ped/hr</u>	<u>Avg Ped Space, SF/P</u>	<u>Platoon LOS</u>	<u>Volume, ped/hr</u>	<u>Avg Ped Space, SF/P</u>	<u>Platoon LOS</u>
<u>AM Peak Hour</u>							
<u>Madison Avenue between East 44th Street and East 45th Street (east side)</u>	<u>15.0</u>	<u>1,929</u>	<u>84.8</u>	<u>C</u>	<u>2,533</u>	<u>64.4</u>	<u>C</u>
<u>East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)</u>	<u>6.8</u>	<u>1,130</u>	<u>93.5</u>	<u>B</u>	<u>1,147</u>	<u>67.0</u>	<u>C</u>
<u>East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)</u>	<u>7.0</u>	<u>2,607</u>	<u>24.8</u>	<u>D</u>	<u>2,943</u>	<u>27.0</u>	<u>D</u>
<u>Midday Peak Hour</u>							
<u>Madison Avenue between East 44th Street and East 45th Street (east side)</u>	<u>15.0</u>	<u>2,533</u>	<u>69.7</u>	<u>C</u>	<u>2,938</u>	<u>59.9</u>	<u>C</u>
<u>East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)</u>	<u>6.8</u>	<u>1,261</u>	<u>90.2</u>	<u>B</u>	<u>1,400</u>	<u>59.0</u>	<u>C</u>
<u>East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)</u>	<u>7.0</u>	<u>2,521</u>	<u>20.9</u>	<u>E</u>	<u>2,556</u>	<u>25.6</u>	<u>D</u>
<u>PM Peak Hour</u>							
<u>Madison Avenue between East 44th Street and East 45th Street (east side)</u>	<u>15.0</u>	<u>2,975</u>	<u>59.1</u>	<u>C</u>	<u>3,543</u>	<u>49.5</u>	<u>C</u>
<u>East 44th Street between Madison Avenue and Vanderbilt Avenue (north side)</u>	<u>6.8</u>	<u>2,215</u>	<u>49.3</u>	<u>C</u>	<u>2,229</u>	<u>35.3</u>	<u>D</u>
<u>East 45th Street between Madison Avenue and Vanderbilt Avenue (south side)</u>	<u>7.0</u>	<u>3,468</u>	<u>18.1</u>	<u>E</u>	<u>3,769</u>	<u>20.7</u>	<u>E</u>

Table 9-54 2026 With-Action with Bollards Pedestrian Levels of Service – Corners

<u>Intersection</u>	<u>Corner</u>	<u>No-Action</u>			<u>With-Action</u>		
		<u>Volume, ped/hr</u>	<u>Avg Ped Space, SF/P</u>	<u>LOS</u>	<u>Volume, ped/hr</u>	<u>Avg Ped Space, SF/P</u>	<u>LOS</u>
<u>AM Peak Hour</u>							
<u>Madison Avenue at East 44th Street</u>	<u>Northeast</u>	<u>78</u>	<u>74.7</u>	<u>A</u>	<u>96</u>	<u>66.0</u>	<u>A</u>
<u>Madison Avenue at East 45th Street</u>	<u>Southeast</u>	<u>612</u>	<u>27.8</u>	<u>C</u>	<u>950</u>	<u>41.4</u>	<u>B</u>
<u>Midday Peak Hour</u>							
<u>Madison Avenue at East 44th Street</u>	<u>Northeast</u>	<u>226</u>	<u>68.2</u>	<u>A</u>	<u>370</u>	<u>57.3</u>	<u>B</u>
<u>Madison Avenue at East 45th Street</u>	<u>Southeast</u>	<u>357</u>	<u>17.2</u>	<u>D</u>	<u>400</u>	<u>27.9</u>	<u>C</u>
<u>PM Peak Hour</u>							
<u>Madison Avenue at East 44th Street</u>	<u>Northeast</u>	<u>217</u>	<u>52.6</u>	<u>B</u>	<u>233</u>	<u>46.7</u>	<u>B</u>
<u>Madison Avenue at East 45th Street</u>	<u>Southeast</u>	<u>681</u>	<u>18.2</u>	<u>D</u>	<u>987</u>	<u>28.8</u>	<u>C</u>